National Science Board

SCIENCE AND ENGINEERING INDICATORS 2012

APPENDIX TABLES

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NATIONAL SCIENCE FOUNDATION

SCIENCE AND ENGINEERING INDICATORS 2012

APPENDIX TABLES

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Appendix table 1-1

Average NAEP mathematics scores of students in grades 4, 8, and 12, by student and school characteristics: 1990–2009

Grade/student and school characteristic	1990	1992	1996	2000	2003	2005	2007	2009
All grade 4 students	213	220	224	226	235	238	240	240
Sex								
Male	214	221	224	227	236	239	241	241
Female	213	219	223	224	233	237	239	239
Race/ethnicity								
White, non-Hispanic	220	227	232	234	243	246	248	248
Black, non-Hispanic	188	193	198	203	216	220	222	222
Hispanic	200	202	207	208	222	226	227	227
Asian/Pacific Islander	225	231	229	S	246	251	253	255
American Indian/Alaska Native	S	S	217	208	223	226	228	225
Free/reduced-price lunch[a]								
Eligible	NA	NA	207	208	222	225	227	227
Not eligible	NA	NA	232	235	244	248	249	250
English language learner (ELL) status[b]								
ELL	NA	NA	201	199	214	216	217	218
Not ELL	NA	NA	225	227	237	240	242	242
Student disability status[b]								
Has a disability	NA	NA	204	198	214	219	220	221
Does not have a disability	NA	NA	225	228	237	240	242	242
Score at percentile[c]								
10th	171	177	182	184	197	200	202	202
25th	193	199	203	205	216	220	222	221
50th	214	221	225	227	236	239	242	241
75th	235	242	245	248	255	258	260	260
90th	253	259	262	265	270	273	275	275
School type								
Public	212	219	222	224	234	237	239	239
Charter school	NA	NA	NA	NA	228	232	234	231
Noncharter school	NA	NA	NA	NA	234	237	239	239
Private	224	228	235	238	244	S	246	246
All grade 8 students	263	268	270	273	278	279	281	283
Sex								
Male	263	268	271	274	278	280	282	284
Female	262	269	269	272	277	278	280	282
Race/ethnicity								
White, non-Hispanic	270	277	281	284	288	289	291	293
Black, non-Hispanic	237	237	240	244	252	255	260	261
Hispanic	246	249	251	253	259	262	265	266
Asian/Pacific Islander	275	290	S	288	291	295	297	301
American Indian/Alaska Native	S	S	S	259	263	264	264	266
Free/reduced-price lunch[a]								
Eligible	NA	NA	250	253	259	262	265	266
Not eligible	NA	NA	277	283	287	288	291	294
English language learner (ELL) status[b]								
ELL	NA	NA	226	234	242	244	246	243
Not ELL	NA	NA	272	274	279	281	283	285
Student disability status[b]								
Has a disability	NA	NA	231	230	242	245	246	249
Does not have a disability	NA	NA	273	276	282	283	285	287
Score at percentile[c]								
10th	215	221	221	223	230	231	235	236
25th	239	243	245	249	254	255	258	259
50th	264	269	273	275	279	280	283	284
75th	288	294	297	300	303	304	306	308
90th	307	315	316	320	323	324	327	329

Appendix table 1-1

Average NAEP mathematics scores of students in grades 4, 8, and 12, by student and school characteristics: 1990–2009

Grade/student and school characteristic	1990	1992	1996	2000	2003	2005	2007	2009
School type								
Public	262	267	269	272	276	278	280	282
Charter school	NA	NA	NA	NA	NA	268	273	275
Noncharter school	NA	NA	NA	NA	NA	278	280	282
Private	271	281	285	286	292	S	293	296
All grade 12 students	NA	NA	NA	NA	NA	150	NA	153
Sex								
Male	NA	NA	NA	NA	NA	151	NA	155
Female	NA	NA	NA	NA	NA	149	NA	152
Race/ethnicity								
White, non-Hispanic	NA	NA	NA	NA	NA	157	NA	161
Black, non-Hispanic	NA	NA	NA	NA	NA	127	NA	131
Hispanic	NA	NA	NA	NA	NA	133	NA	138
Asian/Pacific Islander	NA	NA	NA	NA	NA	163	NA	175
American Indian/Alaska Native	NA	NA	NA	NA	NA	134	NA	144
Free/reduced-price lunch[a]								
Eligible	NA	NA	NA	NA	NA	132	NA	137
Not eligible	NA	NA	NA	NA	NA	155	NA	160
English language learner (ELL) status[b]								
ELL	NA	NA	NA	NA	NA	120	NA	117
Not ELL	NA	NA	NA	NA	NA	151	NA	154
Student disability status[b]								
Has a disability	NA	NA	NA	NA	NA	114	NA	120
Does not have a disability	NA	NA	NA	NA	NA	153	NA	156
Score at percentile[c]								
10th	NA	NA	NA	NA	NA	105	NA	110
25th	NA	NA	NA	NA	NA	127	NA	130
50th	NA	NA	NA	NA	NA	151	NA	154
75th	NA	NA	NA	NA	NA	174	NA	177
90th	NA	NA	NA	NA	NA	194	NA	197
School type								
Public	NA	NA	NA	NA	NA	149	NA	152
Charter school	NA	NA	NA	NA	NA	NA	NA	138
Noncharter school	NA	NA	NA	NA	NA	NA	NA	154
Private[d]	NA	NA	NA	NA	NA	164	NA	NA

NA = not available; S = suppressed (unreliable estimate)

NAEP = National Assessment of Educational Progress

[a]Students' eligibility for free/reduced-price lunch is a measure of family poverty.
[b]From 1996 on, students with a disability and English language learners were allowed to use testing accommodations (e.g., extended time, one-on-one testing, bilingual dictionary). Variations in exclusion and accommodation rates due to differences in policies and practices for identifying and including students with disabilities and English language learners should be considered when comparing these students' performance over time. More information about inclusion and accommodation rates for these students is available at http://nces.ed.gov/nationsreportcard/about/inclusion.asp.
[c]Scores for percentile rows are not averages, but the actual scores that mark each percentile listed. For example, score for the 10th percentile indicates that 10% of students perform below this score.
[d]Results for private school students in grade 12 in 2009 cannot be reported separately due to low school participation rate.

NOTES: NAEP mathematics assessment scores range from 0 to 500 for grades 4 and 8 and from 0 to 300 for grade 12. From 1996 on, data shown here are for students allowed to use testing accommodations. Grade 12 mathematics trend data are presented for 2005 and 2009 only because the mathematics framework was revised in 2005, making prior assessment results not comparable with those in or after 2005. Mathematics assessment was not conducted in 2007 for grade 12.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2010) of NAEP 1990, 1992, 1996, 2000, 2003, 2005, 2007, and 2009 mathematics assessments, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-2

Students in grades 4, 8, and 12 scoring at or above NAEP's proficient level in mathematics for their grade, by student and school characteristics: 1990–2009

(Percent)

Grade/student and school characteristic	1990	1992	1996	2000	2003	2005	2007	2009
All grade 4 students	12.7	17.9	20.8	23.8	32.5	36.3	39.4	39.1
Sex								
Male	13.2	19.5	21.5	25.9	34.9	38.4	41.5	40.9
Female	12.2	16.2	20.0	21.6	29.9	34.2	37.3	37.2
Race/ethnicity								
White, non-Hispanic	15.9	22.4	27.0	31.3	42.9	47.2	50.9	50.7
Black, non-Hispanic	1.1	2.5	3.1	4.7	9.9	12.8	15.4	15.9
Hispanic	4.8	5.6	7.2	7.2	15.6	19.5	22.0	21.6
Asian/Pacific Islander	22.4	27.7	27.2	S	48.3	54.6	58.4	60.3
American Indian/Alaska Native	S	S	10.1	8.2	16.8	20.9	24.8	21.2
Free/reduced-price lunch[a]								
Eligible	NA	NA	7.5	7.6	15.2	19.1	21.5	21.7
Not eligible	NA	NA	27.5	32.0	44.7	49.4	52.8	53.9
English language learner (ELL) status[b]								
ELL	NA	NA	4.2	3.8	9.3	11.4	12.9	12.0
Not ELL	NA	NA	21.6	25.0	34.7	38.7	42.2	41.9
Student disability status[b]								
Has a disability	NA	NA	5.1	6.4	12.6	16.0	19.3	19.1
Does not have a disability	NA	NA	22.1	25.5	34.8	38.8	41.8	41.6
School type								
Public	11.8	17.3	19.4	22.5	31.2	35.3	38.6	38.4
Charter school	NA	NA	NA	NA	25.3	29.1	31.9	28.3
Noncharter school	NA	NA	NA	NA	31.0	35.0	39.0	39.0
Private	20.1	22.5	31.5	35.2	44.4	S	47.9	47.2
All grade 8 students	15.3	20.9	23.3	25.7	28.8	29.8	32.2	33.9
Sex								
Male	16.8	21.3	24.7	27.4	30.3	31.1	34.2	35.6
Female	13.7	20.6	21.8	23.9	27.1	28.4	30.2	32.1
Race/ethnicity								
White, non-Hispanic	18.2	26.0	30.2	33.8	37.5	38.6	41.8	43.6
Black, non-Hispanic	4.7	2.5	3.8	5.2	7.3	8.7	11.0	12.3
Hispanic	7.0	6.8	7.8	8.4	11.7	13.4	15.4	17.2
Asian/Pacific Islander	28.9	43.3	S	40.6	43.0	47.3	49.6	53.8
American Indian/Alaska Native	S	S	S	9.8	14.6	13.9	16.3	18.2
Free/reduced-price lunch[a]								
Eligible	NA	NA	8.5	9.4	12.1	13.4	15.4	16.7
Not eligible	NA	NA	28.3	33.7	37.2	38.8	42.1	44.8
English language learner (ELL) status[b]								
ELL	NA	NA	1.5	2.0	4.7	5.9	7.0	5.0
Not ELL	NA	NA	23.8	26.4	30.0	31.1	33.7	35.4
Student disability status[b]								
Has a disability	NA	NA	2.6	4.1	6.2	7.2	8.1	9.2
Does not have a disability	NA	NA	24.8	27.3	31.4	32.2	34.5	36.5
School type								
Public	15.1	19.7	22.1	24.7	27.3	28.5	31.0	32.6
Charter school	NA	NA	NA	NA	NA	20.8	25.3	26.2
Noncharter school	NA	NA	NA	NA	NA	29.0	31.0	33.0
Private	S	30.9	33.8	36.0	42.7	S	44.7	47.4
All grade 12 students	NA	NA	NA	NA	NA	23.0	NA	25.9
Sex								
Male	NA	NA	NA	NA	NA	25.1	NA	28.3
Female	NA	NA	NA	NA	NA	21.1	NA	23.5

Appendix table 1-2

Students in grades 4, 8, and 12 scoring at or above NAEP's proficient level in mathematics for their grade, by student and school characteristics: 1990–2009

(Percent)

Grade/student and school characteristic	1990	1992	1996	2000	2003	2005	2007	2009
Race/ethnicity								
White, non-Hispanic	NA	NA	NA	NA	NA	28.9	NA	32.7
Black, non-Hispanic	NA	NA	NA	NA	NA	5.6	NA	6.2
Hispanic	NA	NA	NA	NA	NA	8.1	NA	11.0
Asian/Pacific Islander	NA	NA	NA	NA	NA	36.0	NA	51.8
American Indian/Alaska Native	NA	NA	NA	NA	NA	6.1	NA	11.6
Free/reduced-price lunch[a]								
Eligible	NA	NA	NA	NA	NA	7.7	NA	10.2
Not eligible	NA	NA	NA	NA	NA	26.7	NA	31.9
English language learner (ELL) status[b]								
ELL	NA	NA	NA	NA	NA	3.1	NA	4.0
Not ELL	NA	NA	NA	NA	NA	23.8	NA	26.6
Student disability status[b]								
Has a disability	NA	NA	NA	NA	NA	4.5	NA	6.6
Does not have a disability	NA	NA	NA	NA	NA	24.4	NA	27.5
School type								
Public	NA	NA	NA	NA	NA	21.5	NA	24.8
Charter school	NA	NA	NA	NA	NA	NA	NA	11.7
Noncharter school	NA	NA	NA	NA	NA	NA	NA	26.2
Private[c]	NA	NA	NA	NA	NA	36.7	NA	NA

S = suppressed (unreliable estimate); NA = not available

NAEP = National Assessment of Educational Progress

[a]Students' eligibility for free/reduced-price lunch is a measure of family poverty.
[b]From 1996 on, students with a disability and English language learners were allowed to use testing accommodations (e.g., extended time, one-on-one testing, bilingual dictionary). Variations in exclusion and accommodation rates due to differences in policies and practices for identifying and including students with disabilities and English language learners should be considered when comparing these students' performance over time. More information about inclusion and accommodation rates for these students is available at http://nces.ed.gov/nationsreportcard/about/inclusion.asp.
[c]Results for private school students in grade 12 in 2009 cannot be reported separately due to low school participation rate.

NOTES: From 1996 on, data shown here are for students allowed to use testing accommodations. Grade 12 mathematics trend data are presented for 2005 and 2009 only because the mathematics framework was revised in 2005, making prior assessment results not comparable with those in or after 2005. Mathematics assessment was not conducted in 2007 for grade 12.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2010) of NAEP 1990, 1992, 1996, 2000, 2003, 2005, 2007, and 2009 mathematics assessments, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-3

Average NAEP science scores of students in grades 4, 8, and 12, by student and school characteristics: 2009

Student and school characteristic	Grade 4	Grade 8	Grade 12
All students	150	150	150
Sex			
Male	151	152	153
Female	149	148	147
Race/ethnicity			
White, non-Hispanic	163	162	159
Black, non-Hispanic	127	126	125
Hispanic	131	132	134
Asian/Pacific Islander	160	160	164
American Indian/Alaska Native	135	137	144
Free/reduced-price lunch			
Eligible	134	133	132
Not eligible	163	161	157
English language learner (ELL) status			
ELL	114	103	104
Not ELL	154	153	151
Student disability status			
Has a disability	129	123	121
Does not have a disability	153	153	153
School type			
Public	149	149	149
Private[a]	163	164	NA

NA = not available

NAEP = National Assessment of Educational Progress

[a]Results for private school students in grade 12 in 2009 cannot be reported separately due to low school participation rate.

NOTE: NAEP science assessment scores range from 0 to 300 for each grade.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of NAEP 2009 science assessment, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-4

Students in grades 4, 8, and 12 scoring at or above NAEP's proficient level in science, by student and school characteristics: 2009

(Percent)

Student and school characteristic	Grade 4	Grade 8	Grade 12
All students	33.7	30.3	20.9
Sex			
Male	35.0	33.6	24.2
Female	32.5	26.9	17.6
Race/ethnicity			
White, non-Hispanic	47.1	41.6	27.0
Black, non-Hispanic	10.6	8.3	4.4
Hispanic	13.8	12.3	8.3
Asian/Pacific Islander	44.6	40.6	36.2
American Indian/Alaska Native	17.4	17.1	13.1
Free/reduced-price lunch			
Eligible	16.1	13.8	8.2
Not eligible	48.0	40.7	25.9
English language learner (ELL) status			
ELL	5.1	2.4	1.2
Not ELL	36.6	31.8	21.5
Student disability status			
Has a disability	16.5	11.2	5.6
Does not have a disability	35.9	32.6	22.3
School type			
Public	32.4	29.0	20.1
Private[a]	48.2	43.5	NA

NA = not available

NAEP = National Assessment of Educational Progress

[a]Results for private school students in grade 12 in 2009 cannot be reported separately due to low school participation rate.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of NAEP 2009 science assessment, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-5

Ninth-graders proficient in various algebra skill areas, by selected student and school characteristics: 2009

(Percent)

Student and school characteristic	Proficiency level[a]				
	1—Algebraic expressions	2—Multiplicative and proportional thinking	3—Algebraic equivalent	4—Systems of equations	5—Linear functions
All ninth-graders	85.7	59.1	41.3	18.3	9.2
Sex					
Male	84.5	58.9	41.6	18.7	9.4
Female	86.8	59.4	41.0	17.9	8.9
Race/ethnicity					
White, non-Hispanic	89.7	65.7	47.5	21.3	10.2
Black, non-Hispanic	74.4	41.3	25.5	10.4	6.3
Hispanic	82.4	52.1	33.7	13.6	7.2
Asian	94.8	81.0	67.5	39.9	19.5
All other races[b]	83.9	56.4	38.4	16.1	8.4
Parents' highest education					
Less than high school	80.1	46.5	26.8	9.6	6.0
High school diploma or GED	82.7	52.8	34.8	14.3	7.5
Associate's degree	87.7	59.0	39.7	16.3	8.2
Bachelor's degree	93.0	74.1	56.9	27.1	12.2
Master's degree or higher	95.8	80.6	65.7	34.9	16.4
School type					
Public	85.0	57.9	40.1	17.6	8.9
Private	94.6	75.1	57.2	26.6	11.8

GED = General Educational Development

[a]Skill areas are arranged in a hierarchy such that proficiency in a given area assumes proficiency in all lower areas.
[b]All other races includes American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and two or more races.

SOURCE: Ingels SJ, Dalton B, Holder TE, Lauff E, Burns, LJ, *High School Longitudinal Study of 2009 (HSLS:09): A First Look at Fall 2009 Ninth-Graders*, Washington, DC: National Center for Education Statistics, NCES 2011-327 (2011).

Science and Engineering Indicators 2012

Appendix table 1-6

Average PISA mathematics and science literacy scores of 15-year-old students, by country: 2009

Country	Average mathematics literacy score
United States	487
Scores higher than U.S.	
Shanghai-China	600
Singapore	562
Hong Kong SAR[a]	555
Republic of Korea	546
Chinese Taipei	543
Finland	541
Liechtenstein	536
Switzerland	534
Japan	529
Canada	527
Netherlands	526
Macao-China	525
New Zealand	519
Belgium	515
Australia	514
Germany	513
Estonia	512
Iceland	507
Denmark	503
Slovenia	501
Norway	498
France	497
Slovak Republic	497
Score not statistically different from U.S.	
Austria	496
Poland	495
Sweden	494
Czech Republic	493
United Kingdom	492
Hungary	490
Luxembourg	489
Ireland	487
Portugal	487
Italy	483
Spain	483
Latvia	482
Score lower than U.S.	
Lithuania	477
Russian Federation	468
Greece	466
Croatia	460
Dubai-UAE[b]	453
Israel	447
Turkey	445
Serbia, Republic of	442
Azerbaijan	431
Bulgaria	428
Romania	427
Uruguay	427
Chile	421
Mexico	419
Thailand	419

Country	Average science literacy score
United States	502
Scores higher than U.S.	
Shanghai-China	575
Finland	554
Hong Kong SAR[a]	549
Singapore	542
Japan	539
Republic of Korea	538
New Zealand	532
Canada	529
Estonia	528
Australia	527
Netherlands	522
Chinese Taipei	520
Germany	520
Liechtenstein	520
Switzerland	517
United Kingdom	514
Slovenia	512
Macao-China	511
Score not statistically different from U.S.	
Poland	508
Ireland	508
Belgium	507
Hungary	503
Czech Republic	500
Norway	500
Denmark	499
France	498
Iceland	496
Sweden	495
Austria	494
Latvia	494
Portugal	493
Score lower than U.S.	
Lithuania	491
Slovak Republic	490
Italy	489
Spain	488
Croatia	486
Luxembourg	484
Russian Federation	478
Greece	470
Dubai-UAE[b]	466
Israel	455
Turkey	454
Chile	447
Serbia, Republic of	443
Bulgaria	439
Romania	428
Uruguay	427
Thailand	425
Mexico	416
Jordan	415

Appendix table 1-6

Average PISA mathematics and science literacy scores of 15-year-old students, by country: 2009

Country	Average mathematics literacy score	Country	Average science literacy score
Trinidad and Tobago	414	Trinidad and Tobago	410
Kazakhstan	405	Brazil	405
Montenegro, Republic of	403	Colombia	402
Argentina	388	Montenegro, Republic of	401
Jordan	387	Argentina	401
Brazil	386	Tunisia	401
Colombia	381	Kazakhstan	400
Albania	377	Albania	391
Indonesia	371	Indonesia	383
Tunisia	371	Qatar	379
Qatar	368	Panama	376
Peru	365	Azerbaijan	373
Panama	360	Peru	369
Kyrgyz Republic	331	Kyrgyz Republic	330

PISA = Program for International Student Assessment; OECD = Organisation for Economic Co-operation and Development

[a]Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.
[b]UAE refers to the United Arab Emirates.

NOTES: PISA mathematics and science literacy scores range from 0 to 1,000. Countries ordered by average score. Countries in shaded rows are OECD countries.

SOURCE: Fleischman HL, Hopstock PJ, Pelczar MP, Shelley BE, *Highlights From PISA 2009: Performance of U.S. 15-Year-Old Students in Reading, Mathematics, and Science Literacy in an International Context*, National Center for Education Statistics (NCES), NCES 2011-004 (2010).

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Appendix table 1-7

Advanced mathematics and science credits earned by high school graduates, by student and school characteristics: Selected years, 1990–2009

Student and school characteristic	Advanced mathematics[a]	Advanced science[b]
1990 graduates	0.9	1.1
2000 graduates	1.4	1.5
2005 graduates	1.5	1.6
2009 graduates	1.7	1.9
Sex		
Male	1.7	1.8
Female	1.7	1.9
Race/ethnicity[c]		
White	1.8	2.0
Black	1.4	1.6
Hispanic	1.3	1.5
Asian/Pacific Islander	2.4	2.8
Community type		
Urban	1.7	1.9
Suburban	1.9	2.1
Rural	1.5	1.6
School size (enrollment)		
Small (1–499)	1.5	1.7
Medium (500–1,999)	1.8	1.9
Large (≥2,000)	1.7	2.0
School poverty rate[d]		
Very low	2.0	2.3
Low	2.0	2.2
Medium	1.5	1.7
High	1.4	1.6

AP = Advanced Placement; IB = International Baccalaureate

[a]"Advanced mathematics" courses include algebra II, trigonometry, statistics/probability, pre-calculus/analysis, calculus, and any AP/IB mathematics courses.
[b]"Advanced science" courses include advanced biology, chemistry, physics, advanced environmental/earth science, engineering, and any AP/IB science courses.
[c]American Indian/Alaska Native students are included in the total but not shown separately due to small sample sizes.
[d]Students eligible for national free/reduced-priced lunch program: very low = ≤5%, low = 6%–25%, medium = 26%–50%, and high ≥ 51%.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics.

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Appendix table 1-8

High school graduates completing advanced mathematics courses, by student and school characteristics and subject: Selected years, 1990–2009

(Percent)

Student and school characteristic	Algebra II	Trigonometry and statistics/ probability	Pre-calculus/ analysis	Calculus	AP/IB mathematics[a]
1990 graduates	53.0	16.2	13.7	7.2	4.4
2000 graduates	67.4	20.2	26.6	12.5	9.5
2005 graduates	70.3	24.4	29.5	14.4	12.3
2009 graduates	75.6	29.9	35.3	16.8	15.2
Sex					
Male	73.5	29.4	33.9	17.0	15.1
Female	77.7	30.3	36.7	16.7	15.2
Race/ethnicity[b]					
White	77.2	32.3	38.0	18.6	16.0
Black	70.7	26.0	22.7	6.6	6.5
Hispanic	71.2	20.1	26.5	9.2	9.4
Asian/Pacific Islander	82.8	38.6	60.5	43.6	42.1
Community type					
Urban	74.6	29.0	36.7	16.2	17.6
Suburban	78.6	34.2	39.0	20.4	17.6
Rural	74.4	25.7	30.1	14.3	10.6
School size (enrollment)					
Small (1–499)	72.8	27.6	26.2	14.6	5.5
Medium (500–1,999)	76.3	31.8	36.4	17.7	15.5
Large (≥2,000)	78.7	28.1	38.3	16.7	19.5
School poverty rate[c]					
Very low	81.8	34.6	48.5	28.7	22.9
Low	79.0	36.7	41.3	21.8	20.8
Medium	74.7	26.7	29.8	12.7	12.3
High	69.5	24.3	25.4	9.6	9.7

AP = Advanced Placement; IB = International Baccalaureate

[a]AP/IB courses are reported separately in this column but also included in other columns. For example, calculus includes any calculus course, including AP calculus.
[b]American Indian/Alaska Native students are included in the total but not shown separately due to small sample sizes.
[c]School poverty rate is defined by the percentage of students eligible for national free/reduced-priced lunch program: very low = ≤5%, low = 6%–25%, medium = 26%–50%, and high ≥ 51%.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics.

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Appendix table 1-9

High school graduates completing advanced science and engineering courses, by student and school characteristics and subject: Selected years, 1990–2009

(Percent)

Student and school characteristic	Advanced biology[a]	Chemistry	Physics	Advanced environmental/ earth science[b]	Engineering	AP/IB science[c]
1990 graduates	27.5	45.0	23.9	4.6	0.1	NA
2000 graduates	39.5	56.6	34.5	4.6	1.3	9.1
2005 graduates	40.4	55.8	35.5	6.4	1.5	10.8
2009 graduates	44.7	69.6	38.7	10.7	3.3	14.3
Sex						
Male	39.4	66.7	41.5	10.8	5.6	13.4
Female	49.9	72.4	35.9	10.7	1.1	15.2
Race/ethnicity[d]						
White	47.6	70.2	40.6	11.6	3.6	15.1
Black	38.5	65.2	28.6	10.3	3.4	6.4
Hispanic	34.6	65.7	30.9	8.4	1.9	8.9
Asian/Pacific Islander	54.7	84.7	62.8	9.1	4.5	38.3
Community type						
Urban	43.7	74.8	41.6	11.2	3.7	16.8
Suburban	46.0	74.2	46.2	9.4	3.9	17.5
Rural	42.9	59.5	28.8	14.3	2.0	8.8
School Size (enrollment)						
Small (1–499)	43.4	65.6	33.8	7.8	1.8	5.4
Medium (500–1,999)	45.8	68.8	38.7	10.5	3.9	15.5
Large (≥2,000)	42.5	74.6	43.1	12.9	2.9	16.0
School poverty rate[e]						
Very low	48.3	77.4	52.7	10.3	4.4	24.9
Low	46.3	72.9	48.4	13.5	4.6	18.1
Medium	43.8	64.6	29.7	9.5	2.9	11.0
High	38.9	66.0	30.7	8.9	2.1	8.9

NA = Not available

AP = Advanced Placement; IB = International Baccalaureate

[a]"Advanced biology" includes AP/IB biology, physiology, anatomy, and genetics.
[b]"Advanced environmental and earth sciences" includes AP/IB environmental sciences, college preparatory earth science, and various geology courses.
[c]AP/IB courses are reported separately in this column but also included in other columns. For example, "Physics" includes any physics course, including AP physics, and "Chemistry" includes any chemistry, including AP chemistry. AP/IB science courses were not coded separately in the 1990 High School Transcript Study and therefore cannot be reported for that year.
[d]American Indian/Alaska Native students are included in the total but not shown separately due to small sample sizes.
[e]School poverty rate is defined by the percentage of students eligible for national free/reduced-priced lunch program: very low = ≤5%, low = 6%–25%, medium = 26%–50%, and high ≥ 51%.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics.

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Appendix table 1-10

Public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic year 2007–08

(Number)

School characteristic	All teachers	Mathematics teachers	Science teachers
All public schools	3,391,000	280,000	211,000
Middle schools	622,000	99,000	65,000
Minority enrollment (%)			
0–5	55,000	8,000	7,000
>5–45	277,000	41,000	30,000
>45	291,000	50,000	28,000
School poverty level (%)[a]			
0–10	75,000	11,000	9,000
>10–50	314,000	48,000	32,000
>50	229,000	40,000	23,000
High schools	994,000	137,000	118,000
Minority enrollment (%)			
0–5	133,000	17,000	15,000
>5–45	456,000	61,000	56,000
>45	405,000	59,000	47,000
School poverty level (%)[a]			
0–10	169,000	23,000	21,000
>10–50	578,000	81,000	69,000
>50	220,000	30,000	26,000

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.

NOTE: Data for minority enrollment and school poverty level may not add to total due to missing data.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-11

Highest degree attainment of public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent distribution)

	Academic year 2003–04					Academic year 2007–08				
			Master's or higher degree					Master's or higher degree		
Teaching field/school characteristic	Less than bachelor's degree	Bachelor's degree	Total	Master's degree	Higher than master's degree[a]	Less than bachelor's degree	Bachelor's degree	Total	Master's degree	Higher than master's degree[a]
Mathematics	0.3	51.6	48.0	41.8	6.2	0.2	46.3	53.5	46.6	6.9
Minority enrollment (%)										
0–5	0.2	51.5	48.3	44.8	3.5	0.1	43.4	56.6	53.3	3.2
>5–45	0.4	49.0	50.6	44.5	6.1	0.2	45.6	54.2	48.0	6.3
>45	0.3	54.5	45.2	37.8	7.4	0.1	47.7	52.1	43.7	8.5
School poverty level (%)[b]										
0–10	0.2	41.6	58.3	53.4	4.9	0.0	41.3	58.8	53.1	5.7
>10–50	0.2	51.9	47.9	41.5	6.4	0.2	47.6	52.2	47.1	5.1
>50	0.8	59.0	40.2	33.6	6.6	0.2	46.3	53.5	42.5	11.0
Science	0.1	47.9	52.0	44.6	7.4	0.4	42.0	57.6	49.9	7.6
Minority enrollment (%)										
0–5	0.4	41.9	57.7	54.0	3.7	0.5	40.3	59.2	53.2	6.0
>5–45	0.1	45.5	54.4	47.5	6.9	0.3	39.3	60.3	54.7	5.6
>45	0.1	53.2	46.7	37.3	9.5	0.5	45.6	53.9	43.5	10.4
School poverty level (%)[b]										
0–10	0.0	33.4	66.6	58.5	8.1	0.6	30.8	68.6	61.4	7.2
>10–50	0.2	48.4	51.3	44.0	7.4	0.3	41.7	58.0	50.5	7.5
>50	0.0	57.4	42.6	35.4	7.2	0.7	50.6	48.8	40.6	8.2
Other[c]	2.3	48.4	49.3	41.2	8.0	1.7	45.5	52.9	45.0	7.9
Minority enrollment (%)										
0–5	1.9	46.9	51.2	45.0	6.2	2.4	42.8	54.9	48.7	6.2
>5–45	1.9	46.2	51.9	44.0	7.9	1.6	42.1	56.3	48.9	7.4
>45	3.0	51.8	45.2	36.3	9.0	1.5	49.8	48.7	39.9	8.8
School poverty level (%)[b]										
0–10	1.1	40.1	58.8	50.5	8.3	0.8	37.5	61.7	52.8	8.9
>10–50	1.8	49.3	48.8	41.5	7.4	1.6	44.7	53.7	46.3	7.4
>50	2.7	52.9	44.4	34.7	9.7	1.5	51.7	46.8	38.8	8.0

[a]Includes education specialist, certificate of advanced graduate studies, doctorate, or professional degree.
[b]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[c]Other teachers include those who teach any subject other than mathematics or science.

NOTE: Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-12

Certification of public middle and high school mathematics and science teachers, by minority enrollment, school poverty level, and type of certification: Academic years 2003–04 and 2007–08

(Percent distribution)

Teaching field/school characteristic	Academic year 2003–04						Academic year 2007–08				
	Regular/ advanced	Probationary	Provisionary/ alternative	Temporary	Emergency	None	Regular/ advanced	Probationary	Temporary	Emergency	None
Mathematics	85.1	3.8	6.7	2.4	0.6	1.3	87.0	4.9	4.4	2.9	1.0
Minority enrollment (%)											
0–5	87.3	2.8	6.5	0.9	0.8	1.6	92.3	3.0	2.7	1.7	0.2
>5–45	88.3	3.2	5.1	2.2	0.2	1.1	88.8	5.2	4.0	1.6	0.5
>45	80.9	5.0	8.6	3.1	1.0	1.4	83.9	5.0	5.2	4.3	1.6
School poverty level (%)[a]											
0–10	85.4	5.7	5.7	2.1	0.2	0.9	86.7	4.2	7.0	1.3	0.9
>10–50	87.1	3.1	5.4	2.6	0.7	1.1	88.4	4.6	4.1	2.3	0.6
>50	80.9	4.0	10.9	2.1	0.7	1.4	84.3	5.6	3.8	4.8	1.6
Science	82.8	5.1	6.2	3.6	1.0	1.3	87.3	3.5	4.8	3.3	1.1
Minority enrollment (%)											
0–5	85.6	5.0	6.1	1.9	0.3	1.1	92.5	2.8	3.4	0.4	0.9
>5–45	85.5	4.1	4.6	4.5	0.5	0.8	89.9	3.1	4.3	2.2	0.5
>45	78.5	6.3	8.3	3.2	1.8	1.9	82.8	4.2	5.7	5.3	1.9
School poverty level (%)[a]											
0–10	86.6	5.6	5.4	1.2	0.8	0.5	89.1	3.0	5.6	2.0	0.3
>10–50	82.9	5.5	4.9	4.7	0.8	1.3	89.7	2.9	3.9	2.9	0.7
>50	79.9	3.6	10.1	3.0	1.6	1.7	81.1	5.0	6.2	5.1	2.6
Other[b]	86.6	3.6	4.8	2.5	0.8	1.7	88.1	4.0	4.2	2.4	1.4
Minority enrollment (%)											
0–5	88.1	3.5	4.7	2.0	0.4	1.3	89.8	4.0	3.2	2.4	0.6
>5–45	88.3	4.0	3.9	2.0	0.6	1.2	89.5	3.7	3.6	2.1	1.1
>45	83.9	3.0	5.9	3.4	1.3	2.5	86.0	4.2	5.2	2.8	1.9
School poverty level (%)[a]											
0–10	88.0	4.7	4.6	1.5	0.5	0.8	89.5	4.4	3.4	1.7	1.1
>10–50	87.8	3.3	4.1	2.2	0.7	1.9	88.7	4.1	4.0	2.2	1.0
>50	83.2	3.4	6.5	3.9	1.2	1.8	86.2	3.5	5.1	3.0	2.2

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTES: In academic year 2007–08, there was no "provisionary or alternative certification" category. Percentages may not add to 100 because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-13

Public middle and high school mathematics and science teachers who entered teaching through an alternative certification program, by minority enrollment and school poverty level: Academic year 2007–08

(Percent)

School characteristic	Mathematics teachers	Science teachers	Other teachers[a]
All schools	19.0	21.6	16.3
Minority enrollment (%)			
0–5	6.7	13.5	9.4
>5–45	12.1	18.6	12.6
>45	28.3	27.4	22.1
School poverty level (%)[b]			
0–10	12.1	16.0	12.8
>10–50	16.7	19.5	14.7
>50	26.4	29.5	20.9

[a]Other teachers include those who teach any subject other than mathematics or science.
[b]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-14

Participation in practice teaching by new public middle and high school mathematics and science teachers, by preparation for first-year teaching activities: Academic year 2007–08

(Percent)

Teaching activities	Mathematics teachers		Science teachers	
	Did not participate in practice teaching	Participated in practice teaching	Did not participate in practice teaching	Participated in practice teaching
Teach subject matter	75.4	91.9	83.1	91.4
Use computers	58.4	60.9	58.9	80.9
Assess students	56.5	74.1	49.5	73.4
Use variety of instructional methods	44.1	66.9	44.5	78.8
Select/adapt curriculum	43.3	64.0	43.1	68.4
Handle classroom management/discipline	31.0	52.5	35.3	60.0

NOTES: New teachers refer to teachers with fewer than 5 years of teaching experience. The Schools and Staffing Survey asked these teachers about how well they were prepared to perform various tasks during their first year of teaching. Response categories included "very well prepared," "well prepared," "somewhat prepared," and "not at all prepared." Percentages based on teachers who responded "very well prepared" or "well prepared."

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-15

Duration of practice teaching by new public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent distribution)

	Academic year 2003–04					Academic year 2007–08				
Teaching field/school characteristic	None	4 weeks or less	5 to 7 weeks	8 to 11 weeks	12 weeks or more	None	4 weeks or less	5 to 7 weeks	8 to 11 weeks	12 weeks or more
Mathematics	21.4	3.2	4.6	13.5	57.4	25.2	3.0	7.8	11.4	52.5
Minority enrollment (%)										
0–5	7.3	0.2	0.2	16.7	75.5	8.6	2.1	3.1	7.0	79.2
>5–45	17.3	1.4	4.5	11.7	65.0	27.3	1.2	2.5	15.2	53.8
>45	28.7	5.4	5.7	14.2	46.0	26.5	4.5	12.5	9.4	47.0
School poverty level (%)[a]										
0–10	14.2	0.3	6.8	17.6	61.1	35.5	1.4	5.0	9.3	48.8
>10–50	18.0	2.4	3.3	12.9	63.5	29.3	2.8	2.0	11.4	54.5
>50	30.7	6.3	5.6	12.0	45.5	15.6	3.9	17.9	11.9	50.7
Science	25.0	2.4	3.9	13.6	55.1	28.3	3.5	3.3	12.4	52.5
Minority enrollment (%)										
0–5	8.9	1.2	3.1	16.9	69.9	10.4	1.0	6.8	34.7	47.0
>5–45	23.8	1.5	3.7	17.3	53.6	28.8	1.7	1.8	14.5	53.3
>45	31.8	3.8	4.4	8.5	51.5	32.2	5.9	4.2	4.7	53.0
School poverty level (%)[a]										
0–10	14.8	1.1	5.2	23.3	55.5	23.6	0.8	1.1	16.0	58.5
>10–50	24.4	1.8	3.2	14.5	56.1	28.1	2.0	2.0	12.4	55.5
>50	34.1	4.6	5.0	6.7	49.6	30.6	6.8	6.4	11.3	45.0
Other[b]	18.8	3.5	3.8	13.8	60.1	23.1	2.2	4.5	13.5	56.8
Minority enrollment (%)										
0–5	10.4	0.9	1.1	16.3	71.3	15.7	2.2	3.4	14.5	64.2
>5–45	16.8	2.3	2.7	14.3	63.8	18.9	2.0	3.5	14.8	60.7
>45	23.2	5.4	5.6	12.6	53.2	28.3	2.3	5.5	12.2	51.8
School poverty level (%)[a]										
0–10	11.2	1.7	1.6	15.7	69.7	16.8	2.8	5.3	13.5	61.6
>10–50	17.2	3.2	3.5	14.5	61.6	22.7	2.5	3.2	15.7	56.0
>50	24.3	4.9	5.7	11.8	53.4	25.6	1.5	6.3	10.6	55.9

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTES: New teachers refer to teachers with fewer than 5 years of teaching experience. Percentages may not add to 100 because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-16

Pathway to teaching for public middle and high school mathematics and science teachers, by participation in practice teaching: Academic year 2007–08

(Percent)

	Entered through alternative pathway			Entered through traditional pathway		
Participated in practice teaching	Mathematics teachers	Science teachers	Other teachers[a]	Mathematics teachers	Science teachers	Other teachers[a]
All teachers	100.0	100.0	100.0	100.0	100.0	100.0
No practice teaching	57.2	48.9	51.3	6.4	7.7	6.0
Any practice teaching	42.8	51.1	48.7	93.6	92.3	94.0

[a]Other teachers include those who teach any subject other than mathematics or science.

NOTES: The Schools and Staffing Survey asked teachers whether they entered the teaching profession through an alternative certification program designed to expedite the transition of non-teachers to a teaching career, for example, a state, district, or university alternative certification program. Teachers who responded "yes" comprise those in the "entered through alternative pathway" category and those who said "no" comprise the "entered through traditional pathway" teachers. The traditional pathway usually begins in an undergraduate education program, where future teachers earn a bachelor's or master's degree and full teaching certification prior to beginning to teach.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-17

Preparedness for first-year teaching tasks of new public middle and high school mathematics and science teachers, by minority enrollment, school poverty level, and teaching tasks: Academic years 2003–04 and 2007–08

(Percent)

Teaching field/school characteristic	Academic year 2003–04						Academic year 2007–08					
	Handle classroom management/ discipline	Use variety of instructional methods	Teach subject matter	Use computers	Assess students	Select/adapt curriculum	Handle classroom management/ discipline	Use variety of instructional methods	Teach subject matter	Use computers	Assess students	Select/adapt curriculum
Mathematics	51.3	63.5	90.8	57.1	73.0	61.3	47.1	61.1	87.8	60.2	69.7	58.8
Minority enrollment (%)												
0–5	58.2	86.8	94.4	63.9	83.6	67.0	58.9	62.7	98.9	70.9	77.2	57.6
>5–45	54.9	68.9	93.7	61.4	78.8	67.4	49.6	70.7	90.7	63.0	75.8	60.7
>45	46.3	52.5	87.6	51.7	65.2	54.6	43.2	53.8	83.7	56.4	63.9	57.5
School poverty level (%)[a]												
0–10	53.9	80.5	95.6	67.1	82.6	68.8	51.6	68.9	96.3	71.4	83.9	70.7
>10–50	51.7	67.1	91.0	56.4	73.2	63.4	47.8	64.6	85.7	57.8	70.1	56.0
>50	48.7	48.1	87.5	51.5	66.5	52.2	44.0	52.2	87.7	60.0	63.9	58.9
Science	43.7	58.0	79.0	62.4	59.3	56.5	53.0	69.1	89.0	74.7	66.6	61.2
Minority enrollment (%)												
0–5	53.1	71.2	91.7	71.4	66.5	58.0	57.1	81.2	95.1	66.8	78.7	54.2
>5–45	45.1	59.7	76.5	62.3	56.6	56.6	54.9	75.1	91.6	78.8	72.2	65.1
>45	39.0	51.8	77.3	59.4	59.8	55.9	50.1	59.9	84.8	72.2	57.9	58.9
School poverty level (%)[a]												
0–10	55.1	64.6	88.0	72.0	64.5	54.1	68.1	75.6	86.9	83.7	69.2	77.2
>10–50	43.3	60.3	78.3	59.8	57.6	57.2	52.1	68.7	89.1	74.7	67.9	60.7
>50	35.4	46.6	73.6	60.0	58.8	54.1	48.2	66.9	89.3	72.0	63.1	56.1
Other[b]	53.4	66.3	81.1	59.0	67.3	63.5	58.3	69.8	82.8	69.4	70.5	66.1
Minority enrollment (%)												
0–5	61.6	75.5	84.2	63.4	73.2	68.4	61.8	73.7	87.3	72.1	74.0	66.2
>5–45	56.2	70.5	82.1	62.7	70.8	68.4	61.7	73.7	83.1	71.6	73.4	69.0
>45	48.3	59.6	79.3	54.3	62.2	57.5	54.6	65.7	81.5	67.0	67.3	63.5
School poverty level (%)[a]												
0–10	62.2	73.2	84.2	59.9	74.0	72.9	64.6	75.2	84.0	79.4	75.2	73.2
>10–50	54.6	69.3	82.4	60.7	69.2	65.0	58.8	71.2	84.1	69.1	71.9	66.4
>50	45.9	56.9	76.7	54.9	59.9	55.7	54.0	65.1	79.8	65.8	65.9	62.2

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTES: New teachers refer to teachers with fewer than 5 years of teaching experience. The Schools and Staffing survey asked these teachers how well they were prepared to perform various tasks during their first year of teaching. Response categories included "very well prepared," "well prepared," "somewhat prepared," and "not at all prepared." Percentages based on teachers responding "very well prepared" or "well prepared."

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-18

Years of teaching experience of public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent distribution)

Teaching field/school characteristic	Academic year 2003–04				Academic year 2007–08			
	≤3 years	4–9 years	10–19 years	≥20 years	≤3 years	4–9 years	10–19 years	≥20 years
Mathematics	18.8	26.1	26.5	28.6	18.9	29.0	27.9	24.2
Minority enrollment (%)								
0–5	16.5	21.1	29.5	32.8	13.0	27.9	32.5	26.6
>5–45	16.1	26.9	28.0	29.0	16.7	28.8	27.8	26.6
>45	22.7	27.1	23.7	26.5	22.4	29.3	26.9	21.4
School poverty level (%)[a]								
0–10	17.6	25.7	26.1	30.7	20.4	24.3	29.8	25.5
>10–50	16.6	24.5	27.8	31.1	17.0	28.9	28.6	25.6
>50	24.9	29.9	24.1	21.1	22.2	31.5	25.4	21.0
Science	17.2	26.7	27.2	28.8	18.2	26.7	30.0	25.0
Minority enrollment (%)								
0–5	15.7	23.6	21.8	38.8	17.6	25.0	28.2	29.2
>5–45	17.1	25.5	29.4	27.9	16.0	25.8	32.2	26.1
>45	17.9	29.6	27.0	25.5	21.0	28.4	28.0	22.7
School poverty level (%)[a]								
0–10	15.3	29.2	22.6	32.8	15.2	24.0	34.9	26.0
>10–50	17.5	26.1	27.6	28.8	16.1	27.3	29.8	26.8
>50	17.3	26.0	29.2	27.4	24.8	27.5	27.3	20.3
Other[b]	15.4	26.4	25.9	32.4	16.8	28.6	26.9	27.7
Minority enrollment (%)								
0–5	12.3	23.0	26.5	38.1	14.4	25.1	27.4	33.2
>5–45	14.0	26.2	27.3	32.4	15.0	28.4	28.2	28.4
>45	18.3	28.2	23.8	29.7	19.2	29.9	25.4	25.5
School poverty level (%)[a]								
0–10	12.5	25.7	25.7	36.1	14.2	30.7	26.8	28.3
>10–50	14.8	25.5	27.1	32.7	15.9	27.9	28.0	28.3
>50	18.3	29.3	23.0	29.4	19.8	28.9	25.0	26.3

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTE: Percentages may not add to 100 because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-19

Preparation of public middle and high school mathematics and science teachers for teaching in their field, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent distribution)

Teaching field/school characteristic	Academic year 2003–04				Academic year 2007–08			
	In field	Related field	General education	None of these	In field	Related field	General education	None of these
Middle school								
Mathematics	53.5	3.9	37.5	5.1	64.3	1.6	30.6	3.4
Minority enrollment (%)								
0–5	72.9	0.2	25.2	1.7	66.5	0.0	32.6	1.0
>5–45	49.6	0.8	44.2	5.5	67.9	0.4	29.1	2.6
>45	51.5	8.6	34.2	5.7	60.9	2.9	31.6	4.6
School poverty level (%)[a]								
0–10	58.2	0.4	38.4	3.0	75.7	3.5	20.8	0.0
>10–50	56.4	1.3	38.4	3.8	61.0	0.4	35.4	3.2
>50	47.4	9.3	35.5	7.8	64.9	2.6	27.8	4.7
Science	67.0	na	29.2	3.8	69.7	na	27.0	3.3
Minority enrollment (%)								
0–5	64.3	na	33.8	1.9	70.8	na	28.9	0.2
>5–45	65.4	na	30.9	3.8	70.8	na	27.4	1.8
>45	70.1	na	25.4	4.5	68.1	na	26.2	5.7
School poverty level (%)[a]								
0–10	65.9	na	34.0	0.1	63.0	na	33.9	3.1
>10–50	65.4	na	30.1	4.4	70.1	na	28.4	1.5
>50	70.6	na	25.5	4.0	70.2	na	23.7	6.2
High school								
Mathematics	87.4	2.0	3.1	7.5	88.0	1.2	3.4	7.4
Minority enrollment (%)								
0–5	91.3	0.7	4.9	3.2	94.6	0.3	3.2	1.9
>5–45	90.2	0.9	2.5	6.4	90.7	0.4	3.5	5.4
>45	82.8	3.8	3.0	10.4	83.2	2.4	3.3	11.1
School poverty level (%)[a]								
0–10	92.2	0.4	3.0	4.4	93.8	0.1	2.7	3.5
>10–50	87.5	2.6	3.1	6.8	89.1	1.1	3.2	6.6
>50	82.9	1.8	3.3	12.0	81.5	2.5	4.0	12.0
Biology/life sciences	91.9	3.6	1.3	3.2	93.2	3.9	0.9	2.0
Minority enrollment (%)								
0–5	95.6	2.9	0.9	0.6	96.9	1.0	1.2	0.9
>5–45	92.3	3.7	1.2	2.8	91.2	4.7	1.3	2.8
>45	89.9	3.9	1.5	4.8	94.9	3.5	0.3	1.2
School poverty level (%)[a]								
0–10	94.8	3.9	0.8	0.4	97.5	0.8	0.4	1.4
>10–50	92.4	3.0	1.4	3.2	92.0	4.8	1.0	2.1
>50	87.8	5.4	1.6	5.3	92.6	4.3	1.1	1.9
Physical sciences	78.1	19.6	0.9	1.5	81.6	15.4	1.2	1.8
Minority enrollment (%)								
0–5	76.3	22.1	0.0	1.5	86.0	12.1	0.4	1.5
>5–45	79.4	17.9	1.3	1.4	83.9	15.0	0.8	0.2
>45	77.0	20.7	0.8	1.5	77.3	17.1	1.9	3.7

Appendix table 1-19

Preparation of public middle and high school mathematics and science teachers for teaching in their field, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent distribution)

Teaching field/school characteristic	Academic year 2003–04				Academic year 2007–08			
	In field	Related field	General education	None of these	In field	Related field	General education	None of these
School poverty level (%)[a]								
0–10	85.9	11.7	1.1	1.3	87.5	10.6	1.9	0.0
>10–50	75.3	22.3	1.0	1.4	82.7	14.2	0.9	2.2
>50	76.7	22.1	0.6	0.7	75.2	21.3	1.2	2.3

na = not applicable

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.

NOTE: Percentages may not add to 100 because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-20

Participation in induction program during first year of teaching among new public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent)

Teaching field/school characteristic	Academic year 2003–04	Academic year 2007–08
Mathematics	71.3	78.6
Minority enrollment (%)		
0–5	87.8	87.4
>5–45	76.1	76.3
>45	62.6	78.9
School poverty level (%)[a]		
0–10	75.6	80.4
>10–50	77.0	80.2
>50	58.7	76.1
Science	67.7	72.6
Minority enrollment (%)		
0–5	73.5	67.4
>5–45	70.2	79.0
>45	63.2	67.2
School poverty level (%)[a]		
0–10	77.4	81.7
>10–50	69.4	76.8
>50	57.3	62.1
Other[b]	69.0	73.0
Minority enrollment (%)		
0–5	66.9	75.6
>5–45	74.9	76.5
>45	64.2	69.5
School poverty level (%)[a]		
0–10	80.2	79.9
>10–50	69.2	75.4
>50	63.4	68.0

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTE: New teachers refer to those with fewer than 5 years of teaching experience.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-21

Support received by new public middle and high school mathematics and science teachers during their first year teaching, by support type: Academic year 2007–08

(Percent)

Support type	Mathematics teachers	Science teachers	Other teachers[a]
Reduced schedule or number of preparations	15.6	12.1	13.3
Common planning time in subject area	51.5	45.6	47.7
Seminars or classes for beginning teachers	74.0	73.4	71.1
Extra classroom assistance	21.4	16.5	27.1
Regular supportive communication from leadership	80.3	76.1	81.1
Ongoing guidance from a mentor	78.4	77.3	78.4

[a]Other teachers include those who teach any subject other than mathematics or science.

NOTE: New teachers refer to those with fewer than 5 years of teaching experience.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-22

Participation in and duration of professional development on various topics by public middle and high school mathematics and science teachers during the past 12 months, by minority enrollment and school poverty level: Academic year 2007–08

(Percent)

Teaching field/school characteristic	Participation in professional development activities					Duration of professional development for those who participated in professional development on the topic														
						Content of subject(s) taught			Use of computers for instruction			Student discipline and classroom management			Students with disabilities			LEP students		
	Content of subject(s) taught	Use of computers for instruction	Student discipline and classroom management	Students with disabilities	LEP students	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours
Mathematics	83.1	65.7	45.0	36.8	24.8	20.8	50.9	28.3	57.1	34.5	8.4	68.7	25.7	5.6	64.8	30.4	4.9	59.7	25.8	14.5
Minority enrollment (%)																				
0–5	81.6	63.7	38.1	36.7	4.1	25.4	50.2	24.4	59.7	30.5	9.9	65.3	30.4	4.3	69.4	25.0	5.6	S	S	S
>5–45	81.8	66.4	39.2	35.4	22.6	22.2	51.5	26.4	58.5	34.6	6.9	74.0	22.4	3.6	65.8	31.4	2.9	60.7	21.5	17.8
>45	84.8	65.4	52.1	38.2	31.9	18.5	50.6	31.0	55.2	35.3	9.5	65.5	27.2	7.3	62.8	30.7	6.5	57.8	29.5	12.7
School poverty level (%)[a]																				
0–10	82.7	61.9	34.7	31.3	15.7	23.8	53.4	22.8	56.0	33.8	10.2	66.9	26.2	6.9	68.4	28.0	3.6	54.8	28.4	16.8
>10–50	81.6	66.5	43.5	36.3	26.2	20.3	51.5	28.1	58.5	34.1	7.4	72.5	22.5	5.1	64.0	31.2	4.8	59.8	25.0	15.2
>50	86.6	65.6	53.1	40.3	27.5	20.4	49.1	30.6	55.2	35.6	9.1	63.8	29.9	6.3	64.2	30.2	5.6	60.8	26.3	12.9
Science	77.1	69.0	39.4	39.1	26.0	21.8	49.4	28.8	57.8	34.7	7.5	70.2	25.9	3.9	69.1	23.6	7.3	58.0	28.4	13.6
Minority enrollment (%)																				
0–5	76.4	67.9	29.8	39.6	5.6	20.8	48.8	30.4	56.0	32.6	11.4	74.1	24.0	1.9	68.1	28.9	2.9	S	S	S
>5–45	77.3	70.4	35.8	38.4	24.2	23.6	48.8	27.6	61.3	32.2	6.5	66.5	28.8	4.7	71.1	24.0	4.9	61.5	24.9	13.6
>45	77.2	67.6	46.2	39.9	33.9	20.0	50.3	29.7	54.2	38.2	7.6	72.8	23.7	3.5	67.2	21.7	11.1	54.7	31.9	13.4
School poverty level (%)[a]																				
0–10	71.5	73.0	30.3	38.9	18.8	23.3	42.8	33.9	56.8	36.3	6.8	67.9	25.2	6.9	64.3	27.8	8.0	52.5	26.9	20.6
>10–50	79.5	70.2	36.0	38.6	26.3	21.4	51.3	27.3	58.0	34.5	7.5	70.5	25.1	4.4	70.9	23.6	5.5	58.5	28.5	13.0
>50	75.4	64.1	50.7	39.8	31.1	22.2	48.4	29.5	58.4	33.6	8.0	72.0	26.1	1.9	66.9	22.4	10.7	59.4	29.0	11.6
Other[b]	83.2	67.1	46.2	43.0	25.8	23.0	50.8	26.1	57.1	35.2	7.6	70.9	24.9	4.2	59.3	30.0	10.8	55.2	27.5	17.3
Minority enrollment (%)																				
0–5	78.9	66.4	42.5	42.5	6.1	24.9	46.8	28.4	62.9	29.9	7.3	73.5	23.7	2.8	60.6	28.9	10.5	69.6	21.7	8.7
>5–45	82.8	67.5	43.4	41.9	21.7	23.1	51.3	25.6	55.9	36.5	7.7	71.0	24.6	4.5	60.1	29.3	10.6	59.0	24.4	16.6
>45	84.8	66.8	50.3	44.4	35.5	22.4	51.4	26.2	57.0	35.3	7.7	70.2	25.5	4.2	58.1	30.9	11.0	52.0	29.8	18.2

Appendix table 1-22

Participation in and duration of professional development on various topics by public middle and high school mathematics and science teachers during the past 12 months, by minority enrollment and school poverty level: Academic year 2007–08

(Percent)

Teaching field/school characteristic	Participation in professional development activities					Duration of professional development for those who participated in professional development on the topic														
						Content of subject(s) taught			Use of computers for instruction			Student discipline and classroom management			Students with disabilities			LEP students		
	Content of subject(s) taught	Use of computers for instruction	Student discipline and classroom management	Students with disabilities	LEP students	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours	≤8 hours	9–32 hours	≥33 hours
School poverty level (%)[a]																				
0–10	81.9	68.4	37.8	42.2	19.0	26.3	46.4	27.3	56.3	35.6	8.1	74.1	22.2	3.7	61.8	28.2	10.0	55.0	26.5	18.6
>10–50	83.2	66.8	45.3	42.5	24.1	22.6	51.3	26.1	57.8	35.0	7.2	70.9	24.7	4.4	59.9	29.5	10.6	55.2	26.0	18.8
>50	83.9	67.0	53.6	45.0	33.5	22.0	52.3	25.7	56.5	35.6	7.9	69.8	26.4	3.8	57.3	31.0	11.6	55.7	29.8	14.5

S = suppressed (unreliable estimate)

LEP = limited English proficiency

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-23

Topics rated as top priority for additional professional development by public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic year 2007–08

(Percent distribution)

Teaching field/school characteristic	Topic rated as top priority for additional professional development								
	Student discipline and classroom management	Teaching students with special needs	Teaching LEP students	Use of technology in instruction	Content of main subject field	Content standards in main subject field	Methods of teaching	Student assessment	Communicating with parents
Mathematics	22.4	7.8	2.4	19.8	18.5	10.3	12.2	4.7	0.9
Minority enrollment (%)									
0–5	18.1	4.4	0.0	22.8	25.0	13.1	11.9	3.1	1.2
>5–45	20.0	7.6	1.4	22.5	19.9	11.7	11.0	4.1	1.1
>45	25.7	8.8	4.0	16.6	15.7	8.3	13.4	5.6	0.6
School poverty level (%)[a]									
0–10	18.1	7.5	0.8	27.6	21.4	7.0	13.4	3.2	0.2
>10–50	21.1	7.3	2.0	17.9	20.1	12.3	12.4	4.7	1.3
>50	27.1	8.5	4.1	19.0	15.0	7.9	11.3	5.2	0.5
Science	19.2	5.3	3.3	18.8	24.8	8.6	13.9	4.1	0.7
Minority enrollment (%)									
0–5	13.4	5.5	0.2	22.5	28.1	10.3	16.5	2.0	0.1
>5–45	15.3	5.4	1.8	17.9	30.2	8.1	14.6	4.7	1.2
>45	25.4	5.0	6.0	18.6	17.6	8.8	12.3	3.9	0.3
School poverty level (%)[a]									
0–10	9.6	6.5	1.2	21.9	31.3	8.2	15.9	2.5	1.6
>10–50	17.6	4.0	2.5	20.0	26.6	8.1	14.1	5.3	0.5
>50	29.1	7.2	6.6	15.0	16.5	8.8	11.9	2.7	0.5
Other[b]	20.2	14.9	4.3	13.7	24.2	7.4	9.7	2.9	1.2
Minority enrollment (%)									
0–5	17.6	14.4	0.9	15.7	27.7	7.9	9.8	3.7	0.5
>5–45	16.4	14.7	2.8	14.4	27.0	8.0	10.7	2.8	1.3
>45	24.9	15.1	6.9	12.5	20.2	6.6	8.6	2.8	1.2
School poverty level (%)[a]									
0–10	13.5	14.9	2.2	14.6	29.1	7.5	11.5	4.1	1.0
>10–50	19.3	14.7	3.6	14.0	25.2	7.5	10.0	2.9	1.2
>50	25.6	15.3	7.1	12.5	19.4	7.0	8.3	2.2	1.3

LEP = limited English proficiency

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTES: For professional development priorities, teachers were asked to select three top priorities for additional professional development from list of topics shown. Response categories included "first priority," "second priority," and "third priority." Percentages based on teachers' responses of their first priority. Percentages do not total to 100% because "other" omitted.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-24

Average salaries of public middle and high school mathematics and science teachers and percentage who were satisfied with their salaries, by minority enrollment and school poverty level: Academic year 2007–08

Teaching field/school characteristic	Average salary ($)	Satisfaction with salary (%)
Mathematics	49,535	53.9
Minority enrollment (%)		
0–5	46,457	61.8
>5–45	49,200	55.9
>45	50,578	50.2
School poverty level (%)[a]		
0–10	55,386	58.5
>10–50	48,644	56.2
>50	48,372	46.8
Science	50,618	53.0
Minority enrollment (%)		
0–5	46,015	58.8
>5–45	51,397	56.2
>45	51,018	47.7
School poverty level (%)[a]		
0–10	58,465	64.5
>10–50	49,473	50.4
>50	47,649	50.3
Other[b]	49,860	53.5
Minority enrollment (%)		
0–5	45,758	58.7
>5–45	50,071	54.7
>45	50,765	50.8
School poverty level (%)[a]		
0–10	57,089	62.0
>10–50	48,752	52.8
>50	48,164	50.0

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-25

Perceptions of working conditions of public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent)

Teaching field/school characteristic	Academic year 2003–04							Academic year 2007–08						
	Student misbehavior interferes	Supportive parents	Necessary materials available	Principal communicates vision	Staff members recognized	Worry about job security due to test scores	Tardiness and class cutting interfere	Student misbehavior interferes	Supportive parents	Necessary materials available	Principal communicates vision	Staff members recognized	Worry about job security due to test scores	Tardiness and class cutting interfere
Mathematics	45.3	55.9	79.4	86.0	73.0	34.4	40.7	44.6	59.0	84.8	87.8	76.1	32.6	42.5
Minority enrollment (%)														
0–5	30.8	68.7	89.2	86.0	72.5	28.4	27.9	34.0	70.3	88.9	87.3	72.1	26.8	33.7
>5–45	36.9	61.8	84.3	87.6	76.7	30.4	33.0	38.9	68.5	88.1	87.0	78.0	28.5	39.0
>45	60.0	44.5	70.2	84.3	69.0	41.0	54.1	52.5	47.5	80.8	88.6	75.3	37.8	47.9
School poverty level (%)[a]														
0–10	26.0	73.1	86.4	87.3	78.4	20.8	24.5	34.7	77.8	86.9	90.4	75.9	19.1	34.8
>10–50	43.9	56.5	82.0	85.3	73.5	32.2	42.1	41.4	61.2	87.2	86.2	76.1	31.0	40.8
>50	62.5	42.7	67.7	86.1	67.3	48.4	47.7	56.0	45.4	79.2	89.3	75.9	41.7	49.1
Science	48.6	55.2	77.9	83.9	70.8	30.9	43.5	44.4	58.8	82.4	85.7	73.0	32.9	44.7
Minority enrollment (%)														
0–5	33.3	65.3	81.7	84.9	70.0	24.8	29.1	38.9	65.0	87.2	84.6	72.8	29.8	35.4
>5–45	42.4	61.5	82.0	85.9	73.0	28.1	38.8	36.1	68.8	86.4	87.0	76.4	29.1	38.9
>45	62.4	43.5	71.4	81.1	68.4	36.9	55.1	55.5	45.6	76.4	84.6	69.1	38.1	53.9
School poverty level (%)[a]														
0–10	31.5	69.6	85.1	87.3	72.6	21.8	27.6	32.5	70.1	86.8	87.6	76.6	24.2	33.8
>10–50	47.4	56.9	77.0	85.1	73.4	30.1	42.3	41.9	61.3	83.1	85.1	73.1	32.0	45.1
>50	64.7	41.4	75.1	78.7	63.1	39.3	57.2	58.4	45.8	77.6	85.6	70.1	40.5	51.5
Other[b]	42.6	58.0	76.3	86.0	72.5	28.4	39.9	38.9	61.6	80.7	87.4	75.0	29.6	39.0
Minority enrollment (%)														
0–5	31.1	63.4	83.4	86.3	70.7	26.1	29.2	29.8	66.0	84.0	85.5	74.8	24.7	32.2
>5–45	38.0	62.7	79.3	86.7	75.1	25.0	36.2	32.8	68.6	84.2	88.2	77.2	24.9	33.6
>45	53.3	49.9	69.4	85.1	70.2	33.5	49.1	47.8	53.0	76.1	87.2	72.7	35.9	46.7
School poverty level (%)[a]														
0–10	28.5	71.0	82.9	85.4	74.8	17.8	29.1	25.9	73.5	84.8	88.2	78.1	20.2	28.6
>10–50	42.0	59.0	76.9	85.8	72.3	27.6	39.6	37.2	64.5	81.4	87.7	75.4	27.6	38.2
>50	55.1	46.6	70.1	86.9	70.5	37.1	47.5	50.1	49.0	76.5	86.3	72.2	39.3	46.6

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTES: Teachers asked to indicate agreement with various statements. Response categories include "strongly agree," "somewhat agree," "somewhat disagree," and "strongly disagree." Responses based on teachers answering "somewhat agree" or "strongly agree."

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

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Appendix table 1-26

Current occupational status of former public school mathematics and science teachers: Academic year 2008–09

(Percent distribution)

Current occupational status	Former mathematics teachers	Former science teachers	Former teachers in other subjects
Working for a K–12 school/school district but not as a K–12 classroom teacher	38.3	9.6	26.5
Working in pre-K or postsecondary education	0.3	3.5	2.1
Working outside the field of education, including military service	6.0	9.5	9.1
Student at a college or university	3.0	25.5	4.2
Caring for family members	0.7	8.3	8.1
Retired	31.0	26.6	27.6
Disabled	0.8	0.4	1.1
Unemployed and seeking work	7.2	9.4	5.2
Other	12.9	7.2	16.2

NOTES: Former teachers are those who taught in 2007–08 but left teaching by 2008–09. Percentages may not add to 100% because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2007–08 Schools and Staffing Survey and 2008–09 Teacher Follow-up Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-27

Serious student problems reported by public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic years 2003–04 and 2007–08

(Percent)

Teaching field/school characteristic	Academic year 2003–04		Academic year 2007–08	
	Student apathy	Students come to school unprepared to learn	Student apathy	Students come to school unprepared to learn
Mathematics	31.1	37.3	27.8	33.0
Minority enrollment (%)				
0–5	17.4	20.5	20.8	19.2
>5–45	25.1	27.2	26.7	24.2
>45	43.1	54.9	30.5	44.4
School poverty level (%)[a]				
0–10	11.9	11.9	16.3	13.3
>10–50	29.9	33.9	28.9	29.7
>50	47.6	63.6	31.7	48.8
Science	32.4	37.0	28.7	32.5
Minority enrollment (%)				
0–5	20.8	19.7	21.9	22.6
>5–45	28.1	29.0	20.2	19.2
>45	42.5	53.7	40.2	50.6
School poverty level (%)[a]				
0–10	16.1	14.7	9.9	9.8
>10–50	30.8	33.2	28.4	28.8
>50	47.6	61.3	41.5	54.9
Other[b]	26.2	31.8	25.3	27.9
Minority enrollment (%)				
0–5	18.0	18.5	18.4	19.8
>5–45	22.1	24.8	19.1	18.4
>45	34.7	46.2	33.8	40.3
School poverty level (%)[a]				
0–10	14.7	13.6	12.5	10.9
>10–50	25.9	29.7	24.0	24.3
>50	35.5	50.4	35.6	45.0

[a]School poverty level is percentage of students in school qualifying for free/reduced-price lunch.
[b]Other teachers include those who teach any subject other than mathematics or science.

NOTES: Teachers asked to indicate the seriousness of various student problems in their schools. Response categories include "serious problem," "moderate problem," "minor problem," and "not a problem." Percentages based on teachers viewing various student problems as "serious."

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of 2003–04 and 2007–08 Schools and Staffing Survey, National Center for Education Statistics.

Science and Engineering Indicators 2012

Appendix table 1-28

High school graduates enrolled in college in October after completing high school, by demographic characteristics and institution type: 1975–2009

(Percent)

Year	All graduates	Sex		Family income			Race/ethnicity			Parents' education				Institution type	
		Male	Female	Low[a]	Middle	High	White	Black[a]	Hispanic[a]	Less than high school	High school diploma or equivalent	Some college	Bachelor's degree or higher	2-year	4-year
1975	51	53	49	35	46	64	51	43	55	NA	NA	NA	NA	18	33
1976	49	47	50	32	40	63	49	45	54	NA	NA	NA	NA	16	33
1977	51	52	49	32	44	66	51	47	49	NA	NA	NA	NA	17	33
1978	50	51	49	30	44	64	51	48	46	NA	NA	NA	NA	17	33
1979	49	50	48	32	43	63	50	45	46	NA	NA	NA	NA	18	32
1980	49	47	52	32	42	65	50	44	50	NA	NA	NA	NA	19	30
1981	54	55	53	33	49	68	55	40	49	NA	NA	NA	NA	20	33
1982	51	49	52	34	42	71	53	39	49	NA	NA	NA	NA	19	31
1983	53	52	53	34	45	70	55	38	47	NA	NA	NA	NA	19	34
1984	55	56	54	36	48	74	59	40	49	NA	NA	NA	NA	19	36
1985	58	59	57	36	51	75	60	40	46	NA	NA	NA	NA	20	38
1986	54	56	52	37	48	71	57	43	42	NA	NA	NA	NA	19	35
1987	57	58	55	38	50	74	59	44	45	NA	NA	NA	NA	19	38
1988	59	57	61	42	55	73	61	50	49	NA	NA	NA	NA	22	37
1989	60	58	62	46	55	71	61	48	53	NA	NA	NA	NA	21	39
1990	60	58	62	45	54	77	63	49	52	NA	NA	NA	NA	20	40
1991	63	58	67	42	58	78	65	47	53	NA	NA	NA	NA	25	38
1992	62	60	64	44	57	79	64	50	58	33	56	68	81	23	39
1993	63	60	65	45	57	79	63	51	56	47	52	63	88	23	40
1994	62	61	63	42	58	78	65	52	55	43	50	65	83	21	41
1995	62	63	61	42	56	83	64	53	52	27	47	70	88	22	40
1996	65	60	70	47	63	78	67	55	58	45	56	67	85	23	42
1997	67	64	70	51	61	82	68	59	55	51	62	63	86	23	44
1998	66	62	69	50	65	77	69	60	52	50	57	68	82	24	41
1999	63	61	64	48	60	75	66	59	47	36	54	60	82	21	42
2000	63	60	66	47	60	77	66	56	49	44	52	64	81	21	42
2001	62	60	64	50	57	80	64	56	53	39	52	62	81	20	42
2002	65	62	68	51	61	78	69	57	55	43	52	66	83	22	43
2003	64	61	67	52	59	78	66	60	58	43	54	63	82	21	42
2004	67	61	72	51	63	80	69	59	58	40	55	67	86	22	44
2005	69	66	70	51	65	81	73	58	58	43	62	66	89	24	45
2006	66	66	66	54	61	81	69	56	58	43	56	67	78	25	41

Appendix table 1-28

High school graduates enrolled in college in October after completing high school, by demographic characteristics and institution type: 1975–2009

(Percent)

Year	All graduates	Sex		Family income			Race/ethnicity			Parents' education				Institution type	
		Male	Female	Low[a]	Middle	High	White	Black[a]	Hispanic[a]	Less than high school	High school diploma or equivalent	Some college	Bachelor's degree or higher	2-year	4-year
2007	67	66	68	55	63	78	70	56	62	45	52	65	86	24	43
2008	69	66	72	56	65	82	72	60	62	44	57	72	82	28	41
2009	70	66	74	55	67	84	71	63	62	40	58	74	82	28	42

NA = not available

[a]Due to the small sample size for the low-income, black, and Hispanic category, data are subject to relatively large sampling errors. Therefore, 3-year moving averages are used to produce more stable estimates. The 3-year moving average is an arithmetic average of the rates in the year indicated, the year immediately preceding, and the year immediately following. For 1975 and 2009, a 2-year moving average is used: data for 1975 reflect an average of 1975 and 1976, and data for 2009 reflect an average of 2008 and 2009.

NOTES: Includes students ages 16–24 completing high school in survey year. Before 1992, high school completer referred to those who had completed 12 years of schooling. As of 1992, high school completer refers to those who have received a high school diploma or equivalency certificate. Family income categorized as follows: low income includes families in lowest 20% of income distribution, middle income includes families in middle 60%, and high income includes families in highest 20%. Parents' education is highest level of education attained by either parent of student.

SOURCES: Parents' education: National Center for Education Statistics (NCES) special tabulations (2011) of Current Population Survey, Bureau of Labor Statistics. All other data: Aud S, Hussar W, Kena G, Bianco K, Frohlich L, Kemp J, Tahan K., *The Condition of Education 2011,* Washington, DC: National Center for Education Statistics, NCES 2011-033 (2011).

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Appendix table 1-29

First-time entry rates into university-level education in OECD countries, by sex: 2008

(Percent)

Country	Both sexes	Male	Female
United States	64	57	72
OECD average[a]	56	50	63
Australia	87	76	99
Poland	83	76	90
Portugal	81	71	92
Iceland	73	54	94
Slovak Republic	72	59	86
New Zealand	72	60	84
Norway	71	57	86
Korea	71	72	70
Finland	70	61	79
Sweden	65	53	78
Netherlands	62	57	67
Denmark	59	46	73
United Kingdom	57	50	64
Hungary	57	52	62
Czech Republic	57	50	65
Italy	51	43	60
Austria	50	44	56
Japan	48	54	42
Ireland	46	43	49
Chile	45	42	49
Greece	42	33	53
Spain	41	35	48
Switzerland	38	37	39
Germany	36	36	37
Mexico	34	34	34
Belgium	31	29	32
Turkey	30	32	28
Luxembourg	25	25	25

OECD = Organisation for Economic Co-operation and Development

[a]Based on OECD countries with available data.

NOTES: According to OECD, university-level education provides education that is largely theoretical and is intended to provide sufficient qualifications for gaining entry to advanced research programs and professions with high-skill requirements. Entry into these programs normally requires successful completion of upper secondary education (e.g., high school); admission is competitive in most cases. Minimum cumulative theoretical duration at this level is 3 years of full-time enrollment. OECD calculates entry rates by dividing number of first-time entrants of specific age in each type of tertiary program by total population in corresponding age group and then adding results for each single year of age. Mismatches between coverage of population data and student/graduate data mean participation/graduation rates for countries that are net exporters of students may be underestimated and countries that are net importers may be overestimated.

SOURCE: OECD, *Education at a Glance: OECD Indicators 2010* (2010).

Science and Engineering Indicators 2012

Appendix table 2-1
S&E degrees awarded, by degree level, Carnegie institution type, and field: 2009

Degree and institution type	All fields	S&E field									
		All S&E	Agricultural sciences	Biological sciences	Computer sciences	Earth, atmospheric, and ocean sciences	Mathematics	Physical sciences	Psychology	Social sciences	Engineering
Associate's	793,279	54,284	1,811	2,546	30,050	98	930	2,101	3,949	10,470	2,329
Doctorate-granting universities—very high research activity	3,387	89	66	1	20	0	0	0	0	1	1
Doctorate-granting universities—high research activity	3,646	181	36	11	117	0	6	8	0	1	2
Doctoral/research universities	27,277	4,186	0	39	2,867	0	0	1	1,275	0	4
Master's colleges and universities	52,323	2,459	37	40	2,019	3	6	56	122	157	19
Baccalaureate colleges	45,159	3,155	268	84	2,386	0	5	14	151	150	97
Associate's colleges	636,535	40,184	1,368	2,346	18,908	95	913	2,022	2,387	10,010	2,135
Medical schools and medical centers	506	0	0	0	0	0	0	0	0	0	0
Schools of engineering	12	0	0	0	0	0	0	0	0	0	0
Other specialized institutions	21,547	3,573	0	2	3,499	0	0	0	0	5	67
Tribal colleges	1,413	260	36	19	45	0	0	0	14	142	4
Not classified	1,474	197	0	4	189	0	0	0	0	4	0
Bachelor's	1,619,028	505,435	19,152	85,574	38,496	4,542	16,208	17,942	94,743	158,178	70,600
Doctorate-granting universities—very high research activity	418,817	192,853	8,780	34,159	6,747	1,785	5,867	6,257	26,818	65,293	37,147
Doctorate-granting universities—high research activity	231,296	72,243	3,352	11,694	4,057	715	1,862	2,277	13,159	20,542	14,585
Doctoral/research universities	114,980	28,503	608	4,624	3,890	233	808	977	5,893	8,194	3,276
Master's colleges and universities	607,587	144,265	4,362	22,340	15,499	1,212	5,282	5,196	36,573	43,405	10,396
Baccalaureate colleges	188,840	61,207	2,023	11,803	5,540	575	2,307	3,162	11,950	20,400	3,447
Associate's colleges	1,482	201	8	0	193	0	0	0	0	0	0
Medical schools and medical centers	5,788	51	0	50	0	1	0	0	0	0	0
Schools of engineering	2,143	1,957	0	42	104	20	35	48	23	14	1,671
Other specialized institutions	47,139	3,760	5	756	2,443	0	32	17	233	234	40
Tribal colleges	208	64	14	0	8	0	0	0	0	42	0
Not classified	748	331	0	106	15	1	15	8	94	54	38
Master's	665,473	134,517	4,349	9,921	17,988	1,579	5,459	4,101	20,744	33,866	36,510
Doctorate-granting universities—very high research activity	178,037	56,074	2,325	4,734	6,627	967	3,106	2,465	1,748	14,577	19,525
Doctorate-granting universities–-high research activity	95,872	25,593	936	1,769	3,820	406	1,090	797	2,340	5,850	8,585
Doctoral/research universities	81,378	12,722	160	511	2,024	55	299	187	4,892	3,157	1,437
Master's colleges and universities	264,624	34,755	865	1,970	4,988	131	943	603	9,271	9,788	6,196
Baccalaureate colleges	12,070	1,077	57	50	124	8	11	28	475	231	93
Associate's colleges	170	22	0	0	0	0	0	0	22	0	0
Medical schools and medical centers	7,425	917	1	781	0	0	0	9	64	38	24
Schools of engineering	910	813	0	3	190	12	8	11	0	0	589
Other specialized institutions	24,677	2,489	0	89	215	0	0	1	1,901	222	61
Tribal colleges	3	1	0	0	0	0	0	0	0	1	0
Not classified	307	54	5	14	0	0	2	0	31	2	0
Doctorate	61,730	33,284	1,143	7,429	1,574	724	1,536	4,416	4,046	4,501	7,915
Doctorate-granting universities—very high research activity	38,742	24,802	903	5,408	1,254	623	1,284	3,622	1,567	3,596	6,545
Doctorate-granting universities–-high research activity	10,589	4,954	187	842	249	94	223	673	922	653	1,111
Doctoral/research universities	5,772	1,522	5	114	47	1	17	61	966	179	132
Master's colleges and universities	2,006	394	46	23	14	3	4	15	211	34	44

Appendix table 2-1

S&E degrees awarded, by degree level, Carnegie institution type, and field: 2009

		S&E field									
Degree and institution type	All fields	All S&E	Agricultural sciences	Biological sciences	Computer sciences	Earth, atmospheric, and ocean sciences	Mathematics	Physical sciences	Psychology	Social sciences	Engineering
Baccalaureate colleges	188	35	0	4	0	0	5	6	5	10	5
Associate's colleges	3	3	0	3	0	0	0	0	0	0	0
Medical schools and medical centers	2,888	1,201	1	1,033	9	0	0	27	73	16	42
Schools of engineering	54	54	0	0	1	3	3	11	0	0	36
Other specialized institutions	1,487	318	0	2	0	0	0	1	302	13	0
Not classified	1	1	1	0	0	0	0	0	0	0	0

NCES = National Center for Education Statistics

NOTES: Medical and other life sciences included in non-S&E. In 2008 NCES allowed optional reporting in three new doctoral degree categories: doctor's—research/scholarship, doctor'—professional practice, and doctor's—other. Degrees formerly classified as professional degrees (e.g., MDs, and JDs) can now be reported as doctoral degrees, most often as doctor's—professional practice. Data for 2008 and 2009 in this table include only those doctorates reported under the old doctoral degree category plus those reported as doctor's—research/scholarship. Carnegie institution type corresponds to the 2010 Carnegie Classification of Academic Institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-2

Degrees awarded by private for-profit academic institutions, by broad field and degree level: 2000–09

Broad field and degree level	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All fields										
Associate's	76,188	83,185	84,231	97,028	100,813	108,564	113,778	119,577	128,828	146,237
Bachelor's	21,676	24,761	28,143	32,929	43,748	49,909	63,010	71,645	76,724	85,317
Master's	11,353	13,182	16,188	17,171	28,962	35,694	45,773	51,540	55,523	64,239
Doctorate	606	802	662	842	1,171	1,488	1,483	1,910	2,360	2,102
S&E										
Associate's	9,142	12,703	16,322	21,125	18,789	16,858	14,967	13,537	14,236	16,896
Bachelor's	4,179	5,291	7,039	10,146	13,413	13,054	13,826	13,190	13,565	15,348
Master's	1,337	1,434	1,363	1,758	2,425	2,231	2,394	2,878	3,924	6,471
Doctorate	349	517	367	391	482	652	624	690	720	360
Non-S&E										
Associate's	67,046	70,482	67,909	75,903	82,024	91,706	98,811	106,040	114,592	129,341
Bachelor's	17,497	19,470	21,104	22,783	30,335	36,855	49,184	58,455	63,159	69,969
Master's	10,016	11,748	14,825	15,413	26,537	33,463	43,379	48,662	51,599	57,768
Doctorate	257	285	295	451	689	836	859	1,220	1,640	1,742
	Percent									
All fields										
Associate's	13.3	14.2	14.0	15.2	15.0	15.5	15.8	16.3	17.0	18.4
Bachelor's	1.7	2.0	2.2	2.4	3.1	3.4	4.2	4.6	4.9	5.3
Master's	2.5	2.8	3.3	3.3	5.1	6.2	7.6	8.4	8.8	9.7
Doctorate	1.3	1.8	1.5	1.8	2.4	2.8	2.6	3.1	3.8	3.4
S&E										
Associate's	23.8	28.1	31.9	33.6	31.2	30.8	30.0	28.5	29.0	31.1
Bachelor's	1.0	1.3	1.7	2.3	2.9	2.8	2.9	2.7	2.7	3.0
Master's	1.4	1.4	1.4	1.6	2.0	1.8	2.0	2.4	3.1	4.8
Doctorate	1.4	2.0	1.5	1.5	1.8	2.3	2.0	2.1	2.2	1.1
Non-S&E										
Associate's	12.5	13.0	12.4	13.2	13.4	14.2	14.8	15.5	16.2	17.5
Bachelor's	2.0	2.3	2.4	2.5	3.2	3.7	4.8	5.5	5.8	6.3
Master's	2.8	3.2	3.8	3.8	6.0	7.3	9.1	9.9	10.2	10.9
Doctorate	1.3	1.5	1.5	2.2	3.1	3.4	3.3	4.3	5.8	6.1

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-3
Degrees awarded by private for-profit academic institutions, by field and degree level: 2009

Field	Associate's	Bachelor's	Master's	Doctorate
All fields	146,237	85,317	64,239	2,102
S&E	16,896	15,348	6,471	360
Agricultural sciences	0	69	14	0
Biological sciences	9	53	0	0
Computer science	15,353	10,261	1,124	15
Mathematics	0	0	0	0
Psychology	1,351	1,827	3,323	293
Social sciences	28	2,924	1,092	52
Engineering	155	214	918	0
Non-S&E	129,341	69,969	57,768	1,742
Architecture and environmental design	7	48	44	0
Arts and music	6,760	7,807	434	0
Business and management	38,277	42,186	31,015	620
Communication and librarianship	430	417	50	0
Education	1,012	490	17,545	961
Engineering technologies	10,782	1,824	118	0
English and literature	0	11	0	0
Health technologies	26,737	169	549	1
History	0	57	161	0
Law	90	168	0	0
Medical and other life sciences	9,481	7,460	5,990	118
Religion and theology	0	19	0	8
Science technologies	32	0	0	0
Social services	0	12	7	4
Vocational studies and home economics	19,470	6,328	1,665	15
Other non-S&E	16,263	2,973	190	15

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-4
Undergraduate students in postsecondary institutions taking distance education courses, by control and level of institution: 2007–08

Control and level of institution	Taking any distance education courses: Students (thousands)	Taking any distance education courses: Percent of all students	Taking entire program through distance education: Students (thousands)	Taking entire program through distance education: Percent of all students
Total	4,277	20.4	769	3.7
Public	3,423	21.5	436	2.7
4-year	121	18.1	146	2.2
2-year	2,206	24.2	288	3.2
Less-than-2 year	8	8.2	S	2.2 †
Private not-for-profit	429	14.1	88	2.9
4-year	412	14.0	84	2.9
2-year	12	20.2	4	6.1
Less-than-2 year	5	16.3	S	2.5
Private for-profit	425	21.3	245	12.3
4-year	301	29.7	193	19.0
2-year	97	18.0	44	8.3
Less-than-2 year	28	6.2	7	1.6

† = standard error represents more than 30% of estimate; S=suppressed, reporting standards not met

NOTES: Estimates pertain to all postsecondary students who enrolled at any time during the school year at an institution participating in Title IV programs. Distance education participation includes participation at any institution for students attending more than one institution during the school year. Data include Puerto Rico. Detail may not sum to totals because of survey item nonresponse and rounding.

SOURCES: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

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Appendix table 2-5

Full-time S&E graduate students, by field and mechanism of primary support: 2009

	All mechanisms		Research assistantship		Fellowship		Traineeship		Teaching assistantship		Other		Self-support[a]	
Field	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
S&E	441,743	100.0	120,008	27.2	38,115	8.6	12,799	2.9	78,317	17.7	29,791	6.7	162,713	36.8
Engineering	98,824	100.0	39,602	40.1	7,777	7.9	885	0.9	12,228	12.4	5,344	5.4	32,988	33.4
Aerospace	3,974	100.0	1,708	43.0	319	8.0	36	0.9	503	12.7	283	7.1	1,125	28.3
Chemical	7,110	100.0	4,071	57.3	834	11.7	90	1.3	849	11.9	249	3.5	1,017	14.3
Civil	13,503	100.0	4,917	36.4	952	7.1	103	0.8	1,791	13.3	776	5.7	4,964	36.8
Electrical	29,282	100.0	10,513	35.9	1,617	5.5	43	0.1	3,814	13.0	1,473	5.0	11,822	40.4
Industrial	8,362	100.0	1,771	21.2	433	5.2	45	0.5	1,017	12.2	794	9.5	4,302	51.4
Materials	5,181	100.0	3,119	60.2	498	9.6	31	0.6	438	8.5	202	3.9	893	17.2
Mechanical	15,609	100.0	6,266	40.1	1,319	8.5	132	0.8	2,464	15.8	783	5.0	4,645	29.8
Other	15,803	100.0	7,237	45.8	1,805	11.4	405	2.6	1,352	8.6	784	5.0	4,220	26.7
Science[b]	342,919	100.0	80,406	23.4	30,338	8.8	11,914	3.5	66,089	19.3	24,447	7.1	129,725	37.8
Natural sciences	227,020	100.0	65,903	29.0	18,113	8.0	10,007	4.4	43,881	19.3	14,958	6.6	74,158	32.7
Agricultural sciences	10,823	100.0	5,543	51.2	721	6.7	31	0.3	1,406	13.0	520	4.8	2,602	24.0
Biological sciences[c]	63,727	100.0	24,940	39.1	6,980	11.0	6,322	9.9	9,883	15.5	4,031	6.3	11,571	18.2
Earth, atmospheric, and ocean sciences	11,589	100.0	4,679	40.4	1,259	10.9	68	0.6	2,735	23.6	468	4.0	2,380	20.5
Atmospheric sciences	1,132	100.0	692	61.1	42	3.7	6	0.5	208	18.4	33	2.9	151	13.3
Earth sciences	5,825	100.0	2,195	37.7	662	11.4	28	0.5	1,800	30.9	205	3.5	935	16.1
Oceanography	2,197	100.0	1,158	52.7	243	11.1	6	0.3	361	16.4	77	3.5	352	16.0
Other geosciences	2,435	100.0	634	26.0	312	12.8	28	1.1	366	15.0	153	6.3	942	38.7
Mathematics/computer sciences	49,083	100.0	9,523	19.4	3,598	7.3	313	0.6	13,386	27.3	3,005	6.1	19,258	39.2
Computer sciences	16,885	100.0	1,967	11.6	1,711	10.1	139	0.8	8,651	51.2	639	3.8	3,778	22.4
Mathematics/statistics	32,198	100.0	7,556	23.5	1,887	5.9	174	0.5	4,735	14.7	2,366	7.3	15,480	48.1
Medical/other life sciences	57,617	100.0	6,762	11.7	2,659	4.6	2,841	4.9	3,543	6.1	6,049	10.5	35,763	62.1
Medical sciences	23,108	100.0	4,414	19.1	1,387	6.0	1,356	5.9	1,606	6.9	2,459	10.6	11,886	51.4
Other life sciences	34,509	100.0	2,348	6.8	1,272	3.7	1,485	4.3	1,937	5.6	3,590	10.4	23,877	69.2
Physical sciences	34,181	100.0	14,456	42.3	2,896	8.5	432	1.3	12,928	37.8	885	2.6	2,584	7.6
Astronomy	1,348	100.0	743	55.1	244	18.1	5	0.4	278	20.6	26	1.9	52	3.9
Chemistry	19,682	100.0	7,780	39.5	1,532	7.8	284	1.4	8,063	41.0	530	2.7	1,493	7.6
Physics	12,771	100.0	5,816	45.5	1,087	8.5	133	1.0	4,530	35.5	292	2.3	913	7.1
Other physical sciences	380	100.0	117	30.8	33	8.7	10	2.6	57	15.0	37	9.7	126	33.2
Social/behavioral sciences	111,942	100.0	13,863	12.4	11,599	10.4	1,862	1.7	21,713	19.4	9,112	8.1	53,793	48.1
Psychology	40,373	100.0	5,701	14.1	2,044	5.1	1,072	2.7	6,649	16.5	3,489	8.6	21,418	53.1
Social sciences	71,569	100.0	8,162	11.4	9,555	13.4	790	1.1	15,064	21.0	5,623	7.9	32,375	45.2
Anthropology	6,462	100.0	651	10.1	1,333	20.6	64	1.0	1,891	29.3	436	6.7	2,087	32.3
Economics	13,329	100.0	2,162	16.2	1,833	13.8	101	0.8	3,716	27.9	979	7.3	4,538	34.0
History of science	653	100.0	25	3.8	175	26.8	2	0.3	239	36.6	50	7.7	162	24.8
Linguistics	2,386	100.0	302	12.7	440	18.4	21	0.9	726	30.4	149	6.2	748	31.3
Political science/public administration	25,970	100.0	1,981	7.6	3,070	11.8	325	1.3	3,267	12.6	2,331	9.0	14,996	57.7

Appendix table 2-5

Full-time S&E graduate students, by field and mechanism of primary support: 2009

Field	All mechanisms		Research assistantship		Fellowship		Traineeship		Teaching assistantship		Other		Self-support[a]	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Sociology	7,307	100.0	1,058	14.5	1,037	14.2	177	2.4	2,526	34.6	481	6.6	2,028	27.8
Other social sciences	15,462	100.0	1,983	12.8	1,667	10.8	100	0.6	2,699	17.5	1,197	7.7	7,816	50.5
Multidisciplinary/Interdisciplinary fields	3,957	100.0	640	16.2	626	15.8	45	1.1	495	12.5	377	9.5	1,774	44.8

[a]Includes any loans (including federal) and support from personal or family financial contributions.
[b]Includes natural sciences, social/behavioral sciences, and multidisciplinary/interdisciplinary studies.
[c]Includes neuroscience.

NOTES: Percentages may not add to 100% because of rounding. S&E excludes fields that were collected in this survey (architecture, communication, and family and consumer sciences/human sciences) that are not included in other tables in this report and from other data sources.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-6

Full-time S&E graduate students primarily supported by federal government, by field and mechanism of primary support: 2009

(Percent)

Field	All mechanisms	Research assistantship	Fellowship	Traineeship	Teaching assistantship	Other
S&E	18.4	48.6	22.5	63.0	1.6	2.6
Engineering	23.0	48.0	26.0	64.5	2.2	2.3
Aerospace	33.9	60.5	32.6	22.2	5.6	12.3
Chemical	29.8	44.0	26.5	92.2	1.9	0.9
Civil	14.7	33.7	20.1	12.6	2.5	1.4
Electrical	21.4	53.6	21.2	79.1	1.6	1.4
Industrial	12.0	39.6	13.6	97.8	2.5	3.3
Materials	39.0	57.5	31.1	93.5	4.8	2.1
Mechanical	23.2	48.8	29.5	25.8	1.7	2.0
Other	27.9	46.2	31.1	80.5	2.5	2.8
Science[a]	17.1	49.0	21.8	63.0	1.5	2.6
Natural sciences	22.5	54.0	28.8	68.5	1.6	3.1
Agricultural sciences	20.1	33.7	24.8	67.7	1.6	2.8
Biological sciences[b]	34.2	55.0	34.7	71.3	1.7	6.1
Earth, atmospheric, and ocean sciences	26.8	55.8	24.9	64.7	1.7	3.0
Atmospheric sciences	46.5	70.8	26.2	100.0	5.3	4.3
Earth sciences	22.8	49.9	23.6	35.7	1.6	3.1
Oceanography	39.1	63.4	36.6	66.7	0.6	6.8
Other geosciences	16.1	46.2	18.3	85.7	1.4	1.2
Mathematics/computer sciences	14.6	57.2	22.9	55.3	1.3	2.4
Computer sciences	16.3	56.9	20.7	35.6	1.0	2.6
Mathematics/statistics	11.2	58.4	25.0	79.9	1.5	1.7
Medical/other life sciences	10.1	35.0	23.7	63.2	1.3	2.3
Medical sciences	14.9	39.6	27.3	64.8	1.9	2.8
Other life sciences	6.9	26.3	19.8	61.7	0.8	2.1
Physical sciences	32.5	66.1	29.4	72.2	2.0	3.3
Astronomy	43.3	65.4	33.2	100.0	0.7	12.8
Chemistry	29.8	64.9	27.1	72.2	1.7	3.2
Physics	35.9	68.4	32.6	69.2	2.7	3.1
Other physical sciences	16.6	38.5	3.0	100.0	5.3	2.5
Social/behavioral sciences	6.2	25.6	10.7	33.6	1.2	2.0
Psychology	8.5	31.9	18.6	39.6	1.4	2.9
Social sciences	4.9	21.2	9.0	25.6	1.1	1.4
Anthropology	6.6	28.0	11.6	15.6	0.6	2.8
Economics	5.8	22.9	8.0	22.8	0.4	1.6
History of science	2.5	0.0	8.0	50.0	0.0	0.5
Linguistics	7.1	30.5	8.9	42.9	1.5	2.0
Political science/public administration	2.8	12.3	6.2	7.1	1.8	1.2
Sociology	7.0	26.3	42.0	57.6	0.8	1.0
Other social sciences	5.7	22.1	32.0	34.0	2.0	1.3
Multidisciplinary/interdisciplinary	9.8	34.5	16.5	37.8	0.0	2.1

[a]Includes natural sciences, social/behavioral sciences, and multidisciplinary/interdisciplinary studies.
[b]Includes neuroscience.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-7

Full-time S&E graduate students primarily supported by federal government, by field and agency: 2009

Field	Total		National Institutes of Health		Health and Human Services (excluding NIH)		National Science Foundation		Department of Defense		Department of Agriculture		National Aeronautics and Space Administration		Department of Energy		Other federal Sources	
	Total	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
S&E	81,205	100.0	26,443	32.6	2,183	2.7	21,617	26.6	8,653	10.7	2,689	3.3	2,426	3.0	4,603	5.7	12,591	15.5
Engineering	22,763	100.0	2,762	12.1	187	0.8	7,625	33.5	5,219	22.9	282	1.2	1,123	4.9	2,061	9.1	3,504	15.4
Aerospace	1,346	100.0	13	1.0	0	0.0	143	10.6	588	43.7	0	0.0	434	32.2	43	3.2	125	9.3
Chemical	2,121	100.0	263	12.4	41	1.9	913	43.0	187	8.8	54	2.5	31	1.5	373	17.6	259	12.2
Civil	1,984	100.0	35	1.8	19	1.0	637	32.1	193	9.7	44	2.2	98	4.9	108	5.4	850	42.8
Electrical	6,259	100.0	397	6.3	32	0.5	2,714	43.4	2,046	32.7	11	0.2	204	3.3	226	3.6	629	10.0
Industrial	1,000	100.0	80	8.0	23	2.3	310	31.0	327	32.7	11	1.1	30	3.0	55	5.5	164	16.4
Materials	3,629	100.0	199	5.5	22	0.6	1,258	34.7	967	26.6	16	0.4	213	5.9	386	10.6	568	15.7
Mechanical	2,020	100.0	82	4.1	3	0.1	768	38.0	398	19.7	16	0.8	32	1.6	346	17.1	375	18.6
Other	4,404	100.0	1,693	38.4	47	1.1	882	20.0	513	11.6	130	3.0	81	1.8	524	11.9	534	12.1
Science[a]	58,442	100.0	23,681	40.5	1,996	3.4	13,992	23.9	3,434	5.9	2,407	4.1	1,303	2.2	2,542	4.3	9,087	15.5
Natural sciences	51,113	100.0	21,910	42.9	1,697	3.3	12,499	24.5	3,087	6.0	2,076	4.1	1,213	2.4	2,509	4.9	6,122	12.0
Agricultural sciences	2,179	100.0	53	2.4	17	0.8	266	12.2	23	1.1	1,110	50.9	41	1.9	58	2.7	611	28.0
Biological sciences[b]	21,772	100.0	16,184	74.3	421	1.9	2,381	10.9	455	2.1	772	3.5	55	0.3	202	0.9	1,302	6.0
Earth, atmospheric, and ocean sciences	3,102	100.0	24	0.8	12	0.4	1,465	47.2	100	3.2	50	1.6	444	14.3	145	4.7	862	27.8
Atmospheric sciences	526	100.0	4	0.8	0	0.0	192	36.5	21	4.0	11	2.1	151	28.7	35	6.7	112	21.3
Earth sciences	1,326	100.0	6	0.5	2	0.2	771	58.1	18	1.4	13	1.0	197	14.9	82	6.2	237	17.9
Oceanography	858	100.0	4	0.5	0	0.0	371	43.2	52	6.1	9	1.0	38	4.4	17	2.0	367	42.8
Other geosciences	392	100.0	10	2.6	10	2.6	131	33.4	9	2.3	17	4.3	58	14.8	11	2.8	146	37.2
Mathematics/computer sciences	7,149	100.0	490	6.9	56	0.8	4,026	56.3	1,364	19.1	28	0.4	97	1.4	194	2.7	894	12.5
Computer sciences	5,254	100.0	307	5.8	34	0.6	2,883	54.9	1,216	23.1	12	0.2	76	1.4	143	2.7	583	11.1
Mathematics/statistics	1,895	100.0	183	9.7	22	1.2	1,143	60.3	148	7.8	16	0.8	21	1.1	51	2.7	311	16.4
Medical/other life sciences	5,808	100.0	2,936	50.6	1,037	17.9	169	2.9	238	4.1	81	1.4	3	0.1	14	0.2	1,330	22.9
Medical sciences	3,435	100.0	2,207	64.3	431	12.5	113	3.3	130	3.8	74	2.2	0	0.0	11	0.3	469	13.7
Other life sciences	2,373	100.0	729	30.7	606	25.5	56	2.4	108	4.6	7	0.3	3	0.1	3	0.1	861	36.3
Physical sciences	11,103	100.0	2,223	20.0	154	1.4	4,192	37.8	907	8.2	35	0.3	573	5.2	1,896	17.1	1,123	10.1
Astronomy	584	100.0	7	1.2	0	0.0	264	45.2	7	1.2	7	1.2	186	31.8	69	11.8	44	7.5
Chemistry	5,874	100.0	1,982	33.7	139	2.4	2,041	34.7	448	7.6	26	0.4	81	1.4	603	10.3	554	9.4
Physics	4,582	100.0	218	4.8	12	0.3	1,875	40.9	440	9.6	2	0.0	295	6.4	1,221	26.6	519	11.3
Other physical sciences	63	100.0	16	25.4	3	4.8	12	19.0	12	19.0	0	0.0	11	17.5	3	4.8	6	9.5
Social/behavioral sciences	6,943	100.0	1,700	24.5	295	4.2	1,359	19.6	325	4.7	316	4.6	87	1.3	27	0.4	2,834	40.8
Psychology	3,443	100.0	1,382	40.1	206	6.0	411	11.9	138	4.0	6	0.2	6	0.2	0	0.0	1,294	37.6
Social sciences	3,500	100.0	318	9.1	89	2.5	948	27.1	187	5.3	310	8.9	81	2.3	27	0.8	1,540	44.0
Anthropology	427	100.0	31	7.3	10	2.3	200	46.8	4	0.9	3	0.7	0	0.0	2	0.5	177	41.5
Economics	771	100.0	55	7.1	4	0.5	154	20.0	37	4.8	242	31.4	6	0.8	13	1.7	260	33.7
History of science	16	100.0	0	0.0	0	0.0	8	50.0	1	6.3	0	0.0	0	0.0	0	0.0	7	43.8
Linguistics	169	100.0	11	6.5	0	0.0	97	57.4	2	1.2	0	0.0	0	0.0	1	0.6	53	31.4
Political science/public administration	728	100.0	11	1.5	20	2.7	150	20.6	98	13.5	7	1.0	1	0.1	1	0.1	440	60.4

Appendix table 2-7

Full-time S&E graduate students primarily supported by federal government, by field and agency: 2009

Field	Total		National Institutes of Health		Health and Human Services (excluding NIH)		National Science Foundation		Department of Defense		Department of Agriculture		National Aeronautics and Space Administration		Department of Energy		Other federal Sources	
	Total	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Sociology	512	100.0	151	29.5	29	5.7	153	29.9	12	2.3	33	6.4	0	0.0	3	0.6	131	25.6
Other social sciences	877	100.0	59	6.7	21	2.4	186	21.2	33	3.8	25	2.9	74	8.4	7	0.8	472	53.8
Multidisciplinary/interdisciplinary studies	386	100.0	71	18.4	4	1.0	134	34.7	22	5.7	15	3.9	3	0.8	6	1.6	131	33.9

NA = not available

[a]Includes natural sciences, social/behavioral sciences, and multidisciplinary/interdisciplinary studies.
[b]Includes neuroscience.

NOTES: S&E excludes fields that were collected in this survey (architecture, communication, and family and consumer sciences/human sciences) that are not included in other tables in this report and from other data sources. Percentages may not add to 100% because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-8

Primary support mechanisms for S&E doctorate recipients, by citizenship, sex, and race/ethnicity: 2009

Support mechanism	All doctorate recipients	Temporary residents	Unknown citizenship	U.S. citizens and permanent residents						
				Total	Male	Female	White	Asian	Underrepresented minority	Other/unknown race/ethnicity
All mechanisms										
Number	35,564	12,617	1,724	21,223	10,979	10,243	15,925	2,111	2,818	369
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Research assistantships[a]										
Number	11,799	6,282	63	5,454	3,206	2,248	4,264	686	446	58
Percent	33.2	49.8	3.7	25.7	29.2	21.9	26.8	32.5	15.8	15.7
Fellowships or traineeships										
Number	7,779	1,873	24	5,882	2,874	3,008	4,181	551	1,079	71
Percent	21.9	14.8	1.4	27.7	26.2	29.4	26.3	26.1	38.3	19.2
Teaching assistantships										
Number	5,412	2,279	24	3,109	1,690	1,419	2,498	277	288	46
Percent	15.2	18.1	1.4	14.6	15.4	13.9	15.7	13.1	10.2	12.5
Grant/stipend										
Number	2,084	442	11	1,631	842	789	1,243	183	186	19
Percent	5.9	3.5	0.6	7.7	7.7	7.7	7.8	8.7	6.6	5.1
Personal[b]										
Number	3,615	339	29	3,247	1,310	1,936	2,484	208	517	38
Percent	10.2	2.7	1.7	15.3	11.9	18.9	15.6	9.9	18.3	10.3
Other[c]										
Number	1,104	356	6	742	469	273	567	82	84	9
Percent	3.1	2.8	0.3	3.5	4.3	2.7	3.6	3.9	3.0	2.4
Unknown										
Number	3,771	1,046	1,567	1,158	588	570	688	124	218	128
Percent	10.6	8.3	90.9	5.5	5.4	5.6	4.3	5.9	7.7	34.7

[a]Research assistantships and other assistantships.
[b]Personal savings, other personal earnings in graduate school, other family earnings or savings, and loans.
[c]Employer reimbursement or assistance, foreign support, and other sources.

NOTES: S&E includes health fields (i.e., medical sciences and other life sciences). Total includes unknown sex. Underrepresented minority includes blacks, Hispanics, American Indians/Alaska Natives, Native Hawaiians/other Pacific Islanders, and multiple races/ethnicities. Traineeships include internship and residency. Percentages may not add up to 100% because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Earned Doctorates, special tabulations (2010).

Science and Engineering Indicators 2012

Appendix table 2-9

Amount of undergraduate and graduate debt of S&E doctorate recipients, by field: 2009

(Percent)

Field	Doctorates (*n*)	Debt								
		None	≤$10,000	$10,001–$20,000	$20,001–$30,000	$30,001–$40,000	$40,001–$50,000	$50,001–$60,000	$60,001–$70,000	≥$70,001
Cumulative debt										
All fields	45,244	51.4	10.2	8.6	6.3	4.5	3.8	3.0	3.2	9.0
S&E	32,613	54.7	10.4	8.8	6.1	4.0	3.2	2.5	2.6	7.5
Engineering	7,040	66.2	10.2	7.4	4.9	2.6	2.0	1.7	1.6	3.6
Sciences	25,573	51.6	10.5	9.2	6.4	4.4	3.6	2.8	2.9	8.6
Agricultural sciences	1,060	52.1	13.9	10.7	5.8	4.6	3.7	1.9	2.5	5.0
Biological sciences	7,474	53.5	10.7	11.0	7.6	4.5	3.0	2.3	2.4	4.9
Computer sciences	1,479	70.6	8.5	5.1	4.4	2.4	2.3	1.0	2.0	3.7
Earth, atmospheric, and ocean sciences	825	54.3	13.6	10.2	6.3	3.2	4.0	2.2	2.4	3.9
Mathematics	1,441	70.0	10.3	7.0	3.0	2.7	1.3	1.5	1.0	3.2
Medical/other health sciences	1,883	45.4	10.5	6.9	6.2	6.2	5.4	3.8	4.0	11.7
Physical sciences	3,936	58.8	11.8	9.5	6.0	3.8	2.7	1.8	1.7	4.0
Psychology	3,004	29.4	6.8	8.6	6.5	5.7	5.8	5.9	5.9	25.5
Social sciences	4,471	46.7	10.7	9.0	6.9	4.6	4.1	3.3	3.7	11.0
Non-S&E	12,631	42.9	9.7	8.1	6.9	5.6	5.2	4.1	4.7	12.8
Undergraduate debt										
All fields	44,990	72.9	7.5	7.8	5.1	2.6	1.6	1.0	0.8	0.7
S&E	32,449	72.7	7.6	8.1	5.3	2.6	1.6	0.9	0.7	0.5
Engineering	6,997	80.8	5.9	5.4	3.2	1.9	1.3	0.8	0.5	0.3
Sciences	25,452	70.5	8.1	8.8	5.8	2.8	1.7	1.0	0.7	0.6
Agricultural sciences	1,054	72.3	8.8	8.6	5.8	2.4	1.1	0.5	0.3	0.2
Biological sciences	7,455	66.4	8.9	10.9	6.9	3.1	1.5	1.0	0.8	0.5
Computer sciences	1,472	83.4	5.1	4.8	3.0	1.2	1.0	0.6	0.6	0.3
Earth, atmospheric, and ocean sciences	821	67.2	10.1	9.6	5.8	2.9	1.8	1.1	0.7	0.6
Mathematics	1,434	80.1	7.2	6.2	2.9	1.8	0.7	0.3	0.4	0.3
Medical/other health sciences	1,869	74.4	6.5	6.1	4.9	3.2	2.1	1.0	0.7	1.1
Physical sciences	3,920	70.1	8.8	8.7	5.9	2.9	1.6	0.8	0.6	0.6
Psychology	2,987	63.1	7.9	11.0	7.5	4.1	3.0	1.5	0.8	1.1
Social sciences	4,440	74.0	7.6	7.3	5.1	2.2	1.6	1.0	0.7	0.6
Non-S&E	12,541	73.3	7.4	6.9	4.8	2.7	1.8	1.1	1.1	0.9
Graduate debt										
All fields	45,015	63.0	8.7	5.8	4.3	3.6	2.9	2.5	2.9	6.2
S&E	32,463	67.6	8.6	5.4	3.8	3.1	2.4	2.0	2.3	4.9
Engineering	7,008	75.8	8.7	4.8	3.0	1.8	1.4	1.1	1.2	2.0
Sciences	25,455	65.3	8.6	5.5	4.0	3.4	2.6	2.3	2.6	5.7
Agricultural sciences	1,055	63.9	12.9	6.2	4.3	3.4	2.3	2.5	1.8	2.8
Biological sciences	7,440	72.5	8.0	5.3	3.7	2.7	2.0	1.7	1.5	2.6
Computer sciences	1,476	79.1	6.0	4.1	2.6	2.1	1.4	0.7	1.7	2.3
Earth, atmospheric, and ocean sciences	823	71.9	10.8	4.7	3.4	2.3	2.3	1.3	1.3	1.8
Mathematics	1,436	81.3	7.2	3.1	1.5	1.8	1.4	1.3	1.2	1.3
Medical/other health sciences	1,876	53.6	9.9	6.5	5.1	6.1	4.2	2.7	4.3	7.7
Physical sciences	3,918	76.3	8.8	4.3	2.9	2.1	1.6	1.1	1.2	1.7
Psychology	2,982	39.2	6.7	6.3	5.6	6.0	4.6	5.4	5.9	20.2
Social sciences	4,449	55.3	9.9	7.2	5.3	3.9	3.6	2.9	3.9	8.0
Non-S&E	12,552	51.2	8.9	7.1	5.7	5.2	4.3	3.9	4.4	9.4

NOTES: 4,572 doctorate recipients did not report undergraduate debt; 4,547 did not report graduate debt. Percentages may not add to 100% because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Earned Doctorates, special tabulations (2010).

Science and Engineering Indicators 2012

Appendix table 2-10

Enrollment in higher education, by Carnegie institution type: 1994–2009

Year	All institutions	Doctorate-granting universities—very high research activity	Doctorate-granting universities—high research activity	Doctoral/research universities	Master's colleges/universities	Baccalaureate colleges	Associate's colleges	Medical schools/medical centers	Schools of engineering	Other special-focus institutions	Tribal colleges	Not classified
1994	14,449,476	2,343,460	1,411,552	622,379	3,170,172	1,029,595	5,148,257	73,069	14,865	230,224	9,619	396,284
1995	14,445,438	2,348,186	1,411,067	623,565	3,181,959	1,041,713	5,097,400	74,364	14,672	233,949	9,798	408,765
1996	14,550,056	2,347,141	1,399,692	626,749	3,201,713	1,056,497	5,216,221	75,914	14,342	250,500	16,390	344,897
1997	14,680,488	2,356,066	1,411,192	624,604	3,238,546	1,071,261	5,275,806	76,861	14,335	265,453	12,734	333,630
1998	14,711,280	2,382,444	1,422,416	631,993	3,265,398	1,088,817	5,255,489	76,653	13,717	278,603	13,273	282,477
2000	15,506,922	2,424,538	1,456,265	658,945	3,399,572	1,122,229	5,754,706	76,973	14,839	311,261	13,680	273,914
2001	16,129,629	2,483,646	1,498,395	699,770	3,532,674	1,158,437	6,114,038	78,162	15,338	329,201	13,996	205,972
2002	16,822,915	2,558,455	1,549,097	744,014	3,698,420	1,200,357	6,434,322	80,595	15,903	355,717	15,468	170,567
2003	17,118,126	2,593,906	1,570,377	791,639	3,794,568	1,225,664	6,495,391	82,081	16,289	379,286	17,776	151,149
2004	17,492,964	2,604,610	1,585,134	858,975	3,896,576	1,248,869	6,620,235	87,260	16,169	414,291	17,605	143,240
2005	17,710,640	2,620,649	1,588,398	878,479	4,054,952	1,265,883	6,650,443	90,647	16,373	435,219	17,167	92,430
2006	17,985,045	2,651,949	1,605,968	936,791	4,113,448	1,272,765	6,745,500	93,438	16,952	450,137	17,255	80,842
2007	18,474,977	2,691,983	1,635,212	1,013,667	4,217,378	1,284,559	6,961,269	96,616	17,182	464,565	17,418	75,128
2008	19,338,981	2,748,682	1,665,347	1,124,796	4,419,503	1,340,159	7,383,879	101,675	17,250	484,185	17,014	36,491
2009	20,671,503	2,809,366	1,716,850	1,232,683	4,654,128	1,415,770	8,170,740	106,789	17,623	521,164	19,686	6,704

NOTES: Data not available for 1999. Data from 1994 and 1995 based on accredited higher education institutions. Data from 1996 to 2009 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs. Carnegie institution type corresponds to the 2010 classification.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey (various years); and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-11

Projections of U.S. population ages 20–24 years, by sex and race/ethnicity: 2010–50

(Thousands)

	All races/ethnicities		Non-Hispanic white		Non-Hispanic Asian		Non-Hispanic black		Hispanic		Non-Hispanic other race/ethnicity	
Sex	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Both sexes												
2010	21,779	100.0	13,049	59.9	912	4.2	3,170	14.6	4,010	18.4	638	2.9
2015	22,342	100.0	12,499	55.9	1,015	4.5	3,255	14.6	4,873	21.8	700	3.1
2020	21,799	100.0	11,561	53.0	1,111	5.1	2,930	13.4	5,441	25.0	756	3.5
2025	23,168	100.0	11,676	50.4	1,260	5.4	2,972	12.8	6,390	27.6	870	3.8
2030	24,191	100.0	11,714	48.4	1,370	5.7	3,045	12.6	7,089	29.3	973	4.0
2035	25,408	100.0	11,852	46.6	1,451	5.7	3,203	12.6	7,820	30.8	1,081	4.3
2040	26,408	100.0	11,818	44.8	1,543	5.8	3,258	12.3	8,614	32.6	1,176	4.5
2045	27,272	100.0	11,553	42.4	1,665	6.1	3,263	12.0	9,527	34.9	1,265	4.6
2050	28,171	100.0	11,247	39.9	1,809	6.4	3,268	11.6	10,483	37.2	1,364	4.8
Male												
2010	11,100	100.0	6,666	60.1	450	4.1	1,595	14.4	2,066	18.6	322	2.9
2015	11,378	100.0	6,379	56.1	497	4.4	1,638	14.4	2,513	22.1	352	3.1
2020	11,072	100.0	5,892	53.2	532	4.8	1,472	13.3	2,794	25.2	382	3.5
2025	11,749	100.0	5,942	50.6	608	5.2	1,490	12.7	3,266	27.8	443	3.8
2030	12,266	100.0	5,961	48.6	665	5.4	1,527	12.4	3,617	29.5	495	4.0
2035	12,878	100.0	6,032	46.8	705	5.5	1,607	12.5	3,984	30.9	551	4.3
2040	13,379	100.0	6,014	45.0	750	5.6	1,634	12.2	4,382	32.8	599	4.5
2045	13,810	100.0	5,878	42.6	809	5.9	1,636	11.8	4,842	35.1	645	4.7
2050	14,259	100.0	5,721	40.1	880	6.2	1,639	11.5	5,323	37.3	696	4.9
Female												
2010	10,680	100.0	6,383	59.8	462	4.3	1,575	14.7	1,944	18.2	316	3.0
2015	10,963	100.0	6,120	55.8	519	4.7	1,617	14.8	2,360	21.5	348	3.2
2020	10,728	100.0	5,669	52.8	579	5.4	1,458	13.6	2,647	24.7	374	3.5
2025	11,419	100.0	5,734	50.2	652	5.7	1,482	13.0	3,124	27.4	427	3.7
2030	11,926	100.0	5,753	48.2	705	5.9	1,518	12.7	3,472	29.1	477	4.0
2035	12,530	100.0	5,821	46.5	746	6.0	1,597	12.7	3,836	30.6	530	4.2
2040	13,029	100.0	5,804	44.5	794	6.1	1,624	12.5	4,231	32.5	576	4.4
2045	13,462	100.0	5,675	42.2	856	6.4	1,627	12.1	4,685	34.8	620	4.6
2050	13,913	100.0	5,526	39.7	929	6.7	1,629	11.7	5,160	37.1	669	4.8

NOTES: Detail may not add to total because of rounding. Hispanics may be of any race. Other race/ethnicity includes American Indians/Alaska Natives, Native Hawaiians/other Pacific Islanders, and multiple races/identities.

SOURCES: Census Bureau, Population Division, Projections of the Population by Age and Sex for the United States: 2010 to 2050 (NP2008-T12).

Science and Engineering Indicators 2012

Appendix table 2-12

Freshmen intending S&E major, by field, sex, and race/ethnicity: 1995–2010

(Percent)

Field, sex, and race/ethnicity	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All intending S&E major	32.4	34.2	34.2	32.0	33.7	33.1	33.5	33.5	32.6	33.1	30.9	32.0	31.9	34.7	36.2	38.4
Physical sciences	2.3	2.1	2.1	1.8	1.9	1.8	1.9	2.0	2.0	2.3	2.8	2.3	2.4	2.4	2.5	2.7
Biological/agricultural sciences	9.4	9.3	9.1	8.1	8.2	7.5	7.5	7.8	7.7	8.3	8.1	8.8	9.1	9.8	10.4	11.6
Mathematics/statistics	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9
Computer sciences	3.0	3.6	4.1	4.6	5.1	5.2	4.7	3.1	2.4	2.0	1.2	1.6	1.7	1.5	1.6	1.5
Social/behavioral sciences	8.9	8.9	8.5	8.7	8.9	9.2	9.6	10.4	10.5	10.2	9.6	10.5	10.4	10.9	11.1	11.4
Engineering	8.1	9.6	9.7	8.2	9.0	8.7	9.1	9.5	9.3	9.6	8.4	8.0	7.5	9.3	9.7	10.3
Male	39.2	42.2	42.4	39.1	42.4	41.4	42.2	41.2	39.6	40.8	37.0	37.9	37.3	41.1	43.4	44.1
Physical sciences	2.8	2.6	2.7	2.2	2.4	2.3	2.4	2.4	2.5	2.9	2.7	2.8	2.9	3.1	3.3	3.4
Biological/agricultural sciences	9.2	8.8	8.4	7.4	7.3	6.5	6.5	6.6	6.7	7.4	7.2	8.1	8.2	8.8	9.7	10.0
Mathematics/statistics	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.9	1.0	0.9	0.9	1.0	1.0	1.0	1.1
Computer sciences	5.1	6.3	7.1	7.9	9.1	9.3	8.8	6.0	4.7	4.1	3.1	3.0	3.4	3.0	3.1	2.9
Social/behavioral sciences	6.7	6.5	6.3	6.2	6.4	6.6	7.1	7.5	7.7	7.5	7.5	8.6	8.1	8.2	8.7	8.8
Engineering	14.6	17.3	17.2	14.7	16.5	15.9	16.7	17.9	17.1	17.9	15.6	14.5	13.7	17.0	17.6	17.9
Female	27.1	27.9	27.7	26.4	26.8	26.2	26.7	26.7	26.2	26.3	27.0	27.2	27.7	29.5	30.3	33.3
Physical sciences	1.8	1.8	1.6	1.5	1.5	1.5	1.5	1.6	1.7	1.9	1.9	2.0	2.0	2.1	2.1	2.2
Biological/agricultural sciences	9.6	9.7	9.7	8.8	9.0	7.9	8.3	8.5	8.5	9.0	8.7	9.6	9.7	10.4	11.0	12.4
Mathematics/statistics	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.7
Computer sciences	1.3	1.5	1.7	1.9	1.8	1.9	1.6	0.9	0.5	0.4	0.8	0.4	0.4	0.4	0.3	0.4
Social/behavioral sciences	11.0	11.0	10.5	10.9	11.0	11.3	11.7	12.0	12.0	11.5	12.3	12.1	12.3	12.8	12.8	13.6
Engineering	2.7	3.3	3.5	2.7	2.9	3.0	3.0	3.0	2.9	2.9	2.6	2.5	2.6	3.1	3.3	4.0
White/Caucasian	31.2	32.7	32.8	30.6	31.8	30.7	31.8	31.3	30.1	30.2	29.1	29.6	29.3	32.9	34.0	37.0
Physical sciences	2.5	2.1	2.4	1.9	2.0	2.0	2.1	2.1	2.1	2.3	2.4	2.5	2.5	2.6	2.8	2.8
Biological/agricultural sciences	9.3	9.3	8.7	7.9	8.0	6.7	7.1	7.1	6.5	7.1	7.1	7.6	7.7	8.6	9.0	10.8
Mathematics/statistics	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Computer sciences	2.5	3.0	3.5	3.8	4.1	4.3	4.0	2.8	2.3	1.9	1.5	1.5	1.6	1.4	1.5	1.4
Social/behavioral sciences	8.7	8.7	8.5	8.4	8.5	8.7	9.0	9.3	9.5	9.1	9.3	9.5	9.5	9.8	10.1	10.6
Engineering	7.5	8.9	9.0	7.9	8.5	8.3	8.9	9.2	8.9	9.0	8.0	7.7	7.2	9.6	9.7	10.5
Male	38.1	40.8	41.1	38.8	40.1	39.8	41.0	39.8	38.5	38.9	36.1	36.6	35.8	40.2	41.5	43.8
Physical sciences	2.9	2.7	3.0	2.5	2.4	2.5	2.5	2.8	2.8	3.0	3.0	3.0	3.3	3.3	3.7	3.6
Biological/agricultural sciences	9.1	8.9	8.3	7.7	7.3	6.2	6.3	6.4	6.0	6.7	6.7	7.2	7.3	8.0	8.3	10.0
Mathematics/statistics	0.9	0.8	0.7	0.7	0.7	0.9	0.7	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1
Computer sciences	4.6	5.6	6.4	7.1	7.7	8.2	7.7	5.5	4.7	3.9	3.0	3.0	3.2	2.8	2.9	2.7
Social/behavioral sciences	6.9	6.6	6.2	6.0	6.3	6.6	7.0	7.2	7.7	7.3	7.5	8.1	7.9	7.8	8.3	8.4
Engineering	13.7	16.2	16.5	14.8	15.7	15.4	16.8	17.0	16.4	17.0	14.9	14.3	13.1	17.3	17.3	18.0
Female	25.4	26.0	25.9	24.2	24.8	24.0	24.1	23.8	23.8	23.8	23.1	24.0	24.7	26.2	27.6	31.1
Physical sciences	2.0	1.6	1.8	1.5	1.6	1.5	1.5	1.5	1.6	1.9	1.8	1.9	2.0	2.0	2.1	2.4
Biological/agricultural sciences	9.2	9.4	9.3	8.4	8.8	7.7	7.6	7.6	7.4	7.7	7.3	8.0	8.3	9.0	9.5	11.2
Mathematics/statistics	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.8
Computer sciences	0.7	0.9	1.0	1.1	1.1	1.1	0.8	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Social/behavioral sciences	10.5	10.5	10.1	10.1	10.3	10.6	11.1	11.0	11.2	10.6	11.0	10.9	11.1	11.3	11.6	12.4
Engineering	2.3	2.9	3.0	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.0	2.2	2.3	2.9	3.2	4.0
Asian American/Asian[a]	41.2	48.2	45.8	45.4	48.3	45.3	43.2	43.8	44.5	46.1	42.3	45.7	44.7	46.6	50.4	49.0
Physical sciences	1.9	2.0	1.6	2.0	1.5	1.4	1.7	1.9	2.2	2.3	2.2	2.7	2.6	2.8	2.9	3.0
Biological/agricultural sciences	13.2	13.1	12.0	11.8	11.2	10.5	10.5	12.2	15.0	16.8	15.8	18.5	17.8	17.7	19.5	18.3
Mathematics/statistics	0.6	0.5	0.5	0.5	0.5	0.6	0.7	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.2

Appendix table 2-12

Freshmen intending S&E major, by field, sex, and race/ethnicity: 1995–2010

(Percent)

Field, sex, and race/ethnicity	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Computer sciences	5.3	8.1	8.2	9.7	13.3	11.5	9.6	4.7	3.1	2.2	1.5	1.5	2.0	2.0	1.9	2.2
Social/behavioral sciences	6.8	6.5	6.3	6.7	6.4	6.9	7.0	7.8	8.4	8.4	8.1	10.0	9.0	9.5	10.0	9.6
Engineering	13.4	18.0	17.2	14.7	15.4	14.4	13.7	16.3	14.9	15.5	13.8	12.0	12.3	13.6	15.1	14.7
Male	50.3	58.4	58.7	55.4	60.4	56.8	54.6	55.3	53.6	54.3	49.6	50.8	50.6	52.7	56.7	54.5
Physical sciences	2.5	2.0	2.0	2.1	1.6	1.5	1.7	2.0	2.3	2.3	2.6	2.9	2.8	3.0	3.2	3.2
Biological/agricultural sciences	12.5	11.6	10.5	10.3	9.0	8.7	8.5	10.5	13.4	14.8	14.4	16.5	16.0	15.6	17.6	16.2
Mathematics/statistics	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.9	1.1	0.9	0.9	1.1	1.3	1.3	1.1	1.3
Computer sciences	8.2	12.2	12.8	14.5	19.8	18.2	15.7	8.4	5.4	3.8	2.8	2.6	3.5	3.6	3.1	3.5
Social/behavioral sciences	4.4	3.9	4.6	4.2	4.5	5.0	5.4	5.7	6.2	6.6	5.9	8.0	7.1	7.2	8.1	7.6
Engineering	22.1	28.2	28.2	23.7	24.9	22.8	22.6	27.8	25.2	25.9	23.0	19.7	19.9	22.0	23.6	22.7
Female	32.9	37.0	34.0	35.9	35.8	35.1	33.0	33.9	36.6	37.9	36.0	41.0	39.4	40.6	44.1	43.1
Physical sciences	1.5	2.0	1.5	1.8	1.2	1.3	1.5	1.6	1.9	2.0	2.2	2.8	2.4	2.3	2.6	2.6
Biological/agricultural sciences	14.0	14.4	13.6	13.2	13.4	12.0	12.1	14.0	16.7	18.6	17.4	20.0	19.7	20.0	21.1	19.9
Mathematics/statistics	0.6	0.5	0.5	0.5	0.4	0.6	0.6	0.8	0.7	0.8	0.7	0.9	0.8	0.8	0.8	1.1
Computer sciences	2.6	3.7	3.6	5.1	6.7	5.6	4.3	1.7	1.1	0.6	0.4	0.5	0.7	0.5	0.8	0.8
Social/behavioral sciences	9.2	9.3	8.1	9.1	8.1	8.6	8.5	9.6	10.5	10.2	10.2	11.8	10.6	11.5	11.6	11.5
Engineering	5.0	7.1	6.7	6.2	6.0	7.0	6.0	6.2	5.7	5.7	5.1	5.0	5.2	5.5	7.2	7.2
African American/Black	35.7	36.9	39.0	35.1	37.1	37.5	35.0	35.5	33.6	34.4	32.1	33.6	33.8	32.8	35.7	36.5
Physical sciences	1.6	1.3	1.3	1.2	1.0	1.2	1.0	1.3	1.3	1.6	1.8	1.6	1.5	1.6	1.8	1.8
Biological/agricultural sciences	8.8	8.8	9.3	7.3	8.0	7.8	7.7	8.4	8.6	9.6	8.7	9.3	9.7	9.8	11.2	10.9
Mathematics/statistics	0.7	0.6	0.7	0.5	0.6	0.5	0.3	0.5	0.4	0.5	0.5	0.5	0.6	0.4	0.5	0.5
Computer sciences	6.3	6.7	7.3	8.8	8.5	8.5	7.5	4.8	3.5	3.4	2.7	2.3	2.9	2.4	2.4	2.6
Social/behavioral sciences	9.6	9.8	10.1	11.2	11.3	10.9	12.3	11.9	12.1	11.4	11.5	12.7	12.8	12.5	13.3	13.3
Engineering	8.7	9.7	10.3	6.1	7.7	8.6	6.2	8.6	7.7	7.9	6.9	7.2	6.3	6.1	6.5	7.4
Male	40.6	40.9	45.1	37.4	42.0	42.1	37.5	40.3	36.4	38.1	34.3	35.7	34.6	33.6	37.1	39.4
Physical sciences	1.7	1.1	1.4	1.4	1.2	1.3	1.0	1.3	1.3	1.6	1.8	1.6	1.8	1.8	1.5	2.2
Biological/agricultural sciences	7.9	7.0	8.3	5.6	6.1	6.0	5.6	5.8	5.5	7.4	6.6	6.9	7.0	7.0	9.0	8.2
Mathematics/statistics	0.8	0.5	0.6	0.6	0.5	0.5	0.3	0.4	0.7	0.6	0.5	0.7	0.5	0.5	0.6	0.5
Computer sciences	8.5	8.9	10.2	12.8	13.5	12.6	12.3	8.2	6.2	6.2	5.0	3.8	4.9	4.4	4.2	4.9
Social/behavioral sciences	6.1	6.1	6.8	7.1	7.4	6.4	7.3	8.1	7.8	7.1	7.2	8.4	8.2	8.1	9.4	9.0
Engineering	15.6	17.3	17.8	9.9	13.3	15.3	11.0	16.5	14.9	15.2	13.2	14.3	12.2	11.8	12.4	14.6
Female	32.8	34.0	34.4	33.6	34.5	34.3	33.3	32.6	31.4	32.0	30.3	31.9	33.8	32.3	34.5	35.3
Physical sciences	1.4	1.4	1.1	0.9	1.1	1.1	1.1	1.3	1.4	1.7	1.7	1.6	1.5	1.6	2.0	1.7
Biological/agricultural sciences	9.5	9.7	9.7	8.4	9.2	8.7	9.0	10.2	10.2	11.2	10.0	11.1	11.6	11.3	12.7	12.8
Mathematics/statistics	0.7	0.6	0.8	0.5	0.6	0.5	0.3	0.6	0.3	0.4	0.5	0.4	0.6	0.4	0.4	0.5
Computer sciences	5.0	5.2	5.3	6.2	5.4	5.7	4.4	2.5	1.8	1.6	1.1	1.2	1.4	1.0	1.1	1.1
Social/behavioral sciences	11.7	12.3	12.3	14.1	13.9	13.8	15.2	14.1	14.5	14.1	14.1	15.3	16.1	15.4	15.9	16.0
Engineering	4.5	4.8	5.2	3.5	4.3	4.4	3.3	3.9	3.2	2.9	2.9	2.3	2.6	2.6	2.4	3.2
Hispanic/Latino[b]	37.8	37.6	37.9	33.7	37.0	34.1	34.4	36.4	35.8	38.0	34.2	36.8	34.8	38.2	39.7	40.7
Physical sciences	1.2	1.1	1.4	1.1	1.0	1.1	1.2	1.6	1.6	1.6	1.4	1.8	1.4	1.6	1.8	1.9
Biological/agricultural sciences	8.6	8.1	9.0	8.2	8.3	7.3	7.6	8.2	8.1	9.8	8.0	10.1	9.5	10.0	11.0	11.7
Mathematics/statistics	0.3	0.5	0.4	0.6	0.5	0.4	0.5	0.7	0.8	0.7	0.8	0.8	0.8	0.9	0.7	0.7
Computer sciences	3.3	3.9	3.8	4.2	4.2	4.4	4.1	2.5	2.2	2.1	1.1	1.3	1.4	1.0	1.0	1.5
Social/behavioral sciences	12.5	11.3	11.7	10.6	11.1	12.6	11.6	14.0	13.6	13.1	13.5	15.8	14.6	15.6	15.3	15.6
Engineering	11.9	12.7	11.6	9.0	11.9	8.3	9.4	9.4	9.5	10.7	9.4	7.0	7.1	9.1	9.9	9.3

Appendix table 2-12

Freshmen intending S&E major, by field, sex, and race/ethnicity: 1995–2010

(Percent)

Field, sex, and race/ethnicity	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Male	43.8	46.3	44.8	38.9	45.3	42.5	42.8	42.7	41.8	45.3	39.4	41.3	38.8	41.7	47.2	44.4
Physical sciences	1.6	1.3	1.7	1.6	1.0	1.4	1.4	1.8	2.1	1.9	1.4	2.4	1.6	2.1	2.6	2.3
Biological/agricultural sciences	6.7	7.7	7.9	7.2	6.7	7.5	6.8	7.2	6.3	8.1	6.6	9.6	9.1	9.0	10.9	9.7
Mathematics/statistics	0.3	0.7	0.4	0.6	0.6	0.4	0.7	0.8	0.9	0.9	0.9	1.0	0.8	1.0	0.8	0.8
Computer sciences	5.3	6.3	6.7	5.7	7.5	8.2	7.8	5.1	4.5	4.2	2.6	3.3	2.8	2.2	2.1	2.7
Social/behavioral sciences	8.2	8.0	6.9	7.1	7.1	7.9	7.9	8.8	8.8	9.0	8.0	10.8	9.8	9.3	11.2	10.7
Engineering	21.7	22.3	21.2	16.7	22.4	17.1	18.2	19.0	19.2	21.2	19.9	14.2	14.7	18.1	19.6	18.2
Female	32.5	30.1	33.1	29.0	29.8	28.2	28.4	32.0	31.9	33.4	30.6	34.0	32.2	36.1	35.3	38.1
Physical sciences	0.9	0.9	1.4	0.7	0.7	1.0	1.1	1.5	1.1	1.3	1.1	1.5	1.3	1.2	1.5	1.7
Biological/agricultural sciences	10.2	8.3	10.0	8.7	9.7	7.3	8.1	9.3	9.6	10.9	8.8	10.7	9.8	10.9	11.4	12.9
Mathematics/statistics	0.4	0.4	0.3	0.6	0.4	0.3	0.4	0.6	0.7	0.6	0.7	0.7	0.7	0.8	0.7	0.6
Computer sciences	1.5	2.0	1.6	2.8	1.6	1.8	1.5	0.7	0.5	0.7	0.1	0.1	0.5	0.3	0.3	0.6
Social/behavioral sciences	16.1	13.8	15.6	13.4	14.1	15.7	14.6	17.3	17.1	16.6	17.3	18.7	17.9	19.9	18.2	19.1
Engineering	3.4	4.7	4.2	2.8	3.3	2.1	2.7	2.6	2.9	3.3	2.6	2.3	2.0	3.0	3.2	3.2
American Indian/Alaska Native[c]	26.8	31.8	31.2	28.2	33.5	30.5	34.2	30.4	29.9	28.0	31.8	35.5	35.8	26.9	24.6	27.6
Physical sciences	1.1	2.1	3.0	2.4	1.1	3.8	1.8	1.2	1.1	1.2	1.9	2.8	2.0	2.7	1.4	1.9
Biological/agricultural sciences	8.9	8.5	5.6	6.8	10.6	6.3	7.7	8.5	7.0	7.9	12.1	12.9	10.6	7.3	8.2	8.9
Mathematics/statistics	0.1	0.0	0.2	0.2	0.5	0.6	0.9	0.2	0.2	1.1	0.7	0.1	1.9	0.0	0.4	0.1
Computer sciences	2.3	3.5	7.3	4.8	5.0	3.5	5.4	2.7	2.7	2.1	2.6	0.7	2.2	2.0	1.7	1.5
Social/behavioral sciences	8.8	8.7	9.7	9.0	11.8	8.7	9.3	8.8	12.5	8.6	8.3	8.6	9.9	6.7	8.1	9.6
Engineering	5.6	9.0	5.4	5.0	4.5	7.6	9.1	9.0	6.4	7.1	6.2	10.4	9.2	8.2	4.8	5.6
Male	37.5	35.1	41.8	36.8	43.0	36.7	44.3	39.2	35.7	34.5	34.8	44.5	46.8	33.1	30.1	31.4
Physical sciences	1.6	2.1	3.7	1.1	1.5	4.7	1.8	2.3	0.4	1.3	2.0	3.2	2.8	1.9	0.6	3.0
Biological/agricultural sciences	10.8	8.8	7.3	7.1	11.3	6.3	7.5	7.2	7.1	8.4	13.2	8.2	11.8	6.9	10.4	7.5
Mathematics/statistics	0.2	0.0	0.3	0.3	1.0	0.6	0.0	0.4	0.0	0.4	0.5	0.2	3.3	0.0	0.7	0.0
Computer sciences	3.6	4.2	9.0	8.6	9.1	6.2	11.0	5.3	6.4	4.6	3.4	1.4	4.4	2.6	3.2	1.3
Social/behavioral sciences	8.5	6.3	9.4	9.9	11.8	5.1	6.4	7.3	8.0	7.0	4.0	9.5	6.9	6.5	7.2	8.4
Engineering	12.8	13.7	12.1	9.8	8.3	13.8	17.6	16.7	13.8	12.8	11.7	22.0	17.6	15.2	8.0	11.2
Female	22.0	30.7	27.2	22.0	28.0	24.6	27.5	23.9	25.9	24.0	29.9	29.8	29.0	22.7	21.5	23.6
Physical sciences	0.8	2.3	2.6	3.3	0.8	2.6	1.7	0.3	1.6	1.1	1.9	2.6	1.5	3.1	2.0	1.2
Biological/agricultural sciences	9.7	9.0	6.9	7.3	11.8	6.3	8.9	10.1	7.5	8.2	11.5	16.7	10.6	8.6	7.5	10.2
Mathematics/statistics	0.0	0.0	0.1	0.0	0.2	0.5	1.6	0.0	0.3	1.5	0.9	0.0	1.0	0.0	0.2	0.1
Computer sciences	1.5	3.1	6.3	1.9	1.8	1.2	1.0	0.6	0.0	0.4	1.9	0.2	0.7	1.6	0.6	0.0
Social/behavioral sciences	9.1	10.4	9.9	8.2	11.8	11.5	11.7	10.4	15.4	9.6	12.1	7.9	11.8	6.8	8.9	10.5
Engineering	0.9	5.9	1.4	1.3	1.6	2.5	2.6	2.5	1.1	3.2	1.6	2.4	3.4	2.6	2.3	1.6

[a]In 1997 the Asian American/Asian category was broken out into six categories: Chinese American/Chinese, Filipino American/Filipino, Japanese American/Japanese, Korean American/Korean, South East Asian American (Vietnamese, Laotian, Cambodian, etc.), and other Asian American/Asian. In 1998 the Asian American/Asian category used in prior years was restored. In 2001 Native Hawaiian/Pacific Islander was added as a category under Asian American/Asian.

[b]Hispanic/Latino includes Mexican American/Chicano, Puerto Rican, and other Latino.

[c]The category American Indian was changed to American Indian/Alaska Native in 2001.

NOTES: Physical sciences include physics; chemistry; astronomy; and earth, atmospheric, and ocean sciences. Students may check more than one race/ethnicity, e.g., white and Hispanic.

SOURCE: Higher Education Research Institute, University of California at Los Angeles, Survey of the American Freshman: National Norms, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 2-13

Freshmen intending to major in selected S&E fields, by sex and race/ethnicity: 1995–2010

(Percent)

Sex, race/ethnicity, and field	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Male	54.4	55.5	55.6	55.3	56.1	55.9	55.7	55.6	54.8	55.0	53.6	53.2	52.1	53.3	53.8	52.6
Female	45.6	44.5	44.4	44.7	43.9	44.1	44.3	44.4	45.2	45.0	46.4	46.8	47.9	46.7	46.2	47.4
White/Caucasian	76.8	75.9	76.7	76.4	74.9	72.9	71.6	72.5	72.0	72.5	71.0	72.4	71.0	69.0	69.7	71.3
Physical sciences	84.9	84.2	85.0	84.1	85.6	83.2	81.7	81.2	79.2	80.6	79.7	79.5	80.6	76.7	77.4	78.3
Biological/agricultural sciences	78.4	77.9	78.1	78.2	77.1	73.3	70.7	70.0	66.8	66.8	66.2	67.5	66.4	64.7	65.1	69.1
Mathematics/statistics	83.5	83.6	82.9	83.6	82.7	82.8	81.4	80.0	78.6	80.8	79.2	78.5	76.9	75.0	78.1	77.1
Computer sciences	65.2	65.2	68.0	66.1	63.7	64.0	62.6	68.8	71.7	71.6	69.9	74.7	69.4	67.6	69.9	66.2
Social/behavioral sciences	78.6	78.6	78.4	76.5	76.9	74.3	71.9	73.0	73.2	74.1	72.3	72.4	71.3	67.7	68.9	69.7
Engineering	74.3	73.1	75.2	78.0	74.5	73.3	74.1	72.6	72.8	73.6	71.3	74.9	72.6	72.7	72.7	73.8
Asian American/Asian[a]	7.0	7.7	7.9	7.7	9.2	9.6	10.2	11.0	12.4	12.8	12.7	11.9	12.4	13.1	13.4	11.8
Physical sciences	5.4	5.4	5.2	6.1	5.8	6.1	6.9	7.6	9.6	9.4	9.7	10.2	9.9	11.0	10.6	10.5
Biological/agricultural sciences	7.8	7.6	7.7	8.0	8.7	10.1	11.0	13.0	16.9	17.2	17.2	16.2	16.7	17.1	17.1	14.4
Mathematics/statistics	4.5	5.3	5.1	4.7	6.3	6.9	8.3	8.5	11.2	9.4	10.1	11.4	11.0	12.6	11.8	13.1
Computer sciences	9.3	11.4	11.4	11.0	16.1	14.8	15.5	12.7	11.4	10.4	10.0	8.6	10.8	12.4	11.4	12.4
Social/behavioral sciences	4.3	4.4	4.8	4.4	5.0	5.6	6.3	7.1	8.1	8.7	8.2	8.5	8.2	9.5	9.7	8.4
Engineering	8.9	10.2	10.3	9.8	10.8	11.1	11.7	13.8	14.4	14.7	15.2	12.7	14.5	14.2	14.7	12.9
African American/Black	11.3	11.4	11.3	11.3	10.2	11.3	10.8	10.5	9.7	9.9	11.4	10.8	11.1	10.5	10.5	10.6
Physical sciences	7.2	7.5	6.4	6.6	6.1	7.1	6.2	6.4	6.9	7.5	8.3	7.4	7.4	7.8	8.2	7.8
Biological/agricultural sciences	9.7	9.9	10.1	9.3	8.9	10.6	10.6	10.6	10.3	10.7	11.7	10.6	11.0	11.0	11.4	10.4
Mathematics/statistics	10.0	8.8	10.0	7.6	8.5	6.6	5.5	6.7	5.6	5.3	6.5	6.8	6.9	5.9	6.4	7.1
Computer sciences	20.8	18.4	17.0	18.9	15.3	15.6	15.7	14.4	12.7	15.1	17.4	14.0	15.8	15.9	15.6	16.9
Social/behavioral sciences	11.4	12.0	12.2	13.8	11.9	12.1	13.3	12.1	11.3	11.4	13.3	12.7	13.3	13.3	12.9	13.2
Engineering	10.9	10.7	10.3	7.6	7.9	9.7	6.9	8.7	7.5	7.6	9.0	9.3	8.7	7.1	7.0	7.9
Hispanic/Latino[b]	5.0	5.2	5.0	5.4	6.4	7.0	7.5	6.7	7.4	8.0	8.5	9.1	9.4	12.1	12.0	12.8
Physical sciences	2.7	3.1	3.4	3.6	3.7	5.3	5.1	5.1	5.4	5.2	5.3	6.5	5.3	8.4	8.9	10.8
Biological/agricultural sciences	4.2	4.3	4.8	5.1	5.9	7.0	7.2	6.6	7.1	7.7	7.7	9.0	9.2	11.4	11.4	11.9
Mathematics/statistics	2.6	3.5	3.3	4.4	5.2	4.7	6.4	6.1	6.7	6.9	7.3	7.8	8.7	10.4	9.9	9.0
Computer sciences	4.5	5.0	4.1	4.8	4.9	5.9	6.1	5.2	6.0	7.0	6.2	6.5	7.0	8.4	7.8	11.4
Social/behavioral sciences	5.9	6.4	6.1	6.4	7.5	9.1	9.2	8.7	9.0	9.5	10.8	11.6	12.2	15.6	15.2	16.1
Engineering	5.9	5.8	4.9	5.6	7.0	6.1	7.1	5.8	6.7	7.6	8.4	7.0	8.2	10.5	10.6	11.1
American Indian/Alaska Native[c]	2.2	2.3	3.1	2.1	2.4	1.9	1.3	1.2	1.3	2.0	1.8	2.4	2.2	2.5	2.3	2.4
Physical sciences	2.0	2.9	3.5	2.4	3.1	2.5	1.2	1.1	1.1	2.1	1.8	2.6	2.0	2.8	2.3	2.2
Biological/agricultural sciences	2.4	2.4	3.2	2.2	2.6	1.8	1.4	1.3	1.5	2.0	1.8	2.5	2.1	2.7	2.5	2.5
Mathematics/statistics	1.1	1.7	2.1	1.3	2.4	0.9	1.1	1.0	1.2	1.4	1.5	1.1	2.2	1.2	1.2	1.7
Computer sciences	2.2	2.4	3.7	2.1	1.9	1.4	1.1	1.1	1.1	2.2	1.8	2.4	1.9	3.1	2.3	2.1
Social/behavioral sciences	2.4	2.6	3.7	2.6	2.6	2.4	1.6	1.5	1.7	2.4	2.1	2.6	2.5	2.7	2.8	2.9
Engineering	1.8	2.0	2.3	1.6	2.0	1.7	1.0	1.0	0.9	1.6	1.4	2.1	1.9	1.8	1.8	2.0
Other/unknown	2.5	3.0	3.3	3.0	3.8	3.7	3.3	3.1	3.3	3.3	3.1	3.9	3.8	4.3	3.7	3.5
Physical sciences	2.4	3.3	3.3	3.0	3.8	3.0	3.1	2.9	3.0	3.2	2.7	3.8	2.9	3.9	2.9	2.9
Biological/agricultural sciences	2.7	3.1	3.6	3.2	3.7	3.5	3.7	3.5	4.1	3.9	3.7	4.4	4.3	4.9	4.0	3.7
Mathematics/statistics	1.3	2.5	2.5	2.3	3.6	3.5	1.7	2.5	2.5	2.3	2.2	2.3	3.1	3.9	2.8	2.4

Appendix table 2-13

Freshmen intending to major in selected S&E fields, by sex and race/ethnicity: 1995–2010

(Percent)

Sex, race/ethnicity, and field	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Computer sciences	2.2	2.8	2.9	2.6	4.0	4.1	3.4	2.8	2.0	2.4	2.5	2.9	3.0	3.9	3.1	3.6
Social/behavioral sciences	2.5	2.6	3.2	3.4	4.0	4.2	3.5	3.6	3.6	3.7	3.5	4.5	4.3	4.9	4.3	4.0
Engineering	2.5	3.2	3.2	2.6	3.6	3.3	2.9	2.6	2.6	2.8	2.4	3.1	3.1	3.3	3.1	2.8

[a]In 1997 the Asian American/Asian category was broken out into six categories: Chinese American/Chinese, Filipino American/Filipino, Japanese American/Japanese, Korean American/Korean, South East Asian American (Vietnamese, Laotian, Cambodian, etc.), and other Asian American/Asian. In 1998 the Asian American/Asian category used in prior years was restored. In 2001 Native Hawaiian/Pacific Islander was added as a category under Asian American/Asian.

[b]Hispanic/Latino includes Mexican American/Chicano, Puerto Rican, and other Latino.

[c]The category American Indian was changed to American Indian/Alaska Native in 2001.

NOTES: Physical sciences include physics; chemistry; astronomy; and earth, atmospheric, and ocean sciences. Detail does not add to total because students may check more than one race/ethnicity, e.g., white and Hispanic.

SOURCE: Higher Education Research Institute, University of California at Los Angeles, Survey of the American Freshman: National Norms, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 2-14

Foreign undergraduate student enrollment in U.S. universities, by field and selected places of origin: November 2009 and 2010

Place of origin	All fields	S&E	Agricultural sciences	Biological sciences	Computer sciences	Engineering	Mathematics	Physical sciences	Psychology	Social sciences	Non-S&E
November 2009											
Total	291,440	86,950	1,510	12,540	13,160	28,230	4,390	4,370	5,290	17,470	204,480
China	38,340	11,330	240	960	1,280	3,530	1,600	590	460	2,680	27,000
South Korea	39,100	9,750	140	1,940	980	2,260	510	690	690	2,560	29,350
India	12,800	6,410	40	700	1,320	3,320	100	170	140	620	6,390
Saudi Arabia	9,430	4,760	0	120	1,320	2,940	20	190	20	150	4,670
Nepal	9,440	3,870	100	990	990	1,050	130	280	50	270	5,570
Canada	15,590	3,590	120	920	170	830	110	210	430	820	11,990
Japan	15,310	3,320	150	470	310	310	110	190	470	1,300	12,000
Malaysia	3,870	2,390	40	430	100	970	450	90	150	160	1,480
Vietnam	10,810	2,330	20	390	630	610	80	220	30	350	8,480
Nigeria	3,700	1,810	30	370	250	720	20	100	50	280	1,890
Mexico	6,080	1,760	50	160	180	910	40	70	140	230	4,310
Taiwan	6,720	1,600	40	260	250	450	90	100	110	310	5,120
Hong Kong	5,540	1,560	30	190	120	270	150	100	210	490	3,980
Turkey	3,830	1,530	10	50	350	650	20	20	60	370	2,290
Indonesia	4,690	1,510	90	150	220	720	50	60	80	160	3,180
Kenya	4,210	1,150	20	300	220	260	60	90	50	150	3,050
United Kingdom	5,030	950	20	130	90	130	40	50	170	330	4,080
Pakistan	2,250	920	10	70	140	420	40	30	20	200	1,320
Jamaica	2,940	890	20	220	200	170	40	50	70	120	2,050
Brazil	4,910	870	20	130	140	200	20	20	90	260	4,030
Other locations	86,880	24,640	320	3,600	3,930	7,520	730	1,070	1,800	5,660	62,240
November 2010											
All locations	295,550	93,230	1,740	12,220	13,170	31,000	5,610	4,780	5,410	19,310	202,320
China	52,310	16,600	390	1,170	1,710	5,330	2,520	880	650	3,950	35,720
South Korea	38,700	10,410	130	1,900	950	2,390	610	710	760	2,970	28,290
India	12,060	6,270	30	620	1,290	3,250	110	170	140	670	5,780
Saudi Arabia	11,580	5,520	10	170	1,370	3,450	30	220	30	230	6,060
Nepal	8,140	3,620	80	850	900	1,030	140	300	50	270	4,520
Canada	14,920	3,560	120	910	160	850	120	190	420	790	11,360
Japan	12,260	2,660	130	360	260	250	90	130	340	1,100	9,610
Vietnam	11,130	2,610	20	450	630	700	110	220	40	440	8,530
Malaysia	4,120	2,580	60	410	110	1,080	510	90	130	200	1,540
Nigeria	3,840	1,970	20	390	330	760	30	90	60	280	1,870
Hong Kong	5,570	1,710	40	180	130	280	150	120	230	580	3,870
Mexico	5,680	1,640	50	150	170	810	30	70	140	220	4,040
Turkey	3,740	1,570	10	50	320	750	30	20	60	340	2,170
Taiwan	6,110	1,530	40	240	220	440	90	100	100	310	4,580
Indonesia	4,380	1,510	110	150	200	690	50	70	60	190	2,880
United Kingdom	5,060	1,000	30	140	90	140	50	40	170	350	4,060
Kenya	2,900	990	20	250	170	230	60	80	40	150	1,910
Brazil	4,830	980	30	120	140	260	20	30	90	290	3,840
Pakistan	2,100	900	10	70	120	400	40	30	30	210	1,200
Venezuela	3,050	830	10	70	110	390	10	20	80	150	2,210
Other locations total	83,080	24,770	400	3,570	3,790	7,550	820	1,210	1,790	5,640	58,310

NOTES: Numbers rounded to nearest 10. Countries ordered by number of S&E students. Detail may not add to total due to rounding.

SOURCE: Bureau of Citizenship and Immigration Services, Student and Exchange Visitor Information System database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 2-15

Undergraduate enrollment in engineering and engineering technology programs: 1995–2009

Enrollment level	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Engineering															
Students	363,315	356,177	365,358	366,991	361,395	390,803	409,557	421,178	421,791	411,635	409,326	405,489	431,910	442,952	468,139
Full time	325,489	317,772	326,458	329,657	323,713	353,118	367,954	383,109	384,612	377,040	375,112	371,720	399,429	411,345	435,752
Freshman	86,299	85,375	90,882	94,909	93,951	101,773	106,825	107,086	103,834	102,395	100,411	100,228	110,558	111,006	114,704
Sophomore	67,981	66,475	67,879	69,608	69,941	76,706	78,348	81,854	82,542	80,704	79,664	78,418	87,018	92,364	96,561
Junior	68,894	67,190	68,812	67,638	66,975	74,055	76,938	79,806	80,703	78,014	78,891	77,970	82,094	86,894	93,317
Senior or fifth year	102,315	98,732	98,885	97,502	92,846	100,584	105,843	114,363	117,533	115,927	116,146	115,104	119,759	121,081	131,170
Part time	37,826	38,405	38,900	37,334	37,682	37,685	41,603	38,069	37,179	34,595	34,214	33,769	32,481	31,607	32,387
Engineering technologies															
Students	105,809	105,345	108,459	108,993	108,754	107,165	108,886	112,654	110,250	107,931	97,052	96,371	98,857	102,848	109,399
Full time	63,929	62,330	67,864	68,545	69,173	66,771	71,147	72,704	72,040	69,584	62,241	61,977	61,457	65,316	70,829
First year	25,665	26,583	30,227	28,367	29,490	29,531	31,588	30,252	28,033	27,938	25,388	23,195	26,299	28,123	30,320
Second year	18,863	17,267	19,106	18,426	17,326	18,318	19,171	20,360	21,009	19,364	17,465	17,641	16,466	16,944	18,753
Other years associated	2,007	2,780	3,442	6,080	5,289	2,474	2,207	2,786	3,720	2,827	1,822	2,702	2,410	1,993	2,060
Bachelor's of engineering technologies third and later years	17,394	15,700	15,089	15,672	17,068	16,448	18,181	19,306	19,278	19,455	17,566	18,439	16,282	18,256	19,696
Part time	41,880	43,015	40,595	40,448	39,581	40,394	37,739	39,950	38,210	38,347	34,811	34,394	37,400	37,532	38,570

SOURCE: Engineering Workforce Commission, Engineering & Technology Enrollments, Fall 2009 American Association of Engineering Societies (2010).

Science and Engineering Indicators 2012

Appendix table 2-16

Earned associate's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Both sexes										
All fields	573,496	585,610	600,294	637,953	670,335	701,734	718,182	733,151	755,598	793,279
S&E	38,434	45,226	51,194	62,805	60,246	54,750	49,850	47,485	49,166	54,284
Engineering	1,794	1,898	1,781	2,278	2,843	2,557	2,291	2,272	2,403	2,329
Aerospace	1	0	0	0	0	0	2	0	0	0
Chemical	16	18	28	7	305	2	7	3	1	10
Civil	58	53	46	62	58	52	43	64	37	62
Electrical	280	309	182	672	910	691	531	459	422	242
Industrial	67	132	80	81	49	88	57	56	57	83
Materials	11	14	10	12	12	13	10	8	9	5
Mechanical	77	67	65	69	70	64	68	77	100	121
Other	1,284	1,305	1,370	1,375	1,439	1,647	1,573	1,605	1,777	1,806
Science	36,640	43,328	49,413	60,527	57,403	52,193	47,559	45,213	46,763	51,955
Natural sciences	29,130	35,718	41,243	52,130	48,289	42,494	37,622	34,536	35,299	37,536
Agricultural sciences	1,976	2,106	2,001	2,018	1,966	1,908	1,934	1,790	1,762	1,811
Biological sciences	1,484	1,536	1,577	1,786	1,753	1,979	2,028	2,224	2,379	2,546
Earth, atmospheric, and ocean sciences	82	82	58	52	41	45	67	69	67	98
Atmospheric sciences	0	1	0	0	2	2	7	10	5	4
Earth sciences	28	38	28	34	25	23	40	41	39	59
Oceanography	54	43	30	18	14	20	20	18	23	35
Mathematics/computer sciences	24,251	30,809	36,264	47,135	42,955	36,947	31,923	28,507	29,182	30,980
Computer sciences	23,576	30,113	35,578	46,400	42,153	36,140	31,170	27,680	28,327	30,050
Mathematics/statistics	675	696	686	735	802	807	753	827	855	930
Physical sciences	1,337	1,185	1,343	1,139	1,574	1,615	1,670	1,946	1,909	2,101
Astronomy	1	1	2	2	1	3	4	2	2	4
Chemistry	301	183	201	251	279	304	298	354	387	422
Physics	171	167	177	191	193	196	143	164	151	184
Other physical sciences	864	834	963	695	1,101	1,112	1,225	1,426	1,369	1,491
Social/behavioral sciences	7,510	7,610	8,170	8,397	9,114	9,699	9,937	10,677	11,464	14,419
Psychology	1,454	1,553	1,704	1,785	1,887	1,942	1,944	2,213	2,412	3,949
Social sciences	6,056	6,057	6,466	6,612	7,227	7,757	7,993	8,464	9,052	10,470
Anthropology	52	80	83	76	95	120	114	117	153	149
Area/ethnic studies	250	299	314	121	98	106	114	148	163	170
Economics	210	209	221	222	268	298	316	281	311	361
Linguistics	0	0	0	0	0	6	1	4	1	1
Political science/public administration	1,033	913	926	1,159	1,402	1,566	1,749	1,788	1,746	1,831
Sociology	366	371	416	456	552	500	475	510	546	599
Other social sciences	4,145	4,185	4,506	4,578	4,812	5,161	5,224	5,616	6,132	7,359
Non-S&E	535,062	540,384	549,100	575,148	610,089	646,984	668,332	685,666	706,432	738,995
Engineering technologies	40,470	39,732	37,901	39,600	37,020	32,488	29,710	30,097	31,643	33,243
Male										
All fields	228,913	234,384	239,864	254,633	261,845	269,283	271,951	277,006	284,443	300,266
S&E	20,101	24,722	29,609	38,126	36,955	33,964	30,680	29,069	30,266	32,506
Engineering	1,545	1,582	1,483	1,905	2,247	2,185	1,970	1,944	2,089	2,002
Aerospace	1	0	0	0	0	0	2	0	0	0
Chemical	11	16	26	6	117	1	5	2	1	8
Civil	38	34	29	48	41	39	31	44	31	48

Appendix table 2-16

Earned associate's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Electrical	250	269	144	554	766	600	475	403	387	221
Industrial	52	115	74	70	43	82	48	47	50	76
Materials	10	11	9	8	10	11	7	7	8	5
Mechanical	69	60	56	62	66	62	65	71	91	102
Other	1,114	1,077	1,145	1,157	1,204	1,390	1,337	1,370	1,521	1,542
Science	18,556	23,140	28,126	36,221	34,708	31,779	28,710	27,125	28,177	30,504
Natural sciences	16,356	21,000	25,834	33,749	32,187	29,026	25,889	24,056	24,826	26,465
Agricultural sciences	1,185	1,319	1,237	1,244	1,257	1,259	1,194	1,116	1,127	1,124
Biological sciences	496	501	500	580	608	667	702	751	741	823
Earth, atmospheric, and ocean sciences	45	48	37	30	21	25	38	44	34	65
Atmospheric sciences	0	1	0	0	1	1	4	8	2	3
Earth sciences	12	26	17	15	12	11	24	22	18	42
Oceanography	33	21	20	15	8	13	10	14	14	20
Mathematics/computer sciences	14,011	18,534	23,362	31,299	29,417	26,115	22,965	21,040	21,818	23,243
Computer sciences	13,603	18,084	22,916	30,833	28,914	25,586	22,482	20,492	21,243	22,608
Mathematics/statistics	408	450	446	466	503	529	483	548	575	635
Physical sciences	619	598	698	596	884	960	990	1,105	1,106	1,210
Astronomy	1	1	1	1	1	3	4	1	2	3
Chemistry	126	99	108	121	125	156	153	150	183	197
Physics	94	107	109	132	134	132	117	131	118	145
Other physical sciences	398	391	480	342	624	669	716	823	803	865
Social/behavioral sciences	2,200	2,140	2,292	2,472	2,521	2,753	2,821	3,069	3,351	4,039
Psychology	326	360	370	441	434	445	446	517	554	744
Social sciences	1,874	1,780	1,922	2,031	2,087	2,308	2,375	2,552	2,797	3,295
Anthropology	21	30	28	35	26	40	26	33	44	50
Area/ethnic studies	56	44	63	33	40	40	36	53	59	52
Economics	116	114	90	113	141	158	178	154	165	220
Linguistics	0	0	0	0	0	3	0	0	0	0
Political science/public administration	251	204	225	271	286	372	367	361	386	437
Sociology	89	104	111	126	130	123	134	133	142	158
Other social sciences	1,341	1,284	1,405	1,453	1,464	1,572	1,634	1,818	2,001	2,378
Non-S&E	208,812	209,662	210,255	216,507	224,890	235,319	241,271	247,937	254,177	267,760
Engineering technologies	34,511	33,581	32,084	33,146	31,393	27,632	25,295	25,788	27,183	28,505
Female										
All fields	344,583	351,226	360,430	383,320	408,490	432,451	446,231	456,145	471,155	493,013
S&E	18,333	20,504	21,585	24,679	23,291	20,786	19,170	18,416	18,900	21,778
Engineering	249	316	298	373	596	372	321	328	314	327
Aerospace	0	0	0	0	0	0	0	0	0	0
Chemical	5	2	2	1	188	1	2	1	0	2
Civil	20	19	17	14	17	13	12	20	6	14
Electrical	30	40	38	118	144	91	56	56	35	21
Industrial	15	17	6	11	6	6	9	9	7	7
Materials	1	3	1	4	2	2	3	1	1	0
Mechanical	8	7	9	7	4	2	3	6	9	19
Other	170	228	225	218	235	257	236	235	256	264
Science	18,084	20,188	21,287	24,306	22,695	20,414	18,849	18,088	18,586	21,451
Natural sciences	12,774	14,718	15,409	18,381	16,102	13,468	11,733	10,480	10,473	11,071

Appendix table 2-16

Earned associate's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agricultural sciences	791	787	764	774	709	649	740	674	635	687
Biological sciences	988	1,035	1,077	1,206	1,145	1,312	1,326	1,473	1,638	1,723
Earth, atmospheric, and ocean sciences	37	34	21	22	20	20	29	25	33	33
Atmospheric sciences	0	0	0	0	1	1	3	2	3	1
Earth sciences	16	12	11	19	13	12	16	19	21	17
Oceanography	21	22	10	3	6	7	10	4	9	15
Mathematics/computer sciences	10,240	12,275	12,902	15,836	13,538	10,832	8,958	7,467	7,364	7,737
Computer sciences	9,973	12,029	12,662	15,567	13,239	10,554	8,688	7,188	7,084	7,442
Mathematics/statistics	267	246	240	269	299	278	270	279	280	295
Physical sciences	718	587	645	543	690	655	680	841	803	891
Astronomy	0	0	1	1	0	0	0	1	0	1
Chemistry	175	84	93	130	154	148	145	204	204	225
Physics	77	60	68	59	59	64	26	33	33	39
Other physical sciences	466	443	483	353	477	443	509	603	566	626
Social/behavioral sciences	5,310	5,470	5,878	5,925	6,593	6,946	7,116	7,608	8,113	10,380
Psychology	1,128	1,193	1,334	1,344	1,453	1,497	1,498	1,696	1,858	3,205
Social sciences	4,182	4,277	4,544	4,581	5,140	5,449	5,618	5,912	6,255	7,175
Anthropology	31	50	55	41	69	80	88	84	109	99
Area/ethnic studies	194	255	251	88	58	66	78	95	104	118
Economics	94	95	131	109	127	140	138	127	146	141
Linguistics	0	0	0	0	0	3	1	4	1	1
Political science/public administration	782	709	701	888	1,116	1,194	1,382	1,427	1,360	1,394
Sociology	277	267	305	330	422	377	341	377	404	441
Other social sciences	2,804	2,901	3,101	3,125	3,348	3,589	3,590	3,798	4,131	4,981
Non-S&E	326,250	330,722	338,845	358,641	385,199	411,665	427,061	437,729	452,255	471,235
Engineering technologies	5,959	6,151	5,817	6,454	5,627	4,856	4,415	4,309	4,460	4,738

NOTES: Engineering technologies focused more on applied skills than on fundamental science and mathematics. Data are based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data from *Science and Engineering Indicators 2008* and earlier years that were based on accredited higher education institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All citizenships and races/ethnicities										
All fields	573,496	585,610	600,294	637,953	670,335	701,734	718,182	733,151	755,598	793,279
S&E	38,434	45,226	51,194	62,805	60,246	54,750	49,850	47,485	49,166	54,284
Engineering	1,794	1,898	1,781	2,278	2,843	2,557	2,291	2,272	2,403	2,329
Aerospace	1	0	0	0	0	0	2	0	0	0
Chemical	16	18	28	7	305	2	7	3	1	10
Civil	58	53	46	62	58	52	43	64	37	62
Electrical	280	309	182	672	910	691	531	459	422	242
Industrial	67	132	80	81	49	88	57	56	62	84
Materials	11	14	10	12	12	13	10	8	9	5
Mechanical	77	67	65	69	70	64	68	77	95	120
Other	1,284	1,305	1,370	1,375	1,439	1,647	1,573	1,605	1,777	1,806
Science	36,640	43,328	49,413	60,527	57,403	52,193	47,559	45,213	46,763	51,955
Natural sciences	29,130	35,718	41,243	52,130	48,289	42,494	37,622	34,536	35,299	37,536
Agricultural sciences	1,976	2,106	2,001	2,018	1,966	1,908	1,934	1,790	1,762	1,811
Biological sciences	1,484	1,536	1,577	1,786	1,753	1,979	2,028	2,224	2,379	2,546
Earth, atmospheric, and ocean sciences	82	82	58	52	41	45	67	69	67	98
Atmospheric sciences	0	1	0	0	2	2	7	10	5	4
Earth sciences	28	38	28	34	25	23	40	41	39	59
Oceanography	54	43	30	18	14	20	20	18	23	35
Mathematics/computer sciences	24,251	30,809	36,264	47,135	42,955	36,947	31,923	28,507	29,182	30,980
Computer sciences	23,576	30,113	35,578	46,400	42,153	36,140	31,170	27,680	28,327	30,050
Mathematics	675	696	686	735	802	807	753	827	855	930
Physical sciences	1,337	1,185	1,343	1,139	1,574	1,615	1,670	1,946	1,909	2,101
Astronomy	1	1	2	2	1	3	4	2	2	4
Chemistry	301	183	201	251	279	304	298	354	387	422
Physics	171	167	177	191	193	196	143	164	151	184
Other physical sciences	864	834	963	695	1,101	1,112	1,225	1,426	1,369	1,491
Social/behavioral sciences	7,510	7,610	8,170	8,397	9,114	9,699	9,937	10,677	11,464	14,419
Psychology	1,454	1,553	1,704	1,785	1,887	1,942	1,944	2,213	2,412	3,949
Social sciences	6,056	6,057	6,466	6,612	7,227	7,757	7,993	8,464	9,052	10,470
Anthropology	52	80	83	76	95	120	114	117	153	149
Area/ethnic studies	250	299	314	121	98	106	114	148	163	170
Economics	210	209	221	222	268	298	316	281	311	361
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	6	1	4	1	1
Political science/public administration	1,033	913	926	1,159	1,402	1,566	1,749	1,788	1,746	1,831
Sociology	366	371	416	456	552	500	475	510	546	599
Other social sciences	4,145	4,185	4,506	4,578	4,812	5,161	5,224	5,616	6,132	7,359
Non-S&E	535,062	540,384	549,100	575,148	610,089	646,984	668,332	685,666	706,432	738,995
Engineering technologies	40,470	39,732	37,901	39,600	37,020	32,488	29,710	30,097	31,643	33,243
U.S. citizen/permanent resident										
All fields	563,380	574,008	588,000	624,467	655,767	687,613	704,750	719,324	741,153	778,055
S&E	37,585	44,071	49,778	61,190	58,625	53,398	48,751	46,590	48,212	53,128
Engineering	1,726	1,801	1,724	2,197	2,725	2,435	2,204	2,179	2,314	2,180
Aerospace	1	0	0	0	0	0	1	0	0	0
Chemical	14	17	26	7	302	2	5	2	1	6

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Civil	54	53	44	56	57	52	39	63	34	55
Electrical	277	271	181	668	896	682	529	452	416	227
Industrial	66	130	78	80	49	85	55	53	62	84
Materials	11	14	10	12	12	13	10	8	9	5
Mechanical	76	67	64	68	69	62	68	76	90	117
Other	1,227	1,249	1,321	1,306	1,340	1,539	1,497	1,525	1,702	1,686
Science	35,859	42,270	48,054	58,993	55,900	50,963	46,547	44,411	45,898	50,948
Natural sciences	28,500	34,841	40,055	50,791	47,015	41,475	36,791	33,910	34,627	36,761
Agricultural sciences	1,953	2,060	1,949	2,007	1,923	1,893	1,892	1,782	1,746	1,799
Biological sciences	1,457	1,501	1,547	1,737	1,696	1,921	1,964	2,163	2,296	2,474
Earth, atmospheric, and ocean sciences	81	78	57	52	39	45	65	65	64	98
Atmospheric sciences	0	1	0	0	2	2	7	9	5	4
Earth sciences	27	34	27	34	23	23	38	38	36	59
Oceanography	54	43	30	18	14	20	20	18	23	35
Mathematics/computer sciences	23,727	30,050	35,203	45,914	41,869	36,118	31,327	28,059	28,744	30,455
Computer sciences	23,085	29,396	34,553	45,225	41,114	35,371	30,628	27,261	27,934	29,567
Mathematics	642	654	650	689	755	747	699	798	810	888
Physical sciences	1,282	1,152	1,299	1,081	1,488	1,498	1,543	1,841	1,777	1,935
Astronomy	1	1	2	2	1	3	4	2	1	4
Chemistry	269	174	196	238	266	285	279	336	377	399
Physics	163	164	172	175	184	185	131	160	137	174
Other physical sciences	849	813	929	666	1,037	1,025	1,129	1,343	1,262	1,358
Social/behavioral sciences	7,359	7,429	7,999	8,202	8,885	9,488	9,756	10,501	11,271	14,187
Psychology	1,432	1,528	1,668	1,742	1,843	1,904	1,922	2,192	2,382	3,897
Social sciences	5,927	5,901	6,331	6,460	7,042	7,584	7,834	8,309	8,889	10,290
Anthropology	49	78	82	76	93	119	111	113	150	148
Area/ethnic studies	234	278	299	115	95	104	110	148	161	164
Economics	192	182	201	191	230	266	287	262	279	326
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	2	1	4	1	1
Political science/public administration	1,021	899	915	1,149	1,379	1,553	1,723	1,767	1,723	1,812
Sociology	362	361	410	450	531	481	460	491	528	592
Other social sciences	4,069	4,103	4,424	4,479	4,714	5,059	5,142	5,524	6,047	7,247
Non-S&E	525,795	529,937	538,222	563,277	597,142	634,215	655,999	672,734	692,941	724,927
Engineering technologies	40,133	38,894	37,459	39,140	36,513	32,131	29,391	29,800	31,315	32,966
White										
All fields	396,145	396,412	401,199	417,683	431,419	449,935	456,951	461,859	467,389	487,473
S&E	23,837	28,362	31,883	37,939	35,655	32,581	29,621	28,050	28,652	31,177
Engineering	1,177	1,278	1,265	1,387	1,569	1,488	1,354	1,316	1,453	1,384
Aerospace	1	0	0	0	0	0	1	0	0	0
Chemical	11	17	22	6	175	2	3	2	1	4
Civil	31	40	25	43	35	35	26	35	17	16
Electrical	157	159	123	288	337	287	196	180	168	115
Industrial	58	92	59	66	43	79	42	38	46	71
Materials	8	12	8	11	12	13	10	7	8	5
Mechanical	52	46	40	48	50	43	47	45	60	79
Other	859	912	988	925	917	1,029	1,029	1,009	1,153	1,094

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Science	22,660	27,084	30,618	36,552	34,086	31,093	28,267	26,734	27,199	29,793
Natural sciences	18,573	22,788	26,034	32,049	29,249	25,958	23,025	21,286	21,426	22,835
Agricultural sciences	1,741	1,840	1,725	1,795	1,695	1,716	1,686	1,556	1,557	1,571
Biological sciences	937	989	1,047	1,132	1,084	1,219	1,115	1,178	1,260	1,300
Earth, atmospheric, and ocean sciences	76	73	54	48	35	39	52	59	57	82
Atmospheric sciences	0	1	0	0	2	2	7	8	5	4
Earth sciences	24	30	25	31	21	18	32	33	30	47
Oceanography	52	42	29	17	12	19	13	18	22	31
Mathematics/computer sciences	15,020	19,133	22,317	28,386	25,519	22,032	19,213	17,415	17,537	18,801
Computer sciences	14,638	18,772	21,933	28,012	25,081	21,621	18,835	16,990	17,136	18,339
Mathematics	382	361	384	374	438	411	378	425	401	462
Physical sciences	799	753	891	688	916	952	959	1,078	1,015	1,081
Astronomy	0	1	2	0	0	2	4	1	1	2
Chemistry	144	98	133	128	153	158	158	156	184	170
Physics	65	72	77	80	89	92	66	86	67	90
Other physical sciences	590	582	679	480	674	700	731	835	763	819
Social/behavioral sciences	4,087	4,296	4,584	4,503	4,837	5,135	5,242	5,448	5,773	6,958
Psychology	959	1,012	1,121	1,121	1,152	1,130	1,148	1,268	1,355	2,165
Social sciences	3,128	3,284	3,463	3,382	3,685	4,005	4,094	4,180	4,418	4,793
Anthropology	32	51	63	44	62	75	79	64	96	85
Area/ethnic studies	59	209	211	16	15	17	16	26	23	14
Economics	81	92	88	85	102	116	142	124	146	131
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	1	0	0	1	0
Political science/public administration	371	353	338	497	650	761	812	813	862	836
Sociology	203	187	210	219	235	201	202	196	217	240
Other social sciences	2,382	2,392	2,553	2,521	2,621	2,834	2,843	2,957	3,073	3,487
Non-S&E	372,308	368,050	369,316	379,744	395,764	417,354	427,330	433,809	438,737	456,296
Engineering technologies	27,820	26,801	25,386	25,909	24,352	22,157	20,433	20,659	21,323	22,249
Asian/Pacific Islander										
All fields	27,313	27,919	30,322	31,597	31,908	32,498	33,800	35,623	36,754	38,619
S&E	2,649	2,907	3,381	4,075	3,694	3,129	2,769	2,715	2,877	3,314
Engineering	160	132	101	142	169	147	132	175	140	177
Aerospace	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	2	1	8	0	0	0	0	0
Civil	3	4	5	6	2	1	1	2	2	5
Electrical	38	18	5	36	40	14	10	59	10	7
Industrial	0	2	0	0	1	2	1	3	1	3
Materials	0	0	0	0	0	0	0	0	0	0
Mechanical	2	0	0	2	0	1	3	3	3	6
Other	117	108	89	97	118	129	117	108	124	156
Science	2,489	2,775	3,280	3,933	3,525	2,982	2,637	2,540	2,737	3,137
Natural sciences	2,010	2,342	2,802	3,432	2,955	2,359	2,002	1,822	1,935	2,176
Agricultural sciences	19	9	10	9	18	12	10	21	20	24
Biological sciences	109	94	93	143	148	204	224	257	319	337
Earth, atmospheric, and ocean sciences	1	0	0	1	0	0	1	0	0	6
Atmospheric sciences	0	0	0	0	0	0	0	0	0	0

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Earth sciences	1	0	0	1	0	0	1	0	0	5
Oceanography	0	0	0	0	0	0	0	0	0	1
Mathematics/computer sciences	1,736	2,158	2,613	3,174	2,599	1,968	1,559	1,290	1,323	1,527
Computer sciences	1,646	2,052	2,522	3,072	2,499	1,871	1,474	1,212	1,205	1,397
Mathematics	90	106	91	102	100	97	85	78	118	130
Physical sciences	145	81	86	105	190	175	208	254	273	282
Astronomy	0	0	0	0	1	0	0	0	0	1
Chemistry	51	29	15	35	43	45	45	80	89	97
Physics	15	9	18	17	26	21	20	16	19	17
Other physical sciences	79	43	53	53	120	109	143	158	165	167
Social/behavioral sciences	479	433	478	501	570	623	635	718	802	961
Psychology	51	54	51	75	76	74	79	92	113	159
Social sciences	428	379	427	426	494	549	556	626	689	802
Anthropology	1	5	0	4	2	9	1	12	6	12
Area/ethnic studies	3	6	2	3	1	11	3	6	2	10
Economics	41	32	36	29	27	47	41	35	38	60
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	1	0	2	0	0
Political science/public administration	89	71	68	51	100	94	94	64	65	70
Sociology	24	12	12	18	26	31	28	46	33	54
Other social sciences	270	253	309	321	338	356	389	461	545	596
Non-S&E	24,664	25,012	26,941	27,522	28,214	29,369	31,031	32,908	33,877	35,305
Engineering technologies	2,200	2,120	2,192	2,375	1,687	1,255	1,055	1,125	1,230	1,204
Black										
All fields	58,408	61,658	64,745	72,051	76,930	81,825	84,527	85,944	89,074	94,440
S&E	4,629	5,328	6,120	8,198	7,727	6,891	6,499	5,890	6,064	6,597
Engineering	131	117	134	217	289	288	215	190	227	169
Aerospace	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	14	0	0	0	0	0
Civil	5	3	3	2	8	9	3	5	2	7
Electrical	27	30	32	121	161	146	97	79	96	32
Industrial	1	3	3	3	2	2	2	3	3	5
Materials	0	0	1	1	0	0	0	0	1	0
Mechanical	0	0	1	0	0	0	1	0	4	2
Other	98	81	94	90	104	131	112	103	121	123
Science	4,498	5,211	5,986	7,981	7,438	6,603	6,284	5,700	5,837	6,428
Natural sciences	3,497	4,263	4,990	6,899	6,272	5,384	4,956	4,367	4,507	4,667
Agricultural sciences	20	4	14	13	19	8	18	28	18	17
Biological sciences	139	131	138	145	135	142	185	207	172	183
Earth, atmospheric, and ocean sciences	0	0	1	1	0	1	4	0	2	0
Atmospheric sciences	0	0	0	0	0	0	0	0	0	0
Earth sciences	0	0	0	1	0	1	1	0	2	0
Oceanography	0	0	1	0	0	0	3	0	0	0
Mathematics/computer sciences	3,253	4,048	4,760	6,677	6,043	5,154	4,652	4,032	4,214	4,351
Computer sciences	3,215	3,998	4,733	6,636	6,007	5,119	4,617	3,988	4,171	4,316
Mathematics	38	50	27	41	36	35	35	44	43	35
Physical sciences	85	80	77	63	75	79	97	100	101	116

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Astronomy	0	0	0	0	0	0	0	0	0	0
Chemistry	17	12	9	15	15	22	16	17	15	22
Physics	2	1	1	6	5	3	5	4	7	3
Other physical sciences	66	67	67	42	55	54	76	79	79	91
Social/behavioral sciences	1,001	948	996	1,082	1,166	1,219	1,328	1,333	1,330	1,761
Psychology	136	144	141	146	158	173	198	203	214	370
Social sciences	865	804	855	936	1,008	1,046	1,130	1,130	1,116	1,391
Anthropology	3	1	1	1	0	6	3	2	0	4
Area/ethnic studies	16	7	13	24	17	23	19	15	26	25
Economics	7	5	9	9	19	14	22	23	21	22
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	0
Political science/public administration	276	254	248	292	312	350	449	449	395	434
Sociology	55	66	73	77	100	76	67	67	64	90
Other social sciences	508	471	511	533	560	577	570	574	610	816
Non-S&E	53,779	56,330	58,625	63,853	69,203	74,934	78,028	80,054	83,010	87,843
Engineering technologies	4,040	4,143	3,860	4,364	3,864	3,454	3,167	3,168	3,295	3,575
Hispanic										
All fields	57,971	61,364	62,072	67,476	72,626	78,555	80,417	84,462	89,899	96,387
S&E	4,361	5,105	5,582	6,994	6,910	6,615	6,006	6,118	6,376	7,157
Engineering	181	196	143	339	558	373	345	344	350	326
Aerospace	0	0	0	0	0	0	0	0	0	0
Chemical	3	0	2	0	89	0	2	0	0	1
Civil	5	2	6	2	5	2	6	19	9	25
Electrical	48	57	14	195	320	199	171	110	124	64
Industrial	7	33	11	8	3	0	9	8	5	1
Materials	0	0	1	0	0	0	0	1	0	0
Mechanical	21	19	23	18	17	14	17	27	20	29
Other	97	85	86	116	124	158	140	179	192	206
Science	4,180	4,909	5,439	6,655	6,352	6,242	5,661	5,774	6,026	6,831
Natural sciences	2,986	3,653	4,081	5,149	4,772	4,493	3,914	3,772	3,709	3,940
Agricultural sciences	77	109	86	68	54	43	58	59	47	44
Biological sciences	186	222	189	218	208	229	279	352	377	438
Earth, atmospheric, and ocean sciences	1	3	1	1	2	5	3	3	1	4
Atmospheric sciences	0	0	0	0	0	0	0	1	0	0
Earth sciences	1	3	1	1	1	4	1	2	1	3
Oceanography	0	0	0	0	1	1	2	0	0	1
Mathematics/computer sciences	2,550	3,158	3,654	4,717	4,347	4,042	3,416	3,151	3,065	3,193
Computer sciences	2,453	3,058	3,549	4,593	4,216	3,888	3,261	2,980	2,897	2,995
Mathematics	97	100	105	124	131	154	155	171	168	198
Physical sciences	172	161	151	145	161	174	158	207	219	261
Astronomy	1	0	0	2	0	0	0	0	0	1
Chemistry	42	27	24	42	37	48	40	56	62	61
Physics	76	70	68	59	50	61	30	34	31	45
Other physical sciences	53	64	59	42	74	65	88	117	126	154
Social/behavioral sciences	1,194	1,256	1,358	1,506	1,580	1,749	1,747	2,002	2,317	2,891
Psychology	193	222	260	298	338	384	366	447	492	678

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Social sciences	1,001	1,034	1,098	1,208	1,242	1,365	1,381	1,555	1,825	2,213
Anthropology	8	11	13	16	17	14	11	15	29	24
Area/ethnic studies	17	7	15	24	12	20	18	28	29	31
Economics	50	43	55	50	58	65	60	58	55	84
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	1	0	1
Political science/public administration	249	195	219	250	223	241	259	287	280	308
Sociology	63	79	92	109	124	123	123	138	167	160
Other social sciences	614	699	704	759	808	902	910	1,028	1,265	1,605
Non-S&E	53,610	56,259	56,490	60,482	65,716	71,940	74,411	78,344	83,523	89,230
Engineering technologies	4,724	4,560	4,220	4,174	4,160	3,652	3,230	3,466	3,841	3,944
American Indian/Alaska Native										
All fields	6,282	6,392	6,565	7,134	7,692	8,001	8,068	8,076	8,256	8,235
S&E	608	605	703	811	825	839	801	851	870	835
Engineering	17	18	17	24	41	38	26	34	29	20
Aerospace	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	9	0	0	0	0	0
Civil	2	1	1	1	4	2	0	0	1	2
Electrical	0	2	2	5	7	11	2	4	4	1
Industrial	0	0	0	2	0	2	0	0	0	2
Materials	0	0	0	0	0	0	0	0	0	0
Mechanical	0	1	0	0	0	0	0	0	1	0
Other	15	14	14	16	21	23	24	30	23	15
Science	591	587	686	787	784	801	775	817	841	815
Natural sciences	384	417	444	546	524	504	498	446	474	459
Agricultural sciences	74	53	55	70	65	68	72	56	64	64
Biological sciences	39	33	43	27	47	44	65	55	59	52
Earth, atmospheric, and ocean sciences	0	0	0	1	0	0	0	1	1	2
Atmospheric sciences	0	0	0	0	0	0	0	0	0	0
Earth sciences	0	0	0	0	0	0	0	1	0	2
Oceanography	0	0	0	1	0	0	0	0	1	0
Mathematics/computer sciences	258	314	329	431	388	365	335	305	313	304
Computer sciences	251	302	322	418	377	352	325	291	298	293
Mathematics	7	12	7	13	11	13	10	14	15	11
Physical sciences	13	17	17	17	24	27	26	29	37	37
Astronomy	0	0	0	0	0	1	0	0	0	0
Chemistry	1	4	4	2	2	3	6	2	3	2
Physics	0	2	0	3	0	2	1	5	3	2
Other physical sciences	12	11	13	12	22	21	19	22	31	33
Social/behavioral sciences	207	170	242	241	260	297	277	371	367	356
Psychology	38	34	32	31	36	56	41	73	67	71
Social sciences	169	136	210	210	224	241	236	298	300	285
Anthropology	1	2	0	1	0	2	3	3	1	3
Area/ethnic studies	32	23	30	48	42	30	52	67	75	78
Economics	2	1	3	2	1	1	0	2	0	1
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	0

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Political science/public administration	21	5	10	22	35	34	37	48	43	40
Sociology	1	4	4	6	5	17	10	20	9	11
Other social sciences	112	101	163	131	141	157	134	158	172	152
Non-S&E	5,674	5,787	5,862	6,323	6,867	7,162	7,267	7,225	7,386	7,400
Engineering technologies	367	299	295	366	415	330	313	289	315	355
Other/unknown race/ethnicity										
All fields	17,261	20,263	23,097	28,526	35,192	36,799	40,987	43,360	49,781	52,901
S&E	1,501	1,764	2,109	3,173	3,814	3,343	3,055	2,966	3,373	4,048
Engineering	60	60	64	88	99	101	132	120	115	104
Aerospace	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	7	0	0	0	0	1
Civil	8	3	4	2	3	3	3	2	3	0
Electrical	7	5	5	23	31	25	53	20	14	8
Industrial	0	0	5	1	0	0	1	1	7	2
Materials	3	2	0	0	0	0	0	0	0	0
Mechanical	1	1	0	0	2	4	0	1	2	1
Other	41	49	50	62	56	69	75	96	89	92
Science	1,441	1,704	2,045	3,085	3,715	3,242	2,923	2,846	3,258	3,944
Natural sciences	1,050	1,378	1,704	2,716	3,243	2,777	2,396	2,217	2,576	2,684
Agricultural sciences	22	45	59	52	72	46	48	62	40	79
Biological sciences	47	32	37	72	74	83	96	114	109	164
Earth, atmospheric, and ocean sciences	3	2	1	0	2	0	5	2	3	4
Atmospheric sciences	0	0	0	0	0	0	0	0	0	0
Earth sciences	1	1	1	0	1	0	3	2	3	2
Oceanography	2	1	0	0	1	0	2	0	0	2
Mathematics/computer sciences	910	1,239	1,530	2,529	2,973	2,557	2,152	1,866	2,292	2,279
Computer sciences	882	1,214	1,494	2,494	2,934	2,520	2,116	1,800	2,227	2,227
Mathematics	28	25	36	35	39	37	36	66	65	52
Physical sciences	68	60	77	63	122	91	95	173	132	158
Astronomy	0	0	0	0	0	0	0	1	0	0
Chemistry	14	4	11	16	16	9	14	25	24	47
Physics	5	10	8	10	14	6	9	15	10	17
Other physical sciences	49	46	58	37	92	76	72	132	98	94
Social/behavioral sciences	391	326	341	369	472	465	527	629	682	1,260
Psychology	55	62	63	71	83	87	90	109	141	454
Social sciences	336	264	278	298	389	378	437	520	541	806
Anthropology	4	8	5	10	12	13	14	17	18	20
Area/ethnic studies	107	26	28	0	8	3	2	6	6	6
Economics	11	9	10	16	23	23	22	20	19	28
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	1	1	0	0
Political science/public administration	15	21	32	37	59	73	72	106	78	124
Sociology	16	13	19	21	41	33	30	24	38	37
Other social sciences	183	187	184	214	246	233	296	346	382	591
Non-S&E	15,760	18,499	20,988	25,353	31,378	33,456	37,932	40,394	46,408	48,853
Engineering technologies	982	971	1,506	1,952	2,035	1,283	1,193	1,093	1,311	1,639

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Temporary resident										
All fields	10,116	11,602	12,294	13,486	14,568	14,121	13,432	13,827	14,445	15,224
S&E	849	1,155	1,416	1,615	1,621	1,352	1,099	895	954	1,156
Engineering	68	97	57	81	118	122	87	93	89	149
Aerospace	0	0	0	0	0	0	1	0	0	0
Chemical	2	1	2	0	3	0	2	1	0	4
Civil	4	0	2	6	1	0	4	1	3	7
Electrical	3	38	1	4	14	9	2	7	6	15
Industrial	1	2	2	1	0	3	2	3	0	0
Materials	0	0	0	0	0	0	0	0	0	0
Mechanical	1	0	1	1	1	2	0	1	5	3
Other	57	56	49	69	99	108	76	80	75	120
Science	781	1,058	1,359	1,534	1,503	1,230	1,012	802	865	1,007
Natural sciences	630	877	1,188	1,339	1,274	1,019	831	626	672	775
Agricultural sciences	23	46	52	11	43	15	42	8	16	12
Biological sciences	27	35	30	49	57	58	64	61	83	72
Earth, atmospheric, and ocean sciences	1	4	1	0	2	0	2	4	3	0
Atmospheric sciences	0	0	0	0	0	0	0	1	0	0
Earth sciences	1	4	1	0	2	0	2	3	3	0
Oceanography	0	0	0	0	0	0	0	0	0	0
Mathematics/computer sciences	524	759	1,061	1,221	1,086	829	596	448	438	525
Computer sciences	491	717	1,025	1,175	1,039	769	542	419	393	483
Mathematics	33	42	36	46	47	60	54	29	45	42
Physical sciences	55	33	44	58	86	117	127	105	132	166
Astronomy	0	0	0	0	0	0	0	0	1	0
Chemistry	32	9	5	13	13	19	19	18	10	23
Physics	8	3	5	16	9	11	12	4	14	10
Other physical sciences	15	21	34	29	64	87	96	83	107	133
Social/behavioral sciences	151	181	171	195	229	211	181	176	193	232
Psychology	22	25	36	43	44	38	22	21	30	52
Social sciences	129	156	135	152	185	173	159	155	163	180
Anthropology	3	2	1	0	2	1	3	4	3	1
Area/ethnic studies	16	21	15	6	3	2	4	0	2	6
Economics	18	27	20	31	38	32	29	19	32	35
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	4	0	0	0	0
Political science/public administration	12	14	11	10	23	13	26	21	23	19

Appendix table 2-17

Earned associate's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sociology	4	10	6	6	21	19	15	19	18	7
Other social sciences	76	82	82	99	98	102	82	92	85	112
Non-S&E	9,267	10,447	10,878	11,871	12,947	12,769	12,333	12,932	13,491	14,068
Engineering technologies	337	838	442	460	507	357	319	297	328	277

NOTES: Racial/ethnic breakouts for U.S. citizens and permanent residents only; temporary resident includes all racial/ethnic groups. Engineering technologies focused more on applied skills than on fundamental science and mathematics. Data are based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data from *Science and Engineering Indicators 2008* and earlier years that were based on accredited higher education institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-18

Earned bachelor's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Both sexes										
All fields	1,254,618	1,260,308	1,308,970	1,365,694	1,417,421	1,456,401	1,502,922	1,541,704	1,580,413	1,619,028
S&E	398,602	400,435	415,983	442,755	458,658	470,214	478,858	485,772	496,168	505,435
Engineering	59,487	59,214	60,605	63,789	64,680	66,152	68,227	68,274	69,908	70,600
Aerospace	1,267	1,498	1,747	2,017	2,318	2,384	2,753	2,828	2,934	3,037
Chemical	6,219	6,088	5,946	5,545	5,185	4,889	4,857	5,081	5,504	5,894
Civil	9,571	8,949	8,891	9,367	9,400	9,800	10,663	11,318	12,243	12,787
Electrical	17,675	18,359	18,957	20,757	21,374	21,459	19,933	18,547	17,357	16,184
Industrial	3,937	3,812	3,977	3,937	3,808	3,936	3,890	3,529	3,566	3,879
Materials	972	930	933	950	865	906	1,006	1,025	1,150	1,070
Mechanical	13,091	13,139	13,353	14,029	14,342	14,880	16,163	16,911	17,685	17,643
Other	6,755	6,439	6,801	7,187	7,388	7,898	8,962	9,035	9,469	10,106
Science	339,115	341,221	355,378	378,966	393,978	404,062	410,631	417,498	426,260	434,835
Natural sciences	150,962	152,623	158,975	170,068	173,633	173,460	173,966	176,275	177,601	181,914
Agricultural sciences	18,245	17,465	17,359	17,703	17,058	17,120	17,307	17,696	18,474	19,152
Biological sciences	64,887	62,010	61,675	63,517	64,750	67,972	72,972	79,348	82,398	85,574
Earth, atmospheric, and ocean sciences	4,019	3,968	3,984	3,949	3,903	3,959	3,987	4,077	4,314	4,542
Atmospheric sciences	490	456	525	562	572	677	651	745	736	721
Earth sciences	3,359	3,334	3,234	3,252	3,170	3,146	3,231	3,193	3,453	3,679
Oceanography	170	178	225	135	161	136	105	139	125	142
Mathematics/computer sciences	49,233	55,034	61,960	70,789	73,703	69,404	63,310	58,147	54,763	54,704
Computer sciences	37,519	43,597	49,706	57,926	59,968	54,588	48,000	42,596	38,922	38,496
Mathematics/statistics	11,714	11,437	12,254	12,863	13,735	14,816	15,310	15,551	15,841	16,208
Physical sciences	14,578	14,146	13,997	14,110	14,219	15,005	16,390	17,007	17,652	17,942
Astronomy	160	240	276	271	292	331	366	332	346	335
Chemistry	10,388	9,815	9,439	9,329	9,300	9,923	10,887	11,250	11,832	12,144
Physics	3,362	3,447	3,641	3,913	4,140	4,199	4,566	4,870	4,876	4,842
Other physical sciences	668	644	641	597	487	552	571	555	598	621
Social/behavioral sciences	188,153	188,598	196,403	208,898	220,345	230,602	236,665	241,223	248,659	252,921
Psychology	74,656	74,124	77,297	79,163	82,606	86,031	88,551	90,498	92,989	94,743
Social sciences	113,497	114,474	119,106	129,735	137,739	144,571	148,114	150,725	155,670	158,178
Anthropology	7,057	6,898	7,198	7,543	7,631	7,742	8,100	8,086	8,853	9,153
Area/ethnic studies	5,614	5,557	5,835	5,745	6,244	6,612	6,975	7,120	7,323	7,598
Economics	19,400	20,371	21,823	23,866	24,927	25,160	24,707	24,825	26,281	27,628
History of science	92	101	103	103	140	117	113	114	103	100
Linguistics	716	757	847	914	1,047	1,053	1,201	1,340	1,505	1,478
Political science/public administration	36,384	36,650	38,565	43,796	47,509	51,540	53,589	54,598	55,889	55,319
Sociology	25,685	25,357	25,296	26,200	27,020	28,556	28,541	29,050	28,908	28,836
Other social sciences	18,549	18,783	19,439	21,568	23,221	23,791	24,888	25,592	26,808	28,066
Non-S&E	856,016	859,873	892,987	922,939	958,763	986,187	1,024,064	1,055,932	1,084,245	1,113,593
Engineering technologies	15,410	15,366	15,637	15,591	15,341	15,649	15,327	15,894	16,164	16,454
Male										
All fields	536,059	537,421	555,640	578,937	601,588	618,758	636,559	655,393	673,788	691,428
S&E	197,650	197,771	204,675	219,815	227,861	233,924	238,029	241,697	246,719	250,742
Engineering	47,281	47,302	47,923	50,809	51,417	52,949	54,889	55,621	56,987	57,850
Aerospace	1,029	1,194	1,435	1,633	1,905	1,980	2,252	2,376	2,493	2,600
Chemical	4,016	4,033	3,823	3,532	3,352	3,113	3,179	3,338	3,670	3,977

Appendix table 2-18

Earned bachelor's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Civil	7,246	6,908	6,667	7,118	7,121	7,451	8,241	8,819	9,491	10,032
Electrical	15,325	15,817	16,240	17,839	18,331	18,614	17,346	16,438	15,450	14,578
Industrial	2,630	2,589	2,636	2,625	2,543	2,666	2,716	2,473	2,557	2,823
Materials	704	667	648	674	595	624	737	753	878	807
Mechanical	11,309	11,401	11,574	12,170	12,395	12,933	14,050	14,894	15,592	15,671
Other	5,022	4,693	4,900	5,218	5,175	5,568	6,368	6,530	6,856	7,362
Science	150,369	150,469	156,752	169,006	176,444	180,975	183,140	186,076	189,732	192,892
Natural sciences	80,832	82,030	85,578	92,543	95,462	95,606	94,589	95,924	96,002	97,915
Agricultural sciences	9,780	8,975	8,725	8,740	8,336	8,383	8,398	8,781	9,017	9,334
Biological sciences	26,936	24,972	24,030	24,023	24,319	25,698	27,917	31,347	33,136	34,477
Earth, atmospheric, and ocean sciences	2,413	2,346	2,282	2,298	2,256	2,299	2,341	2,399	2,559	2,774
Atmospheric sciences	376	324	374	386	369	436	432	483	473	486
Earth sciences	1,950	1,934	1,788	1,846	1,812	1,795	1,873	1,857	2,023	2,209
Oceanography	87	88	120	66	75	68	36	59	63	79
Mathematics/computer sciences	33,113	37,500	42,518	49,251	52,330	50,636	46,496	43,376	40,922	40,839
Computer sciences	26,997	31,549	36,016	42,258	44,902	42,429	38,061	34,652	32,038	31,602
Mathematics/statistics	6,116	5,951	6,502	6,993	7,428	8,207	8,435	8,724	8,884	9,237
Physical sciences	8,590	8,237	8,023	8,231	8,221	8,590	9,437	10,021	10,368	10,491
Astronomy	106	145	160	161	169	188	235	200	226	189
Chemistry	5,483	5,041	4,716	4,649	4,548	4,779	5,253	5,636	5,923	6,038
Physics	2,638	2,692	2,817	3,076	3,233	3,299	3,621	3,846	3,888	3,917
Other physical sciences	363	359	330	345	271	324	328	339	331	347
Social/behavioral sciences	69,537	68,439	71,174	76,463	80,982	85,369	88,551	90,152	93,730	94,977
Psychology	17,542	16,694	17,389	17,629	18,322	19,099	19,975	20,446	21,307	21,579
Social sciences	51,995	51,745	53,785	58,834	62,660	66,270	68,576	69,706	72,423	73,398
Anthropology	2,315	2,192	2,272	2,313	2,350	2,362	2,494	2,456	2,733	2,723
Area/ethnic studies	2,043	1,904	2,032	2,055	2,163	2,345	2,463	2,561	2,626	2,732
Economics	13,016	13,450	14,436	15,773	16,650	17,021	17,043	17,195	18,237	19,282
History of science	40	45	40	49	67	53	46	44	51	48
Linguistics	226	245	243	290	330	324	447	461	502	503
Political science/public administration	18,063	17,999	18,822	21,274	23,101	25,130	26,462	27,053	27,734	27,184
Sociology	7,657	7,437	7,299	7,558	7,718	8,430	8,548	8,698	8,787	8,707
Other social sciences	8,635	8,473	8,641	9,522	10,281	10,605	11,073	11,238	11,753	12,219
Non-S&E	338,409	339,650	350,965	359,122	373,727	384,834	398,530	413,696	427,069	440,686
Engineering technologies	13,448	13,286	13,480	13,276	13,195	13,425	13,274	13,989	14,160	14,487
Female										
All fields	718,559	722,887	753,330	786,757	815,833	837,643	866,363	886,311	906,625	927,600
S&E	200,952	202,664	211,308	222,940	230,797	236,290	240,829	244,075	249,449	254,693
Engineering	12,206	11,912	12,682	12,980	13,263	13,203	13,338	12,653	12,921	12,750
Aerospace	238	304	312	384	413	404	501	452	441	437
Chemical	2,203	2,055	2,123	2,013	1,833	1,776	1,678	1,743	1,834	1,917
Civil	2,325	2,041	2,224	2,249	2,279	2,349	2,422	2,499	2,752	2,755
Electrical	2,350	2,542	2,717	2,918	3,043	2,845	2,587	2,109	1,907	1,606
Industrial	1,307	1,223	1,341	1,312	1,265	1,270	1,174	1,056	1,009	1,056
Materials	268	263	285	276	270	282	269	272	272	263
Mechanical	1,782	1,738	1,779	1,859	1,947	1,947	2,113	2,017	2,093	1,972
Other	1,733	1,746	1,901	1,969	2,213	2,330	2,594	2,505	2,613	2,744

Appendix table 2-18

Earned bachelor's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Science	188,746	190,752	198,626	209,960	217,534	223,087	227,491	231,422	236,528	241,943
Natural sciences	70,130	70,593	73,397	77,525	78,171	77,854	79,377	80,351	81,599	83,999
Agricultural sciences	8,465	8,490	8,634	8,963	8,722	8,737	8,909	8,915	9,457	9,818
Biological sciences	37,951	37,038	37,645	39,494	40,431	42,274	45,055	48,001	49,262	51,097
Earth, atmospheric, and ocean sciences	1,606	1,622	1,702	1,651	1,647	1,660	1,646	1,678	1,755	1,768
Atmospheric sciences	114	132	151	176	203	241	219	262	263	235
Earth sciences	1,409	1,400	1,446	1,406	1,358	1,351	1,358	1,336	1,430	1,470
Oceanography	83	90	105	69	86	68	69	80	62	63
Mathematics/computer sciences	16,120	17,534	19,442	21,538	21,373	18,768	16,814	14,771	13,841	13,865
Computer sciences	10,522	12,048	13,690	15,668	15,066	12,159	9,939	7,944	6,884	6,894
Mathematics/statistics	5,598	5,486	5,752	5,870	6,307	6,609	6,875	6,827	6,957	6,971
Physical sciences	5,988	5,909	5,974	5,879	5,998	6,415	6,953	6,986	7,284	7,451
Astronomy	54	95	116	110	123	143	131	132	120	146
Chemistry	4,905	4,774	4,723	4,680	4,752	5,144	5,634	5,614	5,909	6,106
Physics	724	755	824	837	907	900	945	1,024	988	925
Other physical sciences	305	285	311	252	216	228	243	216	267	274
Social/behavioral sciences	118,616	120,159	125,229	132,435	139,363	145,233	148,114	151,071	154,929	157,944
Psychology	57,114	57,430	59,908	61,534	64,284	66,932	68,576	70,052	71,682	73,164
Social sciences	61,502	62,729	65,321	70,901	75,079	78,301	79,538	81,019	83,247	84,780
Anthropology	4,742	4,706	4,926	5,230	5,281	5,380	5,606	5,630	6,120	6,430
Area/ethnic studies	3,571	3,653	3,803	3,690	4,081	4,267	4,512	4,559	4,697	4,866
Economics	6,384	6,921	7,387	8,093	8,277	8,139	7,664	7,630	8,044	8,346
History of science	52	56	63	54	73	64	67	70	52	52
Linguistics	490	512	604	624	717	729	754	879	1,003	975
Political science/public administration	18,321	18,651	19,743	22,522	24,408	26,410	27,127	27,545	28,155	28,135
Sociology	18,028	17,920	17,997	18,642	19,302	20,126	19,993	20,352	20,121	20,129
Other social sciences	9,914	10,310	10,798	12,046	12,940	13,186	13,815	14,354	15,055	15,847
Non-S&E	517,607	520,223	542,022	563,817	585,036	601,353	625,534	642,236	657,176	672,907
Engineering technologies	1,962	2,080	2,157	2,315	2,146	2,224	2,053	1,905	2,004	1,967

NOTES: Engineering technologies focused more on applied skills than on fundamental science and mathematics. Data are based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data from *Science and Engineering Indicators 2008* and earlier years that were based on accredited higher education institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All citizenships and races/ethnicities										
All fields	1,254,618	1,260,308	1,308,970	1,365,694	1,417,421	1,456,401	1,502,922	1,541,704	1,580,413	1,619,028
S&E	398,602	400,435	415,983	442,755	458,658	470,214	478,858	485,772	496,168	505,435
Engineering	59,487	59,214	60,605	63,789	64,680	66,152	68,227	68,274	69,908	70,600
Aerospace	1,267	1,498	1,747	2,017	2,318	2,384	2,753	2,828	2,934	3,037
Chemical	6,219	6,088	5,946	5,545	5,185	4,889	4,857	5,081	5,504	5,894
Civil	9,571	8,949	8,891	9,367	9,400	9,800	10,663	11,318	12,243	12,787
Electrical	17,675	18,359	18,957	20,757	21,374	21,459	19,933	18,547	17,357	16,184
Industrial	3,937	3,812	3,977	3,937	3,808	3,936	3,890	3,529	3,566	3,879
Materials	972	930	933	950	865	906	1,006	1,025	1,150	1,070
Mechanical	13,091	13,139	13,353	14,029	14,342	14,880	16,163	16,911	17,685	17,643
Other	6,755	6,439	6,801	7,187	7,388	7,898	8,962	9,035	9,469	10,106
Science	339,115	341,221	355,378	378,966	393,978	404,062	410,631	417,498	426,260	434,835
Natural sciences	150,962	152,623	158,975	170,068	173,633	173,460	173,966	176,275	177,601	181,914
Agricultural sciences	18,245	17,465	17,359	17,703	17,058	17,120	17,307	17,696	18,474	19,152
Biological sciences	64,887	62,010	61,675	63,517	64,750	67,972	72,972	79,348	82,398	85,574
Earth, atmospheric, and ocean sciences	4,019	3,968	3,984	3,949	3,903	3,959	3,987	4,077	4,314	4,542
Atmospheric sciences	490	456	525	562	572	677	651	745	736	721
Earth sciences	3,359	3,334	3,234	3,252	3,170	3,146	3,231	3,193	3,453	3,679
Oceanography	170	178	225	135	161	136	105	139	125	142
Mathematics/computer sciences	49,233	55,034	61,960	70,789	73,703	69,404	63,310	58,147	54,763	54,704
Computer sciences	37,519	43,597	49,706	57,926	59,968	54,588	48,000	42,596	38,922	38,496
Mathematics	11,714	11,437	12,254	12,863	13,735	14,816	15,310	15,551	15,841	16,208
Physical sciences	14,578	14,146	13,997	14,110	14,219	15,005	16,390	17,007	17,652	17,942
Astronomy	160	240	276	271	292	331	366	332	346	335
Chemistry	10,388	9,815	9,439	9,329	9,300	9,923	10,887	11,250	11,832	12,144
Physics	3,362	3,447	3,641	3,913	4,140	4,199	4,566	4,870	4,876	4,842
Other physical sciences	668	644	641	597	487	552	571	555	598	621
Social/behavioral sciences	188,153	188,598	196,403	208,898	220,345	230,602	236,665	241,223	248,659	252,921
Psychology	74,656	74,124	77,297	79,163	82,606	86,031	88,551	90,498	92,989	94,743
Social sciences	113,497	114,474	119,106	129,735	137,739	144,571	148,114	150,725	155,670	158,178
Anthropology	7,057	6,898	7,198	7,543	7,631	7,742	8,100	8,086	8,853	9,153
Area/ethnic studies	5,614	5,557	5,835	5,745	6,244	6,612	6,975	7,120	7,323	7,598
Economics	19,400	20,371	21,823	23,866	24,927	25,160	24,707	24,825	26,281	27,628
History of science	92	101	103	103	140	117	113	114	103	100
Linguistics	716	757	847	914	1,047	1,053	1,201	1,340	1,505	1,478
Political science/public administration	36,384	36,650	38,565	43,796	47,509	51,540	53,589	54,598	55,889	55,319
Sociology	25,685	25,357	25,296	26,200	27,020	28,556	28,541	29,050	28,908	28,836
Other social sciences	18,549	18,783	19,439	21,568	23,221	23,791	24,888	25,592	26,808	28,066
Non-S&E	856,016	859,873	892,987	922,939	958,763	986,187	1,024,064	1,055,932	1,084,245	1,113,593
Engineering technologies	15,410	15,366	15,637	15,591	15,341	15,649	15,327	15,894	16,164	16,454
U.S. citizen/permanent resident										
All fields	1,215,514	1,220,465	1,267,462	1,322,430	1,372,577	1,411,002	1,456,517	1,495,740	1,536,007	1,573,094
S&E	383,407	384,714	399,639	424,857	439,833	451,655	460,604	468,379	479,642	488,380
Engineering	54,955	54,795	56,339	59,512	60,130	61,412	63,516	63,885	65,728	66,529
Aerospace	1,146	1,350	1,625	1,857	2,144	2,213	2,606	2,653	2,783	2,859
Chemical	5,774	5,664	5,499	5,186	4,817	4,478	4,421	4,651	5,040	5,376

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Civil	9,113	8,537	8,520	9,018	9,085	9,473	10,321	10,992	11,870	12,419
Electrical	15,839	16,517	17,089	18,703	19,098	19,138	17,757	16,668	15,768	14,759
Industrial	3,456	3,337	3,535	3,535	3,427	3,541	3,462	3,154	3,160	3,510
Materials	935	888	904	919	836	866	960	976	1,105	1,006
Mechanical	12,302	12,395	12,670	13,433	13,728	14,233	15,513	16,198	16,971	16,928
Other	6,390	6,107	6,497	6,861	6,995	7,470	8,476	8,593	9,031	9,672
Science	328,452	329,919	343,300	365,345	379,703	390,243	397,088	404,494	413,914	421,851
Natural sciences	145,371	146,503	152,293	162,204	165,350	165,719	166,833	169,717	171,634	175,706
Agricultural sciences	17,987	17,217	17,097	17,433	16,807	16,846	17,041	17,414	18,246	18,909
Biological sciences	63,511	60,574	60,220	61,979	63,099	66,005	70,853	77,015	80,068	83,145
Earth, atmospheric, and ocean sciences	3,973	3,919	3,925	3,892	3,853	3,879	3,911	4,019	4,244	4,460
Atmospheric sciences	482	454	519	554	569	667	646	736	731	713
Earth sciences	3,326	3,288	3,185	3,204	3,125	3,081	3,166	3,146	3,389	3,605
Oceanography	165	177	221	134	159	131	99	137	124	142
Mathematics/computer sciences	45,854	51,203	57,597	65,313	67,963	64,652	59,402	55,004	52,197	52,046
Computer sciences	34,619	40,192	45,797	53,072	54,908	50,597	44,901	40,163	37,118	36,677
Mathematics	11,235	11,011	11,800	12,241	13,055	14,055	14,501	14,841	15,079	15,369
Physical sciences	14,046	13,590	13,454	13,587	13,628	14,337	15,626	16,265	16,879	17,146
Astronomy	156	227	260	256	282	311	353	319	330	322
Chemistry	10,044	9,480	9,097	9,003	8,950	9,526	10,421	10,799	11,364	11,615
Physics	3,202	3,267	3,475	3,745	3,951	3,999	4,323	4,647	4,647	4,633
Other physical sciences	644	616	622	583	445	501	529	500	538	576
Social/behavioral sciences	183,081	183,416	191,007	203,141	214,353	224,524	230,255	234,777	242,280	246,145
Psychology	73,392	72,841	75,928	77,769	81,131	84,528	86,971	88,939	91,515	93,135
Social sciences	109,689	110,575	115,079	125,372	133,222	139,996	143,284	145,838	150,765	153,010
Anthropology	6,941	6,778	7,084	7,449	7,525	7,627	7,977	7,976	8,729	9,053
Area/ethnic studies	5,436	5,393	5,677	5,585	6,080	6,449	6,800	6,921	7,152	7,363
Economics	17,709	18,548	19,920	21,820	22,758	22,961	22,571	22,691	24,083	25,247
History of science	91	98	101	100	140	116	110	110	102	99
Linguistics	633	680	766	834	973	976	1,127	1,281	1,420	1,400
Political science/public administration	35,232	35,501	37,398	42,510	46,202	50,271	52,110	53,181	54,437	53,858
Sociology	25,386	25,099	25,001	25,851	26,693	28,227	28,151	28,652	28,543	28,480
Other social sciences	18,261	18,478	19,132	21,223	22,851	23,369	24,438	25,026	26,299	27,510
Non-S&E	832,107	835,751	867,823	897,573	932,744	959,347	995,913	1,027,361	1,056,365	1,084,714
Engineering technologies	14,967	14,823	15,171	15,132	14,825	15,161	14,949	15,515	15,793	16,009
White										
All fields	896,511	890,089	914,692	943,779	967,924	987,957	1,011,497	1,032,791	1,051,236	1,069,016
S&E	270,341	267,866	276,403	290,875	297,708	303,321	308,888	312,763	316,982	320,081
Engineering	39,025	38,723	39,693	41,820	41,838	42,191	43,526	43,980	45,383	45,647
Aerospace	899	1,058	1,279	1,447	1,629	1,723	2,005	2,017	2,088	2,113
Chemical	4,062	4,061	3,976	3,746	3,483	3,203	3,086	3,210	3,453	3,706
Civil	6,984	6,615	6,624	7,032	7,012	7,196	7,768	8,130	8,750	8,871
Electrical	9,717	9,875	9,968	10,971	10,939	10,868	10,026	9,620	9,207	8,588
Industrial	2,385	2,323	2,429	2,388	2,353	2,353	2,312	2,107	2,148	2,346
Materials	741	708	712	701	614	633	671	711	802	710
Mechanical	9,450	9,520	9,852	10,501	10,730	10,933	11,833	12,266	12,692	12,753
Other	4,787	4,563	4,853	5,034	5,078	5,282	5,825	5,919	6,243	6,560

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Science	231,316	229,143	236,710	249,055	255,870	261,130	265,362	268,783	271,599	274,434
Natural sciences	103,331	102,252	105,511	110,194	110,989	111,642	112,658	114,851	114,545	116,594
Agricultural sciences	15,655	14,948	14,728	14,935	14,368	14,353	14,388	14,523	15,004	15,476
Biological sciences	43,903	41,261	41,212	41,893	42,443	43,759	46,495	49,771	50,367	51,756
Earth, atmospheric, and ocean sciences	3,536	3,436	3,450	3,442	3,338	3,366	3,360	3,474	3,565	3,718
Atmospheric sciences	437	395	467	493	508	597	575	662	639	610
Earth sciences	2,959	2,888	2,806	2,837	2,691	2,663	2,703	2,692	2,822	2,996
Oceanography	140	153	177	112	139	106	82	120	104	112
Mathematics/computer sciences	30,141	32,808	36,434	39,998	41,024	39,886	37,400	35,764	34,064	33,934
Computer sciences	21,759	24,649	27,696	31,040	31,400	29,742	26,948	25,033	23,189	23,021
Mathematics	8,382	8,159	8,738	8,958	9,624	10,144	10,452	10,731	10,875	10,913
Physical sciences	10,096	9,799	9,687	9,926	9,816	10,278	11,015	11,319	11,545	11,710
Astronomy	131	185	204	212	220	234	269	248	251	233
Chemistry	6,900	6,500	6,260	6,280	6,149	6,586	7,023	7,135	7,322	7,463
Physics	2,543	2,617	2,736	2,963	3,115	3,092	3,333	3,545	3,572	3,599
Other physical sciences	522	497	487	471	332	366	390	391	400	415
Social/behavioral sciences	127,985	126,891	131,199	138,861	144,881	149,488	152,704	153,932	157,054	157,840
Psychology	52,400	51,545	53,318	54,711	56,576	58,089	59,416	59,761	60,763	60,729
Social sciences	75,585	75,346	77,881	84,150	88,305	91,399	93,288	94,171	96,291	97,111
Anthropology	5,378	5,222	5,380	5,593	5,498	5,586	5,784	5,652	6,134	6,388
Area/ethnic studies	2,940	2,937	3,069	2,948	3,180	3,240	3,374	3,456	3,611	3,687
Economics	12,102	12,414	13,371	14,299	14,656	14,720	14,427	14,496	15,501	16,205
History of science	58	57	60	68	100	86	83	73	69	61
Linguistics	439	499	571	598	652	637	771	858	955	909
Political science/public administration	24,931	24,961	26,150	29,565	31,756	33,891	35,058	35,634	35,932	35,254
Sociology	16,561	16,099	15,817	16,283	16,677	17,231	16,963	16,985	16,556	16,413
Other social sciences	13,176	13,157	13,463	14,796	15,786	16,008	16,828	17,017	17,533	18,194
Non-S&E	626,170	622,223	638,289	652,904	670,216	684,636	702,609	720,028	734,254	748,935
Engineering technologies	10,916	10,760	10,925	10,744	10,453	10,634	10,605	11,209	11,260	11,560
Asian/Pacific Islander										
All fields	75,384	75,741	79,482	83,498	86,743	91,482	96,315	99,011	102,301	105,246
S&E	35,556	36,468	37,518	39,944	41,403	43,312	44,475	45,516	47,323	48,348
Engineering	6,850	7,025	7,120	7,413	7,628	8,211	8,551	8,466	8,343	8,266
Aerospace	98	103	128	145	186	184	223	250	278	294
Chemical	788	702	636	563	527	486	558	652	690	739
Civil	642	521	482	500	493	585	770	908	985	1,111
Electrical	3,143	3,522	3,773	3,967	4,086	4,293	3,840	3,353	2,994	2,561
Industrial	332	319	356	386	376	352	362	333	315	360
Materials	91	88	85	91	95	101	166	153	140	137
Mechanical	1,002	998	892	939	928	1,082	1,249	1,413	1,491	1,489
Other	754	772	768	822	937	1,128	1,383	1,404	1,450	1,575
Science	28,706	29,443	30,398	32,531	33,775	35,101	35,924	37,050	38,980	40,082
Natural sciences	16,342	16,633	17,196	18,499	18,433	18,455	18,459	19,106	20,231	20,957
Agricultural sciences	454	399	411	459	415	448	542	606	632	731
Biological sciences	8,025	7,493	7,209	7,398	7,792	8,835	10,088	11,572	12,866	13,578
Earth, atmospheric, and ocean sciences	97	86	85	73	85	86	92	106	121	143
Atmospheric sciences	14	14	8	9	11	15	12	17	13	14

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Earth sciences	77	64	65	58	65	69	75	82	104	119
Oceanography	6	8	12	6	9	2	5	7	4	10
Mathematics/computer sciences	6,304	7,311	8,274	9,426	8,912	7,770	6,119	5,020	4,645	4,459
Computer sciences	5,415	6,395	7,273	8,273	7,668	6,351	4,672	3,581	3,133	2,894
Mathematics	889	916	1,001	1,153	1,244	1,419	1,447	1,439	1,512	1,565
Physical sciences	1,462	1,344	1,217	1,143	1,229	1,316	1,618	1,802	1,967	2,046
Astronomy	9	12	24	16	18	21	37	16	21	27
Chemistry	1,208	1,126	978	893	960	1,024	1,267	1,420	1,596	1,671
Physics	218	184	184	204	223	236	281	327	307	306
Other physical sciences	27	22	31	30	28	35	33	39	43	42
Social/behavioral sciences	12,364	12,810	13,202	14,032	15,342	16,646	17,465	17,944	18,749	19,125
Psychology	4,188	4,150	4,241	4,064	4,350	4,797	5,305	5,615	5,931	6,042
Social sciences	8,176	8,660	8,961	9,968	10,992	11,849	12,160	12,329	12,818	13,083
Anthropology	340	332	377	396	398	424	496	534	581	599
Area/ethnic studies	737	714	686	671	758	875	879	899	880	932
Economics	2,774	3,082	3,235	3,708	4,007	4,003	3,913	3,874	3,976	4,218
History of science	12	15	20	16	14	11	9	8	11	13
Linguistics	72	69	73	83	105	112	112	136	156	152
Political science/public administration	2,073	2,228	2,325	2,648	2,903	3,267	3,488	3,539	3,653	3,551
Sociology	1,324	1,300	1,325	1,372	1,596	1,853	1,907	1,908	1,994	1,950
Other social sciences	844	920	920	1,074	1,211	1,304	1,356	1,431	1,567	1,668
Non-S&E	39,828	39,273	41,964	43,554	45,340	48,170	51,840	53,495	54,978	56,898
Engineering technologies	770	731	769	703	680	754	661	669	657	594
Black										
All fields	104,341	106,966	111,330	117,902	123,636	127,978	133,743	137,566	142,576	145,988
S&E	32,993	33,386	34,899	36,961	38,737	39,846	40,108	40,401	41,263	41,822
Engineering	3,069	2,892	2,982	3,092	3,227	3,206	3,209	3,164	3,101	3,096
Aerospace	40	39	43	65	70	71	85	72	84	90
Chemical	383	373	346	317	303	273	231	244	256	256
Civil	403	329	317	292	320	342	324	403	420	441
Electrical	1,055	1,089	1,103	1,301	1,408	1,331	1,277	1,207	1,135	1,120
Industrial	256	238	256	275	251	297	273	252	229	230
Materials	24	27	32	22	22	19	28	22	31	30
Mechanical	594	515	561	471	504	537	569	570	560	539
Other	314	282	324	349	349	336	422	394	386	390
Science	29,924	30,494	31,917	33,869	35,510	36,640	36,899	37,237	38,162	38,726
Natural sciences	10,796	11,359	12,066	13,191	13,554	13,199	13,071	12,880	12,540	12,694
Agricultural sciences	450	428	454	452	450	444	485	481	557	510
Biological sciences	4,738	4,693	4,632	4,878	5,039	5,052	5,366	5,857	6,003	6,253
Earth, atmospheric, and ocean sciences	51	56	62	60	65	68	58	79	89	88
Atmospheric sciences	10	2	10	12	20	8	14	15	21	20
Earth sciences	40	52	42	43	43	54	43	61	65	65
Oceanography	1	2	10	5	2	6	1	3	3	3
Mathematics/computer sciences	4,467	5,186	5,900	6,873	7,042	6,670	6,122	5,420	4,807	4,710
Computer sciences	3,563	4,378	5,057	6,083	6,259	5,815	5,275	4,588	4,011	3,868
Mathematics	904	808	843	790	783	855	847	832	796	842
Physical sciences	1,090	996	1,018	928	958	965	1,040	1,043	1,084	1,133

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Astronomy	1	2	3	1	3	4	9	3	6	5
Chemistry	888	827	796	744	756	760	827	852	910	935
Physics	152	133	182	147	166	166	171	163	144	149
Other physical sciences	49	34	37	36	33	35	33	25	24	44
Social/behavioral sciences	19,128	19,135	19,851	20,678	21,956	23,441	23,828	24,357	25,622	26,032
Psychology	7,572	7,561	7,748	8,014	8,485	9,141	9,097	9,729	10,271	10,541
Social sciences	11,556	11,574	12,103	12,664	13,471	14,300	14,731	14,628	15,351	15,491
Anthropology	268	242	253	258	338	320	337	358	408	435
Area/ethnic studies	738	691	784	749	805	905	1,011	926	1,012	992
Economics	1,044	1,089	1,221	1,326	1,409	1,377	1,379	1,289	1,380	1,346
History of science	6	6	4	6	8	5	4	12	7	8
Linguistics	14	24	25	17	32	33	44	44	57	50
Political science/public administration	3,601	3,556	3,737	4,059	4,452	4,866	5,099	4,955	5,119	5,188
Sociology	4,097	4,200	4,167	4,214	4,220	4,539	4,627	4,721	4,842	4,761
Other social sciences	1,788	1,766	1,912	2,035	2,207	2,255	2,230	2,323	2,526	2,711
Non-S&E	71,348	73,580	76,431	80,941	84,899	88,132	93,635	97,165	101,313	104,166
Engineering technologies	1,466	1,427	1,467	1,557	1,592	1,599	1,574	1,463	1,467	1,442
Hispanic										
All fields	88,445	90,232	95,492	101,030	106,388	111,616	118,057	124,787	131,695	137,746
S&E	27,980	28,361	29,935	32,533	33,748	35,662	37,049	38,546	40,877	43,018
Engineering	4,075	4,015	4,136	4,358	4,483	4,628	4,928	4,962	5,234	5,577
Aerospace	67	92	97	110	121	139	153	172	172	194
Chemical	380	341	353	320	313	333	345	326	375	405
Civil	762	742	761	798	836	888	952	1,006	1,079	1,269
Electrical	1,283	1,301	1,411	1,428	1,564	1,535	1,563	1,521	1,467	1,484
Industrial	391	356	372	365	332	364	391	337	326	428
Materials	38	34	33	50	52	59	58	40	58	48
Mechanical	846	880	819	950	935	962	1,050	1,147	1,301	1,183
Other	308	269	290	337	330	348	416	413	456	566
Science	23,905	24,346	25,799	28,175	29,265	31,034	32,121	33,584	35,643	37,441
Natural sciences	8,842	9,202	9,476	10,767	10,736	10,968	11,099	11,312	12,153	12,720
Agricultural sciences	635	607	662	686	673	710	651	776	997	969
Biological sciences	4,446	4,547	4,367	4,840	4,611	4,819	5,084	5,453	5,995	6,384
Earth, atmospheric, and ocean sciences	125	157	136	119	131	151	143	135	192	221
Atmospheric sciences	9	15	10	10	13	20	20	18	30	42
Earth sciences	105	130	109	103	112	121	120	113	155	172
Oceanography	11	12	17	6	6	10	3	4	7	7
Mathematics/computer sciences	2,753	3,021	3,448	4,261	4,436	4,350	4,232	3,916	3,847	3,977
Computer sciences	2,154	2,396	2,776	3,590	3,758	3,529	3,351	2,970	2,923	2,999
Mathematics	599	625	672	671	678	821	881	946	924	978
Physical sciences	883	870	863	861	885	938	989	1,032	1,122	1,169
Astronomy	7	16	10	12	23	17	12	18	30	21
Chemistry	719	669	666	669	651	704	739	748	830	879
Physics	125	151	156	164	187	183	206	246	229	235
Other physical sciences	32	34	31	16	24	34	32	20	33	34
Social/behavioral sciences	15,063	15,144	16,323	17,408	18,529	20,066	21,022	22,272	23,490	24,721
Psychology	6,127	6,178	6,695	6,828	7,285	7,708	8,236	8,506	8,885	9,615

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Social sciences	8,936	8,966	9,628	10,580	11,244	12,358	12,786	13,766	14,605	15,106
Anthropology	462	465	494	533	568	578	607	636	723	775
Area/ethnic studies	659	648	688	717	756	827	926	971	972	1,007
Economics	976	1,030	1,068	1,188	1,290	1,352	1,423	1,510	1,540	1,616
History of science	3	5	7	4	7	6	5	5	2	3
Linguistics	42	45	39	48	71	68	80	101	120	121
Political science/public administration	2,973	2,925	3,135	3,586	3,872	4,583	4,531	5,105	5,382	5,496
Sociology	2,317	2,291	2,440	2,555	2,665	2,874	2,969	3,150	3,283	3,398
Other social sciences	1,504	1,557	1,757	1,949	2,015	2,070	2,245	2,288	2,583	2,690
Non-S&E	60,465	61,871	65,557	68,497	72,640	75,954	81,008	86,241	90,818	94,728
Engineering technologies	1,123	1,146	1,187	1,290	1,215	1,210	1,098	1,148	1,315	1,242
American Indian/Alaska Native										
All fields	8,414	8,683	8,744	9,314	10,021	9,704	10,281	10,751	10,768	11,407
S&E	2,607	2,800	2,649	2,909	3,264	3,209	3,341	3,319	3,392	3,564
Engineering	326	256	308	320	333	349	353	305	344	347
Aerospace	7	8	17	10	23	16	14	9	16	19
Chemical	42	31	33	34	29	30	27	25	36	30
Civil	83	65	67	67	64	73	73	75	63	75
Electrical	81	56	70	99	88	84	69	61	81	72
Industrial	23	17	21	12	15	27	17	14	23	18
Materials	5	4	6	3	6	5	8	5	7	5
Mechanical	52	51	61	58	73	72	91	71	81	88
Other	33	24	33	37	35	42	54	45	37	40
Science	2,281	2,544	2,341	2,589	2,931	2,860	2,988	3,014	3,048	3,217
Natural sciences	917	1,080	967	1,002	1,216	1,145	1,141	1,151	1,109	1,231
Agricultural sciences	190	215	158	163	188	161	186	165	172	207
Biological sciences	379	431	410	378	417	499	479	531	508	577
Earth, atmospheric, and ocean sciences	43	35	26	24	31	25	36	26	28	29
Atmospheric sciences	4	5	1	4	1	1	1	4	2	4
Earth sciences	35	29	23	18	30	23	35	21	26	24
Oceanography	4	1	2	2	0	1	0	1	0	1
Mathematics/computer sciences	240	326	290	343	504	357	338	312	294	284
Computer sciences	172	275	233	278	445	281	274	249	221	213
Mathematics	68	51	57	65	59	76	64	63	73	71
Physical sciences	65	73	83	94	76	103	102	117	107	134
Astronomy	2	2	2	4	1	3	1	1	1	2
Chemistry	49	47	57	71	50	65	73	90	80	94
Physics	12	19	21	17	20	33	24	22	22	32
Other physical sciences	2	5	3	2	5	2	4	4	4	6
Social/behavioral sciences	1,364	1,464	1,374	1,587	1,715	1,715	1,847	1,863	1,939	1,986
Psychology	518	561	542	545	597	555	597	612	637	632
Social sciences	846	903	832	1,042	1,118	1,160	1,250	1,251	1,302	1,354
Anthropology	89	93	85	111	103	98	114	116	106	134
Area/ethnic studies	80	106	121	128	145	134	127	170	166	176
Economics	71	68	65	95	108	95	104	103	104	128
History of science	1	0	0	0	0	0	0	0	1	1
Linguistics	10	2	2	9	4	12	7	11	9	12

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Political science/public administration	230	234	241	288	354	345	397	368	404	375
Sociology	220	225	184	244	228	259	271	249	268	299
Other social sciences	145	175	134	167	176	217	230	234	244	229
Non-S&E	5,807	5,883	6,095	6,405	6,757	6,495	6,940	7,432	7,376	7,843
Engineering technologies	110	129	102	126	195	96	132	138	112	142
Other/unknown race/ethnicity										
All fields	42,419	48,754	57,722	66,907	77,865	82,265	86,624	90,834	97,431	103,691
S&E	13,930	15,833	18,235	21,635	24,973	26,305	26,743	27,834	29,805	31,547
Engineering	1,610	1,884	2,100	2,509	2,621	2,827	2,949	3,008	3,323	3,596
Aerospace	35	50	61	80	115	80	126	133	145	149
Chemical	119	156	155	206	162	153	174	194	230	240
Civil	239	265	269	329	360	389	434	470	573	652
Electrical	560	674	764	937	1,013	1,027	982	906	884	934
Industrial	69	84	101	109	100	148	107	111	119	128
Materials	36	27	36	52	47	49	29	45	67	76
Mechanical	358	431	485	514	558	647	721	731	846	876
Other	194	197	229	282	266	334	376	418	459	541
Science	12,320	13,949	16,135	19,126	22,352	23,478	23,794	24,826	26,482	27,951
Natural sciences	5,143	5,977	7,077	8,551	10,422	10,310	10,405	10,417	11,056	11,510
Agricultural sciences	603	620	684	738	713	730	789	863	884	1,016
Biological sciences	2,020	2,149	2,390	2,592	2,797	3,041	3,341	3,831	4,329	4,597
Earth, atmospheric, and ocean sciences	121	149	166	174	203	183	222	199	249	261
Atmospheric sciences	8	23	23	26	16	26	24	20	26	23
Earth sciences	110	125	140	145	184	151	190	177	217	229
Oceanography	3	1	3	3	3	6	8	2	6	9
Mathematics/computer sciences	1,949	2,551	3,251	4,412	6,045	5,619	5,191	4,572	4,540	4,682
Computer sciences	1,556	2,099	2,762	3,808	5,378	4,879	4,381	3,742	3,641	3,682
Mathematics	393	452	489	604	667	740	810	830	899	1,000
Physical sciences	450	508	586	635	664	737	862	952	1,054	954
Astronomy	6	10	17	11	17	32	25	33	21	34
Chemistry	280	311	340	346	384	387	492	554	626	573
Physics	152	163	196	250	240	289	308	344	373	312
Other physical sciences	12	24	33	28	23	29	37	21	34	35
Social/behavioral sciences	7,177	7,972	9,058	10,575	11,930	13,168	13,389	14,409	15,426	16,441
Psychology	2,587	2,846	3,384	3,607	3,838	4,238	4,320	4,716	5,028	5,576
Social sciences	4,590	5,126	5,674	6,968	8,092	8,930	9,069	9,693	10,398	10,865
Anthropology	404	424	495	558	620	621	639	680	777	722
Area/ethnic studies	282	297	329	372	436	468	483	499	511	569
Economics	742	865	960	1,204	1,288	1,414	1,325	1,419	1,582	1,734
History of science	11	15	10	6	11	8	9	12	12	13
Linguistics	56	41	56	79	109	114	113	131	123	156
Political science/public administration	1,424	1,597	1,810	2,364	2,865	3,319	3,537	3,580	3,947	3,994
Sociology	867	984	1,068	1,183	1,307	1,471	1,414	1,639	1,600	1,659
Other social sciences	804	903	946	1,202	1,456	1,515	1,549	1,733	1,846	2,018
Non-S&E	28,489	32,921	39,487	45,272	52,892	55,960	59,881	63,000	67,626	72,144
Engineering technologies	582	630	721	712	690	868	879	888	982	1,029

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Temporary resident										
All fields	39,104	39,843	41,508	43,264	44,844	45,399	46,405	45,964	44,406	45,934
S&E	15,195	15,721	16,344	17,898	18,825	18,559	18,254	17,393	16,526	17,055
Engineering	4,532	4,419	4,266	4,277	4,550	4,740	4,711	4,389	4,180	4,071
Aerospace	121	148	122	160	174	171	147	175	151	178
Chemical	445	424	447	359	368	411	436	430	464	518
Civil	458	412	371	349	315	327	342	326	373	368
Electrical	1,836	1,842	1,868	2,054	2,276	2,321	2,176	1,879	1,589	1,425
Industrial	481	475	442	402	381	395	428	375	406	369
Materials	37	42	29	31	29	40	46	49	45	64
Mechanical	789	744	683	596	614	647	650	713	714	715
Other	365	332	304	326	393	428	486	442	438	434
Science	10,663	11,302	12,078	13,621	14,275	13,819	13,543	13,004	12,346	12,984
Natural sciences	5,591	6,120	6,682	7,864	8,283	7,741	7,133	6,558	5,967	6,208
Agricultural sciences	258	248	262	270	251	274	266	282	228	243
Biological sciences	1,376	1,436	1,455	1,538	1,651	1,967	2,119	2,333	2,330	2,429
Earth, atmospheric, and ocean sciences	46	49	59	57	50	80	76	58	70	82
Atmospheric sciences	8	2	6	8	3	10	5	9	5	8
Earth sciences	33	46	49	48	45	65	65	47	64	74
Oceanography	5	1	4	1	2	5	6	2	1	0
Mathematics/computer sciences	3,379	3,831	4,363	5,476	5,740	4,752	3,908	3,143	2,566	2,658
Computer sciences	2,900	3,405	3,909	4,854	5,060	3,991	3,099	2,433	1,804	1,819
Mathematics	479	426	454	622	680	761	809	710	762	839
Physical sciences	532	556	543	523	591	668	764	742	773	796
Astronomy	4	13	16	15	10	20	13	13	16	13
Chemistry	344	335	342	326	350	397	466	451	468	529
Physics	160	180	166	168	189	200	243	223	229	209
Other physical sciences	24	28	19	14	42	51	42	55	60	45
Social/behavioral sciences	5,072	5,182	5,396	5,757	5,992	6,078	6,410	6,446	6,379	6,776
Psychology	1,264	1,283	1,369	1,394	1,475	1,503	1,580	1,559	1,474	1,608
Social sciences	3,808	3,899	4,027	4,363	4,517	4,575	4,830	4,887	4,905	5,168
Anthropology	116	120	114	94	106	115	123	110	124	100
Area/ethnic studies	178	164	158	160	164	163	175	199	171	235
Economics	1,691	1,823	1,903	2,046	2,169	2,199	2,136	2,134	2,198	2,381
History of science	1	3	2	3	0	1	3	4	1	1
Linguistics	83	77	81	80	74	77	74	59	85	78
Political science/public administration	1,152	1,149	1,167	1,286	1,307	1,269	1,479	1,417	1,452	1,461

Appendix table 2-19

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sociology	299	258	295	349	327	329	390	398	365	356
Other social sciences	288	305	307	345	370	422	450	566	509	556
Non-S&E	23,909	24,122	25,164	25,366	26,019	26,840	28,151	28,571	27,880	28,879
Engineering technologies	443	543	466	459	516	488	378	379	371	445

NOTES: Racial/ethnic breakouts for U.S. citizens and permanent residents only; temporary resident includes all racial/ethnic groups. Engineering technologies focused more on applied skills than on fundamental science and mathematics. Data are based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data from *Science and Engineering Indicators 2008* and earlier years that were based on accredited higher education institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-20
S&E graduate enrollment, by sex and field: 2009

Field	Both sexes	Male	Female
S&E	611,629	320,738	290,891
Engineering	137,873	107,552	30,321
Aerospace	5,266	4,532	734
Chemical	8,188	5,572	2,616
Civil	18,638	13,337	5,301
Electrical	41,218	34,044	7,174
Industrial	15,825	12,025	3,800
Materials	5,863	4,274	1,589
Mechanical	21,243	18,253	2,990
Other	21,632	15,515	6,117
Science[a]	473,756	213,186	260,570
Natural sciences	303,195	146,719	156,476
Agricultural sciences	15,200	7,715	7,485
Biological sciences[b]	75,660	32,578	43,082
Earth, atmospheric, and ocean sciences	14,839	8,024	6,815
Atmospheric sciences	1,355	908	447
Earth sciences	7,539	4,344	3,195
Oceanography	2,633	1,202	1,431
Other geosciences	3,312	1,570	1,742
Mathematics/computer sciences	73,387	52,355	21,032
Computer sciences	51,161	38,108	13,053
Mathematics/statistics	22,226	14,247	7,979
Medical/other life sciences	85,960	20,589	65,371
Medical sciences	32,508	11,652	20,856
Other life sciences	53,452	8,937	44,515
Physical sciences	38,149	25,458	12,691
Astronomy	1,409	978	431
Chemistry	22,094	12,872	9,222
Physics	14,060	11,214	2,846
Other physical sciences	586	394	192
Social/behavioral sciences	164,004	63,719	100,285
Psychology	56,184	13,648	42,536
Social sciences	107,820	50,071	57,749
Anthropology	8,359	3,022	5,337
Economics	16,215	10,146	6,069
History of science	1,006	597	409
Linguistics	3,170	1,230	1,940
Political science/public administration	43,919	20,540	23,379
Sociology	10,307	3,777	6,530
Other social sciences	24,844	10,759	14,085
Multidisciplinary/interdisciplinary studies	6,557	2,748	3,809

[a]Includes natural sciences, social/behavioral sciences, and multidisciplinary/interdisciplinary studies.
[b]Includes neuroscience.

NOTE: S&E excludes fields that were collected in this survey (architecture, communication, and family and consumer sciences/human sciences) that are not included in other tables in this report and from other data sources.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-21

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 2009

Field	All citizenships and race/ethnicities	U.S. citizen/permanent resident	White	Asian/Pacific Islander	Black	Hispanic	American Indian/Alaska Native	Other/unknown race/ethnicity	Temporary Resident
S&E	611,629	442,779	290,813	37,850	35,823	31,281	2,935	44,077	168,850
Engineering	137,873	73,031	46,428	9,602	3,872	4,764	312	8,053	64,842
Aerospace	5,266	3,605	2,485	377	108	195	16	424	1,661
Chemical	8,188	4,022	2,809	536	172	225	14	266	4,166
Civil	18,638	11,750	7,884	1,136	528	915	59	1,228	6,888
Electrical	41,218	15,936	8,908	3,041	900	1,072	54	1,961	25,282
Industrial	15,825	9,511	5,305	977	826	717	61	1,625	6,314
Materials	5,863	2,949	2,119	362	112	145	11	200	2,914
Mechanical	21,243	11,893	8,334	1,225	431	749	43	1,111	9,350
Other	21,632	13,365	8,584	1,948	795	746	54	1,238	8,267
Science[a]	473,756	369,748	244,385	28,248	31,951	26,517	2,623	36,024	104,008
Natural sciences	303,195	222,537	152,089	20,225	15,553	13,683	1,338	19,649	80,658
Agricultural sciences	15,200	11,938	9,421	399	406	749	134	829	3,262
Biological sciences[b]	75,660	57,904	38,790	6,386	3,663	3,837	342	4,886	17,756
Earth, atmospheric, and ocean sciences	14,839	12,082	9,651	415	311	585	75	1,045	2,757
Atmospheric sciences	1,355	1,056	851	41	39	46	7	72	299
Earth sciences	7,539	6,036	4,893	185	113	270	43	532	1,503
Oceanography	2,633	2,170	1,743	46	41	141	12	187	463
Other geosciences	3,312	2,820	2,164	143	118	128	13	254	492
Mathematics/computer sciences	73,387	40,236	25,060	5,373	2,818	2,159	175	4,651	33,151
Computer sciences	51,161	26,325	15,533	3,916	2,088	1,371	128	3,289	24,836
Mathematics/statistics	22,226	13,911	9,527	1,457	730	788	47	1,362	8,315
Medical/other life sciences	85,960	77,306	52,234	5,781	7,376	5,071	493	6,351	8,654
Medical sciences	32,508	26,218	15,322	2,898	3,565	2,001	179	2,253	6,290
Other life sciences	53,452	51,088	36,912	2,883	3,811	3,070	314	4,098	2,364
Physical sciences	38,149	23,071	16,933	1,871	979	1,282	119	1,887	15,078
Astronomy	1,409	969	764	66	6	37	7	89	440
Chemistry	22,094	13,515	9,650	1,180	746	834	74	1,031	8,579
Physics	14,060	8,078	6,134	565	206	397	31	745	5,982
Other physical sciences	586	509	385	60	21	14	7	22	77
Social/behavioral sciences	164,004	141,683	88,874	7,721	15,918	12,433	1,231	15,506	22,321
Psychology	56,184	53,246	34,342	2,659	5,393	5,003	384	5,465	2,938
Social sciences	107,820	88,437	54,532	5,062	10,525	7,430	847	10,041	19,383
Anthropology	8,359	7,410	5,361	337	268	535	134	775	949
Economics	16,215	8,194	5,463	759	500	501	38	933	8,021
History of science	1,006	913	704	21	51	72	5	60	93
Linguistics	3,170	2,229	1,504	210	59	148	40	268	941
Political science/public administration	43,919	38,328	22,424	2,190	5,243	3,362	288	4,821	5,591

Appendix table 2-21

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 2009

Field	All citizenships and race/ethnicities	U.S. citizen/permanent resident	White	Asian/Pacific Islander	Black	Hispanic	American Indian/Alaska Native	Other/unknown race/ethnicity	Temporary Resident
Sociology	10,307	9,073	5,651	469	1,266	857	80	750	1,234
Other social sciences	24,844	22,290	13,425	1,076	3,138	1,955	262	2,434	2,554
Multidisciplinary/interdisciplinary studies	6,557	5,528	3,422	302	480	401	54	869	1,029

[a]Includes natural sciences, social/behavioral sciences, and multidisciplinary/interdisciplinary studies.
[b]Includes neuroscience.

NOTE: S&E excludes fields that were collected in this survey (architecture, communication, and family and consumer sciences/human sciences) that are not included in other tables in this report and from other data sources.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-22

Engineering enrollment, by enrollment level and attendance: 1989–2009

	Undergraduate						Graduate					
	All enrolled		Full time		Part time		All enrolled		Full time		Part time	
Year	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1989	378,277	100.0	338,529	89.5	39,748	10.5	114,048	100.0	68,967	60.5	45,081	39.5
1990	380,287	100.0	338,842	89.1	41,445	10.9	117,834	100.0	72,456	61.5	45,378	38.5
1991	379,977	100.0	339,397	89.3	40,580	10.7	123,497	100.0	74,568	60.4	48,929	39.6
1992	382,525	100.0	344,126	90.0	38,399	10.0	128,854	100.0	78,651	61.0	50,203	39.0
1993	375,944	100.0	337,817	89.9	38,127	10.1	128,081	100.0	78,885	61.6	49,196	38.4
1994	367,298	100.0	328,463	89.4	38,835	10.6	122,242	100.0	74,596	61.0	47,646	39.0
1995	363,315	100.0	325,489	89.6	37,826	10.4	118,506	100.0	72,215	60.9	46,291	39.1
1996	356,177	100.0	317,772	89.2	38,405	10.8	113,063	100.0	70,129	62.0	42,934	38.0
1997	365,358	100.0	326,458	89.4	38,900	10.6	112,257	100.0	70,447	62.8	41,810	37.2
1998	366,991	100.0	329,657	89.8	37,334	10.2	110,355	100.0	69,519	63.0	40,836	37.0
1999	361,395	100.0	323,713	89.6	37,682	10.4	105,005	100.0	67,633	64.4	37,372	35.6
2000	390,803	100.0	353,118	90.4	37,685	9.6	118,257	100.0	81,821	69.2	36,436	30.8
2001	409,557	100.0	367,954	89.8	41,603	10.2	128,764	100.0	87,187	67.7	41,577	32.3
2002	421,178	100.0	383,109	91.0	38,069	9.0	140,240	100.0	97,752	69.7	42,488	30.3
2003	421,791	100.0	384,612	91.2	37,179	8.8	147,940	100.0	103,223	69.8	44,717	30.2
2004	411,635	100.0	377,040	91.6	34,595	8.4	147,497	100.0	102,975	69.8	44,522	30.2
2005	409,326	100.0	375,112	91.6	34,214	8.4	139,755	100.0	97,676	69.9	42,079	30.1
2006	405,489	100.0	371,720	91.7	33,769	8.3	139,905	100.0	99,750	71.3	40,155	28.7
2007	431,910	100.0	399,429	92.5	32,481	7.5	147,398	100.0	104,936	71.2	42,462	28.8
2008	442,952	100.0	411,345	92.9	31,607	7.1	153,106	100.0	110,430	72.1	42,676	27.9
2009	468,139	100.0	435,752	93.1	32,387	6.9	160,207	100.0	114,555	71.5	45,652	28.5

SOURCE: Engineering Workforce Commission, Engineering & Technology Enrollments, Fall 2009, American Association of Engineering Societies (2010).

Science and Engineering Indicators 2012

Appendix table 2-23

First-time full-time S&E graduate students, by citizenship and field: 2009

Citizenship and field	All citizenships	U.S. citizen/permanent resident	Temporary resident
All citizenships			
S&E	129,731	88,183	41,548
Engineering	30,230	13,749	16,481
Aerospace	1,176	753	423
Chemical	1,910	927	983
Civil	4,878	3,017	1,861
Electrical	8,831	2,295	6,536
Industrial	2,908	1,121	1,787
Materials	1,302	592	710
Mechanical	4,814	2,477	2,337
Other	4,411	2,567	1,844
Science[a]	99,501	74,434	25,067
Natural sciences	63,707	44,896	18,811
Agricultural sciences	2,994	2,359	635
Biological sciences[b]	15,838	12,159	3,679
Earth, atmospheric, and ocean sciences	3,153	2,533	620
Atmospheric sciences	250	199	51
Earth sciences	1,682	1,323	359
Oceanography	517	424	93
Other geosciences	704	587	117
Mathematics/computer sciences	15,445	6,467	8,978
Computer sciences	10,557	3,659	6,898
Mathematics/statistics	4,888	2,808	2,080
Medical/other life sciences	19,001	16,954	2,047
Medical sciences	7,714	6,186	1,528
Other life sciences	11,287	10,768	519
Physical sciences	7,276	4,424	2,852
Astronomy	250	191	59
Chemistry	4,331	2,683	1,648
Physics	2,571	1,455	1,116
Other physical sciences	124	95	29
Social/behavioral sciences	34,382	28,407	5,975
Psychology	10,980	10,347	633
Social sciences	23,402	18,060	5,342
Anthropology	1,452	1,325	127
Economics	4,465	2,213	2,252
History of science	119	106	13
Linguistics	632	419	213
Political science/public administration	9,736	7,926	1,810
Sociology	1,761	1,531	230
Other social sciences	5,237	4,540	697
Multidisciplinary/interdisciplinary studies	1,412	1,131	281

[a]Includes natural sciences, social/behavioral sciences, and multidisciplinary/interdisciplinary studies.
[b]Includes neuroscience.

NOTE: S&E excludes fields that were collected in this survey (architecture, communication, and family and consumer sciences/human sciences) that are not included in other tables in this report and from other data sources.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-24

Foreign graduate student enrollment in U.S. universities, by field and selected places of origin: November 2009 and 2010

Place of origin	All fields	S&E	Agricultural sciences	Biological sciences	Computer sciences	Engineering	Mathematics	Physical sciences	Psychology	Social sciences	Non-S&E
November 2009											
All locations	294,070	172,250	3,970	18,990	29,550	70,680	8,850	17,860	3,240	19,120	121,820
India	81,500	61,420	750	5,620	17,520	31,990	820	3,190	250	1,280	20,080
China	63,860	42,440	1,000	5,590	4,660	15,670	4,340	6,630	340	4,210	21,410
South Korea	25,060	10,120	220	1,000	960	4,010	610	910	280	2,130	14,940
Taiwan	15,620	6,530	160	1,030	740	2,720	300	600	220	770	9,100
Turkey	5,630	3,480	20	250	340	1,360	160	340	90	920	2,150
Canada	11,250	3,120	100	510	160	630	160	290	560	720	8,130
Nepal	3,630	2,220	150	220	500	590	110	410	10	240	1,410
Japan	5,120	2,060	60	260	100	290	80	190	180	890	3,060
Mexico	3,120	1,500	100	160	110	500	90	170	40	340	1,620
Colombia	2,560	1,480	70	260	70	530	110	190	20	230	1,080
Saudi Arabia	3,220	1,330	10	90	360	530	50	90	20	180	1,900
Nigeria	2,470	1,030	50	120	120	460	20	110	20	140	1,450
Pakistan	1,580	990	10	40	220	460	20	90	10	140	590
Brazil	2,600	920	120	170	70	150	40	60	60	260	1,690
United Kingdom	2,330	840	20	120	40	120	40	120	70	310	1,500
Vietnam	1,820	820	20	60	170	230	100	90	0	140	1,000
Malaysia	1,280	710	30	140	50	290	30	70	50	60	570
Ghana	1,410	680	50	70	40	160	60	110	20	170	730
Singapore	1,260	670	10	140	60	220	30	60	40	120	600
Kenya	1,620	620	70	70	50	80	30	140	30	160	1,000
Other locations	57,120	29,290	940	3,080	3,230	9,700	1,650	4,010	950	5,720	27,840
November 2010											
All locations	297,240	176,120	3,950	18,620	32,110	72,860	9,470	18,200	1,690	19,240	121,120
India	81,590	62,450	690	5,630	19,180	31,550	810	3,220	130	1,240	19,140
China	73,040	47,370	1,090	5,550	5,470	18,220	5,000	6,970	290	4,790	25,660
South Korea	23,500	9,210	200	860	890	3,600	580	830	170	2,070	14,290
Taiwan	14,020	6,100	140	980	740	2,580	290	610	90	690	7,920
Turkey	5,230	3,260	20	240	340	1,280	160	330	50	840	1,970
Canada	9,930	2,690	90	460	130	670	150	270	230	680	7,240
Nepal	3,690	2,310	150	260	470	640	100	440	10	250	1,370
Saudi Arabia	4,140	1,790	20	140	500	680	80	120	0	240	2,350
Japan	4,330	1,710	60	210	90	240	70	180	100	770	2,620
Mexico	3,060	1,470	90	160	100	500	90	170	20	340	1,590
Colombia	2,460	1,370	80	240	70	480	90	170	10	230	1,080
Nigeria	2,740	1,190	40	120	160	520	40	130	0	170	1,550
Pakistan	1,480	940	10	40	230	420	20	80	0	140	540
Brazil	2,560	900	120	170	70	150	50	70	20	260	1,670
Vietnam	1,950	860	20	60	170	250	110	110	0	140	1,090
United Kingdom	2,250	810	20	100	40	120	50	120	40	320	1,440
Singapore	1,240	710	10	160	60	240	40	70	20	120	540
Ghana	1,370	700	60	80	40	170	70	110	0	170	670
Malaysia	1,220	690	30	150	50	280	30	60	30	60	530
Kenya	1,450	560	60	70	40	70	30	140	10	140	890
Other locations	56,020	29,040	950	2,920	3,260	10,230	1,620	4,020	460	5,580	26,980

NOTES: Numbers rounded to nearest 10. Countries ordered by number of S&E students. Detail may not add to total because of rounding.

SOURCE: Bureau of Citizenship and Immigration Services, Student and Exchange Visitor Information System database, special tabulations (2011).

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Appendix table 2-25

Earned master's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Both sexes										
All fields	460,142	471,329	485,535	516,098	562,862	578,964	599,365	610,469	631,711	665,473
S&E	96,230	99,528	99,650	108,355	119,296	120,870	120,999	120,278	126,404	134,517
Engineering	25,738	26,436	26,180	29,472	33,922	33,899	32,263	30,936	33,177	36,510
Aerospace	560	611	682	702	870	935	936	912	1,036	1,075
Chemical	1,352	1,368	1,267	1,364	1,506	1,506	1,432	1,230	1,230	1,285
Civil	4,140	4,010	3,945	4,188	4,445	4,631	4,493	4,184	4,327	4,570
Electrical	8,341	8,596	8,246	10,038	12,220	11,613	10,456	10,093	11,232	12,698
Industrial	3,048	3,375	3,375	3,842	4,247	3,937	3,558	3,505	3,659	4,313
Materials	759	706	624	717	800	790	765	787	768	836
Mechanical	3,378	3,471	3,516	3,802	4,555	4,739	4,542	4,365	4,556	4,689
Other	4,160	4,299	4,525	4,819	5,279	5,748	6,081	5,860	6,369	7,044
Science	70,492	73,092	73,470	78,883	85,374	86,971	88,736	89,342	93,227	98,007
Natural sciences	33,326	35,471	35,780	39,300	41,970	41,078	40,808	40,144	41,914	43,397
Agricultural sciences	3,858	3,752	4,019	3,955	4,221	4,171	4,100	4,126	4,120	4,349
Biological sciences	6,329	6,487	6,341	6,883	7,644	8,120	8,718	8,794	9,565	9,921
Earth, atmospheric, and ocean sciences	1,345	1,363	1,406	1,491	1,570	1,637	1,684	1,632	1,552	1,579
Atmospheric sciences	156	140	141	167	179	212	206	193	199	225
Earth sciences	1,104	1,121	1,151	1,203	1,248	1,314	1,350	1,312	1,222	1,224
Oceanography	85	102	114	121	143	111	128	127	131	130
Mathematics/computer sciences	18,281	20,132	20,389	23,311	24,505	23,086	22,028	21,349	22,303	23,447
Computer sciences	14,986	16,852	16,965	19,590	20,208	18,489	17,138	16,314	17,151	17,988
Mathematics/statistics	3,295	3,280	3,424	3,721	4,297	4,597	4,890	5,035	5,152	5,459
Physical sciences	3,513	3,737	3,625	3,660	4,030	4,064	4,278	4,243	4,374	4,101
Astronomy	102	93	112	123	150	159	146	152	166	139
Chemistry	1,909	2,009	1,867	1,830	2,056	1,912	2,097	2,144	2,236	2,131
Physics	1,244	1,376	1,353	1,453	1,637	1,794	1,853	1,792	1,799	1,657
Other physical sciences	258	259	293	254	187	199	182	155	173	174
Social/behavioral sciences	37,166	37,621	37,690	39,583	43,404	45,893	47,928	49,198	51,313	54,610
Psychology	13,806	14,449	14,204	14,885	15,700	16,478	17,302	18,594	18,836	20,744
Social sciences	23,360	23,172	23,486	24,698	27,704	29,415	30,626	30,604	32,477	33,866
Anthropology	950	1,092	1,017	1,043	1,098	1,107	1,156	1,214	1,145	1,248
Area/ethnic studies	1,511	1,511	1,473	1,427	1,616	1,662	2,017	1,641	1,722	1,672
Economics	2,515	2,492	2,651	2,951	3,201	3,504	3,330	3,351	3,576	3,651
History of science	24	26	35	25	25	29	41	28	47	33
Linguistics	553	552	520	525	574	611	621	583	610	720
Political science/public administration	13,038	12,937	13,200	14,135	15,780	17,421	18,073	18,525	19,933	20,575
Sociology	2,036	1,901	1,957	1,929	2,031	1,518	1,577	1,575	1,571	1,601
Other social sciences	2,733	2,661	2,633	2,663	3,379	3,563	3,811	3,687	3,873	4,366
Non-S&E	363,912	371,801	385,885	407,743	443,566	458,094	478,366	490,191	505,307	530,956
Male										
All fields	192,821	195,277	200,199	212,513	230,786	234,829	239,418	239,892	248,971	263,478
S&E	54,560	55,884	55,939	61,183	67,215	67,244	66,249	65,353	68,810	73,489
Engineering	20,396	20,819	20,617	23,301	26,774	26,287	24,784	23,957	25,540	28,271
Aerospace	484	521	557	596	721	771	781	742	864	906
Chemical	1,008	1,016	932	1,021	1,089	1,081	1,046	854	877	887
Civil	3,065	2,951	2,883	3,041	3,234	3,309	3,147	2,969	3,091	3,214

Appendix table 2-25

Earned master's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Electrical	6,781	6,921	6,685	8,136	9,822	9,133	8,243	8,079	8,882	10,198
Industrial	2,400	2,591	2,583	2,999	3,341	3,018	2,640	2,628	2,734	3,247
Materials	558	534	456	536	601	586	565	578	549	594
Mechanical	2,923	3,023	3,048	3,343	3,992	4,140	3,909	3,782	3,896	3,990
Other	3,177	3,262	3,473	3,629	3,974	4,249	4,453	4,325	4,647	5,235
Science	34,164	35,065	35,322	37,882	40,441	40,957	41,465	41,396	43,270	45,218
Natural sciences	19,765	20,934	21,097	23,356	24,768	24,417	24,457	23,946	24,982	25,944
Agricultural sciences	2,039	1,915	2,022	1,896	1,965	1,951	1,947	1,859	1,872	2,031
Biological sciences	2,816	2,732	2,668	2,864	3,160	3,233	3,612	3,541	3,954	4,146
Earth, atmospheric, and ocean sciences	832	799	834	879	869	927	923	891	847	848
Atmospheric sciences	119	100	95	112	112	143	135	124	126	134
Earth sciences	670	649	678	702	682	737	738	713	663	658
Oceanography	43	50	61	65	75	47	50	54	58	56
Mathematics/computer sciences	11,780	13,052	13,274	15,375	16,257	15,766	15,323	14,975	15,500	16,332
Computer sciences	9,983	11,161	11,325	13,335	13,910	13,180	12,520	12,038	12,555	13,119
Mathematics/statistics	1,797	1,891	1,949	2,040	2,347	2,586	2,803	2,937	2,945	3,213
Physical sciences	2,298	2,436	2,299	2,342	2,517	2,540	2,652	2,680	2,809	2,587
Astronomy	77	57	85	81	97	97	80	93	104	82
Chemistry	1,086	1,184	1,015	1,001	1,106	973	1,073	1,139	1,201	1,134
Physics	1,000	1,090	1,067	1,140	1,224	1,372	1,414	1,375	1,421	1,286
Other physical sciences	135	105	132	120	90	98	85	73	83	85
Social/behavioral sciences	14,399	14,131	14,225	14,526	15,673	16,540	17,008	17,450	18,288	19,274
Psychology	3,443	3,510	3,426	3,478	3,465	3,560	3,665	3,915	3,920	4,382
Social sciences	10,956	10,621	10,799	11,048	12,208	12,980	13,343	13,535	14,368	14,892
Anthropology	363	403	375	388	377	370	395	375	379	410
Area/ethnic studies	643	619	608	554	656	687	794	644	662	622
Economics	1,563	1,519	1,601	1,790	1,949	2,113	2,011	2,045	2,192	2,145
History of science	18	16	18	15	11	17	30	10	24	17
Linguistics	146	172	160	145	164	178	171	175	212	217
Political science/public administration	6,317	6,094	6,213	6,399	6,947	7,614	7,850	8,209	8,694	8,979
Sociology	649	643	642	633	673	485	467	485	512	536
Other social sciences	1,257	1,155	1,182	1,124	1,431	1,516	1,625	1,592	1,693	1,966
Non-S&E	138,261	139,393	144,260	151,330	163,571	167,585	173,169	174,539	180,161	189,989
Female										
All fields	267,321	276,052	285,336	303,585	332,076	344,135	359,947	370,577	382,740	401,995
S&E	41,670	43,644	43,711	47,172	52,081	53,626	54,750	54,925	57,594	61,028
Engineering	5,342	5,617	5,563	6,171	7,148	7,612	7,479	6,979	7,637	8,239
Aerospace	76	90	125	106	149	164	155	170	172	169
Chemical	344	352	335	343	417	425	386	376	353	398
Civil	1,075	1,059	1,062	1,147	1,211	1,322	1,346	1,215	1,236	1,356
Electrical	1,560	1,675	1,561	1,902	2,398	2,480	2,213	2,014	2,350	2,500
Industrial	648	784	792	843	906	919	918	877	925	1,066
Materials	201	172	168	181	199	204	200	209	219	242
Mechanical	455	448	468	459	563	599	633	583	660	699
Other	983	1,037	1,052	1,190	1,305	1,499	1,628	1,535	1,722	1,809
Science	36,328	38,027	38,148	41,001	44,933	46,014	47,271	47,946	49,957	52,789
Natural sciences	13,561	14,537	14,683	15,944	17,202	16,661	16,351	16,198	16,932	17,453

Appendix table 2-25

Earned master's degrees, by sex and field: 2000–09

Sex and field	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agricultural sciences	1,819	1,837	1,997	2,059	2,256	2,220	2,153	2,267	2,248	2,318
Biological sciences	3,513	3,755	3,673	4,019	4,484	4,887	5,106	5,253	5,611	5,775
Earth, atmospheric, and ocean sciences	513	564	572	612	701	710	761	741	705	731
Atmospheric sciences	37	40	46	55	67	69	71	69	73	91
Earth sciences	434	472	473	501	566	577	612	599	559	566
Oceanography	42	52	53	56	68	64	78	73	73	74
Mathematics/computer sciences	6,501	7,080	7,115	7,936	8,248	7,320	6,705	6,374	6,803	7,115
Computer sciences	5,003	5,691	5,640	6,255	6,298	5,309	4,618	4,276	4,596	4,869
Mathematics/statistics	1,498	1,389	1,475	1,681	1,950	2,011	2,087	2,098	2,207	2,246
Physical sciences	1,215	1,301	1,326	1,318	1,513	1,524	1,626	1,563	1,565	1,514
Astronomy	25	36	27	42	53	62	66	59	62	57
Chemistry	823	825	852	829	950	939	1,024	1,005	1,035	997
Physics	244	286	286	313	413	422	439	417	378	371
Other physical sciences	123	154	161	134	97	101	97	82	90	89
Social/behavioral sciences	22,767	23,490	23,465	25,057	27,731	29,353	30,920	31,748	33,025	35,336
Psychology	10,363	10,939	10,778	11,407	12,235	12,918	13,637	14,679	14,916	16,362
Social sciences	12,404	12,551	12,687	13,650	15,496	16,435	17,283	17,069	18,109	18,974
Anthropology	587	689	642	655	721	737	761	839	766	838
Area/ethnic studies	868	892	865	873	960	975	1,223	997	1,060	1,050
Economics	952	973	1,050	1,161	1,252	1,391	1,319	1,306	1,384	1,506
History of science	6	10	17	10	14	12	11	18	23	16
Linguistics	407	380	360	380	410	433	450	408	398	503
Political science/public administration	6,721	6,843	6,987	7,736	8,833	9,807	10,223	10,316	11,239	11,596
Sociology	1,387	1,258	1,315	1,296	1,358	1,033	1,110	1,090	1,059	1,065
Other social sciences	1,476	1,506	1,451	1,539	1,948	2,047	2,186	2,095	2,180	2,400
Non-S&E	225,651	232,408	241,625	256,413	279,995	290,509	305,197	315,652	325,146	340,967

NOTES: Data based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data from *Science and Engineering Indicators 2008* and earlier years that were based on accredited higher education institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All citizenships and races/ethnicities										
All fields	460,142	471,329	485,535	516,098	562,862	578,964	599,365	610,469	631,711	665,473
S&E	96,230	99,528	99,650	108,355	119,296	120,870	120,999	120,278	126,404	134,517
Engineering	25,738	26,436	26,180	29,472	33,922	33,899	32,263	30,936	33,177	36,510
Aerospace	560	611	682	702	870	935	936	912	1,036	1,075
Chemical	1,352	1,368	1,267	1,364	1,506	1,506	1,432	1,230	1,230	1,285
Civil	4,140	4,010	3,945	4,188	4,445	4,631	4,493	4,184	4,327	4,570
Electrical	8,341	8,596	8,246	10,038	12,220	11,613	10,456	10,093	11,232	12,698
Industrial	3,048	3,375	3,375	3,842	4,247	3,937	3,558	3,505	3,659	4,313
Materials	759	706	624	717	800	790	765	787	768	836
Mechanical	3,378	3,471	3,516	3,802	4,555	4,739	4,542	4,365	4,556	4,689
Other	4,160	4,299	4,525	4,819	5,279	5,748	6,081	5,860	6,369	7,044
Science	70,492	73,092	73,470	78,883	85,374	86,971	88,736	89,342	93,227	98,007
Natural sciences	33,326	35,471	35,780	39,300	41,970	41,078	40,808	40,144	41,914	43,397
Agricultural sciences	3,858	3,752	4,019	3,955	4,221	4,171	4,100	4,126	4,120	4,349
Biological sciences	6,329	6,487	6,341	6,883	7,644	8,120	8,718	8,794	9,565	9,921
Earth, atmospheric, and ocean sciences	1,345	1,363	1,406	1,491	1,570	1,637	1,684	1,632	1,552	1,579
Atmospheric sciences	156	140	141	167	179	212	206	193	199	225
Earth sciences	1,104	1,121	1,151	1,203	1,248	1,314	1,350	1,312	1,222	1,224
Oceanography	85	102	114	121	143	111	128	127	131	130
Mathematics/computer sciences	18,281	20,132	20,389	23,311	24,505	23,086	22,028	21,349	22,303	23,447
Computer sciences	14,986	16,852	16,965	19,590	20,208	18,489	17,138	16,314	17,151	17,988
Mathematics/statistics	3,295	3,280	3,424	3,721	4,297	4,597	4,890	5,035	5,152	5,459
Physical sciences	3,513	3,737	3,625	3,660	4,030	4,064	4,278	4,243	4,374	4,101
Astronomy	102	93	112	123	150	159	146	152	166	139
Chemistry	1,909	2,009	1,867	1,830	2,056	1,912	2,097	2,144	2,236	2,131
Physics	1,244	1,376	1,353	1,453	1,637	1,794	1,853	1,792	1,799	1,657
Other physical sciences	258	259	293	254	187	199	182	155	173	174
Social/behavioral sciences	37,166	37,621	37,690	39,583	43,404	45,893	47,928	49,198	51,313	54,610
Psychology	13,806	14,449	14,204	14,885	15,700	16,478	17,302	18,594	18,836	20,744
Social sciences	23,360	23,172	23,486	24,698	27,704	29,415	30,626	30,604	32,477	33,866
Anthropology	950	1,092	1,017	1,043	1,098	1,107	1,156	1,214	1,145	1,248
Area/ethnic studies	1,511	1,511	1,473	1,427	1,616	1,662	2,017	1,641	1,722	1,672
Economics	2,515	2,492	2,651	2,951	3,201	3,504	3,330	3,351	3,576	3,651
History of science	24	26	35	25	25	29	41	28	47	33
Linguistics	553	552	520	525	574	611	621	583	610	720
Political science/public administration	13,038	12,937	13,200	14,135	15,780	17,421	18,073	18,525	19,933	20,575
Sociology	2,036	1,901	1,957	1,929	2,031	1,518	1,577	1,575	1,571	1,601
Other social sciences	2,733	2,661	2,633	2,663	3,379	3,563	3,811	3,687	3,873	4,366
Non-S&E	363,912	371,801	385,885	407,743	443,566	458,094	478,366	490,191	505,307	530,956
U.S. citizen/permanent resident										
All fields	404,158	409,897	421,846	444,498	487,965	505,724	527,585	542,133	558,844	585,823
S&E	71,415	72,085	72,074	75,952	83,835	87,402	90,157	91,595	94,318	98,503
Engineering	15,914	15,434	15,380	16,125	18,282	19,034	18,972	19,276	19,749	20,940
Aerospace	339	360	395	417	579	645	683	731	798	839
Chemical	721	726	662	656	704	739	734	691	609	626
Civil	3,048	2,777	2,591	2,684	2,782	3,080	3,070	2,968	3,054	3,233

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Electrical	4,232	3,924	4,004	4,362	5,303	5,214	4,970	5,068	5,211	5,545
Industrial	1,872	1,966	1,945	2,077	2,271	2,178	2,102	2,165	2,077	2,264
Materials	483	406	380	378	417	451	431	456	432	452
Mechanical	2,212	2,221	2,213	2,214	2,630	2,827	2,818	2,841	2,981	2,895
Other	3,007	3,054	3,190	3,337	3,596	3,900	4,164	4,356	4,587	5,086
Science	55,501	56,651	56,694	59,827	65,553	68,368	71,185	72,319	74,569	77,563
Natural sciences	22,990	23,725	24,102	25,722	27,903	28,378	28,828	28,599	28,967	28,982
Agricultural sciences	3,342	3,281	3,540	3,440	3,575	3,575	3,539	3,587	3,556	3,773
Biological sciences	5,579	5,614	5,536	5,882	6,530	6,910	7,430	7,468	8,100	8,211
Earth, atmospheric, and ocean sciences	1,150	1,191	1,207	1,285	1,312	1,390	1,431	1,416	1,348	1,345
Atmospheric sciences	118	116	113	128	135	166	161	158	173	203
Earth sciences	962	987	1,001	1,046	1,058	1,132	1,162	1,156	1,061	1,039
Oceanography	70	88	93	111	119	92	108	102	114	103
Mathematics/computer sciences	10,546	11,141	11,382	12,632	13,824	13,795	13,573	13,293	13,014	12,886
Computer sciences	8,362	9,091	9,252	10,423	11,312	10,975	10,489	10,027	9,746	9,641
Mathematics/statistics	2,184	2,050	2,130	2,209	2,512	2,820	3,084	3,266	3,268	3,245
Physical sciences	2,373	2,498	2,437	2,483	2,662	2,708	2,855	2,835	2,949	2,767
Astronomy	80	65	77	94	102	122	117	114	128	114
Chemistry	1,310	1,388	1,261	1,297	1,384	1,289	1,396	1,432	1,524	1,436
Physics	761	808	829	851	1,010	1,121	1,175	1,148	1,138	1,064
Other physical sciences	222	237	270	241	166	176	167	141	159	153
Social/behavioral sciences	32,511	32,926	32,592	34,105	37,650	39,990	42,357	43,720	45,602	48,581
Psychology	13,336	13,981	13,719	14,201	15,081	15,827	16,672	17,931	18,182	20,115
Social sciences	19,175	18,945	18,873	19,904	22,569	24,163	25,685	25,789	27,420	28,466
Anthropology	864	1,004	918	960	993	1,034	1,064	1,109	1,053	1,136
Area/ethnic studies	1,282	1,283	1,249	1,201	1,363	1,426	1,756	1,439	1,469	1,423
Economics	1,209	1,172	1,191	1,337	1,493	1,774	1,778	1,827	1,954	1,992
History of science	22	21	33	18	22	23	32	26	39	28
Linguistics	380	394	351	353	398	422	450	404	442	547
Political science/public administration	11,114	10,954	11,053	11,913	13,415	14,926	15,735	16,235	17,477	17,950
Sociology	1,845	1,744	1,766	1,744	1,832	1,349	1,409	1,411	1,432	1,440
Other social sciences	2,459	2,373	2,312	2,378	3,053	3,209	3,461	3,338	3,554	3,950
Non-S&E	332,743	337,812	349,772	368,546	404,130	418,322	437,428	450,538	464,526	487,320
White										
All fields	299,781	296,202	299,441	309,126	330,212	342,100	352,593	355,075	362,206	374,920
S&E	50,130	48,920	48,583	50,191	54,729	56,535	58,127	58,408	59,126	60,774
Engineering	11,020	10,391	10,337	10,615	11,763	12,198	12,084	11,949	12,077	12,428
Aerospace	284	277	310	327	444	490	506	534	601	650
Chemical	501	487	435	431	455	452	481	435	369	388
Civil	2,337	2,128	1,930	1,994	2,089	2,245	2,277	2,126	2,196	2,252
Electrical	2,474	2,216	2,287	2,401	2,815	2,785	2,609	2,580	2,546	2,446
Industrial	1,238	1,266	1,247	1,298	1,364	1,226	1,207	1,218	1,168	1,255
Materials	373	293	282	280	304	314	305	328	288	309
Mechanical	1,630	1,557	1,583	1,605	1,840	2,042	1,968	1,997	2,073	2,011
Other	2,183	2,167	2,263	2,279	2,452	2,644	2,731	2,731	2,836	3,117
Science	39,110	38,529	38,246	39,576	42,966	44,337	46,043	46,459	47,049	48,346
Natural sciences	16,154	15,989	16,270	16,947	18,313	18,794	19,270	18,851	18,767	18,622

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agricultural sciences	2,864	2,782	2,951	2,898	2,953	2,930	2,880	2,886	2,953	3,023
Biological sciences	4,183	4,124	4,088	4,291	4,617	4,876	5,248	5,073	5,242	5,299
Earth, atmospheric, and ocean sciences	1,036	1,043	1,065	1,125	1,144	1,197	1,217	1,232	1,114	1,148
Atmospheric sciences	111	99	98	117	120	149	141	140	148	177
Earth sciences	861	876	890	914	921	963	982	1,006	869	884
Oceanography	64	68	77	94	103	85	94	86	97	87
Mathematics/computer sciences	6,296	6,166	6,383	6,808	7,576	7,800	7,830	7,650	7,368	7,258
Computer sciences	4,641	4,651	4,828	5,185	5,781	5,818	5,715	5,463	5,176	5,080
Mathematics/statistics	1,655	1,515	1,555	1,623	1,795	1,982	2,115	2,187	2,192	2,178
Physical sciences	1,775	1,874	1,783	1,825	2,023	1,991	2,095	2,010	2,090	1,894
Astronomy	65	47	59	67	76	98	97	91	106	80
Chemistry	930	992	877	905	1,012	886	963	977	1,032	941
Physics	585	627	613	642	790	851	883	820	838	754
Other physical sciences	195	208	234	211	145	156	152	122	114	119
Social/behavioral sciences	22,956	22,540	21,976	22,629	24,653	25,543	26,773	27,608	28,282	29,724
Psychology	9,721	9,885	9,452	9,694	10,175	10,410	11,048	11,646	11,561	12,581
Social sciences	13,235	12,655	12,524	12,935	14,478	15,133	15,725	15,962	16,721	17,143
Anthropology	686	800	705	743	770	779	786	811	778	843
Area/ethnic studies	890	792	763	691	838	809	938	825	813	786
Economics	839	840	827	828	927	1,097	1,077	1,161	1,173	1,271
History of science	20	18	23	13	17	20	29	20	34	25
Linguistics	295	284	270	258	290	300	298	282	311	383
Political science/public administration	7,429	7,013	7,066	7,518	8,361	9,107	9,406	9,723	10,272	10,319
Sociology	1,254	1,178	1,183	1,177	1,202	858	906	912	915	894
Other social sciences	1,822	1,730	1,687	1,707	2,073	2,163	2,285	2,228	2,425	2,622
Non-S&E	249,651	247,282	250,858	258,935	275,483	285,565	294,466	296,667	303,080	314,146
Asian/Pacific Islander										
All fields	21,720	22,309	23,134	24,616	27,526	29,378	30,362	32,056	32,942	35,086
S&E	7,032	7,056	6,839	7,601	8,642	8,891	8,731	9,088	9,177	9,664
Engineering	2,380	2,399	2,190	2,431	3,016	3,094	3,186	3,355	3,494	3,929
Aerospace	26	37	29	39	51	55	64	74	74	82
Chemical	114	120	96	96	135	106	110	103	93	101
Civil	283	220	203	240	254	298	277	306	298	309
Electrical	1,062	1,014	915	1,047	1,435	1,381	1,333	1,444	1,548	1,958
Industrial	192	210	189	273	284	332	319	313	301	272
Materials	54	55	43	52	53	64	63	65	65	68
Mechanical	265	358	315	262	347	324	360	343	370	359
Other	384	385	400	422	457	534	660	707	745	780
Science	4,652	4,657	4,649	5,170	5,626	5,797	5,545	5,733	5,683	5,735
Natural sciences	3,199	3,164	3,165	3,530	3,760	3,748	3,406	3,526	3,396	3,365
Agricultural sciences	94	97	126	99	111	111	84	128	102	137
Biological sciences	595	540	537	646	762	795	820	883	977	1,037
Earth, atmospheric, and ocean sciences	22	28	37	28	39	31	30	25	38	24
Atmospheric sciences	4	5	7	4	5	4	5	5	5	3
Earth sciences	17	17	25	18	28	26	23	16	27	17
Oceanography	1	6	5	6	6	1	2	4	6	4
Mathematics/computer sciences	2,248	2,279	2,252	2,526	2,652	2,568	2,252	2,211	2,043	1,908

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Computer sciences	2,068	2,074	2,038	2,305	2,377	2,244	1,856	1,754	1,627	1,477
Mathematics/statistics	180	205	214	221	275	324	396	457	416	431
Physical sciences	240	220	213	231	196	243	220	279	236	259
Astronomy	5	5	4	7	6	7	2	4	2	12
Chemistry	172	153	125	157	128	154	137	177	154	178
Physics	53	56	66	57	60	74	78	94	78	66
Other physical sciences	10	6	18	10	2	8	3	4	2	3
Social/behavioral sciences	1,453	1,493	1,484	1,640	1,866	2,049	2,139	2,207	2,287	2,370
Psychology	473	503	530	531	593	597	651	733	724	765
Social sciences	980	990	954	1,109	1,273	1,452	1,488	1,474	1,563	1,605
Anthropology	39	39	34	42	43	44	39	51	46	59
Area/ethnic studies	78	101	90	97	93	111	126	110	113	117
Economics	132	113	119	156	157	185	207	191	211	221
History of science	0	0	2	2	3	1	1	1	1	1
Linguistics	42	43	26	32	37	41	43	32	35	38
Political science/public administration	516	534	512	601	717	855	862	880	952	942
Sociology	66	70	86	95	106	78	71	62	67	67
Other social sciences	107	90	85	84	117	137	139	147	138	160
Non-S&E	14,688	15,253	16,295	17,015	18,884	20,487	21,631	22,968	23,765	25,422
Black										
All fields	33,589	35,426	36,936	40,090	45,183	49,109	52,844	55,624	57,473	61,713
S&E	5,563	6,174	6,230	6,919	7,511	7,764	8,011	8,371	8,908	9,339
Engineering	658	699	735	823	853	869	883	926	977	971
Aerospace	7	10	14	7	11	19	22	26	25	19
Chemical	34	34	31	43	31	56	37	39	46	31
Civil	93	102	101	96	76	100	88	106	118	106
Electrical	183	188	189	226	238	230	226	251	260	246
Industrial	90	119	141	158	170	152	171	152	155	166
Materials	15	9	19	14	21	19	12	9	15	25
Mechanical	91	89	71	78	85	81	86	85	101	86
Other	145	148	169	201	221	212	241	258	257	292
Science	4,905	5,475	5,495	6,096	6,658	6,895	7,128	7,445	7,931	8,368
Natural sciences	1,179	1,382	1,374	1,606	1,678	1,602	1,691	1,753	1,878	1,826
Agricultural sciences	84	96	88	103	102	85	96	113	98	124
Biological sciences	223	313	288	298	385	377	406	438	500	474
Earth, atmospheric, and ocean sciences	7	21	18	18	22	17	30	23	29	26
Atmospheric sciences	0	4	2	2	3	3	7	3	4	6
Earth sciences	6	15	15	13	16	13	21	18	22	18
Oceanography	1	2	1	3	3	1	2	2	3	2
Mathematics/computer sciences	748	822	859	1,075	1,049	1,022	1,007	1,056	1,106	1,059
Computer sciences	650	709	746	977	934	887	853	898	950	919
Mathematics/statistics	98	113	113	98	115	135	154	158	156	140
Physical sciences	117	130	121	112	120	101	152	123	145	143
Astronomy	0	0	2	1	1	2	3	0		4
Chemistry	65	82	74	76	87	55	93	74	110	97
Physics	44	41	37	32	27	39	51	43	30	36
Other physical sciences	8	7	8	3	5	5	5	6	5	6

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Social/behavioral sciences	3,726	4,093	4,121	4,490	4,980	5,293	5,437	5,692	6,053	6,542
Psychology	1,347	1,601	1,643	1,829	1,942	2,142	1,996	2,253	2,411	2,724
Social sciences	2,379	2,492	2,478	2,661	3,038	3,151	3,441	3,439	3,642	3,818
Anthropology	33	37	32	33	31	30	32	41	43	30
Area/ethnic studies	91	86	108	121	127	135	136	142	156	152
Economics	71	66	76	67	70	96	100	101	120	111
History of science	0	1	2	0	0	0	1	2	2	1
Linguistics	4	14	5	7	3	9	13	14	7	16
Political science/public administration	1,585	1,754	1,718	1,861	2,057	2,243	2,451	2,490	2,668	2,825
Sociology	344	294	285	274	301	205	201	190	201	202
Other social sciences	251	240	252	298	449	433	507	459	445	481
Non-S&E	28,026	29,252	30,706	33,171	37,672	41,345	44,833	47,253	48,565	52,374
Hispanic										
All fields	20,911	22,450	23,356	25,517	29,905	32,435	34,081	36,456	37,354	40,395
S&E	3,762	4,113	4,106	4,384	5,111	5,380	5,681	6,041	6,216	6,634
Engineering	852	835	853	862	1,130	1,145	1,094	1,220	1,243	1,317
Aerospace	13	11	19	13	21	38	26	38	32	34
Chemical	39	40	45	39	40	41	49	43	42	46
Civil	180	167	187	152	163	208	185	199	208	217
Electrical	211	172	179	238	340	274	281	294	294	290
Industrial	172	191	205	162	229	239	212	238	256	283
Materials	15	21	15	6	16	26	17	21	22	16
Mechanical	99	93	87	116	157	151	153	171	160	183
Other	123	140	116	136	164	168	171	216	229	248
Science	2,910	3,278	3,253	3,522	3,981	4,235	4,587	4,821	4,973	5,317
Natural sciences	935	1,124	1,050	1,252	1,392	1,362	1,459	1,451	1,490	1,528
Agricultural sciences	133	123	175	132	171	185	196	176	157	206
Biological sciences	268	310	267	268	330	362	373	418	466	461
Earth, atmospheric, and ocean sciences	30	28	35	28	36	47	51	42	57	41
Atmospheric sciences	2	0	1	2	2	3	2	5	11	6
Earth sciences	26	25	31	24	32	43	47	33	43	32
Oceanography	2	3	3	2	2	1	2	4	3	3
Mathematics/computer sciences	408	544	437	680	728	628	671	670	654	655
Computer sciences	308	472	355	572	615	498	506	491	473	497
Mathematics/statistics	100	72	82	108	113	130	165	179	181	158
Physical sciences	96	119	136	144	127	140	168	145	156	165
Astronomy	2	1	2	2	3	2	6	3	6	4
Chemistry	56	74	72	90	70	84	107	79	90	89
Physics	34	37	56	41	44	49	54	60	53	67
Other physical sciences	4	7	6	11	10	5	1	3	7	5
Social/behavioral sciences	1,975	2,154	2,203	2,270	2,589	2,873	3,128	3,370	3,483	3,789
Psychology	842	946	962	974	1,102	1,222	1,331	1,466	1,543	1,670
Social sciences	1,133	1,208	1,241	1,296	1,487	1,651	1,797	1,904	1,940	2,119
Anthropology	37	45	59	48	58	62	60	67	59	83
Area/ethnic studies	97	111	109	119	116	132	174	144	184	164
Economics	67	53	57	79	80	111	100	86	81	92
History of science	0	1	0	1	0	0	0	1	1	1

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Linguistics	18	27	19	23	26	26	42	37	33	43
Political science/public administration	702	736	743	802	909	1,026	1,070	1,248	1,252	1,343
Sociology	110	116	140	117	139	111	126	112	105	140
Other social sciences	102	119	114	107	159	183	225	209	225	253
Non-S&E	17,149	18,337	19,250	21,133	24,794	27,055	28,400	30,415	31,138	33,761
American Indian/Alaska Native										
All fields	2,109	2,293	2,410	2,574	2,857	2,969	3,142	3,178	3,324	3,310
S&E	383	476	421	457	540	501	568	552	553	560
Engineering	64	60	56	69	85	82	87	73	86	89
Aerospace	0	2	4	2	6	2	8	5	1	7
Chemical	3	4	2	2	0	4	2	7	3	3
Civil	14	10	11	13	16	13	17	15	13	18
Electrical	14	10	13	18	10	20	17	5	28	18
Industrial	8	15	8	8	19	18	9	13	14	13
Materials	4	1	2	1	1	1	1	0	2	
Mechanical	7	7	6	9	21	6	11	12	10	9
Other	14	11	10	16	12	18	22	16	15	21
Science	319	416	365	388	455	419	481	479	467	471
Natural sciences	108	147	119	126	136	134	168	141	162	137
Agricultural sciences	23	18	25	24	23	27	35	34	31	26
Biological sciences	26	29	34	31	33	29	46	32	55	38
Earth, atmospheric, and ocean sciences	9	11	4	9	7	11	4	9	7	10
Atmospheric sciences	0	0	0	0	0	1	0	1		
Earth sciences	9	8	4	9	7	10	4	8	7	10
Oceanography	0	3	0	0	0	0	0	0		
Mathematics/computer sciences	41	80	41	50	65	56	69	54	55	44
Computer sciences	32	71	33	42	58	47	58	40	44	36
Mathematics/statistics	9	9	8	8	7	9	11	14	11	8
Physical sciences	9	9	15	12	8	11	14	12	14	19
Astronomy	0	0	0	1	0	1	0	0		1
Chemistry	5	7	11	5	3	6	9	8	8	9
Physics	3	2	4	5	5	3	3	3	5	8
Other physical sciences	1	0	0	1	0	1	2	1	1	1
Social/behavioral sciences	211	269	246	262	319	285	313	338	305	334
Psychology	69	107	97	109	112	118	118	114	104	116
Social sciences	142	162	149	153	207	167	195	224	201	218
Anthropology	14	17	12	11	19	14	21	25	16	16
Area/ethnic studies	16	20	20	33	27	27	28	25	32	25
Economics	3	7	10	6	6	10	3	12	8	9
History of science	0	1	1	0	0	0	0	0		
Linguistics	1	1	4	1	2	6	2	2	2	4
Political science/public administration	62	70	74	78	118	90	107	134	117	135
Sociology	30	28	17	17	17	7	10	9	12	8
Other social sciences	16	18	11	7	18	13	24	17	14	21
Non-S&E	1,726	1,817	1,989	2,117	2,317	2,468	2,574	2,626	2,771	2,750
Other/unknown race/ethnicity										
All fields	26,048	31,217	36,569	42,575	52,282	49,733	54,563	59,744	65,545	70,399

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
S&E	4,545	5,346	5,895	6,400	7,302	8,331	9,039	9,135	10,338	11,532
Engineering	940	1,050	1,209	1,325	1,435	1,646	1,638	1,753	1,872	2,206
Aerospace	9	23	19	29	46	41	57	54	65	47
Chemical	30	41	53	45	43	80	55	64	56	57
Civil	141	150	159	189	184	216	226	216	221	331
Electrical	288	324	421	432	465	524	504	494	535	587
Industrial	172	165	155	178	205	211	184	231	183	275
Materials	22	27	19	25	22	27	33	33	40	34
Mechanical	120	117	151	144	180	223	240	233	267	247
Other	158	203	232	283	290	324	339	428	505	628
Science	3,605	4,296	4,686	5,075	5,867	6,685	7,401	7,382	8,466	9,326
Natural sciences	1,415	1,919	2,124	2,261	2,624	2,738	2,834	2,877	3,274	3,504
Agricultural sciences	144	165	175	184	215	237	248	250	215	257
Biological sciences	284	298	322	348	403	471	537	624	860	902
Earth, atmospheric, and ocean sciences	46	60	48	77	64	87	99	85	103	96
Atmospheric sciences	1	8	5	3	5	6	6	4	5	11
Earth sciences	43	46	36	68	54	77	85	75	93	78
Oceanography	2	6	7	6	5	4	8	6	5	7
Mathematics/computer sciences	805	1,250	1,410	1,493	1,754	1,721	1,744	1,652	1,788	1,962
Computer sciences	663	1,114	1,252	1,342	1,547	1,481	1,501	1,381	1,476	1,632
Mathematics/statistics	142	136	158	151	207	240	243	271	312	330
Physical sciences	136	146	169	159	188	222	206	266	308	287
Astronomy	8	12	10	16	16	12	9	16	14	13
Chemistry	82	80	102	64	84	104	87	117	130	122
Physics	42	45	53	74	84	105	106	128	134	133
Other physical sciences	4	9	4	5	4	1	4	5	30	19
Social/behavioral sciences	2,190	2,377	2,562	2,814	3,243	3,947	4,567	4,505	5,192	5,822
Psychology	884	939	1,035	1,064	1,157	1,338	1,528	1,719	1,839	2,259
Social sciences	1,306	1,438	1,527	1,750	2,086	2,609	3,039	2,786	3,353	3,563
Anthropology	55	66	76	83	72	105	126	114	111	105
Area/ethnic studies	110	173	159	140	162	212	354	193	171	179
Economics	97	93	102	201	253	275	291	276	361	288
History of science	2	0	5	2	2	2	1	2	1	0
Linguistics	20	25	27	32	40	40	52	37	54	63
Political science/public administration	820	847	940	1,053	1,253	1,605	1,839	1,760	2,216	2,386
Sociology	41	58	55	64	67	90	95	126	132	129
Other social sciences	161	176	163	175	237	280	281	278	307	413
Non-S&E	21,503	25,871	30,674	36,175	44,980	41,402	45,524	50,609	55,207	58,867
Temporary resident										
All fields	55,984	61,432	63,689	71,600	74,897	73,240	71,780	68,336	72,867	79,650
S&E	24,815	27,443	27,576	32,403	35,461	33,468	30,842	28,683	32,086	36,014
Engineering	9,824	11,002	10,800	13,347	15,640	14,865	13,291	11,660	13,428	15,570
Aerospace	221	251	287	285	291	290	253	181	238	236
Chemical	631	642	605	708	802	767	698	539	621	659
Civil	1,092	1,233	1,354	1,504	1,663	1,551	1,423	1,216	1,273	1,337
Electrical	4,109	4,672	4,242	5,676	6,917	6,399	5,486	5,025	6,021	7,153
Industrial	1,176	1,409	1,430	1,765	1,976	1,759	1,456	1,340	1,582	2,049

Appendix table 2-26

Earned master's degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Materials	276	300	244	339	383	339	334	331	336	384
Mechanical	1,166	1,250	1,303	1,588	1,925	1,912	1,724	1,524	1,575	1,794
Other	1,153	1,245	1,335	1,482	1,683	1,848	1,917	1,504	1,782	1,958
Science	14,991	16,441	16,776	19,056	19,821	18,603	17,551	17,023	18,658	20,444
Natural sciences	10,336	11,746	11,678	13,578	14,067	12,700	11,980	11,545	12,947	14,415
Agricultural sciences	516	471	479	515	646	596	561	539	564	576
Biological sciences	750	873	805	1,001	1,114	1,210	1,288	1,326	1,465	1,710
Earth, atmospheric, and ocean sciences	195	172	199	206	258	247	253	216	204	234
Atmospheric sciences	38	24	28	39	44	46	45	35	26	22
Earth sciences	142	134	150	157	190	182	188	156	161	185
Oceanography	15	14	21	10	24	19	20	25	17	27
Mathematics/computer sciences	7,735	8,991	9,007	10,679	10,681	9,291	8,455	8,056	9,289	10,561
Computer sciences	6,624	7,761	7,713	9,167	8,896	7,514	6,649	6,287	7,405	8,347
Mathematics/statistics	1,111	1,230	1,294	1,512	1,785	1,777	1,806	1,769	1,884	2,214
Physical sciences	1,140	1,239	1,188	1,177	1,368	1,356	1,423	1,408	1,425	1,334
Astronomy	22	28	35	29	48	37	29	38	38	25
Chemistry	599	621	606	533	672	623	701	712	712	695
Physics	483	568	524	602	627	673	678	644	661	593
Other physical sciences	36	22	23	13	21	23	15	14	14	21
Social/behavioral sciences	4,655	4,695	5,098	5,478	5,754	5,903	5,571	5,478	5,711	6,029
Psychology	470	468	485	684	619	651	630	663	654	629
Social sciences	4,185	4,227	4,613	4,794	5,135	5,252	4,941	4,815	5,057	5,400
Anthropology	86	88	99	83	105	73	92	105	92	112
Area/ethnic studies	229	228	224	226	253	236	261	202	253	249
Economics	1,306	1,320	1,460	1,614	1,708	1,730	1,552	1,524	1,622	1,659
History of science	2	5	2	7	3	6	9	2	8	5
Linguistics	173	158	169	172	176	189	171	179	168	173
Political science/public administration	1,924	1,983	2,147	2,222	2,365	2,495	2,338	2,290	2,456	2,625
Sociology	191	157	191	185	199	169	168	164	139	161
Other social sciences	274	288	321	285	326	354	350	349	319	416
Non-S&E	31,169	33,989	36,113	39,197	39,436	39,772	40,938	39,653	40,781	43,636

NOTES: Racial/ethnic breakouts for U.S. citizens and permanent residents only; temporary resident includes all racial/ethnic groups. Data are based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data from *Science and Engineering Indicators 2008* and earlier years that were based on accredited higher education institutions.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-27

Earned doctoral degrees, by citizenship, field, and sex: 2000–09

Citizenship, field, and sex	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All citizenships										
Both sexes										
All fields	44,947	45,068	44,311	46,177	48,560	52,855	56,309	60,887	61,716	61,730
S&E	27,862	28,096	27,588	28,746	30,979	34,468	37,541	40,980	41,480	41,111
Engineering	5,384	5,561	5,196	5,282	5,931	6,548	7,402	8,066	8,110	7,915
Aerospace	203	202	193	178	190	205	209	234	232	257
Chemical	665	680	693	608	708	872	911	915	950	886
Civil	628	647	669	685	736	830	864	935	909	902
Electrical	1,515	1,527	1,361	1,402	1,634	1,782	2,124	2,380	2,279	2,090
Industrial	218	262	275	258	280	286	302	364	346	333
Materials	454	454	381	457	494	514	611	663	665	661
Mechanical	821	906	813	786	835	963	1,139	1,138	1,149	1,186
Other	880	883	811	908	1,054	1,096	1,242	1,437	1,580	1,600
Science	22,478	22,535	22,392	23,464	25,048	27,920	30,139	32,914	33,370	33,196
Natural sciences	14,296	14,084	14,385	15,340	16,773	19,329	21,563	24,052	24,466	24,649
Agricultural sciences	984	934	969	1,060	1,016	1,004	1,037	1,068	1,080	1,143
Biological sciences	4,992	4,750	4,596	5,212	5,491	5,925	6,138	6,703	7,319	7,429
Earth, atmospheric, and ocean sciences	579	542	562	544	540	572	600	727	683	724
Atmospheric sciences	87	70	68	78	77	96	95	87	106	110
Earth sciences	393	380	404	368	369	379	430	513	469	503
Oceanography	99	92	90	98	94	97	75	127	108	111
Mathematics/computer sciences	1,858	1,769	1,677	1,825	1,975	2,301	2,713	2,953	3,058	3,110
Computer sciences	777	768	750	816	910	1,121	1,416	1,597	1,696	1,574
Mathematics/statistics	1,081	1,001	927	1,009	1,065	1,180	1,297	1,356	1,362	1,536
Medical/other life sciences	2,439	2,643	3,334	3,321	4,406	5,907	7,089	8,392	8,121	7,827
Medical sciences	893	864	882	850	1,010	1,144	1,252	1,293	1,320	1,254
Other life sciences	1,546	1,779	2,452	2,471	3,396	4,763	5,837	7,099	6,801	6,573
Physical sciences	3,444	3,446	3,247	3,378	3,345	3,620	3,986	4,209	4,205	4,416
Astronomy	101	103	70	101	101	115	114	128	163	143
Chemistry	2,090	2,134	2,037	2,158	2,105	2,226	2,502	2,606	2,495	2,652
Physics	1,208	1,169	1,096	1,089	1,119	1,254	1,341	1,442	1,507	1,580
Other physical sciences	45	40	44	30	20	25	29	33	40	41
Social/behavioral sciences	8,182	8,451	8,007	8,124	8,275	8,591	8,576	8,862	8,904	8,547
Psychology	4,200	4,538	4,185	4,258	4,389	4,681	4,484	4,696	4,600	4,046
Social sciences	3,982	3,913	3,822	3,866	3,886	3,910	4,092	4,166	4,304	4,501
Anthropology	471	428	508	487	537	459	480	519	491	527
Area/ethnic studies	212	216	209	176	204	184	220	226	246	226
Economics	1,001	1,016	961	967	978	1,111	1,057	1,107	1,172	1,172
History of science	23	21	20	27	20	28	34	27	34	19
Linguistics	202	193	152	201	194	172	216	219	215	240
Political science/public administration	1,019	1,047	992	1,055	1,001	1,049	1,098	1,093	1,104	1,244
Sociology	602	550	547	598	564	534	574	573	594	635
Other social sciences	452	442	433	355	388	373	413	402	448	438
Non-S&E	17,085	16,972	16,723	17,431	17,581	18,387	18,768	19,907	20,236	20,619
Male										
All fields	25,064	24,781	23,760	24,398	25,359	27,039	28,702	30,336	30,601	30,505
S&E	17,024	16,873	16,164	16,569	17,532	18,970	20,254	21,653	21,995	21,743

Appendix table 2-27

Earned doctoral degrees, by citizenship, field, and sex: 2000–09

Citizenship, field, and sex	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Engineering	4,549	4,640	4,300	4,373	4,884	5,326	5,918	6,381	6,362	6,203
Aerospace	179	179	174	154	170	178	184	204	208	224
Chemical	529	518	527	459	530	667	667	682	701	649
Civil	513	520	541	549	576	630	667	685	677	688
Electrical	1,328	1,330	1,213	1,230	1,418	1,530	1,826	2,004	1,891	1,752
Industrial	175	209	200	188	228	221	220	260	249	247
Materials	371	363	307	359	403	392	456	494	509	489
Mechanical	732	816	715	698	736	847	988	991	989	1,026
Other	722	705	623	736	823	861	910	1,061	1,138	1,128
Science	12,475	12,233	11,864	12,196	12,648	13,644	14,336	15,272	15,633	15,540
Natural sciences	8,833	8,553	8,398	8,748	9,119	10,142	10,889	11,860	12,133	12,070
Agricultural sciences	663	601	637	672	640	642	612	630	635	637
Biological sciences	2,790	2,655	2,557	2,826	2,948	3,014	3,125	3,419	3,612	3,535
Earth, atmospheric, and ocean sciences	413	386	385	376	360	375	382	441	439	436
Atmospheric sciences	70	55	47	57	54	67	62	54	85	77
Earth sciences	273	270	284	264	245	256	282	318	295	308
Oceanography	70	61	54	55	61	52	38	69	59	51
Mathematics/computer sciences	1,453	1,351	1,238	1,382	1,473	1,749	2,022	2,219	2,262	2,283
Computer sciences	646	632	579	648	709	907	1,109	1,269	1,323	1,223
Mathematics/statistics	807	719	659	734	764	842	913	950	939	1,060
Medical/other life sciences	930	1,027	1,223	1,046	1,266	1,734	1,931	2,224	2,214	2,148
Medical sciences	419	393	431	393	419	466	500	510	531	479
Other life sciences	511	634	792	653	847	1,268	1,431	1,714	1,683	1,669
Physical sciences	2,584	2,533	2,358	2,446	2,432	2,628	2,817	2,927	2,971	3,031
Astronomy	76	83	56	73	69	77	74	85	124	89
Chemistry	1,426	1,415	1,346	1,451	1,411	1,456	1,609	1,642	1,594	1,628
Physics	1,050	1,002	926	899	940	1,072	1,107	1,177	1,227	1,287
Other physical sciences	32	33	30	23	12	23	27	23	26	27
Social/behavioral sciences	3,642	3,680	3,466	3,448	3,529	3,502	3,447	3,412	3,500	3,470
Psychology	1,370	1,440	1,348	1,327	1,356	1,348	1,236	1,282	1,289	1,134
Social sciences	2,272	2,240	2,118	2,121	2,173	2,154	2,211	2,130	2,211	2,336
Anthropology	205	181	209	190	244	198	208	199	190	212
Area/ethnic studies	106	86	107	67	97	81	98	95	103	88
Economics	733	724	690	687	689	772	733	749	764	753
History of science	16	18	16	13	11	17	17	13	17	12
Linguistics	86	84	63	79	78	60	85	89	95	88
Political science/public administration	636	683	573	646	620	609	642	577	584	698
Sociology	248	229	215	245	226	205	206	211	234	255
Other social sciences	242	235	245	194	208	212	222	197	224	230
Non-S&E	8,040	7,908	7,596	7,829	7,827	8,069	8,448	8,683	8,606	8,762
Female										
All fields	19,883	20,287	20,551	21,779	23,201	25,816	27,607	30,551	31,115	31,225
S&E	10,838	11,223	11,424	12,177	13,447	15,498	17,287	19,327	19,485	19,368
Engineering	835	921	896	909	1,047	1,222	1,484	1,685	1,748	1,712
Aerospace	24	23	19	24	20	27	25	30	24	33
Chemical	136	162	166	149	178	205	244	233	249	237
Civil	115	127	128	136	160	200	197	250	232	214

Appendix table 2-27

Earned doctoral degrees, by citizenship, field, and sex: 2000–09

Citizenship, field, and sex	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Electrical	187	197	148	172	216	252	298	376	388	338
Industrial	43	53	75	70	52	65	82	104	97	86
Materials	83	91	74	98	91	122	155	169	156	172
Mechanical	89	90	98	88	99	116	151	147	160	160
Other	158	178	188	172	231	235	332	376	442	472
Science	10,003	10,302	10,528	11,268	12,400	14,276	15,803	17,642	17,737	17,656
Natural sciences	5,463	5,531	5,987	6,592	7,654	9,187	10,674	12,192	12,333	12,579
Agricultural sciences	321	333	332	388	376	362	425	438	445	506
Biological sciences	2,202	2,095	2,039	2,386	2,543	2,911	3,013	3,284	3,707	3,894
Earth, atmospheric, and ocean sciences	166	156	177	168	180	197	218	286	244	288
Atmospheric sciences	17	15	21	21	23	29	33	33	21	33
Earth sciences	120	110	120	104	124	123	148	195	174	195
Oceanography	29	31	36	43	33	45	37	58	49	60
Mathematics/computer sciences	405	418	439	443	502	552	691	734	796	827
Computer sciences	131	136	171	168	201	214	307	328	373	351
Mathematics/statistics	274	282	268	275	301	338	384	406	423	476
Medical/other life sciences	1,509	1,616	2,111	2,275	3,140	4,173	5,158	6,168	5,907	5,679
Medical sciences	474	471	451	457	591	678	752	783	789	775
Other life sciences	1,035	1,145	1,660	1,818	2,549	3,495	4,406	5,385	5,118	4,904
Physical sciences	860	913	889	932	913	992	1,169	1,282	1,234	1,385
Astronomy	25	20	14	28	32	38	40	43	39	54
Chemistry	664	719	691	707	694	770	893	964	901	1,024
Physics	158	167	170	190	179	182	234	265	280	293
Other physical sciences	13	7	14	7	8	2	2	10	14	14
Social/behavioral sciences	4,540	4,771	4,541	4,676	4,746	5,089	5,129	5,450	5,404	5,077
Psychology	2,830	3,098	2,837	2,931	3,033	3,333	3,248	3,414	3,311	2,912
Social sciences	1,710	1,673	1,704	1,745	1,713	1,756	1,881	2,036	2,093	2,165
Anthropology	266	247	299	297	293	261	272	320	301	315
Area/ethnic studies	106	130	102	109	107	103	122	131	143	138
Economics	268	292	271	280	289	339	324	358	408	419
History of science	7	3	4	14	9	11	17	14	17	7
Linguistics	116	109	89	122	116	112	131	130	120	152
Political science/public administration	383	364	419	409	381	440	456	516	520	546
Sociology	354	321	332	353	338	329	368	362	360	380
Other social sciences	210	207	188	161	180	161	191	205	224	208
Non-S&E	9,045	9,064	9,127	9,602	9,754	10,318	10,320	11,224	11,630	11,857
U.S. citizen/permanent resident										
All fields	34,113	34,105	33,382	34,551	35,807	38,512	40,334	43,888	44,509	45,019
S&E	19,401	19,382	19,110	19,731	21,136	23,113	24,816	27,283	27,594	27,753
Engineering	2,656	2,562	2,261	2,237	2,347	2,452	2,714	2,994	3,180	3,374
Aerospace	125	101	77	72	73	91	80	108	103	137
Chemical	364	357	354	295	340	360	423	373	417	437
Civil	319	300	273	283	257	296	296	359	330	348
Electrical	641	587	506	478	531	567	560	645	704	711
Industrial	104	109	115	93	119	107	117	129	125	112
Materials	240	217	172	198	205	191	242	286	284	281
Mechanical	384	414	335	336	307	338	388	376	406	472

Appendix table 2-27

Earned doctoral degrees, by citizenship, field, and sex: 2000–09

Citizenship, field, and sex	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Other	479	477	429	482	515	502	608	718	811	876
Science	16,745	16,820	16,849	17,494	18,789	20,661	22,102	24,289	24,414	24,379
Natural sciences	9,779	9,682	10,048	10,765	11,872	13,661	15,139	17,116	17,248	17,699
Agricultural sciences	553	544	549	626	601	611	640	643	668	715
Biological sciences	3,724	3,579	3,443	3,901	4,118	4,330	4,377	4,713	5,091	5,310
Earth, atmospheric, and ocean sciences	409	362	368	376	356	360	389	481	436	477
Atmospheric sciences	57	40	43	46	45	54	45	48	58	68
Earth sciences	280	258	266	259	245	244	296	347	302	333
Oceanography	72	64	59	71	66	62	48	86	76	76
Mathematics/computer sciences	990	920	848	926	963	1,040	1,134	1,325	1,338	1,518
Computer sciences	402	395	410	413	455	500	551	680	667	730
Mathematics/statistics	588	525	438	513	508	540	583	645	671	788
Medical/other life sciences	1,955	2,121	2,796	2,876	3,865	5,284	6,416	7,688	7,408	7,193
Medical sciences	615	582	568	577	655	735	816	862	910	848
Other life sciences	1,340	1,539	2,228	2,299	3,210	4,549	5,600	6,826	6,498	6,345
Physical sciences	2,148	2,156	2,044	2,060	1,969	2,036	2,183	2,266	2,307	2,486
Astronomy	76	78	53	79	75	73	73	89	117	98
Chemistry	1,336	1,383	1,355	1,374	1,321	1,366	1,461	1,464	1,414	1,586
Physics	708	677	604	591	562	585	635	696	754	781
Other physical sciences	28	18	32	16	11	12	14	17	22	21
Social/behavioral sciences	6,966	7,138	6,801	6,729	6,917	7,000	6,963	7,173	7,166	6,680
Psychology	4,042	4,381	4,042	4,059	4,191	4,452	4,230	4,450	4,359	3,770
Social sciences	2,924	2,757	2,759	2,670	2,726	2,548	2,733	2,723	2,807	2,910
Anthropology	409	356	430	420	466	392	425	433	416	431
Area/ethnic studies	180	180	180	149	168	154	187	202	190	178
Economics	474	422	419	377	396	368	371	369	438	408
History of science	18	20	16	24	14	21	28	16	29	12
Linguistics	105	100	84	102	105	95	114	123	114	145
Political science/public administration	856	859	821	827	809	806	827	811	822	919
Sociology	510	473	474	492	460	436	466	459	477	499
Other social sciences	372	347	335	279	308	276	315	310	321	318
Non-S&E	14,712	14,723	14,272	14,820	14,671	15,399	15,518	16,605	16,915	17,266
Male										
All fields	17,408	17,061	16,263	16,501	16,767	17,391	18,294	19,321	19,603	19,881
S&E	10,712	10,457	10,024	10,097	10,487	10,925	11,496	12,285	12,595	12,787
Engineering	2,160	2,079	1,810	1,807	1,854	1,941	2,108	2,317	2,376	2,518
Aerospace	108	85	67	63	64	81	69	92	90	119
Chemical	275	271	267	225	245	277	306	279	287	311
Civil	248	224	206	204	178	200	211	268	219	240
Electrical	557	524	449	418	457	477	497	555	595	597
Industrial	81	77	76	66	90	79	73	88	79	74
Materials	186	170	128	155	169	141	176	212	217	194
Mechanical	330	372	298	297	258	296	329	319	339	391
Other	375	356	319	379	393	390	447	504	550	592
Science	8,552	8,378	8,214	8,290	8,633	8,984	9,388	9,968	10,219	10,269
Natural sciences	5,693	5,554	5,508	5,683	5,912	6,466	6,879	7,485	7,661	7,813
Agricultural sciences	359	334	344	388	367	376	381	365	394	365

Appendix table 2-27

Earned doctoral degrees, by citizenship, field, and sex: 2000–09

Citizenship, field, and sex	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Biological sciences	2,021	1,963	1,893	2,068	2,189	2,185	2,237	2,386	2,531	2,485
Earth, atmospheric, and ocean sciences	289	243	233	249	226	234	241	276	268	286
Atmospheric sciences	46	34	32	32	32	42	32	30	50	52
Earth sciences	195	171	168	181	152	161	185	204	180	201
Oceanography	48	38	33	36	42	31	24	42	38	33
Mathematics/computer sciences	752	691	617	687	700	785	853	987	967	1,122
Computer sciences	329	311	308	323	345	397	421	535	514	569
Mathematics/statistics	423	380	309	364	355	388	432	452	453	553
Medical/other life sciences	687	766	955	830	1,016	1,460	1,639	1,918	1,886	1,878
Medical sciences	261	239	245	241	235	269	286	281	292	280
Other life sciences	426	527	710	589	781	1,191	1,353	1,637	1,594	1,598
Physical sciences	1,585	1,557	1,466	1,461	1,414	1,426	1,528	1,553	1,615	1,677
Astronomy	56	62	43	58	50	45	47	58	87	57
Chemistry	885	905	892	911	889	871	943	912	898	966
Physics	626	576	510	480	469	499	526	573	615	637
Other physical sciences	18	14	21	12	6	11	12	10	15	17
Social/behavioral sciences	2,859	2,824	2,706	2,607	2,721	2,518	2,509	2,483	2,558	2,456
Psychology	1,296	1,369	1,293	1,255	1,293	1,274	1,147	1,215	1,217	1,040
Social sciences	1,563	1,455	1,413	1,352	1,428	1,244	1,362	1,268	1,341	1,416
Anthropology	167	144	175	160	218	157	180	166	157	164
Area/ethnic studies	81	69	92	56	80	65	81	88	81	67
Economics	336	275	288	260	274	231	251	251	283	274
History of science	13	17	13	11	8	11	14	6	13	9
Linguistics	46	41	31	43	38	33	45	49	52	51
Political science/public administration	523	543	456	488	481	446	472	409	418	487
Sociology	206	186	185	190	165	153	162	164	177	201
Other social sciences	191	180	173	144	164	148	157	135	160	163
Non-S&E	6,696	6,604	6,239	6,404	6,280	6,466	6,798	7,036	7,008	7,094
Female										
All fields	16,705	17,044	17,119	18,050	19,040	21,121	22,040	24,567	24,906	25,138
S&E	8,689	8,925	9,086	9,634	10,649	12,188	13,320	14,998	14,999	14,966
Engineering	496	483	451	430	493	511	606	677	804	856
Aerospace	17	16	10	9	9	10	11	16	13	18
Chemical	89	86	87	70	95	83	117	94	130	126
Civil	71	76	67	79	79	96	85	91	111	108
Electrical	84	63	57	60	74	90	63	90	109	114
Industrial	23	32	39	27	29	28	44	41	46	38
Materials	54	47	44	43	36	50	66	74	67	87
Mechanical	54	42	37	39	49	42	59	57	67	81
Other	104	121	110	103	122	112	161	214	261	284
Science	8,193	8,442	8,635	9,204	10,156	11,677	12,714	14,321	14,195	14,110
Natural sciences	4,086	4,128	4,540	5,082	5,960	7,195	8,260	9,631	9,587	9,886
Agricultural sciences	194	210	205	238	234	235	259	278	274	350
Biological sciences	1,703	1,616	1,550	1,833	1,929	2,145	2,140	2,327	2,560	2,825
Earth, atmospheric, and ocean sciences	120	119	135	127	130	126	148	205	168	191
Atmospheric sciences	11	6	11	14	13	12	13	18	8	16
Earth sciences	85	87	98	78	93	83	111	143	122	132

Appendix table 2-27

Earned doctoral degrees, by citizenship, field, and sex: 2000–09

Citizenship, field, and sex	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Oceanography	24	26	26	35	24	31	24	44	38	43
Mathematics/computer sciences	238	229	231	239	263	255	281	338	371	396
Computer sciences	73	84	102	90	110	103	130	145	153	161
Mathematics/statistics	165	145	129	149	153	152	151	193	218	235
Medical/other life sciences	1,268	1,355	1,841	2,046	2,849	3,824	4,777	5,770	5,522	5,315
Medical sciences	354	343	323	336	420	466	530	581	618	568
Other life sciences	914	1,012	1,518	1,710	2,429	3,358	4,247	5,189	4,904	4,747
Physical sciences	563	599	578	599	555	610	655	713	692	809
Astronomy	20	16	10	21	25	28	26	31	30	41
Chemistry	451	478	463	463	432	495	518	552	516	620
Physics	82	101	94	111	93	86	109	123	139	144
Other physical sciences	10	4	11	4	5	1	2	7	7	4
Social/behavioral sciences	4,107	4,314	4,095	4,122	4,196	4,482	4,454	4,690	4,608	4,224
Psychology	2,746	3,012	2,749	2,804	2,898	3,178	3,083	3,235	3,142	2,730
Social sciences	1,361	1,302	1,346	1,318	1,298	1,304	1,371	1,455	1,466	1,494
Anthropology	242	212	255	260	248	235	245	267	259	267
Area/ethnic studies	99	111	88	93	88	89	106	114	109	111
Economics	138	147	131	117	122	137	120	118	155	134
History of science	5	3	3	13	6	10	14	10	16	3
Linguistics	59	59	53	59	67	62	69	74	62	94
Political science/public administration	333	316	365	339	328	360	355	402	404	432
Sociology	304	287	289	302	295	283	304	295	300	298
Other social sciences	181	167	162	135	144	128	158	175	161	155
Non-S&E	8,016	8,119	8,033	8,416	8,391	8,933	8,720	9,569	9,907	10,172

NOTES: Data in this table differ from doctoral degree data in other tables and figures in this report that are based on NSF Survey of Earned Doctorates and that refer to research doctorates only. Greatest differences are in psychology and medical/other life sciences. In 2008 National Center for Education Statistics allowed optional reporting in three new doctoral degree categories: doctor's—research/scholarship, doctor's—professional practice, and doctor's—other. Degrees formerly classified as professional degrees (e.g., MDs, and JDs) can now be reported as doctoral degrees, most often as doctor's—professional practice. Data for 2008 and 2009 in this table include only those doctorates reported under the old doctoral degree category plus those reported as doctor's—research/scholarship.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All citizenships and races/ethnicities										
All fields	44,947	45,068	44,311	46,177	48,560	52,855	56,309	60,887	61,716	61,730
S&E	27,862	28,096	27,588	28,746	30,979	34,468	37,541	40,980	41,480	41,111
Engineering	5,384	5,561	5,196	5,282	5,931	6,548	7,402	8,066	8,110	7,915
Aerospace	203	202	193	178	190	205	209	234	232	257
Chemical	665	680	693	608	708	872	911	915	950	886
Civil	628	647	669	685	736	830	864	935	909	902
Electrical	1,515	1,527	1,361	1,402	1,634	1,782	2,124	2,380	2,279	2,090
Industrial	218	262	275	258	280	286	302	364	346	333
Materials	454	454	381	457	494	514	611	663	665	661
Mechanical	821	906	813	786	835	963	1,139	1,138	1,149	1,186
Other	880	883	811	908	1,054	1,096	1,242	1,437	1,580	1,600
Science	22,478	22,535	22,392	23,464	25,048	27,920	30,139	32,914	33,370	33,196
Natural sciences	14,296	14,084	14,385	15,340	16,773	19,329	21,563	24,052	24,466	24,649
Agricultural sciences	984	934	969	1,060	1,016	1,004	1,037	1,068	1,080	1,143
Biological sciences	4,992	4,750	4,596	5,212	5,491	5,925	6,138	6,703	7,319	7,429
Earth, atmospheric, and ocean sciences	579	542	562	544	540	572	600	727	683	724
Atmospheric sciences	87	70	68	78	77	96	95	87	106	110
Earth sciences	393	380	404	368	369	379	430	513	469	503
Oceanography	99	92	90	98	94	97	75	127	108	111
Mathematics/computer sciences	1,858	1,769	1,677	1,825	1,975	2,301	2,713	2,953	3,058	3,110
Computer sciences	777	768	750	816	910	1,121	1,416	1,597	1,696	1,574
Mathematics/statistics	1,081	1,001	927	1,009	1,065	1,180	1,297	1,356	1,362	1,536
Medical/other life sciences	2,439	2,643	3,334	3,321	4,406	5,907	7,089	8,392	8,121	7,827
Medical sciences	893	864	882	850	1,010	1,144	1,252	1,293	1,320	1,254
Other life sciences	1,546	1,779	2,452	2,471	3,396	4,763	5,837	7,099	6,801	6,573
Physical sciences	3,444	3,446	3,247	3,378	3,345	3,620	3,986	4,209	4,205	4,416
Astronomy	101	103	70	101	101	115	114	128	163	143
Chemistry	2,090	2,134	2,037	2,158	2,105	2,226	2,502	2,606	2,495	2,652
Physics	1,208	1,169	1,096	1,089	1,119	1,254	1,341	1,442	1,507	1,580
Other physical sciences	45	40	44	30	20	25	29	33	40	41
Social/behavioral sciences	8,182	8,451	8,007	8,124	8,275	8,591	8,576	8,862	8,904	8,547
Psychology	4,200	4,538	4,185	4,258	4,389	4,681	4,484	4,696	4,600	4,046
Social sciences	3,982	3,913	3,822	3,866	3,886	3,910	4,092	4,166	4,304	4,501
Anthropology	471	428	508	487	537	459	480	519	491	527
Area/ethnic studies	212	216	209	176	204	184	220	226	246	226
Economics	1,001	1,016	961	967	978	1,111	1,057	1,107	1,172	1,172
History of science	23	21	20	27	20	28	34	27	34	19
Linguistics	202	193	152	201	194	172	216	219	215	240
Political science/public administration	1,019	1,047	992	1,055	1,001	1,049	1,098	1,093	1,104	1,244
Sociology	602	550	547	598	564	534	574	573	594	635
Other social sciences	452	442	433	355	388	373	413	402	448	438
Non-S&E	17,085	16,972	16,723	17,431	17,581	18,387	18,768	19,907	20,236	20,619
U.S. citizen/permanent resident										
All fields	34,113	34,105	33,382	34,551	35,807	38,512	40,334	43,888	44,509	45,019
S&E	19,401	19,382	19,110	19,731	21,136	23,113	24,816	27,283	27,594	27,753
Engineering	2,656	2,562	2,261	2,237	2,347	2,452	2,714	2,994	3,180	3,374

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Aerospace	125	101	77	72	73	91	80	108	103	137
Chemical	364	357	354	295	340	360	423	373	417	437
Civil	319	300	273	283	257	296	296	359	330	348
Electrical	641	587	506	478	531	567	560	645	704	711
Industrial	104	109	115	93	119	107	117	129	125	112
Materials	240	217	172	198	205	191	242	286	284	281
Mechanical	384	414	335	336	307	338	388	376	406	472
Other	479	477	429	482	515	502	608	718	811	876
Science	16,745	16,820	16,849	17,494	18,789	20,661	22,102	24,289	24,414	24,379
Natural sciences	9,779	9,682	10,048	10,765	11,872	13,661	15,139	17,116	17,248	17,699
Agricultural sciences	553	544	549	626	601	611	640	643	668	715
Biological sciences	3,724	3,579	3,443	3,901	4,118	4,330	4,377	4,713	5,091	5,310
Earth, atmospheric, and ocean sciences	409	362	368	376	356	360	389	481	436	477
Atmospheric sciences	57	40	43	46	45	54	45	48	58	68
Earth sciences	280	258	266	259	245	244	296	347	302	333
Oceanography	72	64	59	71	66	62	48	86	76	76
Mathematics/computer sciences	990	920	848	926	963	1,040	1,134	1,325	1,338	1,518
Computer sciences	402	395	410	413	455	500	551	680	667	730
Mathematics/statistics	588	525	438	513	508	540	583	645	671	788
Medical/other life sciences	1,955	2,121	2,796	2,876	3,865	5,284	6,416	7,688	7,408	7,193
Medical sciences	615	582	568	577	655	735	816	862	910	848
Other life sciences	1,340	1,539	2,228	2,299	3,210	4,549	5,600	6,826	6,498	6,345
Physical sciences	2,148	2,156	2,044	2,060	1,969	2,036	2,183	2,266	2,307	2,486
Astronomy	76	78	53	79	75	73	73	89	117	98
Chemistry	1,336	1,383	1,355	1,374	1,321	1,366	1,461	1,464	1,414	1,586
Physics	708	677	604	591	562	585	635	696	754	781
Other physical sciences	28	18	32	16	11	12	14	17	22	21
Social/behavioral sciences	6,966	7,138	6,801	6,729	6,917	7,000	6,963	7,173	7,166	6,680
Psychology	4,042	4,381	4,042	4,059	4,191	4,452	4,230	4,450	4,359	3,770
Social sciences	2,924	2,757	2,759	2,670	2,726	2,548	2,733	2,723	2,807	2,910
Anthropology	409	356	430	420	466	392	425	433	416	431
Area/ethnic studies	180	180	180	149	168	154	187	202	190	178
Economics	474	422	419	377	396	368	371	369	438	408
History of science	18	20	16	24	14	21	28	16	29	12
Linguistics	105	100	84	102	105	95	114	123	114	145
Political science/public administration	856	859	821	827	809	806	827	811	822	919
Sociology	510	473	474	492	460	436	466	459	477	499
Other social sciences	372	347	335	279	308	276	315	310	321	318
Non-S&E	14,712	14,723	14,272	14,820	14,671	15,399	15,518	16,605	16,915	17,266
White										
All fields	26,471	25,865	25,319	25,864	26,425	28,152	29,114	31,355	31,342	31,526
S&E	14,975	14,663	14,620	14,926	15,765	17,082	18,057	19,929	19,824	20,004
Engineering	1,948	1,844	1,592	1,571	1,633	1,696	1,818	1,973	2,112	2,235
Aerospace	108	79	65	48	61	73	60	81	81	99
Chemical	275	271	240	209	242	275	297	250	296	312
Civil	238	225	205	216	188	209	208	245	231	241
Electrical	436	374	325	282	331	346	346	367	397	415

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Industrial	79	79	83	67	88	73	77	82	71	71
Materials	191	170	135	150	159	136	163	191	209	194
Mechanical	261	285	236	254	200	242	274	265	282	320
Other	360	361	303	345	364	342	393	492	545	583
Science	13,027	12,819	13,028	13,355	14,132	15,386	16,239	17,956	17,712	17,769
Natural sciences	7,621	7,387	7,863	8,263	9,052	10,324	11,300	12,877	12,716	13,094
Agricultural sciences	470	453	474	522	502	519	526	541	534	576
Biological sciences	2,845	2,689	2,613	2,912	3,047	3,172	3,206	3,426	3,608	3,782
Earth, atmospheric, and ocean sciences	344	301	332	318	311	300	328	400	349	390
Atmospheric sciences	50	33	40	36	37	43	30	39	49	61
Earth sciences	230	210	242	224	212	204	258	289	235	263
Oceanography	64	58	50	58	62	53	40	72	65	66
Mathematics/computer sciences	746	687	624	671	697	706	784	895	936	1,042
Computer sciences	289	287	264	282	309	308	356	437	446	483
Mathematics/statistics	457	400	360	389	388	398	428	458	490	559
Medical/other life sciences	1,544	1,643	2,247	2,249	2,995	4,101	4,811	5,948	5,604	5,452
Medical sciences	465	417	422	398	471	475	531	578	583	553
Other life sciences	1,079	1,226	1,825	1,851	2,524	3,626	4,280	5,370	5,021	4,899
Physical sciences	1,672	1,614	1,573	1,591	1,500	1,526	1,645	1,667	1,685	1,852
Astronomy	55	52	41	61	63	62	57	63	94	85
Chemistry	1,030	1,028	1,031	1,078	986	1,021	1,080	1,071	993	1,145
Physics	561	516	473	437	442	435	496	519	582	603
Other physical sciences	26	18	28	15	9	8	12	14	16	19
Social/behavioral sciences	5,406	5,432	5,165	5,092	5,080	5,062	4,939	5,079	4,996	4,675
Psychology	3,186	3,373	3,104	3,145	3,057	3,241	3,034	3,171	3,036	2,664
Social sciences	2,220	2,059	2,061	1,947	2,023	1,821	1,905	1,908	1,960	2,011
Anthropology	332	283	326	313	349	296	325	330	299	308
Area/ethnic studies	123	116	106	84	93	84	91	103	109	95
Economics	349	325	318	272	286	244	237	233	292	281
History of science	11	15	12	20	13	17	19	13	20	11
Linguistics	82	66	65	74	82	73	74	86	95	99
Political science/public administration	659	636	625	596	605	591	580	573	578	622
Sociology	375	343	340	356	352	301	337	326	321	354
Other social sciences	289	275	269	232	243	215	242	244	246	241
Non-S&E	11,496	11,202	10,699	10,938	10,660	11,070	11,057	11,426	11,518	11,522
Asian/Pacific Islander										
All fields	2,297	2,440	2,184	2,259	2,464	2,695	2,996	3,251	3,201	3,203
S&E	1,714	1,767	1,606	1,651	1,816	2,071	2,249	2,414	2,393	2,394
Engineering	380	398	357	292	346	372	470	508	501	504
Aerospace	9	11	3	8	8	8	11	8	9	16
Chemical	50	49	65	44	64	43	70	63	55	56
Civil	37	33	30	19	25	40	44	50	38	35
Electrical	120	127	111	112	97	128	121	156	174	156
Industrial	13	14	10	12	14	17	10	15	17	15
Materials	27	26	22	14	27	17	38	55	27	32
Mechanical	67	76	49	40	52	42	66	52	45	50
Other	57	62	67	43	59	77	110	109	136	144

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Science	1,334	1,369	1,249	1,359	1,470	1,699	1,779	1,906	1,892	1,890
Natural sciences	979	982	914	1,000	1,086	1,313	1,361	1,451	1,442	1,461
Agricultural sciences	26	24	17	28	28	22	25	24	34	34
Biological sciences	429	399	388	475	489	508	477	563	575	567
Earth, atmospheric, and ocean sciences	15	25	12	15	12	16	23	11	17	15
Atmospheric sciences	3	5	1	6	4	6	6	1	1	1
Earth sciences	12	19	8	7	8	6	16	8	12	10
Oceanography	0	1	3	2	0	4	1	2	4	4
Mathematics/computer sciences	127	108	98	98	110	142	155	190	140	194
Computer sciences	56	53	72	55	62	88	92	111	87	116
Mathematics/statistics	71	55	26	43	48	54	63	79	53	78
Medical/other life sciences	196	211	229	214	276	416	461	441	460	447
Medical sciences	69	69	67	67	69	107	124	104	107	102
Other life sciences	127	142	162	147	207	309	337	337	353	345
Physical sciences	186	215	170	170	171	209	220	222	216	204
Astronomy	8	4	3	5	7	6	6	6	4	3
Chemistry	124	138	120	111	127	139	160	155	150	148
Physics	52	73	45	53	37	62	54	60	57	53
Other physical sciences	2	0	2	1	0	2	0	1	5	0
Social/behavioral sciences	355	387	335	359	384	386	418	455	450	429
Psychology	181	209	177	195	224	221	242	265	252	207
Social sciences	174	178	158	164	160	165	176	190	198	222
Anthropology	16	19	13	22	23	17	23	23	29	18
Area/ethnic studies	7	11	13	17	18	13	14	16	9	10
Economics	44	42	44	38	33	46	47	50	49	48
History of science	0	0	0	1	0	1	2	1	1	0
Linguistics	15	13	10	10	10	10	20	24	9	27
Political science/public administration	44	46	41	42	38	41	38	42	45	60
Sociology	27	33	25	25	25	26	21	23	38	38
Other social sciences	21	14	12	9	13	11	11	11	18	21
Non-S&E	583	673	578	608	648	624	747	837	808	809
Black										
All fields	2,147	2,091	2,268	2,362	2,725	2,854	2,884	3,452	3,478	3,645
S&E	821	838	871	893	1,034	1,071	1,204	1,287	1,352	1,451
Engineering	91	98	80	94	99	101	110	117	128	139
Aerospace	4	1	1	1	0	1	4	2	2	3
Chemical	8	15	10	8	7	9	13	18	17	11
Civil	8	9	11	11	6	10	9	10	9	9
Electrical	23	28	17	19	33	28	20	24	21	30
Industrial	6	5	6	6	10	6	11	8	18	10
Materials	5	5	4	9	6	7	11	8	13	15
Mechanical	24	17	16	12	18	12	13	16	23	19
Other	13	18	15	28	19	28	29	31	25	42
Science	730	740	791	799	935	970	1,094	1,170	1,224	1,312
Natural sciences	316	308	344	366	459	492	605	664	754	831
Agricultural sciences	20	16	16	26	20	19	28	24	26	28
Biological sciences	106	101	112	110	159	152	173	173	229	252

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Earth, atmospheric, and ocean sciences	3	3	3	11	5	3	3	7	7	6
Atmospheric sciences	1	0	1	2	1	0	2	2	1	2
Earth sciences	2	3	2	6	3	2	0	3	5	4
Oceanography	0	0	0	3	1	1	1	2	1	0
Mathematics/computer sciences	28	26	35	36	26	37	41	51	46	57
Computer sciences	15	9	21	17	18	19	21	30	24	30
Mathematics/statistics	13	17	14	19	8	18	20	21	22	27
Medical/other life sciences	94	90	109	118	185	229	305	323	369	410
Medical sciences	36	30	29	36	46	62	74	75	73	78
Other life sciences	58	60	80	82	139	167	231	248	296	332
Physical sciences	65	72	69	65	64	52	55	86	77	78
Astronomy	1	0	1	1	1	0	1	2	0	0
Chemistry	45	56	46	47	51	37	43	64	62	66
Physics	19	16	22	17	11	15	11	20	15	11
Other physical sciences	0	0	0	0	1	0	0	0	0	1
Social/behavioral sciences	414	432	447	433	476	478	489	506	470	481
Psychology	214	240	231	241	281	275	256	278	271	259
Social sciences	200	192	216	192	195	203	233	228	199	222
Anthropology	20	12	25	23	26	24	21	19	18	22
Area/ethnic studies	17	25	28	17	22	21	36	38	36	33
Economics	22	9	19	11	19	9	18	18	15	8
History of science	0	1	1	0	0	1	1	1	0	1
Linguistics	1	4	1	0	4	2	5	0	2	2
Political science/public administration	70	79	78	79	67	83	90	85	67	94
Sociology	50	42	44	51	40	44	45	47	45	48
Other social sciences	20	20	20	11	17	19	17	20	16	14
Non-S&E	1,326	1,253	1,397	1,469	1,691	1,783	1,680	2,165	2,126	2,194
Hispanic										
All fields	1,382	1,594	1,503	1,609	1,739	1,914	1,980	2,138	2,410	2,419
S&E	775	905	840	878	1,057	1,121	1,190	1,301	1,499	1,335
Engineering	86	88	88	106	101	98	105	138	130	153
Aerospace	2	7	3	4	3	4	0	7	3	8
Chemical	18	8	17	13	9	20	20	16	20	22
Civil	11	14	6	14	21	13	16	25	14	21
Electrical	17	17	26	22	19	14	11	33	27	27
Industrial	3	4	9	2	2	4	12	12	9	6
Materials	7	10	5	9	6	13	12	9	7	10
Mechanical	10	16	11	15	13	14	12	13	17	28
Other	18	12	11	27	28	16	22	23	33	31
Science	689	817	752	772	956	1,023	1,085	1,163	1,369	1,182
Natural sciences	319	386	342	382	468	503	573	619	803	727
Agricultural sciences	13	21	20	16	17	14	36	15	18	21
Biological sciences	149	155	139	171	186	216	212	226	274	282
Earth, atmospheric, and ocean sciences	9	10	4	8	10	11	12	18	17	14
Atmospheric sciences	1	0	1	1	0	1	2	2	2	0
Earth sciences	6	6	1	3	10	9	10	12	13	12
Oceanography	2	4	2	4	0	1	0	4	2	2

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mathematics/computer sciences	25	29	28	28	41	38	33	38	45	58
Computer sciences	13	12	19	11	18	17	6	17	16	23
Mathematics/statistics	12	17	9	17	23	21	27	21	29	35
Medical/other life sciences	56	90	82	94	141	148	187	230	337	237
Medical sciences	16	28	22	29	31	30	34	51	84	38
Other life sciences	40	62	60	65	110	118	153	179	253	199
Physical sciences	67	81	69	65	73	76	93	92	112	115
Astronomy	3	4	1	2	2	2	1	5	3	4
Chemistry	45	59	48	44	58	57	70	65	89	86
Physics	19	18	19	19	13	16	21	22	20	25
Other physical sciences	0	0	1	0	0	1	1	0		
Social/behavioral sciences	370	431	410	390	488	520	512	544	566	455
Psychology	267	308	297	247	339	388	367	417	420	316
Social sciences	103	123	113	143	149	132	145	127	146	139
Anthropology	8	19	20	29	37	20	25	18	29	34
Area/ethnic studies	7	9	10	8	13	12	13	14	11	8
Economics	18	18	13	20	25	22	21	22	16	18
History of science	1	2	0	0	0	1	2	1	0	0
Linguistics	1	5	3	4	2	3	4	3	3	4
Political science/public administration	28	34	35	36	43	35	35	34	36	37
Sociology	24	24	22	37	24	29	37	23	38	22
Other social sciences	16	12	10	9	5	10	8	12	13	16
Non-S&E	607	689	663	731	682	793	790	837	911	1,084
American Indian/Alaska Native										
All fields	155	170	175	185	206	224	214	232	244	282
S&E	82	88	84	106	117	109	111	128	139	154
Engineering	5	10	6	12	8	6	7	8	15	19
Aerospace	0	0	0	0	0	1	0	0	1	0
Chemical	0	3	1	1	1	0	1	1	2	5
Civil	1	0	1	0	1	0	0	3	2	3
Electrical	1	3	0	3	3	0	2	1	2	2
Industrial	0	0	0	0	0	0	1	0	1	0
Materials	0	0	1	0	0	1	0	0	1	1
Mechanical	2	2	2	1	1	2	2	1	3	2
Other	1	2	1	7	2	2	1	2	3	6
Science	77	78	78	94	109	103	104	120	124	135
Natural sciences	34	33	36	39	53	56	50	62	74	83
Agricultural sciences	2	1	0	1	7	4	1	3	8	5
Biological sciences	8	14	14	18	16	18	19	23	20	27
Earth, atmospheric, and ocean sciences	6	0	0	1	3	3	0	2	2	2
Atmospheric sciences	0	0	0	0	1	1	0	0	0	0
Earth sciences	5	0	0	1	2	2	0	1	2	1
Oceanography	1	0	0	0	0	0	0	1	0	1
Mathematics/computer sciences	2	3	2	2	1	0	6	4	2	5
Computer sciences	0	1	1	1	1	0	6	3	0	2
Mathematics/statistics	2	2	1	1	0	0	0	1	2	3
Medical/other life sciences	8	10	11	11	14	24	15	23	37	34

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Medical sciences	4	4	2	4	2	2	3	5	5	7
Other life sciences	4	6	9	7	12	22	12	18	32	27
Physical sciences	8	5	9	6	12	7	9	7	5	10
Astronomy	1	0	0	0	0	0	0	0	0	0
Chemistry	7	5	7	6	9	6	6	3	4	7
Physics	0	0	2	0	3	1	3	4	1	3
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Social/behavioral sciences	43	45	42	55	56	47	54	58	50	52
Psychology	28	27	24	31	36	29	32	36	31	23
Social sciences	15	18	18	24	20	18	22	22	19	29
Anthropology	4	3	6	6	5	4	4	6	1	6
Area/ethnic studies	2	2	3	2	3	4	5	6	6	11
Economics	0	0	0	2	1	0	2	2	1	1
History of science	0	0	0	0	0	0	0	0	0	0
Linguistics	0	1	0	0	0	0	1	1	2	0
Political science/public administration	3	7	1	4	4	3	4	0	6	6
Sociology	4	4	7	6	1	5	0	4	3	3
Other social sciences	2	1	1	4	6	2	6	3	0	2
Non-S&E	73	82	91	79	89	115	103	104	105	128
Other/unknown race/ethnicity										
All fields	1,661	1,945	1,933	2,272	2,248	2,673	3,146	3,460	3,834	3,944
S&E	1,034	1,121	1,089	1,277	1,347	1,659	2,005	2,224	2,387	2,415
Engineering	146	124	138	162	160	179	204	250	294	324
Aerospace	2	3	5	11	1	4	5	10	7	11
Chemical	13	11	21	20	17	13	22	25	27	31
Civil	24	19	20	23	16	24	19	26	36	39
Electrical	44	38	27	40	48	51	60	64	83	81
Industrial	3	7	7	6	5	7	6	12	9	10
Materials	10	6	5	16	7	17	18	23	27	29
Mechanical	20	18	21	14	23	26	21	29	36	53
Other	30	22	32	32	43	37	53	61	69	70
Science	888	997	951	1,115	1,187	1,480	1,801	1,974	2,093	2,091
Natural sciences	510	586	549	715	754	973	1,250	1,443	1,459	1,503
Agricultural sciences	22	29	22	33	27	33	24	36	48	51
Biological sciences	187	221	177	215	221	264	290	302	385	400
Earth, atmospheric, and ocean sciences	32	23	17	23	15	27	23	43	44	50
Atmospheric sciences	2	2	0	1	2	3	5	4	5	4
Earth sciences	25	20	13	18	10	21	12	34	35	43
Oceanography	5	1	4	4	3	3	6	5	4	3
Mathematics/computer sciences	62	67	61	91	88	117	115	147	169	162
Computer sciences	29	33	33	47	47	68	70	82	94	76
Mathematics/statistics	33	34	28	44	41	49	45	65	75	86
Medical/other life sciences	57	77	118	190	254	366	637	723	601	613
Medical sciences	25	34	26	43	36	59	50	49	58	70
Other life sciences	32	43	92	147	218	307	587	674	543	543
Physical sciences	150	169	154	163	149	166	161	192	212	227
Astronomy	8	18	7	10	2	3	8	13	16	6

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Chemistry	85	97	103	88	90	106	102	106	116	134
Physics	57	54	43	65	56	56	50	71	79	86
Other physical sciences	0	0	1	0	1	1	1	2	1	1
Social/behavioral sciences	378	411	402	400	433	507	551	531	634	588
Psychology	166	224	209	200	254	298	299	283	349	301
Social sciences	212	187	193	200	179	209	252	248	285	287
Anthropology	29	20	40	27	26	31	27	37	40	43
Area/ethnic studies	24	17	20	21	19	20	28	25	19	21
Economics	41	28	25	34	32	47	46	44	65	52
History of science	6	2	3	3	1	1	4	0	8	0
Linguistics	6	11	5	14	7	7	10	9	3	13
Political science/public administration	52	57	41	70	52	53	80	77	90	100
Sociology	30	27	36	17	18	31	26	36	32	34
Other social sciences	24	25	23	14	24	19	31	20	28	24
Non-S&E	627	824	844	995	901	1,014	1,141	1,236	1,447	1,529
Temporary resident										
All fields	10,834	10,963	10,929	11,626	12,753	14,343	15,975	16,999	17,207	16,711
S&E	8,461	8,714	8,478	9,015	9,843	11,355	12,725	13,697	13,886	13,358
Engineering	2,728	2,999	2,935	3,045	3,584	4,096	4,688	5,072	4,930	4,541
Aerospace	78	101	116	106	117	114	129	126	129	120
Chemical	301	323	339	313	368	512	488	542	533	449
Civil	309	347	396	402	479	534	568	576	579	554
Electrical	874	940	855	924	1,103	1,215	1,564	1,735	1,575	1,379
Industrial	114	153	160	165	161	179	185	235	221	221
Materials	214	237	209	259	289	323	369	377	381	380
Mechanical	437	492	478	450	528	625	751	762	743	714
Other	401	406	382	426	539	594	634	719	769	724
Science	5,733	5,715	5,543	5,970	6,259	7,259	8,037	8,625	8,956	8,817
Natural sciences	4,517	4,402	4,337	4,575	4,901	5,668	6,424	6,936	7,218	6,950
Agricultural sciences	431	390	420	434	415	393	397	425	412	428
Biological sciences	1,268	1,171	1,153	1,311	1,373	1,595	1,761	1,990	2,228	2,119
Earth, atmospheric, and ocean sciences	170	180	194	168	184	212	211	246	247	247
Atmospheric sciences	30	30	25	32	32	42	50	39	48	42
Earth sciences	113	122	138	109	124	135	134	166	167	170
Oceanography	27	28	31	27	28	35	27	41	32	35
Mathematics/computer sciences	868	849	829	899	1,012	1,261	1,579	1,628	1,720	1,592
Computer sciences	375	373	340	403	455	621	865	917	1,029	844
Mathematics/statistics	493	476	489	496	557	640	714	711	691	748
Medical/other life sciences	484	522	538	445	541	623	673	704	713	634
Medical sciences	278	282	314	273	355	409	436	431	410	406
Other life sciences	206	240	224	172	186	214	237	273	303	228
Physical sciences	1,296	1,290	1,203	1,318	1,376	1,584	1,803	1,943	1,898	1,930
Astronomy	25	25	17	22	26	42	41	39	46	45
Chemistry	754	751	682	784	784	860	1,041	1,142	1,081	1,066
Physics	500	492	492	498	557	669	706	746	753	799
Other physical sciences	17	22	12	14	9	13	15	16	18	20
Social/behavioral sciences	1,216	1,313	1,206	1,395	1,358	1,591	1,613	1,689	1,738	1,867

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 2000–09

Citizenship, field, and race/ethnicity	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Psychology	158	157	143	199	198	229	254	246	241	276
Social sciences	1,058	1,156	1,063	1,196	1,160	1,362	1,359	1,443	1,497	1,591
Anthropology	62	72	78	67	71	67	55	86	75	96
Area/ethnic studies	32	36	29	27	36	30	33	24	56	48
Economics	527	594	542	590	582	743	686	738	734	764
History of science	5	1	4	3	6	7	6	11	5	7
Linguistics	97	93	68	99	89	77	102	96	101	95
Political science/public administration	163	188	171	228	192	243	271	282	282	325
Sociology	92	77	73	106	104	98	108	114	117	136
Other social sciences	80	95	98	76	80	97	98	92	127	120
Non-S&E	2,373	2,249	2,451	2,611	2,910	2,988	3,250	3,302	3,321	3,353

NOTES: Racial/ethnic breakouts for U.S. citizens and permanent residents only; temporary resident includes all racial/ethnic groups. Data in this table differ from doctoral degree data in other tables and figures in this report that are based on NSF Survey of Earned Doctorates and that refer to research doctorates only. Greatest differences are in psychology and medical/other life sciences. In 2008 National Center for Education Statistics allowed optional reporting in three new doctoral degree categories: doctor's—research/scholarship, doctor's—professional practice, and doctor's—other. Degrees formerly classified as professional degrees (e.g., MDs, and JDs) can now be reported as doctoral degrees, most often as doctor's—professional practice. Data for 2008 and 2009 in this table include only those doctorates reported under the old doctoral degree category plus those reported as doctor's—research/scholarship.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 2-29
Median number of years from S&E doctorate recipients' entry to graduate school to receipt of doctorate, by field: 1979–2009

Year	All S&E	Agricultural sciences	Biological sciences	Computer sciences	Earth, atmospheric, and ocean sciences	Engineering	Mathematics	Medical and other life sciences	Physical sciences	Psychology	Social sciences
1979	6.7	6.2	6.2	6.5	6.7	6.2	6.6	7.7	5.7	6.7	8.1
1980	6.7	6.5	6.2	6.5	6.9	6.4	6.2	8.0	5.7	6.7	8.2
1981	6.7	6.2	6.2	6.7	7.2	6.7	6.2	8.7	5.7	7.1	8.2
1982	6.7	6.7	6.2	6.7	7.2	6.7	6.2	8.7	5.7	7.2	8.7
1983	6.9	6.7	6.7	7.2	7.5	6.7	6.7	9.2	5.9	7.7	8.7
1984	7.2	6.9	6.7	7.7	7.7	6.7	6.7	9.0	5.9	7.9	8.7
1985	7.2	7.2	6.7	7.4	7.7	6.7	6.7	9.7	6.0	7.9	9.1
1986	7.2	7.7	6.7	7.6	7.7	6.7	6.6	10.0	6.0	8.2	9.2
1987	7.2	7.5	6.9	7.7	7.9	6.7	6.9	9.9	5.9	8.2	9.3
1988	7.2	7.7	6.9	7.7	8.2	6.7	6.9	10.7	6.1	8.3	9.4
1989	7.2	8.0	6.9	7.7	7.7	6.7	6.7	10.7	6.1	8.2	9.1
1990	7.6	8.1	7.2	7.2	7.7	6.7	6.9	11.2	6.2	8.5	9.3
1991	7.5	8.3	6.9	7.7	8.1	6.9	6.9	11.2	6.2	8.2	9.4
1992	7.7	8.3	7.2	7.7	8.2	7.2	7.4	11.7	6.4	8.4	9.2
1993	7.7	8.2	7.2	7.9	8.9	7.2	7.2	11.7	6.7	8.2	9.4
1994	7.7	8.2	7.2	8.1	9.0	7.2	7.2	11.7	6.7	7.9	9.3
1995	7.7	8.5	7.2	8.1	8.9	7.3	7.2	11.2	6.7	7.9	9.3
1996	7.7	8.7	7.2	8.2	9.3	7.2	7.1	11.7	6.7	7.7	8.9
1997	7.7	8.7	7.0	8.3	8.7	7.2	7.2	11.7	6.3	7.7	8.9
1998	7.3	8.7	6.7	8.2	8.3	7.2	6.7	11.7	6.2	7.3	8.7
1999	7.2	8.2	6.7	8.2	8.2	7.2	6.7	10.7	6.2	7.2	8.7
2000	7.5	8.7	6.9	8.2	8.5	7.2	6.9	11.2	6.2	7.2	8.7
2001	7.2	8.7	6.7	7.9	8.2	7.1	6.8	10.7	6.2	7.2	8.9
2002	7.5	8.7	6.7	8.1	8.2	7.2	6.7	11.1	6.2	7.7	8.9
2003	7.6	8.2	6.7	8.2	8.0	7.3	6.9	10.3	6.2	7.2	9.2
2004	7.2	7.9	6.7	7.8	7.7	7.2	6.7	9.5	6.2	7.0	8.7
2005	7.3	7.9	6.7	7.7	7.8	7.2	6.8	9.7	6.3	7.3	9.0
2006	7.2	7.9	6.7	7.7	7.7	6.9	6.7	9.7	6.2	7.0	8.7
2007	7.0	7.7	6.7	7.4	7.4	6.7	6.7	9.6	6.3	6.9	8.7
2008	7.0	7.9	6.5	7.3	7.3	6.7	6.7	9.3	6.3	6.9	8.7
2009	7.0	8.0	6.7	7.6	7.3	6.9	6.7	9.7	6.2	6.9	8.5

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Earned Doctorates, special tabulations (2010).

Science and Engineering Indicators 2012

Appendix table 2-30

Expenditures on tertiary education as a percentage of GDP and change in expenditures: 1995, 2000, and 2007

(Percent)

Country	Expenditures on tertiary education as a percentage of GDP			Change in expenditures (2000 = 100), constant prices		
	1995	2000	2007	1995	2000	2007
OECD countries						
Australia	1.6	1.5	1.5	90	100	132
Austria	1.2	1.1	1.3	97	100	147
Belgium	NA	1.3	1.3	NA	100	111
Canada[a]	2.1	2.3	2.6	75	100	128
Czech Republic	0.9	0.8	1.2	101	100	205
Denmark	1.6	1.6	1.7	91	100	123
Finland	1.9	1.7	1.6	90	100	120
France	1.4	1.3	1.4	91	100	117
Germany	1.1	1.1	1.1	95	100	109
Greece	0.6	0.8	NA	66	100	NA
Hungary	1.0	1.1	0.9	77	100	133
Iceland	NA	1.1	1.2	NA	100	153
Ireland	1.3	1.5	1.2	57	100	117
Italy	0.7	0.9	0.9	79	100	112
Japan	1.3	1.4	1.5	88	100	115
Luxembourg	NA	NA	NA	NA	100	NA
Mexico	1.0	1.0	1.2	77	100	149
Netherlands	1.6	1.4	1.5	95	100	122
New Zealand	NA	NA	1.5	104	100	143
Norway	1.6	1.2	1.3	107	100	115
Poland	0.8	1.1	1.3	89	100	172
Portugal	0.9	1.0	1.6	73	100	170
Slovakia	0.7	0.8	0.9	81	100	170
South Korea	NA	2.2	2.4	NA	100	150
Spain	1.0	1.1	1.1	72	100	126
Sweden	1.5	1.6	1.6	81	100	118
Switzerland	0.9	1.1	1.2	74	100	127
Turkey	0.5	0.8	NA	55	100	NA
United Kingdom	1.1	1.0	1.3	97	100	150
United States	2.3	2.7	3.1	71	100	134
OECD average	NA	NA	1.5	83	100	136
EU average	NA	NA	1.3	84	100	137
Partner countries						
Brazil	0.7	0.7	0.8	78	100	126
Chile[b]	1.7	2.0	2.0	61	100	136
Estonia	1.0	1.0	1.3	69	100	158
Israel	1.8	1.9	1.8	81	100	108
Russia	NA	0.5	1.7	NA	100	317
Slovenia	NA	NA	1.3	NA	NA	NA

NA = not available

EU = European Union; GDP = gross domestic product; OECD = Organisation for Economic Co-operation and Development

[a]Year of reference 2006 instead of 2007.
[b]Year of reference 2008 instead of 2007.

NOTES: For expenditures as a percentage of GDP, data for Hungary, Luxembourg, Norway, Switzerland, Turkey, Brazil, Estonia, and Russia for public expenditures only. For change in expenditures, data for Canada, Hungary, Italy, Poland, Portugal, Switzerland, Turkey, Brazil, and Russia for public institutions only and data for Hungary, New Zealand, Switzerland, Turkey, Brazil, Estonia, and Russia for public expenditures only. EU data include Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Poland, Slovak Republic, Spain, Sweden, and United Kingdom plus partner countries Estonia and Slovenia.

SOURCE: OECD, Education at a Glance 2010, http://www.oecd.org/document/52/0,3343,en_2649_39263238_45897844_1_1_1_1,00.html. Accessed 6 October 2010.

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Appendix table 2-31

Tertiary-type A, advanced research programs, and tertiary education, by age group and country: 2008

(Percent)

	Tertiary-type A and advanced research programs		All tertiary education	
Country	25–64 years	25–34 years	25–64 years	25–34 years
OECD average	20.8	26.9	28.4	35.4
Australia	25.5	31.9	35.7	41.7
Austria	10.7	13.5	18.1	19.4
Belgium	16.4	22.8	32.3	42.3
Brazil	10.8	11.0	10.8	11.0
Canada	25.2	29.8	48.8	55.9
Chile	15.7	22.3	24.2	33.7
Czech Republic	14.5	17.7	14.5	17.7
Denmark	27.5	34.9	34.5	43.1
Estonia	22.3	23.5	34.3	35.8
Finland	21.5	32.9	36.6	38.3
France	16.4	23.7	27.4	40.7
Germany	16.4	17.5	25.4	23.9
Greece	16.8	18.6	23.4	28.2
Hungary	18.7	23.0	19.2	24.0
Iceland	27.9	30.6	31.3	32.8
Ireland	22.2	30.6	33.9	45.1
Israel	28.8	28.9	44.0	42.3
Italy	14.0	19.6	14.4	19.9
Japan	24.3	30.9	42.8	55.1
Luxembourg	20.0	28.0	27.7	38.7
Mexico	14.9	18.6	16.0	19.7
Netherlands	29.8	37.5	32.2	39.8
New Zealand	25.1	33.6	40.0	47.6
Norway	33.6	43.8	36.0	45.6
Poland	19.6	32.1	19.6	32.1
Portugal	14.3	23.2	14.3	23.2
Russian Federation (2002)	20.8	21.3	54.0	55.5
Slovakia	14.0	17.8	14.8	18.4
Slovenia	11.8	18.4	22.6	30.0
South Korea	25.6	34.6	36.6	57.9
Spain	20.1	25.7	29.2	38.8
Sweden	23.4	32.4	32.0	40.8
Switzerland	23.3	28.8	33.7	38.5
Turkey	12.0	15.5	12.0	15.5
United Kingdom	23.6	30.7	32.5	38.4
United States	31.5	32.3	41.1	41.6

OECD = Organisation for Economic Co-operation and Development; ISCED = International Standard Classification of Education

NOTES: Tertiary education includes ISCED levels 5A, 5B, and 6 programs. ISCED 5A programs are largely theory-based and designed to provide sufficient qualifications for entry into advanced research programs and professions with high skill requirements. ISCED 5B programs focus on practical, technical, or occupational skills for direct entry into labor market. ISCED 6 programs are devoted to advanced studies and original research leading to award of an advanced research qualification. In the United States, ISCED 5B corresponds to associate's, ISCED 5A corresponds to bachelor's and master's, and ISCED 6 corresponds to doctoral degrees.

SOURCE: OECD, *Education at a Glance: OECD Indicators 2010* (2010).

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Appendix table 2-32

First university degrees, by selected region and country/economy: 2008 or most recent year

	Field of first university degree								Percent		
Region/country/economy	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E	S&E	Natural sciences	Engineering
World total	14,854,840	5,000,700	1,056,439	456,671	217,837	1,313,989	1,955,714	9,854,140	33.7	11.7	13.2
United States	1,580,413	496,168	104,364	54,763	18,474	248,659	69,908	1,084,245	31.4	11.2	4.4
EU	2,675,270	932,898	136,499	136,975	34,614	301,963	322,847	1,742,372	34.9	11.5	12.1
Japan	555,690	336,815	19,094	NA	16,113	206,392	95,216	218,875	60.6	6.3	17.1
China	2,256,783	1,143,338	251,610	NA	45,649	141,475	704,604	1,113,445	50.7	13.2	31.2
Asia-8[a]	3,052,984	821,141	358,953	75,422	17,177	42,491	327,098	2,231,843	26.9	14.8	10.7
Russia	1,358,463	312,122	23,201	47,933	31,086	76,153	133,749	1,046,341	23.0	7.5	9.8
Brazil	797,450	121,421	24,855	22,248	9,041	27,926	37,351	676,029	15.2	7.0	4.7
All others	2,577,787	836,797	137,913	119,330	45,683	268,930	264,941	1,740,990	32.5	11.8	10.3
Asia[b]	6,118,211	2,393,693	649,832	84,902	81,309	443,990	1,133,610	3,724,518	39.1	13.3	18.5
Bangladesh (2003)	180,258	74,844	18,905	5,598	1,469	48,002	870	105,414	41.5	14.4	0.5
Brunei	818	44	0	21	0	23	0	774	5.4	2.6	0.0
Cambodia (2007)	14,182	2,945	250	1,545	23	699	428	11,237	20.8	12.8	3.0
China	2,256,783	1,143,338	251,610	NA	45,649	141,475	704,604	1,113,445	50.7	13.2	31.2
India (2003)	2,052,197	463,186	327,775	NA	7,801	NA	127,610	1,589,011	22.6	16.3	6.2
Japan[c]	555,690	336,815	19,094	NA	16,113	206,392	95,216	218,875	60.6	6.3	17.1
Kyrgyzstan	26,395	5,900	362	1,402	177	1,820	2,139	20,495	22.4	7.4	8.1
Laos (2006)	2,931	514	0	0	172	102	240	2,417	17.5	5.9	8.2
Malaysia (2007)	93,384	43,754	8,132	11,921	633	5,719	17,349	49,630	46.9	22.2	18.6
Mongolia	28,170	8,152	708	914	529	2,986	3,015	20,018	28.9	7.6	10.7
Philippines (2004)	350,529	86,690	0	26,321	0	15,145	45,224	263,839	24.7	7.5	12.9
Singapore[d]	11,472	5,234	1,347	NA	NA	NA	3,887	6,238	45.6	11.7	33.9
South Korea	315,204	129,641	14,973	18,453	4,288	14,689	77,238	185,563	41.1	12.0	24.5
Taiwan	230,198	92,636	6,726	18,727	4,455	6,938	55,790	137,562	40.2	13.0	24.2
Middle East[b]	738,715	281,431	48,937	38,795	18,752	87,040	87,907	457,284	38.1	14.4	11.9
Bahrain(2006)	2,116	533	60	155	0	184	134	1,583	25.2	10.2	6.3
Iran (2007)	195,076	93,125	16,281	8,171	10,731	18,273	39,669	101,951	47.7	18.0	20.3
Iraq (2004)	54,396	11,629	1,606	1,289	1,185	570	6,979	42,767	21.4	7.5	12.8
Israel	54,317	21,580	3,103	2,050	381	10,602	5,444	32,737	39.7	10.2	10.0
Jordan (2007)	40,787	13,633	2,596	4,491	630	1,432	4,484	27,154	33.4	18.9	11.0
Lebanon	25,677	8,834	1,868	1,347	101	2,536	2,982	16,843	34.4	12.9	11.6
Oman	7,779	2,414	231	901	104	342	836	5,365	31.0	15.9	10.7
Palestine	19,825	5,981	535	1,244	89	2,681	1,432	13,844	30.2	9.4	7.2
Qatar (2008)	1,536	369	60	96	0	30	183	1,167	24.0	10.2	11.9
Saudi Arabia	82,619	29,300	9,291	9,337	334	8,015	2,323	53,319	35.5	23.0	2.8
Turkey	245,140	91,243	13,011	8,551	5,179	41,883	22,619	153,897	37.2	10.9	9.2
United Arab Emirates (2007)	9,447	2,790	295	1,163	18	492	822	6,657	29.5	15.6	8.7
Africa[b]	258,027	82,866	17,322	10,033	7,624	31,605	16,282	175,161	32.1	13.6	6.3
Algeria (2007)	99,420	33,990	6,115	3,593	1,122	14,578	8,582	65,430	34.2	10.9	8.6
Burundi (2004)	680	207	0	74	51	70	12	473	30.4	18.4	1.8
Cameroon	27,368	10,877	3,424	853	121	6,125	354	16,491	39.7	16.1	1.3
Eritrea (2004)	1,254	501	71	85	104	159	82	753	40.0	20.7	6.5

Appendix table 2-32

First university degrees, by selected region and country/economy: 2008 or most recent year

Region/country/economy	Field of first university degree								Percent		
	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E	S&E	Natural sciences	Engineering
Ethiopia	49,225	12,522	1,578	2,617	3,487	1,712	3,128	36,703	25.4	15.6	6.4
Gambia (2004)	470	94	94	0	0	0	0	376	20.0	20.0	0.0
Kenya (2001)	15,620	3,870	1,120	71	1,494	445	740	11,750	24.8	17.2	4.7
Lesotho (2003)	475	190	40	0	30	120	0	285	40.0	14.7	0.0
Madagascar	10,051	3,427	1,132	243	76	1,723	253	6,624	34.1	14.4	2.5
Morocco	35,560	12,379	3,315	2,117	380	4,427	2,140	23,181	34.8	16.3	6.0
Mozambique (2005)	3,615	1,157	85	192	181	537	162	2,458	32.0	12.7	4.5
Namibia (2008)	2,825	262	0	38	154	0	70	2,563	9.3	6.8	2.5
Swaziland (2001)	1,843	237	44	0	118	69	6	1,606	12.9	8.8	0.3
Uganda (2004)	9,621	3,153	304	150	306	1,640	753	6,468	32.8	7.9	7.8
Europe[b]	4,177,768	1,279,424	164,961	189,342	69,231	385,342	470,548	2,898,344	30.6	10.1	11.3
EU	2,675,270	932,898	136,499	136,975	34,614	301,963	322,847	1,742,372	34.9	11.5	12.1
Austria	27,399	9,742	1,291	1,904	234	2,500	3,813	17,657	35.6	12.5	13.9
Belgium	35,906	12,405	1,356	906	673	4,069	5,401	23,501	34.5	8.2	15.0
Bulgaria	48,760	16,859	741	1,053	610	7,398	7,057	31,901	34.6	4.9	14.5
Cyprus	1,720	523	69	164	0	199	91	1,197	30.4	13.5	5.3
Czech Republic	55,611	20,960	2,551	3,076	1,733	3,068	10,532	34,651	37.7	13.2	18.9
Denmark	29,750	7,413	801	798	96	1,764	3,954	22,337	24.9	5.7	13.3
Estonia	7,315	2,602	439	482	225	667	789	4,713	35.6	15.7	10.8
Finland	57,515	21,074	2,889	3,704	1,203	4,578	8,700	36,441	36.6	13.6	15.1
France	287,234	100,257	17,986	15,913	2,112	23,223	41,023	186,977	34.9	12.5	14.3
Germany	322,651	118,486	24,539	26,398	2,847	24,573	40,129	204,165	36.7	16.7	12.4
Greece	35,425	15,506	1,872	2,607	857	6,203	3,967	19,919	43.8	15.1	11.2
Hungary	49,067	10,447	698	2,600	988	2,048	4,113	38,620	21.3	8.7	8.4
Ireland (2005)	26,486	5,692	920	1,170	229	764	2,609	20,794	21.5	8.8	9.9
Italy	231,082	81,057	11,161	4,763	3,256	26,924	34,953	150,025	35.1	8.3	15.1
Latvia	19,426	4,698	345	679	140	2,132	1,402	14,728	24.2	6.0	7.2
Lithuania	30,229	9,663	688	1,418	428	2,667	4,462	20,566	32.0	8.4	14.8
Luxembourg	330	128	6	51	0	58	13	202	38.8	17.3	3.9
Netherlands	89,331	22,475	1,095	4,301	922	9,290	6,867	66,856	25.2	7.1	7.7
Poland	321,762	117,144	12,281	16,124	6,438	46,622	35,679	204,618	36.4	10.8	11.1
Portugal	65,747	29,755	3,631	5,244	1,472	5,789	13,619	35,992	45.3	15.7	20.7
Romania	307,629	121,215	10,202	9,338	2,725	68,104	30,846	186,414	39.4	7.2	10.0
Slovak Republic	50,040	13,552	1,654	1,982	1,178	2,876	5,862	36,488	27.1	9.6	11.7
Slovenia	7,861	2,494	216	192	129	1,121	836	5,367	31.7	6.8	10.6
Spain	187,420	60,005	6,735	10,226	2,862	12,002	28,180	127,415	32.0	10.6	15.0
Sweden	44,784	14,496	1,558	1,162	222	3,999	7,555	30,288	32.4	6.6	16.9
United Kingdom[e]	334,790	114,250	30,775	20,720	3,035	39,325	20,395	220,540	34.1	16.3	6.1
Other Europe	1,502,498	346,526	28,462	52,367	34,617	83,379	147,701	1,155,972	23.1	7.7	9.8
Albania (2003)	4,916	790	38	63	339	132	218	4,126	16.1	9.0	4.4
Armenia	19,606	2,776	314	0	1,068	85	1,309	16,830	14.2	7.0	6.7
Croatia	16,235	5,689	785	1,113	522	737	2,532	10,546	35.0	14.9	15.6
Georgia(2007)	34,052	6,514	1,407	646	1,141	101	3,219	27,538	19.1	9.4	9.5

Appendix table 2-32

First university degrees, by selected region and country/economy: 2008 or most recent year

Region/country/economy	Field of first university degree								Percent		
	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E	S&E	Natural sciences	Engineering
Iceland	2,672	742	86	85	11	334	226	1,930	27.8	6.8	8.5
Macedonia	10,493	2,705	363	542	155	610	1,035	7,788	25.8	10.1	9.9
Norway	26,929	5,896	471	851	129	2,155	2,290	21,033	21.9	5.4	8.5
Switzerland	29,132	9,292	1,797	1,134	166	3,072	3,123	19,840	31.9	10.6	10.7
Russia	1,358,463	312,122	23,201	47,933	31,086	76,153	133,749	1,046,341	23.0	7.5	9.8
America[b]	3,355,148	906,541	161,741	121,792	39,731	350,569	232,708	2,448,607	27.0	9.6	6.9
North/Central America	2,238,845	697,222	132,013	92,393	24,800	305,174	142,842	1,541,623	31.1	11.1	6.4
Canada	181,580	69,046	17,097	6,480	934	30,932	13,603	112,534	38.0	13.5	7.5
Cuba	103,285	6,368	461	1,858	430	1,844	1,775	96,917	6.2	2.7	1.7
El Salvador	10,898	2,262	197	954	93	24	994	8,636	20.8	11.4	9.1
Guatemala (2007)	4,105	1,482	144	0	244	236	858	2,623	36.1	9.5	20.9
Honduras (2003)	4,386	1,391	25	103	414	57	792	2,995	31.7	12.4	18.1
Mexico	336,810	116,835	9,582	27,805	4,068	22,554	52,826	219,975	34.7	12.3	15.7
Panama	17,368	3,670	143	430	143	868	2,086	13,698	21.1	4.1	12.0
United States	1,580,413	496,168	104,364	54,763	18,474	248,659	69,908	1,084,245	31.4	11.2	4.4
South America	1,116,303	209,319	29,728	29,399	14,931	45,395	89,866	906,984	18.8	6.6	8.1
Argentina (2007)	78,433	21,560	2,445	2,596	1,695	8,300	6,524	56,873	27.5	8.6	8.3
Bolivia (2000)	15,341	5,115	563	392	1,006	997	2,157	10,226	33.3	12.8	14.1
Brazil	797,450	121,421	24,855	22,248	9,041	27,926	37,351	676,029	15.2	7.0	4.7
Chile	52,701	15,441	1,027	1,216	1,170	4,785	7,243	37,260	29.3	6.5	13.7
Colombia	107,683	29,657	0	2,190	1,700	0	25,767	78,026	27.5	3.6	23.9
Guyana (2007)	1,131	637	47	53	0	537	0	494	56.3	8.8	0.0
Venezuela (2002)	54,650	13,324	492	436	155	1,948	10,293	41,326	24.4	2.0	18.8
Uruguay	8,914	2,164	299	268	164	902	531	6,750	24.3	8.2	6.0

Appendix table 2-32

First university degrees, by selected region and country/economy: 2008 or most recent year

	Field of first university degree								Percent		
Region/country/economy	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E	S&E	Natural sciences	Engineering
Oceania[b]	206,971	56,745	13,646	11,807	1,190	15,443	14,659	150,226	27.4	12.9	7.1
Australia	177,155	47,940	11,338	10,108	1,037	12,968	12,489	129,215	27.1	12.7	7.0
New Zealand	29,816	8,805	2,308	1,699	153	2,475	2,170	21,011	29.5	14.0	7.3

NA = not available

[a]Includes India, Malaysia, Philippines, Singapore, South Korea, and Taiwan. Data on Indonesia and Thailand are not available.
[b]Includes only locations for which relatively recent data are available.
[c]Japanese social science data also include business administration.
[d]Singapore data include social sciences in humanities (non-S&E) and mathematical sciences in physical and biological sciences.
[e]Includes former colleges and polytechnical institutions. Data for United Kingdom rounded to nearest 5. Detail may not add to total because of rounding. Ratios based on unrounded data.

NOTES: Physical/biological sciences include physical; biological; and earth, atmospheric, and ocean sciences. Natural sciences include physical, biological, agricultural, and computer sciences and mathematics. Data for first university degrees use International Standard Classification of Education (ISCED 97), level 5A. First university degree programs in most countries <5 years; however, in some countries, especially European, some level 5A degree programs >5 years. Data for some countries include degrees comparable with U.S. master's or first professional degrees.

SOURCES: Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org/Index.aspx/; United Nations Educational, Scientific, and Cultural Organization (UNESCO), Institute for Statistics, International Education Database, special tabulations (as of November 2010); Canada—Statistics Canada, special tabulations (2009); China—National Bureau of Statistics of China, *China Statistical Yearbook, 2009* (Beijing); India—Government of India, Ministry of Human Resource Development, Department of Higher Education 2008, *Education Statistics at a Glance 2005-06*; Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education (2011); Russia—State University Higher School of Economics, special tabulations (2009); Singapore—Ministry of Education, Education Statistics Digest: 2009; Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2008 (2008); United Kingdom—Higher Education Statistics Agency, special tabulations (2011); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-33
S&E first university degrees, by selected Western or Asian country/economy and field: 2000–08

Country/economy and field	2000	2001	2002	2003	2004	2005	2006	2007	2008
Australia									
All fields	112,745	129,499	137,877	152,287	130,298	176,906	171,582	176,136	177,155
S&E fields	29,859	33,899	41,132	45,627	42,984	50,840	49,836	49,507	47,940
Physical/biological sciences	8,523	8,945	8,545	8,444	9,389	10,483	10,982	11,400	11,338
Mathematics/computer sciences	5,765	7,453	11,703	15,549	12,574	14,563	13,215	11,621	10,108
Agricultural sciences	1,116	1,364	1,120	1,200	1,246	1,132	1,072	1,114	1,037
Social/behavioral sciences	4,918	5,699	8,097	8,297	9,732	12,328	12,210	12,709	12,968
Engineering	9,537	10,438	11,667	12,137	10,043	12,334	12,357	12,663	12,489
Canada									
All fields	127,131	NA	NA	NA	137,296	149,910	176,910	160,428	181,580
S&E fields	53,350	NA	NA	NA	53,201	59,970	58,908	60,552	69,046
Physical/biological sciences	10,353	NA	NA	NA	9,894	9,750	9,807	14,208	17,097
Mathematics/computer sciences	5,424	NA	NA	NA	7,267	8,895	7,896	7,350	6,480
Agricultural sciences	1,236	NA	NA	NA	1,537	1,152	987	834	934
Social/behavioral sciences	26,660	NA	NA	NA	23,845	27,861	27,849	25,851	30,932
Engineering	9,677	NA	NA	NA	10,658	12,312	12,369	12,309	13,603
China									
All fields	495,624	567,839	655,763	929,598	1,196,290	1,465,786	1,726,674	1,995,944	2,256,783
S&E fields	359,478	337,352	384,529	533,582	672,463	796,430	911,846	1,031,911	1,143,338
Physical/biological sciences	49,214	63,517	72,526	103,409	134,164	163,076	194,807	228,090	251,610
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	19,154	19,005	22,462	29,758	34,078	35,419	36,740	43,270	45,649
Social/behavioral sciences	78,205	35,267	37,517	48,878	61,758	80,710	104,665	126,807	141,475
Engineering	212,905	219,563	252,024	351,537	442,463	517,225	575,634	633,744	704,604
France									
All fields	275,316	300,088	309,009	328,784	328,784	273,523	285,238	287,035	287,234
S&E fields	116,160	125,738	111,877	118,954	118,954	94,605	100,524	100,979	100,257
Physical/biological sciences	33,511	36,659	27,750	29,472	29,472	17,894	19,075	18,838	17,986
Mathematics/computer sciences	15,042	16,281	14,707	15,613	15,613	14,946	16,134	15,971	15,913
Agricultural sciences	2,257	2,379	306	327	327	2,193	2,737	2,483	2,112
Social/behavioral sciences	31,057	34,233	27,893	29,635	29,635	21,170	23,169	23,143	23,223
Engineering	34,293	36,186	41,221	43,907	43,907	38,402	39,409	40,544	41,023
Germany									
All fields	178,618	173,407	176,025	183,322	196,608	197,770	267,597	294,357	322,651
S&E fields	66,559	62,917	63,400	66,530	71,675	74,970	95,101	104,882	118,486
Physical/biological sciences	11,516	10,818	11,243	11,052	11,705	12,454	16,952	19,797	24,539
Mathematics/computer sciences	8,700	8,532	9,146	10,630	13,716	16,103	21,656	24,311	26,398
Agricultural sciences	2,140	2,051	2,106	2,424	2,575	2,321	2,367	2,457	2,847
Social/behavioral sciences	7,884	7,414	8,106	8,876	9,580	10,727	19,919	21,829	24,573
Engineering	36,319	34,102	32,799	33,548	34,099	33,365	34,207	36,488	40,129
Italy									
All fields	150,677	159,276	171,806	201,019	264,574	291,304	273,451	251,155	231,082
S&E fields	57,263	59,082	62,842	72,199	98,767	108,181	100,963	90,332	81,057
Physical/biological sciences	8,885	9,059	9,650	10,260	13,469	14,062	13,073	11,519	11,161
Mathematics/computer sciences	4,827	4,432	4,491	5,766	6,492	6,354	6,037	5,321	4,763
Agricultural sciences	1,345	1,468	1,835	2,529	3,340	3,725	3,611	3,564	3,256
Social/behavioral sciences	14,521	15,350	16,701	18,282	29,567	34,916	33,813	30,800	26,924
Engineering	27,685	28,773	30,165	35,362	45,899	49,124	44,429	39,128	34,953
Japan									
All fields	538,683	545,512	547,711	544,894	548,897	551,016	558,184	559,090	555,690
S&E fields	353,465	359,019	357,282	352,088	351,299	349,015	350,137	344,990	336,815
Physical/biological sciences	13,300	14,192	19,369	19,549	19,727	19,260	19,805	19,536	19,094
Mathematics/computer sciences	4,941	4,965	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	15,562	14,084	16,393	15,933	15,865	16,015	16,019	16,122	16,113
Social/behavioral sciences	216,506	221,300	217,838	215,205	217,276	215,809	217,638	213,179	206,392
Engineering	103,156	104,478	103,682	101,401	98,431	97,931	96,675	96,153	95,216
Mexico									
All fields	287,019	296,485	321,799	280,589	276,690	309,266	339,340	343,328	336,810
S&E fields	86,351	90,482	99,936	86,588	93,858	107,981	117,304	122,997	116,835
Physical/biological sciences	6,194	6,251	7,695	6,885	7,093	8,150	8,837	9,244	9,582
Mathematics/computer sciences	19,351	22,306	23,557	24,946	24,584	28,860	30,268	29,052	27,805
Agricultural sciences	3,475	3,755	4,381	3,533	3,912	3,722	4,143	4,116	4,068

Appendix table 2-33
S&E first university degrees, by selected Western or Asian country/economy and field: 2000–08

Country/economy and field	2000	2001	2002	2003	2004	2005	2006	2007	2008
Social/behavioral sciences	16,996	17,168	19,621	4,110	15,423	19,921	21,801	27,803	22,554
Engineering	40,335	41,002	44,682	47,114	42,846	47,328	52,255	52,782	52,826
Poland									
All fields	207,791	240,976	260,953	269,861	278,509	287,607	293,045	309,526	321,762
S&E fields	66,160	77,351	83,773	87,774	90,587	93,698	107,355	116,614	117,144
Physical/biological sciences	5,613	6,695	7,550	7,128	6,379	6,541	11,585	11,989	12,281
Mathematics/computer sciences	4,082	5,752	6,363	8,114	12,785	15,295	17,597	17,274	16,124
Agricultural sciences	4,481	4,848	5,252	4,869	4,759	5,114	5,240	6,375	6,438
Social/behavioral sciences	26,986	33,513	35,987	36,962	37,389	37,628	38,857	43,882	46,622
Engineering	24,998	26,543	28,621	30,701	29,275	29,120	34,076	37,094	35,679
South Korea									
All fields	214,498	239,702	244,852	258,126	267,058	268,833	270,546	277,858	315,204
S&E fields	96,859	111,060	113,097	115,770	119,338	117,921	116,231	116,651	129,641
Physical/biological sciences	13,427	13,915	12,864	17,035	15,811	14,093	14,237	14,343	14,973
Mathematics/computer sciences	9,299	14,510	13,591	10,131	14,287	14,494	15,321	16,505	18,453
Agricultural sciences	5,859	5,555	5,910	2,387	3,228	4,401	4,021	3,687	4,288
Social/behavioral sciences	11,766	14,764	15,790	15,717	15,638	14,131	14,051	14,133	14,689
Engineering	56,508	62,316	64,942	70,500	70,374	70,802	68,601	67,983	77,238
Spain									
All fields	207,578	211,349	211,979	209,373	202,435	195,946	192,178	185,151	187,420
S&E fields	65,813	70,643	70,828	70,693	67,316	64,889	63,201	61,394	60,005
Physical/biological sciences	10,908	10,959	10,405	9,930	8,872	8,188	7,770	7,009	6,735
Mathematics/computer sciences	9,010	9,952	9,354	9,546	9,929	10,250	10,641	10,458	10,226
Agricultural sciences	4,739	4,359	4,865	4,770	4,401	4,279	3,511	3,224	2,862
Social/behavioral sciences	13,975	15,079	15,410	14,303	13,326	13,310	12,750	12,320	12,002
Engineering	27,181	30,294	30,794	32,144	30,788	28,862	28,529	28,383	28,180
Taiwan									
All fields	100,171	117,430	146,166	176,044	192,854	210,763	219,919	228,645	230,198
S&E fields	39,804	48,624	61,540	72,540	79,283	85,891	89,573	92,167	92,636
Physical/biological sciences	3,448	3,684	3,982	4,294	4,550	4,953	5,425	6,101	6,726
Mathematics/computer sciences	8,043	9,391	12,252	15,791	18,546	21,284	23,224	18,733	18,727
Agricultural sciences	3,259	3,200	3,583	4,016	5,074	5,024	4,988	4,253	4,455
Social/behavioral sciences	5,489	5,762	6,277	6,492	7,002	7,760	7,971	7,005	6,938
Engineering	19,565	26,587	35,446	41,947	44,111	46,870	48,133	56,075	55,790
Turkey									
All fields	118,882	142,275	140,631	143,813	188,134	150,421	203,108	223,559	245,140
S&E fields	49,069	52,292	53,338	53,773	53,793	55,429	71,120	78,202	91,243
Physical/biological sciences	8,744	9,685	9,587	9,198	9,224	9,146	9,877	11,674	13,011
Mathematics/computer sciences	4,276	5,099	5,377	5,502	5,655	6,235	6,573	7,404	8,551
Agricultural sciences	4,913	4,737	5,201	4,524	4,298	4,267	4,455	4,623	5,179
Social/behavioral sciences	15,543	16,802	17,006	18,068	17,615	17,674	31,891	34,617	41,883
Engineering	15,593	15,969	16,167	16,481	17,001	18,107	18,324	19,884	22,619
United States									
All fields	1,254,618	1,260,308	1,308,970	1,365,694	1,417,421	1,456,401	1,502,922	1,541,704	1,580,413
S&E fields	398,602	400,435	415,983	442,755	458,658	470,214	478,858	485,772	496,168
Physical/biological sciences	83,484	80,124	79,656	81,576	82,872	86,936	93,349	100,432	104,364
Mathematics/computer sciences	49,233	55,034	61,960	70,789	73,703	69,404	63,310	58,147	54,763
Agricultural sciences	18,245	17,465	17,359	17,703	17,058	17,120	17,307	17,696	18,474
Social/behavioral sciences	188,153	188,598	196,403	208,898	220,345	230,602	236,665	241,223	248,659
Engineering	59,487	59,214	60,605	63,789	64,680	66,152	68,227	68,274	69,908
United Kingdom[a]									
All fields	265,270	274,440	272,660	282,380	292,090	306,360	315,990	319,260	334,790
S&E fields	92,530	95,310	95,180	104,120	109,940	112,500	113,580	111,810	114,250
Physical/biological sciences	31,630	33,630	32,570	27,300	27,540	28,290	28,540	29,120	30,780
Mathematics/computer sciences	15,300	17,120	18,420	23,340	25,600	25,370	24,340	22,090	20,720

Appendix table 2-33

S&E first university degrees, by selected Western or Asian country/economy and field: 2000–08

Country/economy and field	2000	2001	2002	2003	2004	2005	2006	2007	2008
Agricultural sciences	2,340	2,910	2,970	2,710	3,070	2,920	2,820	2,830	3,040
Social/behavioral sciences	22,710	21,170	20,930	31,310	33,940	36,350	38,110	37,870	39,330
Engineering	20,550	20,490	20,280	19,460	19,780	19,580	19,770	19,900	20,400

NA = not available

[a]Includes former colleges and polytechnical institutions. Data rounded to the nearest 10. Detail may not add to total because of rounding.

NOTES: Physical/biological sciences include physical; biological; and earth, atmospheric, and ocean sciences. Data for first university degrees use International Standard Classification of Education (ISCED 97), level 5A.

SOURCES: China—National Bureau of Statistics of China, *China Statistical Yearbook,* annual series (Beijing) (various years); Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education (annual series; various years); Taiwan—Ministry of Education, Educational Statistics of the Republic of China (annual series; various years); United Kingdom—Higher Education Statistics Agency, special tabulations (various years); United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey, and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov; and other countries—Organisation for Economic Co-operation and Development, OECD Stat Extracts, http://stats.oecd.org/Index.aspx.

Science and Engineering Indicators 2012

Appendix table 2-34
First university degrees, by field, sex, and region/country/economy: 2008 or most recent year

Sex and region/country/economy	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E
Male								
Asia	896,507	518,585	40,810	42,827	15,680	185,817	233,451	377,922
Bangladesh (2003)	119,532	51,103	13,861	4,709	1,223	30,532	778	68,429
Brunei	234	14	0	8	0	6	0	220
Cambodia (2007)	9,595	2,442	193	1,365	19	457	408	7,153
India (2003)	1,235,444	303,725	196,058	NA	6,524	NA	101,143	931,719
Japan[a]	319,614	245,908	13,934	NA	9,454	138,014	84,506	73,706
Kyrgyzstan	11,065	3,120	84	691	121	674	1,550	7,945
Laos (2006)	1,773	415	0	0	131	62	222	1,358
Mongolia	9,817	3,587	287	502	174	991	1,633	6,230
Philippines (2004)	142,102	49,250	0	11,254	0	4,728	33,268	92,852
Singapore[b]	5,518	3,124	491	0	0	0	2,633	2,394
South Korea	166,938	90,131	7,740	12,865	2,482	7,603	59,441	76,807
Taiwan	110,319	69,491	4,220	11,433	2,076	2,750	49,012	40,828
Middle East	349,552	150,717	17,385	18,763	10,675	38,204	65,690	198,835
Bahrain	582	146	5	53	0	11	77	436
Iran (2007)	89,798	49,687	5,149	2,820	5,895	6,586	29,237	40,111
Iraq (2004)	33,021	8,203	725	680	799	339	5,660	24,818
Israel	22,322	11,040	1,387	1,415	173	4,018	4,047	11,282
Jordan (2007)	19,051	7,441	847	2,560	259	536	3,239	11,610
Lebanon	11,606	4,460	672	859	39	697	2,193	7,146
Oman	3,691	1,297	71	391	52	115	668	2,394
Palestine	8,231	3,098	138	685	71	1,265	939	5,133
Qatar	474	132	3	25	0	0	104	342
Saudi Arabia	25,460	8,281	1,728	3,632	90	775	2,056	17,179
Turkey	132,237	55,698	6,605	5,191	3,294	23,758	16,850	76,539
United Arab Emirates (2007)	3,079	1,234	55	452	3	104	620	1,845
Africa	112,745	37,885	5,787	6,406	4,435	10,617	10,640	74,860
Algeria (2007)	37,554	14,173	1,629	1,912	547	4,612	5,473	23,381
Burundi (2004)	504	163	0	62	40	49	12	341
Eritrea (2004)	1,074	450	67	72	94	137	80	624
Ethiopia	39,705	10,441	1,330	2,099	2,947	1,372	2,693	29,264
Gambia (2004)	402	86	86	0	0	0	0	316
Madagascar	5,062	2,089	665	203	45	972	204	2,973
Morocco	19,543	7,341	1,690	1,786	293	2,086	1,486	12,202
Mozambique (2005)	2,522	899	65	166	130	388	150	1,623
Swaziland (2006)	847	144	31	0	77	32	4	703
Uganda (2004)	5,532	2,099	224	106	262	969	538	3,433
Europe	1,136,599	524,647	59,999	101,197	19,972	101,489	241,990	611,952
EU	1,073,767	503,900	57,566	97,991	17,787	99,015	231,541	569,867
Austria	12,121	5,887	583	1,529	104	833	2,838	6,234
Belgium	16,082	6,971	717	780	362	1,262	3,850	9,111
Bulgaria	18,806	8,292	233	542	328	2,489	4,700	10,514
Czech Republic	23,596	12,874	1,044	2,456	771	952	7,651	10,722
Denmark	11,394	4,614	396	655	33	729	2,801	6,780
Estonia	2,334	1,201	125	303	103	170	500	1,133
Finland	20,505	12,067	950	2,516	589	1,207	6,805	8,438
France	129,050	58,509	8,523	12,062	1,028	7,086	29,810	70,541
Germany	138,964	69,471	10,507	17,145	1,703	9,052	31,064	69,493
Greece	12,737	7,164	824	1,438	435	2,077	2,390	5,573
Hungary	16,650	6,553	332	2,062	511	562	3,086	10,097
Ireland (2005)	10,841	3,540	331	811	127	188	2,083	7,301
Italy	96,372	44,275	4,265	3,292	2,058	10,891	23,769	52,097
Latvia	5,450	2,061	131	480	56	438	956	3,389
Lithuania	10,041	5,022	281	972	227	544	2,998	5,019
Luxembourg	165	67	3	41	0	10	13	98
Netherlands	39,129	14,015	629	3,927	516	3,140	5,803	25,114
Poland	118,481	58,030	3,874	12,354	2,800	14,957	24,045	60,451

Appendix table 2-34
First university degrees, by field, sex, and region/country/economy: 2008 or most recent year

Sex and region/country/economy	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E
Portugal	26,775	17,682	1,255	3,981	829	1,792	9,825	9,093
Romania	111,208	50,312	2,868	4,936	1,787	19,936	20,785	60,896
Slovakia	17,187	7,678	626	1,540	671	861	3,980	9,509
Slovenia	2,742	1,165	66	167	53	309	570	1,577
Spain	73,706	34,816	2,435	7,771	1,645	4,088	18,877	38,890
Sweden	15,686	8,069	573	826	106	1,272	5,292	7,617
United Kingdom[c]	143,745	63,565	15,995	15,405	945	14,170	17,050	80,180
Other Europe	62,832	20,747	2,433	3,206	2,185	2,474	10,449	42,085
Albania (2003)	1,387	363	7	18	164	21	153	1,024
Armenia	8,261	1,740	177	0	646	10	907	6,521
Croatia	6,547	3,063	229	670	211	188	1,765	3,484
Georgia (2007)	17,571	4,376	568	380	905	28	2,495	13,195
Iceland	838	368	34	74	7	99	154	470
Macedonia	4,282	1,316	121	347	80	129	639	2,966
Norway	10,097	3,616	201	708	64	899	1,744	6,481
Switzerland	13,849	5,905	1,096	1,009	108	1,100	2,592	7,944
North/Central America	958,714	354,409	57,215	64,503	12,888	110,675	109,128	604,305
Belize (2004)	53	7	3	4	0	0	0	46
Canada	68,842	31,900	6,616	4,650	424	9,714	10,496	36,942
Cuba	53,810	3,356	239	951	281	502	1,383	50,454
El Salvador	4,373	1,349	77	549	60	8	655	3,024
Guatemala	2,254	928	38	0	197	59	634	1,326
Mexico	150,099	68,270	4,095	17,207	2,850	6,327	37,791	81,829
Panama	5,495	1,880	84	220	59	335	1,182	3,615
United States	673,788	246,719	46,063	40,922	9,017	93,730	56,987	427,069
South America	417,354	109,999	11,052	21,477	9,340	12,660	55,470	307,355
Argentina (2007)	31,728	10,565	840	1,739	1,118	2,367	4,501	21,163
Brazil	300,367	67,989	9,619	17,305	6,228	8,500	26,337	232,378
Chile	22,242	8,747	462	869	709	1,412	5,295	13,495
Colombia	59,596	21,588	0	1,345	1,181	0	19,062	38,008
Guyana	297	183	24	30	0	129	0	114
Uruguay	3,124	927	107	189	104	252	275	2,197
Oceania	84,037	31,363	6,042	9,030	588	4,780	10,923	52,674
Australia	72,593	26,793	5,087	7,821	521	3,978	9,386	45,800
New Zealand	11,444	4,570	955	1,209	67	802	1,537	6,874
Female								
Asia	819,340	224,830	21,555	30,154	11,546	110,979	50,596	594,510
Bangladesh (2003)	60,726	23,741	5,044	889	246	17,470	92	36,985
Brunei	584	30	0	13	0	17	0	554
Cambodia (2007)	4,587	503	57	180	4	242	20	4,084
India (2003)	816,753	159,461	131,717	NA	1,277	NA	26,467	657,292
Japan[a]	236,076	90,907	5,160	NA	6,659	68,378	10,710	145,169
Kyrgyzstan	15,330	2,780	278	711	56	1,146	589	12,550
Laos (2006)	1,158	99	0	0	41	40	18	1,059
Mongolia	18,353	4,565	421	412	355	1,995	1,382	13,788
Philippines(2004)	208,427	37,440	0	15,067	0	10,417	11,956	170,987
Singapore[b]	5,954	2,110	856	0	0	0	1,254	3,844
South Korea	148,266	39,510	7,233	5,588	1,806	7,086	17,797	108,756
Taiwan	119,879	23,145	2,506	7,294	2,379	4,188	6,778	96,734
Middle East	389,163	130,714	31,552	20,032	8,077	48,836	22,217	258,449
Bahrain	1,534	387	55	102	0	173	57	1,147
Iran (2007)	105,278	43,438	11,132	5,351	4,836	11,687	10,432	61,840
Iraq (2004)	21,375	3,426	881	609	386	231	1,319	17,949
Israel	31,995	10,540	1,716	635	208	6,584	1,397	21,455
Jordan (2007)	21,736	6,192	1,749	1,931	371	896	1,245	15,544
Lebanon	14,071	4,374	1,196	488	62	1,839	789	9,697
Oman	4,088	1,117	160	510	52	227	168	2,971

Appendix table 2-34
First university degrees, by field, sex, and region/country/economy: 2008 or most recent year

Sex and region/country/economy	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E
Palestine	11,594	2,883	397	559	18	1,416	493	8,711
Qatar	1,062	237	57	71	0	30	79	825
Saudi Arabia	57,159	21,019	7,563	5,705	244	7,240	267	36,140
Turkey	112,903	35,545	6,406	3,360	1,885	18,125	5,769	77,358
United Arab Emirates (2007)	6,368	1,556	240	711	15	388	202	4,812
Africa	98,994	29,782	6,951	2,665	1,390	14,298	4,478	69,212
Algeria (2007)	61,866	19,817	4,486	1,681	575	9,966	3,109	42,049
Burundi (2004)	176	44	0	12	11	21	0	132
Eritrea (2004)	180	51	4	13	10	22	2	129
Ethiopia	9,520	2,081	248	518	540	340	435	7,439
Gambia (2004)	68	8	8	0	0	0	0	60
Madagascar	4,989	1,338	467	40	31	751	49	3,651
Morocco	16,017	5,038	1,625	331	87	2,341	654	10,979
Mozambique (2005)	1,093	258	20	26	51	149	12	835
Swaziland (2006)	996	93	13	0	41	37	2	903
Uganda (2004)	4,089	1,054	80	44	44	671	215	3,035
Europe	1,680,986	442,132	81,692	40,048	18,173	207,501	94,718	1,238,854
EU	1,599,783	428,475	78,864	38,820	16,827	202,749	91,215	1,171,308
Austria	15,278	3,855	708	375	130	1,667	975	11,423
Belgium	19,824	5,434	639	126	311	2,807	1,551	14,390
Bulgaria	29,954	8,567	508	511	282	4,909	2,357	21,387
Czech Republic	32,015	8,086	1,507	620	962	2,116	2,881	23,929
Denmark	18,356	2,799	405	143	63	1,035	1,153	15,557
Estonia	4,981	1,401	314	179	122	497	289	3,580
Finland	37,010	9,007	1,939	1,188	614	3,371	1,895	28,003
France	158,184	41,748	9,463	3,851	1,084	16,137	11,213	116,436
Germany	183,687	49,015	14,032	9,253	1,144	15,521	9,065	134,672
Greece	22,688	8,342	1,048	1,169	422	4,126	1,577	14,346
Hungary	32,417	3,894	366	538	477	1,486	1,027	28,523
Ireland (2005)	15,645	2,152	589	359	102	576	526	13,493
Italy	134,710	36,782	6,896	1,471	1,198	16,033	11,184	97,928
Latvia	13,976	2,637	214	199	84	1,694	446	11,339
Lithuania	20,188	4,641	407	446	201	2,123	1,464	15,547
Luxembourg	165	61	3	10	0	48	0	104
Netherlands	50,202	8,460	466	374	406	6,150	1,064	41,742
Poland	203,281	59,114	8,407	3,770	3,638	31,665	11,634	144,167
Portugal	38,972	12,073	2,376	1,263	643	3,997	3,794	26,899
Romania	196,421	70,903	7,334	4,402	938	48,168	10,061	125,518
Slovakia	32,853	5,874	1,028	442	507	2,015	1,882	26,979
Slovenia	5,119	1,329	150	25	76	812	266	3,790
Spain	113,714	25,189	4,300	2,455	1,217	7,914	9,303	88,525
Sweden	29,098	6,427	985	336	116	2,727	2,263	22,671
United Kingdom[c]	191,045	50,685	14,780	5,315	2,090	25,155	3,345	140,360
Other Europe	81,203	13,657	2,828	1,228	1,346	4,752	3,503	67,546
Albania (2003)	3,529	427	31	45	175	111	65	3,102
Armenia	11,345	1,036	137	0	422	75	402	10,309
Croatia	9,688	2,626	556	443	311	549	767	7,062
Georgia (2007)	16,481	2,138	839	266	236	73	724	14,343
Iceland	1,834	374	52	11	4	235	72	1,460
Macedonia	6,211	1,389	242	195	75	481	396	4,822
Norway	16,832	2,280	270	143	65	1,256	546	14,552
Switzerland	15,283	3,387	701	125	58	1,972	531	11,896
North/Central America	1,275,895	341,431	74,777	27,792	11,498	194,442	32,922	934,464
Belize (2004)	97	2	1	1	0	0	0	95
Canada	112,738	37,146	10,481	1,830	510	21,218	3,107	75,592
Cuba	49,475	3,012	222	907	149	1,342	392	46,463
El Salvador	6,525	913	120	405	33	16	339	5,612
Guatemala (2007)	1,851	554	106	0	47	177	224	1,297

Appendix table 2-34

First university degrees, by field, sex, and region/country/economy: 2008 or most recent year

Sex and region/country/economy	All fields	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	Non-S&E
Mexico	186,711	48,565	5,487	10,598	1,218	16,227	15,035	138,146
Panama	11,873	1,790	59	210	84	533	904	10,083
United States	906,625	249,449	58,301	13,841	9,457	154,929	12,921	657,176
South America	628,958	80,881	17,621	7,094	4,430	29,790	21,946	548,077
Argentina (2007)	46,705	10,995	1,605	857	577	5,933	2,023	35,710
Brazil	497,083	53,432	15,236	4,943	2,813	19,426	11,014	443,651
Chile	30,459	6,694	565	347	461	3,373	1,948	23,765
Colombia	48,087	8,069	0	845	519	0	6,705	40,018
Guyana	834	454	23	23	0	408	0	380
Uruguay	5,790	1,237	192	79	60	650	256	4,553
Oceania	122,934	25,382	7,604	2,777	602	10,663	3,736	97,552
Australia	104,562	21,147	6,251	2,287	516	8,990	3,103	83,415
New Zealand	18,372	4,235	1,353	490	86	1,673	633	14,137

NA = not available

[a]Japanese social science data include business administration.
[b]Singapore data include social sciences in humanities (non-S&E) and mathematical sciences with physical and biological sciences.
[c]Includes former colleges and polytechnical institutions. Data rounded to nearest 5. Detail may not add to total because of rounding.

NOTES: Physical/biological sciences include physical; biological; and earth, atmospheric, and ocean sciences. Data for first university degrees use International Standard Classification of Education (ISCED 97), level 5A. Long (>5 years) and short (<5 years) first university degrees combined.

SOURCES: Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org/Index.aspx; United Nations Educational, Scientific, and Cultural Organization (UNESCO), Institute for Statistics, special tabulations (2010); India—Government of India, Ministry of Human Resource Development, Department of Higher Education 2008, *Education Statistics at a Glance 2005-06;* Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education, special tabulations (2011); Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2008 (2008); United Kingdom—Higher Education Statistics Agency, special tabulations (2011); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-35
Earned S&E doctoral degrees, by selected region/country/economy and field: 2008 or most recent year

Region/country/economy	All fields	S&E field						Non-S&E
		All S&E	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	
World total	393,704	194,143	69,225	13,268	11,958	36,757	62,935	199,561
United States	61,716	33,359	12,207	3,058	1,080	8,904	8,110	28,357
EU	108,089	54,973	22,411	6,043	2,137	9,095	15,287	53,116
Japan[a]	17,291	8,017	1,686	NA	1,233	1,025	4,073	9,274
China	43,759	28,439	8,953	NA	1,936	2,274	15,276	15,320
Asia-8[b]	33,706	14,165	6,970	369	1,586	555	4,685	19,541
Russia[c]	27,719	14,915	3,538	NA	618	6,857	3,902	12,804
Brazil	10,705	5,470	2,122	248	1,081	798	1,221	5,235
All others	90,719	34,805	11,338	3,550	2,287	7,249	10,381	55,914
Asia[d]	105,688	54,203	17,756	382	5,330	4,345	26,390	51,485
China	43,759	28,439	8,953	NA	1,936	2,274	15,276	15,320
India (2006)	18,730	7,982	5,625	NA	1,299	NA	1,058	10,748
Japan[a] (2007)	17,291	8,017	1,686	NA	1,233	1,025	4,073	9,274
Kyrgyzstan	536	270	82	11	10	107	60	266
Malaysia (2007)	719	406	134	92	1	43	136	313
Mongolia	88	46	15	2	9	13	7	42
Philippines (2004)	1,748	56	0	13	0	36	7	1,692
South Korea	9,369	3,716	798	156	209	311	2,242	5,653
Taiwan	3,140	2,005	413	108	77	165	1,242	1,135
Tajikistan	225	83	50	NA	17	8	8	142
Uzbekistan	532	76	NA	NA	NA	NA	76	456
Vietnam	9,551	3,107	0	0	539	363	2,205	6,444
Middle East[d]	23,077	6,939	2,599	698	501	1,221	1,920	16,138
Iran (2007)	2,711	693	236	39	108	134	176	2,018
Iraq (2004)	5,056	1,335	285	86	132	38	794	3,721
Israel	1,427	903	468	113	25	162	135	524
Jordan (2007)	503	57	12	12	5	22	6	446
Lebanon	945	11	2	0	0	9	0	934
Morocco	4,642	1,787	1,005	206	0	407	169	2,855
Saudi Arabia	4,039	443	153	104	11	85	90	3,596
Turkey	3,754	1,710	438	138	220	364	550	2,044
Africa[d]	14,175	7,080	2,812	916	191	1,588	1,573	7,095
Algeria (2007)	7,237	4,024	1,359	542	100	704	1,319	3,213
Cameroon	680	505	242	25	0	218	20	175
Madagascar (2007)	602	393	184	22	34	106	47	209
Morocco	4,642	1,787	1,005	206	0	407	169	2,855
Uganda (2004)	1,014	371	22	121	57	153	18	643
Europe[d]	149,601	76,929	27,861	6,968	3,162	17,656	21,282	72,672
EU	108,089	54,973	22,411	6,043	2,137	9,095	15,287	53,116
Austria	2,205	1,151	350	140	50	174	437	1,054
Belgium	1,880	1,138	588	145	74	147	184	742
Bulgaria	601	316	102	18	25	68	103	285
Czech Republic	2,382	1,516	535	114	110	167	590	866
Denmark	1,102	560	0	205	0	114	241	542
Estonia	161	105	46	9	5	11	34	56
Finland	1,951	1,053	314	100	42	217	380	898
France	11,309	7,710	4,398	972	18	1,048	1,274	3,599
Germany	25,604	11,314	5,791	1,163	402	1,417	2,541	14,290
Greece	1,406	681	172	115	76	79	239	725
Hungary	1,141	387	176	51	40	90	30	754
Ireland	1,090	145	0	0	0	0	145	945
Italy (2007)	10,188	5,949	2,243	437	511	799	1,959	4,239
Latvia	139	69	16	10	3	12	28	70
Lithuania	369	225	66	14	26	48	71	144
Netherlands	3,214	563	0	0	0	0	563	2,651
Poland	5,616	968	0	0	0	0	968	4,648

Appendix table 2-35
Earned S&E doctoral degrees, by selected region/country/economy and field: 2008 or most recent year

Region/country/economy	All fields	S&E field						Non-S&E
		All S&E	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	
Portugal	4,863	3,084	923	512	78	734	837	1,779
Romania	3,271	1,780	229	233	203	664	451	1,491
Slovak Republic	1,655	733	168	66	62	95	342	922
Slovenia	405	257	98	15	12	46	86	148
Spain	7,302	3,649	1,846	327	162	632	682	3,653
Sweden	3,625	2,150	600	242	43	303	962	1,475
United Kingdom[e]	16,610	9,470	3,750	1,155	195	2,230	2,140	7,140
Other Europe	41,512	21,956	5,450	925	1,025	8,561	5,995	19,556
Armenia	359	146	65	0	6	9	66	213
Croatia	494	226	91	16	15	36	68	268
Georgia (2007)	605	202	105	0	20	17	60	403
Iceland	23	12	6	0	0	1	5	11
Macedonia (2005)	87	28	4	7	3	7	7	59
Norway	1,231	692	0	488	31	128	45	539
Russia[c]	27,719	14,915	3,538	NA	618	6,857	3,902	12,804
Switzerland	3,426	1,617	864	113	30	215	395	1,809
Ukraine	7,568	4,118	777	301	302	1,291	1,447	3,450
America[d]	94,617	45,205	16,708	3,948	2,549	11,156	10,844	49,412
North/Central America	70,517	38,666	14,179	3,443	1,386	10,257	9,401	31,851
Canada	4,827	3,384	1,425	279	99	690	891	1,443
Cuba	476	261	60	NA	48	93	60	215
Mexico	3,498	1,662	487	106	159	570	340	1,836
United States	61,716	33,359	12,207	3,058	1,080	8,904	8,110	28,357
South America	24,100	6,539	2,529	505	1,163	899	1,443	17,561
Argentina (2007)	696	437	249	43	14	84	47	259
Brazil	10,705	5,470	2,122	248	1,081	798	1,221	5,235
Chile	307	227	137	16	31	13	30	80
Colombia	102	71	0	43	7	0	21	31
Ecuador (2007)	12,251	306	0	154	30	0	122	11,945
Panama	11	4	0	0	0	4	0	7
Uruguay	28	24	21	1	0	0	2	4
Oceania[d]	6,546	3,787	1,489	356	225	791	926	2,759
Australia	5,749	3,320	1,233	297	215	729	846	2,429
New Zealand	797	467	256	59	10	62	80	330

NA = not available

[a]Includes thesis doctorates, called *ronbun hakase*, earned by employees in industry.
[b]Includes India, Malaysia, Philippines, South Korea, Taiwan. Data from Indonesia, Singapore, and Thailand are not available.
[c]For Russia, math is included with physical/biological sciences.
[d]Includes only locations for which relatively recent data available.
[e]Data rounded to nearest 5. Detail may not add to total because of rounding.

NOTES: Physical/biological sciences include physical, biological, earth, atmospheric, and ocean sciences. Data for doctoral degrees use International Standard Classification of Education (ISCED 97), level 6. S&E data do not include health fields.

SOURCES: Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org/Index.apsx; United Nations Educational, Scientific, and Cultural Organization (UNESCO), Institute for Statistics, special tabulations (2010; China—*China Statistical Yearbook 2009*; India—University Grants Commission, Annual Report 2005-06; Japan-Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education, special tabulations (2011), and Division of Higher Education, special tabulations (2011); Taiwan-Ministry of Education, Educational Statistics of the Republic of China: 2008 (2008); United Kingdom—Higher Education Statistics Agency, special tabulations (2010); Russia—State University Higher School of Economics, special tabulations (2010); Brazil—Centro de Gestao e Estudos Estrategicos: Ciencia, Tecnologia e inovacao. Doutores 2010: Estudos da demografia da base tecnico-cientifica brasileira, http://www.cgee.org.br/busca/ConsultaProdutoNcomTopo.php?f=1&idProduto=6401 accessed January 10 2011; Canada—Statistics Canada, special tabulations (2010); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-36

Earned S&E doctoral degrees, by sex, selected region/country/economy, and field: 2008 or most recent year

Sex and region/country/economy	All fields	S&E field						Non-S&E
		All S&E	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	
Male								
Asia	15,010	7,040	983	250	615	551	4,641	7,970
Kyrgyzstan	236	119	36	5	5	47	26	117
Malaysia (2007)	445	258	78	51	1	27	101	187
Mongolia	41	23	6	1	2	10	4	18
South Korea	6,606	2,947	562	111	157	210	1,907	3,659
Taiwan	2,294	1,667	301	82	49	116	1,119	627
Vietnam	5,388	2,026	0	0	401	141	1,484	3,362
Middle East	14,978	4,567	1,499	486	339	735	1,508	10,411
Iran (2007)	1,887	564	167	32	104	99	162	1,323
Iraq (2004)	3,434	984	153	50	104	27	650	2,450
Israel	697	496	227	89	15	66	99	201
Jordan (2007)	347	36	5	10	5	10	6	311
Lebanon	480	6	1	0	0	5	0	474
Morocco	2,968	1,179	635	163	0	255	126	1,789
Saudi Arabia	3,018	265	66	57	11	45	86	2,753
Turkey	2,147	1,037	245	85	100	228	379	1,110
Sub-Saharan Africa	4,997	2,769	725	435	108	538	963	2,228
Algeria (2007)	3,982	2,271	595	321	52	394	909	1,711
Madagascar (2007)	342	241	111	18	18	56	38	101
Uganda (2004)	673	257	19	96	38	88	16	416
Europe	62,488	35,243	12,963	4,853	1,228	4,326	11,873	27,245
EU	58,732	33,375	12,292	4,426	1,169	4,125	11,363	25,357
Austria	1,268	762	196	109	32	81	344	506
Belgium	1,090	697	344	114	40	70	129	393
Bulgaria	282	160	48	9	9	27	67	122
Czech Republic	1,498	1,004	299	88	62	92	463	494
Denmark	631	384	0	139	0	58	187	247
Estonia	85	61	22	8	3	6	22	24
Finland	900	596	150	71	19	81	275	304
France	6,566	4,843	2,582	744	13	568	936	1,723
Germany	14,815	7,568	3,482	937	265	715	2,169	7,247
Greece	857	471	108	85	51	48	179	386
Hungary	654	244	116	40	22	46	20	410
Ireland	536	118	0	0	0	0	118	418
Italy (2007)	4,960	3,191	1,013	277	252	369	1,280	1,769
Latvia	57	34	8	3	0	3	20	23
Lithuania	170	111	28	10	8	20	45	59
Netherlands	1,873	429	0	0		0	429	1,444
Poland	2,856	693	0	0	0	0	693	2,163
Portugal	1,969	1,413	306	333	35	227	512	556
Romania	1,668	1,002	101	127	118	322	334	666
Slovakia	857	411	83	36	35	38	219	446
Slovenia	212	150	48	10	7	20	65	62
Spain	3,749	1,935	865	228	91	282	469	1,814
Sweden	1,999	1,393	353	178	22	157	683	606
United Kingdom[a]	9,180	5,705	2,140	880	85	895	1,705	3,475
Other Europe	3,756	1,868	671	427	59	201	510	1,888
Armenia	255	111	48	0	4	6	53	144
Croatia	277	128	39	10	10	17	52	149
Georgia (2007)	444	136	62	0	8	13	53	308
Iceland	16	12	6	0	0	1	5	4
Macedonia	43	16	2	2	2	5	5	27
Norway	679	425	0	321	18	54	32	254
Switzerland	2,042	1,040	514	94	17	105	310	1,002
America	36,197	23,423	8,319	2,611	865	4,180	7,448	12,774
Argentina (2007)	322	183	101	18	3	38	23	139
Canada	2,676	2,058	795	201	60	270	732	618
Chile	169	122	68	11	19	3	21	47

Appendix table 2-36
Earned S&E doctoral degrees, by sex, selected region/country/economy, and field: 2008 or most recent year

Sex and region/country/economy	All fields	S&E field						Non-S&E
		All S&E	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	
Colombia	79	62	0	37	7	0	18	17
Cuba	285	156	36	0	29	55	36	129
Mexico	2,049	1,049	288	81	112	314	254	1,000
United States	30,601	19,781	7,022	2,262	635	3,500	6,362	10,820
Uruguay	16	12	9	1	0	0	2	4
Oceania	3,369	2,161	769	249	125	289	729	1,208
Australia	2,969	1,895	638	207	120	270	660	1,074
New Zealand	400	266	131	42	5	19	69	134
Female								
Asia	8,393	2,510	459	119	230	451	1,251	5,883
Kyrgyzstan	300	151	46	6	5	60	34	149
Malaysia (2007)	274	148	56	41	0	16	35	126
Mongolia	47	23	9	1	7	3	3	24
South Korea	2,763	769	236	45	52	101	335	1,994
Taiwan	846	338	112	26	28	49	123	508
Vietnam	4,163	1,081	0	0	138	222	721	3,082
Middle East	8,099	2,372	1,100	212	162	486	412	5,727
Iran (2007)	824	129	69	7	4	35	14	695
Iraq (2004)	1,622	351	132	36	28	11	144	1,271
Israel	730	407	241	24	10	96	36	323
Jordan (2007)	156	21	7	2	0	12	0	135
Lebanon	465	5	1	0	0	4	0	460
Morocco	1,674	608	370	43	0	152	43	1,066
Saudi Arabia	1,021	178	87	47	0	40	4	843
Turkey	1,607	673	193	53	120	136	171	934
Sub-Saharan Africa	3,856	2,019	840	250	83	425	421	1,837
Algeria (2007)	3,255	1,753	764	221	48	310	410	1,502
Madagascar (2007)	260	152	73	4	16	50	9	108
Uganda (2004)	341	114	3	25	19	65	2	227
Europe	51,826	22,653	10,583	1,814	1,014	5,182	4,060	29,173
EU	49,357	21,598	10,119	1,617	968	4,970	3,924	27,759
Austria	937	389	154	31	18	93	93	548
Belgium	790	441	244	31	34	77	55	349
Bulgaria	319	156	54	9	16	41	36	163
Czech Republic	884	512	236	26	48	75	127	372
Denmark	471	176	0	66	0	56	54	295
Estonia	76	44	24	1	2	5	12	32
Finland	1,051	457	164	29	23	136	105	594
France	4,743	2,867	1,816	228	5	480	338	1,876
Germany	10,789	3,746	2,309	226	137	702	372	7,043
Greece	549	210	64	30	25	31	60	339
Hungary	487	143	60	11	18	44	10	344
Ireland	554	27	0	0	0	0	27	527
Italy (2007)	5,228	2,758	1,230	160	259	430	679	2,470
Latvia	82	35	8	7	3	9	8	47
Lithuania	199	114	38	4	18	28	26	85
Netherlands	1,341	134	0	0	0	0	134	1,207
Poland	2,760	275	0	0	0	0	275	2,485
Portugal	2,894	1,671	617	179	43	507	325	1,223
Romania	1,603	778	128	106	85	342	117	825
Slovakia	798	322	85	30	27	57	123	476
Slovenia	193	107	50	5	5	26	21	86
Spain	3,553	1,714	981	99	71	350	213	1,839
Sweden	1,626	757	247	64	21	146	279	869
United Kingdom[a]	7,430	3,765	1,610	275	110	1,335	435	3,665
Other Europe	2,469	1,055	464	197	46	212	136	1,414
Armenia	104	35	17	0	2	3	13	69
Croatia	217	98	52	6	5	19	16	119
Georgia (2007)	161	66	43	0	12	4	7	95

Appendix table 2-36

Earned S&E doctoral degrees, by sex, selected region/country/economy, and field: 2008 or most recent year

Sex and region/country/economy	All fields	S&E field						Non-S&E
		All S&E	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering	
Iceland	7	0	0	0	0	0	0	7
Macedonia	44	12	2	5	1	2	2	32
Norway	552	267	0	167	13	74	13	285
Switzerland	1,384	577	350	19	13	110	85	807
America	35,453	16,002	6,267	935	573	6,174	2,053	19,451
Argentina (2007)	374	254	148	25	11	46	24	120
Canada	2,151	1,326	630	78	39	420	159	825
Chile	138	105	69	5	12	10	9	33
Colombia	23	9	0	6	0	0	3	14
Cuba	191	105	24	0	19	38	24	86
Mexico	1,449	613	199	25	47	256	86	836
United States	31,115	13,578	5,185	796	445	5,404	1,748	17,537
Uruguay	12	12	12	0	0	0	0	0
Oceania	3,177	1,626	720	107	100	502	197	1,551
Australia	2,780	1,425	595	90	95	459	186	1,355
New Zealand	397	201	125	17	5	43	11	196

[a]Data rounded to nearest 10. Detail may not add to total because of rounding.

NOTES: Physical/biological sciences include physical; biological; and earth, atmospheric, and ocean sciences. Data for doctoral degrees use International Standard Classification of Education (ISCED 97), level 6. S&E data do not include health fields.

SOURCES: Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org/Index.aspx; United Nations Educational, Scientific, and Cultural Organization (UNESCO), Institute for Statistics, special tabulations (2008); Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education (2011); Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2008 (2008); United Kingdom—Higher Education Statistics Agency, special tabulations (2011); Canada—Statistics Canada, special tabulations (2010); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-37
S&E doctoral degrees in the United States and selected European countries, by field: 2000–08

Country and field	2000	2001	2002	2003	2004	2005	2006	2007	2008
Austria	1,790	1,871	2,125	2,197	2,443	2,228	2,158	2,085	2,205
All S&E	913	983	1,049	995	1,107	1,129	1,135	1,088	1,151
Physical/biological sciences	321	353	398	332	326	384	370	309	350
Mathematics/computer sciences	91	52	100	108	118	108	106	120	140
Agricultural sciences	30	37	46	38	42	40	31	40	50
Social/behavioral sciences	131	141	160	195	224	192	195	185	174
Engineering	340	400	345	322	397	405	433	434	437
France	9,903	10,404	10,404	8,420	8,420	9,578	9,818	10,650	11,309
All S&E	6,577	6,890	6,890	5,585	5,585	6,464	6,770	7,285	7,710
Physical/biological sciences	3,959	4,160	4,160	3,366	3,366	3,677	3,903	4,183	4,398
Mathematics/computer sciences	800	829	828	676	676	756	886	948	972
Agricultural sciences	22	23	23	18	18	35	26	13	18
Social/behavioral sciences	876	922	922	746	746	1,055	932	969	1,048
Engineering	920	956	957	779	779	941	1,023	1,172	1,274
Germany	25,780	24,796	23,838	23,043	23,138	25,952	24,946	24,439	25,604
All S&E	11,306	10,694	10,016	9,751	9,554	10,866	10,243	10,469	11,314
Physical/biological sciences	6,414	5,888	5,398	5,113	5,107	5,697	5,281	5,478	5,791
Mathematics/computer sciences	964	943	882	975	918	994	1,074	1,053	1,163
Agricultural sciences	380	371	334	363	418	438	376	404	402
Social/behavioral sciences	1,106	1,159	1,031	1,087	1,004	1,392	1,325	1,297	1,417
Engineering	2,442	2,333	2,371	2,213	2,107	2,345	2,187	2,237	2,541
Italy	3,557	4,044	3,977	4,456	6,351	8,466	9,604	10,188	NA
All S&E	1,731	2,100	1,958	2,674	3,834	4,966	5,613	5,949	NA
Physical/biological sciences	55	821	818	1,109	1,650	1,999	2,155	2,243	NA
Mathematics/computer sciences	704	0	0	198	281	338	380	437	NA
Agricultural sciences	163	350	342	220	276	387	421	511	NA
Social/behavioral sciences	92	121	60	294	450	703	830	799	NA
Engineering	717	808	738	853	1,177	1,539	1,827	1,959	NA
Russia[a]	27,667	22,638	26,387	28,361	29,850	34,300	34,613	34,494	27,719
All S&E	15,745	12,035	13,991	15,722	16,003	18,237	18,587	19,725	14,915
Physical/biological sciences	4,692	3,473	4,169	4,012	4,442	4,563	4,975	4,829	3,538
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	805	716	858	745	893	900	880	812	618
Social/behavioral sciences	4,375	3,884	4,208	6,103	5,910	6,771	7,186	8,052	6,857
Engineering	5,873	3,962	4,756	4,862	4,758	6,003	5,546	6,032	3,902
Spain	6,007	6,453	6,905	7,479	8,168	6,902	7,159	7,150	7,302
All S&E	2,730	2,937	3,162	3,446	3,672	3,303	3,430	3,633	3,649
Physical/biological sciences	1,438	1,534	1,686	1,701	1,856	1,646	1,867	1,842	1,846
Mathematics/computer sciences	323	308	383	430	393	316	336	332	327
Agricultural sciences	144	121	141	179	186	171	143	131	162
Social/behavioral sciences	417	436	477	591	634	542	553	675	632
Engineering	408	538	475	545	603	628	531	653	682
Sweden	3,049	3,388	3,517	3,558	3,834	2,778	3,781	3,904	3,625
All S&E	1,848	1,960	2,099	2,163	2,385	1,468	2,331	2,268	2,150
Physical/biological sciences	540	604	638	653	689	461	593	656	600
Mathematics/computer sciences	149	142	162	217	255	121	262	266	242
Agricultural sciences	65	59	85	42	49	49	59	53	43
Social/behavioral sciences	253	244	287	294	296	211	278	281	303
Engineering	841	911	927	957	1,096	626	1,139	1,012	962
Switzerland	2,733	2,745	2,800	2,742	2,952	3,303	3,381	3,428	3,426
All S&E	1,223	1,241	1,284	1,184	1,282	1,527	1,684	1,700	1,617
Physical/biological sciences	722	650	676	653	697	852	948	915	864
Mathematics/computer sciences	129	145	148	98	94	127	135	150	113
Agricultural sciences	40	50	38	39	32	31	28	22	30
Social/behavioral sciences	72	74	100	117	140	177	197	196	215
Engineering	260	322	322	277	319	340	376	417	395
United Kingdom[b]	11,550	14,120	14,210	14,870	15,260	15,780	16,516	17,545	16,610
All S&E	7,180	8,520	8,520	8,810	9,150	9,390	9,761	10,310	9,470
Physical/biological sciences	3,570	4,310	4,380	3,780	3,960	4,040	3,977	4,140	3,750
Mathematics/computer sciences	660	770	760	750	880	960	1,162	1,190	1,155
Agricultural sciences	270	270	340	300	320	310	315	250	195
Social/behavioral sciences	970	1,170	1,180	1,970	1,950	2,070	2,102	2,330	2,230

Appendix table 2-37

S&E doctoral degrees in the United States and selected European countries, by field: 2000–08

Country and field	2000	2001	2002	2003	2004	2005	2006	2007	2008
Engineering	1,710	2,010	1,860	2,020	2,040	2,020	2,204	2,400	2,140
United States	44,947	45,068	44,311	46,177	48,560	52,855	56,309	60,887	61,716
All S&E	25,423	25,453	24,254	25,425	26,573	28,561	30,452	32,588	33,359
Physical/biological sciences	9,015	8,738	8,405	9,134	9,376	10,117	10,724	11,639	12,207
Mathematics/computer sciences	1,858	1,769	1,677	1,825	1,975	2,301	2,713	2,953	3,058
Agricultural sciences	984	934	969	1,060	1,016	1,004	1,037	1,068	1,080
Social/behavioral sciences	8,182	8,451	8,007	8,124	8,275	8,591	8,576	8,862	8,904
Engineering	5,384	5,561	5,196	5,282	5,931	6,548	7,402	8,066	8,110

NA = not available

[a]Physical/biological sciences includes mathematics.
[b]Data rounded to nearest 5.

NOTES: Physical/biological sciences include physical; biological; and earth, atmospheric, and ocean sciences. Data for doctoral degrees use International Standard Classification of Education (ISCED 97), level 6. S&E data do not include health fields.

SOURCES: Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org/Index.aspx; United Kingdom—Higher Education Statistics Agency, special tabulations (various years) (2011); United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-38

S&E doctoral degrees, by selected Asian country/economy and field: 1994–2008

Country/economy and field	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China	3,590	4,364	4,950	6,793	8,518	10,160	11,383	12,465	14,638	18,806	23,446	27,677	36,247	41,464	43,759
All S&E	2,741	3,417	4,428	5,308	6,358	6,778	7,766	8,153	9,523	12,238	14,858	17,595	22,953	26,582	28,439
Physical/biological sciences	918	1,191	1,479	1,678	2,246	2,135	2,306	2,655	2,808	3,705	4,518	5,458	7,241	8,051	8,953
Mathematics/computer sciences	139	187	264	334	350	417	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	125	182	256	328	416	444	462	536	626	756	977	1,093	1,544	1,903	1,936
Social/behavioral sciences	170	198	234	325	446	513	514	621	837	1,204	1,309	1,617	2,038	2,149	2,274
Engineering	1,389	1,659	2,195	2,643	2,900	3,269	4,484	4,341	5,252	6,573	8,054	9,427	12,130	14,479	15,276
India	9,923	NA	10,397	10,408	11,066	10,951	11,296	11,544	11,974	13,733	17,853	17,898	18,730	NA	NA
All S&E	4,679	NA	5,153	4,916	5,609	5,418	5,541	5,504	5,637	6,471	7,636	7,537	7,982	NA	NA
Physical/biological sciences	3,467	NA	3,861	3,498	3,894	3,836	3,885	3,727	3,955	4,497	5,612	5,549	5,625	NA	NA
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	883	NA	918	1,120	971	886	933	999	948	1,195	1,142	1,020	1,299	NA	NA
Social/behavioral sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Engineering	329	NA	374	298	744	696	723	778	734	779	882	968	1,058	NA	NA
Japan[a]	12,160	12,645	13,820	13,921	14,800	15,470	15,357	16,078	16,183	16,314	16,909	16,851	17,396	17,291	NA
All S&E	4,877	5,205	6,006	6,157	6,575	7,082	7,089	7,401	7,461	7,581	7,912	7,658	8,122	8,017	NA
Physical/biological sciences	1,132	1,182	1,243	1,315	1,481	1,542	1,579	1,586	1,602	1,651	1,679	1,543	1,633	1,686	NA
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	894	956	1,108	1,043	1,094	1,100	1,147	1,241	1,248	1,258	1,348	1,257	1,321	1,233	NA
Social/behavioral sciences	241	276	358	388	420	506	563	610	656	751	808	943	973	1,025	NA
Engineering	2,610	2,791	3,297	3,411	3,580	3,934	3,800	3,964	3,955	3,921	4,077	3,915	4,195	4,073	NA
South Korea	3,999	4,462	4,723	4,999	4,999	5,586	6,143	6,208	6,690	7,172	7,946	8,449	8,657	9,082	9,369
All S&E	1,650	1,920	2,046	2,189	2,316	2,607	2,865	2,956	3,225	3,192	3,531	3,653	3,779	3,649	3,716
Physical/biological sciences	296	358	391	427	421	438	614	581	590	711	788	737	817	744	798
Mathematics/computer sciences	145	169	178	187	187	188	247	282	258	222	232	148	173	128	156
Agricultural sciences	196	223	199	178	190	230	242	260	288	169	203	228	214	212	209
Social/behavioral sciences	227	232	236	240	160	168	108	195	190	222	268	267	308	316	311
Engineering	786	938	1,042	1,157	1,358	1,583	1,654	1,638	1,899	1,868	2,040	2,273	2,267	2,249	2,242
Taiwan	808	848	1,053	1,187	1,282	1,307	1,455	1,463	1,501	1,759	1,964	2,165	2,614	2,850	3,140
All S&E	592	650	783	839	907	901	970	970	966	1,167	1,291	1,385	1,643	1,905	2,005
Physical/biological sciences	115	115	154	163	172	159	143	144	166	202	206	270	319	371	413
Mathematics/computer sciences	49	55	63	88	93	119	106	107	107	127	136	166	182	87	108
Agricultural sciences	60	63	65	79	78	76	87	90	93	93	116	83	92	72	77
Social/behavioral sciences	56	44	66	76	87	65	108	108	72	89	111	108	111	157	165
Engineering	312	373	435	433	477	482	526	521	528	656	722	758	939	1,219	1,242

NA = not available

[a]Japanese data include thesis doctorates, called *ronbun hakase,* earned by employees in industry. In Japanese higher education data, mathematics are included in natural sciences and computer sciences are included in engineering.

NOTES: Physical/biological sciences include physical; biological; and earth, atmospheric, and ocean sciences. Data for doctoral degrees use International Standard Classification of Education (ISCED 97), level 6. S&E data do not include health fields.

SOURCES: China—National Research Center for Science and Technology for Development and *Education Statistics Yearbook of China* (various years); India—Department of Science and Technology; Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Higher Education Bureau; South Korea—Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org; and Taiwan—Ministry of Education, Educational Statistics of the Republic of China (annual series).

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Appendix table 2-39

Trends in population ages 20–24 years, by selected country and region: 2000–50

(Thousands)

Year	Western Europe	Eastern Europe	Africa	South America	United States	Oceania	China	Japan	South Korea	India	Russia
2000	10,758	23,433	76,003	32,216	19,665	2,282	95,038	8,479	3,860	95,897	11,002
2005	11,407	24,439	87,811	34,427	21,229	2,522	101,387	7,539	3,727	104,821	12,257
2010	11,517	23,673	99,077	34,686	22,466	2,690	122,546	6,596	3,129	112,734	12,120
2015	10,811	17,376	107,502	34,502	23,346	2,863	105,602	6,083	3,445	120,096	8,152
2020	10,477	13,853	117,411	35,257	22,789	2,949	93,806	5,968	3,146	121,425	6,465
2025	10,379	13,948	130,412	35,122	23,299	3,006	86,138	5,732	2,420	122,814	7,005
2030	10,039	15,064	144,677	33,271	24,256	3,139	86,651	5,290	2,249	121,276	7,597
2035	9,739	15,340	155,532	31,771	24,263	3,223	90,604	4,829	2,193	119,992	7,782
2040	9,760	14,487	162,305	30,812	24,308	3,283	88,716	4,458	2,112	116,606	7,306
2045	9,722	13,036	166,900	29,704	24,175	3,346	81,012	4,279	2,057	111,511	6,517
2050	9,625	11,903	170,995	28,629	24,101	3,380	74,919	4,202	1,973	105,214	5,954

SOURCES: United Nations Secretariat, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2008 Revision, http://esa.un.org/unpp, accessed 21 March 2011.

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Appendix table 2-40

Foreign S&E student enrollment in UK universities, by enrollment level, place of origin, and field: Academic years 1998–99 and 2008–09

Academic year, enrollment level, and place of origin	All S&E fields	Physical/biological/ agricultural sciences	Mathematics/ computer sciences	Social/behavioral sciences	Engineering
1998–99					
All undergraduates	419,530	149,640	85,900	84,090	99,900
All foreign	48,870	11,260	6,650	10,150	20,810
Greece	10,640	2,040	1,470	1,880	5,260
Malaysia	4,210	170	450	320	3,270
France	3,580	1,050	370	580	1,580
Ireland	3,490	1,720	430	350	990
Germany	2,630	840	250	830	720
Singapore	2,540	190	290	290	1,770
United States	1,970	650	120	1,080	130
Hong Kong	1,720	280	460	290	700
Spain	1,600	490	180	340	580
Italy	1,060	300	110	370	280
Other	15,440	3,550	2,540	3,810	5,540
Foreign (%)	11.6	7.5	7.7	12.1	20.8
All graduates	116,450	40,560	19,400	27,680	28,810
All foreign	36,630	9,950	4,750	11,100	10,820
Greece	4,280	1,090	640	820	1,730
Germany	1,830	570	230	530	510
France	1,730	610	140	280	710
China	1,490	330	280	200	680
United States	1,460	380	110	810	160
Ireland	1,400	590	260	260	290
Malaysia	1,330	240	230	180	680
Italy	1,280	420	110	570	180
Hong Kong	990	140	120	430	300
Japan	930	150	40	650	90
Other	19,930	5,450	2,610	6,380	5,490
Foreign (%)	31.5	24.5	24.5	40.1	37.6
2008–09					
All undergraduates	558,880	167,880	105,610	176,270	109,120
All foreign	65,190	11,030	12,540	18,520	23,110
China	7,990	680	2,400	1,910	3,000
Malaysia	3,320	460	470	440	1,970
France	2,980	590	500	750	1,150
Hong Kong	2,730	530	520	970	720
Germany	2,590	620	360	1,040	580
India	2,560	290	510	320	1,450
Nigeria	2,420	240	650	470	1,070
Greece	2,400	310	390	520	1,190
Ireland	2,220	680	160	520	870
United States	2,190	710	150	1,210	120
Other	33,830	5,950	6,470	10,390	11,020
Foreign (%)	11.7	6.6	11.9	10.5	21.2
All graduates	170,200	43,170	29,810	52,550	44,670
All foreign	80,690	16,140	17,640	20,460	26,450
India	13,260	1,840	5,450	810	5,170
China	8,940	1,150	1,960	2,130	3,700
Nigeria	4,140	700	1,010	570	1,870
Greece	3,500	610	690	970	1,240
United States	3,160	650	240	1,960	310
Pakistan	3,110	410	1,040	360	1,310
Germany	2,930	860	470	1,010	600
France	2,390	700	270	440	990
Malaysia	2,220	450	380	210	1,200

Appendix table 2-40

Foreign S&E student enrollment in UK universities, by enrollment level, place of origin, and field: Academic years 1998–99 and 2008–09

Academic year, enrollment level, and place of origin	All S&E fields	Physical/biological/ agricultural sciences	Mathematics/ computer sciences	Social/behavioral sciences	Engineering
Ireland	2,040	620	160	690	570
Other	35,010	8,170	5,990	11,340	9,520
Foreign (%)	47.4	37.4	59.2	38.9	59.2

UK = United Kingdom

NOTES: Academic year 1999 is enrollment between 1 August 1998 and 31 July 1999. Academic year 2009 is enrollment between 1 August 2008 and 31 July 2009. Data rounded to nearest 10. Detail may not add to total because of rounding. Percentages based on unrounded data. Physical sciences include earth, atmospheric, and ocean sciences.

SOURCE: Higher Education Statistics Agency, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 2-41

Foreign S&E student enrollment in Japanese universities, by enrollment level, place of origin, and field: 2004 and 2010

Year, enrollment level, and place of origin	S&E field					
	All S&E	Physical/biological sciences	Agricultural sciences	Social/behavioral sciences	Engineering	Non-S&E
2004						
All undergraduates	1,557,939	87,398	69,672	961,762	439,107	947,984
Foreign	39,914	595	540	32,916	5,863	18,050
China	29,192	324	318	25,470	3,080	11,980
South Korea	7,018	185	122	5,403	1,308	4,911
Malaysia	1,142	15	15	198	914	97
Vietnam	424	6	10	242	166	115
Indonesia	233	3	14	152	64	65
Thailand	226	3	12	179	32	62
Mongolia	160	1	9	133	17	53
Sri Lanka	146	1	2	101	42	25
United Kingdom	78	1	0	73	4	59
United States	76	7	0	65	4	157
Other	1,219	49	38	900	232	526
Foreign (%)	2.6	0.7	0.8	3.4	1.3	1.9
All graduates	140,822	20,298	12,691	29,014	78,819	95,336
Master's	109,062	13,954	8,337	21,536	65,235	53,650
Doctorate	31,760	6,344	4,354	7,478	13,584	41,686
Foreign	16,784	916	2,164	7,383	6,321	9,702
China	8,981	336	833	4,979	2,833	5,500
South Korea	2,095	110	220	803	962	1,901
Indonesia	655	66	157	104	328	141
Thailand	604	24	152	128	300	237
Bangladesh	505	63	134	79	229	208
Vietnam	480	14	94	175	197	124
Malaysia	288	15	25	74	174	74
Philippines	241	34	60	74	73	80
Myanmar	170	10	46	51	63	58
Sri Lanka	159	13	37	37	72	45
Other	2,606	231	406	879	1,090	1,334
Foreign (%)	11.9	4.5	17.1	25.4	8.0	10.2
2010						
All undergraduates	1,450,419	81,425	75,816	892,545	400,633	1,108,772
Foreign	46,423	682	555	37,561	7,625	33,322
China	31,862	381	281	27,084	4,116	17,976
South Korea	8,665	189	112	7,076	1,288	7,881
Vietnam	1,302	21	25	807	449	464
Malaysia	1,217	31	16	177	993	201
Thailand	523	8	28	363	124	399
Mongolia	397	4	11	315	67	131
Nepal	310	2	8	261	39	161
Indonesia	303	8	19	201	75	228
Burma	260	2	3	231	24	169
Brazil	144	2	9	92	41	214
Other	1,440	34	43	954	409	5,498
Foreign (%)	3.2	0.8	0.7	4.2	1.9	3.0
All graduates	145,136	19,375	13,534	26,302	85,925	103,127
Master's	115,270	14,255	9,634	19,278	72,103	58,561
Doctorate	29,866	5,120	3,900	7,024	13,822	44,566
Foreign	23,117	1,477	2,160	10,188	9,292	17,668
China	13,061	695	920	6,923	4,523	10,556
South Korea	2,304	128	161	916	1,099	2,203
Indonesia	960	90	142	246	482	456
Vietnam	823	51	97	222	453	384
Thailand	749	47	144	179	379	364
Bangladesh	562	71	138	102	251	283
Malaysia	494	29	24	69	372	156
Mongolia	250	24	31	128	67	179
India	239	44	26	54	115	119

Appendix table 2-41

Foreign S&E student enrollment in Japanese universities, by enrollment level, place of origin, and field: 2004 and 2010

Year, enrollment level, and place of origin	S&E field					
	All S&E	Physical/biological sciences	Agricultural sciences	Social/behavioral sciences	Engineering	Non-S&E
Nepal	217	31	34	74	78	110
Other	3,458	267	443	1,275	1,473	2,858
Foreign (%)	15.9	7.6	16.0	38.7	10.8	17.1

NOTES: Data for students of non-Japanese citizenship, including permanent residents. Undergraduates include 4-year colleges and universities. Engineering includes computer sciences. Physical sciences include earth, atmospheric, and ocean sciences and mathematics. Social/behavioral sciences include business and law. Enrollment is as of May of the reference year.

SOURCE: Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 2-42

S&E student enrollment in Canadian universities, by enrollment level, top place of origin, and field: 1999 and 2008

Year, enrollment level, and place of origin	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering
1999						
Undergraduates	278,750	62,430	35,540	12,580	114,470	53,720
Foreign	10,250	1,810	2,190	280	3,400	2,570
United States	1,820	510	190	50	820	260
Hong Kong	820	90	230	20	260	220
France	560	100	80	20	230	140
China	540	60	240	10	130	100
Malaysia	350	40	60	20	40	190
Morocco	310	10	80	20	50	170
Pakistan	290	40	130	0	50	70
Taiwan	290	40	80	0	100	60
Japan	280	50	40	20	150	20
South Korea	220	60	50	0	70	40
Other	4,760	810	1,010	130	1,490	1,310
Foreign (%)	3.7	2.9	6.2	2.2	3.0	4.8
Graduates	47,240	11,880	4,680	3,400	15,560	11,720
Foreign	6,390	1,510	750	470	1,690	1,980
United States	890	280	80	70	270	190
France	820	280	30	40	240	230
China	790	140	160	20	130	330
India	230	30	30	20	40	110
Mexico	200	40	30	20	40	70
Morocco	180	40	40	10	30	70
Iran	170	40	20	20	20	80
Japan	120	20	10	10	60	20
Germany	120	40	20	10	40	20
Tunisia	120	10	20	0	30	50
Other	2,760	590	320	250	770	820
Foreign (%)	13.5	12.7	16.0	13.8	10.9	16.9
2008						
Undergraduates	329,730	72,880	23,420	11,250	155,560	66,630
Foreign	24,340	3,980	2,960	570	9,030	7,810
China	3,730	550	740	110	1,330	1,000
United States	2,390	470	140	130	1,240	410
France	1,840	220	120	50	960	490
Morocco	1,090	60	120	10	250	650
South Korea	940	320	110	10	320	170
India	740	120	150	0	120	350
Hong Kong	530	110	80	20	220	100
Algeria	470	90	60	0	150	160
Trinidad and Tobago	220	50	20	10	80	60
Romania	330	50	50	10	140	90
Other	12,070	1,920	1,370	230	4,220	4,330
Foreign (%)	7.4	5.5	12.6	5.1	5.8	11.7
Graduates	69,220	17,590	6,940	4,280	22,530	17,890
Foreign	15,130	3,310	2,040	850	3,150	5,790
China	2,270	480	490	100	330	870
France	1,580	490	70	130	500	390
Iran	1,420	170	190	20	50	990
United States	1,010	290	130	70	370	140
India	760	170	90	40	40	420
Morocco	460	40	90	20	50	270
Algeria	440	70	110	30	60	170
Tunisia	420	60	90	10	70	200
Romania	380	70	60	10	40	200

Appendix table 2-42

S&E student enrollment in Canadian universities, by enrollment level, top place of origin, and field: 1999 and 2008

Year, enrollment level, and place of origin	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering
Mexico	350	60	30	10	30	220
Other	6,060	1,420	700	410	1,620	1,910
Foreign (%)	21.9	18.8	29.4	19.8	14.0	32.3

NOTES: Enrollment is as of October 31 of the reference year. Data rounded to nearest 10. Detail may not add to total because of rounding. Physical sciences include earth, atmospheric, and ocean sciences. Engineering includes architecture. Social/behavioral sciences include law.

SOURCE: Statistics Canada, Center for Education Statistics, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 3-1
Bureau of Labor Statistics projections of occupational employment: 2008–18
(Thousands)

Occupation	BLS National Employment Matrix 2008 estimate	BLS projected 2018 employment	Job openings from growth and net replacements, 2008–18	10-year growth in total employment (%)	10-year job openings as % of 2008 employment
Total, all occupations	150,932	166,206	50,929	10.1	33.7
All S&E	5,571	6,717	2,321	20.6	41.7
Computer and mathematical scientists	3,101	3,895	1,353	25.6	43.6
Computer and information scientists, research	29	36	13	24.2	45.7
Computer software engineers	910	1,205	372	32.5	40.9
Computer support specialists	566	644	235	13.8	41.5
Computer systems analysts	532	640	223	20.3	41.9
Database administrators	120	145	44	20.3	36.9
Network and computer systems administrators	340	418	136	23.2	39.9
Network systems and data communications analysts	292	448	208	53.4	71.3
All other computer specialists	209	237	73	13.1	34.7
Mathematicians	3	4	2	24.1	51.7
Operations research analysts	63	77	32	22.1	51.1
Statisticians	23	26	10	12.8	42.5
Miscellaneous mathematical science occupations	8	9	4	16.7	46.2
Mathematical scientists, all other	7	8	3	18.2	47.0
Engineers	1,572	1,750	531	11.3	33.8
Aerospace engineers	72	79	22	10.3	31.1
Agricultural engineers	3	3	1	11.1	33.3
Biomedical engineers	16	28	15	72.5	93.1
Chemical engineers	32	31	8	-1.9	24.6
Civil engineers	278	346	115	24.3	41.2
Computer hardware engineers	75	78	24	3.7	31.5
Electrical and electronics engineers	302	305	72	1.0	24.0
Electrical engineers	158	161	39	1.7	24.7
Electronics engineers, except computer	144	144	33	0.3	23.2
Environmental engineers	54	71	28	30.6	51.4
Industrial engineers, including health and safety	240	274	95	13.8	39.4
Health and safety engineers, except mining safety engineers and inspectors	26	28	9	10.1	35.8
Industrial engineers	215	245	85	14.2	39.8
Marine engineers and naval architects	9	9	2	5.9	27.1
Materials engineers	24	27	8	9.4	33.2
Mechanical engineers	239	253	76	6.0	31.7
Mining and geological engineers, including mining safety engineers	7	8	3	15.5	36.6
Nuclear engineers	17	19	5	11.2	32.0
Petroleum engineers	22	26	9	18.3	39.3
All other engineers	183	195	50	6.7	27.4
Life scientists	279	354	144	26.7	51.4
Agricultural and food scientists	31	36	16	15.5	50.6
Animal scientists	4	4	2	13.5	48.6
Food scientists and technologists	13	16	7	16.4	51.5
Soil and plant scientists	14	16	7	15.8	50.4
Biological scientists	91	111	49	21.0	53.1
Biochemists and biophysicists	23	32	16	37.5	69.8
Microbiologists	17	19	8	12.4	44.4
Zoologists and wildlife biologists	20	22	9	12.8	45.1
Biological scientists, all other	32	38	16	18.6	50.8
Conservation scientists and foresters	30	33	7	12.1	22.8
Conservation scientists	18	21	4	12.0	22.4
Foresters	12	13	3	12.2	22.6
Medical scientists	114	159	68	39.3	59.5
Epidemiologists	5	6	2	14.6	35.4
Medical scientists, except epidemiologists	109	154	66	40.4	60.5
All other life scientists	13	15	5	16.0	36.6
Physical scientists	276	317	123	15.1	44.6
Astronomers and physicists	17	20	8	15.8	44.4
Astronomers	2	2	1	13.3	46.7
Physicists	16	18	7	16.0	44.2

Appendix table 3-1
Bureau of Labor Statistics projections of occupational employment: 2008–18
(Thousands)

Occupation	BLS National Employment Matrix 2008 estimate	BLS projected 2018 employment	Job openings from growth and net replacements, 2008–18	10-year growth in total employment (%)	10-year job openings as % of 2008 employment
Atmospheric and space scientists	9	11	3	14.9	35.1
Chemists and materials scientists	94	97	34	3.5	36.6
Chemists	84	86	30	2.5	35.6
Materials scientists	10	11	4	12.4	45.4
Environmental scientists and geoscientists	128	159	68	24.5	53.0
Environmental scientists and specialists, including health	86	110	48	27.8	56.3
Geoscientists, except hydrologists and geographers	34	39	15	17.6	45.8
Hydrologists	8	10	4	18.5	46.9
All other physical scientists	27	30	10	10.9	36.9
Social and related scientists	343	400	170	16.5	49.4
Economists	15	16	5	6.2	34.2
Survey researchers	23	31	13	30.3	57.3
Clinical, counseling, and school psychologists	152	169	60	11.1	39.4
Industrial-organizational psychologists	2	3	1	26.1	56.5
Psychologists, all other	16	18	7	14.5	42.8
Sociologists	5	6	2	22.4	40.8
Urban and regional planners	38	46	15	19.0	38.3
Miscellaneous social scientists and related workers	48	59	35	22.1	72.2
Anthropologists and archeologists	6	7	5	27.6	77.6
Geographers	1	2	1	23.1	76.9
Political scientists	4	5	3	19.5	68.3
Social scientists and related workers, all other	33	40	24	22.6	72.6
Selected other occupations					
Science and engineering managers	522	589	166	13.0	31.8
Computer and information systems managers	293	343	97	16.9	33.1
Engineering managers	184	195	49	6.1	26.5
Natural sciences managers	45	52	20	15.5	45.1
Science and engineering technicians	855	925	298	8.2	34.9
Agricultural and food science technicians	22	24	10	8.7	43.8
Biological technicians	80	94	42	17.6	52.7
Chemical technicians	66	66	13	-0.8	20.1
Geological and petroleum technicians	15	15	6	1.3	36.2
Nuclear technicians	6	7	3	9.4	43.8
Social science research assistants	21	25	13	17.6	60.5
Other life, physical, and social science technicians	147	171	87	16.5	59.5
Aerospace engineering and operations technicians	9	9	2	2.3	20.7
Civil engineering technicians	92	107	33	16.9	35.8
Electrical and electronic engineering technicians	164	160	31	-2.2	18.9
Electro-mechanical technicians	16	16	3	-4.9	18.9
Environmental engineering technicians	21	28	10	30.2	49.1
Industrial engineering technicians	73	77	19	6.6	25.5
Mechanical engineering technicians	46	46	9	-1.5	18.9
Engineering technicians, except drafters, all other	77	81	19	5.2	24.2
Mathematical technicians	1	1	1	8.3	41.7
Postsecondary teachers	1,699	1,956	553	15.1	32.5
Healthcare practitioners and technical occupations	7,491	9,091	3,139	21.4	41.9
Health diagnosing and treating practitioners	4,630	5,646	1,866	21.9	40.3
Chiropractors	49	59	18	19.6	37.1
Dentists	142	164	62	15.6	43.3
Dentists, general	120	139	52	15.3	43.1
Oral and maxillofacial surgeons	7	8	3	14.9	43.3
Orthodontists	8	9	4	19.5	46.8
Prosthodontists	1	1	0	20.0	60.0
Dentists, all other specialists	7	8	3	14.5	42.0
Dietitians and nutritionists	60	66	26	9.3	42.6
Optometrists	35	43	20	24.4	57.8
Pharmacists	270	316	106	17.0	39.2
Physicians and surgeons	661	806	261	21.8	39.4

Appendix table 3-1
Bureau of Labor Statistics projections of occupational employment: 2008–18
(Thousands)

Occupation	BLS National Employment Matrix 2008 estimate	BLS projected 2018 employment	Job openings from growth and net replacements, 2008–18	10-year growth in total employment (%)	10-year job openings as % of 2008 employment
Physician assistants	75	104	43	39.0	57.2
Podiatrists	12	13	3	9.0	26.2
Registered nurses	2,619	3,200	1,039	22.2	39.7
Therapists	599	740	244	23.7	40.8
Audiologists	13	16	6	25.0	45.3
Occupational therapists	105	131	46	25.7	43.8
Physical therapists	186	242	79	30.3	42.4
Radiation therapists	15	19	7	27.0	45.4
Recreational therapists	23	27	12	14.6	49.8
Respiratory therapists	106	128	41	20.9	39.1
Speech-language pathologists	119	141	44	18.5	36.7
Therapists, all other	32	36	10	11.5	31.7
Veterinarians	60	79	30	33.0	50.6
Health diagnosing and treating practitioners, all other	49	55	15	13.1	31.2
Health technologists and technicians	2,719	3,280	1,202	20.6	44.2
Clinical laboratory technologists and technicians	328	374	108	13.9	32.9
Medical and clinical laboratory technologists	172	193	53	11.9	30.9
Medical and clinical laboratory technicians	156	181	55	16.1	35.1
Dental hygienists	174	237	98	36.1	56.5
Diagnostic related technologists and technicians	336	398	110	18.4	32.8
Cardiovascular technologists and technicians	50	61	19	24.0	38.6
Diagnostic medical sonographers	50	60	17	18.3	32.8
Nuclear medicine technologists	22	25	7	16.5	30.7
Radiologic technologists and technicians	215	252	68	17.2	31.7
Emergency medical technicians and paramedics	211	230	62	9.0	29.4
Health diagnosing and treating practitioner support technicians	596	753	308	26.4	51.6
Dietetic technicians	25	29	10	13.9	39.3
Pharmacy technicians	326	426	182	30.6	55.8
Psychiatric technicians	57	60	17	4.2	29.4
Respiratory therapy technicians	17	16	4	-1.2	25.5
Surgical technologists	92	115	46	25.4	50.6
Veterinary technologists and technicians	80	108	49	35.8	60.9
Licensed practical and licensed vocational nurses	754	909	391	20.7	51.9
Medical records and health information technicians	173	208	70	20.4	40.8
Opticians, dispensing	60	68	20	13.4	33.8
Miscellaneous health technologists and technicians	88	104	34	18.5	38.9
Orthotists and prosthetists	6	7	2	15.3	35.6
Healthcare technologists and technicians, all other	82	97	32	18.7	39.1
Other healthcare practitioners and technical occupations	142	165	71	16.4	49.8
Occupational health and safety specialists	56	62	25	11.1	44.6
Occupational health and safety technicians	11	13	5	14.7	47.7
Athletic trainers	16	22	12	36.8	70.6
Healthcare practitioners and technical workers, all other	59	68	29	15.9	49.3
Lawyers	759	858	240	13.0	31.7
Postsecondary teachers	1,699	1,956	553	15.1	32.5
Computer programmers	427	414	80	-2.9	18.8

BLS = Bureau of Labor Statistics

NOTES: Estimates of current and projected employment for 2008–18 period from BLS's National Employment Matrix. Data in matrix from Occupational Employment Statistics (OES) survey and Current Population Survey (CPS). Together, these sources cover paid workers, self-employed workers, and unpaid family workers in all industries, agriculture, and private households. Because derived from multiple sources, data can often differ from employment data provided by OES, CPS, or other employment surveys alone. BLS does not make projections for S&E occupations as a group; numbers in table based on sum of BLS projections in occupations that National Science Foundation considers S&E.

SOURCE: BLS, Office of Occupational Statistics and Employment Projections, National Industry-Occupation Employment Projections, 2008–18 (2009).

Science and Engineering Indicators 2012

Appendix table 3-2

Scientists and engineers, by occupation and degree field: 2008

Occupation	All employed scientists and engineers	Any degree in S&E	Highest degree in S&E						S&E-related fields	Non-S&E fields
			All S&E	Computer/ mathematical sciences	Biological/ agricultural/ environmental life sciences	Physical sciences	Social sciences	Engineering		
All occupations	19,244,000	14,145,000	10,216,000	1,651,000	1,569,000	665,000	3,878,000	2,453,000	4,727,000	4,302,000
Science and engineering occupations	4,874,000	4,275,000	3,881,000	928,000	478,000	361,000	539,000	1,575,000	276,000	717,000
Computer and mathematical scientists	1,970,000	1,577,000	1,429,000	872,000	51,000	53,000	138,000	316,000	124,000	416,000
Computer and information scientists	1,778,000	1,410,000	1,286,000	779,000	40,000	46,000	119,000	302,000	104,000	388,000
Computer and information scientists, research	45,000	38,000	35,000	23,000	2,000	2,000	2,000	5,000	2,000	8,000
Computer support specialists	193,000	123,000	110,000	58,000	8,000	5,000	20,000	19,000	17,000	67,000
Computer system analysts	434,000	313,000	282,000	199,000	9,000	9,000	25,000	41,000	33,000	119,000
Database administrators	100,000	80,000	72,000	43,000	7,000	4,000	10,000	9,000	5,000	23,000
Network and computer systems administrators	178,000	134,000	120,000	74,000	4,000	5,000	15,000	23,000	11,000	46,000
Network systems and data communications analysts	88,000	69,000	63,000	37,000	2,000	2,000	10,000	13,000	2,000	23,000
Other computer and information science occupations	145,000	102,000	89,000	47,000	4,000	6,000	20,000	13,000	7,000	50,000
Computer engineers—software	594,000	550,000	514,000	298,000	6,000	12,000	18,000	180,000	28,000	52,000
Mathematical scientists	107,000	94,000	77,000	37,000	9,000	5,000	17,000	9,000	10,000	21,000
Mathematicians	6,000	6,000	6,000	5,000	S	<500	S	S	S	S
Operations research analysts, including modeling	57,000	50,000	41,000	15,000	6,000	3,000	10,000	7,000	3,000	13,000
Statisticians	39,000	33,000	27,000	16,000	3,000	2,000	5,000	1,000	7,000	6,000
Other mathematical scientists	6,000	4,000	4,000	1,000	S	S	2,000	1,000	S	S
Postsecondary teachers—computer and math sciences	84,000	73,000	66,000	56,000	2,000	2,000	2,000	5,000	10,000	8,000
Postsecondary teachers—computer science	22,000	18,000	16,000	13,000	1,000	1,000	1,000	2,000	2,000	3,000
Postsecondary teachers—mathematics and statistics	62,000	55,000	50,000	43,000	1,000	2,000	1,000	3,000	8,000	4,000
Biological, agricultural, and other life scientists	498,000	455,000	412,000	2,000	348,000	28,000	23,000	11,000	52,000	34,000
Agricultural and food scientists	62,000	58,000	55,000	S	47,000	1,000	5,000	1,000	1,000	6,000
Biological and medical scientists	331,000	304,000	272,000	1,000	225,000	23,000	14,000	9,000	45,000	14,000
Biochemists and biophysicists	45,000	45,000	44,000	S	33,000	8,000	S	2,000	1,000	S
Biological scientists (e.g., botanists, ecologists, zoologists)	128,000	120,000	114,000	S	104,000	5,000	3,000	2,000	5,000	9,000
Medical scientists (excluding practitioners)	124,000	107,000	84,000	<500	64,000	7,000	9,000	4,000	36,000	4,000
Other biological, agricultural or life scientists	34,000	32,000	30,000	1,000	23,000	2,000	2,000	1,000	3,000	2,000
Forestry and conservation scientists	35,000	29,000	27,000	S	22,000	3,000	2,000	S	S	8,000
Postsecondary teachers—life and related sciences	70,000	64,000	58,000	S	54,000	2,000	2,000	1,000	6,000	6,000
Postsecondary teachers—agriculture	8,000	6,000	5,000	S	4,000	S	S	S	S	3,000
Postsecondary teachers—biological sciences	59,000	55,000	52,000	S	48,000	1,000	2,000	1,000	5,000	2,000
Postsecondary teachers—other natural sciences	3,000	3,000	2,000	S	2,000	<500	S	S	S	S
Physical and related scientists	322,000	308,000	296,000	3,000	40,000	226,000	8,000	20,000	7,000	19,000
Chemists, except biochemists	129,000	124,000	119,000	S	16,000	95,000	S	6,000	2,000	8,000
Earth scientists, geologists, and oceanographers	78,000	76,000	73,000	1,000	5,000	59,000	4,000	5,000	1,000	3,000
Atmospheric and space scientists	15,000	14,000	14,000	S	<500	11,000	<500	1,000	S	1,000
Geologists, including earth scientists	59,000	58,000	56,000	S	4,000	45,000	3,000	3,000	S	3,000
Oceanographers	4,000	3,000	3,000	S	<500	3,000	S	<500	S	S
Physicists and astronomers	27,000	27,000	26,000	1,000	S	22,000	S	3,000	1,000	S

Appendix table 3-2

Scientists and engineers, by occupation and degree field: 2008

Occupation	All employed scientists and engineers	Any degree in S&E	Highest degree in S&E						S&E-related fields	Non-S&E fields
			All S&E	Computer/ mathematical sciences	Biological/ agricultural/ environmental life sciences	Physical sciences	Social sciences	Engineering		
Astronomers	3,000	3,000	3,000	S	S	3,000	S	S	S	S
Physicists	25,000	24,000	23,000	1,000	S	19,000	S	3,000	1,000	S
Other physical scientists	35,000	29,000	28,000	S	13,000	10,000	2,000	3,000	2,000	5,000
Postsecondary teachers—physical and related sciences	54,000	52,000	50,000	<500	5,000	40,000	1,000	3,000	<500	4,000
Postsecondary teachers—chemistry	24,000	23,000	23,000	S	2,000	18,000	S	2,000	S	S
Postsecondary teachers—earth, environmental, and marine sciences	15,000	14,000	13,000	S	2,000	8,000	1,000	1,000	<500	2,000
Postsecondary teachers—physics	15,000	15,000	15,000	S	<500	14,000	S	1,000	S	S
Social and related scientists	502,000	449,000	378,000	7,000	6,000	3,000	354,000	8,000	30,000	94,000
Economists	29,000	28,000	25,000	1,000	<500	S	24,000	S	S	4,000
Political scientists	17,000	16,000	14,000	S	S	S	14,000	S	S	3,000
Psychologists, including clinical	185,000	177,000	159,000	S	S	S	159,000	S	4,000	21,000
Sociologists and anthropologists	21,000	21,000	19,000	S	S	S	19,000	S	S	S
Anthropologists	11,000	11,000	11,000	S	S	S	11,000	S	S	S
Sociologists	10,000	10,000	9,000	S	S	S	9,000	S	S	S
Other social scientists	134,000	102,000	70,000	5,000	4,000	2,000	52,000	7,000	22,000	42,000
Postsecondary teachers—social and related sciences	116,000	105,000	89,000	1,000	1,000	<500	86,000	<500	3,000	24,000
Postsecondary teachers—economics	18,000	17,000	15,000	<500	S	S	14,000	S	S	3,000
Postsecondary teachers—political science	15,000	14,000	13,000	S	S	S	13,000	S	S	1,000
Postsecondary teachers—psychology	33,000	31,000	28,000	S	<500	S	27,000	S	<500	5,000
Postsecondary teachers—sociology	18,000	17,000	14,000	S	S	S	14,000	S	S	3,000
Postsecondary teachers—other social sciences	33,000	25,000	19,000	S	<500	S	18,000	<500	2,000	12,000
Engineers	1,582,000	1,487,000	1,366,000	45,000	34,000	50,000	17,000	1,221,000	62,000	154,000
Aerospace, aeronautical, or astronautical engineers	100,000	96,000	88,000	5,000	S	3,000	1,000	78,000	2,000	11,000
Agricultural engineers	7,000	6,000	6,000	S	S	S	S	4,000	S	S
Bioengineering and biomedical engineers	28,000	26,000	24,000	1,000	2,000	1,000	S	20,000	2,000	2,000
Chemical engineers	77,000	76,000	67,000	S	2,000	5,000	S	60,000	S	10,000
Civil, architectural, or sanitary engineers	258,000	252,000	238,000	1,000	2,000	2,000	2,000	232,000	4,000	15,000
Electrical or computer hardware engineers	399,000	373,000	347,000	20,000	2,000	10,000	2,000	313,000	17,000	34,000
Computer engineers—hardware	53,000	49,000	45,000	10,000	S	2,000	1,000	32,000	2,000	5,000
Electrical and electronics engineers	346,000	324,000	302,000	10,000	2,000	8,000	1,000	281,000	15,000	29,000
Environmental engineers	86,000	78,000	72,000	S	12,000	9,000	3,000	48,000	5,000	8,000
Industrial engineers	93,000	78,000	69,000	2,000	2,000	2,000	2,000	61,000	10,000	14,000
Marine engineers and naval architects	300,000	286,000	260,000	3,000	1,000	3,000	2,000	251,000	11,000	30,000
Materials and metallurgical engineers	12,000	11,000	10,000	S	S	S	S	10,000	S	2,000
Mechanical engineers	46,000	44,000	39,000	1,000	S	5,000	S	33,000	S	7,000
Mining and geological engineers	7,000	7,000	7,000	S	S	1,000	S	6,000	S	S
Nuclear engineers	17,000	17,000	15,000	S	S	1,000	S	14,000	S	2,000
Petroleum engineers	19,000	19,000	17,000	S	S	2,000	S	14,000	S	S

Appendix table 3-2

Scientists and engineers, by occupation and degree field: 2008

Occupation	All employed scientists and engineers	Any degree in S&E	Highest degree in S&E						S&E-related fields	Non-S&E fields
			All S&E	Computer/ mathematical sciences	Biological/ agricultural/ environmental life sciences	Physical sciences	Social sciences	Engineering		
Sales engineers	49,000	39,000	37,000	6,000	4,000	1,000	3,000	23,000	5,000	8,000
Other engineers	48,000	43,000	37,000	3,000	2,000	5,000	<500	27,000	2,000	9,000
Postsecondary teachers—engineering	35,000	34,000	32,000	1,000	2,000	2,000	<500	27,000	S	2,000
S&E-related occupations	5,542,000	2,507,000	1,285,000	252,000	403,000	89,000	301,000	241,000	3,480,000	778,000
Health-related occupations	3,780,000	1,404,000	456,000	15,000	243,000	24,000	160,000	14,000	3,056,000	267,000
Diagnosing/treating practitioners (e.g., dentists, optometrists, physicians)	1,066,000	700,000	49,000	1,000	40,000	2,000	4,000	2,000	1,009,000	8,000
Registered nurses, pharmacists, dieticians, therapists, physician assistants	1,913,000	319,000	124,000	4,000	57,000	6,000	51,000	5,000	1,674,000	115,000
Health technologists and technicians (e.g., dental hygienist, health record tech)	357,000	172,000	147,000	4,000	91,000	11,000	39,000	3,000	164,000	45,000
Other health occupations	318,000	165,000	119,000	6,000	43,000	3,000	63,000	4,000	118,000	82,000
Postsecondary teachers—health and related sciences teachers	126,000	48,000	18,000	<500	12,000	1,000	4,000	1,000	91,000	18,000
S&E managers	501,000	367,000	291,000	69,000	30,000	20,000	38,000	134,000	87,000	123,000
Computer and information systems managers	178,000	130,000	109,000	59,000	5,000	3,000	21,000	21,000	6,000	63,000
Engineering managers	168,000	155,000	127,000	9,000	<500	6,000	1,000	110,000	8,000	33,000
Medical and health services managers	127,000	55,000	31,000	1,000	11,000	2,000	16,000	1,000	71,000	25,000
Natural sciences managers	28,000	27,000	25,000	S	13,000	8,000	1,000	2,000	2,000	1,000
S&E precollege teachers	599,000	350,000	194,000	50,000	57,000	22,000	56,000	8,000	148,000	258,000
Secondary school teachers—computer, math, or sciences	445,000	278,000	158,000	49,000	57,000	22,000	23,000	7,000	124,000	164,000
Secondary school teachers—social sciences	155,000	71,000	36,000	S	S	S	34,000	S	25,000	94,000
S&E technicians and technologists	446,000	318,000	296,000	93,000	70,000	23,000	43,000	66,000	34,000	117,000
Technologists and technicians in the biological/life sciences	62,000	54,000	51,000	S	41,000	3,000	4,000	2,000	4,000	7,000
Computer programmers (business, scientific, process control)	204,000	141,000	129,000	82,000	4,000	8,000	16,000	19,000	10,000	65,000
Electrical, electronic, industrial, mechanical technicians	71,000	48,000	44,000	3,000	8,000	3,000	7,000	23,000	12,000	15,000
Drafting occupations, including computer drafting	28,000	14,000	14,000	1,000	S	S	5,000	7,000	3,000	10,000
Surveying and mapping technicians	11,000	9,000	9,000	S	5,000	1,000	3,000	1,000	S	1,000
Other engineering technologists and technicians	31,000	19,000	17,000	2,000	4,000	1,000	1,000	9,000	3,000	11,000
Surveyors, cartographers, photogrammetrists	20,000	15,000	15,000	2,000	1,000	1,000	7,000	3,000	S	4,000
Technologists and technicians in the mathematical sciences	<500	<500	<500	S	S	S	S	S	S	S
Technologists and technicians in the physical sciences	21,000	19,000	17,000	2,000	7,000	6,000	1,000	<500	S	4,000
Architects	182,000	40,000	23,000	2,000	3,000	S	1,000	18,000	147,000	11,000
Actuaries	34,000	28,000	26,000	23,000	S	1,000	1,000	S	7,000	1,000
Non-S&E occupations	8,828,000	7,363,000	5,050,000	472,000	689,000	215,000	3,038,000	637,000	971,000	2,807,000
Non-S&E managers	1,261,000	1,047,000	692,000	71,000	85,000	44,000	298,000	193,000	138,000	431,000
Top-level managers, executives, administrators	815,000	689,000	458,000	56,000	48,000	31,000	186,000	138,000	92,000	264,000
Education administrators (e.g., registrar, dean, principal)	136,000	93,000	41,000	2,000	5,000	3,000	28,000	3,000	17,000	78,000
Other mid-level managers	310,000	266,000	193,000	13,000	33,000	10,000	84,000	52,000	28,000	89,000
Management-related occupations	1,309,000	1,133,000	797,000	116,000	83,000	40,000	476,000	81,000	100,000	413,000

Appendix table 3-2

Scientists and engineers, by occupation and degree field: 2008

Occupation	All employed scientists and engineers	Any degree in S&E	Highest degree in S&E						S&E-related fields	Non-S&E fields
			All S&E	Computer/ mathematical sciences	Biological/ agricultural/ environmental life sciences	Physical sciences	Social sciences	Engineering		
Accountants, auditors, and other financial specialists	517,000	453,000	309,000	56,000	29,000	14,000	189,000	20,000	30,000	178,000
Personnel, training, and labor relations specialists	215,000	189,000	141,000	10,000	11,000	2,000	111,000	9,000	17,000	57,000
Other management-related occupations	577,000	491,000	347,000	50,000	44,000	24,000	176,000	52,000	53,000	178,000
Non-S&E precollege teachers	745,000	530,000	298,000	21,000	28,000	7,000	236,000	5,000	126,000	321,000
Prekindergarten and kindergarten teachers	97,000	71,000	52,000	5,000	5,000	S	42,000	S	24,000	21,000
Elementary school teachers	282,000	213,000	108,000	5,000	11,000	4,000	85,000	3,000	37,000	137,000
Secondary school teachers—other subjects	150,000	97,000	57,000	5,000	5,000	1,000	44,000	1,000	21,000	73,000
Special education teachers—primary and secondary	158,000	105,000	44,000	3,000	2,000	S	38,000	S	38,000	76,000
Other precollegiate teachers	58,000	45,000	37,000	2,000	6,000	1,000	27,000	<500	6,000	15,000
Non-S&E postsecondary teachers	157,000	125,000	45,000	5,000	3,000	1,000	32,000	4,000	18,000	94,000
Postsecondary teachers—art, drama, and music	11,000	6,000	3,000	S	S	S	1,000	S	2,000	7,000
Postsecondary teachers—business, commerce, and marketing	25,000	23,000	8,000	2,000	<500	S	5,000	1,000	1,000	16,000
Postsecondary teachers—education	28,000	22,000	6,000	1,000	<500	1,000	3,000	<500	3,000	19,000
Postsecondary teachers—English	16,000	13,000	3,000	S	S	S	3,000	S	S	12,000
Postsecondary teachers—foreign languages	10,000	9,000	5,000	S	S	S	4,000	S	S	5,000
Postsecondary teachers—history	9,000	8,000	3,000	S	S	S	3,000	S	S	6,000
Postsecondary teachers—physical education	7,000	3,000	1,000	S	S	S	S	S	3,000	3,000
Postsecondary teachers—other non-S&E fields	51,000	41,000	17,000	1,000	1,000	<500	12,000	2,000	8,000	26,000
Social services and related occupations	725,000	634,000	367,000	4,000	17,000	2,000	339,000	5,000	69,000	289,000
Clergy and other religious workers	96,000	80,000	26,000	2,000	10,000	<500	10,000	4,000	7,000	63,000
Counselors, educational, vocational, mental health, and substance abuse	303,000	262,000	181,000	2,000	4,000	<500	174,000	S	39,000	82,000
Social workers	326,000	291,000	160,000	S	3,000	S	155,000	S	23,000	144,000
Sales and marketing occupations	1,357,000	1,126,000	922,000	86,000	141,000	36,000	543,000	116,000	172,000	264,000
Insurance, securities, real estate, and business services	461,000	396,000	306,000	33,000	34,000	8,000	209,000	21,000	50,000	106,000
Sales occupations—commodities except retail	263,000	205,000	174,000	11,000	40,000	10,000	74,000	39,000	45,000	44,000
Sales occupations—retail	235,000	187,000	171,000	16,000	28,000	6,000	108,000	14,000	41,000	24,000
Other marketing and sales occupations	398,000	337,000	271,000	25,000	40,000	12,000	152,000	42,000	36,000	90,000
Art, humanities, and related occupations	295,000	226,000	177,000	16,000	25,000	6,000	119,000	10,000	35,000	83,000
Artists, broadcasters, editors, entertainers, public relations specialists, writers	291,000	222,000	177,000	16,000	25,000	6,000	119,000	10,000	34,000	80,000
Historians	4,000	4,000	1,000	S	S	S	1,000	S	S	3,000
Other non-S&E occupations	2,979,000	2,541,000	1,751,000	152,000	305,000	78,000	993,000	223,000	315,000	913,000
Accounting clerks and bookkeepers	128,000	101,000	95,000	23,000	12,000	3,000	50,000	6,000	25,000	8,000
Secretaries, receptionists, typists	149,000	125,000	110,000	10,000	8,000	3,000	86,000	4,000	20,000	19,000
Other administrative (e.g., record clerks, telephone operators)	489,000	400,000	356,000	33,000	49,000	15,000	239,000	20,000	64,000	69,000
Farmers, foresters, and fishermen	96,000	90,000	79,000	3,000	43,000	6,000	20,000	7,000	5,000	12,000
Lawyers, judges	555,000	534,000	29,000	<500	3,000	2,000	22,000	1,000	2,000	524,000

Appendix table 3-2

Scientists and engineers, by occupation and degree field: 2008

Occupation	All employed scientists and engineers	Any degree in S&E	Highest degree in S&E						S&E-related fields	Non-S&E fields
			All S&E	Computer/ mathematical sciences	Biological/ agricultural/ environmental life sciences	Physical sciences	Social sciences	Engineering		
Librarians, archivists, curators	69,000	57,000	19,000	3,000	3,000	<500	11,000	1,000	3,000	47,000
Food preparation and services	120,000	102,000	94,000	9,000	15,000	2,000	58,000	9,000	16,000	10,000
Protective services occupations	182,000	161,000	138,000	8,000	21,000	4,000	98,000	8,000	12,000	32,000
Other service occupations, except health	230,000	194,000	171,000	6,000	31,000	5,000	118,000	11,000	26,000	33,000
Other teachers and instructors in noneducational institutions	83,000	66,000	50,000	5,000	12,000	3,000	26,000	4,000	15,000	18,000
Construction and extraction occupations	181,000	135,000	122,000	8,000	22,000	6,000	40,000	47,000	38,000	20,000
Installation, maintenance, and repair occupations	119,000	94,000	90,000	7,000	14,000	3,000	27,000	38,000	18,000	11,000
Precision/production occupations	148,000	111,000	96,000	13,000	28,000	7,000	22,000	27,000	27,000	24,000
Transportation and material moving occupations	166,000	141,000	121,000	11,000	14,000	11,000	56,000	30,000	20,000	25,000
Other occupations	265,000	232,000	183,000	13,000	29,000	9,000	122,000	11,000	23,000	59,000

S = suppressed due to reasons of confidentiality and/or reliability

NOTE: Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-3
Occupation of employed S&E degree holders: 2008
(Percent distribution)

Degree and occupation group	One degree in field	Highest degree: In field[a]	Bachelor's in field	Master's in field	Doctorate in field
All S&E degree holders (*n*)	14,145,348	10,215,864	7,367,054	2,084,762	742,272
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	30.2	38.0	30.7	50.7	74.1
Same S&E occupation as S&E field of degree	23.6	29.6	23.2	40.2	62.3
Other S&E occupations	6.6	8.4	7.5	10.5	11.8
S&E-related occupations	17.7	12.6	13.0	12.3	9.5
Non-S&E occupations	52.1	49.4	56.3	37.0	31.5
Biological/agricultural/environmental life sciences degree holders (*n*)	2,609,002	1,569,122	1,144,092	219,189	205,842
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	22.6	30.4	20.8	45.7	67.8
Biological/agricultural/other life scientists	14.9	22.2	13.0	34.5	59.8
Other S&E occupations	7.7	8.2	7.8	11.2	8.0
S&E-related occupations	41.6	25.7	27.3	23.8	18.4
Non-S&E occupations	35.8	43.9	51.9	30.6	13.8
Computer and mathematical sciences degree holders (*n*)	2,022,533	1,650,952	1,160,819	429,757	60,375
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	52.2	56.2	51.7	64.5	83.8
Computer and mathematical scientists	47.5	52.8	48.9	60.0	77.1
Other S&E occupations	4.7	3.4	2.8	4.5	6.7
S&E-related occupations	16.6	15.2	16.2	14.2	4.1
Non-S&E occupations	31.2	28.6	32.1	21.3	12.1
Physical sciences degree holders (*n*)	1,052,631	664,568	395,016	129,178	140,374
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	45.5	54.3	43.9	60.0	78.2
Physical scientists	23.0	34.0	24.2	40.3	55.9
Other S&E occupations	22.5	20.3	19.7	19.7	22.3
S&E-related occupations	22.7	13.4	14.3	17.0	7.6
Non-S&E occupations	31.8	32.3	41.8	23.0	14.1
Social sciences degree holders (*n*)	5,973,379	3,878,314	2,958,034	705,562	195,962
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	11.3	13.9	7.5	23.4	70.4
Social scientists	6.8	9.1	2.7	18.8	65.0
Other S&E occupations	4.5	4.8	4.8	4.6	5.4
S&E-related occupations	10.0	7.8	7.7	9.2	4.3
Non-S&E occupations	78.7	78.3	84.8	67.5	25.3
Engineering degree holders (*n*)	3,093,077	2,452,908	1,709,084	604,076	139,718
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	59.4	64.2	60.0	72.6	80.1
Engineers	43.4	49.8	47.6	53.0	62.0
Other S&E occupations	16.0	14.4	12.4	19.6	18.1
S&E-related occupations	10.8	9.8	10.1	9.4	8.0
Non-S&E occupations	29.7	26.0	29.9	18.0	12.0

[a]Includes professional degrees not broken out separately.

NOTE: Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
US Total	127,097,160	44,410	5,549,980	4.4	80,170	7,427,350	5.8	79,000
Alabama	1,807,480	38,590	68,450	3.8	78,660	93,700	5.2	74,710
Anniston-Oxford, AL	45,220	35,190	840	1.9	68,550	1,160	2.6	65,550
Auburn-Opelika, AL	46,360	37,260	2,040	4.4	78,320	2,610	5.6	73,660
Birmingham-Hoover, AL	475,260	41,220	15,100	3.2	75,110	21,940	4.6	72,210
Decatur, AL	51,670	36,850	1,160	2.2	79,430	1,730	3.3	73,580
Dothan, AL	55,490	34,510	790	1.4	61,580	1,170	2.1	59,710
Florence-Muscle Shoals, AL	50,980	34,210	880	1.7	68,150	1,340	2.6	62,420
Gadsden, AL	33,740	33,130	300	0.9	61,420	460	1.4	56,640
Huntsville, AL	202,410	48,080	27,780	13.7	89,780	35,500	17.5	86,020
Mobile, AL	167,910	38,240	4,940	2.9	69,670	7,480	4.5	65,180
Montgomery, AL	157,870	38,330	6,130	3.9	66,530	8,100	5.1	65,210
Tuscaloosa, AL	88,950	37,990	1,990	2.2	76,780	2,850	3.2	70,920
Alaska	308,050	50,350	15,430	5.0	86,110	22,330	7.2	81,520
Anchorage, AK	164,770	51,470	9,020	5.5	89,070	12,580	7.6	86,010
Fairbanks, AK	35,000	50,350	2,200	6.3	83,660	3,150	9.0	75,320
Arizona	2,367,120	42,390	102,870	4.3	77,370	140,550	5.9	74,830
Flagstaff, AZ	55,170	39,300	2,150	3.9	70,890	3,410	6.2	64,990
Lake Havasu City-Kingman, AZ	44,050	35,300	510	1.2	65,580	820	1.9	63,670
Phoenix-Mesa-Scottsdale, AZ	1,683,500	43,450	73,680	4.4	78,140	100,060	5.9	76,160
Prescott, AZ	53,780	37,520	800	1.5	58,720	1,260	2.3	55,610
Tucson, AZ	346,760	42,160	20,510	5.9	78,380	26,190	7.6	76,580
Yuma, AZ	55,720	34,120	1,320	2.4	65,900	2,410	4.3	59,130
Arkansas	1,135,560	35,460	29,200	2.6	61,890	41,120	3.6	61,030
Fayetteville-Springdale-Rogers, AR-MO	192,400	38,900	6,890	3.6	65,510	11,030	5.7	64,210
Fort Smith, AR-OK	115,020	33,470	1,910	1.7	61,410	2,670	2.3	59,680
Hot Springs, AR	35,800	34,420	900	2.5	70,420	1,140	3.2	68,710
Jonesboro, AR	46,070	33,290	820	1.8	56,970	1,100	2.4	60,510
Little Rock-North Little Rock-Conway, AR	327,860	39,000	12,440	3.8	61,140	16,390	5.0	60,770
Memphis, TN-MS-AR	586,140	40,180	14,710	2.5	72,120	20,650	3.5	71,710
Pine Bluff, AR	34,210	34,850	840	2.5	70,370	1,220	3.6	65,830
California	14,001,730	50,730	758,830	5.4	91,160	990,460	7.1	90,900
Bakersfield, CA	250,190	44,520	10,070	4.0	91,120	14,270	5.7	86,610
Chico, CA	68,030	40,650	1,380	2.0	72,790	1,940	2.9	68,540
El Centro, CA	50,290	39,550	740	1.5	74,800	1,020	2.0	71,520
Fresno, CA	312,060	41,100	7,330	2.3	79,720	10,410	3.3	73,790
Hanford-Corcoran, CA	38,050	43,070	430	1.1	80,400	660	1.7	73,120
Los Angeles-Long Beach-Santa Ana, CA Metropolitan Statistical Area	5,191,880	50,120	237,430	4.6	86,990	308,090	5.9	87,230
Los Angeles-Long Beach-Glendale, CA Metropolitan Division	3,817,570	50,240	169,040	4.4	87,390	217,670	5.7	87,520
Santa Ana-Anaheim-Irvine, CA Metropolitan Division	1,374,310	49,780	68,390	5.0	85,980	90,420	6.6	86,520
Madera, CA	36,680	43,210	770	2.1	77,240	1,090	3.0	69,870

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Merced, CA	57,060	39,080	980	1.7	74,920	1,260	2.2	72,240
Modesto, CA	150,680	41,520	2,440	1.6	80,720	3,640	2.4	75,170
Napa, CA	60,940	49,620	1,570	2.6	84,020	2,150	3.5	81,610
Oxnard-Thousand Oaks-Ventura, CA	284,250	47,890	14,970	5.3	85,380	20,580	7.2	85,930
Redding, CA	59,780	41,340	1,560	2.6	80,340	2,480	4.1	70,790
Riverside-San Bernardino-Ontario, CA	1,140,830	42,930	27,900	2.4	79,270	38,440	3.4	76,370
Sacramento--Arden-Arcade--Roseville, CA	820,430	50,090	49,260	6.0	83,520	62,940	7.7	82,890
Salinas, CA	153,740	42,860	4,040	2.6	89,230	5,110	3.3	87,640
San Diego-Carlsbad-San Marcos, CA	1,238,720	50,200	83,330	6.7	85,650	111,550	9.0	85,240
San Francisco-Oakland-Fremont, CA Metropolitan Statistical Area	1,900,110	59,820	138,280	7.3	93,630	177,380	9.3	95,630
Oakland-Fremont-Hayward, CA Metropolitan Division	951,150	56,360	64,470	6.8	90,900	84,770	8.9	91,140
San Francisco-San Mateo-Redwood City, CA Metropolitan Division	948,970	63,290	73,800	7.8	96,010	92,600	9.8	99,740
San Jose-Sunnyvale-Santa Clara, CA	857,160	67,850	131,890	15.4	109,690	164,640	19.2	111,040
San Luis Obispo-Paso Robles, CA	96,880	44,280	3,230	3.3	77,670	4,390	4.5	74,920
Santa Barbara-Santa Maria-Goleta, CA	164,740	47,230	8,690	5.3	87,740	12,180	7.4	83,520
Santa Cruz-Watsonville, CA	82,730	46,770	3,080	3.7	82,500	3,990	4.8	82,380
Santa Rosa-Petaluma, CA	170,960	48,470	5,870	3.4	88,840	7,990	4.7	86,190
Stockton, CA	198,430	42,840	3,420	1.7	78,300	4,580	2.3	75,660
Vallejo-Fairfield, CA	117,720	46,630	3,410	2.9	85,630	4,590	3.9	83,800
Visalia-Porterville, CA	130,400	38,370	1,740	1.3	78,410	2,700	2.1	69,220
Yuba City, CA	37,210	41,190	850	2.3	82,080	1,290	3.5	77,590
Colorado	2,157,690	46,770	143,210	6.6	83,630	176,280	8.2	81,970
Boulder, CO	152,100	53,350	20,640	13.6	88,970	24,220	15.9	89,070
Colorado Springs, CO	240,000	44,630	19,050	7.9	83,570	22,700	9.5	82,060
Denver-Aurora, CO	1,183,990	49,440	82,610	7.0	84,270	101,300	8.6	83,200
Fort Collins-Loveland, CO	125,100	44,100	10,070	8.0	80,500	12,500	10.0	77,570
Grand Junction, CO	57,530	39,550	1,370	2.4	68,500	2,010	3.5	63,740
Greeley, CO	75,200	40,930	2,160	2.9	81,550	3,120	4.1	73,820
Pueblo, CO	54,980	37,480	1,510	2.7	70,770	1,880	3.4	69,410
Connecticut	1,598,640	51,920	74,990	4.7	80,770	104,130	6.5	81,880
Bridgeport-Stamford-Norwalk, CT	404,970	58,310	18,610	4.6	85,600	25,760	6.4	88,230
Danbury, CT	65,310	48,400	2,060	3.2	80,750	3,200	4.9	79,260
Hartford-West Hartford-East Hartford, CT	546,810	52,280	31,860	5.8	78,890	42,260	7.7	80,650
New Haven, CT	264,340	50,680	9,930	3.8	79,680	13,950	5.3	79,460
Norwich-New London, CT-RI	130,140	44,330	6,980	5.4	83,680	11,480	8.8	80,330
Springfield, MA-CT	282,730	44,520	9,230	3.3	74,720	12,490	4.4	74,200
Waterbury, CT	63,150	45,900	1,190	1.9	69,970	1,720	2.7	70,520
Worcester, MA-CT	236,890	48,080	10,800	4.6	79,640	14,640	6.2	78,470
Delaware	397,730	46,870	20,920	5.3	79,540	27,670	7.0	81,220
Dover, DE	57,710	39,130	2,730	4.7	62,580	3,540	6.1	62,940
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area	2,619,360	48,820	129,910	5.0	83,560	168,720	6.4	84,120

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Philadelphia, PA Metropolitan Division	1,804,600	49,280	93,760	5.2	84,310	120,330	6.7	84,730
Camden, NJ Metropolitan Division	499,700	46,300	17,690	3.5	80,660	23,810	4.8	80,500
Wilmington, DE-MD-NJ Metropolitan Division	315,060	50,160	18,460	5.9	82,580	24,580	7.8	84,650
District of Columbia								
District of Columbia	639,390	73,440	59,870	9.4	94,250	71,660	11.2	95,690
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area	2,840,740	61,530	298,180	10.5	95,560	360,580	12.7	96,290
Bethesda-Frederick-Gaithersburg, MD Metropolitan Division	551,550	58,360	54,820	9.9	93,780	68,860	12.5	93,690
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	2,289,200	62,300	243,350	10.6	95,960	291,730	12.7	96,900
Florida	7,103,950	40,270	239,600	3.4	70,940	319,770	4.5	69,050
Cape Coral-Fort Myers, FL	193,940	38,860	3,340	1.7	71,400	4,960	2.6	67,680
Crestview-Fort Walton Beach-Destin, FL	74,410	39,680	5,240	7.0	80,800	6,660	9.0	76,300
Deltona-Daytona Beach-Ormond Beach, FL	149,890	35,270	3,220	2.1	59,220	4,390	2.9	57,760
Gainesville, FL	118,760	42,730	7,100	6.0	72,110	8,810	7.4	68,400
Jacksonville, FL	569,260	41,030	23,060	4.1	68,610	29,550	5.2	68,290
Lakeland-Winter Haven, FL	188,900	36,400	3,610	1.9	59,680	5,330	2.8	58,000
Miami-Fort Lauderdale-Pompano Beach, FL Metropolitan Statistical Area	2,143,470	42,230	63,060	2.9	71,980	83,940	3.9	71,010
Fort Lauderdale-Pompano Beach-Deerfield Beach, FL Metropolitan Division	688,230	42,010	21,510	3.1	69,170	28,560	4.1	68,400
Miami-Miami Beach-Kendall, FL Metropolitan Division	958,330	42,040	25,500	2.7	73,480	33,590	3.5	72,380
West Palm Beach-Boca Raton-Boynton Beach, FL Metropolitan Division	496,910	42,900	16,050	3.2	73,370	21,790	4.4	72,310
Naples-Marco Island, FL	109,290	39,830	1,360	1.2	68,770	2,060	1.9	63,540
North Port-Bradenton-Sarasota, FL	237,170	38,720	4,380	1.8	67,000	6,310	2.7	64,730
Ocala, FL	89,480	35,640	1,500	1.7	58,120	2,150	2.4	56,060
Orlando-Kissimmee, FL	959,650	38,910	35,030	3.7	70,310	48,220	5.0	68,070
Palm Bay-Melbourne-Titusville, FL	189,730	42,990	16,400	8.6	83,410	21,480	11.3	79,540
Palm Coast, FL	16,960	34,560	230	1.4	59,080	380	2.2	55,130
Panama City-Lynn Haven, FL	67,990	35,650	2,940	4.3	73,990	3,840	5.6	69,260
Pensacola-Ferry Pass-Brent, FL	149,390	36,850	4,510	3.0	65,060	6,220	4.2	62,440
Port St. Lucie, FL	117,630	37,630	2,300	2.0	63,450	3,200	2.7	59,530
Punta Gorda, FL	38,730	35,710	440	1.1	64,310	590	1.5	59,940
Sebastian-Vero Beach, FL	44,280	37,630	630	1.4	62,320	890	2.0	60,110
Tallahassee, FL	158,490	41,030	9,740	6.1	63,170	12,470	7.9	61,480
Tampa-St. Petersburg-Clearwater, FL	1,091,750	41,750	41,990	3.8	71,670	55,470	5.1	70,290
Georgia	3,744,740	42,270	145,220	3.9	74,710	190,040	5.1	74,960
Albany, GA	59,300	35,680	1,100	1.9	65,190	1,530	2.6	62,290
Athens-Clarke County, GA	76,150	39,840	3,470	4.6	68,330	4,570	6.0	68,020
Atlanta-Sandy Springs-Marietta, GA	2,200,660	46,440	108,840	4.9	77,410	139,950	6.4	78,560
Augusta-Richmond County, GA-SC	202,190	40,250	8,080	4.0	78,160	11,170	5.5	74,730
Brunswick, GA	38,680	37,250	520	1.3	62,000	730	1.9	58,870
Columbus, GA-AL	110,520	37,080	3,360	3.0	65,530	5,390	4.9	65,020
Dalton, GA	63,380	34,790	1,090	1.7	64,750	1,550	2.4	64,680
Gainesville, GA	67,970	38,960	1,230	1.8	57,270	1,990	2.9	55,680

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Hinesville-Fort Stewart, GA	16,750	37,480	570	3.4	61,970	740	4.4	59,480
Macon, GA	90,180	36,600	1,740	1.9	63,860	2,330	2.6	63,440
Rome, GA	35,590	37,800	860	2.4	53,180	1,010	2.8	54,330
Savannah, GA	145,320	39,670	3,440	2.4	75,880	4,630	3.2	72,800
Valdosta, GA	48,890	32,160	590	1.2	56,280	790	1.6	55,430
Warner Robins, GA	56,980	42,850	3,990	7.0	77,860	5,190	9.1	75,100
Hawaii	571,630	43,740	19,500	3.4	73,070	25,950	4.5	70,760
Honolulu, HI	420,520	45,100	16,890	4.0	73,670	21,970	5.2	72,050
Idaho	594,750	38,600	24,130	4.1	68,120	39,010	6.6	63,130
Boise City-Nampa, ID	255,700	40,610	13,430	5.3	66,970	19,920	7.8	65,290
Coeur d'Alene, ID	51,560	35,810	1,360	2.6	60,940	2,050	4.0	57,960
Idaho Falls, ID	48,030	39,920	1,250	2.6	74,320	2,210	4.6	65,550
Lewiston, ID-WA	23,650	37,140	670	2.8	51,980	950	4.0	51,070
Pocatello, ID	33,820	36,330	630	1.9	61,650	1,360	4.0	53,500
Illinois	5,528,420	46,450	197,120	3.6	77,780	271,710	4.9	77,260
Bloomington-Normal, IL	85,760	46,000	7,570	8.8	91,520	9,750	11.4	86,550
Champaign-Urbana, IL	98,220	45,010	3,480	3.5	70,700	5,210	5.3	67,380
Chicago-Naperville-Joliet, IL-IN-WI Metropolitan Statistical Area	4,169,840	48,490	155,760	3.7	78,900	214,310	5.1	79,000
Chicago-Naperville-Joliet, IL Metropolitan Division	3,542,180	49,140	131,980	3.7	78,860	182,380	5.1	78,970
Gary, IN Metropolitan Division	258,120	39,680	4,750	1.8	68,770	6,800	2.6	67,600
Lake County-Kenosha County, IL-WI Metropolitan Division	369,540	48,520	19,040	5.2	81,700	25,130	6.8	82,270
Danville, IL	27,120	36,820	370	1.4	59,010	540	2.0	56,670
Decatur, IL	50,970	39,840	1,610	3.2	62,560	2,340	4.6	61,900
Kankakee-Bradley, IL	41,220	37,530	450	1.1	62,590	740	1.8	63,850
Peoria, IL	166,600	40,680	5,710	3.4	72,420	7,690	4.6	70,520
Rockford, IL	137,110	41,040	2,690	2.0	68,010	4,010	2.9	67,510
Springfield, IL	105,360	44,040	3,480	3.3	71,060	4,980	4.7	69,850
Indiana	2,724,850	39,020	90,710	3.3	67,360	124,520	4.6	66,480
Anderson, IN	37,580	34,720	340	0.9	61,880	480	1.3	60,770
Bloomington, IN	72,590	35,650	4,320	6.0	51,640	5,380	7.4	51,660
Chicago-Naperville-Joliet, IL-IN-WI Metropolitan Statistical Area	4,169,840	48,490	155,760	3.7	78,900	214,310	5.1	79,000
Chicago-Naperville-Joliet, IL Metropolitan Division	3,542,180	49,140	131,980	3.7	78,860	182,380	5.1	78,970
Gary, IN Metropolitan Division	258,120	39,680	4,750	1.8	68,770	6,800	2.6	67,600
Lake County-Kenosha County, IL-WI Metropolitan Division	369,540	48,520	19,040	5.2	81,700	25,130	6.8	82,270
Cincinnati-Middletown, OH-KY-IN	963,290	42,640	40,160	4.2	73,090	54,060	5.6	72,860
Columbus, IN	39,750	41,500	D	D	71,030	3,820	9.6	71,750
Elkhart-Goshen, IN	99,370	36,930	1,590	1.6	62,050	2,400	2.4	58,600
Evansville, IN-KY	166,480	39,070	4,880	2.9	68,980	7,090	4.3	70,190
Fort Wayne, IN	194,770	38,970	7,210	3.7	68,230	9,400	4.8	67,900
Indianapolis-Carmel, IN	852,240	42,710	37,130	4.4	67,370	51,020	6.0	66,920
Kokomo, IN	37,790	42,200	3,160	8.4	83,600	4,120	10.9	83,970

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Lafayette, IN	79,450	39,380	4,540	5.7	74,380	6,160	7.8	70,290
Louisville-Jefferson County, KY-IN	582,210	40,320	17,290	3.0	68,430	23,220	4.0	67,920
Michigan City-La Porte, IN	41,230	34,930	670	1.6	59,860	1,000	2.4	58,810
Muncie, IN	43,860	37,570	1,370	3.1	60,400	1,650	3.8	61,400
South Bend-Mishawaka, IN-MI	124,270	39,280	4,120	3.3	69,580	5,340	4.3	67,560
Terre Haute, IN	66,360	35,190	2,060	3.1	67,860	2,600	3.9	66,300
Iowa	1,438,510	37,730	44,140	3.1	67,600	61,790	4.3	65,780
Ames, IA	39,260	41,770	2,780	7.1	78,440	4,180	10.6	69,580
Cedar Rapids, IA	135,810	41,110	7,650	5.6	70,180	10,680	7.9	68,950
Davenport-Moline-Rock Island, IA-IL	177,330	39,260	4,730	2.7	70,570	6,520	3.7	70,160
Des Moines-West Des Moines, IA	317,470	43,100	13,860	4.4	68,630	18,320	5.8	69,470
Dubuque, IA	51,720	36,070	1,280	2.5	63,090	1,760	3.4	61,710
Iowa City, IA	82,190	41,840	3,800	4.6	68,580	5,370	6.5	65,280
Omaha-Council Bluffs, NE-IA	443,810	41,110	19,080	4.3	70,480	24,820	5.6	70,320
Sioux City, IA-NE-SD	70,380	33,570	1,160	1.6	59,370	1,660	2.4	57,900
Waterloo-Cedar Falls, IA	84,750	37,180	2,840	3.4	70,490	3,610	4.3	68,950
Kansas	1,304,780	39,290	48,970	3.8	70,330	67,060	5.1	68,630
Kansas City, MO-KS	952,350	44,060	46,000	4.8	73,550	60,550	6.4	73,180
Lawrence, KS	45,880	36,500	2,010	4.4	69,480	2,940	6.4	63,420
Manhattan, KS	58,120	35,550	2,140	3.7	68,970	3,100	5.3	62,420
St. Joseph, MO-KS	52,110	35,010	1,050	2.0	60,740	1,410	2.7	59,190
Topeka, KS	106,200	38,730	3,420	3.2	61,870	5,030	4.7	60,730
Wichita, KS	278,370	39,560	12,110	4.4	72,970	16,320	5.9	70,270
Kentucky	1,716,060	37,970	48,790	2.8	64,970	66,770	3.9	63,450
Bowling Green, KY	55,470	36,160	1,500	2.7	62,040	2,140	3.9	57,770
Cincinnati-Middletown, OH-KY-IN	963,290	42,640	40,160	4.2	73,090	54,060	5.6	72,860
Clarksville, TN-KY	77,010	35,170	1,970	2.6	66,740	2,870	3.7	63,790
Elizabethtown, KY	43,240	37,230	1,510	3.5	63,470	1,890	4.4	61,560
Evansville, IN-KY	166,480	39,070	4,880	2.9	68,980	7,090	4.3	70,190
Huntington-Ashland, WV-KY-OH	107,860	35,490	2,140	2.0	65,100	3,020	2.8	62,400
Lexington-Fayette, KY	238,940	39,350	11,180	4.7	66,390	15,070	6.3	63,730
Louisville-Jefferson County, KY-IN	582,210	40,320	17,290	3.0	68,430	23,220	4.0	67,920
Owensboro, KY	46,740	35,160	910	1.9	58,860	1,270	2.7	57,710
Louisiana	1,832,830	37,980	44,200	2.4	73,800	67,930	3.7	69,340
Alexandria, LA	61,540	35,130	960	1.6	65,370	1,440	2.3	63,000
Baton Rouge, LA	355,530	39,320	14,140	4.0	73,320	20,250	5.7	70,180
Houma-Bayou Cane-Thibodaux, LA	90,340	37,930	1,160	1.3	69,800	2,180	2.4	62,250
Lafayette, LA	141,780	37,170	3,200	2.3	71,420	6,010	4.2	63,750
Lake Charles, LA	87,420	36,250	1,640	1.9	70,890	2,810	3.2	67,150
Monroe, LA	73,930	34,740	1,390	1.9	65,540	2,050	2.8	61,060
New Orleans-Metairie-Kenner, LA	504,210	41,010	14,880	3.0	79,300	22,260	4.4	75,370

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Shreveport-Bossier City, LA	170,460	36,640	2,560	1.5	62,950	3,980	2.3	59,080
Maine	577,410	39,470	17,470	3.0	68,290	25,380	4.4	66,010
Bangor, ME	61,210	38,860	2,010	3.3	65,620	2,760	4.5	62,170
Lewiston-Auburn, ME	46,960	37,100	920	2.0	64,180	1,270	2.7	63,720
Portland-South Portland-Biddeford, ME	191,640	42,670	7,560	3.9	70,750	10,160	5.3	69,580
Portsmouth, NH-ME	54,350	48,140	4,090	7.5	79,940	5,680	10.5	80,980
Maryland	2,462,470	50,880	166,700	6.8	89,260	212,600	8.6	87,990
Baltimore-Towson, MD	1,238,860	49,910	72,670	5.9	85,280	93,740	7.6	83,700
Cumberland, MD-WV	37,400	37,410	920	2.5	66,830	1,210	3.2	65,170
Hagerstown-Martinsburg, MD-WV	92,760	38,760	2,840	3.1	72,120	3,500	3.8	71,600
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area	2,619,360	48,820	129,910	5.0	83,560	168,720	6.4	84,120
Philadelphia, PA Metropolitan Division	1,804,600	49,280	93,760	5.2	84,310	120,330	6.7	84,730
Camden, NJ Metropolitan Division	499,700	46,300	17,690	3.5	80,660	23,810	4.8	80,500
Wilmington, DE-MD-NJ Metropolitan Division	315,060	50,160	18,460	5.9	82,580	24,580	7.8	84,650
Salisbury, MD	52,040	40,780	1,460	2.8	67,250	2,100	4.0	64,420
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area	2,840,740	61,530	298,180	10.5	95,560	360,580	12.7	96,290
Bethesda-Frederick-Gaithersburg, MD Metropolitan Division	551,550	58,360	54,820	9.9	93,780	68,860	12.5	93,690
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	2,289,200	62,300	243,350	10.6	95,960	291,730	12.7	96,900
Massachusetts	3,119,100	53,700	208,160	6.7	88,370	269,270	8.6	88,550
Barnstable Town, MA	93,350	44,320	2,600	2.8	81,860	3,580	3.8	77,200
Boston-Cambridge-Quincy, MA-NH	2,413,780	56,560	190,260	7.9	89,990	244,740	10.1	90,570
Boston-Cambridge-Quincy, MA NECTA Division	1,658,000	59,410	139,620	8.4	89,780	177,930	10.7	90,900
Brockton-Bridgewater-Easton, MA NECTA Division	85,550	46,230	1,640	1.9	72,920	2,110	2.5	72,370
Framingham, MA NECTA Division	154,760	57,960	17,710	11.4	94,310	22,960	14.8	94,190
Haverhill-North Andover-Amesbury, MA-NH NECTA Division	76,110	45,140	2,330	3.1	83,200	3,280	4.3	78,760
Lawrence-Methuen-Salem, MA-NH NECTA Division	55,500	44,880	1,680	3.0	80,160	2,400	4.3	76,960
Lowell-Billerica-Chelmsford, MA-NH NECTA Division	113,630	55,480	12,630	11.1	95,350	16,660	14.7	94,300
Nashua, NH-MA NECTA Division	128,380	48,580	9,490	7.4	88,620	12,460	9.7	88,620
Peabody, MA NECTA Division	98,840	47,290	3,400	3.4	80,520	4,630	4.7	79,030
Taunton-Norton-Raynham, MA NECTA Division	43,010	45,070	1,750	4.1	83,980	2,300	5.3	83,340
Leominster-Fitchburg-Gardner, MA	47,640	40,920	870	1.8	71,690	1,210	2.5	68,940
New Bedford, MA	62,010	41,270	1,060	1.7	72,800	1,610	2.6	69,040
Pittsfield, MA	33,860	42,190	1,410	4.2	73,880	1,850	5.5	71,580
Providence-Fall River-Warwick, RI-MA	532,800	44,970	19,780	3.7	80,940	26,480	5.0	79,420
Springfield, MA-CT	282,730	44,520	9,230	3.3	74,720	12,490	4.4	74,200
Worcester, MA-CT	236,890	48,080	10,800	4.6	79,640	14,640	6.2	78,470
Michigan	3,755,890	43,280	176,570	4.7	75,840	241,910	6.4	73,410
Ann Arbor, MI	188,110	48,750	14,310	7.6	74,460	20,450	10.9	68,800
Battle Creek, MI	51,880	41,150	1,710	3.3	73,140	2,360	4.5	71,310
Bay City, MI	34,740	37,650	1,330	3.8	58,920	1,690	4.9	58,750
Detroit-Warren-Livonia, MI Metropolitan Statistical Area	1,686,920	47,080	102,210	6.1	80,450	135,190	8.0	78,780

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Detroit-Livonia-Dearborn, MI Metropolitan Division	669,270	47,530	36,570	5.5	80,540	48,590	7.3	78,730
Warren-Troy-Farmington Hills, MI Metropolitan Division	1,017,660	46,790	65,640	6.5	80,400	86,600	8.5	78,810
Flint, MI	126,720	40,290	2,640	2.1	67,280	3,690	2.9	66,310
Grand Rapids-Wyoming, MI	358,310	41,010	12,030	3.4	66,660	17,930	5.0	65,370
Holland-Grand Haven, MI	96,800	38,840	3,660	3.8	68,480	6,140	6.3	61,730
Jackson, MI	49,930	40,130	1,400	2.8	71,550	2,310	4.6	68,630
Kalamazoo-Portage, MI	130,380	39,350	5,490	4.2	72,560	7,300	5.6	71,120
Lansing-East Lansing, MI	196,690	43,680	10,160	5.2	69,820	13,230	6.7	69,890
Monroe, MI	36,580	39,790	1,050	2.9	74,770	1,570	4.3	70,270
Muskegon-Norton Shores, MI	56,260	37,490	1,180	2.1	62,570	1,620	2.9	61,700
Niles-Benton Harbor, MI	57,010	39,280	2,110	3.7	75,970	3,350	5.9	71,300
Saginaw-Saginaw Township North, MI	80,510	39,490	1,920	2.4	68,390	3,000	3.7	63,760
South Bend-Mishawaka, IN-MI	124,270	39,280	4,120	3.3	69,580	5,340	4.3	67,560
Minnesota	2,562,450	45,470	125,100	4.9	76,150	169,180	6.6	76,630
Duluth, MN-WI	121,870	39,120	3,930	3.2	64,810	5,510	4.5	63,180
Fargo, ND-MN	118,970	37,720	5,410	4.5	60,060	7,820	6.6	56,900
Grand Forks, ND-MN	46,700	37,050	1,240	2.7	61,540	1,820	3.9	57,680
La Crosse, WI-MN	69,590	39,710	2,670	3.8	66,850	3,660	5.3	66,200
Mankato-North Mankato, MN	56,450	37,570	1,500	2.7	66,640	2,200	3.9	62,830
Minneapolis-St. Paul-Bloomington, MN-WI	1,678,090	49,140	99,380	5.9	78,040	132,040	7.9	79,380
Rochester, MN	99,330	48,730	6,260	6.3	78,440	8,350	8.4	81,080
St. Cloud, MN	93,050	38,740	1,970	2.1	64,120	2,880	3.1	62,990
Mississippi	1,070,820	33,930	23,770	2.2	62,670	34,690	3.2	60,130
Gulfport-Biloxi, MS	101,140	35,830	3,430	3.4	69,980	4,820	4.8	65,370
Hattiesburg, MS	54,890	33,010	870	1.6	58,740	1,250	2.3	55,380
Jackson, MS	243,050	36,820	6,490	2.7	59,560	9,340	3.8	58,710
Memphis, TN-MS-AR	586,140	40,180	14,710	2.5	72,120	20,650	3.5	71,710
Pascagoula, MS	55,490	38,660	D	D	D	3,550	6.4	66,230
Missouri	2,588,450	39,780	102,300	4.0	70,140	133,230	5.1	70,090
Cape Girardeau-Jackson, MO-IL	47,070	35,480	950	2.0	56,340	1,220	2.6	54,910
Columbia, MO	82,020	36,650	3,450	4.2	60,320	4,700	5.7	60,770
Fayetteville-Springdale-Rogers, AR-MO	192,400	38,900	6,890	3.6	65,510	11,030	5.7	64,210
Jefferson City, MO	71,550	37,240	3,700	5.2	58,910	5,090	7.1	57,700
Joplin, MO	74,240	33,750	1,280	1.7	58,130	1,850	2.5	54,390
Kansas City, MO-KS	952,350	44,060	46,000	4.8	73,550	60,550	6.4	73,180
St. Joseph, MO-KS	52,110	35,010	1,050	2.0	60,740	1,410	2.7	59,190
St. Louis, MO-IL	1,256,840	43,480	59,810	4.8	74,300	77,240	6.1	74,890
Springfield, MO	181,890	35,410	5,140	2.8	54,190	6,600	3.6	54,630
Montana	424,300	36,060	14,620	3.4	59,530	22,750	5.4	55,810
Billings, MT	79,590	37,560	2,340	2.9	61,450	3,530	4.4	58,490
Great Falls, MT	35,520	34,580	760	2.1	53,370	1,120	3.2	51,740

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Missoula, MT	54,110	36,390	1,990	3.7	56,660	3,190	5.9	53,680
Nebraska	901,690	38,300	30,930	3.4	67,370	41,430	4.6	66,290
Lincoln, NE	159,080	39,160	6,920	4.4	63,310	9,390	5.9	61,750
Omaha-Council Bluffs, NE-IA	443,810	41,110	19,080	4.3	70,480	24,820	5.6	70,320
Sioux City, IA-NE-SD	70,380	33,570	1,160	1.6	59,370	1,660	2.4	57,900
Nevada	1,113,530	41,220	26,840	2.4	71,890	38,140	3.4	70,660
Carson City, NV	27,380	45,450	1,480	5.4	67,540	2,090	7.6	66,610
Las Vegas-Paradise, NV	807,240	40,740	16,860	2.1	71,070	23,070	2.9	71,580
Reno-Sparks, NV	189,570	42,670	6,050	3.2	74,640	8,700	4.6	71,720
New Hampshire	603,420	44,450	29,200	4.8	79,900	39,210	6.5	79,380
Boston-Cambridge-Quincy, MA-NH	2,413,780	56,560	190,260	7.9	89,990	244,740	10.1	90,570
Boston-Cambridge-Quincy, MA NECTA Division	1,658,000	59,410	139,620	8.4	89,780	177,930	10.7	90,900
Brockton-Bridgewater-Easton, MA NECTA Division	85,550	46,230	1,640	1.9	72,920	2,110	2.5	72,370
Framingham, MA NECTA Division	154,760	57,960	17,710	11.4	94,310	22,960	14.8	94,190
Haverhill-North Andover-Amesbury, MA-NH NECTA Division	76,110	45,140	2,330	3.1	83,200	3,280	4.3	78,760
Lawrence-Methuen-Salem, MA-NH NECTA Division	55,500	44,880	1,680	3.0	80,160	2,400	4.3	76,960
Lowell-Billerica-Chelmsford, MA-NH NECTA Division	113,630	55,480	12,630	11.1	95,350	16,660	14.7	94,300
Nashua, NH-MA NECTA Division	128,380	48,580	9,490	7.4	88,620	12,460	9.7	88,620
Peabody, MA NECTA Division	98,840	47,290	3,400	3.4	80,520	4,630	4.7	79,030
Taunton-Norton-Raynham, MA NECTA Division	43,010	45,070	1,750	4.1	83,980	2,300	5.3	83,340
Manchester, NH	97,640	46,770	4,290	4.4	78,450	6,080	6.2	80,320
Portsmouth, NH-ME	54,350	48,140	4,090	7.5	79,940	5,680	10.5	80,980
Rochester-Dover, NH-ME	53,430	42,840	3,330	6.2	74,280	4,150	7.8	75,200
New Jersey	3,770,550	50,730	185,360	4.9	87,430	248,710	6.6	89,630
Allentown-Bethlehem-Easton, PA-NJ	327,390	42,390	10,810	3.3	76,420	14,900	4.6	74,010
Atlantic City-Hammonton, NJ	135,380	41,650	3,290	2.4	82,970	4,220	3.1	85,330
New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area	8,101,890	55,080	D	D	87,350	443,200	5.5	89,870
Edison-New Brunswick, NJ Metropolitan Division	962,750	51,100	59,030	6.1	88,970	78,890	8.2	90,580
Nassau-Suffolk, NY Metropolitan Division	1,202,960	50,850	D	D	80,170	48,460	4.0	78,970
New York-White Plains-Wayne, NY-NJ Metropolitan Division	4,982,650	57,170	182,350	3.7	87,500	250,050	5.0	90,840
Newark-Union, NJ-PA Metropolitan Division	953,540	53,550	49,450	5.2	89,740	65,800	6.9	93,390
Ocean City, NJ	37,690	38,780	270	0.7	69,650	400	1.1	65,160
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area	2,619,360	48,820	129,910	5.0	83,560	168,720	6.4	84,120
Philadelphia, PA Metropolitan Division	1,804,600	49,280	93,760	5.2	84,310	120,330	6.7	84,730
Camden, NJ Metropolitan Division	499,700	46,300	17,690	3.5	80,660	23,810	4.8	80,500
Wilmington, DE-MD-NJ Metropolitan Division	315,060	50,160	18,460	5.9	82,580	24,580	7.8	84,650
Trenton-Ewing, NJ	214,520	56,000	16,980	7.9	85,640	21,300	9.9	86,270
Vineland-Millville-Bridgeton, NJ	59,610	42,340	640	1.1	70,390	860	1.4	70,080
New Mexico	777,560	40,050	36,130	4.6	82,860	51,890	6.7	77,740
Albuquerque, NM	370,090	41,520	20,390	5.5	82,970	28,280	7.6	79,670
Farmington, NM	47,890	38,650	970	2.0	76,010	1,620	3.4	69,480

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Las Cruces, NM	65,150	38,380	3,570	5.5	75,780	4,840	7.4	72,070
Santa Fe, NM	60,910	42,140	1,880	3.1	63,020	2,650	4.4	64,130
New York	8,344,020	51,700	D	D	81,470	414,280	5.0	82,080
Albany-Schenectady-Troy, NY	424,260	46,250	22,450	5.3	72,690	32,560	7.7	70,820
Binghamton, NY	106,830	41,260	6,150	5.8	79,250	7,820	7.3	76,920
Buffalo-Niagara Falls, NY	526,260	42,010	18,690	3.6	68,390	26,270	5.0	66,460
Elmira, NY	36,960	40,300	790	2.1	69,300	1,210	3.3	66,190
Glens Falls, NY	51,440	38,820	1,140	2.2	61,360	1,540	3.0	60,190
Ithaca, NY	49,250	45,520	3,440	7.0	84,960	4,830	9.8	77,710
Kingston, NY	58,810	41,070	1,160	2.0	66,590	1,670	2.8	66,790
New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area	8,101,890	55,080	D	D	87,350	443,200	5.5	89,870
Edison-New Brunswick, NJ Metropolitan Division	962,750	51,100	59,030	6.1	88,970	78,890	8.2	90,580
Nassau-Suffolk, NY Metropolitan Division	1,202,960	50,850	D	D	80,170	48,460	4.0	78,970
New York-White Plains-Wayne, NY-NJ Metropolitan Division	4,982,650	57,170	182,350	3.7	87,500	250,050	5.0	90,840
Newark-Union, NJ-PA Metropolitan Division	953,540	53,550	49,450	5.2	89,740	65,800	6.9	93,390
Poughkeepsie-Newburgh-Middletown, NY	241,590	46,270	9,180	3.8	84,360	13,180	5.5	85,100
Rochester, NY	482,790	43,210	23,530	4.9	74,950	32,320	6.7	73,480
Syracuse, NY	298,930	43,410	11,700	3.9	75,080	16,700	5.6	72,070
Utica-Rome, NY	124,420	38,640	3,330	2.7	72,740	4,410	3.5	70,280
North Carolina	3,772,780	40,500	155,030	4.1	76,150	207,610	5.5	76,430
Asheville, NC	165,950	36,840	3,680	2.2	70,400	5,250	3.2	65,350
Burlington, NC	54,210	35,510	1,550	2.9	63,940	1,900	3.5	66,650
Charlotte-Gastonia-Concord, NC-SC	809,260	44,630	34,310	4.2	78,650	47,200	5.8	79,860
Durham, NC	266,990	53,220	31,590	11.8	86,470	40,260	15.1	89,010
Fayetteville, NC	124,900	36,530	3,050	2.4	69,550	3,980	3.2	66,060
Goldsboro, NC	42,900	34,010	650	1.5	61,970	900	2.1	59,670
Greensboro-High Point, NC	335,170	39,620	10,260	3.1	73,300	14,020	4.2	73,610
Greenville, NC	70,680	37,790	2,130	3.0	62,800	2,730	3.9	61,950
Hickory-Lenoir-Morganton, NC	137,640	35,070	2,080	1.5	62,390	3,100	2.3	60,830
Jacksonville, NC	43,740	34,140	1,340	3.1	72,610	1,810	4.1	73,460
Raleigh-Cary, NC	489,670	44,810	36,240	7.4	76,130	48,030	9.8	76,310
Rocky Mount, NC	55,550	34,320	1,070	1.9	58,970	1,530	2.8	58,170
Virginia Beach-Norfolk-Newport News, VA-NC	715,230	41,440	36,010	5.0	75,650	48,570	6.8	72,880
Wilmington, NC	134,130	38,340	5,080	3.8	71,770	7,020	5.2	70,640
Winston-Salem, NC	199,040	40,820	5,630	2.8	72,950	7,730	3.9	72,240
North Dakota	355,710	37,040	11,050	3.1	62,430	16,090	4.5	58,960
Bismarck, ND	62,190	37,910	2,690	4.3	58,940	3,760	6.0	57,630
Fargo, ND-MN	118,970	37,720	5,410	4.5	60,060	7,820	6.6	56,900
Grand Forks, ND-MN	46,700	37,050	1,240	2.7	61,540	1,820	3.9	57,680
Ohio	4,921,690	40,890	195,840	4.0	72,520	259,350	5.3	71,790
Akron, OH	307,140	41,070	12,060	3.9	70,420	16,100	5.2	69,450

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Canton-Massillon, OH	157,260	36,490	4,080	2.6	67,660	5,460	3.5	65,250
Cincinnati-Middletown, OH-KY-IN	963,290	42,640	40,160	4.2	73,090	54,060	5.6	72,860
Cleveland-Elyria-Mentor, OH	968,160	42,830	37,220	3.8	72,160	50,510	5.2	71,440
Columbus, OH	885,440	43,740	50,870	5.7	74,070	65,790	7.4	74,060
Dayton, OH	359,280	42,410	22,720	6.3	78,000	28,370	7.9	76,950
Huntington-Ashland, WV-KY-OH	107,860	35,490	2,140	2.0	65,100	3,020	2.8	62,400
Lima, OH	49,550	38,040	970	2.0	68,490	1,200	2.4	66,990
Mansfield, OH	49,450	36,660	1,120	2.3	67,500	1,500	3.0	65,270
Parkersburg-Marietta-Vienna, WV-OH	65,750	35,830	1,640	2.5	65,030	2,160	3.3	63,100
Sandusky, OH	34,170	34,600	590	1.7	65,070	770	2.3	63,790
Springfield, OH	46,920	37,110	1,100	2.3	67,480	1,430	3.0	66,630
Steubenville-Weirton, OH-WV	41,570	34,090	550	1.3	62,490	890	2.1	62,420
Toledo, OH	282,870	39,470	8,230	2.9	68,410	11,220	4.0	67,510
Wheeling, WV-OH	62,460	33,280	1,160	1.9	59,930	1,720	2.8	57,530
Youngstown-Warren-Boardman, OH-PA	213,870	36,230	3,670	1.7	63,770	4,980	2.3	62,630
Oklahoma	1,483,760	36,940	44,190	3.0	71,390	63,540	4.3	68,780
Fort Smith, AR-OK	115,020	33,470	1,910	1.7	61,410	2,670	2.3	59,680
Lawton, OK	41,720	34,840	820	2.0	63,090	1,240	3.0	62,740
Oklahoma City, OK	551,240	39,170	20,210	3.7	77,050	29,640	5.4	73,740
Tulsa, OK	407,030	38,800	13,880	3.4	70,710	18,640	4.6	68,920
Oregon	1,569,700	43,550	D	D	76,670	95,360	6.1	74,000
Bend, OR	59,110	39,620	1,650	2.8	68,180	2,430	4.1	63,830
Corvallis, OR	32,770	47,120	4,050	12.4	81,550	5,700	17.4	76,060
Eugene-Springfield, OR	135,590	40,900	5,470	4.0	66,020	7,340	5.4	63,530
Medford, OR	73,590	39,440	1,680	2.3	61,980	2,530	3.4	59,960
Portland-Vancouver-Beaverton, OR-WA	962,050	46,970	50,270	5.2	80,700	68,730	7.1	79,590
Salem, OR	142,650	40,560	4,690	3.3	66,210	6,120	4.3	65,870
Pennsylvania	5,483,220	43,050	D	D	76,840	291,180	5.3	75,700
Allentown-Bethlehem-Easton, PA-NJ	327,390	42,390	10,810	3.3	76,420	14,900	4.6	74,010
Altoona, PA	57,240	34,350	1,160	2.0	58,690	1,570	2.7	58,510
Erie, PA	124,250	36,800	3,020	2.4	66,480	4,870	3.9	60,990
Harrisburg-Carlisle, PA	305,050	43,100	15,730	5.2	70,290	20,030	6.6	69,980
Johnstown, PA	55,200	35,470	1,600	2.9	68,330	2,220	4.0	65,140
Lancaster, PA	221,580	39,120	4,570	2.1	65,960	6,270	2.8	64,130
Lebanon, PA	46,040	38,300	1,500	3.3	66,580	1,960	4.3	67,470
New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area	8,101,890	55,080	D	D	87,350	443,200	5.5	89,870
Edison-New Brunswick, NJ Metropolitan Division	962,750	51,100	59,030	6.1	88,970	78,890	8.2	90,580
Nassau-Suffolk, NY Metropolitan Division	1,202,960	50,850	D	D	80,170	48,460	4.0	78,970
New York-White Plains-Wayne, NY-NJ Metropolitan Division	4,982,650	57,170	182,350	3.7	87,500	250,050	5.0	90,840
Newark-Union, NJ-PA Metropolitan Division	953,540	53,550	49,450	5.2	89,740	65,800	6.9	93,390
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area	2,619,360	48,820	129,910	5.0	83,560	168,720	6.4	84,120

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Philadelphia, PA Metropolitan Division	1,804,600	49,280	93,760	5.2	84,310	120,330	6.7	84,730
Camden, NJ Metropolitan Division	499,700	46,300	17,690	3.5	80,660	23,810	4.8	80,500
Wilmington, DE-MD-NJ Metropolitan Division	315,060	50,160	18,460	5.9	82,580	24,580	7.8	84,650
Pittsburgh, PA	1,092,720	42,510	49,030	4.5	73,230	65,740	6.0	71,720
Reading, PA	159,390	40,710	4,300	2.7	71,550	6,250	3.9	69,960
Scranton--Wilkes-Barre, PA	247,740	36,880	6,610	2.7	68,450	8,620	3.5	66,660
State College, PA	67,110	42,440	3,590	5.3	89,990	4,570	6.8	84,010
Williamsport, PA	49,890	35,940	1,180	2.4	60,610	1,710	3.4	59,020
York-Hanover, PA	169,030	39,630	4,180	2.5	69,770	6,210	3.7	65,540
Youngstown-Warren-Boardman, OH-PA	213,870	36,230	3,670	1.7	63,770	4,980	2.3	62,630
Rhode Island	448,150	45,920	18,210	4.1	81,830	24,200	5.4	80,420
Norwich-New London, CT-RI	130,140	44,330	6,980	5.4	83,680	11,480	8.8	80,330
Providence-Fall River-Warwick, RI-MA	532,800	44,970	19,780	3.7	80,940	26,480	5.0	79,420
South Carolina	1,746,820	37,920	56,230	3.2	68,420	80,090	4.6	66,900
Anderson, SC	55,530	35,920	1,020	1.8	66,970	1,780	3.2	64,090
Augusta-Richmond County, GA-SC	202,190	40,250	8,080	4.0	78,160	11,170	5.5	74,730
Charleston-North Charleston-Summerville, SC	275,420	39,960	10,500	3.8	68,800	15,040	5.5	66,760
Charlotte-Gastonia-Concord, NC-SC	809,260	44,630	34,310	4.2	78,650	47,200	5.8	79,860
Columbia, SC	331,480	40,340	13,380	4.0	65,750	18,400	5.6	65,670
Florence, SC	76,960	36,380	1,840	2.4	60,830	2,760	3.6	59,340
Greenville-Mauldin-Easley, SC	287,180	39,110	11,940	4.2	70,420	16,610	5.8	69,790
Myrtle Beach-North Myrtle Beach-Conway, SC	107,110	30,870	1,240	1.2	55,740	1,840	1.7	57,000
Spartanburg, SC	111,690	38,570	2,740	2.5	65,390	3,880	3.5	64,060
Sumter, SC	33,510	33,500	670	2.0	58,720	1,100	3.3	54,770
South Dakota	387,590	34,390	11,150	2.9	58,790	15,010	3.9	55,280
Rapid City, SD	58,390	34,600	1,580	2.7	59,490	2,120	3.6	55,650
Sioux City, IA-NE-SD	70,380	33,570	1,160	1.6	59,370	1,660	2.4	57,900
Sioux Falls, SD	132,380	36,960	4,130	3.1	59,470	5,160	3.9	58,040
Tennessee	2,569,420	38,330	71,850	2.8	69,650	100,290	3.9	67,870
Chattanooga, TN-GA	219,760	38,240	6,270	2.9	68,050	9,160	4.2	65,600
Clarksville, TN-KY	77,010	35,170	1,970	2.6	66,740	2,870	3.7	63,790
Cleveland, TN	35,360	33,720	620	1.8	61,510	940	2.7	60,920
Jackson, TN	55,800	34,950	910	1.6	58,530	1,290	2.3	57,690
Johnson City, TN	75,230	35,530	2,040	2.7	64,090	2,940	3.9	61,790
Kingsport-Bristol-Bristol, TN-VA	112,700	36,880	3,320	2.9	69,260	4,360	3.9	67,650
Knoxville, TN	319,770	39,100	11,890	3.7	76,130	16,450	5.1	72,260
Memphis, TN-MS-AR	586,140	40,180	14,710	2.5	72,120	20,650	3.5	71,710
Morristown, TN	42,850	32,750	480	1.1	57,300	650	1.5	55,880
Nashville-Davidson--Murfreesboro--Franklin, TN	703,190	40,710	21,290	3.0	65,600	29,600	4.2	65,190
Texas	10,089,870	42,220	451,390	4.5	83,590	613,550	6.1	80,690
Abilene, TX	61,790	34,780	1,220	2.0	57,080	1,720	2.8	55,940

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Amarillo, TX	107,730	37,730	2,950	2.7	72,870	4,260	4.0	68,450
Austin-Round Rock, TX	759,910	46,130	60,600	8.0	83,350	79,210	10.4	82,160
Beaumont-Port Arthur, TX	155,120	39,740	4,140	2.7	84,540	7,100	4.6	74,100
Brownsville-Harlingen, TX	123,680	31,720	1,130	0.9	57,610	1,760	1.4	53,660
College Station-Bryan, TX	92,510	39,290	8,110	8.8	64,030	10,230	11.1	60,910
Corpus Christi, TX	173,880	36,100	4,150	2.4	70,310	6,380	3.7	63,530
Dallas-Fort Worth-Arlington, TX Metropolitan Statistical Area	2,832,560	45,530	151,090	5.3	83,920	198,860	7.0	82,740
Dallas-Plano-Irving, TX Metropolitan Division	2,001,860	46,860	115,340	5.8	85,070	150,490	7.5	84,440
Fort Worth-Arlington, TX Metropolitan Division	830,710	42,350	35,740	4.3	80,220	48,370	5.8	77,460
El Paso, TX	267,860	35,120	5,670	2.1	66,610	8,510	3.2	61,210
Houston-Sugar Land-Baytown, TX	2,497,880	46,290	135,170	5.4	92,440	184,640	7.4	88,750
Killeen-Temple-Fort Hood, TX	123,410	36,900	4,000	3.2	73,740	5,560	4.5	70,860
Laredo, TX	84,650	33,580	1,430	1.7	60,820	1,920	2.3	57,860
Longview, TX	91,840	37,080	1,850	2.0	69,980	3,010	3.3	64,240
Lubbock, TX	122,250	36,150	3,160	2.6	75,940	4,200	3.4	70,140
McAllen-Edinburg-Mission, TX	219,570	32,470	2,380	1.1	61,740	3,780	1.7	57,100
Midland, TX	64,210	43,180	2,640	4.1	99,510	4,210	6.6	91,780
Odessa, TX	56,920	39,340	1,080	1.9	78,730	1,590	2.8	73,350
San Angelo, TX	42,530	35,460	1,420	3.3	61,570	1,920	4.5	58,470
San Antonio, TX	832,320	39,410	32,760	3.9	73,330	42,180	5.1	71,690
Sherman-Denison, TX	40,500	36,360	710	1.8	70,830	1,380	3.4	66,850
Texarkana-Texarkana, TX-AR	52,550	36,410	790	1.5	66,060	1,060	2.0	62,910
Tyler, TX	90,320	36,870	2,490	2.8	65,870	3,600	4.0	62,810
Victoria, TX	46,510	36,400	860	1.8	77,990	1,480	3.2	69,390
Waco, TX	98,870	36,680	2,470	2.5	66,060	3,560	3.6	62,460
Wichita Falls, TX	55,940	34,650	770	1.4	67,700	1,280	2.3	60,250
Utah	1,148,520	40,120	50,830	4.4	70,080	70,300	6.1	68,380
Logan, UT-ID	47,730	34,750	2,010	4.2	67,070	2,830	5.9	61,400
Ogden-Clearfield, UT	190,210	38,270	6,980	3.7	74,520	9,450	5.0	70,920
Provo-Orem, UT	167,780	38,830	8,820	5.3	63,500	11,930	7.1	63,260
St. George, UT	45,150	34,160	640	1.4	56,210	1,030	2.3	52,170
Salt Lake City, UT	591,940	42,570	29,600	5.0	71,430	40,160	6.8	70,950
Vermont	286,990	42,030	12,670	4.4	74,510	16,690	5.8	72,810
Burlington-South Burlington, VT	108,520	45,720	7,320	6.7	78,810	9,730	9.0	77,490
Virginia	3,527,350	47,840	255,800	7.3	88,750	315,320	8.9	88,240
Blacksburg-Christiansburg-Radford, VA	61,390	38,630	4,340	7.1	71,630	5,440	8.9	67,950
Charlottesville, VA	90,270	45,340	5,480	6.1	71,340	6,480	7.2	71,310
Danville, VA	36,760	34,620	490	1.3	65,180	660	1.8	61,390
Harrisonburg, VA	57,510	36,840	1,620	2.8	66,120	2,050	3.6	65,150
Kingsport-Bristol-Bristol, TN-VA	112,700	36,880	3,320	2.9	69,260	4,360	3.9	67,650
Lynchburg, VA	97,650	36,360	3,030	3.1	71,820	4,770	4.9	69,010

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Richmond, VA	582,040	44,540	28,050	4.8	75,670	35,340	6.1	75,670
Roanoke, VA	147,380	37,980	3,900	2.6	62,930	5,140	3.5	63,130
Virginia Beach-Norfolk-Newport News, VA-NC	715,230	41,440	36,010	5.0	75,650	48,570	6.8	72,880
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area	2,840,740	61,530	298,180	10.5	95,560	360,580	12.7	96,290
Bethesda-Frederick-Gaithersburg, MD Metropolitan Division	551,550	58,360	54,820	9.9	93,780	68,860	12.5	93,690
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	2,289,200	62,300	243,350	10.6	95,960	291,730	12.7	96,900
Winchester, VA-WV	50,650	40,090	1,240	2.4	72,750	1,680	3.3	70,990
Washington	2,693,220	48,940	186,210	6.9	83,650	240,530	8.9	83,340
Bellingham, WA	73,420	41,430	2,550	3.5	75,490	3,240	4.4	73,570
Bremerton-Silverdale, WA	79,200	46,670	4,680	5.9	80,800	6,770	8.5	79,080
Kennewick-Pasco-Richland, WA	96,390	47,650	8,830	9.2	87,120	12,100	12.6	85,230
Lewiston, ID-WA	23,650	37,140	670	2.8	51,980	950	4.0	51,070
Longview, WA	33,820	42,430	760	2.2	67,060	1,040	3.1	64,900
Mount Vernon-Anacortes, WA	41,940	41,870	1,360	3.2	74,880	1,940	4.6	71,620
Olympia, WA	93,910	46,150	7,870	8.4	70,130	9,640	10.3	71,280
Portland-Vancouver-Beaverton, OR-WA	962,050	46,970	50,270	5.2	80,700	68,730	7.1	79,590
Seattle-Tacoma-Bellevue, WA Metropolitan Statistical Area	1,601,010	53,180	138,350	8.6	86,890	174,920	10.9	87,500
Seattle-Bellevue-Everett, WA Metropolitan Division	1,346,300	54,610	131,130	9.7	87,670	164,980	12.3	88,480
Tacoma, WA Metropolitan Division	254,710	45,620	7,220	2.8	72,710	9,940	3.9	71,090
Spokane, WA	196,880	42,100	6,700	3.4	64,510	8,840	4.5	63,950
Wenatchee, WA	38,770	38,600	900	2.3	62,940	1,460	3.8	57,040
Yakima, WA	79,040	38,230	1,440	1.8	64,010	2,080	2.6	60,710
West Virginia	688,170	35,370	17,070	2.5	64,170	25,620	3.7	59,990
Charleston, WV	141,360	37,950	3,550	2.5	59,520	5,850	4.1	54,610
Cumberland, MD-WV	37,400	37,410	920	2.5	66,830	1,210	3.2	65,170
Hagerstown-Martinsburg, MD-WV	92,760	38,760	2,840	3.1	72,120	3,500	3.8	71,600
Huntington-Ashland, WV-KY-OH	107,860	35,490	2,140	2.0	65,100	3,020	2.8	62,400
Morgantown, WV	57,710	36,970	2,470	4.3	70,330	3,560	6.2	66,770
Parkersburg-Marietta-Vienna, WV-OH	65,750	35,830	1,640	2.5	65,030	2,160	3.3	63,100
Steubenville-Weirton, OH-WV	41,570	34,090	550	1.3	62,490	890	2.1	62,420
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area	2,840,740	61,530	298,180	10.5	95,560	360,580	12.7	96,290
Bethesda-Frederick-Gaithersburg, MD Metropolitan Division	551,550	58,360	54,820	9.9	93,780	68,860	12.5	93,690
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	2,289,200	62,300	243,350	10.6	95,960	291,730	12.7	96,900
Wheeling, WV-OH	62,460	33,280	1,160	1.9	59,930	1,720	2.8	57,530
Winchester, VA-WV	50,650	40,090	1,240	2.4	72,750	1,680	3.3	70,990
Wisconsin	2,608,740	40,980	99,240	3.8	69,020	135,190	5.2	68,380
Appleton, WI	112,580	39,410	3,180	2.8	68,290	4,660	4.1	65,590
Chicago-Naperville-Joliet, IL-IN-WI Metropolitan Statistical Area	4,169,840	48,490	155,760	3.7	78,900	214,310	5.1	79,000
Chicago-Naperville-Joliet, IL Metropolitan Division	3,542,180	49,140	131,980	3.7	78,860	182,380	5.1	78,970
Gary, IN Metropolitan Division	258,120	39,680	4,750	1.8	68,770	6,800	2.6	67,600
Lake County-Kenosha County, IL-WI Metropolitan Division	369,540	48,520	19,040	5.2	81,700	25,130	6.8	82,270

Appendix table 3-4

Employment and wages, by broad occupational category, state, and selected metropolitan statistical areas (May 2010)

Geographic location	All occupations		S&E occupations			STEM occupations		
	Number	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)	Number	Percent of all occupations	Mean annual wage ($)
Duluth, MN-WI	121,870	39,120	3,930	3.2	64,810	5,510	4.5	63,180
Eau Claire, WI	75,440	37,110	2,600	3.4	62,270	3,730	4.9	62,900
Fond du Lac, WI	41,310	38,450	1,260	3.1	65,030	1,880	4.6	63,350
Green Bay, WI	162,460	40,390	5,640	3.5	66,150	7,870	4.8	65,940
Janesville, WI	59,830	38,330	1,230	2.1	64,210	1,620	2.7	63,920
La Crosse, WI-MN	69,590	39,710	2,670	3.8	66,850	3,660	5.3	66,200
Madison, WI	323,170	45,330	D	D	70,300	30,130	9.3	70,700
Milwaukee-Waukesha-West Allis, WI	784,970	45,010	35,800	4.6	72,550	47,670	6.1	72,440
Minneapolis-St. Paul-Bloomington, MN-WI	1,678,090	49,140	99,380	5.9	78,040	132,040	7.9	79,380
Oshkosh-Neenah, WI	85,700	40,430	2,890	3.4	64,770	4,260	5.0	65,150
Racine, WI	70,750	38,150	1,510	2.1	67,260	2,190	3.1	66,340
Sheboygan, WI	55,290	39,340	1,700	3.1	74,680	2,630	4.8	71,780
Wausau, WI	64,200	38,430	1,920	3.0	62,800	2,780	4.3	61,960
Wyoming	269,910	41,510	8,260	3.1	66,880	12,310	4.6	61,320
Casper, WY	37,450	42,360	1,120	3.0	69,870	1,480	4.0	66,170
Cheyenne, WY	41,030	40,700	1,550	3.8	62,680	2,110	5.1	62,160
Puerto Rico	950,570	26,870	20,850	2.2	50,130	31,250	3.3	48,030
Aguadilla-Isabela-San Sebastian, PR	41,700	22,960	670	1.6	45,590	940	2.3	42,350
Fajardo, PR	12,840	24,370	D	D	49,260	240	1.9	D
Guayama, PR	13,890	28,470	590	4.2	61,610	790	5.7	62,740
Mayaguez, PR	30,550	24,400	D	D	D	870	2.8	D
Ponce, PR	53,670	24,340	940	1.8	47,590	1,440	2.7	42,820
San German-Cabo Rojo, PR	19,410	22,620	240	1.2	D	360	1.9	D
San Juan-Caguas-Guaynabo, PR	743,410	27,550	17,290	2.3	50,230	26,030	3.5	48,280
Yauco, PR	11,290	22,610	D	D	D	40	0.4	44,760

D = suppressed to avoid disclosure of confidential information

NECTA = New England City and Town Area; STEM = science, technology, engineering, and mathematics

NOTE: Statistical areas that cross state lines are shown in all relevant states; state totals may not add to detail for this reason.

SOURCE: Bureau of Labor Statistics, Occupational Employment Statistics Survey (May 2010)

Science and Engineering Indicators 2012

Appendix table 3-5

Employment sector of S&E highest degree holders and S&E doctorate holders: 2008

Percent

Highest degree field and level	Education		Government		Business/industry		
	4-year institutions	2-year and precollege institutions	Federal	State/local	Self-employed, unincorporated businesses	Nonprofit organizations	For-profit businesses
All S&E highest degree holders	8.3	7.2	5.3	7.9	5.5	6.9	58.9
Computer/mathematical sciences	7.2	6.3	4.2	4.1	3.3	4.7	70.3
Biological/agricultural/environmental life sciences	15.2	7.0	6.2	8.9	6.5	9.5	46.6
Physical sciences	14.9	6.3	6.4	6.7	5.7	5.3	54.8
Social sciences	7.4	11.7	5.1	10.9	7.4	10.2	47.3
Engineering	4.1	1.0	5.4	5.7	3.5	1.8	78.5
S&E doctorate holders	40.5	3.1	6.3	2.9	6.2	6.2	34.8
Computer/mathematical sciences	49.0	2.6	3.7	0.8	3.4	3.3	37.3
Biological/agricultural/environmental life sciences	46.3	3.1	8.2	2.8	3.5	8.3	27.7
Physical sciences	34.7	3.2	6.8	2.3	3.7	4.9	44.3
Social sciences	46.5	4.8	5.3	4.7	12.9	8.2	17.7
Engineering	25.7	0.9	5.5	1.9	4.4	2.9	58.7

NOTE: Scientists and engineers refers to all persons who work in an S&E occupation or who received a bachelor's degree or higher in an S&E degree field in 1993–99 or an S&E or S&E-related field in 2003–08.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (1993–2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-6

Primary reason for scientists and engineers to participate in work-related training, by labor force status: 2008

(Percent distribution)

Reason	Total	Labor force status		
		Employed	Unemployed	Not in labor force
All scientists and engineers engaged in work-related training (*n*)	13,430,000	12,793,000	192,000	445,000
All reasons	100.0	100.0	100.0	100.0
To improve skills or knowledge in current occupational field	53.2	54.3	32.7	31.6
To increase opportunities for promotion/advancement in current occupational field	5.8	5.9	8.2	3.0
For licensure/certification in current occupational field	23.5	23.1	25.7	34.7
To facilitate change to different occupational field	1.6	1.2	12.6	6.3
Required or expected by employer	13.6	13.7	13.5	11.1
For leisure or personal interest	1.8	1.5	3.9	10.5
Other reason	0.5	0.3	3.4	2.8

NOTES: Scientists and engineers include those with one or more S&E or S&E-related degrees at bachelor's level or higher or who have a non-S&E degree at bachelor's level or higher and were employed in an S&E or S&E-related occupation in 2008. Unemployed individuals are those not working, but who have looked for a job in the preceeding 4 weeks. Question not asked of those who never worked. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-7

Scientists and engineers participating in work-related training, by employment status, highest degree level, and sex: 2008

(Percent)

Employment status and highest degree level	Total	Female	Male
All scientists and engineers	57.8	61.4	54.7
Employed	66.5	72.1	62.0
Bachelor's	63.1	68.2	58.9
Master's	69.9	77.3	63.0
Professional	82.8	83.5	82.5
Doctorate	51.8	61.9	46.9
Unemployed	31.8	35.9	28.1
Bachelor's	29.8	32.7	27.1
Master's	33.2	39.8	27.1
Professional	50.8	53.2	48.7
Doctorate	25.7	38.0	20.5
Not in labor force	13.1	15.9	9.9
Bachelor's	11.3	13.4	8.6
Master's	15.2	21.2	8.7
Professional	22.2	18.6	24.0
Doctorate	10.6	14.6	8.8

NOTES: Scientists and engineers include those with one or more S&E or S&E-related degrees at bachelor's level or higher or who have a non-S&E degree at bachelor's level or higher and were employed in an S&E or S&E-related occupation in 2003. Total excludes scientists and engineers who never worked. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-8

Alternate rates of labor underutilization for S&E, STEM, and all occupations: March 2008–September 2011

(Percent)

	U1			U2			U3			U4			U5			U6		
Date	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E
March 2008	1.7	0.8	0.8	3.0	1.5	1.2	5.4	2.3	1.7	5.6	2.3	1.7	6.3	2.3	1.7	9.6	2.8	2.2
April 2008	1.8	1.0	0.9	2.8	1.4	1.2	5.2	2.4	1.9	5.4	2.4	1.9	6.0	2.4	1.9	9.3	2.9	2.2
May 2008	1.8	1.2	1.0	2.7	1.4	1.1	5.2	2.5	2.0	5.4	2.5	2.0	6.0	2.5	2.0	9.3	3.0	2.3
June 2008	1.9	1.2	1.0	2.6	1.4	1.1	5.4	2.6	2.1	5.6	2.6	2.1	6.2	2.6	2.1	9.6	3.1	2.4
July 2008	1.9	1.0	0.9	2.7	1.4	1.1	5.8	2.4	2.1	6.0	2.4	2.1	6.7	2.5	2.1	10.2	3.1	2.6
August 2008	2.0	0.9	0.8	2.9	1.4	1.2	6.1	2.3	2.0	6.3	2.4	2.1	7.0	2.4	2.1	10.7	3.2	2.7
September 2008	2.1	1.1	0.9	3.0	1.5	1.2	6.1	2.5	2.2	6.4	2.5	2.2	7.1	2.6	2.2	10.8	3.5	2.9
October 2008	2.3	1.4	1.1	3.2	2.0	1.6	6.2	3.0	2.5	6.4	3.0	2.5	7.1	3.0	2.5	10.9	4.0	3.1
November 2008	2.4	1.5	1.3	3.4	2.3	1.9	6.3	3.3	2.9	6.6	3.3	2.9	7.3	3.3	2.9	11.3	4.3	3.4
December 2008	2.6	1.5	1.3	3.9	2.6	2.1	6.7	3.3	2.8	7.0	3.3	2.8	7.7	3.3	2.8	12.3	4.4	3.4
January 2009	2.8	1.5	1.3	4.6	2.9	2.4	7.5	3.6	3.1	7.9	3.6	3.1	8.6	3.6	3.1	13.8	4.8	3.9
February 2009	3.3	1.7	1.4	5.4	3.5	3.0	8.3	4.2	3.6	8.7	4.2	3.6	9.5	4.2	3.6	15.1	5.4	4.6
March 2009	3.7	2.0	1.6	5.9	3.9	3.5	8.9	4.8	4.2	9.3	4.8	4.2	10.1	4.9	4.3	16.0	6.2	5.4
April 2009	4.1	2.2	1.9	5.9	4.1	3.6	9.0	5.0	4.3	9.4	5.0	4.3	10.1	5.0	4.3	15.9	6.6	5.7
May 2009	4.4	2.6	2.2	5.9	4.1	3.7	9.0	5.1	4.5	9.5	5.2	4.5	10.2	5.2	4.5	15.9	6.9	5.9
June 2009	4.7	2.8	2.5	5.8	4.2	3.7	9.3	5.3	4.7	9.7	5.3	4.7	10.5	5.3	4.7	16.1	7.2	6.3
July 2009	4.8	3.2	2.8	5.9	4.6	3.9	9.6	5.7	5.0	10.1	5.7	5.0	10.9	5.7	5.0	16.6	7.5	6.5
August 2009	4.9	3.4	3.0	6.0	4.7	4.1	9.8	5.8	5.1	10.2	5.8	5.1	11.0	5.8	5.2	16.8	7.5	6.8
September 2009	5.1	3.7	3.5	6.0	4.8	4.4	9.7	6.0	5.5	10.1	6.0	5.5	10.9	6.0	5.5	16.5	7.7	7.0
October 2009	5.3	3.6	3.6	6.0	4.5	4.5	9.6	5.7	5.6	10.0	5.7	5.6	10.9	5.7	5.6	16.3	7.3	7.0
November 2009	5.5	3.5	3.5	6.0	4.3	4.4	9.5	5.4	5.4	10.0	5.4	5.4	10.8	5.5	5.4	16.3	7.0	6.6
December 2009	5.6	3.2	3.0	6.2	4.1	3.9	9.6	5.0	4.7	10.1	5.1	4.8	11.0	5.1	4.8	16.7	6.6	5.9
January 2010	5.7	3.4	2.7	6.5	4.3	3.6	10.0	5.4	4.4	10.5	5.4	4.4	11.3	5.5	4.4	17.2	7.0	5.6
February 2010	5.9	3.7	2.7	6.8	4.4	3.4	10.3	5.8	4.3	10.9	5.8	4.3	11.7	5.8	4.3	17.7	7.4	5.8
March 2010	6.1	4.1	2.9	6.9	4.6	3.5	10.5	6.1	4.4	11.1	6.1	4.4	11.8	6.2	4.4	17.8	7.7	6.0
April 2010	6.3	4.2	3.1	6.6	4.4	3.4	10.1	5.8	4.2	10.8	5.8	4.2	11.5	5.8	4.2	17.3	7.4	6.0
May 2010	6.2	4.0	2.9	6.2	4.1	3.2	9.8	5.5	4.0	10.4	5.5	4.0	11.1	5.5	4.0	16.8	7.0	5.6
June 2010	6.0	3.8	2.9	5.8	3.8	3.2	9.6	5.1	4.0	10.2	5.1	4.0	10.9	5.2	4.1	16.5	6.8	5.5
July 2010	5.7	3.5	2.7	5.7	3.7	3.1	9.7	5.0	4.1	10.3	5.0	4.1	11.0	5.0	4.1	16.6	6.7	5.4
August 2010	5.5	3.4	2.8	5.7	3.6	2.9	9.7	4.7	4.0	10.4	4.7	4.0	11.1	4.8	4.0	16.7	6.4	5.3
September 2010	5.4	3.2	2.7	5.7	3.5	2.9	9.6	4.6	4.0	10.3	4.6	4.0	11.0	4.6	4.0	16.5	6.0	5.3
October 2010	5.4	3.2	2.8	5.6	3.6	3.0	9.3	4.6	4.1	10.0	4.6	4.1	10.8	4.6	4.1	16.2	6.0	5.4
November 2010	5.5	3.3	2.9	5.6	3.7	3.2	9.2	4.8	4.2	10.0	4.8	4.2	10.7	4.8	4.2	16.2	6.1	5.5
December 2010	5.5	3.5	2.8	5.7	3.6	3.1	9.2	4.9	4.1	10.0	4.9	4.1	10.7	4.9	4.2	16.3	6.1	5.4
January 2011	5.5	3.4	2.6	6.0	3.4	2.6	9.5	4.6	3.7	10.2	4.6	3.7	10.9	4.6	3.7	16.7	5.8	4.9
February 2011	5.5	3.1	2.2	6.1	3.4	2.3	9.5	4.4	3.3	10.2	4.4	3.3	11.1	4.5	3.3	16.9	5.6	4.4
March 2011	5.6	2.9	1.8	6.0	3.4	1.9	9.5	4.3	2.8	10.1	4.3	2.8	11.0	4.3	2.8	16.7	5.5	3.8
April 2011	5.6	2.7	1.4	5.7	3.2	1.8	9.2	4.1	2.5	9.7	4.1	2.5	10.6	4.1	2.5	16.1	5.3	3.5
May 2011	5.5	2.6	1.4	5.4	3.0	1.6	8.9	4.0	2.3	9.4	4.0	2.3	10.2	4.0	2.3	15.7	5.0	3.2
June 2011	5.4	2.5	1.6	5.2	2.8	1.8	9.0	3.9	2.5	9.5	4.0	2.5	10.3	4.0	2.5	15.8	5.0	3.3

Appendix table 3-8

Alternate rates of labor underutilization for S&E, STEM, and all occupations: March 2008–September 2011

(Percent)

	U1			U2			U3			U4			U5			U6		
Date	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E	All occupations	STEM	S&E
July 2011	5.3	2.7	2.0	5.2	2.9	2.2	9.2	4.2	3.0	9.8	4.2	3.1	10.7	4.2	3.1	16.1	5.2	3.9
August 2011	5.2	2.8	2.5	5.2	2.8	2.5	9.4	4.2	3.6	10.0	4.2	3.7	10.8	4.2	3.7	16.3	5.3	4.6
September 2011	5.2	2.8	2.6	5.1	2.9	2.6	9.2	4.2	3.8	9.8	4.2	3.8	10.6	4.2	3.8	16.1	5.5	5.0

STEM = science, technology, engineering, and mathematics

NOTES: Estimates not seasonally adjusted. Estimates made from pooled microrecords of Current Population Survey and, while similar, are not same as 3-month moving average. See table 3-16 for definitions of rates U1–U6.

SOURCE: Current Population Survey, Public Use Microdata Sample (PUMS), March 2008–September 2011.

Science and Engineering Indicators 2012

Appendix table 3-9
Workers in S&E occupations, by sex and occupation: 2008

Occupation	Total	Female		Male	
		Number	Percent	Number	Percent
Science and engineering occupations	4,874,000	1,308,000	26.8	3,566,000	73.2
Computer and mathematical scientists	1,970,000	518,000	26.3	1,452,000	73.7
Computer and information scientists	1,778,000	441,000	24.8	1,338,000	75.2
Computer and information scientists, research	45,000	11,000	23.5	35,000	76.5
Computer support specialists	193,000	60,000	31.1	133,000	68.9
Computer system analysts	434,000	144,000	33.3	289,000	66.7
Database administrators	100,000	32,000	31.8	68,000	68.2
Network and computer systems administrators	178,000	26,000	14.7	152,000	85.3
Network systems and data communications analysts	88,000	21,000	24.2	67,000	75.8
Other computer information science occupations	145,000	50,000	34.5	95,000	65.5
Computer engineers—software	594,000	96,000	16.1	498,000	83.9
Mathematical scientists	107,000	48,000	45.1	59,000	54.9
Mathematicians	6,000	1,000	22.0	5,000	78.0
Operations research analysts, including modeling	57,000	24,000	41.4	33,000	58.6
Statisticians	39,000	20,000	51.6	19,000	48.4
Other mathematical scientists	6,000	4,000	60.5	2,000	39.5
Postsecondary teachers—computer and math sciences	84,000	29,000	34.6	55,000	65.4
Postsecondary teachers—computer science teachers	22,000	6,000	26.6	16,000	73.4
Postsecondary teachers—mathematics and statistics	62,000	23,000	37.4	39,000	62.6
Biological, agricultural, and other life scientists	498,000	224,000	45.0	274,000	55.0
Agricultural and food scientists	62,000	20,000	32.3	42,000	67.7
Biological and medical scientists	331,000	168,000	50.6	164,000	49.4
Biochemists and biophysicists	45,000	18,000	39.9	27,000	60.1
Biological scientists (e.g., botanists, ecologists, zoologists)	128,000	65,000	50.8	63,000	49.2
Medical scientists (excluding practitioners)	124,000	64,000	51.6	60,000	48.4
Other biological, agricultural, or life scientists	34,000	21,000	60.3	14,000	39.7
Forestry and conservation scientists	35,000	7,000	20.3	28,000	79.7
Postsecondary teachers—life and related sciences	70,000	29,000	42.2	40,000	57.8
Postsecondary teachers—agriculture teachers	8,000	3,000	37.4	5,000	62.6
Postsecondary teachers—biological sciences teachers	59,000	26,000	44.0	33,000	56.0
Postsecondary teachers—other natural sciences teachers	3,000	S	S	2,000	84.4
Physical and related scientists	322,000	96,000	29.7	226,000	70.3
Chemists, except biochemists	129,000	46,000	35.6	83,000	64.4
Earth scientists, geologists, and oceanographers	78,000	17,000	21.4	61,000	78.6
Atmospheric and space scientists	15,000	2,000	15.0	12,000	85.0
Geologists, including earth scientists	59,000	13,000	21.9	46,000	78.1
Oceanographers	4,000	1,000	38.1	2,000	61.9
Physicists and astronomers	27,000	3,000	11.4	24,000	88.6
Astronomers	3,000	1,000	22.2	2,000	77.8
Physicists	25,000	3,000	10.3	22,000	89.7
Other physical scientists	35,000	14,000	40.7	21,000	59.3
Postsecondary teachers—physical and related sciences	54,000	16,000	29.8	38,000	70.2
Postsecondary teachers—chemistry teachers	24,000	7,000	29.3	17,000	70.7
Postsecondary teachers—earth, environmental, and marine sciences teachers	15,000	7,000	44.8	8,000	55.2
Postsecondary teachers—physics teachers	15,000	2,000	15.7	13,000	84.3
Social and related scientists	502,000	266,000	52.9	237,000	47.1
Economists	29,000	9,000	32.1	20,000	67.9
Political scientists	17,000	11,000	61.0	7,000	39.0
Psychologists, including clinical	185,000	125,000	67.5	60,000	32.5
Sociologists and anthropologists	21,000	13,000	61.5	8,000	38.5
Anthropologists	11,000	5,000	48.3	6,000	51.7
Sociologists	10,000	7,000	76.5	2,000	23.5
Other social scientists	134,000	57,000	42.2	78,000	57.8
Postsecondary teachers—social and related sciences	116,000	51,000	44.3	64,000	55.7
Postsecondary teachers—economics teachers	18,000	6,000	31.5	12,000	68.5
Postsecondary teachers—political science teachers	15,000	4,000	29.6	10,000	70.4

Appendix table 3-9
Workers in S&E occupations, by sex and occupation: 2008

Occupation	Total	Female		Male	
		Number	Percent	Number	Percent
Postsecondary teachers—psychology teachers	33,000	16,000	49.1	17,000	50.9
Postsecondary teachers—sociology teachers	18,000	8,000	46.5	10,000	53.5
Postsecondary teachers—other social sciences teachers	33,000	17,000	51.7	16,000	48.3
Engineers	1,582,000	204,000	12.9	1,378,000	87.1
Aerospace, aeronautical, or astronautical engineers	100,000	10,000	10.2	90,000	89.8
Agricultural engineers	7,000	1,000	16.5	6,000	83.5
Bioengineering and biomedical engineers	28,000	8,000	28.3	20,000	71.7
Chemical engineers	77,000	16,000	20.5	61,000	79.5
Civil, architectural, or sanitary engineers	258,000	38,000	14.6	220,000	85.4
Electrical or computer hardware engineers	399,000	43,000	10.9	355,000	89.1
Computer engineers—hardware	53,000	10,000	18.8	43,000	81.2
Electrical and electronics engineers	346,000	33,000	9.7	312,000	90.3
Environmental engineers	86,000	19,000	22.7	66,000	77.3
Industrial engineers	93,000	12,000	13.3	81,000	86.7
Marine engineers and naval architects	12,000	1,000	5.1	11,000	94.9
Materials and metallurgical engineers	46,000	9,000	18.9	37,000	81.1
Mechanical engineers	300,000	23,000	7.5	278,000	92.5
Mining and geological engineers	7,000	1,000	13.4	6,000	86.6
Nuclear engineers	17,000	2,000	14.1	15,000	85.9
Petroleum engineers	19,000	1,000	7.3	18,000	92.7
Sales engineers	49,000	5,000	11.1	44,000	88.9
Other engineers	48,000	8,000	17.3	40,000	82.7
Postsecondary teachers—engineering teachers	35,000	6,000	16.3	29,000	83.7

S = suppressed due to reasons of confidentiality and/or reliability

NOTES: Numbers rounded to nearest 1,000. Percentages based on unrounded data.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-10

Race/ethnicity of individuals in S&E occupations, by sex and broad occupation: 2008

(Percent)

	All S&E occupations			Computer/ mathematical scientists			Biological/agricultural/ other life scientists			Physical scientists			Social scientists			Engineers		
Race/ethnicity	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Asian	16.9	18.0	16.5	21.5	22.1	21.3	16.0	17.9	14.5	13.4	18.1	11.4	6.3	6.7	5.9	15.6	22.6	14.5
American Indian/Alaska Native	0.3	0.4	0.3	0.3	0.3	0.3	0.7	0.4	1.0	0.3	0.7	0.2	0.7	0.4	1.0	0.2	0.5	0.2
Black	3.9	5.8	3.2	4.9	8.0	3.8	2.8	2.9	2.7	2.7	3.7	2.3	4.5	4.9	4.1	3.1	5.4	2.7
Hispanic	4.9	5.3	4.8	4.2	3.6	4.4	5.6	5.7	5.5	4.5	5.6	4.0	5.2	6.6	3.7	5.6	7.3	5.3
White	71.8	68.3	73.1	67.2	64.1	68.3	73.1	71.3	74.6	76.8	70.2	79.6	80.9	79.0	83.1	73.4	60.9	75.2
Native Hawaiian/Pacific Islander	0.4	0.4	0.4	0.4	0.5	0.4	0.1	0.1	0.1	0.3	0.0	0.4	0.4	0.4	0.3	0.6	0.5	0.6
Two or more races	1.7	1.9	1.6	1.6	1.6	1.5	1.7	1.7	1.7	2.0	1.9	2.0	1.9	1.9	1.9	1.6	2.7	1.5

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-11

Employed S&E highest degree holders, by sex and field of degree: 2008

(Percent)

Highest degree field	Total	Female		Male	
		Number	Percent	Number	Percent
All S&E degrees	10,216,000	3,827,000	37.5	6,389,000	62.5
Computer and mathematical sciences	1,651,000	507,000	30.7	1,144,000	69.3
Computer and information sciences	1,159,000	317,000	27.4	841,000	72.6
Computer and information sciences	205,000	60,000	29.1	145,000	70.9
Computer science	651,000	162,000	24.9	489,000	75.1
Computer systems analysis	35,000	10,000	28.0	25,000	72.0
Information services and systems	191,000	66,000	34.5	125,000	65.5
Other computer and information sciences	77,000	20,000	25.9	57,000	74.1
Mathematics and statistics	492,000	190,000	38.6	302,000	61.4
Applied mathematics	92,000	34,000	37.5	57,000	62.5
Mathematics, general	289,000	118,000	40.9	171,000	59.1
Operations research	29,000	8,000	28.0	21,000	72.0
Statistics	50,000	20,000	39.4	31,000	60.6
Other mathematics	32,000	10,000	30.2	22,000	69.8
Biological, agricultural, and environmental life sciences	1,569,000	724,000	46.1	845,000	53.9
Agricultural and food sciences	266,000	98,000	37.0	168,000	63.0
Animal sciences	110,000	49,000	44.1	62,000	55.9
Food sciences and technology	32,000	19,000	58.9	13,000	41.1
Plant sciences	75,000	22,000	29.0	53,000	71.0
Other agricultural sciences	49,000	9,000	18.9	40,000	81.1
Biological sciences	1,125,000	567,000	50.4	558,000	49.6
Biochemistry and biophysics	101,000	44,000	43.2	57,000	56.8
Biology, general	507,000	264,000	52.2	242,000	47.8
Botany	26,000	12,000	45.2	14,000	54.8
Cell and molecular biology	60,000	29,000	48.3	31,000	51.7
Ecology	57,000	25,000	43.8	32,000	56.2
Genetics, animal and plant	18,000	8,000	47.7	9,000	52.3
Microbiological sciences and immunology	92,000	49,000	52.8	43,000	47.2
Nutritional sciences	36,000	34,000	95.1	2,000	4.9
Pharmacology, human and animal	20,000	7,000	35.7	13,000	64.3
Physiology and pathology, human and animal	43,000	18,000	41.1	25,000	58.9
Zoology, general	64,000	27,000	43.0	36,000	57.0
Other biological sciences	103,000	50,000	48.9	52,000	51.1
Environmental life sciences	178,000	59,000	32.9	119,000	67.1
Environmental science or studies	111,000	51,000	45.9	60,000	54.1
Forestry sciences	67,000	8,000	11.7	60,000	88.3
Physical sciences	665,000	183,000	27.5	482,000	72.5
Chemistry, except biochemistry	306,000	107,000	34.8	199,000	65.2
Earth, atmospheric, and ocean sciences	168,000	38,000	22.5	130,000	77.5
Atmospheric sciences and meteorology	22,000	3,000	13.3	19,000	86.7
Earth sciences	17,000	6,000	34.0	11,000	66.0
Geology	99,000	22,000	22.1	77,000	77.9
Geological sciences, other	21,000	6,000	27.2	15,000	72.8
Oceanography	10,000	2,000	17.7	8,000	82.3
Physics and astronomy	150,000	23,000	15.1	128,000	84.9
Astronomy and astrophysics	10,000	2,000	20.6	8,000	79.4
Physics	141,000	21,000	14.8	120,000	85.2
Other physical sciences	40,000	16,000	39.0	24,000	61.0
Social sciences	3,878,000	2,094,000	54.0	1,785,000	46.0
Economics	580,000	155,000	26.6	426,000	73.4
Agricultural economics	88,000	14,000	16.4	73,000	83.6
Economics	493,000	140,000	28.4	353,000	71.6
Political and related sciences	705,000	283,000	40.1	423,000	59.9
Public policy studies	49,000	26,000	52.9	23,000	47.1
International relations	110,000	56,000	50.9	54,000	49.1
Political science and government	547,000	201,000	36.8	346,000	63.2

Appendix table 3-11

Employed S&E highest degree holders, by sex and field of degree: 2008

(Percent)

Highest degree field	Total	Female		Male	
		Number	Percent	Number	Percent
Psychology	1,414,000	977,000	69.1	436,000	30.9
Educational psychology	96,000	73,000	75.6	24,000	24.4
Clinical psychology	119,000	74,000	62.0	45,000	38.0
Counseling psychology	244,000	178,000	72.7	67,000	27.3
Experimental psychology	33,000	16,000	49.4	17,000	50.6
General psychology	712,000	502,000	70.5	210,000	29.5
Industrial/organizational psychology	42,000	25,000	57.9	18,000	42.1
Social psychology	35,000	21,000	59.7	14,000	40.3
Other psychology	132,000	89,000	67.9	42,000	32.1
Sociology and anthropology	763,000	462,000	60.5	301,000	39.5
Anthropology and archaeology	125,000	80,000	64.1	45,000	35.9
Criminology	68,000	23,000	33.7	45,000	66.3
Sociology	571,000	359,000	62.9	212,000	37.1
Other social sciences	416,000	217,000	52.2	199,000	47.8
Area and ethnic studies	95,000	59,000	62.7	35,000	37.3
Linguistics	29,000	21,000	72.1	8,000	27.9
Philosophy of science	17,000	3,000	20.3	13,000	79.7
Geography	109,000	37,000	33.4	73,000	66.6
History of science	18,000	6,000	34.7	12,000	65.3
Other social sciences	149,000	91,000	61.2	58,000	38.8
Engineering	2,453,000	319,000	13.0	2,134,000	87.0
Aerospace, aeronautical, and astronautical engineering	81,000	6,000	8.0	75,000	92.0
Agricultural engineering	23,000	2,000	7.3	21,000	92.7
Bioengineering and biomedical engineering	34,000	13,000	37.5	21,000	62.5
Chemical engineering	165,000	38,000	23.2	127,000	76.8
Civil and architectural engineering	397,000	55,000	13.8	342,000	86.2
Architectural engineering	37,000	6,000	15.5	32,000	84.5
Civil engineering	360,000	49,000	13.6	311,000	86.4
Electrical and computer engineering	808,000	93,000	11.6	715,000	88.4
Computer and systems engineering	175,000	28,000	16.2	146,000	83.8
Electrical, electronics, and communications engineering	633,000	65,000	10.3	568,000	89.7
Engineering sciences, mechanics, and physics	34,000	4,000	13.0	30,000	87.0
Environmental engineering	44,000	9,000	20.3	35,000	79.7
Engineering, general	41,000	4,000	10.6	37,000	89.4
Geophysical and geological engineering	4,000	1,000	17.2	3,000	82.8
Industrial and manufacturing engineering	139,000	29,000	20.6	111,000	79.4
Materials engineering, including ceramics and textiles	43,000	9,000	21.5	33,000	78.5
Mechanical engineering	500,000	39,000	7.9	460,000	92.1
Metallurgical engineering	17,000	2,000	11.1	15,000	88.9
Mining and minerals engineering	13,000	S	S	13,000	97.6
Naval architecture and marine engineering	12,000	S	S	12,000	98.6
Nuclear engineering	13,000	2,000	12.0	12,000	88.0
Petroleum engineering	17,000	1,000	4.8	16,000	95.2
Other engineering	66,000	11,000	17.1	55,000	82.9

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Detail may not add to total because of rounding. Numbers rounded to nearest 1,000. Percentages based on unrounded data.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-12

Employed S&E highest degree holders, by sex, race/ethnicity, degree level, field of highest degree, and broad occupation category: 2008

(Percent)

Sex, race/ethnicity, degree level, and field	Occupation			
	S&E	S&E but out of field	S&E-related	Non-S&E
All employed S&E highest degree holders	38.0	8.4	12.6	49.4
Female				
All degree levels				
All fields	26.0	5.4	14.7	59.2
Computer and mathematical sciences	46.6	2.4	16.7	36.7
Biological, agricultural, and environmental life sciences	28.0	6.4	32.7	39.3
Physical sciences	50.0	17.3	17.0	33.0
Social sciences	12.8	3.2	8.6	78.6
Engineering	62.4	15.6	9.4	28.3
Bachelor's				
All fields	18.5	4.7	15.6	65.9
Computer and mathematical sciences	39.4	2.0	17.8	42.8
Biological, agricultural, and environmental life sciences	20.0	5.5	35.1	44.9
Physical sciences	41.9	16.6	18.5	39.7
Social sciences	6.3	3.3	8.8	84.9
Engineering	57.0	12.1	9.8	33.1
Master's				
All fields	38.8	6.7	13.5	47.7
Computer and mathematical sciences	62.5	3.2	14.9	22.5
Biological, agricultural, and environmental life sciences	40.4	10.8	31.2	28.4
Physical sciences	58.3	14.3	18.9	22.8
Social sciences	21.9	2.7	9.2	68.9
Engineering	69.9	21.7	8.9	21.3
Doctorate				
All fields	73.5	9.1	9.0	17.4
Computer and mathematical sciences	85.2	6.1	3.6	11.2
Biological, agricultural, and environmental life sciences	70.2	7.4	16.8	13.1
Physical sciences	76.4	25.3	7.2	16.4
Social sciences	72.2	4.3	4.4	23.3
Engineering	84.2	21.4	6.5	9.3
Male				
All degree levels				
All fields	45.1	10.2	11.3	43.6
Computer and mathematical sciences	60.5	3.9	14.6	24.9
Biological, agricultural, and environmental life sciences	32.5	9.9	19.6	47.8
Physical sciences	55.9	21.4	12.1	32.0
Social sciences	15.3	6.8	6.7	78.0
Engineering	64.5	14.3	9.9	25.6
Bachelor's				
All fields	38.1	9.2	11.4	50.5
Computer and mathematical sciences	57.2	3.2	15.5	27.3
Biological, agricultural, and environmental life sciences	21.6	10.0	20.3	58.1
Physical sciences	44.8	21.1	12.5	42.7
Social sciences	9.0	6.7	6.4	84.6
Engineering	60.4	12.4	10.1	29.5
Master's				
All fields	58.3	13.0	11.5	30.2
Computer and mathematical sciences	65.4	5.1	13.8	20.7
Biological, agricultural, and environmental life sciences	50.8	11.4	16.4	32.7
Physical sciences	60.7	22.0	16.2	23.1
Social sciences	25.6	7.5	9.2	65.2
Engineering	73.1	19.2	9.5	17.4
Doctorate				
All fields	74.3	12.9	9.7	16.0
Computer and mathematical sciences	83.5	6.8	4.2	12.3

Appendix table 3-12

Employed S&E highest degree holders, by sex, race/ethnicity, degree level, field of highest degree, and broad occupation category: 2008

(Percent)

Sex, race/ethnicity, degree level, and field	Occupation			
	S&E	S&E but out of field	S&E-related	Non-S&E
Biological, agricultural, and environmental life sciences	66.5	8.3	19.3	14.1
Physical sciences	78.6	21.7	7.8	13.7
Social sciences	68.9	6.4	4.2	26.9
Engineering	79.5	17.6	8.2	12.3
Asians				
All degree levels				
All fields	54.7	15.5	12.1	33.2
Computer and mathematical sciences	66.4	4.1	12.2	21.3
Biological, agricultural, and environmental life sciences	39.4	9.8	28.2	32.4
Physical sciences	60.3	27.3	10.6	29.1
Social sciences	15.7	7.6	7.9	76.5
Engineering	70.3	27.1	9.2	20.5
Bachelor's				
All fields	39.9	13.2	13.9	46.2
Computer and mathematical sciences	56.1	4.0	14.5	29.4
Biological, agricultural, and environmental life sciences	20.4	6.5	32.9	46.6
Physical sciences	46.7	24.8	12.8	40.5
Social sciences	8.5	6.5	8.4	83.1
Engineering	60.2	25.4	10.9	28.9
Master's				
All fields	71.5	18.7	9.8	18.7
Computer and mathematical sciences	75.4	4.0	10.6	14.0
Biological, agricultural, and environmental life sciences	56.3	21.3	24.4	19.3
Physical sciences	59.1	24.9	11.5	29.4
Social sciences	32.7	11.7	7.1	60.2
Engineering	80.2	31.5	7.3	12.5
Doctorate				
All fields	78.1	17.6	10.3	11.6
Computer and mathematical sciences	85.7	7.2	4.3	10.0
Biological, agricultural, and environmental life sciences	69.6	9.8	20.4	10.0
Physical sciences	80.8	33.0	6.7	12.5
Social sciences	73.6	11.0	2.7	23.6
Engineering	82.1	19.9	7.9	10.0
American Indian/Alaska Native				
All degree levels				
All fields	30.7	3.7	11.3	58.0
Computer and mathematical sciences	43.8	S	S	48.0
Biological, agricultural, and environmental life sciences	29.0	S	33.7	37.3
Physical sciences	48.3	16.8	S	49.2
Social sciences	12.2	S	1.7	86.1
Engineering	59.1	S	20.7	20.2
Bachelor's				
All fields	26.4	3.5	11.9	61.7
Computer and mathematical sciences	46.5	S	S	S
Biological, agricultural, and environmental life sciences	27.5	S	31.8	40.7
Physical sciences	39.0	S	S	S
Social sciences	S	S	S	96.5
Engineering	56.0	S	S	21.4
Master's				
All fields	44.2	3.2	S	46.7
Computer and mathematical sciences	31.1	S	S	S
Biological, agricultural, and environmental life sciences	S	S	S	S
Physical sciences	98.6	S	S	S
Social sciences	46.2	S	S	53.8
Engineering	76.3	S	S	S

Appendix table 3-12

Employed S&E highest degree holders, by sex, race/ethnicity, degree level, field of highest degree, and broad occupation category: 2008

(Percent)

Sex, race/ethnicity, degree level, and field	Occupation			
	S&E	S&E but out of field	S&E-related	Non-S&E
Doctorate				
All fields	72.6	9.8	8.1	19.3
Computer and mathematical sciences	S	S	S	S
Biological, agricultural, and environmental life sciences	62.1	S	S	S
Physical sciences	S	S	S	S
Social sciences	65.5	S	S	23.0
Engineering	S	S	S	S
Black				
All degree levels				
All fields	25.2	5.0	13.3	61.4
Computer and mathematical sciences	46.6	2.9	13.5	39.9
Biological, agricultural, and environmental life sciences	18.9	6.2	39.9	41.1
Physical sciences	37.7	13.6	18.5	43.8
Social sciences	8.9	3.0	7.6	83.5
Engineering	61.1	12.3	11.4	27.5
Bachelor's				
All fields	21.1	5.0	13.2	65.7
Computer and mathematical sciences	42.7	3.2	12.1	45.2
Biological, agricultural, and environmental life sciences	14.6	6.3	42.5	42.9
Physical sciences	28.5	13.3	17.0	54.5
Social sciences	5.2	3.1	7.1	87.7
Engineering	57.9	11.3	11.8	30.3
Master's				
All fields	33.7	5.1	15.1	51.2
Computer and mathematical sciences	59.1	1.6	19.5	21.4
Biological, agricultural, and environmental life sciences	16.9	6.1	34.6	48.5
Physical sciences	44.8	14.8	29.7	25.5
Social sciences	13.6	2.2	11.0	75.3
Engineering	73.0	17.1	9.5	17.5
Doctorate				
All fields	71.3	5.7	8.6	20.2
Computer and mathematical sciences	84.6	5.3	4.5	10.9
Biological, agricultural, and environmental life sciences	67.8	5.4	19.7	12.5
Physical sciences	79.7	13.7	7.4	13.0
Social sciences	69.0	2.7	3.5	27.5
Engineering	71.3	10.6	10.6	18.1
Hispanic				
All degree levels				
All fields	32.3	6.7	13.0	54.7
Computer and mathematical sciences	47.2	2.8	14.2	38.6
Biological, agricultural, and environmental life sciences	29.2	6.3	30.9	39.9
Physical sciences	52.1	19.1	15.4	32.6
Social sciences	12.1	4.1	6.9	81.0
Engineering	59.9	10.9	12.3	27.7
Bachelor's				
All fields	27.8	6.7	13.6	58.6
Computer and mathematical sciences	45.4	2.8	14.5	40.1
Biological, agricultural, and environmental life sciences	19.0	6.5	33.3	47.8
Physical sciences	48.7	19.9	12.5	38.7
Social sciences	7.3	4.6	7.0	85.7
Engineering	57.9	10.0	13.7	28.5
Master's				
All fields	43.3	6.4	11.2	45.5
Computer and mathematical sciences	52.6	2.7	13.7	33.7
Biological, agricultural, and environmental life sciences	67.9	7.2	23.2	8.9

Appendix table 3-12

Employed S&E highest degree holders, by sex, race/ethnicity, degree level, field of highest degree, and broad occupation category: 2008

(Percent)

Sex, race/ethnicity, degree level, and field	Occupation			
	S&E	S&E but out of field	S&E-related	Non-S&E
Physical sciences	49.7	14.4	36.3	14.0
Social sciences	21.4	2.2	7.6	71.0
Engineering	65.8	13.2	7.8	26.4
Doctorate				
All fields	74.0	8.8	8.7	17.3
Computer and mathematical sciences	82.5	S	S	13.8
Biological, agricultural, and environmental life sciences	72.7	4.0	19.4	7.9
Physical sciences	78.7	19.5	5.3	16.0
Social sciences	69.3	3.2	2.2	28.5
Engineering	79.7	23.7	6.2	14.1
White				
All degree levels				
All fields	36.6	7.6	12.6	50.8
Computer and mathematical sciences	54.6	3.2	16.5	28.9
Biological, agricultural, and environmental life sciences	30.1	8.4	24.2	45.7
Physical sciences	53.8	19.3	13.6	32.6
Social sciences	14.4	4.7	7.7	77.9
Engineering	63.0	11.4	9.7	27.4
Bachelor's				
All fields	30.5	7.0	12.8	56.7
Computer and mathematical sciences	52.1	2.5	17.3	30.6
Biological, agricultural, and environmental life sciences	21.3	8.1	25.5	53.2
Physical sciences	43.4	19.2	14.6	42.0
Social sciences	7.6	4.8	7.6	84.8
Engineering	60.0	10.1	9.5	30.5
Master's				
All fields	46.3	8.8	13.0	40.7
Computer and mathematical sciences	58.6	5.3	16.0	25.5
Biological, agricultural, and environmental life sciences	44.3	10.1	22.9	32.8
Physical sciences	61.3	18.9	16.9	21.8
Social sciences	23.5	4.4	9.5	67.0
Engineering	69.4	14.2	10.6	19.9
Doctorate				
All fields	73.1	10.6	9.3	17.6
Computer and mathematical sciences	83.2	6.8	4.0	12.8
Biological, agricultural, and environmental life sciences	67.0	7.8	17.9	15.2
Physical sciences	77.5	19.7	7.9	14.6
Social sciences	70.3	5.3	4.5	25.2
Engineering	79.3	17.0	7.8	12.8
Native Hawaiian/Other Pacific Islander				
All degree levels				
All fields	36.4	9.3	16.0	47.5
Computer and mathematical sciences	54.4	S	S	42.4
Biological, agricultural, and environmental life sciences	13.2	S	41.6	45.2
Physical sciences	42.7	16.2	41.3	15.9
Social sciences	18.3	9.3	14.8	66.9
Engineering	62.4	13.2	8.9	28.6
Bachelor's				
All fields	33.6	8.3	14.9	51.5
Computer and mathematical sciences	53.2	S	S	S
Biological, agricultural, and environmental life sciences	S	S	35.8	52.4
Physical sciences	37.4	21.2	S	S
Social sciences	14.1	10.6	16.7	69.2
Engineering	63.2	7.9	6.8	30.1

Appendix table 3-12

Employed S&E highest degree holders, by sex, race/ethnicity, degree level, field of highest degree, and broad occupation category: 2008

(Percent)

Sex, race/ethnicity, degree level, and field	Occupation			
	S&E	S&E but out of field	S&E-related	Non-S&E
Master's				
All fields	48.1	15.3	20.3	31.6
Computer and mathematical sciences	S	S	S	S
Biological, agricultural, and environmental life sciences	S	S	S	S
Physical sciences	S	S	S	S
Social sciences	S	S	S	60.8
Engineering	62.8	31.7	S	S
Doctorate				
All fields	58.2	7.1	33.5	8.3
Computer and mathematical sciences	S	S	S	S
Biological, agricultural, and environmental life sciences	61.5	S	24.7	S
Physical sciences	39.9	S	S	S
Social sciences	92.5	S	S	S
Engineering	25.2	S	S	S
Two or more races				
All degree levels				
All fields	34.2	9.1	12.6	53.2
Computer and mathematical sciences	57.1	7.1	14.6	28.3
Biological, agricultural, and environmental life sciences	29.9	8.3	22.2	47.9
Physical sciences	65.2	20.8	12.8	22.0
Social sciences	13.2	5.9	10.8	76.0
Engineering	67.8	15.9	9.8	22.4
Bachelor's				
All fields	29.9	9.0	13.4	56.7
Computer and mathematical sciences	55.1	8.2	12.0	33.0
Biological, agricultural, and environmental life sciences	22.2	8.9	23.8	54.0
Physical sciences	63.8	21.9	13.4	22.8
Social sciences	9.3	5.7	12.1	78.6
Engineering	67.4	15.6	11.0	21.5
Master's				
All fields	45.4	10.5	9.8	44.8
Computer and mathematical sciences	63.9	S	26.9	S
Biological, agricultural, and environmental life sciences	39.5	S	18.9	41.6
Physical sciences	60.0	18.1	16.0	S
Social sciences	25.0	81.0	3.9	71.1
Engineering	69.6	17.9	S	25.3
Doctorate				
All fields	72.5	7.2	8.9	18.6
Computer and mathematical sciences	76.5	S	S	S
Biological, agricultural, and environmental life sciences	74.3	4.0	15.0	10.7
Physical sciences	77.9	19.2	6.2	16.0
Social sciences	69.2	S	5.2	25.6
Engineering	67.1	9.6	8.4	24.5

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Detail may not add to total because of rounding. All degree levels includes professional degrees not broken out separately.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) , 2008, http://sestat.nsf.gov

Science and Engineering Indicators 2012

Appendix table 3-13
S&E workers, by race/ethnicity and occupation: 2008
(Percent)

Occupation	Total	Asian		American Indian/Alaska Native		Black		Hispanic		White		Native Hawaiian/Other Pacific Islander		Two or more races	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Science and engineering occupations	4,874,000	824,000	16.9	17,000	0.3	191,000	3.9	239,000	4.9	3,502,000	71.8	20,000	0.4	81,000	1.7
Computer and mathematical scientists	1,970,000	423,000	21.5	5,000	0.3	97,000	4.9	82,000	4.2	1,323,000	67.2	8,000	0.4	31,000	1.6
Computer and information scientists	1,778,000	390,000	22.0	4,000	0.2	85,000	4.8	74,000	4.2	1,186,000	66.7	8,000	0.5	29,000	1.7
Computer and information scientists, research	45,000	9,000	19.5	S	S	3,000	6.0	1,000	2.6	31,000	69.4	S	S	1,000	2.2
Computer support specialists	193,000	27,000	14.1	S	S	19,000	9.6	11,000	5.9	129,000	67.0	1,000	0.4	5,000	2.7
Computer system analysts	434,000	89,000	20.6	1,000	0.2	24,000	5.6	18,000	4.2	294,000	67.9	1,000	0.2	6,000	1.3
Database administrators	100,000	27,000	26.9	S	S	5,000	5.0	4,000	4.2	59,000	59.0	S	S	2,000	2.2
Network and computer systems administrators	178,000	26,000	14.4	S	S	9,000	4.9	10,000	5.5	129,000	72.5	1,000	0.8	3,000	1.6
Network systems and data communications analysts	88,000	16,000	18.1	S	S	6,000	6.6	4,000	5.0	60,000	67.6	S	S	2,000	2.0
Other computer and information science occupations	145,000	18,000	12.2	S	S	8,000	5.5	5,000	3.6	112,000	76.8	S	S	2,000	1.5
Computer engineers—software	594,000	179,000	30.1	1,000	0.1	12,000	2.0	20,000	3.3	371,000	62.5	2,000	0.4	9,000	1.4
Mathematical scientists	107,000	22,000	20.6	S	S	7,000	6.1	4,000	3.6	73,000	68.2	S	S	1,000	0.5
Mathematicians	6,000	1,000	9.3	S	S	<500	1.6	<500	2.1	5,000	83.5	S	S	S	S
Operations research analysts, including modeling	57,000	11,000	18.8	S	S	3,000	6.1	2,000	4.1	40,000	70.5	S	S	S	S
Statisticians	39,000	10,000	26.1	S	S	3,000	7.6	1,000	3.6	23,000	59.9	S	S	<500	0.1
Other mathematical scientists	6,000	1,000	13.8	S	S	S	S	S	S	5,000	85.2	S	S	S	S
Postsecondary teachers—computer and math sciences	84,000	11,000	12.6	<500	0.4	5,000	5.6	4,000	5.1	64,000	75.6	S	S	1,000	0.6
Postsecondary teachers—computer science	22,000	3,000	13.5	S	S	1,000	6.8	1,000	6.2	16,000	72.3	S	S	<500	1.2
Postsecondary teachers—mathematics and statistics	62,000	8,000	12.3	S	S	3,000	5.2	3,000	4.7	48,000	76.8	S	S	<500	0.4
Biological, agricultural, and other life scientists	498,000	80,000	16.0	4,000	0.7	14,000	2.8	28,000	5.6	364,000	73.1	<500	0.1	8,000	1.7
Agricultural and food scientists	62,000	5,000	7.4	S	S	1,000	1.8	4,000	6.9	51,000	82.2	S	S	1,000	1.5
Biological and medical scientists	331,000	67,000	20.3	2,000	0.7	9,000	2.8	19,000	5.8	227,000	68.4	<500	0.1	6,000	1.8
Biochemists and biophysicists	45,000	13,000	28.2	S	S	<500	0.6	2,000	5.0	29,000	64.7	S	S	<500	1.1
Biological scientists (e.g., botanists, ecologists, zoologists)	128,000	15,000	11.5	2,000	1.3	3,000	2.4	9,000	6.7	97,000	75.7	<500	0.1	3,000	2.4
Medical scientists (excluding practitioners)	124,000	34,000	27.2	<500	0.1	5,000	3.8	6,000	4.6	78,000	62.6	<500	0.0	2,000	1.6
Other biological, agricultural or life scientists	34,000	6,000	18.4	S	S	1,000	4.1	3,000	7.6	23,000	67.0	S	S	1,000	1.5
Forestry and conservation scientists	35,000	1,000	3.1	S	S	1,000	2.6	1,000	1.8	31,000	90.5	S	S	<500	1.1
Postsecondary teachers—life and related sciences	70,000	7,000	9.4	S	S	3,000	3.7	4,000	5.3	55,000	78.6	S	S	1,000	1.6
Postsecondary teachers—agriculture	8,000	<500	4.9	S	S	<500	2.0	<500	4.5	6,000	77.0	S	S	S	S
Postsecondary teachers—biological sciences	59,000	6,000	10.1	S	S	2,000	4.1	3,000	5.7	46,000	78.2	S	S	1,000	1.8
Postsecondary teachers—other natural sciences	3,000	S	S	S	S	S	S	S	S	2,000	92.8	S	S	S	S
Physical and related scientists	322,000	43,000	13.4	1,000	0.3	9,000	2.7	14,000	4.5	247,000	76.8	1,000	0.3	6,000	2.0
Chemists, except biochemists	129,000	26,000	20.1	<500	0.4	5,000	3.9	7,000	5.3	87,000	67.7	1,000	0.6	3,000	2.1
Earth scientists, geologists, and oceanographers	78,000	5,000	5.9	<500	0.5	1,000	1.0	3,000	4.4	67,000	85.9	S	S	2,000	2.3
Atmospheric and space scientists	15,000	1,000	8.9	S	S	<500	2.1	1,000	4.4	12,000	82.7	S	S	<500	1.7
Geologists, including earth scientists	59,000	3,000	4.8	<500	0.6	<500	0.7	3,000	4.5	52,000	86.8	S	S	1,000	2.5
Oceanographers	4,000	<500	11.9	S	S	S	S	<500	2.8	3,000	84.4	S	S	S	S
Physicists and astronomers	27,000	5,000	18.6	S	S	1,000	2.5	1,000	2.8	20,000	74.7	S	S	<500	1.2
Astronomers	3,000	1,000	20.8	S	S	S	S	<500	3.5	2,000	73.7	S	S	S	S

Appendix table 3-13
S&E workers, by race/ethnicity and occupation: 2008
(Percent)

Occupation	Total	Asian		American Indian/Alaska Native		Black		Hispanic		White		Native Hawaiian/Other Pacific Islander		Two or more races	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Physicists	25,000	5,000	18.4	S	S	1,000	2.7	1,000	2.7	18,000	74.8	S	S	<500	1.1
Other physical scientists	35,000	2,000	6.2	S	S	1,000	3.6	2,000	4.4	29,000	84.1	S	S	<500	0.9
Postsecondary teachers—physical and related sciences	54,000	5,000	10.1	S	S	1,000	1.9	2,000	3.7	44,000	81.8	S	S	1,000	2.4
Postsecondary teachers—chemistry	24,000	3,000	12.4	S	S	1,000	3.0	1,000	3.1	19,000	78.2	S	S	1,000	3.2
Postsecondary teachers—earth, environmental, and marine sciences	15,000	1,000	4.8	S	S	<500	0.4	1,000	5.2	13,000	87.4	S	S	<500	2.1
Postsecondary teachers—physics	15,000	2,000	11.7	S	S	<500	1.7	<500	3.2	12,000	81.9	S	S	<500	1.4
Social and related scientists	502,000	32,000	6.3	3,000	0.7	23,000	4.5	26,000	5.2	407,000	80.9	2,000	0.4	10,000	1.9
Economists	29,000	3,000	11.1	S	S	2,000	5.8	1,000	3.5	22,000	74.7	S	S	1,000	2.7
Political scientists	17,000	1,000	5.2	S	S	<500	2.7	1,000	3.8	15,000	86.0	S	S	S	S
Psychologists, including clinical	185,000	7,000	3.7	1,000	0.5	8,000	4.3	12,000	6.5	154,000	83.1	1,000	0.5	3,000	1.5
Sociologists and anthropologists	21,000	1,000	2.9	S	S	1,000	5.8	2,000	10.0	16,000	77.5	S	S	<500	2.2
Anthropologists	11,000	S	S	S	S	<500	2.7	1,000	12.7	9,000	79.6	S	S	<500	1.6
Sociologists	10,000	1,000	5.7	S	S	1,000	9.4	1,000	6.8	7,000	75.2	S	S	<500	2.9
Other social scientists	134,000	12,000	8.8	S	S	5,000	4.1	5,000	4.0	109,000	81.3	S	S	2,000	1.2
Postsecondary teachers—social and related sciences	116,000	8,000	7.2	1,000	1.1	6,000	5.2	5,000	4.4	91,000	78.4	<500	0.4	4,000	3.3
Postsecondary teachers—economics	18,000	3,000	18.0	S	S	1,000	4.0	1,000	3.6	13,000	73.6	S	S	S	S
Postsecondary teachers—political science	15,000	1,000	5.1	S	S	1,000	7.5	1,000	5.9	12,000	80.3	S	S	<500	0.9
Postsecondary teachers—psychology	33,000	1,000	2.8	S	S	2,000	5.2	1,000	4.0	28,000	83.9	S	S	1,000	4.0
Postsecondary teachers—sociology	18,000	1,000	7.8	S	S	1,000	5.9	1,000	3.0	13,000	73.0	S	S	1,000	8.0
Postsecondary teachers—other social sciences	33,000	2,000	6.5	1,000	3.3	1,000	4.4	2,000	5.5	25,000	77.6	S	S	1,000	2.6
Engineers	1,582,000	247,000	15.6	4,000	0.2	49,000	3.1	88,000	5.6	1,161,000	73.4	9,000	0.6	26,000	1.6
Aerospace, aeronautical, or astronautical engineers	100,000	10,000	9.9	1,000	0.6	3,000	2.6	7,000	6.6	77,000	76.7	1,000	1.2	2,000	2.4
Agricultural engineers	77,000	13,000	16.9	<500	0.4	2,000	2.9	4,000	4.6	56,000	72.2	S	S	2,000	2.8
Bioengineering and biomedical engineers	258,000	28,000	10.9	1,000	0.2	8,000	3.2	19,000	7.3	194,000	75.5	2,000	0.7	6,000	2.2
Chemical engineers	399,000	101,000	25.2	1,000	0.1	13,000	3.4	21,000	5.3	253,000	63.6	3,000	0.7	6,000	1.6
Civil, architectural, or sanitary engineers	53,000	21,000	40.2	S	S	2,000	2.9	1,000	2.5	28,000	52.6	S	S	1,000	1.7
Electrical or computer hardware engineers	346,000	79,000	22.9	1,000	0.2	12,000	3.4	20,000	5.8	226,000	65.3	3,000	0.8	5,000	1.6
Computer engineers—hardware	93,000	14,000	14.7	S	S	3,000	3.7	9,000	10.1	64,000	68.8	S	S	1,000	1.2
Electrical and electronics engineers	300,000	36,000	11.9	1,000	0.3	8,000	2.7	12,000	4.0	239,000	79.6	1,000	0.2	4,000	1.4
Environmental engineers	7,000	1,000	9.0	S	S	S	S	S	S	5,000	66.6	S	S	S	S
Industrial engineers	28,000	8,000	28.0	S	S	1,000	1.9	1,000	3.2	18,000	64.5	S	S	1,000	2.4
Marine engineers and naval architects	86,000	7,000	8.1	S	S	4,000	4.6	3,000	3.5	71,000	82.7	S	S	1,000	0.7
Materials and metallurgical engineers	12,000	1,000	7.2	S	S	S	S	S	S	11,000	88.5	S	S	S	S
Mechanical engineers	46,000	8,000	18.1	S	S	1,000	2.0	1,000	2.3	35,000	76.2	S	S	1,000	1.2
Mining and geological engineers	7,000	<500	5.2	S	S	S	S	1,000	12.1	6,000	81.4	S	S	S	S
Nuclear engineers	17,000	1,000	7.5	S	S	1,000	5.0	1,000	3.4	14,000	82.7	S	S	S	S
Petroleum engineers	19,000	1,000	5.9	S	S	<500	1.1	2,000	9.2	16,000	81.8	S	S	S	S

Appendix table 3-13
S&E workers, by race/ethnicity and occupation: 2008
(Percent)

Occupation	Total	Asian		American Indian/Alaska Native		Black		Hispanic		White		Native Hawaiian/Other Pacific Islander		Two or more races	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Sales engineers	49,000	4,000	9.0	S	S	<500	0.8	2,000	4.0	42,000	85.0	S	S	1,000	1.1
Other engineers	48,000	6,000	13.1	S	S	2,000	3.5	3,000	5.8	37,000	76.0	S	S	<500	0.6
Postsecondary teachers—engineering	35,000	7,000	21.1	S	S	2,000	6.1	2,000	4.4	23,000	67.0	S	S	<500	1.2

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Detail may not add to total because of rounding. Numbers rounded to the nearest 1,000. Percentages based on unrounded numbers.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-14

Employed S&E highest degree holders, by race/ethnicity and field of degree: 2008

(Percent)

Highest degree field	Total	Asian		American Indian/Alaska Native		Black		Hispanic		White		Native Hawaiian/Other Pacific Islander		Two or more races	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All S&E degrees	10,216,000	1,303,000	12.8	39,000	0.4	539,000	5.3	602,000	5.9	7,493,000	73.3	49,000	0.5	190,000	1.9
Computer and mathematical sciences	1,651,000	336,000	20.4	8,000	0.5	98,000	5.9	73,000	4.4	1,107,000	67.0	7,000	0.4	22,000	1.3
Computer and information sciences	1,159,000	273,000	23.6	8,000	0.7	71,000	6.2	59,000	5.1	725,000	62.6	5,000	0.5	17,000	1.5
Computer and information sciences	205,000	45,000	22.2	2,000	0.8	15,000	7.5	10,000	4.9	129,000	63.1	S	S	3,000	1.5
Computer science	651,000	178,000	27.4	3,000	0.5	31,000	4.7	27,000	4.2	400,000	61.5	2,000	0.3	9,000	1.4
Computer systems analysis	35,000	5,000	13.9	S	S	1,000	3.7	4,000	12.5	23,000	66.3	S	S	S	S
Information services and systems	191,000	34,000	17.9	S	S	19,000	9.9	11,000	5.8	121,000	63.2	S	S	2,000	1.2
Other computer and information sciences	77,000	10,000	13.5	S	S	5,000	6.6	7,000	8.8	51,000	66.5	S	S	2,000	2.1
Mathematics and statistics	492,000	63,000	12.8	<500	0.1	26,000	5.4	13,000	2.7	382,000	77.6	2,000	0.4	5,000	1.0
Applied mathematics	92,000	12,000	13.4	S	S	6,000	6.9	1,000	1.1	70,000	76.4	S	S	1,000	0.6
Mathematics, general	289,000	25,000	8.7	<500	0.1	17,000	5.9	9,000	3.2	234,000	80.8	S	S	3,000	1.2
Operations research	29,000	6,000	19.3	S	S	1,000	4.1	1,000	4.1	21,000	70.6	S	S	S	S
Statistics	50,000	17,000	32.8	S	S	2,000	3.1	1,000	2.1	31,000	60.6	S	S	1,000	1.2
Other mathematics	32,000	4,000	11.2	S	S	<500	1.4	1,000	2.6	27,000	84.7	S	S	<500	0.1
Biological, agricultural, and environmental life sciences	1,569,000	158,000	10.1	7,000	0.4	62,000	4.0	87,000	5.5	1,224,000	78.0	7,000	0.4	25,000	1.6
Agricultural and food sciences	266,000	15,000	5.8	2,000	0.6	6,000	2.1	11,000	4.1	227,000	85.2	1,000	0.4	5,000	1.8
Animal sciences	110,000	3,000	2.7	S	S	1,000	1.3	4,000	3.3	101,000	91.9	S	S	1,000	0.6
Food sciences and technology	32,000	6,000	18.5	S	S	2,000	6.1	1,000	3.2	22,000	69.8	S	S	<500	0.5
Plant sciences	75,000	3,000	3.6	S	S	2,000	2.6	5,000	6.4	63,000	85.1	S	S	2,000	2.3
Other agricultural sciences	49,000	4,000	7.8	1,000	3.0	<500	0.7	2,000	3.2	40,000	80.5	S	S	S	S
Biological sciences	1,125,000	135,000	12.0	4,000	0.3	54,000	4.8	71,000	6.3	840,000	74.7	5,000	0.5	16,000	1.4
Biochemistry and biophysics	101,000	23,000	23.0	S	S	1,000	1.4	3,000	3.2	71,000	70.0	<500	0.2	2,000	2.2
Biology, general	507,000	42,000	8.3	1,000	0.3	38,000	7.4	38,000	7.6	377,000	74.4	4,000	0.8	6,000	1.3
Botany	26,000	3,000	11.8	S	S	1,000	2.5	<500	1.4	21,000	80.9	S	S	1,000	2.4
Cell and molecular biology	60,000	12,000	20.4	S	S	<500	0.7	2,000	3.9	43,000	71.2	<500	0.1	2,000	3.6
Ecology	57,000	3,000	4.7	S	S	1,000	1.8	5,000	9.5	47,000	83.3	S	S	<500	0.5
Genetics, animal and plant	18,000	2,000	13.0	S	S	1,000	5.6	1,000	4.0	13,000	75.5	S	S	<500	1.7
Microbiological sciences and immunology	92,000	12,000	13.3	1,000	1.5	6,000	7.0	8,000	8.5	62,000	67.9	S	S	1,000	1.2
Nutritional sciences	36,000	6,000	16.4	S	S	1,000	3.4	1,000	3.3	27,000	75.6	S	S	S	S
Pharmacology, human and animal	20,000	5,000	26.6	S	S	1,000	5.7	1,000	3.2	12,000	64.0	S	S	S	S
Physiology and pathology, human and animal	43,000	6,000	14.6	S	S	<500	0.9	3,000	6.0	33,000	76.7	S	S	1,000	1.8
Zoology, general	64,000	5,000	7.3	S	S	<500	0.7	2,000	3.7	56,000	87.3	S	S	<500	0.4
Other biological sciences	103,000	16,000	15.3	<500	0.4	2,000	1.7	6,000	5.5	77,000	75.2	1,000	0.6	1,000	1.4
Environmental life sciences	178,000	7,000	4.0	1,000	0.7	3,000	1.7	5,000	3.0	158,000	88.5	S	S	4,000	2.1
Environmental science or studies	111,000	5,000	4.9	1,000	0.9	2,000	2.1	3,000	2.7	96,000	87.2	S	S	2,000	2.2
Forestry sciences	67,000	2,000	2.4	S	S	1,000	1.1	2,000	3.5	61,000	90.7	S	S	1,000	1.9
Physical sciences	665,000	94,000	14.2	2,000	0.3	19,000	2.9	31,000	4.6	507,000	76.2	2,000	0.3	10,000	1.5
Chemistry, except biochemistry	306,000	56,000	18.3	1,000	0.5	11,000	3.5	16,000	5.1	216,000	70.5	1,000	0.2	6,000	1.9
Earth, atmospheric, and ocean sciences	168,000	7,000	4.3	<500	0.2	1,000	0.6	6,000	3.4	151,000	89.9	1,000	0.3	2,000	1.1

Appendix table 3-14

Employed S&E highest degree holders, by race/ethnicity and field of degree: 2008

(Percent)

Highest degree field	Total	Asian		American Indian/Alaska Native		Black		Hispanic		White		Native Hawaiian/Other Pacific Islander		Two or more races	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Atmospheric sciences and meteorology	22,000	2,000	8.1	S	S	<500	1.5	<500	2.1	19,000	87.4	S	S	<500	0.8
Earth sciences	17,000	<500	1.3	S	S	<500	0.3	1,000	3.8	16,000	91.4	S	S	<500	2.5
Geology	99,000	3,000	2.7	<500	0.3	1,000	0.6	4,000	3.8	90,000	91.5	S	S	1,000	0.8
Geological sciences, other	21,000	2,000	10.7	S	S	<500	0.3	<500	2.3	18,000	84.4	S	S	<500	1.9
Oceanography	10,000	<500	3.7	S	S	<500	0.4	1,000	5.0	9,000	89.3	S	S	<500	0.3
Physics and astronomy	150,000	29,000	19.3	<500	0.3	4,000	2.7	6,000	3.7	109,000	72.8	<500	0.0	2,000	1.2
Astronomy and astrophysics	10,000	1,000	13.8	S	S	<500	0.6	<500	1.9	8,000	80.3	S	S	<500	3.2
Physics	141,000	28,000	19.7	<500	0.3	4,000	2.9	5,000	3.8	102,000	72.2	S	S	1,000	1.0
Other physical sciences	40,000	2,000	4.4	S	S	4,000	9.1	4,000	9.3	30,000	75.5	S	S	<500	0.7
Social sciences	3,878,000	243,000	6.3	16,000	0.4	284,000	7.3	267,000	6.9	2,952,000	76.1	19,000	0.5	95,000	2.5
Economics	580,000	86,000	14.8	<500	0.1	20,000	3.5	29,000	5.0	431,000	74.2	4,000	0.7	9,000	1.6
Agricultural economics	88,000	3,000	3.3	S	S	1,000	1.0	4,000	4.9	77,000	87.8	S	S	1,000	0.8
Economics	493,000	83,000	16.9	S	S	20,000	4.0	25,000	5.0	354,000	71.8	2,000	0.5	9,000	1.8
Political and related sciences	705,000	42,000	5.9	2,000	0.2	54,000	7.7	43,000	6.1	545,000	77.2	2,000	0.2	18,000	2.6
Public policy studies	49,000	3,000	5.9	S	S	3,000	6.6	4,000	8.6	37,000	76.6	S	S	<500	0.8
International relations	110,000	12,000	11.3	S	S	4,000	4.0	8,000	7.6	81,000	73.6	S	S	4,000	3.3
Political science and government	547,000	26,000	4.8	1,000	0.2	47,000	8.5	31,000	5.6	427,000	78.0	2,000	0.3	14,000	2.6
Psychology	1,414,000	55,000	3.9	6,000	0.4	111,000	7.8	109,000	7.7	1,094,000	77.4	8,000	0.5	32,000	2.2
Educational psychology	96,000	4,000	4.1	S	S	9,000	9.8	9,000	9.4	72,000	74.5	S	S	2,000	1.8
Clinical psychology	119,000	5,000	4.3	<500	0.1	5,000	4.3	10,000	8.1	96,000	80.6	<500	0.1	3,000	2.5
Counseling psychology	244,000	6,000	2.3	1,000	0.4	18,000	7.4	14,000	5.7	199,000	81.5	1,000	0.5	5,000	2.2
Experimental psychology	33,000	2,000	5.8	S	S	S	S	1,000	2.1	29,000	88.1	S	S	1,000	2.1
General psychology	712,000	30,000	4.2	2,000	0.2	60,000	8.5	61,000	8.6	537,000	75.4	5,000	0.8	17,000	2.3
Industrial/organizational psychology	42,000	3,000	6.6	S	S	3,000	6.5	5,000	10.8	30,000	70.2	S	S	1,000	2.3
Social psychology	35,000	3,000	7.3	S	S	4,000	10.5	3,000	7.7	25,000	70.7	S	S	1,000	3.7
Other psychology	132,000	4,000	2.7	2,000	1.4	11,000	8.3	7,000	5.6	106,000	80.5	S	S	2,000	1.3
Sociology and anthropology	763,000	36,000	4.7	5,000	0.7	66,000	8.7	54,000	7.1	572,000	74.9	4,000	0.5	26,000	3.4
Anthropology and archaeology	125,000	5,000	4.4	<500	0.4	2,000	2.0	11,000	8.9	95,000	76.3	S	S	9,000	7.1
Criminology	68,000	5,000	6.9	S	S	7,000	9.8	8,000	12.1	45,000	67.1	S	S	2,000	2.6
Sociology	571,000	26,000	4.5	4,000	0.7	57,000	10.0	35,000	6.2	431,000	75.5	2,000	0.3	15,000	2.6
Other social sciences	416,000	25,000	5.9	3,000	0.7	33,000	7.8	32,000	7.7	312,000	75.0	2,000	0.4	10,000	2.4
Area and ethnic studies	95,000	12,000	12.6	2,000	2.2	8,000	8.3	10,000	10.8	58,000	60.9	S	S	4,000	4.4
Linguistics	29,000	2,000	7.5	S	S	1,000	1.8	3,000	9.4	23,000	78.9	S	S	1,000	2.4
Philosophy of science	17,000	S	S	S	S	S	S	S	0.9	15,000	92.6	S	S	S	S
Geography	109,000	2,000	2.3	<500	0.3	2,000	1.5	7,000	6.1	95,000	87.4	S	S	2,000	2.1
History of science	18,000	S	S	S	S	S	S	S	1.3	15,000	82.4	S	S	S	S
Other social sciences	149,000	8,000	5.3	S	S	19,000	12.8	12,000	8.0	106,000	71.2	1,000	0.6	3,000	1.7
Engineering	2,453,000	472,000	19.2	6,000	0.2	75,000	3.1	145,000	5.9	1,703,000	69.4	14,000	0.6	39,000	1.6

Appendix table 3-14

Employed S&E highest degree holders, by race/ethnicity and field of degree: 2008

(Percent)

Highest degree field	Total	Asian		American Indian/Alaska Native		Black		Hispanic		White		Native Hawaiian/Other Pacific Islander		Two or more races	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Aerospace, aeronautical, and astronautical engineering	81,000	7,000	8.8	1,000	0.7	2,000	2.6	5,000	6.3	63,000	77.4	1,000	1.6	2,000	2.7
Agricultural engineering	23,000	3,000	14.0	S	S	<500	0.4	1,000	3.6	19,000	81.1	S	S	S	S
Bioengineering and biomedical engineering	34,000	10,000	30.5	S	S	1,000	2.6	3,000	8.3	18,000	55.0	<500	1.1	1,000	2.3
Chemical engineering	165,000	34,000	20.6	2,000	0.9	5,000	2.8	9,000	5.2	113,000	68.6	S	S	3,000	1.6
Civil and architectural engineering	397,000	52,000	13.2	1,000	0.3	12,000	2.9	30,000	7.5	291,000	73.3	2,000	0.5	8,000	2.1
Architectural engineering	37,000	2,000	6.7	S	S	2,000	6.2	3,000	6.9	29,000	76.5	S	S	S	S
Civil engineering	360,000	50,000	13.9	1,000	0.3	9,000	2.6	27,000	7.6	263,000	73.0	2,000	0.6	7,000	2.0
Electrical and computer engineering	808,000	226,000	28.0	1,000	0.1	31,000	3.8	47,000	5.8	483,000	59.8	7,000	0.8	13,000	1.7
Computer and systems engineering	175,000	56,000	32.2	S	S	5,000	2.8	11,000	6.3	97,000	55.6	S	S	5,000	2.8
Electrical, electronics, and communications engineering	633,000	170,000	26.8	<500	0.1	26,000	4.1	36,000	5.6	386,000	61.0	7,000	1.0	9,000	1.3
Engineering sciences, mechanics, and physics	34,000	6,000	18.0	S	S	1,000	4.3	1,000	4.3	25,000	71.9	S	S	S	S
Environmental engineering	44,000	4,000	9.2	S	S	1,000	2.9	2,000	5.6	36,000	81.6	S	S	S	S
Engineering, general	41,000	4,000	9.8	S	S	1,000	2.1	2,000	5.7	33,000	80.9	S	S	S	S
Geophysical and geological engineering	4,000	1,000	17.1	S	S	S	S	S	S	3,000	69.4	S	S	S	S
Industrial and manufacturing engineering	139,000	23,000	16.4	S	S	7,000	5.0	13,000	9.1	95,000	68.2	<500	0.3	1,000	0.9
Materials engineering, including ceramics and textiles	43,000	13,000	31.4	S	S	1,000	1.4	1,000	2.7	27,000	63.3	S	S	<500	0.9
Mechanical engineering	500,000	70,000	14.1	1,000	0.2	12,000	2.4	23,000	4.6	385,000	77.0	2,000	0.3	7,000	1.4
Metallurgical engineering	17,000	2,000	10.8	S	S	S	S	1,000	5.6	14,000	82.5	S	S	S	S
Mining and minerals engineering	13,000	1,000	7.6	S	S	S	S	S	S	12,000	89.3	S	S	S	S
Naval architecture and marine engineering	12,000	S	S	S	S	S	S	S	S	11,000	91.2	S	S	S	S
Nuclear engineering	13,000	1,000	10.1	S	S	S	S	1,000	4.5	11,000	83.4	S	S	S	S
Petroleum engineering	17,000	3,000	17.5	S	S	S	S	2,000	10.5	12,000	69.2	S	S	S	S
Other engineering	66,000	9,000	13.2	S	S	1,000	1.9	4,000	5.7	51,000	77.6	S	S	1,000	1.0

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Total includes professional degrees not broken out separately. Detail may not add to total because of rounding. Numbers rounded to the nearest 1,000. Percentages based on unrounded numbers.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-15

Estimate and median salary of full-time workers with highest degree in S&E field, by sex and occupation: 2008

Occupation	Total		Female			Male		
	Number	Median salary ($)	Number	Percent	Median salary ($)	Number	Percent	Median salary ($)
All occupations	8,869,000	70,000	3,018,000	34.0	52,000	5,851,000	66.0	80,000
Science and engineering occupations	3,554,000	80,000	837,000	23.5	70,000	2,718,000	76.5	85,000
Computer and mathematical scientists	1,345,000	85,000	302,000	22.4	78,000	1,044,000	77.6	87,000
Computer and information scientists	1,228,000	85,000	260,000	21.2	80,000	968,000	78.8	88,000
Computer and information scientists, research	31,000	96,000	6,000	18.6	78,000	25,000	81.4	100,000
Computer support specialists	103,000	60,000	28,000	27.6	60,000	75,000	72.4	60,000
Computer system analysts	268,000	80,000	81,000	30.3	80,000	187,000	69.7	81,000
Database administrators	69,000	80,000	20,000	28.8	70,000	49,000	71.2	85,000
Network and computer systems administrators	116,000	72,000	15,000	12.9	70,000	101,000	87.1	73,000
Network systems and data communications analysts	58,000	74,000	9,000	15.5	70,000	49,000	84.5	75,000
Other computer and information science occupations	83,000	92,000	26,000	31.8	80,000	57,000	68.2	95,000
Computer engineers—software	501,000	95,000	74,000	14.9	90,000	426,000	85.1	96,000
Mathematical scientists	73,000	81,000	30,000	41.0	74,000	43,000	59.0	86,000
Mathematicians	4,000	60,000	1,000	12.1	60,000	4,000	87.9	60,000
Operations research analysts, including modeling	40,000	81,000	17,000	43.2	78,000	23,000	56.8	89,000
Statisticians	24,000	85,000	10,000	41.5	75,000	14,000	58.5	86,000
Other mathematical scientists	4,000	67,000	2,000	47.6	67,000	2,000	52.4	96,000
Postsecondary teachers—computer and math sciences	44,000	65,000	12,000	27.2	56,000	32,000	72.8	67,000
Postsecondary teachers—computer science	12,000	80,000	2,000	16.4	70,000	10,000	83.6	80,000
Postsecondary teachers—mathematics and statistics	33,000	58,000	10,000	31.2	55,000	22,000	68.8	60,000
Biological, agricultural, and other life scientists	365,000	59,000	156,000	42.7	50,000	210,000	57.3	65,000
Agricultural and food scientists	48,000	54,000	14,000	29.4	42,000	34,000	70.6	60,000
Biological and medical scientists	252,000	57,000	123,000	48.7	50,000	129,000	51.3	65,000
Biochemists and biophysicists	42,000	65,000	16,000	38.7	50,000	26,000	61.3	70,000
Biological scientists (e.g., botanists, ecologists, zoologists)	106,000	50,000	53,000	50.1	45,000	53,000	49.9	59,000
Medical scientists (excluding practitioners)	78,000	70,000	39,000	50.6	65,000	39,000	49.4	79,000
Other biological, agricultural or life scientists	26,000	59,000	14,000	53.2	58,000	12,000	46.8	60,000
Forestry and conservation scientists	24,000	57,000	5,000	21.1	52,000	19,000	78.9	57,000
Postsecondary teachers—life and related sciences	41,000	67,000	14,000	33.9	57,000	27,000	66.1	73,000
Postsecondary teachers—agriculture	4,000	71,000	1,000	19.1	60,000	3,000	80.9	72,000
Postsecondary teachers—biological sciences	35,000	65,000	13,000	36.9	57,000	22,000	63.1	72,000
Postsecondary teachers—other natural sciences	2,000	74,000	<500	15.5	49,000	2,000	84.5	74,000
Physical and related scientists	269,000	70,000	74,000	27.3	60,000	196,000	72.7	76,000
Chemists, except biochemists	112,000	71,000	37,000	32.9	62,000	75,000	67.1	79,000
Earth scientists, geologists, and oceanographers	68,000	74,000	13,000	19.6	66,000	55,000	80.4	77,000
Atmospheric and space scientists	13,000	83,000	2,000	13.5	60,000	11,000	86.5	85,000
Geologists, including earth scientists	53,000	70,000	11,000	20.6	66,000	42,000	79.4	74,000
Oceanographers	3,000	85,000	1,000	26.5	87,000	2,000	73.5	85,000
Physicists and astronomers	23,000	83,000	2,000	10.6	54,000	21,000	89.4	89,000
Astronomers	3,000	62,000	1,000	21.9	46,000	2,000	78.1	72,000
Physicists	21,000	88,000	2,000	9.3	60,000	19,000	90.7	90,000

Appendix table 3-15

Estimate and median salary of full-time workers with highest degree in S&E field, by sex and occupation: 2008

Occupation	Total		Female			Male		
	Number	Median salary ($)	Number	Percent	Median salary ($)	Number	Percent	Median salary ($)
Other physical scientists	26,000	65,000	11,000	42.1	59,000	15,000	57.9	70,000
Postsecondary teachers—physical and related sciences	40,000	64,000	10,000	25.3	54,000	30,000	74.7	70,000
Postsecondary teachers—chemistry	18,000	56,000	5,000	28.1	51,000	13,000	71.9	62,000
Postsecondary teachers—earth, environmental, and marine sciences	10,000	72,000	3,000	32.3	58,000	7,000	67.7	80,000
Postsecondary teachers—physics	12,000	70,000	2,000	15.1	63,000	10,000	84.9	74,000
Social and related scientists	281,000	68,000	143,000	50.9	63,000	138,000	49.1	73,000
Economists	22,000	110,000	6,000	28.4	98,000	16,000	71.6	117,000
Political scientists	11,000	70,000	7,000	63.9	72,000	4,000	36.1	70,000
Psychologists, including clinical	114,000	62,000	72,000	63.2	60,000	42,000	36.8	69,000
Sociologists and anthropologists	13,000	58,000	7,000	53.5	50,000	6,000	46.5	60,000
Anthropologists	7,000	55,000	3,000	38.1	37,000	5,000	61.9	60,000
Sociologists	6,000	68,000	4,000	73.6	60,000	2,000	26.4	80,000
Other social scientists	60,000	73,000	26,000	42.6	70,000	34,000	57.4	82,000
Postsecondary teachers—social and related sciences	61,000	67,000	25,000	41.5	63,000	35,000	58.5	70,000
Postsecondary teachers—economics	10,000	80,000	3,000	30.3	72,000	7,000	69.7	88,000
Postsecondary teachers—political science	10,000	65,000	3,000	32.4	60,000	7,000	67.6	69,000
Postsecondary teachers—psychology	18,000	67,000	9,000	47.8	62,000	9,000	52.2	70,000
Postsecondary teachers—sociology	10,000	62,000	4,000	44.2	60,000	6,000	55.8	65,000
Postsecondary teachers—other social sciences	12,000	63,000	6,000	47.0	63,000	6,000	53.0	63,000
Engineers	1,293,000	87,000	162,000	12.5	75,000	1,131,000	87.5	89,000
Aerospace, aeronautical, or astronautical engineers	81,000	100,000	8,000	9.7	100,000	73,000	90.3	100,000
Agricultural engineers	6,000	60,000	S	S	S	5,000	88.4	65,000
Bioengineering and biomedical engineers	22,000	69,000	6,000	28.3	55,000	16,000	71.7	72,000
Chemical engineers	65,000	92,000	15,000	22.7	80,000	50,000	77.3	93,000
Civil, architectural, or sanitary engineers	228,000	80,000	31,000	13.6	71,000	197,000	86.4	81,000
Electrical or computer hardware engineers	333,000	95,000	34,000	10.1	86,000	299,000	89.9	95,000
Computer engineers—hardware	45,000	102,000	7,000	14.7	86,000	38,000	85.3	105,000
Electrical and electronics engineers	288,000	93,000	27,000	9.4	85,000	261,000	90.6	94,000
Environmental engineers	64,000	80,000	14,000	21.3	72,000	51,000	78.7	82,000
Industrial engineers	67,000	76,000	9,000	13.3	70,000	58,000	86.7	80,000
Marine engineers and naval architects	10,000	100,000	1,000	5.5	82,000	10,000	94.5	100,000
Materials and metallurgical engineers	35,000	81,000	7,000	19.1	72,000	29,000	80.9	85,000
Mechanical engineers	250,000	85,000	18,000	7.3	72,000	232,000	92.7	86,000
Mining and geological engineers	7,000	77,000	1,000	14.9	40,000	6,000	85.1	77,000
Nuclear engineers	14,000	97,000	2,000	16.1	103,000	11,000	83.9	96,000
Petroleum engineers	14,000	113,000	1,000	7.6	100,000	13,000	92.4	115,000
Sales engineers	36,000	91,000	5,000	12.7	69,000	31,000	87.3	92,000
Other engineers	35,000	89,000	6,000	18.1	85,000	29,000	81.9	89,000
Postsecondary teachers—engineering	26,000	85,000	4,000	16.0	74,000	22,000	84.0	90,000

Appendix table 3-15

Estimate and median salary of full-time workers with highest degree in S&E field, by sex and occupation: 2008

Occupation	Total		Female			Male		
	Number	Median salary ($)	Number	Percent	Median salary ($)	Number	Percent	Median salary ($)
S&E-related occupations	1,139,000	65,000	454,000	39.9	51,000	685,000	60.1	80,000
Health-related occupations	353,000	50,000	217,000	61.5	48,000	136,000	38.5	60,000
Diagnosing/treating practitioners (e.g., dentists, optometrists, physicians)	44,000	100,000	15,000	34.0	50,000	29,000	66.0	128,000
Registered nurses, pharmacists, dieticians, therapists, physician assistants	97,000	54,000	73,000	74.9	52,000	24,000	25.1	65,000
Health technologists and technicians (e.g., dental hygienist, health record tech)	111,000	45,000	72,000	65.0	45,000	39,000	35.0	50,000
Other health occupations	86,000	45,000	51,000	59.4	42,000	35,000	40.6	54,000
Postsecondary teachers—health and related sciences teachers	14,000	94,000	6,000	40.3	74,000	9,000	59.7	114,000
S&E managers	289,000	115,000	49,000	17.0	95,000	239,000	83.0	119,000
Computer and information systems managers	108,000	117,000	16,000	15.0	115,000	92,000	85.0	118,000
Engineering managers	126,000	120,000	7,000	5.7	95,000	118,000	94.3	120,000
Medical and health services managers	30,000	82,000	21,000	68.4	71,000	10,000	31.6	101,000
Natural sciences managers	24,000	100,000	5,000	21.1	103,000	19,000	78.9	100,000
S&E precollege teachers	175,000	48,000	101,000	57.8	45,000	74,000	42.2	50,000
Secondary school teachers—computer, math, or sciences	143,000	48,000	85,000	59.5	45,000	58,000	40.5	50,000
Secondary school teachers—social sciences	32,000	49,000	16,000	50.0	50,000	16,000	50.0	47,000
S&E technicians and technologists	277,000	61,000	75,000	27.1	52,000	202,000	72.9	65,000
Technologists and technicians in the biological/life sciences	49,000	44,000	31,000	63.0	42,000	18,000	37.0	45,000
Computer programmers (business, scientific, process control)	120,000	78,000	27,000	22.4	78,000	93,000	77.6	79,000
Electrical, electronic, industrial, mechanical technicians	42,000	62,000	3,000	6.4	40,000	39,000	93.6	64,000
Drafting occupations, including computer drafting	13,000	42,000	4,000	27.6	40,000	9,000	72.4	45,000
Surveying and mapping technicians	9,000	45,000	2,000	22.7	42,000	7,000	77.3	52,000
Other engineering technologists and technicians	16,000	60,000	2,000	15.1	51,000	13,000	84.9	60,000
Surveyors, cartographers, photogrammetrists	14,000	50,000	2,000	12.6	60,000	12,000	87.4	47,000
Technologists and technicians in the mathematical sciences	S	S	S	S	S	S	S	S
Technologists and technicians in the physical sciences	16,000	41,000	5,000	34.3	40,000	10,000	65.7	41,000
Architects	22,000	85,000	4,000	16.6	48,000	18,000	83.4	91,000
Actuaries	24,000	108,000	8,000	35.2	108,000	16,000	64.8	108,000
Non-S&E occupations	4,176,000	58,000	1,727,000	41.4	46,000	2,449,000	58.6	70,000
Non-S&E managers	663,000	113,000	141,000	21.2	90,000	523,000	78.8	120,000
Top-level managers, executives, administrators	434,000	130,000	77,000	17.8	102,000	357,000	82.2	137,000
Education administrators (e.g., registrar, dean, principal)	38,000	89,000	16,000	43.2	81,000	22,000	56.8	91,000
Other mid-level managers	191,000	90,000	47,000	24.6	79,000	144,000	75.4	95,000
Management-related occupations	714,000	70,000	323,000	45.3	60,000	390,000	54.7	76,000
Accountants, auditors, and other financial specialists	276,000	67,000	113,000	40.8	59,000	163,000	59.2	75,000
Personnel, training, and labor relations specialists	119,000	62,000	79,000	66.4	59,000	40,000	33.6	70,000
Other management-related occupations	318,000	75,000	131,000	41.3	62,000	187,000	58.7	80,000
Non-S&E precollege teachers	217,000	40,000	177,000	81.9	40,000	39,000	18.1	43,000
Prekindergarten and kindergarten teachers	37,000	30,000	33,000	90.5	29,000	3,000	9.5	52,000

Appendix table 3-15

Estimate and median salary of full-time workers with highest degree in S&E field, by sex and occupation: 2008

Occupation	Total		Female			Male		
	Number	Median salary ($)	Number	Percent	Median salary ($)	Number	Percent	Median salary ($)
Elementary school teachers	84,000	45,000	73,000	86.8	44,000	11,000	13.2	48,000
Secondary school teachers—other subjects	42,000	41,000	29,000	69.2	40,000	13,000	30.8	42,000
Special education teachers—primary and secondary	39,000	40,000	30,000	76.6	38,000	9,000	23.4	44,000
Other precollegiate teachers	15,000	31,000	12,000	82.0	31,000	3,000	18.0	26,000
Non-S&E postsecondary teachers	24,000	61,000	11,000	46.6	53,000	13,000	53.4	70,000
Postsecondary teachers—art, drama, and music	1,000	62,000	<500	14.7	72,000	1,000	85.3	62,000
Postsecondary teachers—business, commerce, and marketing	5,000	100,000	1,000	25.2	95,000	4,000	74.8	103,000
Postsecondary teachers—education	3,000	56,000	2,000	60.2	65,000	1,000	39.8	44,000
Postsecondary teachers—English	1,000	45,000	1,000	72.1	45,000	<500	27.9	58,000
Postsecondary teachers—foreign languages	2,000	50,000	1,000	40.4	56,000	1,000	59.6	50,000
Postsecondary teachers—history	1,000	45,000	1,000	49.1	32,000	1,000	50.9	58,000
Postsecondary teachers—physical education	S	S	S	S	S	S	S	S
Postsecondary teachers—other non-S&E fields	10,000	54,000	5,000	52.4	41,000	5,000	47.6	68,000
Social services and related occupations	309,000	41,000	217,000	70.4	41,000	91,000	29.6	42,000
Clergy and other religious workers	17,000	35,000	2,000	14.3	40,000	15,000	85.7	32,000
Counselors, educational, vocational, mental health, and substance abuse	142,000	43,000	104,000	73.2	43,000	38,000	26.8	43,000
Social workers	149,000	40,000	111,000	74.3	38,000	38,000	25.7	40,000
Sales and marketing occupations	763,000	65,000	225,000	29.6	50,000	537,000	70.4	75,000
Insurance, securities, real estate, and business services	246,000	67,000	74,000	30.2	50,000	171,000	69.8	75,000
Sales occupations—commodities except retail	156,000	79,000	28,000	17.9	63,000	128,000	82.1	80,000
Sales occupations—retail	131,000	39,000	46,000	35.0	30,000	85,000	65.0	40,000
Other marketing and sales occupations	230,000	70,000	77,000	33.7	50,000	152,000	66.3	85,000
Art, humanities, and related occupations	122,000	55,000	59,000	48.4	50,000	63,000	51.6	64,000
Artists, broadcasters, editors, entertainers, public relations specialists, writers	121,000	55,000	59,000	48.5	50,000	62,000	51.5	64,000
Historians	1,000	65,000	<500	17.5	75,000	1,000	82.5	65,000
Other non-S&E occupations	1,365,000	45,000	573,000	42.0	39,000	792,000	58.0	51,000
Accounting clerks and bookkeepers	54,000	36,000	45,000	83.4	36,000	9,000	16.6	34,000
Secretaries, receptionists, typists	78,000	35,000	75,000	95.8	35,000	3,000	4.2	35,000
Other administrative (e.g., record clerks, telephone operators)	281,000	40,000	172,000	61.4	37,000	108,000	38.6	42,000
Farmers, foresters, and fishermen	67,000	36,000	9,000	12.7	21,000	59,000	87.3	40,000
Lawyers, judges	28,000	125,000	6,000	22.1	100,000	22,000	77.9	150,000
Librarians, archivists, curators	14,000	40,000	11,000	77.3	48,000	3,000	22.7	40,000
Food preparation and services	55,000	29,000	27,000	50.3	25,000	27,000	49.7	30,000
Protective services occupations	133,000	55,000	24,000	18.2	54,000	109,000	81.8	55,000
Other service occupations, except health	128,000	45,000	66,000	51.7	38,000	62,000	48.3	52,000
Other teachers and instructors in noneducational institutions	24,000	40,000	14,000	59.3	28,000	10,000	40.7	59,000
Construction and extraction occupations	104,000	65,000	9,000	8.2	69,000	96,000	91.8	62,000
Installation, maintenance, and repair occupations	81,000	53,000	8,000	9.3	48,000	74,000	90.7	54,000

Appendix table 3-15

Estimate and median salary of full-time workers with highest degree in S&E field, by sex and occupation: 2008

Occupation	Total		Female			Male		
	Number	Median salary ($)	Number	Percent	Median salary ($)	Number	Percent	Median salary ($)
Precision/production occupations	86,000	50,000	15,000	17.2	41,000	71,000	82.8	50,000
Transportation and material moving occupations	88,000	55,000	18,000	20.8	51,000	70,000	79.2	55,000
Other occupations	144,000	51,000	74,000	50.9	48,000	71,000	49.1	62,000

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Full-time includes those who typically work 35 or more hours weekly in their principal jobs. Dollars rounded to the nearest $1,000. Numbers rounded to the nearest 1,000. Percentages based on unrounded numbers. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-16

Median salary among scientists and engineers employed full time, by race/ethnicity and occupation: 2008 (corrected February 2012)

(Dollars)

Occupation	All categories	Asian	American Indian/ Alaska Native	Black	Hispanic	White	Native Hawaiian/ Other Pacific islander	Two or more races
All occupations	72,000	80,000	60,000	62,000	64,000	74,000	70,000	62,000
Science and engineering occupations	81,000	85,000	67,000	75,000	72,000	82,000	80,000	70,000
Computer and mathematical scientists	84,000	88,000	78,000	77,000	75,000	85,000	80,000	73,000
Computer and information scientists	85,000	89,000	84,000	77,000	75,000	85,000	80,000	74,000
Computer and information scientists, research	100,000	90,000	S	105,000	95,000	100,000	S	80,000
Computer support specialists	62,000	63,000	S	50,000	52,000	66,000	S	43,000
Computer system analysts	82,000	81,000	106,000	75,000	78,000	84,000	75,000	80,000
Database administrators	78,000	91,000	S	80,000	59,000	75,000	S	78,000
Network and computer systems administrators	72,000	83,000	S	77,000	72,000	70,000	46,000	72,000
Network systems and data communications analysts	75,000	70,000	S	73,000	75,000	75,000	S	65,000
Other computer and information science occupations	92,000	90,000	S	88,000	95,000	92,000	S	65,000
Computer engineers—software	95,000	95,000	74,000	86,000	88,000	96,000	100,000	88,000
Mathematical scientists	83,000	80,000	S	83,000	75,000	86,000	S	60,000
Mathematicians	60,000	55,000	S	64,000	80,000	60,000	S	S
Operations research analysts, including modeling	85,000	84,000	S	85,000	75,000	90,000	S	S
Statisticians	83,000	73,000	S	77,000	60,000	90,000	S	90,000
Other mathematical scientists	67,000	90,000	S	S	S	67,000	S	S
Postsecondary teachers—computer and math sciences	63,000	71,000	S	53,000	50,000	64,000	S	55,000
Postsecondary teachers—computer science	73,000	90,000	S	55,000	70,000	72,000	S	48,000
Postsecondary teachers—mathematics and statistics	60,000	62,000	S	52,000	42,000	60,000	S	55,000
Biological, agricultural, and other life scientists	60,000	63,000	50,000	66,000	60,000	60,000	69,000	58,000
Agricultural and food scientists	54,000	58,000	S	91,000	83,000	50,000	S	52,000
Biological and medical scientists	60,000	63,000	48,000	72,000	53,000	62,000	69,000	62,000
Biochemists and biophysicists	65,000	67,000	S	65,000	50,000	65,000	S	25,000
Biological scientists (e.g., botanists, ecologists, zoologists)	52,000	56,000	48,000	75,000	47,000	52,000	62,000	48,000
Medical scientists (excluding practitioners)	75,000	66,000	68,000	60,000	82,000	80,000	47,000	100,000
Other biological, agricultural or life scientists	60,000	63,000	S	80,000	62,000	60,000	S	66,000
Forestry and conservation scientists	57,000	24,000	S	66,000	64,000	57,000	S	54,000
Postsecondary teachers—life and related sciences	65,000	70,000	S	57,000	65,000	65,000	S	65,000
Postsecondary teachers—agriculture	60,000	71,000	S	60,000	55,000	54,000	S	S
Postsecondary teachers—biological sciences	65,000	66,000	S	55,000	65,000	67,000	S	63,000
Postsecondary teachers—other natural sciences	74,000	S	S	S	S	72,000	S	S
Physical and related scientists	70,000	72,000	67,000	53,000	60,000	71,000	64,000	52,000
Chemists, except biochemists	70,000	73,000	67,000	52,000	57,000	73,000	64,000	50,000
Earth scientists, geologists, and oceanographers	75,000	71,000	69,000	50,000	73,000	75,000	S	55,000
Atmospheric and space scientists	82,000	60,000	S	50,000	80,000	85,000	S	115,000
Geologists, including earth scientists	70,000	75,000	69,000	49,000	73,000	71,000	S	55,000
Oceanographers	87,000	75,000	S	S	80,000	91,000	S	S
Physicists and astronomers	85,000	80,000	S	24,000	65,000	95,000	S	30,000
Astronomers	62,000	55,000	S	S	40,000	63,000	S	S

Appendix table 3-16

Median salary among scientists and engineers employed full time, by race/ethnicity and occupation: 2008 (corrected February 2012)

(Dollars)

Occupation	All categories	Asian	American Indian/ Alaska Native	Black	Hispanic	White	Native Hawaiian/ Other Pacific islander	Two or more races
Physicists	90,000	83,000	S	24,000	65,000	97,000	S	29,000
Other physical scientists	65,000	65,000	S	77,000	65,000	66,000	S	45,000
Postsecondary teachers—physical and related sciences	64,000	65,000	S	56,000	58,000	64,000	S	60,000
Postsecondary teachers—chemistry	57,000	51,000	S	62,000	58,000	57,000	S	43,000
Postsecondary teachers—earth, environmental, and marine sciences	69,000	78,000	S	62,000	53,000	70,000	S	62,000
Postsecondary teachers—physics	70,000	79,000	S	48,000	70,000	70,000	S	59,000
Social and related scientists	70,000	72,000	60,000	65,000	60,000	70,000	90,000	52,000
Economists	101,000	85,000	S	60,000	65,000	117,000	S	47,000
Political scientists	72,000	72,000	S	58,000	51,000	81,000	S	S
Psychologists, including clinical	61,000	55,000	44,000	61,000	58,000	63,000	90,000	47,000
Sociologists and anthropologists	58,000	70,000	S	42,000	45,000	60,000	S	26,000
Anthropologists	55,000	S	S	180,000	45,000	57,000	S	19,000
Sociologists	69,000	70,000	S	42,000	83,000	69,000	S	26,000
Other social scientists	80,000	91,000	S	65,000	65,000	80,000	S	84,000
Postsecondary teachers—social and related sciences	66,000	65,000	52,000	65,000	60,000	69,000	17,000	65,000
Postsecondary teachers—economics	79,000	80,000	S	68,000	75,000	79,000	S	S
Postsecondary teachers—political science	69,000	58,000	S	62,000	58,000	70,000	S	60,000
Postsecondary teachers—psychology	67,000	60,000	S	64,000	63,000	68,000	S	70,000
Postsecondary teachers—sociology	64,000	60,000	S	65,000	59,000	64,000	S	86,000
Postsecondary teachers—other social sciences	61,000	65,000	52,000	69,000	60,000	63,000	S	65,000
Engineers	87,000	86,000	85,000	83,000	80,000	90,000	85,000	80,000
Aerospace, aeronautical, or astronautical engineers	100,000	93,000	102,000	70,000	80,000	104,000	90,000	101,000
Agricultural engineers	60,000	60,000	S	S	S	72,000	S	S
Bioengineering and biomedical engineers	69,000	64,000	S	30,000	76,000	70,000	S	68,000
Chemical engineers	94,000	100,000	59,000	90,000	81,000	94,000	S	91,000
Civil, architectural, or sanitary engineers	80,000	80,000	70,000	78,000	72,000	80,000	67,000	80,000
Electrical or computer hardware engineers	94,000	95,000	90,000	86,000	85,000	96,000	87,000	80,000
Computer engineers—hardware	100,000	100,000	S	98,000	78,000	104,000	S	120,000
Electrical and electronics engineers	93,000	92,000	90,000	85,000	85,000	96,000	87,000	80,000
Environmental engineers	80,000	79,000	S	94,000	78,000	80,000	S	58,000
Industrial engineers	78,000	72,000	S	75,000	70,000	82,000	S	68,000
Marine engineers and naval architects	100,000	160,000	S	S	S	100,000	S	S
Materials and metallurgical engineers	81,000	82,000	S	89,000	85,000	80,000	S	65,000
Mechanical engineers	85,000	84,000	106,000	84,000	80,000	86,000	83,000	70,000
Mining and geological engineers	77,000	110,000	S	S	40,000	77,000	S	S
Nuclear engineers	103,000	90,000	S	86,000	110,000	103,000	S	S
Petroleum engineers	114,000	105,000	S	96,000	109,000	120,000	S	S
Sales engineers	86,000	65,000	S	120,000	69,000	90,000	S	68,000
Other engineers	90,000	92,000	S	78,000	85,000	92,000	S	52,000

Appendix table 3-16

Median salary among scientists and engineers employed full time, by race/ethnicity and occupation: 2008 (corrected February 2012)

(Dollars)

Occupation	All categories	Asian	American Indian/ Alaska Native	Black	Hispanic	White	Native Hawaiian/ Other Pacific islander	Two or more races
Postsecondary teachers—engineering	82,000	82,000	S	67,000	90,000	83,000	S	104,000
S&E-related occupations	72,000	83,000	56,000	64,000	69,000	72,000	67,000	64,000
Health-related occupations	74,000	83,000	60,000	64,000	70,000	75,000	65,000	70,000
Diagnosing/treating practitioners (e.g., dentists, optometrists, physicians)	150,000	150,000	125,000	150,000	141,000	160,000	150,000	125,000
Registered nurses, pharmacists, dieticians, therapists, physician assistants	68,000	80,000	55,000	65,000	64,000	67,000	60,000	75,000
Health technologists and technicians (e.g., dental hygienist, health record tech)	50,000	52,000	37,000	48,000	48,000	52,000	50,000	35,000
Other health occupations	49,000	40,000	S	45,000	45,000	54,000	S	47,000
Postsecondary teachers—health and related sciences teachers	68,000	92,000	91,000	51,000	65,000	70,000	S	87,000
S&E managers	110,000	120,000	138,000	96,000	101,000	110,000	67,000	102,000
Computer and information systems managers	120,000	120,000	S	107,000	120,000	120,000	S	110,000
Engineering managers	120,000	120,000	S	105,000	98,000	120,000	102,000	102,000
Medical and health services managers	95,000	110,000	S	72,000	82,000	96,000	90,000	55,000
Natural sciences managers	100,000	120,000	S	86,000	85,000	100,000	S	74,000
S&E precollege teachers	52,000	50,000	52,000	50,000	50,000	52,000	42,000	46,000
Secondary school teachers—computer, math or sciences	52,000	51,000	50,000	50,000	52,000	52,000	42,000	41,000
Secondary school teachers—social sciences	52,000	46,000	S	49,000	48,000	52,000	S	57,000
S&E technicians and technologists	65,000	70,000	35,000	67,000	58,000	66,000	49,000	60,000
Technologists and technicians in the biological/life sciences	45,000	50,000	S	45,000	44,000	45,000	S	26,000
Computer programmers (business, scientific, process control)	80,000	85,000	S	75,000	70,000	80,000	S	86,000
Electrical, electronic, industrial, mechanical technicians	66,000	52,000	S	58,000	70,000	67,000	S	70,000
Drafting occupations, including computer drafting	43,000	56,000	S	55,000	89,000	42,000	S	S
Surveying and mapping technicians	43,000	S	S	S	35,000	43,000	S	S
Other engineering technologists and technicians	60,000	45,000	S	60,000	55,000	60,000	S	S
Surveyors, cartographers, photogrammetrists	52,000	S	S	S	95,000	52,000	S	S
Technologists and technicians in the mathematical sciences	S	S	S	S	S	S	S	S
Technologists and technicians in the physical sciences	48,000	65,000	S	37,000	40,000	50,000	S	36,000
Architects	80,000	80,000	S	77,000	80,000	82,000	S	64,000
Actuaries	104,000	80,000	S	159,000	S	108,000	S	S
Non-S&E occupations	65,000	62,000	53,000	54,000	57,000	66,000	70,000	53,000
Non-S&E managers	112,000	120,000	76,000	90,000	100,000	115,000	160,000	136,000
Top-level managers, executives, administrators	130,000	130,000	85,000	100,000	120,000	132,000	160,000	164,000
Education administrators (e.g., registrar, dean, principal)	85,000	75,000	S	94,000	78,000	87,000	S	92,000
Other mid-level managers	92,000	91,000	S	85,000	95,000	95,000	S	98,000
Management-related occupations	76,000	77,000	89,000	72,000	65,000	80,000	75,000	50,000
Accountants, auditors, and other financial specialists	76,000	78,000	45,000	74,000	70,000	79,000	S	41,000
Personnel, training, and labor relations specialists	65,000	65,000	S	50,000	56,000	68,000	S	64,000
Other management-related occupations	80,000	76,000	89,000	68,000	75,000	83,000	119,000	52,000

Appendix table 3-16

Median salary among scientists and engineers employed full time, by race/ethnicity and occupation: 2008 (corrected February 2012)

(Dollars)

Occupation	All categories	Asian	American Indian/ Alaska Native	Black	Hispanic	White	Native Hawaiian/ Other Pacific islander	Two or more races
Non-S&E precollege teachers	47,000	44,000	44,000	45,000	45,000	48,000	45,000	51,000
Prekindergarten and kindergarten teachers	36,000	30,000	S	22,000	32,000	38,000	S	S
Elementary school teachers	50,000	50,000	S	45,000	46,000	50,000	S	65,000
Secondary school teachers—other subjects	50,000	44,000	S	42,000	41,000	51,000	S	45,000
Special education teachers—primary and secondary	49,000	44,000	S	48,000	47,000	50,000	S	40,000
Other precollegiate teachers	34,000	S	S	45,000	53,000	33,000	S	S
Non-S&E postsecondary teachers	61,000	90,000	S	45,000	55,000	63,000	S	52,000
Postsecondary teachers—art, drama, and music	49,000	S	S	S	S	45,000	S	S
Postsecondary teachers—business, commerce, and marketing	95,000	120,000	S	54,000	50,000	92,000	S	S
Postsecondary teachers—education	64,000	67,000	S	44,000	63,000	65,000	S	S
Postsecondary teachers—English	59,000	18,000	S	62,000	59,000	58,000	S	S
Postsecondary teachers—foreign languages	50,000	61,000	S	S	61,000	45,000	S	S
Postsecondary teachers—history	52,000	S	S	109,000	52,000	50,000	S	S
Postsecondary teachers—physical education	70,000	S	S	S	S	70,000	S	S
Postsecondary teachers—other non-S&E fields	60,000	68,000	S	41,000	50,000	61,000	S	99,000
Social services and related occupations	45,000	46,000	50,000	45,000	46,000	45,000	48,000	45,000
Clergy and other religious workers	46,000	40,000	S	54,000	40,000	46,000	S	S
Counselors, educational, vocational, mental health, and substance abuse	45,000	55,000	60,000	41,000	43,000	45,000	48,000	44,000
Social workers	45,000	43,000	57,000	45,000	54,000	45,000	S	48,000
Sales and marketing occupations	70,000	68,000	75,000	55,000	65,000	74,000	50,000	60,000
Insurance, securities, real estate, and business services	72,000	70,000	S	67,000	71,000	75,000	S	70,000
Sales occupations—commodities except retail	80,000	81,000	75,000	55,000	75,000	84,000	S	62,000
Sales occupations—retail	40,000	36,000	S	44,000	33,000	40,000	S	69,000
Other marketing and sales occupations	75,000	70,000	S	50,000	68,000	80,000	S	46,000
Art, humanities, and related occupations	57,000	45,000	S	59,000	71,000	57,000	S	43,000
Artists, broadcasters, editors, entertainers, public relations specialists, writers	57,000	45,000	S	59,000	71,000	57,000	S	43,000
Historians	56,000	S	S	S	S	65,000	S	S
Other non-S&E occupations	53,000	49,000	34,000	50,000	45,000	56,000	48,000	53,000
Accounting clerks and bookkeepers	38,000	40,000	S	42,000	40,000	34,000	S	S
Secretaries, receptionists, typists	33,000	35,000	S	35,000	39,000	32,000	S	31,000
Other administrative (e.g., record clerks, telephone operators)	40,000	40,000	47,000	37,000	35,000	40,000	40,000	41,000
Farmers, foresters, and fishermen	36,000	50,000	S	S	73,000	36,000	S	28,000
Lawyers, judges	116,000	128,000	S	100,000	140,000	115,000	S	122,000
Librarians, archivists, curators	53,000	49,000	S	63,000	50,000	49,000	S	S
Food preparation and services	30,000	40,000	S	30,000	20,000	30,000	S	36,000
Protective services occupations	58,000	42,000	53,000	60,000	50,000	60,000	S	69,000
Other service occupations, except health	45,000	55,000	S	42,000	50,000	43,000	S	48,000

Appendix table 3-16

Median salary among scientists and engineers employed full time, by race/ethnicity and occupation: 2008 (corrected February 2012)

(Dollars)

Occupation	All categories	Asian	American Indian/ Alaska Native	Black	Hispanic	White	Native Hawaiian/ Other Pacific islander	Two or more races
Other teachers and instructors in noneducational institutions	45,000	40,000	S	49,000	43,000	45,000	S	45,000
Construction and extraction occupations	65,000	60,000	S	52,000	68,000	65,000	S	85,000
Installation, maintenance, and repair occupations	54,000	56,000	S	80,000	36,000	55,000	S	21,000
Precision/production occupations	50,000	50,000	S	58,000	40,000	55,000	S	95,000
Transportation and material moving occupations	54,000	56,000	S	35,000	43,000	55,000	S	51,000
Other occupations	55,000	55,000	S	60,000	42,000	56,000	S	62,000

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Dollars rounded to the nearest $1,000. Full-time includes those who typically work 35 or more hours weekly in their principal jobs.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-17

Full-time S&E workers who are foreign-born, by occupation and highest degree level: 2003 and 2008

(Percent)

Occupation	2003				2008			
	All levels	Bachelor's	Master's	Doctorate	All levels	Bachelor's	Master's	Doctorate
Science and engineering occupations	23	17	30	38	25	17	34	39
Computer and mathematical scientists	26	19	39	49	29	20	45	52
Computer and information scientists	26	19	41	54	29	20	47	57
Computer and information scientists, research	28	11	37	54	31	8	44	60
Computer support specialists	16	15	25	38	17	15	28	39
Computer system analysts	25	19	41	35	28	21	45	44
Database administrators	28	21	44	50	33	24	51	43
Network and computer systems administrators	18	15	25	56	21	17	32	40
Network systems and data communications analysts	22	17	37	34	26	18	47	70
Other computer and information science occupations	13	11	18	39	21	17	32	32
Computer engineers—software	38	27	53	62	38	25	56	64
Mathematical scientists	19	4	23	44	26	11	29	52
Mathematicians	26	S	S	39	29	S	S	41
Operations research analysts, including modeling	15	6	25	37	24	12	35	50
Statisticians	25	S	21	48	29	13	24	56
Other mathematical scientists	13	S	S	41	19	S	S	61
Postsecondary teachers—computer and math sciences	26	7	13	43	30	10	21	43
Postsecondary teachers—computer science	25	8	18	44	37	S	36	49
Postsecondary teachers—mathematics and statistics	26	S	11	42	27	S	17	39
Biological, agricultural, and other life scientists	24	11	18	42	26	14	25	39
Agricultural and food scientists	15	11	15	28	15	6	25	33
Biological and medical scientists	29	12	23	50	31	17	30	45
Biochemists and biophysicists	37	13	25	57	38	11	40	56
Biological scientists (e.g., botanists, ecologists, zoologists)	22	12	19	40	19	11	21	33
Medical scientists (excluding practitioners)	34	12	28	52	41	31	35	46
Other biological, agricultural or life scientists	25	12	21	53	29	17	38	45
Forestry and conservation scientists	7	S	S	20	7	S	S	24
Postsecondary teachers—life and related sciences	18	S	6	21	23	S	7	23
Postsecondary teachers—agriculture	12	S	S	16	21	S	S	28
Postsecondary teachers—biological sciences	20	S	S	22	24	S	S	23
Postsecondary teachers—other natural sciences	12	S	S	18	5	S	S	S
Physical and related scientists	22	13	20	37	23	13	24	36
Chemists, except biochemists	28	17	37	44	30	19	48	45
Earth scientists, geologists, and oceanographers	10	6	6	32	11	7	10	29
Atmospheric and space scientists	15	S	S	37	13	S	11	31
Geologists, including earth scientists	8	7	5	30	10	8	8	27
Oceanographers	15	S	S	26	24	S	S	35
Physicists and astronomers	32	S	24	41	36	22	41	38
Astronomers	32	S	S	36	30	S	S	30
Physicists	32	S	24	41	36	23	41	39
Other physical scientists	13	7	11	53	S	2	7	38

Appendix table 3-17

Full-time S&E workers who are foreign-born, by occupation and highest degree level: 2003 and 2008

(Percent)

Occupation	2003				2008			
	All levels	Bachelor's	Master's	Doctorate	All levels	Bachelor's	Master's	Doctorate
Postsecondary teachers—physical and related sciences	24	17	14	27	24	9	11	30
Postsecondary teachers—chemistry	24	S	30	25	21	11	S	26
Postsecondary teachers—earth, environmental, and marine sciences	16	S	S	22	20	S	S	28
Postsecondary teachers—physics	31	S	15	35	34	S	22	38
Social and related scientists	13	10	11	16	14	10	12	19
Economists	20	9	19	33	20	S	16	40
Political scientists	9	S	S	20	19	S	17	24
Psychologists, including clinical	9	25	5	10	12	21	9	13
Sociologists and anthropologists	4	S	S	6	14	S	9	27
Anthropologists	3	S	S	5	10	S	S	33
Sociologists	4	S	S	7	18	S	22	20
Other social scientists	14	10	20	23	12	8	15	27
Postsecondary teachers—social and related sciences	16	S	9	18	17	S	8	19
Postsecondary teachers—economics	28	S	16	33	34	S	21	37
Postsecondary teachers—political science	18	S	S	20	15	S	S	16
Postsecondary teachers—psychology	12	S	27	10	12	S	S	12
Postsecondary teachers—sociology	10	S	S	13	12	S	S	13
Postsecondary teachers—other social sciences	14	S	S	20	15	S	S	23
Engineers	22	16	30	51	24	16	33	56
Aerospace, aeronautical, or astronautical engineers	16	13	19	37	18	14	20	41
Agricultural engineers	24	15	32	53	24	15	32	52
Bioengineering and biomedical engineers	20	15	32	60	21	15	33	62
Chemical engineers	32	26	41	61	34	24	48	63
Civil, architectural, or sanitary engineers	46	39	54	70	47	41	52	62
Electrical or computer hardware engineers	30	23	38	60	32	22	47	63
Computer engineers—hardware	17	13	26	33	24	23	24	55
Electrical and electronics engineers	19	13	29	59	19	12	29	64
Environmental engineers	5	S	S	45	39	S	S	53
Industrial engineers	36	17	53	44	34	22	38	54
Marine engineers and naval architects	12	10	14	33	14	12	15	40
Materials and metallurgical engineers	23	22	22	42	11	S	27	S
Mechanical engineers	22	15	22	45	26	11	33	53
Mining and geological engineers	6	S	S	84	16	S	S	60
Nuclear engineers	11	9	7	38	14	7	17	46
Petroleum engineers	13	7	28	62	12	5	29	47

Appendix table 3-17

Full-time S&E workers who are foreign-born, by occupation and highest degree level: 2003 and 2008

(Percent)

Occupation	2003				2008			
	All levels	Bachelor's	Master's	Doctorate	All levels	Bachelor's	Master's	Doctorate
Sales engineers	11	7	23	S	10	6	33	43
Other engineers	17	10	31	61	17	9	21	48
Postsecondary teachers—engineering	37	S	22	44	44	S	15	54

S = suppressed for reasons of confidentiality and/or reliability

NOTES: 2003 and 2008 data do not capture immigrants with foreign degrees who entered the United States after April 2000. The relative size of this undercount is larger in 2008 than in 2003. Full-time includes those who typically work 35 or more hours weekly in their principal jobs.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2003 and 2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-18

Place of birth and proportion with U.S. highest degrees of non-U.S.-born S&E highest degree holders: 2003 and 2008

Location	2003 Foreign born	2003 % with U.S. S&E highest degrees	2008 Foreign born	2008 % with U.S. S&E highest degrees
Non-U.S.	1,860,000	60	2,024,000	68
Europe	391,000	49	390,000	57
Albania	3,000	35	3,000	54
Austria	3,000	52	4,000	67
Belgium	4,000	66	4,000	65
Bulgaria	6,000	13	5,000	36
Czechoslovakia	2,000	62	2,000	65
Denmark	2,000	67	2,000	46
Finland	1,000	49	1,000	83
France	20,000	53	22,000	59
Germany, not specified	63,000	81	63,000	84
West Germany	1,000	S	2,000	S
Greece	10,000	85	9,000	93
Hungary	5,000	69	5,000	81
Iceland	<500	S	1,000	S
Ireland	12,000	47	10,000	52
Italy	13,000	81	14,000	90
Liechtenstein	S	S	S	S
Malta	<500	S	S	S
Monaco	S	S	S	S
Netherlands	8,000	38	9,000	38
Norway	3,000	70	4,000	78
Poland	27,000	36	26,000	52
Portugal	4,000	93	5,000	94
Azores Islands	S	S	S	S
Romania	14,000	47	13,000	51
Spain	6,000	74	6,000	87
Sweden	3,000	58	5,000	85
Switzerland	4,000	54	5,000	58
United Kingdom, not specified	26,000	32	29,000	39
England	46,000	40	41,000	39
Scotland	5,000	57	3,000	68
Wales	2,000	21	1,000	42
Northern Ireland	1,000	21	1,000	27
Yugoslavia	3,000	78	3,000	71
Eastern Europe, not specified	<500	S	S	S
Czech, Rep. of Slovakia	1,000	34	2,000	54
Serbia/Montenegro/Kosovo	1,000	S	3,000	52
Slovenia	S	S	S	S
Macedonia	S	S	S	S
Bosnia and Hercegovina	3,000	S	4,000	39
Croatia	3,000	31	2,000	64
USSR	9,000	52	8,000	48
Estonia	1,000	S	1,000	S
Latvia	2,000	83	3,000	73
Lithuania	1,000	S	1,000	S
Moldova	3,000	S	S	S
Belarus (Byelarus)	4,000	23	5,000	47
Russia	31,000	22	30,000	32
Kazakhstan	1,000	S	1,000	S
Armenia	2,000	S	3,000	21
Azerbaijan	2,000	S	2,000	S
Georgia (country)	1,000	S	1,000	32
Uzbekistan	2,000	39	1,000	S
Ukraine	27,000	26	23,000	30
Turkmenistan	S	S	S	S

Appendix table 3-18

Place of birth and proportion with U.S. highest degrees of non-U.S.-born S&E highest degree holders: 2003 and 2008

Location	2003 Foreign born	2003 % with U.S. S&E highest degrees	2008 Foreign born	2008 % with U.S. S&E highest degrees
Asia	1,032,000	63	1,176,000	72
Afghanistan	4,000	46	7,000	34
Bahrain	S	S	S	S
Bangladesh	12,000	57	11,000	76
Burma	4,000	42	5,000	67
Cambodia	3,000	94	5,000	98
China	172,000	72	206,000	77
Cyprus	1,000	S	1,000	S
Hong Kong	34,000	90	39,000	88
India	301,000	47	350,000	60
Indonesia	6,000	84	10,000	97
Iran	48,000	85	48,000	89
Iraq	4,000	45	5,000	50
Israel	10,000	71	9,000	83
Japan	36,000	69	41,000	78
Jordan	2,000	S	3,000	S
Korea, not specified	47,000	66	37,000	64
South Korea	15,000	94	29,000	92
North Korea	S	S	S	S
Kuwait	1,000	S	4,000	S
Laos	3,000	94	3,000	S
Lebanon	10,000	93	8,000	96
Macao	<500	S	<500	S
Malaysia	10,000	85	13,000	80
Maldives	S	S	S	S
Mongolia	S	S	S	S
Nepal	2,000	80	5,000	87
Oman	S	S	S	S
Pakistan	27,000	52	36,000	68
Philippines	116,000	35	119,000	46
Saudi Arabia	<500	S	1,000	S
Singapore	2,000	68	3,000	94
Sri Lanka	6,000	95	5,000	98
Syria	3,000	93	3,000	88
Taiwan	69,000	83	78,000	87
Thailand	10,000	70	12,000	80
Turkey	11,000	66	11,000	76
United Arab Emirates	S	S	1,000	S
Vietnam	55,000	96	66,000	97
Yemen, Peoples Democratic Republic	S	S	S	S
Yemen Arab Republic	3,000	51	S	S
Yemen, Unified (1991 and after)	S	S	S	S
East Asia, not specified	S	S	S	S
Gaza Strip	S	S	S	S
Iraq–Saudi Arabia Neutral Zone	S	S	S	S
Middle East, not specified	S	S	S	S
Palestine, not specified	1,000	S	1,000	S
West Bank	S	S	S	S
North America	80,000	56	80,000	60
Bermuda	<500	S	<500	S
Canada	79,000	56	79,000	60
Central America	82,000	65	95,000	72
Belize	<500	S	<500	S
Costa Rica	4,000	90	2,000	S
El Salvador	6,000	81	6,000	87
Guatemala	5,000	90	9,000	68

Appendix table 3-18

Place of birth and proportion with U.S. highest degrees of non-U.S.-born S&E highest degree holders: 2003 and 2008

Location	2003 Foreign born	2003 % with U.S. S&E highest degrees	2008 Foreign born	2008 % with U.S. S&E highest degrees
Honduras	3,000	73	4,000	78
Mexico	56,000	56	65,000	67
Nicaragua	3,000	57	4,000	87
Panama	6,000	S	6,000	98
Caribbean	76,000	78	76,000	82
Antigua and Barbuda	S	S	S	S
Aruba	S	S	S	S
Bahamas	3,000	S	2,000	S
Barbados	1,000	94	1,000	89
British Virgin Islands	S	S	S	S
Cuba	26,000	66	24,000	70
Dominica	S	S	<500	S
Dominican Republic	10,000	73	15,000	86
Grenada	<500	S	<500	S
Haiti	7,000	60	9,000	84
Jamaica	18,000	89	17,000	87
Montserrat	S	S	S	S
Netherlands Antilles	S	S	S	S
St. Kitts-Nevis	1,000	88	1,000	S
St. Lucia	1,000	S	S	S
St. Vincent and the Grenadines	S	S	S	S
Trinidad and Tobago	8,000	93	6,000	89
Caribbean, not specified	<500	S	<500	S
British West Indies, not specified	S	S	S	S
West Indies, not specified	S	S	S	S
South America	96,000	60	103,000	65
Argentina	11,000	55	12,000	72
Bolivia	3,000	63	2,000	S
Brazil	10,000	41	12,000	56
Chile	6,000	77	6,000	79
Colombia	18,000	61	22,000	63
Ecuador	9,000	64	8,000	78
Guyana	7,000	67	6,000	66
Paraguay	S	S	<500	S
Peru	18,000	45	20,000	51
Suriname	S	S	S	S
Uruguay	2,000	S	3,000	S
Venezuela	11,000	75	12,000	63
Africa	86,000	61	88,000	67
Algeria	3,000	58	1,000	S
Angola	S	S	S	S
Benin (formerly Dahomey)	S	S	S	S
Burkina Faso	S	S	S	S
Burundi	S	S	S	S
Cameroon	4,000	72	2,000	78
Cape Verde	S	S	S	S
Congo	S	S	<500	S
Egypt	15,000	45	12,000	52
Ethiopia	5,000	71	5,000	91
Gabon	S	S	S	S
Ghana	6,000	89	7,000	78
Guinea	S	S	S	S
Guinea-Bissau	S	S	S	S
Ivory Coast	S	S	<500	S
Kenya	6,000	58	10,000	68
Lesotho	S	S	S	S

Appendix table 3-18

Place of birth and proportion with U.S. highest degrees of non-U.S.-born S&E highest degree holders: 2003 and 2008

Location	2003 Foreign born	2003 % with U.S. S&E highest degrees	2008 Foreign born	2008 % with U.S. S&E highest degrees
Liberia	1,000	96	1,000	94
Libya	1,000	90	3,000	56
Madagascar	1,000	S	1,000	S
Malawi	S	S	S	S
Mali	S	S	S	S
Mauritania	S	S	S	S
Morocco	2,000	74	1,000	90
Mozambique	S	S	S	S
Namibia	S	S	S	S
Nigeria	15,000	78	16,000	82
Rwanda	S	S	S	S
Senegal	S	S	1,000	87
Mauritius	S	S	S	S
Sierra Leone	1,000	42	1,000	74
Somalia	S	S	S	S
South Africa	6,000	40	7,000	45
Sudan	4,000	19	4,000	34
Tanzania	3,000	46	4,000	41
Togo	S	S	<500	S
Tunisia	1,000	38	1,000	42
Uganda	2,000	74	2,000	80
Zaire	1,000	S	S	S
Zambia	<500	S	1,000	S
Zimbabwe	<500	81	<500	71
Africa, not specified	3,000	42	2,000	16
Central Africa, not specified	S	S	S	S
Eastern Africa, not specified	S	S	S	S
Western Africa, not specified	2,000	S	S	S
Southern Africa, not specified	S	S	S	S
Eritrea	S	S	S	S
Oceania	15,000	57	14,000	51
Australia	8,000	65	8,000	67
Fiji	S	S	S	S
Kiribati	S	S	S	S
Marshall Islands	S	S	S	S
Micronesia	S	S	S	S
New Zealand	6,000	47	5,000	16
Papua New Guinea	S	S	S	S
Oceania, not specified	1,000	S	S	S
French Southern and Antarctica	S	S	S	S
Abroad, not specified	2,000	S	2,000	S

S = suppressed for reasons of confidentiality and/or reliability

NOTES: 2003 and 2008 data do not capture immigrants with foreign degrees who entered the United States after April 2000. The relative size of this undercount is larger in 2008 than in 2003.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2003 and 2008), http://sestat.nsf.gov.

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Appendix table 3-19

Occupations of new H-1B visa recipients: FY 2009

Occupation	Number	Percent
Computer-related occupations	29,793	34.6
Administrative specializations, managers, officials	13,463	15.6
Education	10,840	12.6
Architecture, engineering, and surveying	10,789	12.5
Medicine and health	8,053	9.4
Other	3,171	3.7
Life sciences	3,036	3.5
Mathematics and physical sciences	2,640	3.1
Social sciences	2,155	2.5
Other professional, technical, and managerial	2,122	2.5

SOURCES: Department of Homeland Security (DHS), U.S. Citizenship and Immigration Services; National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of DHS administrative records.

Science and Engineering Indicators 2012

Appendix table 3-20

Plans of foreign recipients of U.S. S&E doctorates to stay in the United States, by field and place of origin: 1998–2009

Field and place of origin	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09
All S&E fields									
All non-US citizens	38,430	41,768	56,173	71.6	73.5	77.2	49.4	49.3	51.3
East/South Asia	22,067	23,926	35,436	77.9	79.6	81.9	53.4	52.2	53.5
China[a]	9,992	11,676	17,443	90.8	91.6	89.0	62.0	60.3	57.6
Taiwan	3,072	1,918	2,117	63.4	65.1	67.3	38.1	38.4	40.6
Japan	695	798	951	52.1	57.1	57.8	34.8	39.7	41.1
South Korea	3,308	4,166	4,973	61.3	69.5	69.6	41.1	42.9	45.4
India	3,867	3,622	8,266	88.2	88.3	88.6	66.5	62.9	59.8
Other	1,133	1,746	1,686	32.6	31.3	44.7	20.7	19.4	27.5
West Asia	3,154	3,770	5,003	60.9	60.9	71.0	40.3	40.6	47.9
Iran	373	329	656	85.3	89.1	91.9	53.1	58.4	60.8
Israel	170	233	295	56.5	72.1	65.1	36.5	51.9	51.9
Turkey	958	1,427	1,792	58.2	60.4	70.5	40.5	42.2	48.5
Other	1,653	1,781	2,260	57.5	54.6	66.2	37.7	34.5	43.2
Pacifica/Australasia	746	679	771	56.2	64.5	72.5	39.5	42.9	49.8
Australia	199	174	204	64.3	69.0	69.6	46.7	51.1	52.9
Indonesia	227	241	208	41.4	56.0	68.8	28.2	32.4	43.3
New Zealand	97	93	94	59.8	60.2	70.2	47.4	46.2	54.3
Other	223	171	265	62.3	74.3	78.5	41.3	47.4	50.9
Africa	1,511	1,525	1,983	63.5	66.1	73.1	35.1	39.8	43.6
Egypt	329	496	433	55.6	62.7	70.4	36.8	41.3	46.0
Nigeria	121	79	217	86.0	88.6	85.3	37.2	41.8	47.5
South Africa	162	130	111	63.0	47.7	55.0	38.9	36.2	39.6
Other	899	820	1,222	63.5	68.9	73.6	33.6	39.3	42.5
Europe	6,306	6,742	7,082	72.3	74.5	72.5	53.5	53.9	52.2
Greece	402	362	444	68.7	66.9	64.9	52.0	46.7	45.0
United Kingdom	532	494	474	77.3	78.7	73.6	58.3	58.1	54.4
Germany	863	775	752	62.7	67.0	67.4	48.4	51.2	52.8
Italy	377	511	533	58.1	65.6	66.2	44.8	48.7	48.6
France	333	392	523	68.8	67.6	69.6	45.9	46.4	47.8
Spain	262	282	304	55.3	61.7	61.5	40.1	44.7	44.7
Other	3,537	3,926	4,052	77.4	78.9	76.2	56.8	56.7	54.1
North/South America	4,301	4,758	5,481	53.4	58.4	62.6	38.9	41.5	43.9
Canada	1,286	1,495	1,745	68.4	66.6	66.4	52.4	50.8	47.3
Mexico	784	804	752	36.6	46.8	53.3	26.3	31.2	40.3
Argentina	279	328	446	60.9	70.4	65.5	46.6	53.7	50.7
Brazil	626	579	567	34.0	43.7	50.4	23.6	31.6	37.0
Chile	129	201	253	52.7	37.8	36.8	41.9	27.9	25.3
Colombia	208	325	490	56.7	57.2	64.7	40.9	35.4	44.5
Peru	116	143	203	62.9	72.7	71.9	40.5	46.9	49.3
Other	873	883	1,025	55.8	63.4	71.9	37.5	41.7	45.0
Country unknown	345	368	417	45.5	33.2	50.8	21.4	13.6	28.1
Physical/earth, atmospheric, and ocean sciences									
All non-US citizens	6,591	6,783	8,830	78.2	80.6	79.9	56.5	57.2	54.7
East/South Asia	3,719	3,674	5,234	84.1	87.0	84.2	59.0	61.5	57.2
China[a]	2,212	2,245	3,164	90.9	92.6	88.1	62.9	63.8	58.5
Taiwan	352	194	226	70.7	76.3	78.3	46.9	52.6	59.7
Japan	84	102	146	63.1	68.6	57.5	39.3	48.0	41.1
South Korea	451	514	598	71.4	83.3	77.8	54.5	62.3	57.0
India	502	463	925	86.5	86.2	85.9	64.1	67.0	58.2
Other	118	156	175	48.3	47.4	54.9	31.4	30.8	38.3
West Asia	368	466	737	67.1	68.2	78.0	48.4	47.4	51.8
Iran	57	42	61	78.9	83.3	85.2	57.9	64.3	54.1
Israel	16	26	24	62.5	76.9	70.8	43.8	53.8	62.5
Turkey	92	152	223	57.6	68.4	78.9	41.3	50.0	49.8
Other	203	246	429	68.5	64.6	76.9	49.3	42.3	52.0
Pacifica/Australasia	113	100	152	62.8	76.0	81.6	43.4	52.0	56.6

Appendix table 3-20

Plans of foreign recipients of U.S. S&E doctorates to stay in the United States, by field and place of origin: 1998–2009

Field and place of origin	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09
Australia	18	27	34	66.7	63.0	67.6	55.6	51.9	50.0
Indonesia	29	17	25	55.2	64.7	80.0	37.9	52.9	44.0
New Zealand	14	13	11	57.1	76.9	72.7	35.7	69.2	63.6
Other	52	43	82	67.3	88.4	89.0	44.2	46.5	62.2
Africa	168	178	340	75.6	80.9	82.1	45.8	51.7	49.1
Egypt	25	43	43	64.0	69.8	74.4	52.0	46.5	44.2
Nigeria	14	9	41	78.6	88.9	82.9	35.7	33.3	43.9
South Africa	21	13	14	57.1	53.8	50.0	42.9	46.2	35.7
Other	108	113	242	81.5	87.6	85.1	46.3	55.8	51.7
Europe	1,629	1,709	1,593	73.5	77.1	71.2	56.7	55.3	51.2
Greece	66	57	61	62.1	61.4	60.7	50.0	42.1	41.0
United Kingdom	134	98	125	71.6	81.6	69.6	58.2	65.3	56.0
Germany	225	182	134	58.7	68.1	53.0	45.8	52.2	41.8
Italy	77	126	113	50.6	61.1	59.3	40.3	42.1	44.2
France	74	106	105	62.2	67.9	64.8	44.6	46.2	49.5
Spain	26	48	48	61.5	54.2	64.6	42.3	35.4	52.1
Other	1,027	1,092	1,007	80.6	82.7	76.8	61.8	58.9	53.4
North/South America	522	600	712	67.4	65.8	70.2	54.0	50.2	51.1
Canada	193	231	268	80.3	67.5	64.9	66.8	56.7	47.4
Mexico	79	92	94	41.8	58.7	60.6	34.2	41.3	48.9
Argentina	39	40	64	74.4	82.5	73.4	56.4	57.5	56.3
Brazil	54	41	38	44.4	39.0	71.1	29.6	29.3	57.9
Chile	12	16	16	66.7	62.5	50.0	58.3	43.8	37.5
Colombia	34	49	63	79.4	59.2	71.4	70.6	40.8	54.0
Peru	14	17	28	64.3	76.5	89.3	35.7	47.1	57.1
Other	97	114	141	69.1	73.7	83.0	53.6	54.4	54.6
Country unknown	72	56	62	50.0	30.4	58.1	26.4	16.1	32.3
Biological/agricultural sciences									
All non-US citizens	9,003	8,750	11,488	75.6	78.5	80.5	51.8	53.8	54.0
East/South Asia	5,441	5,056	7,196	85.0	88.2	86.7	58.5	59.7	57.6
China[a]	3,124	2,797	3,684	92.4	94.3	90.8	62.7	63.0	58.3
Taiwan	632	394	480	72.0	80.7	77.5	47.2	53.8	52.1
Japan	97	121	165	75.3	73.6	78.8	52.6	49.6	60.6
South Korea	578	661	790	79.4	89.7	85.7	60.2	64.4	61.8
India	761	774	1,757	89.1	93.7	90.8	62.3	64.7	61.5
Other	249	309	320	29.7	31.1	36.9	20.9	18.8	25.6
West Asia	558	623	657	60.2	57.3	74.3	40.3	38.2	49.6
Iran	64	35	42	85.9	91.4	100.0	51.6	51.4	64.3
Israel	35	23	42	65.7	82.6	52.4	37.1	52.2	33.3
Turkey	157	235	187	43.9	49.8	80.2	29.9	34.5	57.8
Other	302	330	386	62.6	57.3	71.0	43.7	38.5	45.9
Pacifica/Australasia	170	155	181	51.2	61.9	71.8	30.6	41.3	48.6
Australia	43	23	47	62.8	82.6	80.9	41.9	47.8	63.8
Indonesia	34	41	30	29.4	46.3	66.7	20.6	29.3	40.0
New Zealand	22	32	20	36.4	50.0	70.0	27.3	37.5	60.0
Other	71	59	84	59.2	71.2	69.0	29.6	49.2	40.5
Africa	349	365	508	57.6	63.6	71.5	29.8	37.5	43.3
Egypt	28	87	84	57.1	63.2	73.8	42.9	43.7	51.2
Nigeria	28	18	43	92.9	88.9	93.0	35.7	33.3	51.2
South Africa	41	31	34	63.4	32.3	61.8	41.5	19.4	47.1
Other	252	229	347	52.8	65.9	69.2	25.8	38.0	40.1
Europe	1,147	1,176	1,298	77.3	78.9	77.0	55.4	57.8	54.4
Greece	59	60	66	71.2	65.0	72.7	55.9	48.3	54.5
United Kingdom	128	114	109	83.6	84.2	77.1	62.5	56.1	53.2
Germany	176	144	163	71.6	74.3	76.7	56.8	54.2	59.5
Italy	43	64	79	60.5	70.3	73.4	46.5	45.3	51.9
France	54	69	97	68.5	75.4	77.3	31.5	52.2	51.5

Appendix table 3-20

Plans of foreign recipients of U.S. S&E doctorates to stay in the United States, by field and place of origin: 1998–2009

Field and place of origin	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09
Spain	57	42	53	54.4	78.6	66.0	35.1	52.4	43.4
Other	630	683	731	82.2	81.4	78.7	58.1	61.8	54.9
North/South America	1,272	1,312	1,592	49.8	59.0	62.8	35.2	43.0	44.1
Canada	311	370	460	72.7	72.4	70.9	55.9	57.0	51.7
Mexico	281	228	204	31.3	44.3	45.6	21.7	30.7	32.8
Argentina	89	86	155	59.6	68.6	60.6	44.9	50.0	48.4
Brazil	185	161	188	27.6	38.5	52.7	19.5	31.1	35.6
Chile	45	58	77	62.2	50.0	46.8	46.7	39.7	31.2
Colombia	63	92	132	55.6	55.4	63.6	36.5	34.8	43.2
Peru	26	41	62	73.1	78.0	75.8	46.2	46.3	59.7
Other	272	276	314	48.9	62.3	70.4	29.8	42.0	43.6
Country unknown	66	63	56	54.5	38.1	57.1	24.2	14.3	26.8
Health sciences									
All non-US citizens	1,495	1,687	2,101	59.4	61.6	68.6	38.7	40.4	42.9
East/South Asia	872	970	1,341	63.0	63.4	73.5	40.9	41.1	46.0
China[a]	230	263	374	89.1	89.0	84.2	59.1	63.1	54.5
Taiwan	201	172	210	45.8	44.8	52.4	26.4	25.6	30.5
Japan	32	43	45	43.8	53.5	53.3	34.4	39.5	35.6
South Korea	107	116	191	57.0	76.7	77.5	38.3	37.9	48.7
India	166	191	398	90.4	88.5	89.2	60.2	59.2	55.8
Other	136	185	123	19.9	12.4	27.6	11.8	8.1	14.6
West Asia	131	158	178	44.3	44.9	45.5	23.7	26.6	23.0
Iran	8	6	14	87.5	100.0	100.0	25.0	66.7	42.9
Israel	5	10	14	40.0	70.0	42.9	0.0	40.0	28.6
Turkey	12	22	9	58.3	77.3	77.8	50.0	54.5	33.3
Other	106	120	141	39.6	34.2	38.3	21.7	18.3	19.9
Pacifica/Australasia	36	27	21	61.1	74.1	66.7	47.2	59.3	42.9
Australia	17	17	8	76.5	82.4	100.0	58.8	70.6	62.5
Indonesia	7	2	5	42.9	0.0	40.0	28.6	0.0	40.0
New Zealand	7	1	6	85.7	100.0	33.3	71.4	100.0	16.7
Other	5	7	2	0.0	71.4	100.0	0.0	42.9	50.0
Africa	92	105	130	58.7	61.0	61.5	28.3	36.2	33.1
Egypt	16	30	34	62.5	46.7	61.8	31.3	33.3	35.3
Nigeria	8	12	22	100.0	100.0	77.3	50.0	75.0	36.4
South Africa	15	7	7	46.7	57.1	42.9	20.0	42.9	14.3
Other	53	56	67	54.7	60.7	58.2	26.4	28.6	32.8
Europe	139	159	171	61.2	71.7	71.3	44.6	47.2	49.7
Greece	15	10	9	60.0	80.0	66.7	60.0	60.0	55.6
United Kingdom	24	30	29	75.0	83.3	82.8	54.2	63.3	65.5
Germany	21	18	29	57.1	61.1	69.0	47.6	44.4	34.5
Italy	3	15	4	33.3	80.0	75.0	0.0	46.7	75.0
France	10	7	3	70.0	100.0	66.7	40.0	57.1	66.7
Spain	12	10	6	66.7	70.0	83.3	41.7	30.0	50.0
Other	54	69	91	55.6	63.8	68.1	38.9	40.6	47.3
North/South America	205	246	231	53.2	61.0	62.8	40.0	43.9	42.9
Canada	111	108	108	61.3	74.1	65.7	46.8	61.1	45.4
Mexico	22	16	19	27.3	62.5	52.6	9.1	43.8	47.4
Argentina	5	7	8	60.0	71.4	75.0	40.0	71.4	62.5
Brazil	25	53	36	28.0	41.5	44.4	24.0	24.5	27.8
Chile	2	10	4	100.0	20.0	75.0	100.0	20.0	50.0
Colombia	9	9	15	44.4	44.4	86.7	33.3	11.1	53.3
Peru	4	8	9	50.0	75.0	55.6	50.0	25.0	33.3
Other	27	35	32	63.0	60.0	65.6	48.1	34.3	40.6
Country unknown	20	22	29	55.0	27.3	44.8	20.0	18.2	24.1
Mathematics/computer sciences									
All non-US citizens	3,695	4,230	6,896	74.4	75.8	79.3	53.5	55.4	55.7
East/South Asia	1,911	2,220	4,517	80.7	82.1	84.6	57.0	58.3	58.5

Appendix table 3-20

Plans of foreign recipients of U.S. S&E doctorates to stay in the United States, by field and place of origin: 1998–2009

Field and place of origin	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09
China[a]	807	1,165	2,667	89.8	90.4	89.6	64.6	65.7	62.2
Taiwan	282	161	162	66.0	62.7	68.5	36.9	36.0	43.2
Japan	47	46	53	78.7	71.7	67.9	57.4	52.2	45.3
South Korea	306	362	488	66.7	77.3	74.0	39.9	49.7	45.9
India	398	363	974	90.2	86.8	86.4	74.1	64.7	63.3
Other	71	123	173	43.7	33.3	47.4	28.2	26.8	27.2
West Asia	296	381	552	57.1	64.0	65.9	40.2	48.6	46.0
Iran	30	43	54	83.3	81.4	83.3	56.7	60.5	57.4
Israel	21	32	41	66.7	59.4	75.6	52.4	46.9	58.5
Turkey	88	132	217	65.9	72.7	62.7	47.7	59.1	46.1
Other	157	174	240	45.9	54.0	63.3	31.2	37.9	41.3
Pacifica/Australasia	71	57	70	74.6	71.9	80.0	54.9	57.9	67.1
Australia	28	26	26	71.4	57.7	69.2	53.6	53.8	61.5
Indonesia	11	9	15	45.5	88.9	93.3	18.2	55.6	60.0
New Zealand	17	14	11	82.4	71.4	90.9	64.7	57.1	81.8
Other	15	8	18	93.3	100.0	77.8	73.3	75.0	72.2
Africa	95	126	169	76.8	72.2	74.6	46.3	51.6	49.7
Egypt	17	51	50	64.7	66.7	58.0	52.9	39.2	42.0
Nigeria	4	2	10	100.0	100.0	90.0	25.0	50.0	70.0
South Africa	15	8	11	86.7	62.5	63.6	53.3	62.5	63.6
Other	59	65	98	76.3	76.9	82.7	44.1	60.0	50.0
Europe	956	1,020	1,107	75.2	74.9	72.4	57.0	57.6	54.0
Greece	49	64	88	69.4	67.2	56.8	49.0	53.1	43.2
United Kingdom	53	49	47	77.4	69.4	53.2	66.0	57.1	46.8
Germany	107	110	92	62.6	64.5	55.4	48.6	52.7	43.5
Italy	51	54	57	64.7	64.8	70.2	54.9	53.7	54.4
France	24	35	43	75.0	71.4	55.8	37.5	57.1	41.9
Spain	28	19	38	46.4	52.6	55.3	39.3	42.1	34.2
Other	644	689	742	79.7	79.2	79.5	59.9	59.7	58.8
North/South America	334	394	429	54.2	58.4	63.6	39.5	43.9	46.6
Canada	99	127	133	65.7	63.8	63.2	49.5	51.2	50.4
Mexico	61	61	69	39.3	45.9	59.4	29.5	29.5	40.6
Argentina	20	30	28	75.0	83.3	64.3	60.0	73.3	39.3
Brazil	59	73	66	44.1	49.3	56.1	28.8	38.4	45.5
Chile	10	12	17	40.0	58.3	52.9	30.0	33.3	35.3
Colombia	20	24	38	50.0	50.0	65.8	40.0	25.0	52.6
Peru	2	9	10	100.0	66.7	60.0	50.0	55.6	50.0
Other	63	58	68	55.6	60.3	77.9	38.1	43.1	48.5
Country unknown	32	32	52	40.6	37.5	50.0	21.9	12.5	30.8
Social/behavioral sciences									
All non-US citizens	6,101	6,611	7,938	53.5	56.4	60.3	36.1	39.3	42.7
East/South Asia	2,633	2,631	3,437	52.0	56.4	60.7	34.1	37.6	42.0
China[a]	653	656	1,133	78.7	78.0	77.0	54.8	56.4	55.2
Taiwan	379	278	283	33.8	41.0	39.2	17.7	22.7	23.3
Japan	337	356	406	43.6	46.3	47.3	27.9	32.9	34.7
South Korea	677	731	854	32.9	44.6	48.1	18.9	27.5	30.4
India	402	365	480	78.1	79.7	79.4	56.2	53.4	57.3
Other	185	245	281	22.7	31.0	42.7	13.0	17.6	26.7
West Asia	507	667	827	49.5	50.7	57.1	33.7	33.4	41.8
Iran	28	17	33	71.4	88.2	90.9	28.6	58.8	51.5
Israel	68	112	126	48.5	67.9	62.7	38.2	50.0	50.8
Turkey	148	273	416	49.3	44.7	53.8	38.5	29.3	40.4
Other	263	265	252	47.5	47.2	55.2	30.4	29.1	38.5
Pacifica/Australasia	197	164	182	43.7	50.6	56.6	32.5	34.1	37.4
Australia	66	60	59	56.1	65.0	54.2	40.9	45.0	42.4
Indonesia	54	56	44	16.7	35.7	45.5	7.4	19.6	20.5
New Zealand	27	16	25	48.1	50.0	60.0	44.4	31.3	44.0

Appendix table 3-20

Plans of foreign recipients of U.S. S&E doctorates to stay in the United States, by field and place of origin: 1998–2009

Field and place of origin	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09
Other	50	32	54	54.0	50.0	66.7	42.0	40.6	42.6
Africa	379	324	382	59.6	56.5	60.7	29.0	31.5	34.6
Egypt	21	47	33	33.3	40.4	39.4	23.8	34.0	27.3
Nigeria	44	18	27	77.3	77.8	77.8	38.6	33.3	33.3
South Africa	38	40	26	57.9	40.0	34.6	28.9	27.5	26.9
Other	276	219	296	59.1	61.2	63.9	27.9	31.5	36.1
Europe	1,221	1,434	1,607	63.5	66.7	67.8	47.7	51.7	51.5
Greece	65	51	58	63.1	58.8	65.5	44.6	41.2	46.6
United Kingdom	145	149	117	75.2	75.8	75.2	53.1	57.7	53.8
Germany	173	187	228	65.9	65.2	69.7	49.1	53.5	57.0
Italy	128	151	146	57.8	60.3	61.6	47.7	53.0	47.3
France	78	68	85	71.8	63.2	61.2	52.6	48.5	45.9
Spain	95	107	86	50.5	59.8	54.7	40.0	49.5	40.7
Other	537	721	887	62.0	68.5	69.4	46.9	51.2	52.4
North/South America	1,116	1,302	1,411	47.9	50.5	53.6	33.2	36.3	39.0
Canada	389	478	494	58.1	57.9	57.9	41.9	43.1	42.1
Mexico	160	185	185	33.8	33.5	48.1	21.3	23.2	38.4
Argentina	78	120	130	47.4	60.8	65.4	32.1	50.0	53.1
Brazil	135	129	154	34.8	40.3	42.2	25.9	31.0	31.2
Chile	36	68	66	41.7	26.5	27.3	30.6	17.6	16.7
Colombia	35	62	91	40.0	41.9	39.6	28.6	27.4	26.4
Peru	47	39	39	53.2	64.1	51.3	40.4	41.0	30.8
Other	236	221	252	49.6	56.6	62.7	31.4	35.3	42.5
Country unknown	48	89	92	41.7	25.8	47.8	14.6	13.5	29.3
Engineering									
All non-US citizens	11,545	13,707	18,920	74.9	75.9	81.3	50.7	46.5	51.0
East/South Asia	7,491	9,375	13,711	79.9	79.6	83.8	54.2	48.3	51.9
China[a]	2,966	4,550	6,421	92.2	91.9	90.4	61.8	55.8	55.4
Taiwan	1,226	719	756	68.4	68.2	71.8	39.5	35.9	36.2
Japan	98	130	136	38.8	58.5	61.8	26.5	38.5	36.8
South Korea	1,189	1,782	2,052	63.9	66.2	68.1	39.9	34.6	41.6
India	1,638	1,466	3,732	90.0	88.5	89.9	70.5	63.0	59.1
Other	374	728	614	36.9	32.6	49.5	23.0	19.4	28.5
West Asia	1,294	1,475	2,052	66.5	65.6	76.7	42.3	42.0	51.1
Iran	186	186	452	89.2	91.4	92.9	56.5	57.5	63.1
Israel	25	30	48	56.0	90.0	77.1	20.0	66.7	66.7
Turkey	461	613	740	64.6	66.2	77.2	43.0	44.9	51.2
Other	622	646	812	61.6	56.3	67.2	38.6	33.7	43.5
Pacifica/Australasia	159	176	165	62.9	69.3	80.0	46.5	39.8	52.1
Australia	27	21	30	70.4	76.2	76.7	48.1	52.4	50.0
Indonesia	92	116	89	55.4	66.4	75.3	41.3	35.3	52.8
New Zealand	10	17	21	90.0	64.7	81.0	70.0	47.1	52.4
Other	30	22	25	70.0	81.8	100.0	53.3	45.5	52.0
Africa	428	427	454	65.2	68.9	81.5	39.7	40.5	48.2
Egypt	222	238	189	55.4	66.8	78.3	34.7	42.4	50.3
Nigeria	23	20	74	91.3	90.0	86.5	34.8	40.0	52.7
South Africa	32	31	19	68.8	64.5	73.7	46.9	51.6	42.1
Other	151	138	172	74.8	70.3	83.7	46.4	34.8	44.8
Europe	1,214	1,244	1,306	73.8	75.8	75.8	51.3	48.7	50.6
Greece	148	120	162	73.6	72.5	67.3	54.7	45.8	42.6
United Kingdom	48	54	47	83.3	75.9	87.2	56.3	48.1	55.3
Germany	161	134	106	55.9	62.7	76.4	42.2	43.3	60.4
Italy	75	101	134	61.3	74.3	70.9	38.7	50.5	48.5
France	93	107	190	69.9	61.7	75.3	52.7	37.4	46.8
Spain	44	56	73	65.9	60.7	65.8	45.5	41.1	50.7
Other	645	672	594	80.2	82.7	79.6	54.1	52.5	52.4
North/South America	852	904	1,106	57.0	63.5	68.4	41.8	39.6	44.6

Appendix table 3-20

Plans of foreign recipients of U.S. S&E doctorates to stay in the United States, by field and place of origin: 1998–2009

Field and place of origin	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09	1998–2001	2002–05	2006–09
Canada	183	181	282	76.5	73.5	77.3	58.5	44.8	48.6
Mexico	181	222	181	45.3	54.5	61.3	35.4	33.8	45.3
Argentina	48	45	61	68.8	80.0	68.9	60.4	51.1	49.2
Brazil	168	122	85	34.5	53.3	49.4	22.6	32.8	38.8
Chile	24	37	73	45.8	27.0	26.0	41.7	21.6	20.5
Colombia	47	89	151	59.6	71.9	75.5	36.2	43.8	49.7
Peru	23	29	55	69.6	75.9	78.2	34.8	58.6	49.1
Other	178	179	218	66.3	68.7	76.6	46.6	41.9	43.1
Country unknown	107	106	126	38.3	37.7	48.4	19.6	11.3	25.4

[a] Includes Hong Kong

NOTES: Data include foreign doctorate recipients who are permanent or temporary residents. Recipients who plan to stay think they will locate in the United States; those with definite plans have a postdoctoral research appointment or a definite employment plan in United States.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, 2011 special tabulations of Survey of Earned Doctorates (1998–2009).

Science and Engineering Indicators 2012

Appendix table 3-21

Employed S&E highest degree holders, by degree level and age category: 2008

(Percent)

Highest degree field	All degree levels			Bachelor's			Master's			Doctorate		
	<30	30–50	>50	<30	30–50	>50	<30	30–50	>50	<30	30–50	>50
All S&E degrees	16.8	54.3	28.9	19.9	54.3	25.8	10.8	55.2	34.0	3.0	53.1	44.0
Computer and mathematical sciences	15.2	63.1	21.7	18.0	63.6	18.4	9.0	62.4	28.6	4.9	58.0	37.1
Computer and information sciences	16.5	68.5	15.0	19.7	69.6	10.7	9.4	65.6	25.0	5.5	69.0	25.5
Computer and information sciences	11.2	70.5	18.4	14.0	74.0	11.9	7.1	62.1	30.8	2.7	70.4	26.8
Computer science	17.5	68.5	14.0	20.0	68.3	11.7	11.4	69.1	19.5	18.0	68.5	13.5
Computer systems analysis	9.6	63.0	27.4	14.1	75.2	10.7	S	S	S	S	S	S
Information services and systems	16.0	70.4	13.6	19.3	72.6	8.2	7.2	64.9	27.9	S	S	S
Other computer and information sciences	26.7	60.7	12.6	34.7	60.2	5.1	7.1	61.3	31.6	S	S	S
Mathematics and statistics	12.1	50.3	37.6	14.1	49.7	36.2	8.0	52.2	39.8	4.5	51.0	44.5
Applied mathematics	5.9	57.3	36.8	5.8	60.2	34.0	8.0	47.2	44.8	2.0	56.0	42.0
Mathematics, general	15.4	44.1	40.5	16.6	43.5	39.8	9.8	45.2	45.0	6.2	62.9	30.9
Operations research	10.2	62.4	27.5	17.9	81.1	S	5.3	51.6	43.1	S	49.5	43.9
Statistics	7.7	65.0	27.3	7.2	65.8	27.0	8.1	68.7	23.1	8.1	52.2	39.7
Other mathematics	8.9	52.4	38.7	18.8	57.9	23.3	S	60.8	37.4	3.0	43.8	53.3
Biological, agricultural, and environmental life sciences	16.6	53.7	29.7	20.4	52.7	26.9	9.9	56.6	33.5	2.2	56.3	41.5
Agricultural and food sciences	11.7	52.9	35.4	13.2	52.7	34.1	8.0	60.0	32.0	0.8	43.5	55.7
Animal sciences	16.1	56.4	27.5	16.0	56.8	27.2	40.2	49.7	S	S	51.1	47.7
Food sciences and technology	11.8	42.8	45.4	15.5	35.9	48.6	S	59.0	36.3	S	54.8	44.0
Plant sciences	8.7	50.6	40.7	10.1	49.5	40.4	7.4	64.1	28.5	S	40.4	58.9
Other agricultural sciences	6.5	54.9	38.6	8.4	55.9	35.7	S	59.1	39.7	S	32.7	67.3
Biological sciences	18.0	53.4	28.6	23.1	52.0	24.9	10.3	55.2	34.6	2.4	57.9	39.7
Biochemistry and biophysics	18.7	56.7	24.6	28.9	56.6	14.5	21.5	60.1	18.4	2.7	56.1	41.2
Biology, general	23.0	51.4	25.6	24.3	50.9	24.8	9.0	59.7	31.3	2.1	48.1	49.9
Botany	8.6	37.6	53.8	S	38.1	49.7	S	25.7	68.0	S	44.4	54.9
Cell and molecular biology	21.8	63.1	15.1	48.2	48.2	S	7.2	72.7	20.1	1.0	74.4	24.6
Ecology	13.6	56.9	29.5	23.4	51.7	24.9	5.7	62.4	31.9	S	60.2	38.8
Genetics, animal and plant	14.8	59.7	25.5	S	60.1	S	20.4	71.4	S	4.8	54.3	40.8
Microbiological sciences and immunology	9.1	57.5	33.3	11.5	61.7	26.8	4.8	39.7	55.4	5.2	58.9	35.9
Nutritional sciences	15.4	58.9	25.8	23.7	57.7	18.6	3.2	62.6	34.2	S	53.5	44.7
Pharmacology, human and animal	5.9	50.7	43.4	S	46.2	50.3	13.8	40.2	46.0	3.2	58.4	38.4
Physiology and pathology, human and animal	14.7	60.9	24.4	24.9	67.8	S	8.5	65.0	26.5	3.8	48.7	47.6
Zoology, general	11.8	41.0	47.3	15.3	45.7	39.1	9.8	35.0	55.2	S	28.3	71.7
Other biological sciences	12.6	54.2	33.2	16.5	48.7	34.7	20.3	48.9	30.7	1.7	65.9	32.4
Environmental life sciences	14.6	57.1	28.3	16.5	56.7	26.8	9.6	60.0	30.3	1.7	50.5	47.8
Environmental science or studies	20.7	63.7	15.7	23.3	63.6	13.2	13.5	65.9	20.6	S	50.6	47.7
Forestry sciences	4.6	46.4	49.0	5.3	45.5	49.2	S	49.1	48.4	S	50.3	48.0
Physical sciences	11.8	50.3	37.9	15.8	50.0	34.2	9.0	49.0	41.9	3.0	52.4	44.6
Chemistry, except biochemistry	12.6	52.7	34.7	16.8	52.1	31.0	8.6	54.9	36.4	3.3	52.9	43.8
Earth, atmospheric and ocean sciences	9.4	48.9	41.7	11.7	49.6	38.7	7.5	47.7	44.8	2.1	48.4	49.5
Atmospheric sciences and meteorology	17.5	60.7	21.8	22.4	60.5	17.0	17.0	61.0	21.9	S	60.7	38.1
Earth sciences	13.5	35.2	51.3	16.3	38.2	45.5	5.0	26.2	68.9	S	S	S

Appendix table 3-21

Employed S&E highest degree holders, by degree level and age category: 2008

(Percent)

Highest degree field	All degree levels			Bachelor's			Master's			Doctorate		
	<30	30–50	>50	<30	30–50	>50	<30	30–50	>50	<30	30–50	>50
Geology	6.9	49.2	43.9	8.3	50.1	41.6	4.7	47.7	47.7	1.3	46.8	51.9
Geological sciences, other	8.7	49.9	41.4	14.1	52.9	32.9	8.0	51.6	40.4	3.9	44.6	51.4
Oceanography	10.7	41.2	48.1	19.1	41.9	39.0	S	34.0	56.2	S	47.5	52.2
Physics and astronomy	13.0	48.4	38.5	20.7	47.0	32.4	11.9	45.4	42.7	3.0	52.7	44.4
Astronomy and astrophysics	18.9	40.3	40.8	54.3	33.5	S	24.1	18.7	S	5.5	55.6	38.9
Physics	12.6	49.0	38.4	20.0	47.2	32.8	10.6	48.1	41.3	2.7	52.3	45.0
Other physical sciences	11.2	44.7	44.1	12.3	44.5	43.2	9.0	36.2	54.8	S	64.1	35.9
Social sciences	20.9	48.7	30.4	24.6	49.3	26.0	11.0	47.6	41.4	1.9	44.7	53.4
Economics	18.3	52.2	29.5	20.0	53.9	26.1	10.3	41.4	48.4	3.3	45.2	51.5
Agricultural economics	5.1	58.3	36.7	4.8	61.9	33.3	8.7	33.1	58.2	S	42.5	56.3
Economics	20.7	51.1	28.2	22.8	52.4	24.8	10.5	42.8	46.7	3.6	45.6	50.8
Political and related sciences	23.5	53.7	22.8	26.9	52.0	21.1	11.5	62.6	25.9	0.9	49.3	49.7
Public policy studies	15.3	63.1	21.6	42.9	48.8	8.2	9.6	67.3	23.1	S	53.9	46.1
International relations	29.9	60.3	9.8	38.7	51.5	9.8	13.9	78.8	7.3	S	53.7	45.3
Political science and government	22.9	51.6	25.5	24.9	52.1	23.0	11.1	47.7	41.2	1.1	47.9	51.0
Psychology	21.1	45.3	33.6	28.2	46.7	25.2	11.0	43.3	45.7	1.6	44.7	53.7
Educational psychology	5.6	41.7	52.7	S	44.4	54.1	7.3	40.1	52.5	2.9	47.7	49.4
Clinical psychology	8.4	45.0	46.6	10.0	57.5	32.4	15.8	37.3	46.9	2.0	45.4	52.6
Counseling psychology	7.0	46.0	47.0	9.2	57.7	33.1	7.1	43.8	49.2	S	43.4	56.2
Experimental psychology	11.8	43.3	44.9	17.1	43.5	39.4	S	58.4	37.8	S	32.8	66.2
General psychology	32.4	44.0	23.6	33.7	44.3	22.1	19.1	43.2	37.7	S	37.2	62.8
Industrial/organizational psychology	16.4	49.4	34.3	19.0	50.5	30.5	16.9	47.8	35.3	6.4	64.6	29.0
Social psychology	15.5	51.8	32.8	20.5	53.6	25.8	S	43.6	48.0	S	49.7	48.7
Other psychology	13.8	51.9	34.3	13.9	56.3	29.7	22.0	49.5	28.5	1.4	44.5	54.1
Sociology and anthropology	19.4	47.5	33.1	20.7	47.3	32.0	12.5	52.6	34.9	1.4	42.1	56.5
Anthropology and archaeology	26.8	46.7	26.6	32.6	46.1	21.4	12.2	53.0	34.8	S	40.6	59.2
Criminology	23.2	64.8	12.0	25.0	66.3	8.7	11.9	54.0	34.1	S	57.8	42.2
Sociology	17.3	45.6	37.1	18.0	45.3	36.6	12.7	52.0	35.2	2.2	42.1	55.7
Other social sciences	22.2	48.8	29.0	26.1	49.6	24.3	10.1	46.8	43.1	3.5	42.2	54.4
Area and ethnic studies	38.9	39.4	21.7	45.7	36.6	17.6	15.0	48.8	36.2	S	56.5	42.8
Linguistics	18.5	49.5	32.0	29.5	46.0	24.5	6.0	61.4	32.6	S	40.7	57.4
Philosophy of science	S	61.8	36.0	S	69.8	30.2	S	S	S	S	S	S
Geography	17.5	58.4	24.1	20.0	61.3	18.8	9.5	47.8	42.7	S	46.2	51.3
History of science	S	21.8	76.7	S	S	79.8	S	S	S	S	63.3	36.7
Other social sciences	20.4	49.2	30.3	23.8	50.6	25.5	9.7	45.2	45.1	S	39.5	60.5
Engineering	12.9	58.9	28.2	13.6	58.6	27.8	12.6	59.7	27.6	4.8	58.5	36.7
Aerospace, aeronautical, and astronautical engineering	14.5	55.6	29.9	15.2	54.1	30.6	16.0	59.0	25.0	4.2	57.4	38.4
Agricultural engineering	8.3	49.5	42.2	9.3	49.1	41.6	S	53.0	39.7	S	48.4	51.6
Bioengineering and biomedical engineering	38.8	48.9	12.3	62.8	35.3	S	27.2	54.5	18.3	10.9	66.7	22.4
Chemical engineering	13.5	55.4	31.1	15.3	57.6	27.2	8.8	46.9	44.3	8.1	53.7	38.2
Civil and architectural engineering	11.4	55.3	33.3	12.0	56.0	32.1	10.7	53.4	35.9	2.5	53.7	43.8

Appendix table 3-21

Employed S&E highest degree holders, by degree level and age category: 2008

(Percent)

Highest degree field	All degree levels			Bachelor's			Master's			Doctorate		
	<30	30–50	>50	<30	30–50	>50	<30	30–50	>50	<30	30–50	>50
Architectural engineering	7.4	62.9	29.6	7.5	69.6	22.9	7.3	40.2	52.5	S	S	S
Civil engineering	11.8	54.5	33.7	12.5	54.5	33.1	11.0	54.7	34.2	2.5	53.7	43.8
Electrical and computer engineering	12.8	64.0	23.2	13.1	64.0	22.9	13.7	64.2	22.1	4.5	62.9	32.6
Computer and systems engineering	16.8	69.9	13.3	21.4	71.1	7.5	10.8	68.4	20.8	6.1	64.1	29.8
Electrical, electronics, and communications engineering	11.7	62.3	25.9	11.2	62.3	26.5	14.9	62.4	22.7	4.2	62.7	33.1
Engineering sciences, mechanics, and physics	11.8	53.1	35.1	14.7	55.4	29.9	10.2	49.8	40.0	S	49.4	49.0
Environmental engineering	8.9	54.3	36.8	12.7	58.7	28.6	6.9	50.8	42.3	S	58.7	39.5
Engineering, general	13.2	44.4	42.4	13.8	35.3	50.9	12.2	69.6	18.2	S	49.7	49.2
Geophysical and geological engineering	11.9	49.0	39.1	S	41.4	33.8	S	58.5	41.1	S	S	S
Industrial engineering	12.1	64.6	23.3	11.8	64.9	23.4	14.4	63.9	21.7	2.8	63.2	34.1
Materials engineering, including ceramics and textiles	13.7	61.4	24.9	21.0	52.0	26.9	10.2	70.1	19.7	4.7	68.6	26.8
Mechanical engineering	13.7	57.2	29.1	14.1	56.1	29.8	13.5	61.2	25.3	5.2	61.1	33.7
Metallurgical engineering	2.4	49.0	48.5	3.6	49.6	46.8	S	54.2	45.8	S	41.7	58.3
Mining and minerals engineering	S	55.1	42.0	S	55.4	41.1	S	59.8	S	S	27.6	72.4
Naval architecture and marine engineering	5.8	58.7	35.5	S	58.8	37.2	17.6	58.0	S	S	S	S
Nuclear engineering	11.2	50.4	38.4	15.6	57.4	27.0	11.1	47.3	41.6	S	43.2	53.8
Petroleum engineering	10.0	62.5	27.5	9.1	66.3	24.6	14.3	45.7	40.1	S	67.9	S
Other engineering	12.2	58.7	29.1	14.8	60.9	24.3	10.6	59.2	30.1	S	40.5	54.5

S = suppressed for reasons of confidentiality and/or reliability

NOTES: Total includes professional degrees not broken out separately. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2008), http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 3-22

R&D personnel in selected regions/countries: 1995–2009

(Thousands)

Year	EU	Japan	South Korea	China	Russia
1995	1,851	948	152	752	1,211
1996	1,868	892	136	804	1,113
1997	1,859	894	137	831	1,053
1998	1,910	926	129	755	967
1999	1,947	919	138	822	989
2000	2,000	897	138	922	1,007
2001	2,033	869	166	956	1,008
2002	2,069	834	172	1,035	987
2003	2,092	859	186	1,095	973
2004	2,133	873	194	1,153	952
2005	2,192	897	215	1,365	920
2006	2,286	910	238	1,502	917
2007	2,363	912	269	1,736	912
2008	2,472	883	294	1,965	870
2009	2,496	878	NA	2,291	846

NA = not available

EU = European Union

NOTES: Personnel are full-time equivalents. Chinese data between 1995 and 2008 are not comparable to data for OECD countries nor to Chinese data for 2009. Chinese data between 1995 and 1999 are based on underestimated data and not comparable to data from 2000 to 2008. EU data for 2009 are provisional. Japanese data for 1995 are based on overestimated data and are not comparable to subsequent years. South Korean count prior to 2007 excludes social science and humanities researchers.

SOURCE: Organisation for Economic Co-operation and Development, Main Science and Technology Indicators (2011/1 and earlier years).

Science and Engineering Indicators 2012

Appendix table 3-23

Researchers as a share of total employment in regions/countries/economies with 25,000 or more researchers in 2009: 1995, 2003, 2009

(Per thousand)

Region/country/economy	1995	2003	2009
Austria	NA	NA	8.5
Belgium	6.0	7.4	8.4
Canada	6.4	7.7	NA
China	0.8	1.2	1.5
Chinese Taipei	NA	7.8	11.6
Czech Republic	2.3	3.2	5.5
Denmark	6.1	9.0	12.3
EU	4.8	5.8	6.9
Finland	8.2	17.8	16.6
France	6.7	7.7	NA
Germany	6.1	6.9	7.7
Italy	3.5	2.9	4.1
Japan	10.1	10.3	10.4
South Korea	4.9	6.8	NA
Netherlands	4.8	5.3	5.4
Norway	7.5	9.1	10.1
Poland	3.5	4.3	3.9
Portugal	2.6	4.0	9.1
Russian Federation	9.9	7.3	6.4
Singapore	4.3	9.4	10.2
Spain	3.5	5.2	7.0
Sweden	8.2	11.0	10.5
Turkey	0.9	1.7	2.7
United Kingdom	5.2	7.1	8.3
United States	8.1	10.2	NA

NA = not available

EU = European Union

NOTES: Researchers are full-time equivalents. Quality of data and methods of collecting data can vary between and within regions/countries/economies across years. Only regions/countries/economies with data in years covered are displayed.

SOURCE: Organisation for Economic Co-operation and Development, Main Science and Technology Indicators (2011/1 and earlier years).

Science and Engineering Indicators 2012

Appendix table 3-24

Worldwide, domestic, and foreign R&D employment, by selected characteristics: 2009

Characteristic	NAICS Code	Worldwide employees (1,000s)	Domestic employees		Foreign employees	
			Number (1000s)	Percent	Number (1000s)	Percent
Total		1,879	1,424	76	454	24
Manufacturing industries	31–33	1,137	850	75	287	25
Chemicals	325	201	157	78	44	22
Machinery	333	82	65	79	18	22
Computer and electronic products	334	371	260	70	111	30
Electrical equipment, appliances, and components	335	45	25	56	21	47
Transportation equipment	336	220	167	76	53	24
All other manufacturing industries	multiple	218	176	81	40	18
Nonmanufacturing industries	21–23, 42–81	742	574	77	167	23
Information	51	295	206	70	89	30
Professional, scientific. and technical services	54	374	307	82	67	18
All other nonmanufacturing industries	multiple	73	61	84	11	15
Broad occupation	–					
Engineers and their managers	–	1,097	807	74	289	26
Scientists and their managers	–	236	192	81	44	19
Technicians and technologists	–	318	247	78	71	22
Support staff (clerical and others)	–	228	179	79	50	22
Highest academic degree[a]	–	1,332	999	75	333	25
Doctorate[b]	–	155	128	83	27	17
Other college degree	–	976	739	76	237	24
Other education	–	202	132	65	70	35
Sex	–					
Female	–	462	348	75	116	25
Male	–	1,415	1,076	76	340	24

NAICS = North American Industry Classification System

[a]Only includes engineers and their managers and scientists and their managers.
[b]Includes EngD, ScD; excludes MD, JD, and EdD.

NOTES: Data are representative of companies where worldwide R&D expense + worldwide R&D costs funded by others > 0. Includes 2002 North American Industry Classification System (NAICS) codes 21–23, 31–33, 42–81. BRDIS does not include companies with fewer than five domestic employees. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Business R&D and Innovation Survey (2009 preliminary).

Science and Engineering Indicators 2012

Appendix table 3-25
S&E workforce international interaction, by employment and respondent characteristic: 2006
(Number and percent)

Characteristic	Total	Percent	Business/industry: For-profit	Business/industry: Self-employed, unincorporated business	Business/industry: Non-profit	Government: Federal	Government: State/local	Education: 4-year educational institutions[a]	Education: Other educational institutions[b]
All employed scientists and engineers (*n*)	18,927,000	–	9,978,000	1,329,000	1,830,000	824,000	1,405,000	1,549,000	2,014,000
Reporting international collaboration	3,157,000	16.7	24.2	8.3	6.9	17.8	4.9	14.8	3.0
Sex									
Male	2,293,000	21.5	27.9	9.7	11.5	19.5	5.7	18.1	4.4
Female	865,000	10.5	17.2	6.0	4.9	14.3	4.1	11.6	2.3
Place of birth									
U.S. born	2,397,000	15.3	22.5	6.8	6.7	18.5	4.7	13.9	2.9
Not U.S. born	761,000	23.7	31.1	16.9	8.5	12.4	6.6	17.9	3.8
Place of postsecondary education									
All degrees earned in United States	2,675,000	15.7	23.1	7.4	6.7	17.9	4.7	13.9	2.9
Degrees earned abroad and in United States	229,000	31.4	40.8	23.6	13.3	21.4	11.4	19.0	7.4
All degrees earned abroad	254,000	22.8	28.3	14.5	8.6	10.6	7.2	21.7	4.1
Highest degree of educational attainment									
Bachelor's	1,761,000	16.2	22.7	8.1	5.4	15.2	4.9	10.4	3.1
Master's	970,000	18.0	31.6	8.4	8.6	20.5	4.6	10.1	2.7
Professional	171,000	9.7	10.7	7.0	6.2	14.9	5.0	15.3	0.6
Doctorate	254,000	28.8	40.1	17.5	24.1	32.8	12.8	26.5	8.1
Occupation									
S&E occupations	1,416,000	28.2	36.2	15.2	16.8	18.4	6.1	18.8	2.7
Computer/mathematical scientists	667,000	31.6	39.1	23.3	12.5	18.2	5.3	12.1	1.9
Biological/agricultural/other life scientists	116,000	23.9	33.3	18.4	28.3	18.5	11.2	22.3	7.4
Physical scientists	80,000	23.9	28.1	28.2	35.7	25.5	4.6	23.7	4.4
Social scientists	70,000	14.8	30.3	4.0	10.4	20.0	2.9	19.0	1.8
Engineers	483,000	29.8	34.3	13.7	24.5	16.5	6.4	19.4	6.7
S&E-related occupations	394,000	7.5	11.0	4.2	3.4	13.0	4.0	9.6	2.7
Non-S&E occupations	1,348,000	15.6	22.4	8.5	8.8	19.7	4.8	14.1	3.2
Primary or secondary work activity									
Accounting, finance, contracts	2,171,000	17.1	21.5	7.5	12.0	14.6	4.4	12.0	2.5
Computer applications, programming, systems development	2,110,000	27.8	34.7	14.2	10.2	10.9	8.1	14.0	7.2
Human resources, including recruiting, personnel development, training	1,158,000	16.3	23.6	8.0	8.7	25.2	5.8	11.5	4.3
Managing or supervising people or projects	6,991,000	20.7	29.7	8.8	8.0	22.8	4.9	14.7	3.0
Production, operations, maintenance (e.g. chip production, operating lab equipment)	1,322,000	17.1	21.5	9.1	8.4	11.8	5.6	7.5	0.5
Professional services (e.g., health care, counseling, financial services, legal services)	5,580,000	7.5	9.7	6.6	3.6	13.2	4.2	9.8	3.7
Quality or productivity management	1,382,000	20.2	26.5	9.6	6.5	18.5	5.6	9.6	1.3
R&D	5,212,000	25.3	33.6	13.4	14.0	21.9	6.8	20.2	4.0
Sales, purchasing, marketing, customer service, public relations	3,276,000	18.7	23.3	7.1	8.0	11.5	5.3	10.8	6.7
Teaching	3,341,000	6.3	8.2	4.7	5.2	13.4	2.8	14.7	2.8

NOTES: Scientists and engineers refers to all persons who have received a bachelor's degree or higher in science, engineering (S&E), or S&E-related field, plus persons holding a non-S&E bachelor's or higher degree who were employed in an S&E or S&E-related occupation in 2003. Numbers rounded to nearest thousand. Detail may not add to total because of rounding and because respondents may provide more than one response for work activity.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2006)., http://sestat.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 4-1

Gross domestic product and implicit price deflators: 1953–2010

	Calendar year			Federal fiscal year		
	GDP (billions)			GDP (billions)		
Year	Current $	Constant 2005 $	GDP price deflator[a]	Current $	Constant 2005 $	GDP price deflator[a]
1953	379.3	2,347.2	0.1616	372.5	2,296.5	0.1622
1954	380.4	2,332.4	0.1631	377.0	2,297.4	0.1641
1955	414.7	2,500.3	0.1659	395.9	2,393.6	0.1654
1956	437.4	2,549.7	0.1715	427.0	2,516.2	0.1697
1957	461.1	2,601.1	0.1773	450.9	2,561.9	0.1760
1958	467.2	2,577.6	0.1813	460.0	2,537.2	0.1813
1959	506.6	2,762.5	0.1834	490.2	2,664.1	0.1840
1960	526.4	2,830.9	0.1859	518.9	2,785.3	0.1863
1961	544.8	2,896.9	0.1881	529.9	2,805.2	0.1889
1962	585.7	3,072.4	0.1906	567.8	2,972.8	0.1910
1963	617.8	3,206.7	0.1927	599.2	3,098.2	0.1934
1964	663.6	3,392.3	0.1956	641.5	3,278.0	0.1957
1965	719.1	3,610.1	0.1992	687.5	3,451.3	0.1992
1966	787.7	3,845.3	0.2048	755.8	3,715.8	0.2034
1967	832.4	3,942.5	0.2111	810.0	3,859.0	0.2099
1968	909.8	4,133.4	0.2201	868.4	3,996.3	0.2173
1969	984.4	4,261.8	0.2310	948.1	4,171.1	0.2273
1970	1,038.3	4,269.9	0.2432	1,012.7	4,228.4	0.2395
1971	1,126.8	4,413.3	0.2553	1,080.0	4,294.2	0.2515
1972	1,237.9	4,647.7	0.2663	1,176.5	4,466.6	0.2634
1973	1,382.3	4,917.0	0.2811	1,310.6	4,767.6	0.2749
1974	1,499.5	4,889.9	0.3067	1,438.5	4,882.9	0.2946
1975	1,637.7	4,879.5	0.3356	1,560.2	4,793.2	0.3255
1976	1,824.6	5,141.3	0.3549	1,738.1	4,981.7	0.3489
1977	2,030.1	5,377.7	0.3775	1,973.5	5,262.7	0.3750
1978	2,293.8	5,677.6	0.4040	2,217.5	5,539.6	0.4003
1979	2,562.2	5,855.0	0.4376	2,501.4	5,783.6	0.4325
1980	2,788.1	5,839.0	0.4775	2,724.2	5,787.6	0.4707
1981	3,126.8	5,987.2	0.5222	3,057.0	5,911.8	0.5171
1982	3,253.2	5,870.9	0.5541	3,223.7	5,834.8	0.5525
1983	3,534.6	6,136.2	0.5760	3,440.7	5,965.2	0.5768
1984	3,930.9	6,577.1	0.5977	3,844.4	6,427.7	0.5981
1985	4,217.5	6,849.3	0.6158	4,146.3	6,714.7	0.6175
1986	4,460.1	7,086.5	0.6294	4,403.9	6,970.4	0.6318
1987	4,736.4	7,313.3	0.6476	4,651.4	7,171.4	0.6486
1988	5,100.4	7,613.9	0.6699	5,008.5	7,482.1	0.6694
1989	5,482.1	7,885.9	0.6952	5,399.5	7,764.6	0.6954
1990	5,800.5	8,033.9	0.7220	5,734.5	7,953.5	0.7210
1991	5,992.1	8,015.1	0.7476	5,930.5	7,925.3	0.7483
1992	6,342.3	8,287.1	0.7653	6,242.0	8,129.7	0.7678
1993	6,667.4	8,523.4	0.7822	6,587.3	8,393.6	0.7848
1994	7,085.2	8,870.7	0.7987	6,976.6	8,705.5	0.8014
1995	7,414.7	9,093.7	0.8154	7,341.1	8,970.1	0.8184
1996	7,838.5	9,433.9	0.8309	7,718.3	9,252.3	0.8342
1997	8,332.4	9,854.3	0.8456	8,211.7	9,666.5	0.8495
1998	8,793.5	10,283.5	0.8551	8,663.0	10,069.7	0.8603
1999	9,353.5	10,779.8	0.8677	9,208.4	10,563.7	0.8717
2000	9,951.5	11,216.4	0.8872	9,821.0	11,048.5	0.8889
2001	10,286.2	11,337.5	0.9073	10,225.3	11,237.8	0.9099
2002	10,642.3	11,543.1	0.9220	10,543.9	11,400.0	0.9249
2003	11,142.2	11,836.4	0.9414	10,979.8	11,628.7	0.9442
2004	11,853.3	12,246.9	0.9679	11,685.6	12,066.9	0.9684
2005	12,623.0	12,623.0	1.0000	12,445.7	12,445.7	1.0000
2006	13,377.2	12,958.5	1.0323	13,224.9	12,787.6	1.0342
2007	14,028.7	13,206.4	1.0623	13,891.8	13,039.0	1.0654

Appendix table 4-1

Gross domestic product and implicit price deflators: 1953–2010

	Calendar year			Federal fiscal year		
	GDP (billions)			GDP (billions)		
Year	Current $	Constant 2005 $	GDP price deflator[a]	Current $	Constant 2005 $	GDP price deflator[a]
2008	14,291.5	13,161.9	1.0858	14,394.1	13,208.0	1.0898
2009	13,939.0	12,703.1	1.0973	14,097.5	12,766.0	1.1043
2010	14,526.5	13,088.0	1.1099	14,508.2	13,038.7	1.1127

GDP = gross domestic product

[a]2005 = 1.0000.

SOURCE: Calendar year figures from Bureau of Economic Analysis, Survey of Current Business, 29 July 2011. Fiscal year figures from the Office of Management and Budget, Budget of the United States Government for Fiscal Year 2012, Historical Tables (Table 10.1), 14 February 2011.

Science and Engineering Indicators 2012

Appendix table 4-2

Purchasing power parity, market exchange rate, ratio of market exchange rate to purchasing power parity, for selected countries: 1981–2009

(Foreign currency/U.S. dollars)

Year	Germany	France	United Kingdom	Japan	China	South Korea
			PPP			
1981	1.063	0.867	0.504	233.389	1.789	459.316
1982	1.048	0.915	0.510	223.411	1.614	459.558
1983	1.037	0.964	0.517	216.874	1.568	463.651
1984	1.019	0.996	0.521	212.669	1.586	466.778
1985	1.010	1.020	0.535	208.441	1.697	471.992
1986	1.017	1.051	0.542	207.507	1.739	481.189
1987	1.001	1.049	0.554	201.379	1.777	489.851
1988	0.984	1.045	0.569	195.301	1.926	505.256
1989	0.975	1.041	0.589	192.363	2.014	514.749
1990	0.971	1.028	0.611	189.398	2.052	547.089
1991	0.967	1.018	0.628	187.679	2.117	582.349
1992	0.991	1.016	0.636	186.239	2.239	613.518
1993	1.006	1.009	0.641	183.035	2.521	638.963
1994	1.009	1.002	0.637	179.491	2.978	674.027
1995	1.007	0.995	0.641	174.968	3.318	709.563
1996	0.994	0.989	0.642	170.600	3.466	730.915
1997	0.990	0.974	0.635	168.522	3.457	745.844
1998	0.988	0.967	0.645	166.579	3.389	774.028
1999	0.975	0.960	0.653	162.036	3.298	754.893
2000	0.967	0.939	0.636	154.753	3.295	746.209
2001	0.956	0.919	0.627	149.461	3.289	757.832
2002	0.942	0.905	0.628	143.774	3.255	769.772
2003	0.918	0.938	0.641	139.687	3.267	794.241
2004	0.896	0.940	0.632	134.375	3.403	795.778
2005	0.867	0.923	0.636	129.552	3.448	788.920
2006	0.838	0.903	0.627	124.616	3.465	774.748
2007	0.830	0.892	0.645	120.163	3.623	768.270
2008	0.813	0.887	0.639	116.846	3.822	785.718
2009	0.806	0.878	0.642	114.697	3.764	804.718
			MER			
1981	1.156	0.828	0.498	220.540	1.705	681.030
1982	1.241	1.002	0.572	249.080	1.893	731.080
1983	1.305	1.162	0.660	237.510	1.976	775.750
1984	1.455	1.332	0.752	237.520	2.320	805.980
1985	1.505	1.370	0.779	238.540	2.937	870.020
1986	1.110	1.056	0.682	168.520	3.453	881.450
1987	0.919	0.916	0.612	144.640	3.722	822.570
1988	0.898	0.908	0.562	128.150	3.722	731.470
1989	0.961	0.973	0.611	137.960	3.765	671.460
1990	0.826	0.830	0.563	144.792	4.783	707.764
1991	0.849	0.860	0.567	134.707	5.323	733.353
1992	0.798	0.807	0.570	126.651	5.515	780.651
1993	0.845	0.863	0.667	111.198	5.762	802.671
1994	0.830	0.846	0.653	102.208	8.619	803.446
1995	0.733	0.761	0.634	94.060	8.351	771.273
1996	0.769	0.780	0.641	108.779	8.314	804.453
1997	0.887	0.890	0.611	120.991	8.290	951.289
1998	0.900	0.899	0.604	130.905	8.279	1401.440
1999	0.939	0.939	0.618	113.907	8.278	1188.820
2000	1.085	1.085	0.661	107.765	8.279	1130.960
2001	1.118	1.118	0.695	121.529	8.277	1290.990
2002	1.063	1.063	0.667	125.388	8.277	1251.090
2003	0.886	0.886	0.612	115.933	8.277	1191.610

Appendix table 4-2

Purchasing power parity, market exchange rate, ratio of market exchange rate to purchasing power parity, for selected countries: 1981–2009

(Foreign currency/U.S. dollars)

Year	Germany	France	United Kingdom	Japan	China	South Korea
2004	0.805	0.805	0.546	108.193	8.277	1145.320
2005	0.804	0.804	0.550	110.218	8.194	1024.120
2006	0.797	0.797	0.543	116.299	7.973	954.791
2007	0.731	0.731	0.500	117.754	7.608	929.257
2008	0.683	0.683	0.544	103.359	6.949	1102.050
2009	0.720	0.720	0.642	93.570	6.831	1276.930
	MER/PPP					
1981	1.087	0.955	0.988	0.945	0.953	1.483
1982	1.184	1.095	1.122	1.115	1.173	1.591
1983	1.258	1.205	1.277	1.095	1.260	1.673
1984	1.428	1.337	1.443	1.117	1.463	1.727
1985	1.490	1.343	1.456	1.144	1.731	1.843
1986	1.091	1.005	1.258	0.812	1.986	1.832
1987	0.918	0.873	1.105	0.718	2.095	1.679
1988	0.913	0.869	0.988	0.656	1.933	1.448
1989	0.986	0.935	1.037	0.717	1.869	1.304
1990	0.851	0.807	0.921	0.764	2.331	1.294
1991	0.878	0.845	0.903	0.718	2.514	1.259
1992	0.805	0.794	0.896	0.680	2.463	1.272
1993	0.840	0.855	1.041	0.608	2.286	1.256
1994	0.823	0.844	1.025	0.569	2.894	1.192
1995	0.728	0.765	0.989	0.538	2.517	1.087
1996	0.774	0.789	0.998	0.638	2.399	1.101
1997	0.896	0.914	0.962	0.718	2.398	1.275
1998	0.911	0.930	0.936	0.786	2.443	1.811
1999	0.963	0.978	0.946	0.703	2.510	1.575
2000	1.122	1.155	1.039	0.696	2.513	1.516
2001	1.169	1.217	1.108	0.813	2.517	1.704
2002	1.128	1.175	1.062	0.872	2.543	1.625
2003	0.965	0.945	0.955	0.830	2.534	1.500
2004	0.898	0.856	0.864	0.805	2.432	1.439
2005	0.927	0.871	0.865	0.851	2.376	1.298
2006	0.951	0.883	0.866	0.933	2.301	1.232
2007	0.881	0.820	0.775	0.980	2.100	1.210
2008	0.840	0.770	0.851	0.885	1.818	1.403
2009	0.893	0.820	1.000	0.816	1.815	1.587

MER = market exchange rate; PPP = purchasing power parity

NOTES: United States = 1.000. Germany data for 1981–90 are for West Germany.

SOURCE: Organisation for Economic Co-operation and Development, Main Science and Technology Indicators (2011/1).

Science and Engineering Indicators 2012

Appendix table 4-3

U.S. research and development expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry			Industry FFRDCs[a]	U&C[b]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[c]
Year	Funding source:	All sources	Federal	Total	Federal[a]	Industry[d]	Total	Total	Federal	Other government[e]	Industry	U&C	Other nonprofit	Total	Total	Federal[c]	Industry	Other nonprofit	Total
		Current $millions																	
1953		5,160	1,015	3,630	1,430	2,200	NA	273	149	40	21	37	27	131	112	58	26	28	NA
1954		5,617	963	4,070	1,750	2,320	NA	301	165	45	24	40	29	161	123	61	31	31	NA
1955		6,281	973	4,517	2,057	2,460	123	342	191	50	27	42	32	187	131	64	35	32	9
1956		8,500	1,130	6,272	2,995	3,277	333	391	221	57	32	46	36	217	146	71	37	38	11
1957		9,908	1,297	7,324	3,928	3,396	407	433	242	64	37	51	40	267	167	79	37	51	14
1958		10,915	1,507	8,066	4,436	3,630	323	491	280	72	39	56	45	316	195	95	38	62	18
1959		12,490	1,681	9,200	5,217	3,983	418	586	356	81	40	61	50	349	234	125	42	67	22
1960		13,711	1,801	10,032	5,604	4,428	477	705	453	90	40	67	55	385	264	148	48	68	48
1961		14,564	1,987	10,353	5,685	4,668	555	834	557	101	40	75	62	440	304	169	49	86	92
1962		15,636	2,188	11,037	6,008	5,029	426	993	687	112	41	84	70	500	363	200	54	109	130
1963		17,519	2,558	12,216	6,856	5,360	414	1,178	839	125	41	96	78	580	408	234	55	119	165
1964		19,103	2,965	13,049	7,257	5,792	463	1,375	995	138	41	114	88	629	417	250	55	112	205
1965		20,252	3,156	13,812	7,367	6,445	373	1,595	1,167	150	42	136	101	630	472	286	62	124	215
1966		22,072	3,308	15,193	7,977	7,216	355	1,818	1,335	160	45	165	114	652	537	329	70	138	210
1967		23,346	3,444	15,966	7,946	8,020	419	2,035	1,491	168	52	200	126	696	561	342	74	145	225
1968		24,666	3,497	17,014	8,145	8,869	415	2,187	1,586	185	58	221	139	722	596	364	81	151	235
1969		25,996	3,790	17,844	7,987	9,857	464	2,280	1,624	208	61	233	155	731	642	388	93	161	245
1970		26,271	4,154	17,594	7,306	10,288	473	2,418	1,686	237	66	259	171	727	677	410	95	172	230
1971		26,952	4,409	17,829	7,175	10,654	491	2,565	1,760	262	72	290	182	735	709	427	98	184	215
1972		28,740	4,676	19,004	7,469	11,535	548	2,757	1,890	282	79	312	195	785	771	472	101	198	200
1973		30,952	4,837	20,704	7,600	13,104	545	2,953	2,009	302	90	343	211	841	882	566	105	211	190
1974		33,359	5,132	22,239	7,572	14,667	648	3,216	2,160	320	104	393	239	926	988	639	114	235	210
1975		35,671	5,561	23,460	7,878	15,582	727	3,570	2,400	348	118	432	272	1,067	1,062	675	124	262	225
1976		39,435	5,890	26,107	8,671	17,436	890	3,899	2,619	369	131	480	300	1,266	1,139	711	135	292	245
1977		43,338	6,211	28,863	9,523	19,340	962	4,346	2,893	394	155	569	337	1,467	1,213	740	147	326	275
1978		48,719	6,962	32,222	10,107	22,115	1,082	4,996	3,329	443	182	679	364	1,772	1,353	830	160	363	333
1979		55,379	7,471	37,062	11,354	25,708	1,164	5,715	3,848	482	215	785	386	2,013	1,564	985	174	405	390
1980		63,224	7,831	43,228	12,752	30,476	1,277	6,455	4,335	519	264	920	419	2,306	1,658	1,017	189	452	469
1981		72,292	8,605	50,425	14,997	35,428	1,385	7,085	4,670	581	314	1,058	463	2,484	1,784	1,075	206	504	524
1982		80,748	9,501	57,166	17,061	40,105	1,484	7,603	4,879	621	363	1,207	534	2,544	1,915	1,129	224	561	536
1983		89,950	10,830	63,683	19,095	44,588	1,585	8,251	5,210	658	432	1,357	595	2,840	2,176	1,306	244	626	585
1984		102,244	11,916	73,061	21,657	51,404	1,739	9,154	5,748	721	518	1,514	654	3,243	2,511	1,548	265	698	620
1985		114,671	13,093	82,376	25,333	57,043	1,863	10,308	6,388	834	630	1,743	713	3,616	2,761	1,694	289	778	655
1986		120,249	13,504	85,932	26,000	59,932	1,891	11,540	7,028	969	745	2,019	780	3,973	2,867	1,686	314	867	541
1987		126,360	13,588	90,160	28,757	61,403	1,995	12,807	7,768	1,065	831	2,262	882	4,287	3,013	1,704	342	967	509
1988		133,881	14,342	94,893	28,221	66,672	2,122	14,221	8,593	1,165	933	2,527	1,003	4,581	3,213	1,762	372	1,078	510
1989		141,891	15,231	99,860	26,359	73,501	2,195	15,634	9,317	1,274	1,061	2,852	1,131	4,756	3,669	2,062	405	1,202	547
1990		151,993	15,671	107,404	25,802	81,602	2,323	16,939	9,939	1,399	1,166	3,187	1,249	4,894	4,126	2,346	440	1,340	636
1991		160,876	15,249	114,675	24,095	90,580	2,277	18,206	10,667	1,483	1,242	3,458	1,358	5,120	4,652	2,679	479	1,494	696

Appendix table 4-3

U.S. research and development expenditures, by performing sector and source of funds: 1953–2009

Year	Performer: / Funding source:	All performers: All sources	Federal: Federal	Industry: Total	Industry: Federal[a]	Industry: Industry[d]	Industry FFRDCs[a]: Total	U&C[b]: Total	U&C[b]: Federal	U&C[b]: Other government[e]	U&C[b]: Industry	U&C[b]: U&C	U&C[b]: Other nonprofit	U&C FFRDCs: Total	Other nonprofit: Total	Other nonprofit: Federal[c]	Other nonprofit: Industry	Other nonprofit: Other nonprofit	Nonprofit FFRDCs[c]: Total
1992		165,350	15,853	116,757	22,369	94,388	2,353	19,388	11,528	1,525	1,320	3,569	1,448	5,259	4,993	2,806	521	1,666	748
1993		165,730	16,531	115,435	20,844	94,591	1,965	20,495	12,307	1,557	1,392	3,709	1,531	5,289	5,267	2,843	567	1,857	749
1994		169,207	16,355	117,392	20,261	97,131	2,202	21,607	12,996	1,623	1,456	3,938	1,595	5,294	5,599	2,911	617	2,071	758
1995		183,625	16,904	129,830	21,178	108,652	2,273	22,617	13,592	1,751	1,548	4,110	1,617	5,367	5,827	2,847	671	2,308	808
1996		197,346	16,585	142,371	21,356	121,015	2,297	23,718	14,084	1,861	1,672	4,436	1,666	5,395	6,209	2,906	730	2,574	772
1997		212,152	16,819	155,409	21,798	133,611	2,130	24,884	14,530	1,922	1,808	4,838	1,786	5,463	6,626	3,014	809	2,804	821
1998		226,457	17,362	167,102	22,086	145,016	2,078	26,181	15,174	1,972	1,950	5,163	1,922	5,559	7,332	3,281	859	3,192	843
1999		245,007	17,851	182,090	20,496	161,594	2,039	28,176	16,264	2,098	2,082	5,619	2,112	5,652	8,207	3,761	931	3,516	993
2000		267,983	18,374	199,961	17,117	182,844	2,001	30,705	17,727	2,247	2,174	6,232	2,326	5,742	9,734	4,510	1,020	4,204	1,465
2001		279,755	22,374	202,017	16,899	185,118	2,020	33,743	19,784	2,397	2,190	6,827	2,546	6,225	11,182	5,488	1,029	4,666	2,192
2002		278,744	23,798	193,868	16,401	177,467	2,263	37,215	22,395	2,557	2,160	7,344	2,758	7,102	12,179	5,778	998	5,404	2,319
2003		291,239	24,982	200,724	17,798	182,926	2,458	40,484	25,129	2,742	2,129	7,650	2,833	7,301	12,796	5,945	1,020	5,831	2,494
2004		302,503	24,898	208,301	20,266	188,035	2,485	43,122	27,168	2,883	2,190	7,936	2,945	7,659	13,394	6,537	1,041	5,816	2,644
2005		324,993	26,322	226,159	21,909	204,250	2,601	45,190	28,254	2,922	2,323	8,578	3,113	7,817	14,077	6,545	1,107	6,425	2,828
2006		350,162	28,240	247,669	24,304	223,365	3,122	46,955	28,810	3,021	2,509	9,285	3,329	7,306	13,928	6,044	1,182	6,702	2,943
2007		376,960	29,859	269,267	26,585	242,682	5,165	49,010	29,351	3,265	2,741	9,959	3,694	5,567	14,777	5,980	1,257	7,541	3,316
2008		403,040	29,839	290,681	36,360	254,321	6,346	51,650	30,341	3,518	3,004	10,707	4,080	4,766	16,035	6,236	1,301	8,498	3,724
2009		400,458	30,901	282,393	39,573	242,820	6,446	54,382	31,575	3,675	3,279	11,436	4,418	4,968	17,531	7,133	1,258	9,141	3,835
		Constant 2005 $millions																	
1953		31,931	6,281	22,463	8,849	13,614	NA	1,686	922	244	127	226	167	811	690	356	161	173	NA
1954		34,437	5,902	24,955	10,730	14,225	NA	1,846	1,009	273	144	242	178	984	751	371	190	190	NA
1955		37,871	5,865	27,234	12,402	14,832	742	2,062	1,152	301	163	253	193	1,127	790	386	211	193	51
1956		49,548	6,590	36,561	17,459	19,102	1,941	2,279	1,288	329	184	268	210	1,265	848	411	216	222	64
1957		55,893	7,318	41,315	22,158	19,157	2,296	2,443	1,362	361	206	288	226	1,503	939	443	209	288	79
1958		60,220	8,312	44,501	24,474	20,027	1,782	2,709	1,545	397	215	306	246	1,741	1,076	524	210	342	99
1959		68,106	9,167	50,168	28,448	21,719	2,279	3,195	1,939	439	215	333	270	1,903	1,273	679	229	365	120
1960		73,737	9,684	53,951	30,137	23,813	2,565	3,789	2,433	484	215	360	296	2,070	1,420	796	258	366	258
1961		77,444	10,567	55,051	30,229	24,821	2,951	4,432	2,959	534	213	396	330	2,340	1,616	899	261	457	487
1962		82,022	11,476	57,897	31,516	26,381	2,235	5,206	3,601	588	212	441	365	2,623	1,904	1,049	283	572	682
1963		90,932	13,280	63,407	35,586	27,821	2,149	6,114	4,352	649	210	498	405	3,008	2,118	1,215	285	618	856
1964		97,653	15,158	66,706	37,098	29,609	2,367	7,026	5,086	703	207	580	450	3,215	2,132	1,278	281	573	1,048
1965		101,672	15,845	69,340	36,985	32,356	1,873	8,005	5,859	751	208	683	505	3,160	2,370	1,436	311	623	1,079
1966		107,747	16,147	74,167	38,941	35,226	1,733	8,875	6,517	781	220	803	554	3,180	2,619	1,604	342	674	1,025
1967		110,576	16,314	75,620	37,635	37,985	1,985	9,638	7,059	796	244	945	594	3,296	2,657	1,620	350	687	1,066
1968		112,063	15,888	77,298	37,004	40,294	1,885	9,936	7,206	838	261	1,002	629	3,280	2,708	1,654	368	686	1,068
1969		112,544	16,409	77,253	34,578	42,674	2,009	9,871	7,029	901	262	1,009	671	3,165	2,777	1,678	403	697	1,061
1970		108,038	17,082	72,353	30,045	42,308	1,945	9,942	6,931	975	269	1,063	703	2,988	2,782	1,684	391	707	946
1971		105,561	17,268	69,830	28,102	41,728	1,923	10,046	6,891	1,026	282	1,134	713	2,877	2,775	1,670	384	721	842
1972		107,905	17,555	71,351	28,042	43,308	2,057	10,351	7,096	1,059	297	1,170	730	2,947	2,893	1,770	379	743	751
1973		110,098	17,204	73,647	27,034	46,612	1,939	10,504	7,144	1,072	318	1,220	749	2,992	3,137	2,013	373	751	676

Appendix table 4-3

U.S. research and development expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry			Industry FFRDCs[a]	U&C[b]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[c]
Year	Funding source:	All sources	Federal	Total	Federal[a]	Industry[d]	Total	Total	Federal	Other government[e]	Industry	U&C	Other nonprofit	Total	Total	Federal[c]	Industry	Other nonprofit	Total
1974		108,784	16,737	72,522	24,692	47,829	2,113	10,486	7,044	1,044	339	1,280	779	3,020	3,222	2,082	373	767	685
1975		106,282	16,570	69,899	23,472	46,426	2,166	10,635	7,151	1,037	352	1,286	810	3,179	3,163	2,011	370	781	670
1976		111,118	16,597	73,563	24,433	49,131	2,508	10,985	7,380	1,040	369	1,353	844	3,566	3,208	2,003	381	824	690
1977		114,802	16,454	76,458	25,226	51,231	2,548	11,512	7,662	1,044	409	1,506	891	3,887	3,214	1,961	390	864	728
1978		120,589	17,233	79,756	25,017	54,739	2,678	12,365	8,239	1,097	449	1,681	900	4,385	3,350	2,054	396	900	823
1979		126,549	17,073	84,692	25,946	58,747	2,660	13,058	8,793	1,100	490	1,794	881	4,599	3,575	2,251	398	926	891
1980		132,407	16,399	90,531	26,706	63,825	2,674	13,518	9,078	1,086	552	1,926	877	4,829	3,473	2,130	397	946	982
1981		138,425	16,476	96,554	28,716	67,838	2,652	13,566	8,941	1,112	601	2,025	887	4,757	3,417	2,058	395	964	1,003
1982		145,722	17,146	103,165	30,789	72,376	2,678	13,720	8,804	1,121	655	2,177	963	4,590	3,456	2,038	405	1,013	967
1983		156,156	18,800	110,556	33,150	77,406	2,752	14,324	9,045	1,142	750	2,355	1,032	4,931	3,777	2,266	424	1,087	1,016
1984		171,072	19,937	122,244	36,236	86,008	2,910	15,315	9,617	1,206	866	2,533	1,093	5,427	4,202	2,590	444	1,168	1,038
1985		186,227	21,263	133,780	41,141	92,639	3,026	16,740	10,374	1,354	1,023	2,831	1,158	5,872	4,483	2,751	469	1,264	1,063
1986		191,059	21,457	136,534	41,311	95,224	3,005	18,336	11,166	1,540	1,184	3,207	1,239	6,312	4,556	2,678	499	1,378	860
1987		195,108	20,981	139,213	44,403	94,810	3,080	19,775	11,994	1,644	1,283	3,493	1,361	6,620	4,653	2,632	528	1,493	786
1988		199,858	21,410	141,657	42,128	99,528	3,168	21,229	12,828	1,739	1,393	3,772	1,497	6,838	4,796	2,631	555	1,610	761
1989		204,107	21,909	143,647	37,917	105,730	3,157	22,489	13,402	1,833	1,526	4,103	1,627	6,841	5,277	2,966	582	1,729	787
1990		210,515	21,705	148,758	35,737	113,022	3,217	23,461	13,766	1,938	1,614	4,413	1,730	6,778	5,715	3,249	610	1,856	881
1991		215,189	20,398	153,391	32,230	121,161	3,046	24,353	14,268	1,983	1,661	4,625	1,816	6,849	6,223	3,583	641	1,999	931
1992		216,053	20,714	152,559	29,228	123,331	3,075	25,333	15,062	1,993	1,724	4,663	1,891	6,872	6,524	3,666	681	2,177	977
1993		211,865	21,132	147,569	26,646	120,922	2,512	26,200	15,733	1,990	1,779	4,741	1,957	6,761	6,734	3,635	725	2,374	958
1994		211,847	20,477	146,975	25,367	121,608	2,757	27,051	16,270	2,031	1,823	4,930	1,996	6,628	7,009	3,645	772	2,592	949
1995		225,206	20,731	159,229	25,974	133,255	2,788	27,738	16,670	2,148	1,898	5,041	1,983	6,583	7,146	3,492	823	2,831	991
1996		237,513	19,960	171,348	25,703	145,646	2,765	28,545	16,951	2,240	2,012	5,338	2,004	6,493	7,473	3,497	879	3,097	929
1997		250,901	19,891	183,794	25,779	158,015	2,519	29,429	17,183	2,273	2,138	5,722	2,113	6,461	7,837	3,565	956	3,316	971
1998		264,829	20,304	195,416	25,828	169,588	2,430	30,617	17,745	2,306	2,280	6,038	2,247	6,501	8,574	3,837	1,005	3,733	986
1999		282,368	20,573	209,856	23,621	186,235	2,350	32,472	18,744	2,418	2,399	6,476	2,434	6,514	9,458	4,334	1,073	4,052	1,144
2000		302,045	20,710	225,378	19,293	206,085	2,255	34,608	19,980	2,532	2,450	7,024	2,622	6,472	10,971	5,083	1,149	4,739	1,651
2001		308,347	24,661	222,664	18,626	204,038	2,227	37,192	21,806	2,642	2,414	7,525	2,806	6,862	12,325	6,049	1,134	5,142	2,416
2002		302,337	25,812	210,278	17,789	192,488	2,455	40,365	24,291	2,774	2,343	7,965	2,992	7,703	13,210	6,267	1,083	5,861	2,515
2003		309,385	26,539	213,230	18,907	194,323	2,611	43,006	26,695	2,913	2,262	8,127	3,009	7,756	13,594	6,315	1,084	6,194	2,649
2004		312,548	25,724	215,218	20,939	194,279	2,568	44,554	28,070	2,979	2,262	8,200	3,043	7,913	13,839	6,754	1,076	6,009	2,732
2005		324,993	26,322	226,159	21,909	204,250	2,601	45,190	28,254	2,922	2,323	8,578	3,113	7,817	14,077	6,545	1,107	6,425	2,828
2006		339,202	27,356	239,917	23,543	216,374	3,024	45,485	27,908	2,926	2,431	8,995	3,225	7,078	13,492	5,854	1,145	6,492	2,851

Appendix table 4-3

U.S. research and development expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry			Industry FFRDCs[a]	U&C[b]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[c]
Year	Funding source:	All sources	Federal	Total	Federal[a]	Industry[d]	Total	Total	Federal	Other government[e]	Industry	U&C	Other nonprofit	Total	Total	Federal[c]	Industry	Other nonprofit	Total
2007		354,864	28,109	253,484	25,027	228,457	4,862	46,137	27,631	3,074	2,580	9,375	3,478	5,241	13,911	5,629	1,183	7,099	3,121
2008		371,184	27,480	267,706	33,486	234,219	5,844	47,568	27,943	3,240	2,767	9,861	3,757	4,389	14,767	5,743	1,198	7,827	3,429
2009		364,951	28,161	257,355	36,064	221,290	5,875	49,561	28,775	3,349	2,988	10,422	4,026	4,528	15,977	6,501	1,146	8,330	3,495

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges.

[a]Federal support for industry in 1953–54 did not separate federal support for industry and for industry FFRDCs; thus, the figures for federal support to industry include support to FFRDCs for those years.
[b]Adjustments made to U&C R&D for 1998 and later years to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years. For FY 1998, $479 million in total passthrough funds and $421 million in federal passthrough funds reported. For FY 2009, $1,873 million in total passthrough funds and $1,660 million in federal passthrough funds estimated.
[c]Federal support for nonprofit FFRDCs in 1953–54 did not separate federal support for other nonprofits and for nonprofit FFRDCs; thus, the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[d]Industry sources of funding for industry R&D expenditures include all nonfederal sources of funding for industry R&D expenditures.
[e]Because of limitations in survey information, data on other government funding to performers other than U&C not available and consequently included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures after 1997 involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

Science and Engineering Indicators 2012

Appendix table 4-4

U.S. basic research expenditures, by performing sector and source of funds: 1953–2009

Year	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
		Current $millions																	
1953		460	102	151	19	132	NA	123	82	7	13	6	16	36	48	27	9	12	NA
1954		509	96	166	23	143	NA	148	97	10	15	8	18	44	55	31	11	13	NA
1955		579	98	189	27	162	NA	180	117	14	17	12	21	50	63	36	13	14	NA
1956		718	114	253	37	216	NA	220	143	19	20	15	24	58	74	42	15	17	NA
1957		814	124	271	41	230	NA	261	167	25	23	20	27	72	87	49	15	23	NA
1958		944	149	295	43	252	NA	312	202	31	24	24	31	85	103	59	16	28	NA
1959		1,087	165	320	72	248	NA	388	263	38	24	28	36	95	120	72	18	30	NA
1960		1,286	184	376	79	297	NA	485	341	45	25	33	41	106	136	85	21	30	NA
1961		1,512	230	395	81	314	NA	598	432	54	25	40	48	126	164	105	22	37	NA
1962		1,824	252	488	143	345	NA	737	546	64	25	48	55	148	200	130	24	46	NA
1963		2,115	285	522	147	375	NA	909	689	75	25	58	63	175	225	150	25	50	NA
1964		2,396	339	507	123	384	42	1,071	824	84	25	70	68	200	238	166	25	47	NA
1965		2,664	375	563	157	406	29	1,221	944	94	27	86	70	218	260	179	29	52	NA
1966		2,930	410	593	142	451	31	1,380	1,066	104	29	106	75	239	278	188	32	58	NA
1967		3,168	434	595	168	427	34	1,554	1,188	114	34	136	83	263	289	194	34	61	NA
1968		3,376	482	607	145	462	35	1,681	1,265	131	38	156	91	276	296	196	37	63	NA
1969		3,491	545	581	123	458	37	1,754	1,288	153	40	171	103	272	302	192	43	67	NA
1970		3,594	562	566	122	444	36	1,855	1,323	179	43	196	115	265	311	195	44	72	NA
1971		3,720	581	557	101	456	33	1,968	1,385	194	50	214	127	252	329	207	45	77	NA
1972		3,850	603	554	91	463	39	2,038	1,437	195	55	216	134	270	347	216	47	84	NA
1973		4,099	652	595	96	499	36	2,103	1,489	196	59	223	137	343	371	232	49	90	NA
1974		4,511	715	650	114	536	49	2,282	1,609	204	66	250	153	415	401	245	54	102	NA
1975		4,875	760	677	104	573	53	2,480	1,768	212	72	264	164	476	430	255	59	116	NA
1976		5,373	850	750	116	634	69	2,675	1,924	218	75	283	175	556	474	278	65	131	NA
1977		6,008	943	836	135	701	75	2,967	2,114	232	89	334	198	667	521	301	72	148	NA
1978		6,959	1,044	941	156	785	94	3,376	2,399	260	107	398	213	906	598	351	79	168	NA
1979		7,836	1,112	1,054	161	893	104	3,828	2,719	286	128	466	229	1,050	689	413	87	190	NA
1980		8,745	1,212	1,205	170	1,035	120	4,315	3,061	307	156	544	248	1,167	726	416	95	215	NA
1981		9,658	1,343	1,477	164	1,313	137	4,737	3,331	338	183	615	269	1,284	671	324	105	243	9
1982		10,651	1,522	1,776	253	1,523	128	5,091	3,475	368	215	716	317	1,366	759	369	115	275	9
1983		11,880	1,733	2,106	346	1,760	117	5,518	3,689	396	260	816	358	1,536	863	426	127	311	8
1984		13,332	1,877	2,472	340	2,132	136	6,145	4,087	436	313	915	395	1,709	984	494	139	351	9
1985		14,748	1,947	2,731	358	2,373	131	7,024	4,606	514	389	1,075	440	1,793	1,110	560	153	397	13
1986		17,154	2,026	3,930	434	3,496	117	7,943	5,122	606	466	1,262	488	1,915	1,210	594	168	449	13
1987		18,481	2,047	4,181	598	3,583	142	8,644	5,527	659	514	1,399	545	2,086	1,367	675	185	507	14
1988		19,787	2,116	4,163	656	3,507	337	9,344	5,937	705	565	1,530	607	2,272	1,531	756	203	573	24
1989		21,891	2,309	4,818	986	3,832	398	10,219	6,422	766	637	1,714	680	2,371	1,730	860	223	647	46
1990		23,029	2,319	4,629	869	3,760	499	11,126	6,889	847	705	1,929	756	2,470	1,922	947	245	730	65
1991		27,140	2,378	7,376	1,251	6,125	461	12,062	7,423	912	764	2,127	836	2,657	2,129	1,036	269	825	77

Appendix table 4-4

U.S. basic research expenditures, by performing sector and source of funds: 1953–2009

Year	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
1992		27,604	2,419	6,528	712	5,816	474	12,910	8,058	941	814	2,203	893	2,867	2,340	1,114	295	931	67
1993		28,743	2,621	6,427	466	5,961	492	13,646	8,638	952	851	2,268	936	2,953	2,532	1,157	324	1,051	72
1994		29,651	2,547	6,514	436	6,078	503	14,401	9,139	992	890	2,406	974	2,934	2,678	1,137	356	1,186	75
1995		29,610	2,689	5,569	190	5,379	530	15,147	9,634	1,070	945	2,511	987	2,702	2,899	1,170	390	1,338	75
1996		32,799	2,680	7,498	650	6,848	708	16,042	10,092	1,149	1,032	2,740	1,028	2,606	3,187	1,248	428	1,510	79
1997		36,921	2,746	9,795	1,029	8,766	625	17,654	10,924	1,248	1,175	3,144	1,162	2,671	3,322	1,317	449	1,557	108
1998		35,372	3,003	5,853	1,002	4,851	568	19,365	11,941	1,330	1,315	3,483	1,296	2,660	3,710	1,461	477	1,773	213
1999		38,935	3,347	6,645	1,108	5,537	557	21,022	12,892	1,432	1,421	3,835	1,442	2,765	4,203	1,734	517	1,952	397
2000		42,759	3,765	7,040	925	6,115	547	22,917	13,966	1,550	1,499	4,298	1,604	2,874	5,000	2,099	566	2,334	616
2001		47,751	4,260	8,053	754	7,299	552	25,240	15,553	1,663	1,519	4,737	1,767	3,104	5,626	2,464	571	2,590	915
2002		51,383	4,511	7,547	888	6,659	534	27,970	17,724	1,768	1,494	5,077	1,907	3,714	6,129	2,575	554	3,000	979
2003		54,611	4,664	8,330	1,386	6,944	299	30,023	19,658	1,850	1,438	5,165	1,913	3,747	6,519	2,714	567	3,238	1,029
2004		56,092	4,697	7,835	1,072	6,763	175	31,989	21,150	1,958	1,488	5,392	2,001	3,730	6,596	2,788	578	3,229	1,070
2005		59,686	4,770	8,667	1,108	7,559	136	34,028	22,186	2,042	1,624	5,999	2,177	3,820	7,084	2,903	614	3,568	1,181
2006		61,199	4,716	8,384	1,444	6,940	652	35,635	22,690	2,155	1,791	6,624	2,376	3,344	7,227	2,849	656	3,721	1,242
2007		66,206	4,621	11,268	2,780	8,488	2,258	37,271	23,043	2,363	1,983	7,207	2,674	1,724	7,714	2,829	698	4,187	1,350
2008		70,220	4,957	12,368	1,475	10,893	2,423	38,840	23,500	2,533	2,162	7,708	2,937	1,672	8,514	3,073	722	4,719	1,447
2009		75,969	5,507	14,784	1,340	13,444	2,550	40,543	24,242	2,627	2,344	8,173	3,158	1,808	9,270	3,496	698	5,075	1,508
		Constant 2005 $millions																	
1953		2,843	628	934	118	817	NA	761	504	40	80	37	99	223	297	167	56	74	NA
1954		3,118	589	1,018	141	877	NA	904	592	59	92	52	110	270	337	190	67	80	NA
1955		3,491	588	1,140	163	977	NA	1,082	702	84	102	70	124	301	380	217	78	84	NA
1956		4,185	662	1,475	216	1,259	NA	1,282	831	111	114	90	137	338	428	242	87	99	NA
1957		4,589	699	1,529	231	1,297	NA	1,470	939	140	127	111	152	403	488	274	85	130	NA
1958		5,205	822	1,628	237	1,390	NA	1,721	1,114	171	132	132	171	469	566	323	88	154	NA
1959		5,927	897	1,745	393	1,352	NA	2,116	1,431	205	131	155	194	515	654	393	98	164	NA
1960		6,916	987	2,022	425	1,597	NA	2,606	1,831	242	132	180	220	570	731	457	113	161	NA
1961		8,037	1,220	2,100	431	1,670	NA	3,177	2,294	285	133	212	253	667	872	558	117	197	NA
1962		9,568	1,322	2,560	750	1,810	NA	3,863	2,862	334	131	251	286	774	1,049	682	126	241	NA
1963		10,978	1,477	2,709	763	1,946	NA	4,716	3,576	389	127	299	324	908	1,168	779	130	260	NA
1964		12,248	1,733	2,592	629	1,963	215	5,472	4,210	431	128	356	348	1,020	1,217	849	128	240	NA
1965		13,374	1,880	2,826	788	2,038	146	6,127	4,737	474	133	432	351	1,092	1,303	896	146	261	NA
1966		14,303	2,001	2,895	693	2,202	151	6,737	5,204	505	142	520	366	1,164	1,355	915	156	283	NA
1967		15,002	2,053	2,818	796	2,022	161	7,358	5,624	539	159	642	393	1,246	1,366	916	161	289	NA
1968		15,338	2,190	2,758	659	2,099	159	7,635	5,747	594	170	710	413	1,252	1,345	890	168	286	NA
1969		15,112	2,360	2,515	533	1,983	160	7,591	5,574	662	171	741	444	1,178	1,307	831	186	290	NA
1970		14,780	2,311	2,328	502	1,826	148	7,628	5,439	738	177	805	471	1,088	1,277	800	181	296	NA
1971		14,571	2,276	2,182	396	1,786	129	7,708	5,423	758	194	838	495	987	1,289	811	176	302	NA
1972		14,455	2,262	2,080	342	1,738	146	7,650	5,395	734	206	811	503	1,014	1,303	811	176	315	NA
1973		14,582	2,319	2,116	341	1,775	128	7,481	5,295	698	208	794	486	1,220	1,318	823	174	320	NA

Appendix table 4-4

U.S. basic research expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
Year	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
1974		14,709	2,331	2,120	372	1,748	160	7,440	5,247	665	215	816	497	1,352	1,307	799	176	333	NA
1975		14,524	2,264	2,017	310	1,707	158	7,388	5,268	633	213	785	489	1,417	1,281	760	177	344	NA
1976		15,140	2,395	2,113	327	1,786	194	7,536	5,421	613	211	798	492	1,567	1,334	782	184	369	NA
1977		15,916	2,498	2,215	358	1,857	199	7,858	5,600	614	236	885	523	1,766	1,380	798	190	392	NA
1978		17,224	2,585	2,329	386	1,943	233	8,356	5,938	643	264	986	526	2,242	1,480	869	195	415	NA
1979		17,907	2,542	2,409	368	2,041	238	8,746	6,213	653	291	1,065	523	2,398	1,574	943	198	434	NA
1980		18,314	2,539	2,524	356	2,168	251	9,037	6,409	643	326	1,139	519	2,443	1,520	871	200	450	NA
1981		18,492	2,571	2,828	314	2,514	262	9,069	6,378	647	350	1,178	516	2,459	1,286	620	201	465	17
1982		19,221	2,746	3,205	457	2,748	231	9,187	6,270	664	389	1,293	572	2,466	1,370	666	208	496	16
1983		20,624	3,008	3,656	601	3,055	203	9,579	6,403	687	451	1,417	621	2,666	1,498	739	220	539	14
1984		22,306	3,140	4,136	569	3,567	228	10,281	6,837	729	523	1,531	661	2,859	1,647	827	233	588	15
1985		23,951	3,162	4,435	581	3,854	213	11,407	7,479	835	632	1,747	714	2,911	1,802	909	248	645	20
1986		27,255	3,219	6,244	690	5,555	186	12,620	8,137	962	740	2,005	775	3,043	1,923	943	267	713	21
1987		28,536	3,161	6,456	923	5,532	219	13,346	8,533	1,017	794	2,161	842	3,221	2,110	1,043	285	783	22
1988		29,538	3,159	6,215	979	5,235	503	13,948	8,862	1,053	843	2,284	906	3,391	2,286	1,129	303	855	36
1989		31,489	3,321	6,931	1,418	5,512	573	14,700	9,238	1,101	917	2,466	978	3,411	2,488	1,237	320	930	67
1990		31,896	3,212	6,411	1,204	5,208	691	15,410	9,541	1,173	977	2,672	1,047	3,421	2,662	1,312	339	1,012	89
1991		36,302	3,181	9,866	1,673	8,193	617	16,134	9,929	1,220	1,022	2,845	1,118	3,554	2,848	1,386	359	1,103	103
1992		36,068	3,160	8,530	930	7,599	619	16,868	10,529	1,230	1,064	2,878	1,167	3,746	3,058	1,456	385	1,217	87
1993		36,744	3,350	8,216	596	7,620	629	17,445	11,043	1,218	1,088	2,900	1,197	3,775	3,236	1,479	414	1,343	92
1994		37,123	3,189	8,156	546	7,610	630	18,029	11,441	1,241	1,114	3,013	1,220	3,673	3,353	1,423	445	1,485	93
1995		36,315	3,298	6,830	233	6,597	650	18,576	11,815	1,312	1,159	3,079	1,211	3,313	3,555	1,435	479	1,642	93
1996		39,475	3,225	9,024	782	8,242	852	19,306	12,146	1,383	1,242	3,297	1,238	3,136	3,836	1,502	516	1,817	95
1997		43,664	3,247	11,584	1,217	10,367	739	20,878	12,920	1,476	1,390	3,718	1,374	3,159	3,929	1,557	531	1,841	127
1998		41,366	3,511	6,845	1,172	5,673	664	22,647	13,964	1,556	1,538	4,073	1,516	3,111	4,339	1,708	558	2,073	249
1999		44,872	3,857	7,658	1,276	6,381	642	24,228	14,858	1,650	1,637	4,420	1,662	3,186	4,843	1,998	596	2,250	457
2000		48,193	4,243	7,935	1,043	6,892	616	25,830	15,741	1,746	1,690	4,844	1,808	3,239	5,636	2,366	638	2,631	694
2001		52,631	4,696	8,876	831	8,045	609	27,819	17,143	1,833	1,675	5,222	1,947	3,421	6,201	2,716	630	2,855	1,009
2002		55,732	4,892	8,186	963	7,223	580	30,337	19,224	1,918	1,620	5,507	2,068	4,028	6,648	2,793	601	3,254	1,062
2003		58,014	4,955	8,849	1,472	7,377	318	31,894	20,883	1,965	1,527	5,487	2,032	3,980	6,925	2,884	602	3,439	1,093
2004		57,954	4,853	8,095	1,108	6,988	181	33,051	21,853	2,023	1,537	5,571	2,068	3,854	6,815	2,881	597	3,337	1,106
2005		59,686	4,770	8,667	1,108	7,559	136	34,028	22,186	2,042	1,624	5,999	2,177	3,820	7,084	2,903	614	3,568	1,181
2006		59,284	4,568	8,122	1,399	6,723	632	34,520	21,979	2,087	1,735	6,417	2,301	3,239	7,000	2,760	636	3,605	1,203

Appendix table 4-4

U.S. basic research expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
Year	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
2007		62,325	4,350	10,608	2,617	7,990	2,126	35,086	21,692	2,225	1,867	6,785	2,517	1,623	7,262	2,663	657	3,941	1,271
2008		64,670	4,565	11,390	1,358	10,032	2,231	35,770	21,643	2,333	1,991	7,099	2,705	1,540	7,841	2,830	665	4,346	1,332
2009		69,234	5,019	13,473	1,221	12,252	2,324	36,948	22,093	2,394	2,136	7,448	2,878	1,647	8,448	3,186	636	4,625	1,375

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges

[a]Character-of-work estimates for industry revised for 1998 and later years; data are not directly comparable with data for 1997 and earlier years.
[b]Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[c]For 1998 and later years, character-of-work estimation procedure revised, and adjustments made to U&C R&D to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years.
[d]Character-of-work estimates for nonprofit FFRDCs for 1953–80 not separated from federal support for other nonprofits; thus, the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[e]Industry sources of funds for industry R&D expenditures include all nonfederal sources of industry funds for R&D expenditures.
[f]Because of limitations in survey information, data on other government funding to performers other than U&C are not available and consequently are included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

Science and Engineering Indicators 2012

Appendix table 4-5

U.S. applied research expenditures, by performing sector and source of funds: 1953–2009

Year	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
		Current $millions																	
1953		1,289	347	726	288	438	NA	134	59	30	7	28	10	48	35	14	11	10	NA
1954		1,378	330	814	322	492	NA	137	60	32	8	28	10	58	40	16	13	11	NA
1955		1,514	333	928	368	560	NA	142	63	32	9	27	11	68	43	18	14	11	NA
1956		1,928	387	1,268	474	794	NA	146	65	33	10	27	11	79	49	21	14	14	NA
1957		2,414	446	1,670	678	992	NA	147	63	34	12	27	11	94	58	24	14	20	NA
1958		2,758	516	1,911	774	1,137	NA	152	66	35	12	27	12	111	69	30	14	25	NA
1959		2,940	577	1,991	813	1,178	NA	167	78	37	13	28	12	121	85	43	15	27	NA
1960		3,065	615	2,029	833	1,196	NA	186	93	39	13	29	12	129	108	63	17	28	NA
1961		3,123	668	1,977	812	1,165	NA	199	104	40	13	30	13	145	135	83	17	35	NA
1962		3,698	709	2,449	1,011	1,438	NA	216	119	41	14	30	13	163	162	98	19	45	NA
1963		3,865	809	2,457	1,007	1,450	NA	230	128	42	14	32	14	186	183	115	19	49	NA
1964		4,201	947	2,538	978	1,560	62	256	142	45	14	37	18	203	196	130	19	47	NA
1965		4,374	994	2,612	992	1,620	46	304	176	46	13	42	27	206	213	140	21	52	NA
1966		4,653	1,012	2,790	986	1,804	53	351	208	47	14	48	34	213	234	153	24	57	NA
1967		4,848	1,069	2,832	983	1,849	83	389	238	46	16	54	36	225	251	166	25	60	NA
1968		5,137	1,112	3,037	956	2,081	87	405	250	46	16	55	39	221	276	186	28	62	NA
1969		5,454	1,229	3,192	920	2,272	95	417	257	48	16	54	43	213	308	210	32	66	NA
1970		5,752	1,334	3,330	952	2,378	97	451	280	51	18	56	47	213	328	225	33	70	NA
1971		5,833	1,355	3,348	907	2,441	67	499	306	61	19	67	47	216	349	241	34	74	NA
1972		6,147	1,434	3,407	845	2,562	107	619	391	74	21	82	52	224	357	243	35	79	NA
1973		6,655	1,527	3,715	883	2,832	110	725	450	88	26	100	62	203	376	257	36	83	NA
1974		7,344	1,652	4,168	905	3,263	120	794	477	96	32	118	72	191	420	290	39	91	NA
1975		8,091	1,912	4,431	991	3,440	139	934	550	113	39	141	92	219	456	315	42	100	NA
1976		8,976	2,068	4,945	1,033	3,912	167	1,042	596	127	45	166	109	263	492	338	45	109	NA
1977		9,662	2,081	5,424	1,113	4,311	212	1,126	626	134	51	194	121	297	523	355	48	120	NA
1978		10,704	2,242	6,065	1,195	4,870	235	1,247	676	151	61	232	128	324	592	409	52	132	NA
1979		12,097	2,415	6,975	1,305	5,670	250	1,418	793	161	71	263	129	360	680	480	55	144	NA
1980		13,714	2,546	8,175	1,625	6,550	275	1,622	912	174	88	308	140	421	675	458	60	158	NA
1981		16,329	2,731	10,401	2,042	8,359	298	1,781	953	199	108	363	159	422	628	391	64	173	68
1982		18,218	2,802	11,956	2,593	9,363	367	1,915	1,007	207	121	402	178	433	655	398	69	189	91
1983		20,298	2,991	13,513	3,227	10,286	414	2,116	1,122	215	141	443	194	473	713	433	74	207	78
1984		22,451	2,961	15,218	3,677	11,541	547	2,332	1,226	234	168	491	212	548	764	459	79	226	80
1985		25,401	3,135	17,625	4,717	12,908	630	2,527	1,296	262	198	547	224	580	822	490	85	247	82
1986		27,240	3,204	19,131	4,049	15,082	629	2,780	1,393	298	229	620	240	554	867	506	91	270	75
1987		27,951	3,366	19,190	4,037	15,153	623	3,219	1,643	333	260	707	276	532	948	555	98	295	74
1988		29,528	3,362	20,377	3,846	16,531	371	3,779	1,958	377	302	818	325	547	1,026	599	105	322	66
1989		32,277	3,566	22,317	4,324	17,993	374	4,188	2,121	417	347	933	370	603	1,159	695	112	352	70
1990		34,897	3,652	24,399	5,967	18,432	386	4,406	2,140	453	377	1,031	404	689	1,284	780	120	384	81
1991		38,631	4,093	27,013	5,588	21,425	433	4,611	2,232	468	392	1,091	428	927	1,468	921	129	419	86

Appendix table 4-5

U.S. applied research expenditures, by performing sector and source of funds: 1953–2009

Year	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
1992		37,936	4,337	25,660	4,476	21,184	507	4,882	2,415	479	414	1,120	454	940	1,528	933	138	456	81
1993		37,283	4,838	24,251	4,295	19,956	435	5,149	2,542	496	443	1,181	487	962	1,544	900	148	497	103
1994		36,618	4,985	22,988	3,616	19,372	503	5,390	2,644	517	464	1,256	509	982	1,659	960	158	541	111
1995		40,936	4,952	26,919	3,164	23,755	535	5,659	2,779	559	494	1,311	516	1,050	1,692	934	170	589	129
1996		43,170	4,872	29,010	3,640	25,370	231	5,885	2,864	584	524	1,390	522	1,270	1,781	960	182	640	122
1997		46,554	4,997	32,430	2,648	29,782	213	5,523	2,550	553	519	1,389	512	1,337	1,926	1,011	205	711	128
1998		46,362	5,146	32,208	2,632	29,576	230	5,197	2,260	526	520	1,378	513	1,372	2,087	1,060	218	809	123
1999		52,007	5,530	36,638	2,817	33,821	274	5,762	2,661	546	542	1,463	550	1,247	2,427	1,300	236	891	130
2000		56,685	6,105	39,176	2,682	36,494	269	6,498	3,196	572	553	1,585	592	1,291	3,155	1,831	258	1,066	190
2001		64,188	7,052	44,012	3,603	40,409	821	7,061	3,558	602	550	1,713	639	1,405	3,593	2,150	261	1,182	244
2002		50,688	7,487	28,533	2,452	26,081	1,090	7,760	4,010	647	546	1,859	698	1,663	3,889	2,267	253	1,369	266
2003		61,135	7,672	37,334	4,473	32,861	1,413	8,644	4,553	731	567	2,038	755	1,600	4,223	2,487	259	1,478	249
2004		69,183	7,455	45,432	4,775	40,657	1,459	8,976	4,781	759	576	2,087	774	1,481	4,186	2,448	264	1,474	194
2005		69,588	7,557	45,284	5,289	39,995	1,414	9,077	4,900	721	573	2,115	768	1,637	4,340	2,432	280	1,628	278
2006		76,277	7,435	51,173	6,140	45,033	1,314	9,440	5,176	710	589	2,182	782	1,827	4,590	2,592	300	1,699	500
2007		83,069	7,222	57,570	8,945	48,625	1,168	9,849	5,396	740	621	2,256	837	1,354	4,812	2,583	318	1,911	1,094
2008		74,321	7,316	46,864	5,397	41,467	1,975	10,875	5,980	808	690	2,460	937	855	5,083	2,600	330	2,154	1,352
2009		71,328	8,006	41,055	7,797	33,258	1,930	11,912	6,577	860	767	2,675	1,033	1,289	5,697	3,062	319	2,317	1,440
		Constant 2005 $millions																	
1953		7,977	2,147	4,493	1,782	2,710	NA	826	365	186	40	172	62	294	217	87	68	62	NA
1954		8,449	2,020	4,991	1,974	3,017	NA	837	365	193	46	172	61	356	245	98	80	67	NA
1955		9,125	2,008	5,595	2,219	3,376	NA	853	380	195	51	164	63	410	259	109	84	66	NA
1956		11,236	2,253	7,391	2,763	4,628	NA	851	379	193	58	157	64	458	283	119	82	82	NA
1957		13,615	2,513	9,421	3,825	5,596	NA	826	355	191	65	153	62	530	324	133	79	113	NA
1958		15,216	2,847	10,543	4,270	6,273	NA	836	361	195	66	150	63	610	381	166	77	138	NA
1959		16,029	3,144	10,857	4,433	6,424	NA	911	423	202	68	153	65	657	461	232	82	147	NA
1960		16,483	3,305	10,912	4,480	6,432	NA	998	500	208	70	155	65	691	578	336	91	151	NA
1961		16,606	3,552	10,512	4,318	6,195	NA	1,055	550	212	69	157	66	771	715	439	90	186	NA
1962		19,396	3,717	12,847	5,303	7,543	NA	1,133	622	213	71	160	68	852	847	511	100	236	NA
1963		20,059	4,199	12,753	5,227	7,526	NA	1,191	662	219	73	168	70	965	950	597	99	254	NA
1964		21,475	4,838	12,974	5,000	7,975	317	1,306	726	231	69	191	89	1,038	1,002	665	97	240	NA
1965		21,956	4,988	13,113	4,980	8,133	231	1,524	881	233	65	211	133	1,032	1,069	703	105	261	NA
1966		22,712	4,940	13,620	4,813	8,807	259	1,713	1,015	230	68	236	164	1,040	1,140	744	117	278	NA
1967		22,962	5,061	13,413	4,656	8,757	393	1,840	1,125	216	73	255	171	1,066	1,189	786	118	284	NA
1968		23,338	5,050	13,798	4,343	9,454	395	1,840	1,134	209	73	250	175	1,002	1,254	845	127	282	NA
1969		23,613	5,322	13,819	3,983	9,836	411	1,805	1,110	208	69	233	184	922	1,333	909	139	286	NA
1970		23,656	5,486	13,694	3,915	9,779	399	1,853	1,149	210	72	230	191	876	1,349	925	136	288	NA
1971		22,846	5,307	13,113	3,552	9,561	262	1,954	1,199	237	72	262	184	844	1,365	942	133	290	NA
1972		23,079	5,384	12,792	3,173	9,619	402	2,322	1,466	279	77	307	193	841	1,338	910	131	297	NA
1973		23,674	5,433	13,215	3,141	10,074	391	2,577	1,599	312	92	355	219	720	1,337	914	128	295	NA

Appendix table 4-5

U.S. applied research expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding	All								Other			Other					Other	
Year	source:	sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	government[f]	Industry	U&C	nonprofit	Total	Total	Federal[d]	Industry	nonprofit	Total
1974		23,949	5,388	13,592	2,951	10,641	391	2,588	1,554	313	103	384	233	621	1,369	946	126	297	NA
1975		24,107	5,696	13,202	2,953	10,249	414	2,783	1,637	338	115	419	274	653	1,360	939	124	298	NA
1976		25,294	5,828	13,934	2,911	11,023	471	2,936	1,678	359	125	467	307	740	1,385	951	126	309	NA
1977		25,595	5,511	14,368	2,948	11,420	562	2,981	1,657	356	135	514	319	787	1,386	940	127	318	NA
1978		26,495	5,549	15,012	2,958	12,054	582	3,086	1,673	374	150	574	316	802	1,465	1,012	128	326	NA
1979		27,643	5,519	15,939	2,982	12,957	571	3,239	1,811	369	163	601	295	822	1,553	1,097	127	329	NA
1980		28,722	5,332	17,121	3,403	13,717	576	3,397	1,910	364	185	645	294	881	1,414	959	125	330	NA
1981		31,267	5,230	19,916	3,910	16,006	571	3,410	1,824	381	206	694	304	808	1,202	749	122	331	130
1982		32,877	5,056	21,576	4,679	16,897	662	3,455	1,816	374	218	725	321	781	1,183	718	124	341	164
1983		35,238	5,193	23,459	5,602	17,857	719	3,673	1,948	373	245	769	337	822	1,238	751	128	359	135
1984		37,564	4,954	25,462	6,152	19,310	915	3,901	2,052	392	281	822	355	918	1,279	768	132	379	135
1985		41,251	5,091	28,623	7,660	20,963	1,023	4,104	2,106	425	321	889	364	941	1,335	795	138	402	133
1986		43,280	5,091	30,397	6,433	23,963	999	4,417	2,213	473	364	986	381	880	1,377	803	145	429	120
1987		43,158	5,197	29,631	6,233	23,397	962	4,970	2,537	514	401	1,092	426	821	1,464	857	151	456	114
1988		44,079	5,019	30,419	5,741	24,678	554	5,642	2,923	563	451	1,221	485	816	1,531	894	156	481	98
1989		46,430	5,130	32,103	6,220	25,883	538	6,024	3,051	600	499	1,342	532	867	1,667	999	161	506	101
1990		48,333	5,058	33,793	8,265	25,529	535	6,102	2,965	627	522	1,428	560	954	1,778	1,080	167	532	113
1991		51,674	5,475	36,133	7,475	28,658	579	6,167	2,985	626	524	1,459	573	1,239	1,964	1,232	172	560	115
1992		49,568	5,667	33,528	5,849	27,680	662	6,379	3,155	626	541	1,463	594	1,229	1,996	1,220	180	596	106
1993		47,661	6,185	31,002	5,491	25,511	556	6,582	3,249	634	566	1,510	623	1,230	1,974	1,150	189	635	131
1994		45,845	6,242	28,781	4,527	24,254	630	6,748	3,310	648	581	1,572	637	1,229	2,077	1,201	198	677	139
1995		50,206	6,074	33,015	3,880	29,134	656	6,940	3,408	685	606	1,608	633	1,288	2,075	1,145	208	722	158
1996		51,957	5,864	34,915	4,381	30,534	278	7,082	3,446	703	631	1,673	629	1,528	2,144	1,155	219	770	147
1997		55,058	5,909	38,353	3,132	35,222	252	6,531	3,016	654	613	1,643	606	1,582	2,278	1,196	242	840	152
1998		54,218	6,017	37,665	3,078	34,587	269	6,077	2,642	615	608	1,611	600	1,604	2,440	1,240	255	946	144
1999		59,938	6,373	42,225	3,247	38,978	316	6,641	3,067	630	625	1,686	634	1,437	2,797	1,498	272	1,027	149
2000		63,890	6,881	44,156	3,023	41,133	303	7,324	3,603	644	624	1,787	667	1,456	3,556	2,064	291	1,201	214
2001		70,748	7,773	48,510	3,971	44,539	905	7,783	3,921	663	606	1,888	704	1,548	3,960	2,370	287	1,303	268
2002		54,979	8,121	30,948	2,660	28,289	1,183	8,417	4,349	702	593	2,016	757	1,804	4,218	2,458	274	1,485	288
2003		64,944	8,149	39,660	4,752	34,908	1,501	9,183	4,837	777	602	2,165	802	1,700	4,486	2,642	275	1,570	264
2004		71,481	7,702	46,941	4,934	42,007	1,508	9,274	4,940	784	595	2,156	800	1,531	4,325	2,529	273	1,523	201
2005		69,588	7,557	45,284	5,289	39,995	1,414	9,077	4,900	721	573	2,115	768	1,637	4,340	2,432	280	1,628	278
2006		73,890	7,202	49,571	5,948	43,623	1,272	9,144	5,014	688	571	2,114	758	1,770	4,446	2,511	290	1,645	484

Appendix table 4-5

U.S. applied research expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
Year	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
2007		78,200	6,798	54,196	8,421	45,775	1,100	9,271	5,079	696	584	2,124	788	1,275	4,530	2,431	300	1,799	1,030
2008		68,446	6,738	43,160	4,970	38,189	1,819	10,015	5,507	744	636	2,265	863	787	4,682	2,395	304	1,984	1,245
2009		65,004	7,296	37,415	7,106	30,309	1,758	10,856	5,994	783	699	2,438	942	1,175	5,192	2,790	290	2,111	1,312

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges

[a]Character-of-work estimates for industry revised for 1998 and later years; data are not directly comparable with data for 1997 and earlier years.
[b]Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, figure for federal support to industry includes support to FFRDCs for those years.
[c]For 1998 and later years, character-of-work estimation procedure revised and adjustments made to U&C R&D to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years.
[d]Character-of-work estimates for nonprofit FFRDCs for 1953–80 not separated from federal support for other nonprofits; thus, the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[e]Industry sources of funds for industry R&D expenditures include all nonfederal sources of industry funds for R&D expenditures.
[f]Because of limitations in survey information, data on other government funding to performers other than U&C not available and consequently included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-6

U.S. development expenditures, by performing sector and source of funds: 1953–2009

Year	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
		Current $millions																	
1953		3,412	567	2,753	1,123	1,630	NA	16	9	3	1	3	1	48	29	17	6	6	NA
1954		3,734	537	3,090	1,405	1,685	NA	17	9	3	1	3	1	59	32	18	7	7	NA
1955		4,189	543	3,523	1,785	1,738	NA	21	12	4	2	3	1	69	34	19	8	7	NA
1956		5,855	631	5,084	2,817	2,267	NA	25	14	4	2	4	2	81	35	20	8	7	NA
1957		6,681	728	5,790	3,616	2,174	NA	26	12	5	3	4	2	101	37	21	8	8	NA
1958		7,214	842	6,183	3,942	2,241	NA	28	13	6	3	4	2	120	42	25	8	9	NA
1959		8,463	940	7,307	4,750	2,557	NA	31	16	6	3	5	2	134	51	32	9	10	NA
1960		9,360	1,003	8,104	5,169	2,935	NA	35	19	6	3	5	2	151	69	49	10	10	NA
1961		9,930	1,090	8,536	5,347	3,189	NA	38	22	7	2	5	2	170	97	73	10	14	NA
1962		10,115	1,227	8,526	5,280	3,246	NA	40	23	8	2	6	2	190	132	103	11	18	NA
1963		11,540	1,465	9,651	6,116	3,535	NA	40	22	8	2	6	2	219	165	134	11	20	NA
1964		12,506	1,680	10,004	6,156	3,848	359	49	30	8	2	7	3	227	188	159	11	18	NA
1965		13,215	1,789	10,637	6,218	4,419	298	71	48	9	2	8	4	207	215	183	12	20	NA
1966		14,490	1,886	11,810	6,849	4,961	271	87	61	9	2	10	5	200	236	199	14	23	NA
1967		15,332	1,943	12,539	6,795	5,744	302	93	66	9	3	10	7	208	247	208	15	24	NA
1968		16,154	1,904	13,370	7,044	6,326	293	102	72	8	4	9	9	226	259	217	16	26	NA
1969		17,051	2,016	14,071	6,944	7,127	332	110	80	7	5	8	10	246	277	231	18	28	NA
1970		16,925	2,258	13,698	6,232	7,466	340	112	84	6	5	7	10	249	268	220	18	30	NA
1971		17,399	2,473	13,924	6,167	7,757	391	98	69	8	4	9	9	267	246	194	19	33	NA
1972		18,743	2,639	15,043	6,533	8,510	402	101	63	12	4	14	9	291	267	213	19	35	NA
1973		20,197	2,657	16,394	6,621	9,773	399	126	71	18	5	20	13	296	326	268	20	38	NA
1974		21,504	2,765	17,421	6,553	10,868	479	141	75	20	7	25	15	321	377	314	22	42	NA
1975		22,706	2,890	18,352	6,783	11,569	535	156	83	22	8	27	16	373	400	330	23	47	NA
1976		25,085	2,972	20,412	7,522	12,890	654	182	100	24	12	31	16	447	418	341	25	52	NA
1977		27,667	3,188	22,603	8,275	14,328	675	254	153	28	15	40	19	503	444	359	27	58	NA
1978		31,056	3,676	25,216	8,756	16,460	753	373	254	32	15	49	24	542	496	403	30	64	NA
1979		35,445	3,944	29,033	9,888	19,145	810	469	336	34	16	56	28	603	586	483	32	71	NA
1980		40,765	4,072	33,848	10,957	22,891	882	518	362	38	19	68	31	719	726	612	35	79	NA
1981		46,305	4,530	38,547	12,791	25,756	950	568	386	44	24	80	35	778	485	360	37	88	447
1982		51,879	5,178	43,434	14,215	29,219	989	597	397	46	27	88	39	745	500	362	40	98	436
1983		57,771	6,106	48,064	15,522	32,542	1,054	617	399	47	31	97	43	832	599	447	44	109	500
1984		66,461	7,078	55,371	17,640	37,731	1,056	677	435	51	37	108	47	986	762	594	47	120	530
1985		74,522	8,011	62,020	20,258	41,762	1,102	756	486	57	43	120	49	1,244	829	644	51	134	560
1986		75,855	8,275	62,871	21,517	41,354	1,145	818	513	65	50	136	53	1,504	790	587	55	149	453
1987		79,929	8,176	66,789	24,122	42,667	1,230	945	599	73	57	155	61	1,670	698	474	60	165	421
1988		84,567	8,864	70,353	23,719	46,634	1,414	1,098	698	83	66	180	71	1,762	655	407	65	183	420
1989		87,723	9,355	72,725	21,049	51,676	1,423	1,227	773	91	76	205	81	1,782	780	507	70	203	430
1990		94,067	9,700	78,376	18,966	59,410	1,438	1,407	910	99	83	226	89	1,735	920	619	75	226	490
1991		95,105	8,778	80,286	17,256	63,030	1,383	1,534	1,012	103	86	239	94	1,537	1,054	722	82	251	533

Appendix table 4-6

U.S. development expenditures, by performing sector and source of funds: 1953–2009

Year	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
1992		99,811	9,098	84,569	17,181	67,388	1,372	1,596	1,055	105	91	246	100	1,452	1,125	758	88	279	599
1993		99,705	9,071	84,757	16,083	68,674	1,038	1,700	1,127	109	97	259	107	1,374	1,191	787	95	309	574
1994		102,938	8,823	87,890	16,209	71,681	1,196	1,816	1,213	114	102	276	112	1,378	1,261	815	103	343	573
1995		113,079	9,262	97,342	17,824	79,518	1,208	1,812	1,180	123	108	288	113	1,616	1,236	744	111	381	603
1996		121,377	9,033	105,863	17,066	88,797	1,358	1,791	1,128	128	115	305	115	1,520	1,241	698	120	423	571
1997		128,677	9,077	113,184	18,121	95,063	1,292	1,708	1,055	121	114	305	112	1,454	1,378	687	155	536	585
1998		144,723	9,214	129,041	18,452	110,589	1,280	1,619	974	116	114	302	113	1,527	1,535	760	164	611	507
1999		154,356	9,265	138,807	16,571	122,236	1,208	1,391	710	120	119	321	121	1,640	1,578	727	178	673	467
2000		169,412	9,377	153,745	13,510	140,235	1,185	1,290	565	125	121	348	130	1,577	1,579	580	195	804	659
2001		167,817	11,062	149,952	12,542	137,410	647	1,442	673	132	121	376	140	1,717	1,963	874	197	893	1,033
2002		176,672	11,800	157,788	13,061	144,727	639	1,485	662	142	120	408	153	1,726	2,161	937	191	1,034	1,074
2003		175,493	12,646	155,060	11,939	143,121	747	1,816	918	161	124	447	166	1,954	2,054	743	195	1,116	1,216
2004		177,228	12,746	155,034	14,419	140,615	851	2,158	1,237	167	126	458	170	2,447	2,612	1,300	199	1,113	1,379
2005		195,720	13,994	172,208	15,512	156,696	1,052	2,085	1,168	158	126	464	169	2,360	2,652	1,211	212	1,229	1,369
2006		212,686	16,089	188,112	16,720	171,392	1,156	1,880	944	156	129	479	172	2,136	2,111	603	226	1,282	1,202
2007		227,685	18,016	200,429	14,860	185,569	1,738	1,891	913	162	136	495	184	2,488	2,251	568	240	1,443	872
2008		258,499	17,566	231,449	29,488	201,961	1,948	1,935	861	177	152	540	206	2,239	2,437	562	249	1,626	925
2009		253,160	17,389	226,554	30,436	196,118	1,967	1,927	756	189	168	587	227	1,872	2,564	575	241	1,749	887
		Constant 2005 $millions																	
1953		21,111	3,506	17,036	6,949	10,087	NA	99	53	18	6	16	6	294	176	102	37	37	NA
1954		22,895	3,293	18,946	8,615	10,331	NA	104	52	21	6	19	6	359	193	107	43	43	NA
1955		25,256	3,271	21,241	10,762	10,479	NA	127	69	23	9	19	6	416	202	112	48	42	NA
1956		34,127	3,675	29,636	16,421	13,215	NA	146	79	26	12	21	9	469	201	114	47	41	NA
1957		37,688	4,104	32,662	20,398	12,264	NA	147	68	30	14	24	11	570	206	116	45	45	NA
1958		39,798	4,643	34,112	21,749	12,364	NA	152	69	31	17	24	11	662	229	135	44	50	NA
1959		46,149	5,126	39,845	25,902	13,943	NA	169	85	33	16	25	11	731	278	174	49	55	NA
1960		50,337	5,391	43,582	27,798	15,784	NA	186	102	34	13	25	11	809	368	261	54	54	NA
1961		52,799	5,793	45,389	28,432	16,957	NA	199	114	37	11	27	11	901	516	388	53	74	NA
1962		53,058	6,436	44,725	27,697	17,028	NA	210	118	40	10	30	10	997	690	538	58	94	NA
1963		59,896	7,604	50,094	31,745	18,348	NA	208	114	41	10	32	10	1,134	856	696	57	104	NA
1964		63,930	8,588	51,140	31,469	19,671	1,835	248	151	41	10	33	13	1,158	961	813	56	92	NA
1965		66,343	8,979	53,401	31,216	22,185	1,496	354	241	43	10	39	20	1,037	1,077	916	60	100	NA
1966		70,733	9,207	57,653	33,435	24,218	1,323	425	298	46	10	47	24	976	1,150	969	68	112	NA
1967		72,615	9,203	59,389	32,183	27,205	1,430	440	310	40	12	47	31	985	1,167	983	71	114	NA
1968		73,389	8,650	60,743	32,002	28,740	1,331	461	325	35	18	42	41	1,027	1,177	986	73	118	NA
1969		73,818	8,727	60,918	30,063	30,855	1,437	474	344	31	22	34	43	1,065	1,197	998	78	121	NA
1970		69,602	9,285	56,332	25,628	30,703	1,398	461	343	27	21	29	41	1,024	1,102	905	74	123	NA
1971		68,144	9,684	54,536	24,154	30,382	1,531	384	270	31	16	34	33	1,046	964	760	74	129	NA
1972		70,372	9,909	56,479	24,528	31,951	1,509	379	235	47	13	51	34	1,093	1,002	800	71	131	NA
1973		71,842	9,452	58,315	23,552	34,764	1,419	446	251	62	18	71	44	1,051	1,158	952	71	135	NA

Appendix table 4-6

U.S. development expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
	Funding	All								Other			Other					Other	
Year	source:	sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	government[f]	Industry	U&C	nonprofit	Total	Total	Federal[d]	Industry	nonprofit	Total
1974		70,126	9,018	56,810	21,369	35,441	1,562	458	243	65	21	80	49	1,047	1,231	1,022	71	138	NA
1975		67,651	8,610	54,679	20,210	34,470	1,594	465	246	66	24	82	48	1,110	1,193	983	70	140	NA
1976		70,684	8,374	57,516	21,195	36,321	1,843	513	280	67	32	88	45	1,260	1,179	961	71	147	NA
1977		73,290	8,445	59,875	21,920	37,955	1,788	673	405	74	38	107	49	1,333	1,177	951	72	153	NA
1978		76,870	9,100	62,414	21,673	40,742	1,864	923	628	79	36	121	58	1,341	1,228	996	73	159	NA
1979		80,998	9,012	66,345	22,596	43,749	1,851	1,073	769	78	36	127	63	1,379	1,339	1,103	73	163	NA
1980		85,372	8,529	70,886	22,947	47,940	1,847	1,084	758	80	41	142	64	1,505	1,520	1,282	72	166	NA
1981		88,665	8,675	73,810	24,492	49,318	1,819	1,087	739	84	45	152	67	1,489	929	689	72	168	856
1982		93,624	9,345	78,383	25,653	52,730	1,785	1,077	717	82	48	159	70	1,344	903	654	73	176	787
1983		100,293	10,600	83,441	26,947	56,494	1,830	1,072	693	82	54	169	74	1,444	1,041	776	76	188	867
1984		111,201	11,843	92,646	29,515	63,131	1,767	1,133	727	86	62	180	78	1,650	1,275	995	79	202	887
1985		121,024	13,009	100,722	32,899	67,822	1,790	1,228	789	93	70	195	80	2,020	1,346	1,046	83	217	909
1986		120,524	13,147	99,894	34,188	65,706	1,819	1,299	816	104	80	216	84	2,389	1,256	932	88	236	719
1987		123,415	12,624	103,126	37,246	65,881	1,899	1,459	924	113	88	240	93	2,578	1,078	731	92	255	650
1988		126,241	13,232	105,023	35,408	69,615	2,111	1,639	1,042	124	99	268	106	2,630	978	608	96	274	627
1989		126,188	13,458	104,614	30,279	74,335	2,047	1,765	1,112	132	110	295	117	2,563	1,122	729	100	293	619
1990		130,286	13,435	108,554	26,269	82,285	1,992	1,949	1,260	138	115	313	123	2,403	1,275	857	104	313	679
1991		127,213	11,741	107,391	23,082	84,310	1,850	2,052	1,353	137	115	320	126	2,055	1,411	966	109	336	713
1992		130,416	11,887	110,501	22,449	88,052	1,793	2,086	1,378	137	119	321	130	1,897	1,470	991	115	364	783
1993		127,460	11,597	108,351	20,560	87,791	1,327	2,173	1,441	139	124	331	137	1,756	1,523	1,006	122	395	734
1994		128,879	11,047	110,039	20,294	89,745	1,497	2,274	1,519	142	128	345	140	1,726	1,579	1,020	129	430	717
1995		138,685	11,359	119,384	21,860	97,524	1,482	2,222	1,447	150	133	353	139	1,982	1,516	912	136	468	740
1996		146,081	10,872	127,410	20,540	106,870	1,634	2,156	1,358	154	138	367	138	1,829	1,494	840	145	510	687
1997		152,179	10,734	133,857	21,431	112,426	1,528	2,020	1,248	143	135	361	133	1,720	1,629	812	183	634	691
1998		169,245	10,775	150,906	21,579	129,328	1,497	1,893	1,139	135	134	354	132	1,786	1,795	889	192	714	593
1999		177,893	10,678	159,974	19,098	140,876	1,392	1,603	819	138	137	370	139	1,890	1,818	838	205	775	538
2000		190,945	10,568	173,287	15,227	158,060	1,336	1,454	637	141	137	392	146	1,778	1,780	653	220	907	743
2001		184,968	12,192	165,278	13,824	151,454	713	1,590	742	146	133	415	155	1,892	2,164	963	217	984	1,139
2002		191,626	12,798	171,144	14,167	156,977	693	1,610	718	154	130	443	166	1,872	2,344	1,016	207	1,121	1,165
2003		186,427	13,434	164,721	12,683	152,038	793	1,929	975	171	132	475	176	2,076	2,182	790	207	1,185	1,292
2004		183,113	13,169	160,182	14,898	145,284	879	2,229	1,278	172	131	473	176	2,529	2,699	1,344	206	1,150	1,425
2005		195,720	13,994	172,208	15,512	156,696	1,052	2,085	1,168	158	126	464	169	2,360	2,652	1,211	212	1,229	1,369
2006		206,029	15,586	182,224	16,197	166,028	1,120	1,821	915	151	125	464	166	2,069	2,045	584	219	1,242	1,164

Appendix table 4-6

U.S. development expenditures, by performing sector and source of funds: 1953–2009

	Performer:	All performers	Federal	Industry[a]			Industry FFRDCs[b]	U&C[c]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[d]
Year	Funding source:	All sources	Federal	Total	Federal[b]	Industry[e]	Total	Total	Federal	Other government[f]	Industry	U&C	Other nonprofit	Total	Total	Federal[d]	Industry	Other nonprofit	Total
2007		214,339	16,960	188,681	13,989	174,692	1,636	1,780	860	153	128	466	173	2,342	2,119	534	226	1,358	821
2008		238,067	16,178	213,155	27,157	185,998	1,794	1,782	793	163	140	497	189	2,062	2,244	518	229	1,497	852
2009		230,713	15,847	206,467	27,737	178,729	1,792	1,756	689	172	153	535	207	1,706	2,337	524	219	1,594	808

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges

[a]Character-of-work estimates for industry revised for 1998 and later years; data are not directly comparable with data for 1997 and earlier years.
[b]Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[c]For 1998 and later years, character-of-work estimation procedure revised and adjustments made to U&C R&D to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years.
[d]Character-of-work estimates for nonprofit FFRDCs for 1953–80 not separated from federal support for other nonprofits; thus, the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[e]Industry sources of funds for industry R&D expenditures include all nonfederal sources of industry funds for R&D expenditures.
[f]Because of limitations in survey information, data on other government funding to performers other than U&C not available and consequently included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

Science and Engineering Indicators 2012

Appendix table 4-7

U.S. research and development expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[b]	U&C[c]	U&C FFRDCs	Other nonprofit[d]	Nonprofit FFRDCs[d]	Total	Industry[e]	U&C[c]	Other nonprofit	U&C[c]	Total	Other nonprofit	U&C[c]	U&C[c]
		Current $millions																	
1953		5,160	2,783	1,015	1,430	NA	149	131	58	NA	2,247	2,200	21	26	37	55	28	27	40
1954		5,617	3,098	963	1,750	NA	165	161	61	NA	2,375	2,320	24	31	40	60	31	29	45
1955		6,281	3,603	973	2,057	123	191	187	64	9	2,522	2,460	27	35	42	64	32	32	50
1956		8,500	4,978	1,130	2,995	333	221	217	71	11	3,346	3,277	32	37	46	74	38	36	57
1957		9,908	6,233	1,297	3,928	407	242	267	79	14	3,470	3,396	37	37	51	91	51	40	64
1958		10,915	6,974	1,507	4,436	323	280	316	95	18	3,707	3,630	39	38	56	107	62	45	72
1959		12,490	8,167	1,681	5,217	418	356	349	125	22	4,065	3,983	40	42	61	117	67	50	81
1960		13,711	8,915	1,801	5,604	477	453	385	148	48	4,516	4,428	40	48	67	123	68	55	90
1961		14,564	9,484	1,987	5,685	555	557	440	169	92	4,757	4,668	40	49	75	148	86	62	101
1962		15,636	10,138	2,188	6,008	426	687	500	200	130	5,124	5,029	41	54	84	179	109	70	112
1963		17,519	11,645	2,558	6,856	414	839	580	234	165	5,456	5,360	41	55	96	197	119	78	125
1964		19,103	12,764	2,965	7,257	463	995	629	250	205	5,888	5,792	41	55	114	200	112	88	138
1965		20,252	13,194	3,156	7,367	373	1,167	630	286	215	6,549	6,445	42	62	136	225	124	101	150
1966		22,072	14,165	3,308	7,977	355	1,335	652	329	210	7,331	7,216	45	70	165	252	138	114	160
1967		23,346	14,563	3,444	7,946	419	1,491	696	342	225	8,146	8,020	52	74	200	271	145	126	168
1968		24,666	14,964	3,497	8,145	415	1,586	722	364	235	9,008	8,869	58	81	221	290	151	139	185
1969		25,996	15,228	3,790	7,987	464	1,624	731	388	245	10,011	9,857	61	93	233	316	161	155	208
1970		26,271	14,984	4,154	7,306	473	1,686	727	410	230	10,449	10,288	66	95	259	343	172	171	237
1971		26,952	15,210	4,409	7,175	491	1,760	735	427	215	10,824	10,654	72	98	290	366	184	182	262
1972		28,740	16,039	4,676	7,469	548	1,890	785	472	200	11,715	11,535	79	101	312	393	198	195	282
1973		30,952	16,587	4,837	7,600	545	2,009	841	566	190	13,299	13,104	90	105	343	422	211	211	302
1974		33,359	17,287	5,132	7,572	648	2,160	926	639	210	14,885	14,667	104	114	393	474	235	239	320
1975		35,671	18,533	5,561	7,878	727	2,400	1,067	675	225	15,824	15,582	118	124	432	534	262	272	348
1976		39,435	20,292	5,890	8,671	890	2,619	1,266	711	245	17,702	17,436	131	135	480	592	292	300	369
1977		43,338	22,071	6,211	9,523	962	2,893	1,467	740	275	19,642	19,340	155	147	569	662	326	337	394
1978		48,719	24,414	6,962	10,107	1,082	3,329	1,772	830	333	22,457	22,115	182	160	679	727	363	364	443
1979		55,379	27,225	7,471	11,354	1,164	3,848	2,013	985	390	26,097	25,708	215	174	785	791	405	386	482
1980		63,224	29,986	7,831	12,752	1,277	4,335	2,306	1,017	469	30,929	30,476	264	189	920	871	452	419	519
1981		72,292	33,739	8,605	14,997	1,385	4,670	2,484	1,075	524	35,948	35,428	314	206	1,058	967	504	463	581
1982		80,748	37,133	9,501	17,061	1,484	4,879	2,544	1,129	536	40,692	40,105	363	224	1,207	1,095	561	534	621
1983		89,950	41,451	10,830	19,095	1,585	5,210	2,840	1,306	585	45,264	44,588	432	244	1,357	1,220	626	595	658
1984		102,244	46,470	11,916	21,657	1,739	5,748	3,243	1,548	620	52,187	51,404	518	265	1,514	1,351	698	654	721
1985		114,671	52,641	13,093	25,333	1,863	6,388	3,616	1,694	655	57,962	57,043	630	289	1,743	1,491	778	713	834
1986		120,249	54,622	13,504	26,000	1,891	7,028	3,973	1,686	541	60,991	59,932	745	314	2,019	1,647	867	780	969
1987		126,360	58,609	13,588	28,757	1,995	7,768	4,287	1,704	509	62,576	61,403	831	342	2,262	1,849	967	882	1,065
1988		133,881	60,131	14,342	28,221	2,122	8,593	4,581	1,762	510	67,977	66,672	933	372	2,527	2,081	1,078	1,003	1,165
1989		141,891	60,466	15,231	26,359	2,195	9,317	4,756	2,062	547	74,966	73,501	1,061	405	2,852	2,333	1,202	1,131	1,274
1990		151,993	61,610	15,671	25,802	2,323	9,939	4,894	2,346	636	83,208	81,602	1,166	440	3,187	2,589	1,340	1,249	1,399
1991		160,876	60,783	15,249	24,095	2,277	10,667	5,120	2,679	696	92,300	90,580	1,242	479	3,458	2,852	1,494	1,358	1,483

Appendix table 4-7

U.S. research and development expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[b]	U&C[c]	U&C FFRDCs	Other nonprofit[d]	Nonprofit FFRDCs[d]	Total	Industry[e]	U&C[c]	Other nonprofit	U&C[c]	Total	Other nonprofit	U&C[c]	U&C[c]
1992		165,350	60,915	15,853	22,369	2,353	11,528	5,259	2,806	748	96,229	94,388	1,320	521	3,569	3,113	1,666	1,448	1,525
1993		165,730	60,528	16,531	20,844	1,965	12,307	5,289	2,843	749	96,549	94,591	1,392	567	3,709	3,388	1,857	1,531	1,557
1994		169,207	60,777	16,355	20,261	2,202	12,996	5,294	2,911	758	99,204	97,131	1,456	617	3,938	3,665	2,071	1,595	1,623
1995		183,625	62,969	16,904	21,178	2,273	13,592	5,367	2,847	808	110,871	108,652	1,548	671	4,110	3,925	2,308	1,617	1,751
1996		197,346	63,394	16,585	21,356	2,297	14,084	5,395	2,906	772	123,417	121,015	1,672	730	4,436	4,239	2,574	1,666	1,861
1997		212,152	64,574	16,819	21,798	2,130	14,530	5,463	3,014	821	136,228	133,611	1,808	809	4,838	4,590	2,804	1,786	1,922
1998		226,457	66,383	17,362	22,086	2,078	15,174	5,559	3,281	843	147,825	145,016	1,950	859	5,163	5,114	3,192	1,922	1,972
1999		245,007	67,055	17,851	20,496	2,039	16,264	5,652	3,761	993	164,606	161,594	2,082	931	5,619	5,628	3,516	2,112	2,098
2000		267,983	66,936	18,374	17,117	2,001	17,727	5,742	4,510	1,465	186,038	182,844	2,174	1,020	6,232	6,530	4,204	2,326	2,247
2001		279,755	74,983	22,374	16,899	2,020	19,784	6,225	5,488	2,192	188,337	185,118	2,190	1,029	6,827	7,211	4,666	2,546	2,397
2002		278,744	80,056	23,798	16,401	2,263	22,395	7,102	5,778	2,319	180,625	177,467	2,160	998	7,344	8,162	5,404	2,758	2,557
2003		291,239	86,107	24,982	17,798	2,458	25,129	7,301	5,945	2,494	186,076	182,926	2,129	1,020	7,650	8,664	5,831	2,833	2,742
2004		302,503	91,656	24,898	20,266	2,485	27,168	7,659	6,537	2,644	191,266	188,035	2,190	1,041	7,936	8,761	5,816	2,945	2,883
2005		324,993	96,276	26,322	21,909	2,601	28,254	7,817	6,545	2,828	207,680	204,250	2,323	1,107	8,578	9,538	6,425	3,113	2,922
2006		350,162	100,768	28,240	24,304	3,122	28,810	7,306	6,044	2,943	227,057	223,365	2,509	1,182	9,285	10,031	6,702	3,329	3,021
2007		376,960	105,822	29,859	26,585	5,165	29,351	5,567	5,980	3,316	246,679	242,682	2,741	1,257	9,959	11,235	7,541	3,694	3,265
2008		403,040	117,611	29,839	36,360	6,346	30,341	4,766	6,236	3,724	258,626	254,321	3,004	1,301	10,707	12,578	8,498	4,080	3,518
2009		400,458	124,432	30,901	39,573	6,446	31,575	4,968	7,133	3,835	247,357	242,820	3,279	1,258	11,436	13,559	9,141	4,418	3,675
		Constant 2005 $millions																	
1953		31,931	17,219	6,281	8,849	NA	922	811	356	0	13,902	13,614	127	161	226	340	173	167	244
1954		34,437	18,995	5,902	10,730	NA	1,009	984	371	0	14,559	14,225	144	190	242	368	190	178	273
1955		37,871	21,725	5,865	12,402	742	1,152	1,127	386	51	15,206	14,832	163	211	253	386	193	193	301
1956		49,548	29,018	6,590	17,459	1,941	1,288	1,265	411	64	19,502	19,102	184	216	268	431	222	210	329
1957		55,893	35,159	7,318	22,158	2,296	1,362	1,503	443	79	19,572	19,157	206	209	288	513	288	226	361
1958		60,220	38,477	8,312	24,474	1,782	1,545	1,741	524	99	20,452	20,027	215	210	306	588	342	246	397
1959		68,106	44,535	9,167	28,448	2,279	1,939	1,903	679	120	22,164	21,719	215	229	333	635	365	270	439
1960		73,737	47,944	9,684	30,137	2,565	2,433	2,070	796	258	24,286	23,813	215	258	360	661	366	296	484
1961		77,444	50,431	10,567	30,229	2,951	2,959	2,340	899	487	25,295	24,821	213	261	396	787	457	330	534
1962		82,022	53,182	11,476	31,516	2,235	3,601	2,623	1,049	682	26,876	26,381	212	283	441	936	572	365	588
1963		90,932	60,446	13,280	35,586	2,149	4,352	3,008	1,215	856	28,317	27,821	210	285	498	1,023	618	405	649
1964		97,653	65,251	15,158	37,098	2,367	5,086	3,215	1,278	1,048	30,097	29,609	207	281	580	1,022	573	450	703
1965		101,672	66,236	15,845	36,985	1,873	5,859	3,160	1,436	1,079	32,875	32,356	208	311	683	1,127	623	505	751
1966		107,747	69,147	16,147	38,941	1,733	6,517	3,180	1,604	1,025	35,788	35,226	220	342	803	1,228	674	554	781
1967		110,576	68,974	16,314	37,635	1,985	7,059	3,296	1,620	1,066	38,580	37,985	244	350	945	1,281	687	594	796
1968		112,063	67,985	15,888	37,004	1,885	7,206	3,280	1,654	1,068	40,923	40,294	261	368	1,002	1,315	686	629	838
1969		112,544	65,928	16,409	34,578	2,009	7,029	3,165	1,678	1,061	43,339	42,674	262	403	1,009	1,368	697	671	901
1970		108,038	61,621	17,082	30,045	1,945	6,931	2,988	1,684	946	42,968	42,308	269	391	1,063	1,411	707	703	975
1971		105,561	59,573	17,268	28,102	1,923	6,891	2,877	1,670	842	42,394	41,728	282	384	1,134	1,434	721	713	1,026
1972		107,905	60,219	17,555	28,042	2,057	7,096	2,947	1,770	751	43,984	43,308	297	379	1,170	1,474	743	730	1,059
1973		110,098	59,002	17,204	27,034	1,939	7,144	2,992	2,013	676	47,304	46,612	318	373	1,220	1,499	751	749	1,072

Appendix table 4-7

U.S. research and development expenditures, by source of funds and performing sector: 1953–2009

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[b]	U&C[c]	U&C FFRDCs	Other nonprofit[d]	Nonprofit FFRDCs[d]	Total	Industry[e]	U&C[c]	Other nonprofit	U&C[c]	Total	Other nonprofit	U&C[c]	U&C[c]
1974		108,784	56,373	16,737	24,692	2,113	7,044	3,020	2,082	685	48,541	47,829	339	373	1,280	1,547	767	779	1,044
1975		106,282	55,220	16,570	23,472	2,166	7,151	3,179	2,011	670	47,148	46,426	352	370	1,286	1,592	781	810	1,037
1976		111,118	57,177	16,597	24,433	2,508	7,380	3,566	2,003	690	49,881	49,131	369	381	1,353	1,668	824	844	1,040
1977		114,802	58,467	16,454	25,226	2,548	7,662	3,887	1,961	728	52,030	51,231	409	390	1,506	1,755	864	891	1,044
1978		120,589	60,429	17,233	25,017	2,678	8,239	4,385	2,054	823	55,584	54,739	449	396	1,681	1,799	900	900	1,097
1979		126,549	62,213	17,073	25,946	2,660	8,793	4,599	2,251	891	59,635	58,747	490	398	1,794	1,807	926	881	1,100
1980		132,407	62,799	16,399	26,706	2,674	9,078	4,829	2,130	982	64,773	63,825	552	397	1,926	1,824	946	877	1,086
1981		138,425	64,603	16,476	28,716	2,652	8,941	4,757	2,058	1,003	68,834	67,838	601	395	2,025	1,851	964	887	1,112
1982		145,722	67,013	17,146	30,789	2,678	8,804	4,590	2,038	967	73,435	72,376	655	405	2,177	1,976	1,013	963	1,121
1983		156,156	71,960	18,800	33,150	2,752	9,045	4,931	2,266	1,016	78,580	77,406	750	424	2,355	2,119	1,087	1,032	1,142
1984		171,072	77,753	19,937	36,236	2,910	9,617	5,427	2,590	1,038	87,318	86,008	866	444	2,533	2,261	1,168	1,093	1,206
1985		186,227	85,490	21,263	41,141	3,026	10,374	5,872	2,751	1,063	94,131	92,639	1,023	469	2,831	2,422	1,264	1,158	1,354
1986		191,059	86,788	21,457	41,311	3,005	11,166	6,312	2,678	860	96,907	95,224	1,184	499	3,207	2,618	1,378	1,239	1,540
1987		195,108	90,497	20,981	44,403	3,080	11,994	6,620	2,632	786	96,621	94,810	1,283	528	3,493	2,854	1,493	1,361	1,644
1988		199,858	89,764	21,410	42,128	3,168	12,828	6,838	2,631	761	101,476	99,528	1,393	555	3,772	3,107	1,610	1,497	1,739
1989		204,107	86,979	21,909	37,917	3,157	13,402	6,841	2,966	787	107,837	105,730	1,526	582	4,103	3,356	1,729	1,627	1,833
1990		210,515	85,332	21,705	35,737	3,217	13,766	6,778	3,249	881	115,246	113,022	1,614	610	4,413	3,586	1,856	1,730	1,938
1991		215,189	81,304	20,398	32,230	3,046	14,268	6,849	3,583	931	123,462	121,161	1,661	641	4,625	3,815	1,999	1,816	1,983
1992		216,053	79,593	20,714	29,228	3,075	15,062	6,872	3,666	977	125,736	123,331	1,724	681	4,663	4,068	2,177	1,891	1,993
1993		211,865	77,377	21,132	26,646	2,512	15,733	6,761	3,635	958	123,426	120,922	1,779	725	4,741	4,331	2,374	1,957	1,990
1994		211,847	76,093	20,477	25,367	2,757	16,270	6,628	3,645	949	124,204	121,608	1,823	772	4,930	4,589	2,592	1,996	2,031
1995		225,206	77,228	20,731	25,974	2,788	16,670	6,583	3,492	991	135,976	133,255	1,898	823	5,041	4,814	2,831	1,983	2,148
1996		237,513	76,297	19,960	25,703	2,765	16,951	6,493	3,497	929	148,536	145,646	2,012	879	5,338	5,102	3,097	2,004	2,240
1997		250,901	76,368	19,891	25,779	2,519	17,183	6,461	3,565	971	161,109	158,015	2,138	956	5,722	5,428	3,316	2,113	2,273
1998		264,829	77,632	20,304	25,828	2,430	17,745	6,501	3,837	986	172,873	169,588	2,280	1,005	6,038	5,981	3,733	2,247	2,306
1999		282,368	77,280	20,573	23,621	2,350	18,744	6,514	4,334	1,144	189,707	186,235	2,399	1,073	6,476	6,486	4,052	2,434	2,418
2000		302,045	75,444	20,710	19,293	2,255	19,980	6,472	5,083	1,651	209,685	206,085	2,450	1,149	7,024	7,361	4,739	2,622	2,532
2001		308,347	82,647	24,661	18,626	2,227	21,806	6,862	6,049	2,416	207,586	204,038	2,414	1,134	7,525	7,948	5,142	2,806	2,642
2002		302,337	86,832	25,812	17,789	2,455	24,291	7,703	6,267	2,515	195,914	192,488	2,343	1,083	7,965	8,853	5,861	2,992	2,774
2003		309,385	91,472	26,539	18,907	2,611	26,695	7,756	6,315	2,649	197,669	194,323	2,262	1,084	8,127	9,204	6,194	3,009	2,913
2004		312,548	94,700	25,724	20,939	2,568	28,070	7,913	6,754	2,732	197,617	194,279	2,262	1,076	8,200	9,052	6,009	3,043	2,979
2005		324,993	96,276	26,322	21,909	2,601	28,254	7,817	6,545	2,828	207,680	204,250	2,323	1,107	8,578	9,538	6,425	3,113	2,922
2006		339,202	97,614	27,356	23,543	3,024	27,908	7,078	5,854	2,851	219,950	216,374	2,431	1,145	8,995	9,717	6,492	3,225	2,926

Appendix table 4-7

U.S. research and development expenditures, by source of funds and performing sector: 1953–2009

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[b]	U&C[c]	U&C FFRDCs	Other nonprofit[d]	Nonprofit FFRDCs[d]	Total	Industry[e]	U&C[c]	Other nonprofit	U&C[c]	Total	Other nonprofit	U&C[c]	U&C[c]
2007		354,864	99,619	28,109	25,027	4,862	27,631	5,241	5,629	3,121	232,220	228,457	2,580	1,183	9,375	10,576	7,099	3,478	3,074
2008		371,184	108,315	27,480	33,486	5,844	27,943	4,389	5,743	3,429	238,184	234,219	2,767	1,198	9,861	11,584	7,827	3,757	3,240
2009		364,951	113,399	28,161	36,064	5,875	28,775	4,528	6,501	3,495	225,425	221,290	2,988	1,146	10,422	12,356	8,330	4,026	3,349

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges

[a]Because of limitations in survey information, data on other government funding to performers other than U&C not available and consequently included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.
[b]Federal support for industry in 1953–54 did not separate federal support for industry and for industry FFRDCs; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[c]Adjustments made to U&C R&D for 1998 and later years to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years are not directly comparable with data for 1997 and earlier years. For FY 1998, $479 million in total passthrough funds and $421 million in federal passthrough funds reported. For FY 2009, $1,873 million in total passthrough funds and $1,660 million in federal passthrough funds estimated.
[d]Federal support for nonprofit FFRDCs in 1953–54 did not separate federal support for other nonprofits and for nonprofit FFRDCs; thus, the figures for federal support to other nonprofit institutions include support to FFRDCs for those years.
[e]Industry sources of funding for industry R&D expenditures include all nonfederal sources of funding for industry R&D expenditures.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-8

U.S. basic research expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
		Current $millions																	
1953		460	265	102	19	NA	82	36	27	NA	154	132	13	9	6	28	12	16	7
1954		509	291	96	23	NA	97	44	31	NA	169	143	15	11	8	31	13	18	10
1955		579	327	98	27	NA	117	50	36	NA	192	162	17	13	12	35	14	21	14
1956		718	393	114	37	NA	143	58	42	NA	251	216	20	15	15	41	17	24	19
1957		814	452	124	41	NA	167	72	49	NA	268	230	23	15	20	50	23	27	25
1958		944	538	149	43	NA	202	85	59	NA	292	252	24	16	24	59	28	31	31
1959		1,087	666	165	72	NA	263	95	72	NA	290	248	24	18	28	66	30	36	38
1960		1,286	794	184	79	NA	341	106	85	NA	343	297	25	21	33	71	30	41	45
1961		1,512	973	230	81	NA	432	126	105	NA	361	314	25	22	40	85	37	48	54
1962		1,824	1,218	252	143	NA	546	148	130	NA	394	345	25	24	48	101	46	55	64
1963		2,115	1,446	285	147	NA	689	175	150	NA	425	375	25	25	58	113	50	63	75
1964		2,396	1,693	339	123	42	824	200	166	NA	434	384	25	25	70	115	47	68	84
1965		2,664	1,900	375	157	29	944	218	179	NA	462	406	27	29	86	122	52	70	94
1966		2,930	2,075	410	142	31	1,066	239	188	NA	512	451	29	32	106	133	58	75	104
1967		3,168	2,280	434	168	34	1,188	263	194	NA	495	427	34	34	136	144	61	83	114
1968		3,376	2,399	482	145	35	1,265	276	196	NA	537	462	38	37	156	154	63	91	131
1969		3,491	2,457	545	123	37	1,288	272	192	NA	541	458	40	43	171	170	67	103	153
1970		3,594	2,501	562	122	36	1,323	265	195	NA	531	444	43	44	196	187	72	115	179
1971		3,720	2,559	581	101	33	1,385	252	207	NA	551	456	50	45	214	204	77	127	194
1972		3,850	2,656	603	91	39	1,437	270	216	NA	565	463	55	47	216	218	84	134	195
1973		4,099	2,847	652	96	36	1,489	343	232	NA	607	499	59	49	223	227	90	137	196
1974		4,511	3,146	715	114	49	1,609	415	245	NA	656	536	66	54	250	254	102	153	204
1975		4,875	3,415	760	104	53	1,768	476	255	NA	704	573	72	59	264	280	116	164	212
1976		5,373	3,793	850	116	69	1,924	556	278	NA	774	634	75	65	283	305	131	175	218
1977		6,008	4,235	943	135	75	2,114	667	301	NA	862	701	89	72	334	346	148	198	232
1978		6,959	4,950	1,044	156	94	2,399	906	351	NA	970	785	107	79	398	380	168	213	260
1979		7,836	5,558	1,112	161	104	2,719	1,050	413	NA	1,107	893	128	87	466	419	190	229	286
1980		8,745	6,145	1,212	170	120	3,061	1,167	416	NA	1,286	1,035	156	95	544	463	215	248	307
1981		9,658	6,591	1,343	164	137	3,331	1,284	324	9	1,600	1,313	183	105	615	512	243	269	338
1982		10,651	7,121	1,522	253	128	3,475	1,366	369	9	1,854	1,523	215	115	716	591	275	317	368
1983		11,880	7,853	1,733	346	117	3,689	1,536	426	8	2,146	1,760	260	127	816	668	311	358	396
1984		13,332	8,651	1,877	340	136	4,087	1,709	494	9	2,584	2,132	313	139	915	746	351	395	436
1985		14,748	9,407	1,947	358	131	4,606	1,793	560	13	2,915	2,373	389	153	1,075	837	397	440	514
1986		17,154	10,220	2,026	434	117	5,122	1,915	594	13	4,130	3,496	466	168	1,262	936	449	488	606
1987		18,481	11,090	2,047	598	142	5,527	2,086	675	14	4,282	3,583	514	185	1,399	1,052	507	545	659
1988		19,787	12,097	2,116	656	337	5,937	2,272	756	24	4,275	3,507	565	203	1,530	1,180	573	607	705
1989		21,891	13,392	2,309	986	398	6,422	2,371	860	46	4,692	3,832	637	223	1,714	1,327	647	680	766
1990		23,029	14,057	2,319	869	499	6,889	2,470	947	65	4,710	3,760	705	245	1,929	1,486	730	756	847
1991		27,140	15,283	2,378	1,251	461	7,423	2,657	1,036	77	7,157	6,125	764	269	2,127	1,660	825	836	912

Appendix table 4-8

U.S. basic research expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
1992		27,604	15,710	2,419	712	474	8,058	2,867	1,114	67	6,925	5,816	814	295	2,203	1,824	931	893	941
1993		28,743	16,399	2,621	466	492	8,638	2,953	1,157	72	7,136	5,961	851	324	2,268	1,987	1,051	936	952
1994		29,651	16,770	2,547	436	503	9,139	2,934	1,137	75	7,323	6,078	890	356	2,406	2,160	1,186	974	992
1995		29,610	16,990	2,689	190	530	9,634	2,702	1,170	75	6,715	5,379	945	390	2,511	2,326	1,338	987	1,070
1996		32,799	18,063	2,680	650	708	10,092	2,606	1,248	79	8,309	6,848	1,032	428	2,740	2,539	1,510	1,028	1,149
1997		36,921	19,420	2,746	1,029	625	10,924	2,671	1,317	108	10,390	8,766	1,175	449	3,144	2,718	1,557	1,162	1,248
1998		35,372	20,847	3,003	1,002	568	11,941	2,660	1,461	213	6,643	4,851	1,315	477	3,483	3,069	1,773	1,296	1,330
1999		38,935	22,799	3,347	1,108	557	12,892	2,765	1,734	397	7,474	5,537	1,421	517	3,835	3,394	1,952	1,442	1,432
2000		42,759	24,791	3,765	925	547	13,966	2,874	2,099	616	8,181	6,115	1,499	566	4,298	3,939	2,334	1,604	1,550
2001		47,751	27,603	4,260	754	552	15,553	3,104	2,464	915	9,390	7,299	1,519	571	4,737	4,357	2,590	1,767	1,663
2002		51,383	30,924	4,511	888	534	17,724	3,714	2,575	979	8,707	6,659	1,494	554	5,077	4,907	3,000	1,907	1,768
2003		54,611	33,497	4,664	1,386	299	19,658	3,747	2,714	1,029	8,948	6,944	1,438	567	5,165	5,150	3,238	1,913	1,850
2004		56,092	34,683	4,697	1,072	175	21,150	3,730	2,788	1,070	8,829	6,763	1,488	578	5,392	5,231	3,229	2,001	1,958
2005		59,686	36,103	4,770	1,108	136	22,186	3,820	2,903	1,181	9,798	7,559	1,624	614	5,999	5,744	3,568	2,177	2,042
2006		61,199	36,936	4,716	1,444	652	22,690	3,344	2,849	1,242	9,387	6,940	1,791	656	6,624	6,097	3,721	2,376	2,155
2007		66,206	38,605	4,621	2,780	2,258	23,043	1,724	2,829	1,350	11,169	8,488	1,983	698	7,207	6,861	4,187	2,674	2,363
2008		70,220	38,547	4,957	1,475	2,423	23,500	1,672	3,073	1,447	13,777	10,893	2,162	722	7,708	7,655	4,719	2,937	2,533
2009		75,969	40,451	5,507	1,340	2,550	24,242	1,808	3,496	1,508	16,486	13,444	2,344	698	8,173	8,233	5,075	3,158	2,627
		Constant 2005 $millions																	
1953		2,843	1,640	628	118	NA	504	223	167	NA	953	817	80	56	37	173	74	99	40
1954		3,118	1,781	589	141	NA	592	270	190	NA	1,036	877	92	67	52	190	80	110	59
1955		3,491	1,972	588	163	NA	702	301	217	NA	1,158	977	102	78	70	208	84	124	84
1956		4,185	2,288	662	216	NA	831	338	242	NA	1,460	1,259	114	87	90	236	99	137	111
1957		4,589	2,547	699	231	NA	939	403	274	NA	1,509	1,297	127	85	111	282	130	152	140
1958		5,205	2,965	822	237	NA	1,114	469	323	NA	1,611	1,390	132	88	132	326	154	171	171
1959		5,927	3,629	897	393	NA	1,431	515	393	NA	1,581	1,352	131	98	155	357	164	194	205
1960		6,916	4,270	987	425	NA	1,831	570	457	NA	1,842	1,597	132	113	180	382	161	220	242
1961		8,037	5,171	1,220	431	NA	2,294	667	558	NA	1,920	1,670	133	117	212	449	197	253	285
1962		9,568	6,389	1,322	750	NA	2,862	774	682	NA	2,067	1,810	131	126	251	527	241	286	334
1963		10,978	7,503	1,477	763	NA	3,576	908	779	NA	2,203	1,946	127	130	299	584	260	324	389
1964		12,248	8,655	1,733	629	215	4,210	1,020	849	NA	2,219	1,963	128	128	356	588	240	348	431
1965		13,374	9,539	1,880	788	146	4,737	1,092	896	NA	2,317	2,038	133	146	432	612	261	351	474
1966		14,303	10,129	2,001	693	151	5,204	1,164	915	NA	2,499	2,202	142	156	520	649	283	366	505
1967		15,002	10,796	2,053	796	161	5,624	1,246	916	NA	2,342	2,022	159	161	642	682	289	393	539
1968		15,338	10,897	2,190	659	159	5,747	1,252	890	NA	2,437	2,099	170	168	710	700	286	413	594
1969		15,112	10,636	2,360	533	160	5,574	1,178	831	NA	2,340	1,983	171	186	741	734	290	444	662
1970		14,780	10,287	2,311	502	148	5,439	1,088	800	NA	2,184	1,826	177	181	805	767	296	471	738
1971		14,571	10,022	2,276	396	129	5,423	987	811	NA	2,156	1,786	194	176	838	797	302	495	758
1972		14,455	9,970	2,262	342	146	5,395	1,014	811	NA	2,121	1,738	206	176	811	818	315	503	734
1973		14,582	10,127	2,319	341	128	5,295	1,220	823	NA	2,157	1,775	208	174	794	806	320	486	698

Appendix table 4-8

U.S. basic research expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
1974		14,709	10,260	2,331	372	160	5,247	1,352	799	NA	2,139	1,748	215	176	816	830	333	497	665
1975		14,524	10,176	2,264	310	158	5,268	1,417	760	NA	2,097	1,707	213	177	785	833	344	489	633
1976		15,140	10,687	2,395	327	194	5,421	1,567	782	NA	2,182	1,786	211	184	798	860	369	492	613
1977		15,916	11,218	2,498	358	199	5,600	1,766	798	NA	2,283	1,857	236	190	885	916	392	523	614
1978		17,224	12,253	2,585	386	233	5,938	2,242	869	NA	2,402	1,943	264	195	986	941	415	526	643
1979		17,907	12,702	2,542	368	238	6,213	2,398	943	NA	2,530	2,041	291	198	1,065	957	434	523	653
1980		18,314	12,869	2,539	356	251	6,409	2,443	871	NA	2,694	2,168	326	200	1,139	969	450	519	643
1981		18,492	12,621	2,571	314	262	6,378	2,459	620	17	3,065	2,514	350	201	1,178	981	465	516	647
1982		19,221	12,851	2,746	457	231	6,270	2,466	666	16	3,345	2,748	389	208	1,293	1,067	496	572	664
1983		20,624	13,634	3,008	601	203	6,403	2,666	739	14	3,726	3,055	451	220	1,417	1,160	539	621	687
1984		22,306	14,475	3,140	569	228	6,837	2,859	827	15	4,323	3,567	523	233	1,531	1,248	588	661	729
1985		23,951	15,277	3,162	581	213	7,479	2,911	909	20	4,734	3,854	632	248	1,747	1,359	645	714	835
1986		27,255	16,238	3,219	690	186	8,137	3,043	943	21	6,562	5,555	740	267	2,005	1,487	713	775	962
1987		28,536	17,123	3,161	923	219	8,533	3,221	1,043	22	6,611	5,532	794	285	2,161	1,624	783	842	1,017
1988		29,538	18,059	3,159	979	503	8,862	3,391	1,129	36	6,381	5,235	843	303	2,284	1,761	855	906	1,053
1989		31,489	19,265	3,321	1,418	573	9,238	3,411	1,237	67	6,749	5,512	917	320	2,466	1,908	930	978	1,101
1990		31,896	19,469	3,212	1,204	691	9,541	3,421	1,312	89	6,524	5,208	977	339	2,672	2,059	1,012	1,047	1,173
1991		36,302	20,443	3,181	1,673	617	9,929	3,554	1,386	103	9,574	8,193	1,022	359	2,845	2,221	1,103	1,118	1,220
1992		36,068	20,528	3,160	930	619	10,529	3,746	1,456	87	9,049	7,599	1,064	385	2,878	2,384	1,217	1,167	1,230
1993		36,744	20,964	3,350	596	629	11,043	3,775	1,479	92	9,122	7,620	1,088	414	2,900	2,540	1,343	1,197	1,218
1994		37,123	20,996	3,189	546	630	11,441	3,673	1,423	93	9,169	7,610	1,114	445	3,013	2,705	1,485	1,220	1,241
1995		36,315	20,837	3,298	233	650	11,815	3,313	1,435	93	8,235	6,597	1,159	479	3,079	2,853	1,642	1,211	1,312
1996		39,475	21,739	3,225	782	852	12,146	3,136	1,502	95	10,000	8,242	1,242	516	3,297	3,055	1,817	1,238	1,383
1997		43,664	22,967	3,247	1,217	739	12,920	3,159	1,557	127	12,288	10,367	1,390	531	3,718	3,215	1,841	1,374	1,476
1998		41,366	24,380	3,511	1,172	664	13,964	3,111	1,708	249	7,769	5,673	1,538	558	4,073	3,589	2,073	1,516	1,556
1999		44,872	26,276	3,857	1,276	642	14,858	3,186	1,998	457	8,614	6,381	1,637	596	4,420	3,911	2,250	1,662	1,650
2000		48,193	27,943	4,243	1,043	616	15,741	3,239	2,366	694	9,221	6,892	1,690	638	4,844	4,439	2,631	1,808	1,746
2001		52,631	30,424	4,696	831	609	17,143	3,421	2,716	1,009	10,349	8,045	1,675	630	5,222	4,803	2,855	1,947	1,833
2002		55,732	33,542	4,892	963	580	19,224	4,028	2,793	1,062	9,444	7,223	1,620	601	5,507	5,323	3,254	2,068	1,918
2003		58,014	35,584	4,955	1,472	318	20,883	3,980	2,884	1,093	9,506	7,377	1,527	602	5,487	5,471	3,439	2,032	1,965
2004		57,954	35,835	4,853	1,108	181	21,853	3,854	2,881	1,106	9,122	6,988	1,537	597	5,571	5,404	3,337	2,068	2,023
2005		59,686	36,103	4,770	1,108	136	22,186	3,820	2,903	1,181	9,798	7,559	1,624	614	5,999	5,744	3,568	2,177	2,042
2006		59,284	35,780	4,568	1,399	632	21,979	3,239	2,760	1,203	9,093	6,723	1,735	636	6,417	5,906	3,605	2,301	2,087

Appendix table 4-8

U.S. basic research expenditures, by source of funds and performing sector: 1953–2009

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
2007		62,325	36,342	4,350	2,617	2,126	21,692	1,623	2,663	1,271	10,514	7,990	1,867	657	6,785	6,459	3,941	2,517	2,225
2008		64,670	35,500	4,565	1,358	2,231	21,643	1,540	2,830	1,332	12,688	10,032	1,991	665	7,099	7,050	4,346	2,705	2,333
2009		69,234	36,864	5,019	1,221	2,324	22,093	1,647	3,186	1,375	15,024	12,252	2,136	636	7,448	7,503	4,625	2,878	2,394

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges

[a]Because of limitations in survey information, data on other government funding to performers other than U&C not available and consequently are included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.
[b]Character-of-work estimates for industry revised for 1998 and later years; data are not directly comparable with data for 1997 and earlier years. Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, figure for federal support to industry includes support to FFRDCs for those years.
[c]Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[d]For 1998 and later years, character-of-work estimation procedure revised and adjustments made to U&C R&D to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years.
[e]Character-of-work estimates for nonprofit FFRDCs for 1953–80 not separated from federal support for other nonprofits; thus, the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[f]Industry sources of funds for industry R&D expenditures include all nonfederal sources of funds for industry R&D expenditures. Character-of-work estimates for industry revised for 1998 and later years; data not directly comparable with data for 1997 and earlier years.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-9

U.S. applied research expenditures, by source of funds and performing sectors: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
		Current $millions																	
1953		1,289	756	347	288	NA	59	48	14	NA	456	438	7	11	28	20	10	10	30
1954		1,378	785	330	322	NA	60	58	16	NA	513	492	8	13	28	21	11	10	32
1955		1,514	850	333	368	NA	63	68	18	NA	583	560	9	14	27	22	11	11	32
1956		1,928	1,025	387	474	NA	65	79	21	NA	818	794	10	14	27	25	14	11	33
1957		2,414	1,304	446	678	NA	63	94	24	NA	1,018	992	12	14	27	31	20	11	34
1958		2,758	1,496	516	774	NA	66	111	30	NA	1,163	1,137	12	14	27	37	25	12	35
1959		2,940	1,630	577	813	NA	78	121	43	NA	1,206	1,178	13	15	28	39	27	12	37
1960		3,065	1,732	615	833	NA	93	129	63	NA	1,226	1,196	13	17	29	40	28	12	39
1961		3,123	1,811	668	812	NA	104	145	83	NA	1,195	1,165	13	17	30	48	35	13	40
1962		3,698	2,098	709	1,011	NA	119	163	98	NA	1,471	1,438	14	19	30	58	45	13	41
1963		3,865	2,245	809	1,007	NA	128	186	115	NA	1,483	1,450	14	19	32	63	49	14	42
1964		4,201	2,462	947	978	62	142	203	130	NA	1,593	1,560	14	19	37	65	47	18	45
1965		4,374	2,553	994	992	46	176	206	140	NA	1,654	1,620	13	21	42	79	52	27	46
1966		4,653	2,625	1,012	986	53	208	213	153	NA	1,842	1,804	14	24	48	91	57	34	47
1967		4,848	2,763	1,069	983	83	238	225	166	NA	1,890	1,849	16	25	54	96	60	36	46
1968		5,137	2,811	1,112	956	87	250	221	186	NA	2,125	2,081	16	28	55	101	62	39	46
1969		5,454	2,924	1,229	920	95	257	213	210	NA	2,320	2,272	16	32	54	109	66	43	48
1970		5,752	3,100	1,334	952	97	280	213	225	NA	2,429	2,378	18	33	56	117	70	47	51
1971		5,833	3,091	1,355	907	67	306	216	241	NA	2,494	2,441	19	34	67	121	74	47	61
1972		6,147	3,243	1,434	845	107	391	224	243	NA	2,618	2,562	21	35	82	131	79	52	74
1973		6,655	3,429	1,527	883	110	450	203	257	NA	2,894	2,832	26	36	100	145	83	62	88
1974		7,344	3,634	1,652	905	120	477	191	290	NA	3,333	3,263	32	39	118	163	91	72	96
1975		8,091	4,125	1,912	991	139	550	219	315	NA	3,520	3,440	39	42	141	192	100	92	113
1976		8,976	4,464	2,068	1,033	167	596	263	338	NA	4,001	3,912	45	45	166	218	109	109	127
1977		9,662	4,683	2,081	1,113	212	626	297	355	NA	4,410	4,311	51	48	194	241	120	121	134
1978		10,704	5,080	2,242	1,195	235	676	324	409	NA	4,982	4,870	61	52	232	259	132	128	151
1979		12,097	5,602	2,415	1,305	250	793	360	480	NA	5,797	5,670	71	55	263	273	144	129	161
1980		13,714	6,237	2,546	1,625	275	912	421	458	NA	6,698	6,550	88	60	308	298	158	140	174
1981		16,329	6,905	2,731	2,042	298	953	422	391	68	8,531	8,359	108	64	363	332	173	159	199
1982		18,218	7,689	2,802	2,593	367	1,007	433	398	91	9,553	9,363	121	69	402	367	189	178	207
1983		20,298	8,738	2,991	3,227	414	1,122	473	433	78	10,501	10,286	141	74	443	401	207	194	215
1984		22,451	9,499	2,961	3,677	547	1,226	548	459	80	11,788	11,541	168	79	491	438	226	212	234
1985		25,401	10,930	3,135	4,717	630	1,296	580	490	82	13,191	12,908	198	85	547	471	247	224	262
1986		27,240	10,409	3,204	4,049	629	1,393	554	506	75	15,402	15,082	229	91	620	510	270	240	298
1987		27,951	10,829	3,366	4,037	623	1,643	532	555	74	15,511	15,153	260	98	707	571	295	276	333
1988		29,528	10,749	3,362	3,846	371	1,958	547	599	66	16,938	16,531	302	105	818	647	322	325	377
1989		32,277	11,753	3,566	4,324	374	2,121	603	695	70	18,452	17,993	347	112	933	722	352	370	417
1990		34,897	13,695	3,652	5,967	386	2,140	689	780	81	18,930	18,432	377	120	1,031	788	384	404	453
1991		38,631	14,280	4,093	5,588	433	2,232	927	921	86	21,946	21,425	392	129	1,091	847	419	428	468

Appendix table 4-9

U.S. applied research expenditures, by source of funds and performing sectors: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
1992		37,936	13,690	4,337	4,476	507	2,415	940	933	81	21,736	21,184	414	138	1,120	911	456	454	479
1993		37,283	14,075	4,838	4,295	435	2,542	962	900	103	20,547	19,956	443	148	1,181	984	497	487	496
1994		36,618	13,800	4,985	3,616	503	2,644	982	960	111	19,995	19,372	464	158	1,256	1,049	541	509	517
1995		40,936	13,543	4,952	3,164	535	2,779	1,050	934	129	24,418	23,755	494	170	1,311	1,104	589	516	559
1996		43,170	13,958	4,872	3,640	231	2,864	1,270	960	122	26,076	25,370	524	182	1,390	1,162	640	522	584
1997		46,554	12,884	4,997	2,648	213	2,550	1,337	1,011	128	30,506	29,782	519	205	1,389	1,223	711	512	553
1998		46,362	12,822	5,146	2,632	230	2,260	1,372	1,060	123	30,314	29,576	520	218	1,378	1,322	809	513	526
1999		52,007	13,959	5,530	2,817	274	2,661	1,247	1,300	130	34,599	33,821	542	236	1,463	1,441	891	550	546
2000		56,685	15,565	6,105	2,682	269	3,196	1,291	1,831	190	37,306	36,494	553	258	1,585	1,657	1,066	592	572
2001		64,188	18,832	7,052	3,603	821	3,558	1,405	2,150	244	41,220	40,409	550	261	1,713	1,821	1,182	639	602
2002		50,688	19,235	7,487	2,452	1,090	4,010	1,663	2,267	266	26,880	26,081	546	253	1,859	2,067	1,369	698	647
2003		61,135	22,447	7,672	4,473	1,413	4,553	1,600	2,487	249	33,687	32,861	567	259	2,038	2,232	1,478	755	731
2004		69,183	22,594	7,455	4,775	1,459	4,781	1,481	2,448	194	41,496	40,657	576	264	2,087	2,248	1,474	774	759
2005		69,588	23,507	7,557	5,289	1,414	4,900	1,637	2,432	278	40,848	39,995	573	280	2,115	2,396	1,628	768	721
2006		76,277	24,983	7,435	6,140	1,314	5,176	1,827	2,592	500	45,922	45,033	589	300	2,182	2,481	1,699	782	710
2007		83,069	27,761	7,222	8,945	1,168	5,396	1,354	2,583	1,094	49,564	48,625	621	318	2,256	2,748	1,911	837	740
2008		74,321	25,475	7,316	5,397	1,975	5,980	855	2,600	1,352	42,487	41,467	690	330	2,460	3,091	2,154	937	808
2009		71,328	30,100	8,006	7,797	1,930	6,577	1,289	3,062	1,440	34,344	33,258	767	319	2,675	3,350	2,317	1,033	860
		Constant 2005 $millions																	
1953		7,977	4,675	2,147	1,782	NA	365	294	87	NA	2,819	2,710	40	68	172	124	62	62	186
1954		8,449	4,813	2,020	1,974	NA	365	356	98	NA	3,142	3,017	46	80	172	129	67	61	193
1955		9,125	5,125	2,008	2,219	NA	380	410	109	NA	3,512	3,376	51	84	164	130	66	63	195
1956		11,236	5,972	2,253	2,763	NA	379	458	119	NA	4,768	4,628	58	82	157	146	82	64	193
1957		13,615	7,356	2,513	3,825	NA	355	530	133	NA	5,740	5,596	65	79	153	175	113	62	191
1958		15,216	8,254	2,847	4,270	NA	361	610	166	NA	6,416	6,273	66	77	150	201	138	63	195
1959		16,029	8,888	3,144	4,433	NA	423	657	232	NA	6,574	6,424	68	82	153	213	147	65	202
1960		16,483	9,312	3,305	4,480	NA	500	691	336	NA	6,593	6,432	70	91	155	215	151	65	208
1961		16,606	9,630	3,552	4,318	NA	550	771	439	NA	6,354	6,195	69	90	157	253	186	66	212
1962		19,396	11,005	3,717	5,303	NA	622	852	511	NA	7,714	7,543	71	100	160	304	236	68	213
1963		20,059	11,650	4,199	5,227	NA	662	965	597	NA	7,698	7,526	73	99	168	324	254	70	219
1964		21,475	12,583	4,838	5,000	317	726	1,038	665	NA	8,141	7,975	69	97	191	330	240	89	231
1965		21,956	12,814	4,988	4,980	231	881	1,032	703	NA	8,304	8,133	65	105	211	394	261	133	233
1966		22,712	12,812	4,940	4,813	259	1,015	1,040	744	NA	8,992	8,807	68	117	236	442	278	164	230
1967		22,962	13,086	5,061	4,656	393	1,125	1,066	786	NA	8,949	8,757	73	118	255	455	284	171	216
1968		23,338	12,769	5,050	4,343	395	1,134	1,002	845	NA	9,654	9,454	73	127	250	457	282	175	209
1969		23,613	12,658	5,322	3,983	411	1,110	922	909	NA	10,044	9,836	69	139	233	470	286	184	208
1970		23,656	12,750	5,486	3,915	399	1,149	876	925	NA	9,987	9,779	72	136	230	479	288	191	210
1971		22,846	12,106	5,307	3,552	262	1,199	844	942	NA	9,766	9,561	72	133	262	474	290	184	237
1972		23,079	12,176	5,384	3,173	402	1,466	841	910	NA	9,827	9,619	77	131	307	490	297	193	279
1973		23,674	12,199	5,433	3,141	391	1,599	720	914	NA	10,294	10,074	92	128	355	514	295	219	312

Appendix table 4-9

U.S. applied research expenditures, by source of funds and performing sectors: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
1974		23,949	11,851	5,388	2,951	391	1,554	621	946	NA	10,870	10,641	103	126	384	530	297	233	313
1975		24,107	12,291	5,696	2,953	414	1,637	653	939	NA	10,488	10,249	115	124	419	572	298	274	338
1976		25,294	12,578	5,828	2,911	471	1,678	740	951	NA	11,274	11,023	125	126	467	616	309	307	359
1977		25,595	12,406	5,511	2,948	562	1,657	787	940	NA	11,682	11,420	135	127	514	637	318	319	356
1978		26,495	12,575	5,549	2,958	582	1,673	802	1,012	NA	12,332	12,054	150	128	574	641	326	316	374
1979		27,643	12,802	5,519	2,982	571	1,811	822	1,097	NA	13,247	12,957	163	127	601	624	329	295	369
1980		28,722	13,062	5,332	3,403	576	1,910	881	959	NA	14,027	13,717	185	125	645	624	330	294	364
1981		31,267	13,222	5,230	3,910	571	1,824	808	749	130	16,334	16,006	206	122	694	635	331	304	381
1982		32,877	13,876	5,056	4,679	662	1,816	781	718	164	17,239	16,897	218	124	725	662	341	321	374
1983		35,238	15,170	5,193	5,602	719	1,948	822	751	135	18,230	17,857	245	128	769	696	359	337	373
1984		37,564	15,894	4,954	6,152	915	2,052	918	768	135	19,723	19,310	281	132	822	733	379	355	392
1985		41,251	17,750	5,091	7,660	1,023	2,106	941	795	133	21,422	20,963	321	138	889	766	402	364	425
1986		43,280	16,539	5,091	6,433	999	2,213	880	803	120	24,472	23,963	364	145	986	810	429	381	473
1987		43,158	16,721	5,197	6,233	962	2,537	821	857	114	23,949	23,397	401	151	1,092	882	456	426	514
1988		44,079	16,045	5,019	5,741	554	2,923	816	894	98	25,285	24,678	451	156	1,221	966	481	485	563
1989		46,430	16,907	5,130	6,220	538	3,051	867	999	101	26,543	25,883	499	161	1,342	1,038	506	532	600
1990		48,333	18,968	5,058	8,265	535	2,965	954	1,080	113	26,218	25,529	522	167	1,428	1,092	532	560	627
1991		51,674	19,101	5,475	7,475	579	2,985	1,239	1,232	115	29,355	28,658	524	172	1,459	1,133	560	573	626
1992		49,568	17,888	5,667	5,849	662	3,155	1,229	1,220	106	28,402	27,680	541	180	1,463	1,190	596	594	626
1993		47,661	17,992	6,185	5,491	556	3,249	1,230	1,150	131	26,267	25,511	566	189	1,510	1,258	635	623	634
1994		45,845	17,278	6,242	4,527	630	3,310	1,229	1,201	139	25,034	24,254	581	198	1,572	1,314	677	637	648
1995		50,206	16,610	6,074	3,880	656	3,408	1,288	1,145	158	29,948	29,134	606	208	1,608	1,354	722	633	685
1996		51,957	16,799	5,864	4,381	278	3,446	1,528	1,155	147	31,383	30,534	631	219	1,673	1,399	770	629	703
1997		55,058	15,238	5,909	3,132	252	3,016	1,582	1,196	152	36,077	35,222	613	242	1,643	1,446	840	606	654
1998		54,218	14,995	6,017	3,078	269	2,642	1,604	1,240	144	35,450	34,587	608	255	1,611	1,546	946	600	615
1999		59,938	16,087	6,373	3,247	316	3,067	1,437	1,498	149	39,875	38,978	625	272	1,686	1,660	1,027	634	630
2000		63,890	17,543	6,881	3,023	303	3,603	1,456	2,064	214	42,047	41,133	624	291	1,787	1,868	1,201	667	644
2001		70,748	20,757	7,773	3,971	905	3,921	1,548	2,370	268	45,432	44,539	606	287	1,888	2,007	1,303	704	663
2002		54,979	20,863	8,121	2,660	1,183	4,349	1,804	2,458	288	29,156	28,289	593	274	2,016	2,242	1,485	757	702
2003		64,944	23,845	8,149	4,752	1,501	4,837	1,700	2,642	264	35,785	34,908	602	275	2,165	2,371	1,570	802	777
2004		71,481	23,344	7,702	4,934	1,508	4,940	1,531	2,529	201	42,874	42,007	595	273	2,156	2,323	1,523	800	784
2005		69,588	23,507	7,557	5,289	1,414	4,900	1,637	2,432	278	40,848	39,995	573	280	2,115	2,396	1,628	768	721
2006		73,890	24,201	7,202	5,948	1,272	5,014	1,770	2,511	484	44,485	43,623	571	290	2,114	2,403	1,645	758	688

Appendix table 4-9

U.S. applied research expenditures, by source of funds and performing sectors: 1953–2009

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
2007		78,200	26,134	6,798	8,421	1,100	5,079	1,275	2,431	1,030	46,659	45,775	584	300	2,124	2,587	1,799	788	696
2008		68,446	23,461	6,738	4,970	1,819	5,507	787	2,395	1,245	39,129	38,189	636	304	2,265	2,847	1,984	863	744
2009		65,004	27,431	7,296	7,106	1,758	5,994	1,175	2,790	1,312	31,299	30,309	699	290	2,438	3,053	2,111	942	783

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges

[a]Because of limitations in survey information, data on other government funding to performers other than U&C not available and consequently are included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.
[b]Character-of-work estimates for industry revised for 1998 and later years; data not directly comparable with data for 1997 and earlier years. Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, figure for federal support to industry includes support to FFRDCs for those years.
[c]Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[d]For 1998 and later years, character-of-work estimation procedure revised and adjustments made to U&C R&D to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years.
[e]Character-of-work estimates for nonprofit FFRDCs for 1953–80 not separated from federal support for other nonprofits; thus; the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[f]Industry sources of funds for industry R&D expenditures include all nonfederal sources of funds for industry R&D expenditures. Character-of-work estimates for industry revised for 1998 and later years; data not directly comparable with data for 1997 and earlier years.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-10

U.S. development expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
		Current $millions																	
1953		3,412	1,762	567	1,123	NA	9	48	17	NA	1,637	1,630	1	6	3	7	6	1	3
1954		3,734	2,027	537	1,405	NA	9	59	18	NA	1,693	1,685	1	7	3	8	7	1	3
1955		4,189	2,427	543	1,785	NA	12	69	19	NA	1,748	1,738	2	8	3	8	7	1	4
1956		5,855	3,561	631	2,817	NA	14	81	20	NA	2,277	2,267	2	8	4	9	7	2	4
1957		6,681	4,477	728	3,616	NA	12	101	21	NA	2,185	2,174	3	8	4	10	8	2	5
1958		7,214	4,941	842	3,942	NA	13	120	25	NA	2,252	2,241	3	8	4	11	9	2	6
1959		8,463	5,872	940	4,750	NA	16	134	32	NA	2,569	2,557	3	9	5	12	10	2	6
1960		9,360	6,390	1,003	5,169	NA	19	151	49	NA	2,948	2,935	3	10	5	12	10	2	6
1961		9,930	6,701	1,090	5,347	NA	22	170	73	NA	3,201	3,189	2	10	5	16	14	2	7
1962		10,115	6,822	1,227	5,280	NA	23	190	103	NA	3,259	3,246	2	11	6	20	18	2	8
1963		11,540	7,956	1,465	6,116	NA	22	219	134	NA	3,548	3,535	2	11	6	22	20	2	8
1964		12,506	8,610	1,680	6,156	359	30	227	159	NA	3,861	3,848	2	11	7	21	18	3	8
1965		13,215	8,742	1,789	6,218	298	48	207	183	NA	4,433	4,419	2	12	8	24	20	4	9
1966		14,490	9,466	1,886	6,849	271	61	200	199	NA	4,977	4,961	2	14	10	28	23	5	9
1967		15,332	9,521	1,943	6,795	302	66	208	208	NA	5,762	5,744	3	15	10	31	24	7	9
1968		16,154	9,756	1,904	7,044	293	72	226	217	NA	6,346	6,326	4	16	9	35	26	9	8
1969		17,051	9,848	2,016	6,944	332	80	246	231	NA	7,150	7,127	5	18	8	38	28	10	7
1970		16,925	9,382	2,258	6,232	340	84	249	220	NA	7,489	7,466	5	18	7	40	30	10	6
1971		17,399	9,561	2,473	6,167	391	69	267	194	NA	7,780	7,757	4	19	9	42	33	9	8
1972		18,743	10,141	2,639	6,533	402	63	291	213	NA	8,533	8,510	4	19	14	44	35	9	12
1973		20,197	10,311	2,657	6,621	399	71	296	268	NA	9,798	9,773	5	20	20	51	38	13	18
1974		21,504	10,506	2,765	6,553	479	75	321	314	NA	10,896	10,868	7	22	25	57	42	15	20
1975		22,706	10,993	2,890	6,783	535	83	373	330	NA	11,600	11,569	8	23	27	63	47	16	22
1976		25,085	12,035	2,972	7,522	654	100	447	341	NA	12,927	12,890	12	25	31	68	52	16	24
1977		27,667	13,153	3,188	8,275	675	153	503	359	NA	14,370	14,328	15	27	40	76	58	19	28
1978		31,056	14,383	3,676	8,756	753	254	542	403	NA	16,504	16,460	15	30	49	88	64	24	32
1979		35,445	16,064	3,944	9,888	810	336	603	483	NA	19,193	19,145	16	32	56	99	71	28	34
1980		40,765	17,604	4,072	10,957	882	362	719	612	NA	22,945	22,891	19	35	68	110	79	31	38
1981		46,305	20,242	4,530	12,791	950	386	778	360	447	25,817	25,756	24	37	80	123	88	35	44
1982		51,879	22,323	5,178	14,215	989	397	745	362	436	29,286	29,219	27	40	88	137	98	39	46
1983		57,771	24,859	6,106	15,522	1,054	399	832	447	500	32,617	32,542	31	44	97	151	109	43	47
1984		66,461	28,320	7,078	17,640	1,056	435	986	594	530	37,815	37,731	37	47	108	167	120	47	51
1985		74,522	32,304	8,011	20,258	1,102	486	1,244	644	560	41,857	41,762	43	51	120	183	134	49	57
1986		75,855	33,993	8,275	21,517	1,145	513	1,504	587	453	41,460	41,354	50	55	136	201	149	53	65
1987		79,929	36,691	8,176	24,122	1,230	599	1,670	474	421	42,784	42,667	57	60	155	226	165	61	73
1988		84,567	37,285	8,864	23,719	1,414	698	1,762	407	420	46,765	46,634	66	65	180	254	183	71	83
1989		87,723	35,320	9,355	21,049	1,423	773	1,782	507	430	51,822	51,676	76	70	205	285	203	81	91
1990		94,067	33,859	9,700	18,966	1,438	910	1,735	619	490	59,568	59,410	83	75	226	315	226	89	99
1991		95,105	31,220	8,778	17,256	1,383	1,012	1,537	722	533	63,197	63,030	86	82	239	345	251	94	103

Appendix table 4-10

U.S. development expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
1992		99,811	31,514	9,098	17,181	1,372	1,055	1,452	758	599	67,567	67,388	91	88	246	378	279	100	105
1993		99,705	30,054	9,071	16,083	1,038	1,127	1,374	787	574	68,866	68,674	97	95	259	416	309	107	109
1994		102,938	30,208	8,823	16,209	1,196	1,213	1,378	815	573	71,886	71,681	102	103	276	455	343	112	114
1995		113,079	32,436	9,262	17,824	1,208	1,180	1,616	744	603	79,738	79,518	108	111	288	495	381	113	123
1996		121,377	31,373	9,033	17,066	1,358	1,128	1,520	698	571	89,032	88,797	115	120	305	538	423	115	128
1997		128,677	32,270	9,077	18,121	1,292	1,055	1,454	687	585	95,332	95,063	114	155	305	649	536	112	121
1998		144,723	32,714	9,214	18,452	1,280	974	1,527	760	507	110,868	110,589	114	164	302	723	611	113	116
1999		154,356	30,588	9,265	16,571	1,208	710	1,640	727	467	122,533	122,236	119	178	321	793	673	121	120
2000		169,412	27,452	9,377	13,510	1,185	565	1,577	580	659	140,552	140,235	121	195	348	934	804	130	125
2001		167,817	28,548	11,062	12,542	647	673	1,717	874	1,033	137,728	137,410	121	197	376	1,033	893	140	132
2002		176,672	29,897	11,800	13,061	639	662	1,726	937	1,074	145,038	144,727	120	191	408	1,187	1,034	153	142
2003		175,493	30,163	12,646	11,939	747	918	1,954	743	1,216	143,441	143,121	124	195	447	1,281	1,116	166	161
2004		177,228	34,380	12,746	14,419	851	1,237	2,447	1,300	1,379	140,941	140,615	126	199	458	1,283	1,113	170	167
2005		195,720	36,666	13,994	15,512	1,052	1,168	2,360	1,211	1,369	157,034	156,696	126	212	464	1,398	1,229	169	158
2006		212,686	38,849	16,089	16,720	1,156	944	2,136	603	1,202	171,748	171,392	129	226	479	1,454	1,282	172	156
2007		227,685	39,456	18,016	14,860	1,738	913	2,488	568	872	185,946	185,569	136	240	495	1,626	1,443	184	162
2008		258,499	53,589	17,566	29,488	1,948	861	2,239	562	925	202,361	201,961	152	249	540	1,832	1,626	206	177
2009		253,160	53,881	17,389	30,436	1,967	756	1,872	575	887	196,527	196,118	168	241	587	1,976	1,749	227	189
		Constant 2005 $millions																	
1953		21,111	10,904	3,506	6,949	NA	53	294	102	NA	10,130	10,087	6	37	16	43	37	6	18
1954		22,895	12,425	3,293	8,615	NA	52	359	107	NA	10,381	10,331	6	43	19	49	43	6	21
1955		25,256	14,630	3,271	10,762	NA	69	416	112	NA	10,536	10,479	9	48	19	48	42	6	23
1956		34,127	20,758	3,675	16,421	NA	79	469	114	NA	13,273	13,215	12	47	21	50	41	9	26
1957		37,688	25,255	4,104	20,398	NA	68	570	116	NA	12,323	12,264	14	45	24	56	45	11	30
1958		39,798	27,257	4,643	21,749	NA	69	662	135	NA	12,425	12,364	17	44	24	61	50	11	31
1959		46,149	32,017	5,126	25,902	NA	85	731	174	NA	14,009	13,943	16	49	25	65	55	11	33
1960		50,337	34,362	5,391	27,798	NA	102	809	261	NA	15,851	15,784	13	54	25	65	54	11	34
1961		52,799	35,629	5,793	28,432	NA	114	901	388	NA	17,021	16,957	11	53	27	85	74	11	37
1962		53,058	35,786	6,436	27,697	NA	118	997	538	NA	17,096	17,028	10	58	30	105	94	10	40
1963		59,896	41,293	7,604	31,745	NA	114	1,134	696	NA	18,416	18,348	10	57	32	114	104	10	41
1964		63,930	44,014	8,588	31,469	1,835	151	1,158	813	NA	19,737	19,671	10	56	33	105	92	13	41
1965		66,343	43,885	8,979	31,216	1,496	241	1,037	916	NA	22,255	22,185	10	60	39	120	100	20	43
1966		70,733	46,208	9,207	33,435	1,323	298	976	969	NA	24,296	24,218	10	68	47	137	112	24	46
1967		72,615	45,094	9,203	32,183	1,430	310	985	983	NA	27,288	27,205	12	71	47	144	114	31	40
1968		73,389	44,321	8,650	32,002	1,331	325	1,027	986	NA	28,831	28,740	18	73	42	159	118	41	35
1969		73,818	42,634	8,727	30,063	1,437	344	1,065	998	NA	30,955	30,855	22	78	34	165	121	43	31
1970		69,602	38,584	9,285	25,628	1,398	343	1,024	905	NA	30,798	30,703	21	74	29	164	123	41	27
1971		68,144	37,446	9,684	24,154	1,531	270	1,046	760	NA	30,472	30,382	16	74	34	163	129	33	31
1972		70,372	38,073	9,909	24,528	1,509	235	1,093	800	NA	32,035	31,951	13	71	51	165	131	34	47
1973		71,842	36,676	9,452	23,552	1,419	251	1,051	952	NA	34,853	34,764	18	71	71	180	135	44	62

Appendix table 4-10

U.S. development expenditures, by source of funds and performing sector: 1953–2009

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
1974		70,126	34,262	9,018	21,369	1,562	243	1,047	1,022	NA	35,533	35,441	21	71	80	187	138	49	65
1975		67,651	32,753	8,610	20,210	1,594	246	1,110	983	NA	34,563	34,470	24	70	82	187	140	48	66
1976		70,684	33,913	8,374	21,195	1,843	280	1,260	961	NA	36,425	36,321	32	71	88	192	147	45	67
1977		73,290	34,843	8,445	21,920	1,788	405	1,333	951	NA	38,066	37,955	38	72	107	202	153	49	74
1978		76,870	35,601	9,100	21,673	1,864	628	1,341	996	NA	40,851	40,742	36	73	121	217	159	58	79
1979		80,998	36,709	9,012	22,596	1,851	769	1,379	1,103	NA	43,858	43,749	36	73	127	226	163	63	78
1980		85,372	36,868	8,529	22,947	1,847	758	1,505	1,282	NA	48,053	47,940	41	72	142	230	166	64	80
1981		88,665	38,760	8,675	24,492	1,819	739	1,489	689	856	49,434	49,318	45	72	152	235	168	67	84
1982		93,624	40,285	9,345	25,653	1,785	717	1,344	654	787	52,851	52,730	48	73	159	247	176	70	82
1983		100,293	43,156	10,600	26,947	1,830	693	1,444	776	867	56,624	56,494	54	76	169	262	188	74	82
1984		111,201	47,384	11,843	29,515	1,767	727	1,650	995	887	63,271	63,131	62	79	180	280	202	78	86
1985		121,024	52,463	13,009	32,899	1,790	789	2,020	1,046	909	67,976	67,822	70	83	195	297	217	80	93
1986		120,524	54,010	13,147	34,188	1,819	816	2,389	932	719	65,874	65,706	80	88	216	320	236	84	104
1987		123,415	56,653	12,624	37,246	1,899	924	2,578	731	650	66,061	65,881	88	92	240	348	255	93	113
1988		126,241	55,659	13,232	35,408	2,111	1,042	2,630	608	627	69,811	69,615	99	96	268	380	274	106	124
1989		126,188	50,807	13,458	30,279	2,047	1,112	2,563	729	619	74,545	74,335	110	100	295	410	293	117	132
1990		130,286	46,895	13,435	26,269	1,992	1,260	2,403	857	679	82,504	82,285	115	104	313	436	313	123	138
1991		127,213	41,760	11,741	23,082	1,850	1,353	2,055	966	713	84,534	84,310	115	109	320	461	336	126	137
1992		130,416	41,178	11,887	22,449	1,793	1,378	1,897	991	783	88,286	88,052	119	115	321	494	364	130	137
1993		127,460	38,421	11,597	20,560	1,327	1,441	1,756	1,006	734	88,037	87,791	124	122	331	532	395	137	139
1994		128,879	37,820	11,047	20,294	1,497	1,519	1,726	1,020	717	90,001	89,745	128	129	345	570	430	140	142
1995		138,685	39,781	11,359	21,860	1,482	1,447	1,982	912	740	97,794	97,524	133	136	353	607	468	139	150
1996		146,081	37,759	10,872	20,540	1,634	1,358	1,829	840	687	107,153	106,870	138	145	367	648	510	138	154
1997		152,179	38,164	10,734	21,431	1,528	1,248	1,720	812	691	112,744	112,426	135	183	361	767	634	133	143
1998		169,245	38,257	10,775	21,579	1,497	1,139	1,786	889	593	129,653	129,328	134	192	354	846	714	132	135
1999		177,893	35,253	10,678	19,098	1,392	819	1,890	838	538	141,218	140,876	137	205	370	914	775	139	138
2000		190,945	30,942	10,568	15,227	1,336	637	1,778	653	743	158,417	158,060	137	220	392	1,053	907	146	141
2001		184,968	31,466	12,192	13,824	713	742	1,892	963	1,139	151,804	151,454	133	217	415	1,138	984	155	146
2002		191,626	32,428	12,798	14,167	693	718	1,872	1,016	1,165	157,314	156,977	130	207	443	1,288	1,121	166	154
2003		186,427	32,042	13,434	12,683	793	975	2,076	790	1,292	152,378	152,038	132	207	475	1,361	1,185	176	171
2004		183,113	35,521	13,169	14,898	879	1,278	2,529	1,344	1,425	145,621	145,284	131	206	473	1,325	1,150	176	172
2005		195,720	36,666	13,994	15,512	1,052	1,168	2,360	1,211	1,369	157,034	156,696	126	212	464	1,398	1,229	169	158
2006		206,029	37,633	15,586	16,197	1,120	915	2,069	584	1,164	166,372	166,028	125	219	464	1,408	1,242	166	151

Appendix table 4-10

U.S. development expenditures, by source of funds and performing sector: 1953–2009

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performer:	All performers	Total	Federal	Industry[b]	Industry FFRDCs[c]	U&C[d]	U&C FFRDCs	Other nonprofit[e]	Nonprofit FFRDCs[e]	Total	Industry[f]	U&C[d]	Other nonprofit	U&C[d]	Total	Other nonprofit	U&C[d]	U&C[d]
2007		214,339	37,143	16,960	13,989	1,636	860	2,342	534	821	175,046	174,692	128	226	466	1,531	1,358	173	153
2008		238,067	49,353	16,178	27,157	1,794	793	2,062	518	852	186,367	185,998	140	229	497	1,687	1,497	189	163
2009		230,713	49,104	15,847	27,737	1,792	689	1,706	524	808	179,102	178,729	153	219	535	1,801	1,594	207	172

NA = not available, included in figures for federal support to industry and federal support to nonprofit institutions

FFRDC = federally funded research and development center; U&C = universities and colleges.

[a]Because of limitations in survey information, data on other government funding to performers other than U&C are not available and consequently are included in other sectors' support for their own R&D performance, e.g., other government support to other nonprofits included in other nonprofit support for their own R&D.
[b]Character-of-work estimates for industry revised for 1998 and later years; data not directly comparable with data for 1997 and earlier years. Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[c]Character-of-work estimates for industry FFRDCs for 1953–63 not separated from federal support for industry; thus, the figure for federal support to industry includes support to FFRDCs for those years.
[d]For 1998 and later years, character-of-work estimation procedure revised and adjustments made to U&C R&D to eliminate double counting of funds passed through from one academic institution to another. Data for 1998 and later years not directly comparable with data for 1997 and earlier years.
[e]Character-of-work estimates for nonprofit FFRDCs for 1953–80 not separated from federal support for other nonprofits; thus; the figure for federal support to other nonprofit institutions includes support to FFRDCs for those years.
[f]Industry sources of funds for industry R&D expenditures include all nonfederal sources of funds for industry R&D expenditures. Character-of-work estimates for industry revised for 1998 and later years; data not directly comparable with data for 1997 and earlier years.

NOTES: Technical notes explaining methodological issues of measurement available on request. Data based on annual reports by performers, except for the nonprofit sector (where some figures involve estimates). R&D expenditures of FFRDCs are chiefly federal funds, but any nonfederal funds also included in totals. For trend comparisons, use only historical data reported here; do not use data published earlier. Expenditures for industry and, prior to 2001, for industry-administered FFRDCs collected by calendar year. Expenditures for other performers are calendar-year approximations based on fiscal year data. In most cases, the approximation equals 75% of amount reported in same fiscal year plus 25% of amount reported in subsequent fiscal year. However, fiscal year for academic performers generally begins 1 July, not 1 October; also, prior to 1977, federal fiscal year began on 1 July, not 1 October. Therefore, calendar-year approximations for academic performers and federal performers prior to 1977 equal 50% of amount reported in same fiscal year plus 50% of amount reported in subsequent fiscal year. Detail may not add to total because of rounding. Constant-dollar estimates derived from unrounded data. Los Alamos National Laboratory (some $2 billion in annual R&D expenditures in recent years) became industry administered in June 2006; previously, it was U&C administered. Lawrence Livermore National Laboratory (more than $1 billion in annual R&D expenditures in recent years) became industry administered in October 2007; previously, it was U&C administered. The tracks of R&D expenditures from 2006 to 2008 for both industry- and U&C-administered FFRDCs reflect these shifts.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); NSF/NCSES, Business R&D and Innovation Survey, 2009; NSF/NCSES, Survey of R&D Expenditures at Universities and Colleges, FY 2009; NSF/NCSES, Federal Funds for R&D: FY 2009–11; NSF/NCSES, Survey of R&D Expenditures at FFRDCs, FY 2009; and NSF/NCSES, R&D Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-11

U.S. R&D expenditures, by state, performing sector, and funding sector: 2008

(Millions of current dollars)

State	All R&D	R&D rank	Federal	FFRDCs Total	FFRDCs Federal	FFRDCs Non-federal[d]	Business Total	Business Own	Business Paid by others Nonfederal[e]	Business Paid by others Federal	U&C[a] Total	U&C Federal	U&C Other government	U&C Business	U&C U&C	U&C Non-profit	Other nonprofit institutions Federal[f]	State, internal[b] Total	GDP	GDP rank	R&D intensity[c] Percent	R&D intensity[c] Rank
U.S. total[g]	403,040	na	29,839	14,835	NA	NA	290,681	232,505	21,816	36,360	51,650	30,341	3,518	3,004	10,707	4,080	6,236	NA	14,269,835	na	2.82	na
States total[g]	372,660	na	28,730	14,695	14,251	444	271,671	220,020	19,433	30,644	51,784	31,138	3,409	2,864	10,422	3,951	5,780	NA	14,269,835	na	2.61	na
Alabama	4,870	24	1,035	0	0	0	3,099	922	125	2,052	708	466	10	23	170	39	29	NA	170,672	25	2.85	12
Alaska	269	49	78	0	0	0	69	52	10	6	111	97	2	*	0	12	10	NA	49,720	45	0.54	50
Arizona	7,010	15	855	56	50	6	5,232	3,268	444	1,520	831	417	58	31	276	49	35	NA	261,537	18	2.68	15
Arkansas	747	43	46	0	0	0	443	399	34	11	247	108	59	13	47	20	11	NA	100,232	34	0.75	45
California	81,323	1	1,798	3,988	3,858	130	67,532	54,231	4,402	8,900	7,026	4,051	333	420	1,386	836	978	NA	1,925,499	1	4.22	9
Colorado	5,810	21	295	391	359	32	4,019	3,396	229	394	924	722	20	51	90	42	181	NA	255,226	19	2.28	21
Connecticut	11,322	12	38	0	0	0	10,518	8,938	D	D	732	503	17	23	96	92	34	NA	222,168	23	5.10	5
Delaware	1,594	33	4	0	0	0	1,441	1,441	D	D	133	92	8	6	23	5	16	NA	58,357	42	2.73	14
Dist. of Columbia	5,946	19	4,737	6	6	0	571	155	82	334	369	290	8	8	27	37	264	NA	96,757	35	6.15	2
Florida	6,515	17	665	0	0	0	4,178	3,009	500	669	1,592	850	177	106	379	80	81	NA	747,803	4	0.87	43
Georgia	5,232	22	336	0	0	0	3,344	2,501	342	501	1,521	800	92	81	450	99	31	NA	402,097	10	1.30	36
Hawaii	663	44	91	0	0	0	269	176	29	65	279	200	18	27	28	5	25	NA	66,038	39	1.00	41
Idaho	1,375	34	60	236	224	12	961	786	166	9	113	67	22	5	17	2	5	NA	55,465	43	2.48	18
Illinois	11,961	10	127	874	824	50	8,900	7,984	589	327	1,973	1,149	75	77	546	125	88	NA	635,080	5	1.88	27
Indiana	6,111	18	162	0	0	0	4,991	4,375	407	209	954	436	59	99	292	68	4	NA	263,732	16	2.32	20
Iowa	2,136	30	58	27	27	0	1,509	1,041	257	211	528	336	54	20	93	24	14	NA	136,007	30	1.57	33
Kansas	2,029	32	19	0	0	0	1,600	1,111	288	201	404	190	53	11	131	18	6	NA	124,895	32	1.62	30
Kentucky	1,463	35	23	0	0	0	933	879	42	13	506	242	62	12	144	46	1	NA	155,852	28	0.94	42
Louisiana	1,193	37	115	0	0	0	411	303	64	44	660	300	118	21	164	57	7	NA	211,459	24	0.56	49
Maine	516	46	12	0	0	0	308	253	23	32	128	60	12	4	50	2	68	NA	50,462	44	1.02	40
Maryland	16,605	6	8,621	523	523	0	4,333	2,327	654	1,352	2,747	2,006	63	94	389	196	381	NA	280,509	15	5.92	3
Massachusetts	20,090	4	891	641	638	4	15,028	12,625	931	1,472	2,272	1,722	17	168	139	226	1,258	NA	363,064	13	5.53	4
Michigan	15,507	8	135	0	0	0	13,742	12,105	1,261	376	1,594	917	66	74	432	104	37	NA	376,184	12	4.12	10
Minnesota	6,697	16	47	0	0	0	5,728	5,327	223	178	699	371	63	31	128	106	223	NA	261,951	17	2.56	17
Mississippi	808	41	146	0	0	0	252	179	20	54	406	262	37	14	85	8	3	NA	95,653	36	0.84	44
Missouri	3,884	26	46	0	0	0	2,857	2,857	D	D	960	609	34	21	223	74	21	NA	239,703	22	1.62	31
Montana	401	48	55	0	0	0	148	125	15	8	186	111	28	8	35	4	12	NA	35,818	49	1.12	39
Nebraska	988	39	41	0	0	0	561	464	83	14	376	147	12	25	161	31	10	NA	84,639	37	1.17	38
Nevada	913	40	38	0	0	0	677	612	42	23	191	138	12	3	34	3	7	NA	132,133	31	0.69	46
New Hampshire	2,496	29	21	0	0	0	2,169	876	127	1,166	302	206	7	12	56	21	4	NA	58,808	41	4.24	8
New Jersey	20,713	2	679	78	78	0	19,054	17,331	1,459	264	877	458	57	42	241	78	25	NA	484,332	7	4.28	7
New Mexico	5,906	20	561	4,150	4,075	75	735	326	172	238	417	287	25	15	84	6	42	NA	77,959	38	7.58	1
New York	16,486	7	161	480	459	21	11,455	9,061	876	1,518	4,045	2,461	256	183	791	354	345	NA	1,110,712	3	1.48	34
North Carolina	8,612	14	259	0	0	0	6,246	4,903	1,076	267	1,981	1,183	185	227	316	69	126	NA	404,386	9	2.13	25
North Dakota	511	47	26	0	0	0	303	218	81	4	181	97	38	9	31	6	2	NA	31,118	50	1.64	29
Ohio	10,164	13	750	0	0	0	7,405	5,367	588	1,450	1,827	1,056	169	163	339	101	182	NA	472,285	8	2.15	24
Oklahoma	1,030	38	77	0	0	0	595	521	47	27	333	144	51	25	100	14	24	NA	151,540	29	0.68	47

Appendix table 4-11

U.S. R&D expenditures, by state, performing sector, and funding sector: 2008

(Millions of current dollars)

State	Performer: / Funding source:	All R&D	R&D rank	Federal: Federal	FFRDCs: Total	FFRDCs: Federal	FFRDCs: Nonfederal[d]	Business: Total	Business: Own	Business: Paid by others: Nonfederal[e]	Business: Paid by others: Federal	U&C[a]: Total	U&C[a]: Federal	U&C[a]: Other government	U&C[a]: Business	U&C[a]: U&C	U&C[a]: Nonprofit	Other nonprofit institutions: Federal[f]	State, internal[b]: Total	GDP	GDP rank	R&D intensity[c]: Percent	R&D intensity[c]: Rank
Oregon		4,802	25	94	0	0	0	4,074	3,913	112	49	595	425	45	26	66	33	39	NA	169,529	26	2.83	13
Pennsylvania		13,068	9	313	81	67	14	9,735	8,783	643	309	2,604	1,773	137	199	341	155	335	NA	546,145	6	2.39	19
Rhode Island		1,233	36	389	0	0	0	538	489	20	29	237	147	8	9	69	4	69	NA	47,577	46	2.59	16
South Carolina		2,086	31	132	118	118	0	1,221	1,125	65	31	576	273	28	30	219	26	38	NA	159,688	27	1.31	35
South Dakota		254	50	25	0	0	0	133	98	31	4	92	57	17	3	4	11	4	NA	37,973	48	0.67	48
Tennessee		3,871	27	137	1,251	1,206	46	1,608	1,451	113	44	787	519	58	26	138	45	87	NA	246,436	20	1.57	32
Texas		20,316	3	276	18	17	1	16,166	12,830	1,231	2,106	3,744	1,950	457	235	711	390	112	NA	1,196,771	2	1.70	28
Utah		2,522	28	149	0	0	0	1,945	1,326	87	532	426	278	29	22	73	23	3	NA	112,725	33	2.24	22
Vermont		546	45	4	0	0	0	422	380	30	12	117	91	*	2	19	4	3	NA	24,993	51	2.18	23
Virginia		11,472	11	3,684	492	478	14	6,142	2,856	527	2,759	1,053	613	132	47	203	57	102	NA	400,457	11	2.86	11
Washington		16,696	5	258	1,137	1,097	40	13,876	12,724	435	717	1,058	721	61	81	156	39	367	NA	336,315	14	4.96	6
West Virginia		778	42	116	146	146	0	334	272	23	39	171	93	8	5	63	2	11	NA	61,306	40	1.27	37
Wisconsin		4,967	23	33	0	0	0	3,798	3,277	421	100	1,117	619	45	27	326	100	18	NA	241,174	21	2.06	26
Wyoming		154	51	14	0	0	0	63	52	7	4	75	28	6	2	37	1	2	NA	38,894	47	0.40	51
U.S. undistributed[h]		15,349	na	0	0	0	0	15,349	12,482	1,499	1,369	0	0	0	0	0	0	0	NA	na	na	na	na
Puerto Rico[i]		NA	na	9	13	12	0	NA	NA	NA	NA	100	74	6	4	13	3	*	na	92,926	na	NA	na
Other[j]		102	na	78	0	0	0	0	0	0	0	24	18	3	3	0	0	*	na	na	na	na	na

* = < $0.5 million; D = data withheld to avoid disclosing operations of individual companies; na = not applicable; NA = not available

FFRDC = federally funded research and development center; GDP = gross domestic product; R&D = research and development; U&C = universities and colleges

[a]State-level university R&D data have not been adjusted to eliminate double counting of funds passed through from one academic institution to another. At the national level, funds passed through to educational subrecipients account for 3.3% of total R&D expenditures reported by universities and colleges in FY 2008.
[b]Internal performers include state agency and department employees, and services performed by others in support of an internal R&D project. NSF's survey of this state R&D spending is conducted every other year; data are not available for FY 2008. In FY 2007, these state R&D expenditures totaled $309 million.
[c]R&D intensity is ratio of total R&D performed in a state to its GDP.
[d]Nonfederal sources of R&D expenditures reported by FFRDCs in FY 2008 included state and local governments ($42 million), industry ($198 million), FFRDC institutional funds ($50 million), and other sources ($155 million).
[e]R&D paid for by nonfederal sources includes funding from other companies located inside ($12.181 billion) or outside ($8.877 billion) the U.S., foreign government agencies and laboratories ($48 million), and other organizations located inside ($330 million) or outside ($70 million) the U.S.
[f]Other sources of support for nonprofit institutions were unavailable by state. In 2008, total nonprofit performance is estimated at $16.0 billion. Industry provided an estimated $1.3 billion to the nonprofit sector, and nonprofit institutions provided an estimated $8.5 billion.
[g]States totals differ from U.S. totals for four reasons: some R&D expenditures cannot be allocated to 1 of 50 states or the District of Columbia; nonfederal sources of other nonprofit R&D expenditures could not be allocated by state; state-level U&C data have not been adjusted to eliminate double counting of funds passed through from one academic institution to another; and state-level R&D data are not converted from fiscal years to calendar years.
[h]Reported data that could not be assigned to 1 of the 50 states or the District of Columbia.
[i]Data on business R&D performance in Puerto Rico are not collected.
[j]Includes R&D expenditures reported for outlying areas (Guam, Virgin Islands) and offices abroad, but excluding Puerto Rico.

NOTES: Industry R&D data refer to calendar years; other R&D data refer to fiscal years but are used here as approximations to calendar year data.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources [annual series]; NSF/NCSES, Business Research and Development and Innovation Survey, 2008; NSF/NCSES, Survey of Research and Development Expenditures at Universities and Colleges, FY 2008; NSF/NCSES, Survey of Federal Funds for Research and Development, FY 2008–10. State GDP data are from the U.S. Bureau of Economic Analysis, http://www.bea.gov/regional/gsp, accessed 23 February 2011.

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Appendix table 4-12

U.S. R&D and gross domestic product, by state: 2008

State (listed by R&D rank)	R&D (current $millions)	GDP (current $millions)	R&D/GDP (%)	Rank in R&D/GDP	% of total state R&D	Cumulative percent
1 California	81,323	1,925,499	4.22	9	21.8	21.8
2 New Jersey	20,713	484,332	4.28	7	5.6	27.4
3 Texas	20,316	1,196,771	1.70	28	5.5	32.8
4 Massachusetts	20,090	363,064	5.53	4	5.4	38.2
5 Washington	16,696	336,315	4.96	6	4.5	42.7
6 Maryland	16,605	280,509	5.92	3	4.5	47.2
7 New York	16,486	1,110,712	1.48	34	4.4	51.6
8 Michigan	15,507	376,184	4.12	10	4.2	55.7
9 Pennsylvania	13,068	546,145	2.39	19	3.5	59.3
10 Illinois	11,961	635,080	1.88	27	3.2	62.5
11 Virginia	11,472	400,457	2.86	11	3.1	65.5
12 Connecticut	11,322	222,168	5.10	5	3.0	68.6
13 Ohio	10,164	472,285	2.15	24	2.7	71.3
14 North Carolina	8,612	404,386	2.13	25	2.3	73.6
15 Arizona	7,010	261,537	2.68	15	1.9	75.5
16 Minnesota	6,697	261,951	2.56	17	1.8	77.3
17 Florida	6,515	747,803	0.87	43	1.7	79.0
18 Indiana	6,111	263,732	2.32	20	1.6	80.7
19 District of Columbia	5,946	96,757	6.15	2	1.6	82.3
20 New Mexico	5,906	77,959	7.58	1	1.6	83.9
21 Colorado	5,810	255,226	2.28	21	1.6	85.4
22 Georgia	5,232	402,097	1.30	36	1.4	86.8
23 Wisconsin	4,967	241,174	2.06	26	1.3	88.2
24 Alabama	4,870	170,672	2.85	12	1.3	89.5
25 Oregon	4,802	169,529	2.83	13	1.3	90.8
26 Missouri	3,884	239,703	1.62	31	1.0	91.8
27 Tennessee	3,871	246,436	1.57	32	1.0	92.8
28 Utah	2,522	112,725	2.24	22	0.7	93.5
29 New Hampshire	2,496	58,808	4.24	8	0.7	94.2
30 Iowa	2,136	136,007	1.57	33	0.6	94.8
31 South Carolina	2,086	159,688	1.31	35	0.6	95.3
32 Kansas	2,029	124,895	1.62	30	0.5	95.9
33 Delaware	1,594	58,357	2.73	14	0.4	96.3
34 Kentucky	1,463	155,852	0.94	42	0.4	96.7
35 Idaho	1,375	55,465	2.48	18	0.4	97.0
36 Rhode Island	1,233	47,577	2.59	16	0.3	97.4
37 Louisiana	1,193	211,459	0.56	49	0.3	97.7
38 Oklahoma	1,030	151,540	0.68	47	0.3	98.0
39 Nebraska	988	84,639	1.17	38	0.3	98.2
40 Nevada	913	132,133	0.69	46	0.2	98.5
41 Mississippi	808	95,653	0.84	44	0.2	98.7
42 West Virginia	778	61,306	1.27	37	0.2	98.9
43 Arkansas	747	100,232	0.75	45	0.2	99.1
44 Hawaii	663	66,038	1.00	41	0.2	99.3
45 Vermont	546	24,993	2.18	23	0.1	99.4
46 Maine	516	50,462	1.02	40	0.1	99.6
47 North Dakota	511	31,118	1.64	29	0.1	99.7
48 Montana	401	35,818	1.12	39	0.1	99.8

Appendix table 4-12

U.S. R&D and gross domestic product, by state: 2008

State (listed by R&D rank)	R&D (current $millions)	GDP (current $millions)	R&D/GDP (%)	Rank in R&D/GDP	% of total state R&D	Cumulative percent
49 Alaska	269	49,720	0.54	50	0.1	99.9
50 South Dakota	254	37,973	0.67	48	0.1	100.0
51 Wyoming	154	38,894	0.40	51	0.0	100.0

GDP = gross domestic product

NOTES: U.S. total R&D expenditures for 2008 are estimated to be $402.0 billion. $372.7 billion could be allocated to the 50 states and District of Columbia.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources [annual series]; NSF/NCSES, Business Research and Development and Innovation Survey, 2008; NSF/NCSES, Survey of Research and Development Expenditures at Universities and Colleges, FY 2008; NSF/NCSES, Survey of Federal Funds for Research and Development, FY 2008–10. State GDP data are from the U.S. Bureau of Economic Analysis, http://www.bea.gov/regional/gsp, accessed 23 February 2011.

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Appendix table 4-13

Worldwide R&D expense for R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D expense for R&D performed by the company		
		Worldwide	Domestic	Foreign
All industries	21–23, 31–33, 42–81	289,403	232,505	56,899
Manufacturing industries	31–33	209,660	164,386	45,274
Food	311	2,659	2,063	596
Beverage and tobacco products	312	900	777	123
Textile, apparel, and leather	313–16	1,169	802	367
Wood products	321	274	270	4
Paper manufacturing	322	1,430	1,156	274
Printing and related support activities	323	321	312	9
Petroleum and coal products	324	D	D	D
Chemicals	325	68,592	55,042	13,549
Basic chemicals	3251	5,206	4,012	1,194
Resin, synthetic rubber, fibers, and filament	3252	950	726	224
Pesticide, fertilizer, and other agricultural chemical manufacturing	3253	1,312	941	370
Pharmaceuticals and medicines	3254	55,648	45,169	10,479
Soap, cleaning compound, and toilet preparation	3256	3,064	2,099	965
Paint, coating, adhesive, and other chemicals manufacturing	3255, 3259	2,412	2,095	317
Plastics and rubber products	326	2,053	1,713	339
Nonmetallic mineral products	327	1,615	1,509	106
Primary metals	331	768	654	114
Fabricated metal products	332	2,550	2,362	188
Machinery	333	11,764	9,846	1,918
Agricultural implement manufacturing	33311	1,580	1,181	399
Semiconductor machinery manufacturing	333295	2,476	2,113	362
Engine, turbine, and power transmission equipment manufacturing	3336	1,372	1,280	92
Other machinery manufacturing	other 333	6,337	5,272	1,065
Computer and electronic products	334	68,331	52,912	15,419
Communications equipment	3342	14,423	11,484	2,939
Semiconductor and other electronic components	3344	28,490	21,588	6,902
Navigational, measuring, electromedical, and control instruments	3345	12,666	10,463	2,203
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	334510, 334517	5,731	4,896	834
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	334511	D	2,803	D
Other measuring and controlling device manufacturing	other 3345	D	2,764	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	12,752	9,377	3,375
Electrical equipment, appliances, and components	335	4,099	2,947	1,152
Transportation equipment	336	32,835	23,039	9,796
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	20,547	12,234	8,313
Aerospace products and parts	3364	11,850	10,371	1,479
Aircraft, aircraft engine, and aircraft parts manufacturing	336411–336413	D	9,698	D
Guided missile, space vehicle, and related parts manufacturing	336414, 336415, 336419	D	673	D
Military armored vehicle, tank, and tank component manufacturing	336992	25	25	0
Other transportation	other 336	413	409	3
Furniture and related products	337	504	477	27
Miscellaneous manufacturing	339	D	D	D
Medical equipment and supplies manufacturing	3391	5,940	5,179	762
Other miscellaneous manufacturing	3399	D	D	D
Nonmanufacturing industries	21–23, 42–81	79,743	68,118	11,625
Mining, extraction, and support activities	21	1,676	1,478	198

Appendix table 4-13

Worldwide R&D expense for R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	R&D expense for R&D performed by the company		
		Worldwide	Domestic	Foreign
Utilities	22	197	190	6
Construction	23	D	D	0
Wholesale trade	42	2,442	1,944	499
Retail trade	44–45	D	1,029	D
Electronic shopping and mail-order houses	4541	D	674	D
Other retail trade	other 44–45	354	354	0
Transportation and warehousing	48–49	136	134	2
Information	51	44,524	36,922	7,602
Publishing	511	34,126	27,871	6,255
Newspaper, periodical, book, and directory publishers	5111	233	205	27
Software publishers	5112	33,893	27,665	6,228
Telecommunications	517	1,776	1,601	175
Internet service providers, Web search portals, and data processing services	518	7,572	6,493	1,080
Other information	other 51	1,050	958	93
Finance and insurance	52	1,156	1,084	73
Real estate and rental and leasing	53	311	246	65
Professional, scientific, and technical services	54	23,493	20,539	2,954
Architectural, engineering, and related services	5413	1,495	1,378	117
Computer systems design and related services	5415	10,645	8,569	2,077
Scientific research and development services	5417	9,273	8,708	564
Other professional, scientific, and technical services	other 54	2,080	1,884	196
Health care services	621–23	1,033	1,032	1
Other nonmanufacturing	55–56, 61, 624, 71–72, 81	D	D	D
All companies	21–23, 31–33, 42–81	289,403	232,505	56,899
Small companies (number of employees)[a]				
5–499	–	50,922	46,396	4,526
5–99	–	26,682	24,890	1,792
5–49	–	18,479	17,642	836
5–24	–	10,571	10,333	238
25–49	–	7,907	7,309	598
50–99	–	8,204	7,248	956
100–249	–	14,555	12,933	1,622
250–499	–	9,684	8,572	1,112
Medium and large companies (number of employees)				
500–999	–	11,353	9,673	1,680
1,000–4,999	–	49,638	39,010	10,628
5,000–9,999	–	24,923	20,358	4,565
10,000–24,999	–	54,272	43,049	11,223
25,000 or more	–	98,297	74,020	24,277

D = data withheld to avoid disclosing operations of individual companies

BRDIS = Business R&D and Innovation Survey; NAICS = 2002 North American Industry Classification System

[a]Upper bound based on U.S. Small Business Administration's definition of a small business; BRDIS does not include companies with fewer than five domestic employees.

NOTES: Detail may not add to total because of rounding. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

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Appendix table 4-14

Domestic and foreign R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total performance			Domestic performance			Foreign performance		
		Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
All industries	21–23, 31–33, 42–81	352,156	289,404	62,752	290,681	232,505	58,176	61,475	56,899	4,576
Manufacturing industries	31–33	250,326	209,660	40,666	203,754	164,386	39,368	46,572	45,274	1,298
Food	311	2,101	2,659	D	2,100	2,063	37	1	596	*
Beverage and tobacco products	312	903	900	3	780	777	3	123	123	0
Textile, apparel, and leather	313–16	1,181	1,169	12	814	802	12	367	367	0
Wood products	321	277	274	3	273	270	3	4	4	0
Paper manufacturing	322	1,441	1,430	11	1,167	1,156	11	274	274	0
Printing and related support activities	323	D	321	D	349	312	37	*	9	*
Petroleum and coal products	324	D	D	D	D	D	D	D	D	0
Chemicals	325	72,239	68,591	3,648	58,249	55,042	3,207	13,990	13,549	441
Basic chemicals	3251	5,272	5,206	66	4,074	4,012	62	1,198	1,194	4
Resin, synthetic rubber, fibers, and filament	3252	985	950	35	761	726	35	224	224	0
Pesticide, fertilizer, and other agricultural chemical manufacturing	3253	D	1,311	D	D	941	D	D	370	1
Pharmaceuticals and medicines	3254	58,993	55,648	3,345	48,131	45,169	2,962	10,862	10,479	383
Soap, cleaning compound, and toilet preparation	3256	3,073	3,064	9	2,108	2,099	9	965	965	0
Paint, coating, adhesive, and other chemicals manufacturing	3255, 3259	D	2,412	D	D	2,095	D	D	317	53
Plastics and rubber products	326	2,158	2,052	106	1,817	1,713	104	341	339	2
Nonmetallic mineral products	327	D	1,615	D	1,555	1,509	46	*	106	*
Primary metals	331	D	768	D	696	654	42	*	114	*
Fabricated metal products	332	2,608	2,550	58	2,419	2,362	57	189	188	1
Machinery	333	12,033	11,764	269	10,104	9,846	258	1,929	1,918	11
Agricultural implement manufacturing	33311	1,583	1,580	3	1,184	1,181	3	399	399	0
Semiconductor machinery manufacturing	333295	2,538	2,475	63	2,172	2,113	59	366	362	4
Engine, turbine, and power transmission equipment manufacturing	3336	1,435	1,372	63	1,343	1,280	63	92	92	0
Other machinery manufacturing	other 333	6,477	6,337	140	5,405	5,272	133	1,072	1,065	7
Computer and electronic products	334	76,237	68,331	7,906	60,463	52,912	7,551	15,774	15,419	355
Communications equipment	3342	15,854	14,423	1,431	12,903	11,484	1,419	2,951	2,939	12
Semiconductor and other electronic components	3344	29,399	28,490	909	22,324	21,588	736	7,075	6,902	173
Navigational, measuring, electromedical, and control instruments	3345	17,768	12,666	5,102	15,460	10,463	4,997	2,308	2,203	105
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	334510, 334517	6,853	5,730	1,123	6,015	4,896	1,119	838	834	4
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	334511	D	D	D	D	2,803	3,739	D	D	D
Other measuring and controlling device manufacturing	other 3345	D	D	D	D	2,764	139	D	D	D

Appendix table 4-14

Domestic and foreign R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total performance			Domestic performance			Foreign performance		
		Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	13,216	12,752	464	9,776	9,377	399	3,440	3,375	65
Electrical equipment, appliances, and components	335	4,305	4,099	206	3,143	2,947	196	1,162	1,152	10
Transportation equipment	336	60,819	32,835	27,984	50,552	23,039	27,513	10,267	9,796	471
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	21,587	20,547	1,040	13,140	12,234	906	8,447	8,313	134
Aerospace products and parts	3364	38,757	11,850	26,907	36,941	10,371	26,570	1,816	1,479	337
Aircraft, aircraft engine, and aircraft parts manufacturing	336411–13	D	D	D	D	9,698	21,163	D	D	D
Guided missile, space vehicle, and related parts manufacturing	336414, 336415, 336419	D	D	D	D	673	5,407	D	D	D
Military armored vehicle, tank, and tank component manufacturing	336992	32	25	7	32	25	7	0	0	0
Other transportation	other 336	442	412	30	439	409	30	3	3	0
Furniture and related products	337	D	504	D	D	477	*	D	27	0
Miscellaneous manufacturing	339	D	D	D	D	D	D	D	D	7
Medical equipment and supplies manufacturing	3391	6,067	5,941	126	5,300	5,179	121	767	762	5
Other miscellaneous manufacturing	3399	D	D	D	D	D	D	D	D	3
Nonmanufacturing industries	21–23, 42–81	101,828	79,743	22,085	86,925	68,118	18,807	14,903	11,625	3,278
Mining, extraction, and support activities	21	D	1,676	D	D	1,478	24	D	198	D
Utilities	22	D	196	D	225	190	35	*	6	*
Construction	23	D	D	D	D	D	D	D	0	0
Wholesale trade	42	2,594	2,443	151	2,084	1,944	140	510	499	11
Retail trade	44–45	D	D	2	1,031	1,029	2	D	D	0
Electronic shopping and mail-order houses	4541	D	D	1	675	674	1	D	D	0
Other retail trade	other 44–45	355	354	1	355	354	1	0	0	0
Transportation and warehousing	48–49	D	136	D	D	134	*	D	2	0
Information	51	45,351	44,524	827	37,694	36,922	772	7,657	7,602	55
Publishing	511	34,728	34,126	602	28,427	27,871	556	6,301	6,255	46
Newspaper, periodical, book, and directory publishers	5111	232	232	0	205	205	0	27	27	0
Software publishers	5112	34,495	33,893	602	28,221	27,665	556	6,274	6,228	46
Telecommunications	517	1,859	1,776	83	1,684	1,601	83	175	175	0
Internet service providers, Web search portals, and data processing services	518	7,657	7,573	84	6,568	6,493	75	1,089	1,080	9
Other information	other 51	1,109	1,051	58	1,016	958	58	93	93	0
Finance and insurance	52	1,166	1,157	9	1,092	1,084	8	74	73	1
Real estate and rental and leasing	53	318	311	7	253	246	7	65	65	0
Professional, scientific, and technical services	54	44,104	23,493	20,611	37,954	20,539	17,415	6,150	2,954	3,196
Architectural, engineering, and related services	5413	3,622	1,495	2,127	3,422	1,378	2,044	200	117	83
Computer systems design and related services	5415	14,311	10,646	3,665	12,146	8,569	3,577	2,165	2,077	88

Appendix table 4-14

Domestic and foreign R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total performance			Domestic performance			Foreign performance		
		Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others	Total	Paid for by company	Paid for by others
Scientific research and development services	5417	21,457	9,272	12,185	17,913	8,708	9,205	3,544	564	2,980
Other professional, scientific, and technical services	other 54	4,715	2,080	2,635	4,474	1,884	2,590	241	196	45
Health care services	621–23	1,315	1,033	282	1,314	1,032	282	1	1	0
Other nonmanufacturing	55–56, 61, 624, 71–72, 81	D	D	D	D	D	D	D	D	D
All companies	21–23, 31–33, 42–81	352,156	289,404	62,752	290,681	232,505	58,176	61,475	56,899	4,576
Small companies (number of employees)[a]										
5–499	–	63,052	50,922	12,130	58,137	46,396	11,741	4,915	4,526	389
5–99	–	35,258	26,682	8,576	33,256	24,890	8,366	2,002	1,792	210
5–49	–	24,931	18,478	6,453	23,905	17,642	6,263	1,026	836	190
5–24	–	14,648	10,571	4,077	14,280	10,333	3,947	368	238	130
25–49	–	10,285	7,907	2,378	9,626	7,309	2,317	659	598	61
50–99	–	10,327	8,204	2,123	9,351	7,248	2,103	976	956	20
100–249	–	16,397	14,555	1,842	14,662	12,933	1,729	1,735	1,622	113
250–499	–	11,396	9,684	1,712	10,218	8,572	1,646	1,178	1,112	66
Medium and large companies (number of employees)										
500–999	–	13,639	11,353	2,286	11,886	9,673	2,213	1,753	1,680	73
1,000–4,999	–	57,687	49,638	8,049	46,337	39,010	7,327	11,350	10,628	722
5,000–9,999	–	31,764	24,923	6,841	24,764	20,358	4,406	7,000	4,565	2,435
10,000–24,999	–	60,522	54,272	6,250	48,737	43,049	5,688	11,785	11,223	562
25,000 or more	–	125,491	98,297	27,194	100,820	74,020	26,800	24,671	24,277	394

* = < $500,000; D = data withheld to avoid disclosing operations of individual companies

BRDIS = Business R&D and Innovation Survey; NAICS = 2002 North American Industry Classification System

[a]Upper bound based on U.S. Small Business Administration's definition of a small business; BRDIS does not include companies with fewer than five domestic employees.

NOTES: Detail may not add to total because of rounding. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

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Appendix table 4-15

Sources of funds for domestic R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	R&D paid for by the company	R&D paid for by others		
				Total	U.S. federal government	Nonfederal sources
All industries	21–23, 31–33, 42–81	290,681	232,505	58,176	36,360	21,816
Manufacturing industries	31–33	203,754	164,386	39,368	31,102	8,266
Food	311	2,100	2,063	37	2	35
Beverage and tobacco products	312	780	777	3	0	3
Textile, apparel, and leather	313–16	814	802	12	D	D
Wood products	321	273	270	3	0	3
Paper manufacturing	322	1,167	1,156	11	D	D
Printing and related support activities	323	349	312	37	32	5
Petroleum and coal products	324	D	D	D	*	D
Chemicals	325	58,249	55,042	3,207	197	3,010
Basic chemicals	3251	4,074	4,012	62	33	29
Resin, synthetic rubber, fibers, and filament	3252	761	726	35	12	23
Pesticide, fertilizer, and other agricultural chemical manufacturing	3253	D	941	D	1	D
Pharmaceuticals and medicines	3254	48,131	45,169	2,962	137	2,825
Soap, cleaning compound, and toilet preparation	3256	2,108	2,099	9	6	3
Paint, coating, adhesive, and other chemicals manufacturing	3255, 3259	D	2,095	D	8	D
Plastics and rubber products	326	1,817	1,713	104	4	100
Nonmetallic mineral products	327	1,555	1,509	46	33	13
Primary metals	331	696	654	42	9	33
Fabricated metal products	332	2,419	2,362	57	16	41
Machinery	333	10,104	9,846	258	62	196
Agricultural implement manufacturing	33311	1,184	1,181	3	0	3
Semiconductor machinery manufacturing	333295	2,172	2,113	59	32	27
Engine, turbine, and power transmission equipment manufacturing	3336	1,343	1,280	63	9	54
Other machinery manufacturing	other 333	5,405	5,272	133	21	112
Computer and electronic products	334	60,463	52,912	7,551	4,646	2,905
Communications equipment	3342	12,903	11,484	1,419	D	D
Semiconductor and other electronic components	3344	22,324	21,588	736	D	D
Navigational, measuring, electromedical, and control instruments	3345	15,460	10,463	4,997	3,635	1,362
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	334510, 334517	6,015	4,896	1,119	1,098 i	21
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	334511	D	2,803	3,739	2,410	1,329
Other measuring and controlling device manufacturing	other 3345	D	2,764	139	127	12
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	9,776	9,377	399	51	348
Electrical equipment, appliances, and components	335	3,143	2,947	196	91	105
Transportation equipment	336	50,552	23,039	27,513	25,941 i	1,572
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	13,140	12,234	906	D	D
Aerospace products and parts	3364	36,941	10,371	26,570	25,805 i	765
Aircraft, aircraft engine, and aircraft parts manufacturing	336411–13	D	9,698	21,163	D	D
Guided missile, space vehicle, and related parts manufacturing	336414, 336415, 336419	D	673	5,407	D	D
Military armored vehicle, tank, and tank component manufacturing	336992	32	25	7	D	D
Other transportation	other 336	439	409	30	D	D
Furniture and related products	337	D	477	*	0	D

Appendix table 4-15

Sources of funds for domestic R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	R&D paid for by the company	R&D paid for by others		
				Total	U.S. federal government	Nonfederal sources
Miscellaneous manufacturing	339	D	D	D	54	D
Medical equipment and supplies manufacturing	3391	5,300	5,179	121	20	101
Other miscellaneous manufacturing	3399	D	D	D	34	D
Nonmanufacturing industries	21–23, 42–81	86,925	68,118	18,807	5,258	13,549
Mining, extraction, and support activities	21	D	1,478	24	5	19
Utilities	22	225	190	35	D	D
Construction	23	D	D	D	0	D
Wholesale trade	42	2,084	1,944	140	46	94
Retail trade	44–45	1,031	1,029	2	0	2
Electronic shopping and mail-order houses	4541	675	674	1	0	1
Other retail trade	other 44–45	355	354	1	0	1
Transportation and warehousing	48–49	D	134	*	*	D
Information	51	37,694	36,922	772	229	543
Publishing	511	28,427	27,871	556	176	380
Newspaper, periodical, book, and directory publishers	5111	205	205	0	0	0
Software publishers	5112	28,221	27,665	556	176	380
Telecommunications	517	1,684	1,601	83	35	48
Internet service providers, Web search portals, and data processing services	518	6,568	6,493	75	1	74
Other information	other 51	1,016	958	58	17 i	41
Finance and insurance	52	1,092	1,084	8	0	8
Real estate and rental and leasing	53	253	246	7	0	7
Professional, scientific, and technical services	54	37,954	20,539	17,415	4,844	12,571
Architectural, engineering, and related services	5413	3,422	1,378	2,044	928	1,116
Computer systems design and related services	5415	12,146	8,569	3,577	784	2,793
Scientific research and development services	5417	17,913	8,708	9,205	2,115	7,090
Other professional, scientific, and technical services	other 54	4,474	1,884	2,590	1,016	1,574
Health care services	621–23	1,314	1,032	282	16	266
Other nonmanufacturing	55–56, 61, 624, 71–72, 81	D	D	D	D	D
All companies	21–23, 31–33, 42–81	290,681	232,505	58,176	36,360	21,816
Small companies (number of employees)[a]						
5–499	–	58,137	46,396	11,741	4,117	7,624
5–99	–	33,256	24,890	8,366	2,667	5,699
5–49	–	23,905	17,642	6,263	1,972	4,291
5–24	–	14,280	10,333	3,947	1,086	2,861
25–49	–	9,626	7,309	2,317	886	1,431
50–99	–	9,351	7,248	2,103	695	1,408
100–249	–	14,662	12,933	1,729	718	1,011
250–499	–	10,218	8,572	1,646	732	914
Medium and large companies (number of employees)						
500–999	–	11,886	9,673	2,213	747	1,466
1,000–4,999	–	46,337	39,010	7,327	2,162 i	5,165

Appendix table 4-15

Sources of funds for domestic R&D performed by the company, by industry and company size: 2008

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	R&D paid for by the company	R&D paid for by others		
				Total	U.S. federal government	Nonfederal sources
5,000–9,999	–	24,764	20,358	4,406	1,168	3,238
10,000–24,999	–	48,737	43,049	5,688	3,024	2,664
25,000 or more	–	100,820	74,020	26,800	25,142 i	1,658

* = < $500,000; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

BRDIS = Business R&D and Innovation Survey; NAICS = 2002 North American Industry Classification System

[a]Upper bound based on U.S. Small Business Administration's definition of a small business; BRDIS does not include companies with fewer than five domestic employees.

NOTES: Detail may not add to total because of rounding. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

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Appendix table 4-16

Domestic sales, domestic R&D performed and paid for by the company, and R&D intensity, by industry and company size: 2008

Industry and company size	NAICS code	Domestic sales (US$millions)	Domestic R&D performed and paid for by the company (US$millions)	R&D intensity (performance/ sales) (%)
All industries	21–23, 31–33, 42–81	7,796,340	232,505	3.0
Manufacturing industries	31–33	4,681,443	164,386	3.5
Food	311	476,888	2,063	0.4
Beverage and tobacco products	312	130,661	777	0.6
Textile, apparel, and leather	313–16	141,481	802	0.6
Wood products	321	40,999	270	0.7
Paper manufacturing	322	92,642	1,156	1.2
Printing and related support activities	323	16,597	312	1.9
Petroleum and coal products	324	271,430	D	D
Chemicals	325	902,410	55,042	6.1
Basic chemicals	3251	173,503	4,012	2.3
Resin, synthetic rubber, fibers, and filament	3252	180,105	726	0.4
Pesticide, fertilizer, and other agricultural chemical manufacturing	3253	32,021	941	2.9
Pharmaceuticals and medicines	3254	371,760	45,169	12.2
Soap, cleaning compound, and toilet preparation	3256	82,981	2,099	2.5
Paint, coating, adhesive, and other chemicals manufacturing	3255, 3259	62,041	2,095	3.4
Plastics and rubber products	326	162,697	1,713	1.1
Nonmetallic mineral products	327	78,828	1,509	1.9
Primary metals	331	154,706	654	0.4
Fabricated metal products	332	150,564	2,362	1.6
Machinery	333	278,700	9,846	3.5
Agricultural implement manufacturing	33311	35,818	1,181	3.3
Semiconductor machinery manufacturing	333295	7,328	2,113	28.8
Engine, turbine, and power transmission equipment manufacturing	3336	30,863	1,280	4.1
Other machinery manufacturing	other 333	204,691	5,272	2.6
Computer and electronic products	334	522,717	52,912	10.1
Communications equipment	3342	86,150	11,484	13.3
Semiconductor and other electronic components	3344	106,658	21,588	20.2
Navigational, measuring, electromedical, and control instruments	3345	180,705	10,463	5.8
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	334510, 334517	60,251	4,896	8.1
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	334511	75,426	2,803	3.7
Other measuring and controlling device manufacturing	other 3345	45,028	2,764	6.1
computer and electronic products	3341, 3343, 3346	149,203	9,377	6.3
Electrical equipment, appliances, and components	335	108,730	2,947	2.7
Transportation equipment	336	888,777	23,039	2.6
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	491,483	12,234	2.5
Aerospace products and parts	3364	372,438	10,371	2.8
Aircraft, aircraft engine, and aircraft parts manufacturing	336411–13	316,664	9,698	3.1
Guided missile, space vehicle, and related parts manufacturing	336414–15, 336419	55,774	673	1.2
Military armored vehicle, tank, and tank component manufacturing	336992	2,412	25	1.0
Other transportation	other 336	22,443	409	1.8
Furniture and related products	337	34,174	477	1.4
Miscellaneous manufacturing	339	228,441	D	D
Medical equipment and supplies manufacturing	3391	151,700	5,179	3.4
Other miscellaneous manufacturing	3399	76,742	D	D

Appendix table 4-16

Domestic sales, domestic R&D performed and paid for by the company, and R&D intensity, by industry and company size: 2008

Industry and company size	NAICS code	Domestic sales (US$millions)	Domestic R&D performed and paid for by the company (US$millions)	R&D intensity (performance/ sales) (%)
Nonmanufacturing industries	21–23, 42–81	3,114,898	68,118	2.2
Mining, extraction, and support activities	21	409,659	1,478	0.4
Utilities	22	314,855	190	0.1
Construction	23	45,544	D	D
Wholesale trade	42	247,904 i	1,944 i	0.8
Retail trade	44–45	79,571	1,029	1.3
Electronic shopping and mail-order houses	4541	5,030	674	13.4
Other retail trade	other 44–45	74,541	354	0.5
Transportation and warehousing	48–49	126,726	134	0.1
Information	51	776,062	36,922	4.8
Publishing	511	273,765	27,871	10.2
Newspaper, periodical, book, and directory publishers	5111	12,314	205	1.7
Software publishers	5112	261,451	27,665	10.6
Telecommunications	517	349,363	1,601	0.5
Internet service providers, Web search portals, and data processing services	518	104,885	6,493	6.2
Other information	other 51	48,049	958	2.0
Finance and insurance	52	377,279	1,084	0.3
Real estate and rental and leasing	53	18,328	246	1.3
Professional, scientific, and technical services	54	453,444	20,539	4.5
Architectural, engineering, and related services	5413	41,642	1,378	3.3
Computer systems design and related services	5415	204,868	8,569	4.2
Scientific research and development services	5417	136,105	8,708	6.4
Other professional, scientific, and technical services	other 54	70,829	1,884	2.7
Health care services	621–23	29,382	1,032	3.5
Other nonmanufacturing	55–56, 61, 624, 71–72, 81	236,144	D	D
All companies	21–23, 31–33, 42–81	7,796,340	232,505	3.0
Small companies (number of employees)[a]				
5–499	–	737,892	46,396	6.3
5–99	–	270,007	24,890	9.2
5–49	–	147,593	17,642	12.0
5–24	–	73,151	10,333	14.1
25–49	–	74,442	7,309	9.8
50–99	–	122,414	7,248	5.9
100–249	–	242,803	12,933	5.3
250–499	–	225,081	8,572	3.8
Medium and large companies (number of employees)				
500–999	–	328,990	9,673	2.9
1,000–4,999	–	1,076,460	39,010	3.6
5,000–9,999	–	902,756	20,358	2.3
10,000–24,999	–	1,542,122	43,049	2.8
25,000 or more	–	3,208,120	74,020	2.3

D = data withheld to avoid disclosing operations of individual companies; i =more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

BRDIS = Business R&D and Innovation Survey; NAICS = 2002 North American Industry Classification System

[a]Upper bound based on U.S. Small Business Administration's definition of a small business; BRDIS does not include companies with fewer than five domestic employees.

NOTES: Data are representative of companies that had either positive worldwide R&D expense or positive worldwide R&D costs funded by others in 2008. Detail may not add to total because of rounding. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

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Appendix table 4-17

Worldwide R&D expense and domestic R&D performance paid for by the company and by others, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D expense	Domestic R&D performance		
			Total	Paid for by company	Paid for by others
All business activities	21100–81390	328,040	290,681	232,505	58,176
Oil and gas extraction	21100	1,215	616	609	7
Coal mining	21210	55	D	52	D
Metal ore mining	21220	67	57	57	0
Nonmetallic mineral mining and quarrying	21230	129	126	126	0
Support activities for oil and gas operations	21300	914	D	706	D
Support activities for solid mineral operations	21310	*	*	*	0
Electric power generation, transmission, and distribution	22110	437	424	237	187
Natural gas distribution	22120	19	1	1	0
Water, sewage, and other systems	22130	10	8	7	1
Construction of buildings	23600	377	373	367	6
Heavy and civil engineering construction	23700	40	31	31	0
Specialty trade contractors	23800	1,123	1,072	1,065	7
Food manufacturing	31100	2,983	2,229	2,196	33
Beverage manufacturing	31210	605	*	437	*
Tobacco manufacturing	31220	D	D	D	3
Textile mill products	31300	474	322	318	4
Apparel manufacturing	31500	448	430	424	6
Leather and allied products manufacturing	31600	65	56	56	0
Wood products manufacturing	32100	264	*	216	*
Paper manufacturing	32200	1,130	897	896	1
Printing and related support activities	32300	297	*	291	*
Petroleum and coal products manufacturing	32400	1,082 i	D	949 i	D
Basic chemicals manufacturing	32510	3,806	2,918	2,871	47
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	32520	1,152	911	889	22
Pesticide, fertilizer, and other agricultural chemical manufacturing	32530	2,100	D	1,378	D
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic) manufacturing	32541	70,016	44,390	41,593	2,797
In-vitro diagnostic substances manufacturing	32542	1,988	1,051	982	69
Soap, cleaning compound, and toilet preparations manufacturing	32591	2,787	1,985	1,982	3
Paint, adhesive, and other chemical manufacturing	32592	2,152	1,773	1,750	23
Plastics and rubber products manufacturing	32600	2,536	2,175	2,099	76
Clay and glass products manufacturing	32710	966 i	931 i	903 i	28
Cement, concrete, lime, gypsum, and other nonmetallic mineral product manufacturing	32790	738	546	545	1
Iron and steel mills, ferroalloy, and steel product from purchased steel	33110	331	254	250	4
Nonferrous metals production and processing	33130	415	295	292	3
Ferrous and nonferrous foundries	33150	85	*	83	*
Fabricated metal products manufacturing	33200	2,935	2,617	2,474	143
Farm machinery and equipment manufacturing	33311	1,404	861	859	2
Construction machinery manufacturing	33312	581	498	498	0
Mining machinery and equipment manufacturing	33313	1,689	1,443	1,408	35
Oil and gas field machinery and equipment manufacturing	33314	277	255 i	255 i	0
Semiconductor machinery manufacturing	33321	2,553	2,179	2,152	27
Industrial machinery manufacturing, except semiconductor machinery	33322	1,191	850	831	19
Commercial, service industry, temperature control, and airflow control machinery manufacturing	33330	1,110	881	859	22
Engine, turbine, and power transmission equipment manufacturing	33360	2,386	1,982	1,859	123

Appendix table 4-17

Worldwide R&D expense and domestic R&D performance paid for by the company and by others, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D expense	Domestic R&D performance		
			Total	Paid for by company	Paid for by others
Metalworking and other general purpose machinery manufacturing	33390	2,039	1,460	1,394	66
Computers and peripheral equipment manufacturing	33410	12,443	9,526	9,223	303
Telephone apparatus manufacturing	33421	6,739	5,445	5,424	21
Radio and television broadcasting and wireless communications equipment manufacturing	33422	5,958	5,042	4,184	858
Communication equipment manufacturing, except broadcasting, wireless, and telephone apparatus	33429	2,482	2,360	1,833	527
Audio and video equipment manufacturing	33430	773	D	610	D
Semiconductor and other electronic components manufacturing	33440	29,911	23,154	22,674	480
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	33451	3,822	4,752	2,853	1,899
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing	33452	1,845	6,525	1,563	4,962
Measuring and control instruments manufacturing (not listed elsewhere)	33459	3,458	2,714	2,614	100
Manufacturing and reproducing magnetic and optical media manufacturing	33460	54	D	53	D
Electrical equipment, appliances, and components manufacturing	33500	4,687	3,128	2,978	150
Motor vehicles manufacturing	33610	18,296	8,970	8,305	665
Motor vehicle body and trailer manufacturing	33620	70	63	62	1
Motor vehicle parts manufacturing	33630	5,401	3,538	3,378	160
Aircraft manufacturing	33641	4,053	9,796	3,915	5,881
Aircraft engine and engine parts manufacturing	33642	2,433	3,530	1,612	1,918
Other aircraft parts and auxiliary equipment manufacturing	33643	1,222	1,705	942	763
Guided missiles, space vehicles, and parts manufacturing	33644	1,402	6,035	1,310	4,725
Railroad rolling stock manufacturing	33651	195	D	146	D
Ship and boat building	33660	151	D	139	D
Motorcycle, bicycle, and parts manufacturing	33691	199	173	173	0
Military armored vehicle, tank, and tank components manufacturing	33692	107	367	111	256
All other transportation equipment manufacturing	33699	176	211	148	63
Furniture and related products manufacturing	33700	511	*	435	*
Medical equipment and supplies manufacturing	33910	11,587	8,690	8,521	169
Miscellaneous manufacturing (not listed elsewhere)	33990	2,976	2,555	2,316	239
Merchant wholesalers, durable goods	42300	449	422	393	29
Merchant wholesalers, nondurable goods	42400	257	175	174	1
Wholesale electronic markets and agents and brokers	42500	14	25	12	13
Motor vehicle and parts dealers	44100	0	1	1	0
Electronics and appliance stores	44300	*	*	*	0
Food and beverage stores	44500	2	3	2	1
Clothing and clothing accessories stores	44800	1	8	8	0
General merchandise stores	45200	34	13	13	0
Electronic shopping and mail-order houses	45410	480	D	D	0
Nonstore retailers, except electronic shopping and mail-order houses	45490	12	1	1	0
Retail trade stores, including gasoline stations (not listed elsewhere)	45990	343	*	336	*
Air transportation	48100	D	D	D	0
Rail transportation	48200	37	*	37	*
Water transportation	48300	5	5	5	0
Truck transportation	48400	20	18	18	0
Transit and ground passenger transportation	48500	1	1	1	0

Appendix table 4-17

Worldwide R&D expense and domestic R&D performance paid for by the company and by others, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D expense	Domestic R&D performance		
			Total	Paid for by company	Paid for by others
Pipeline transportation of crude oil, refined petroleum, and miscellaneous products, except natural gas	48610	0	0	0	0
Pipeline transportation of natural gas	48620	3	0	0	0
Scenic and sightseeing transportation	48700	0	0	0	0
Support activities for transportation	48800	36	36	30	6
Couriers and messengers	49200	D	D	D	0
Warehousing and storage	49300	26	*	30	*
Newspaper, periodical, book, and directory publishers (except Internet)	51110	180	156	156	0
Software publishers (except Internet)	51120	31,369	24,227	23,860	367
Motion picture and sound recording (except Internet)	51200	104	94	94	0
Radio and television broadcasting (except Internet)	51510	48	32	32	0
Cable and other subscription programming (except Internet)	51520	D	D	D	0
Internet publishing and broadcasting	51600	188	*	179	*
Wired telecommunications carriers	51710	673	511	511	0
Wireless telecommunications carriers (except satellite)	51720	532 i	295	294	1
Satellite telecommunications	51740	153	D	121	D
Cable and other program distribution	51750	367	295	286	9
Telecommunications services (not listed elsewhere)	51790	501	452	393	59
Internet service providers and Web search portals	51810	4,558	3,725 i	3,718 i	7
Data processing, hosting, and related services	51820	3,515	3,048	3,004	44
Information services (not listed elsewhere)	51900	898	D	815	D
Depository credit intermediation	52210	284 i	282 i	282 i	0
Nondepository credit intermediation	52220	3	2	2	0
Activities related to credit intermediation	52230	430	376	376	0
Securities, commodity contracts, and other financial investments and related activities	52300	389	340	339	1
Insurance carriers	52410	199	145	145	0
Agencies, brokerages, and other insurance-related activities	52420	125 i	125 i	118 i	7
Funds, trusts, and other financial vehicles	52500	101	101	101	0
Real estate	53100	20	19	19	0
Automotive equipment rental and leasing	53210	D	D	D	0
Consumer goods and general rental centers	53220	296	131	131	0
Commercial and industrial machinery and equipment rental and leasing	53240	101	43	43	0
Lessors of nonfinancial intangible assets	53300	80	76	76	0
Legal services	54110	D	D	D	0
Accounting, tax preparation, bookkeeping, and payroll services	54120	676	577	577	0
Architectural, engineering, and related services	54130	1,742	6,923	1,365	5,558
Specialized design services	54140	75	628	58	570
Computer systems design and related services	54150	11,476	11,469	8,384	3,085
Management, scientific, and technical consulting services	54160	1,110	1,637	884	753
Scientific research and development services	54170	12,656	16,557	8,464	8,093
Advertising and related services	54180	37	*	60	*
Professional, scientific, and technical services (not listed elsewhere)	54190	439	1,196	374	822
Management of companies and enterprises	55100	11	*	11	*
Business support services	56140	125	*	83	*
Travel arrangement and reservation services	56150	27	19	19	0
Investigation, security, and services to buildings and dwellings	56160	137	62	61	1
Office administrative, facilities, employment, and other support services	56190	1,139	1,217	1,126	91
Waste collection, treatment, and disposal	56210	7	7	7	0
Remediation and other waste management services	56290	*	*	*	0
Educational services	61100	202	193	185	8

Appendix table 4-17

Worldwide R&D expense and domestic R&D performance paid for by the company and by others, by business activity: 2008

(Millions of U.S. dollars)

Business activity	Business code[a]	Worldwide R&D expense	Domestic R&D performance		
			Total	Paid for by company	Paid for by others
Offices of physicians	62110	40	51	30	21
Offices of dentists and other health practitioners	62120	202	201	201	0
Medical and diagnostic laboratories	62150	903	1,072	781	291
Home health care services	62160	3	3	3	0
Outpatient care centers and other ambulatory health care services	62190	53	12	7	5
General medical and surgical hospitals	62210	13	35	12	23
Psychiatric, substance abuse, and specialty hospitals	62220	0	0	0	0
Nursing and residential care facilities	62300	15	10	10	0
Social assistance (except child day care services)	62400	8	6	6	0
Child day care services	62440	1	1	1	0
Performing arts, spectator sports, and related industries	71100	24	24	24	0
Amusement, gambling, and recreation industries	71300	138	D	78	D
Traveler accommodation services	72100	0	0	0	0
Food services and drinking places	72200	481	480	480	0
Automotive repair and maintenance	81110	307	269	269	0
Repair and maintenance, except automotive	81190	99	55	55	0
Personal care, death care, laundry, and other personal services	81200	37	30	30	0
Business, professional, labor, political, and similar organizations	81390	1	0	0	0
Undistributed	–	10,660	18,547	9,209	9,338

* = < $500,000; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = North American Industry Classification System

[a]Business codes and descriptions based on 2002 NAICS industry definitions.

NOTES: Data tabulated independent of the industry classification of the company. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2008.

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Appendix table 4-18

R&D expenditures by majority-owned affiliates of foreign companies in United States, by region/country/economy of ultimate beneficial owner: 1997–2008

(Millions of current U.S. dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	17,216	22,375	24,027	26,180	26,463	27,507	29,803	30,083	31,099	34,625	40,967	40,519
Canada	1,668	2,352	2,385	3,693	2,136	1,599	1,380	1,459	1,553	1,581	1,574	1,435
Europe	12,327	16,425	18,055	18,634	19,973	20,532	22,518	22,825	23,389	26,100	31,330	30,276
Belgium	D	D	175	167	108	87	117	137	136	288	353	470
Denmark	97	127	D	D	D	114	100	160	319	371	368	418
Finland	D	D	166	157	601	544	D	D	D	D	371	587
France	1,783	1,881	2,434	2,596	2,662	2,860	3,777	3,800	3,099	3,289	5,589	5,978
Germany	2,923	5,381	6,135	5,603	5,686	5,863	5,976	5,916	6,519	6,857	5,893	5,520
Ireland	D	56	D	D	D	369	D	266	247	207	257	280
Italy	D	D	294	D	D	261	225	230	262	344	358	391
Netherlands	990	964	1,296	1,421	1,660	1,696	1,612	1,319	1,470	1,678	1,729	1,789
Spain	D	D	D	D	26	D	44	D	D	D	40	54
Sweden	687	713	428	373	465	270	261	270	272	344	388	321
Switzerland	2,369	3,076	3,008	2,922	3,107	2,920	3,791	4,185	4,289	5,014	6,395	6,926
United Kingdom	2,984	3,720	3,678	4,632	4,819	5,427	5,723	5,807	5,994	6,924	9,470	7,369
Other	*	1	1	3	3	5	6	6	D	32	119	175
Latin America/OWH	373	396	564	735	1,126	1,066	D	D	D	D	1,666	1,796
South and Central America	D	D	92	D	112	D	D	D	D	D	D	D
Brazil	*	*	*	*	*	0	0	0	0	* e	*	*
Mexico	D	55	D	D	D	45	14 e	17 e	18 e	16 e	6	9
Venezuela	3	0	0	0	0	0	0	*	*	0	0	0
Other	*	*	*	*	*	2	*	3	3	3	D	D
Other Western Hemisphere	D	D	472	D	1,014	D	1,180	1,069	1,121	1,249	D	D
Bermuda	D	D	D	D	D	D	853	873	909	950	D	1,224
United Kingdom Islands, Caribbean	1	1	1	D	D	D	D	D	D	D	D	108
Other	0	0	0	0	0	*	* e	D	D	D	D	D
Africa	D	D	D	D	36	33	31	36	35	35	D	D
South Africa	D	D	D	D	36	33	31	36	35	35	D	D
Other	0	0	0	0	0	0	0	0	0	0	0	D
Middle East	103	132	D	D	177	175	D	D	D	D	306	356
Israel	95	117	D	102	99	89	106	123	135	147	149	201
Saudi Arabia	1	7	9	10	11	D	D	D	D	D	108	107
United Arab Emirates	*	0	0	0	0	0	0	0	0	0	0	0
Other	7	8	7	D	66	D	71 e	41	42	28	49	49
Asia and Pacific	2,642	2,961	2,820	2,864	2,946	3,413	3,763	3,763	4,067	4,698	5,069	5,444
Australia	D	D	32	34	33	36	43 e	42	90	174	170	140
China	D	9	D	D	D	18	5	14	D	D	0	8
Hong Kong	4	1	1	*	D	D	D	D	62	75	D	D
India	na	na	na	na	na	0	* e	0	0	0	6	10
Japan	2,036	2,584	2,535	2,644	2,719	3,159	3,470	3,414	3,576	4,056	4,416	4,637
Singapore	D	16	13	9	1	D	18	20 e	25	42 e	69	120
South Korea	D	D	D	D	D	D	D	D	D	D	215	261

Appendix table 4-18

R&D expenditures by majority-owned affiliates of foreign companies in United States, by region/country/economy of ultimate beneficial owner: 1997–2008

(Millions of current U.S. dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Taiwan	78	73	68	47	43	83	102 e	102 e	122	113 e	110	120
Other	*	*	0	0	0	0	1	1	*	D	D	D
United States	D	D	55	62	69	689	D	D	692	721 e	D	D
Addenda:												
European Union[a]	9,902	13,326	14,980	15,659	16,787	17,554	18,676	18,570	18,991	21,041	24,854	23,223
OPEC	10	16	19	17	18	18	D	D	D	D	108	D

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; e = >50% of value for data cell estimated to account for data not reported by respondents; na = not available

OPEC = Organization of the Petroleum Exporting Countries; OWH = other Western Hemisphere

[a]Reflects the country composition of the European Union for the given year.

NOTES: Preliminary estimates for 2008. Data for R&D performance of majority-owned (>50%) nonbank U.S. affiliates of foreign parent companies. Total R&D performed refers to R&D expenditures according to who conducts R&D activity, whether for themselves or for others under contract, and excludes R&D expenditures conducted by others under contract. Ultimate beneficial owner is person proceeding up U.S. affiliate's ownership chain beginning with and including foreign parent not owned >50% by another person. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis, Survey of Foreign Direct Investment in the United States (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-19

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 1997–2001

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1997	1998	1999	2000	2001
All industries	na	17,216	22,375	24,027	26,180	26,463
Manufacturing	31–33	14,270	18,788	19,991	20,990	20,054
Food	311	239	224	205	200	197
Beverages and tobacco products	312	D	52	37	36	35
Textiles, apparel, and leather products	313–16	D	41	43	33	35
Wood products	321	*	*	1	1	7
Paper	322	104	102	98	98	81
Printing and related support activities	323	34	42	76	54	43
Petroleum and coal products	324	272	479	D	D	D
Chemicals	325	6,754	7,770	7,679	7,341	7,563
Basic chemicals	3251	617	623	832	D	D
Resins and synthetic rubber, fibers, and filaments	3252	D	287	D	149	272
Pharmaceuticals and medicines	3254	5,304	6,381	6,191	5,943	6,124
Soap, cleaning compounds, and toilet preparations	3256	D	D	D	D	D
Other	na	260	D	204	238	219
Plastics and rubber products	326	331	349	372	301	305
Nonmetallic mineral products	327	214	146	172	199	206
Primary and fabricated metals	na	263	246	210	280	232
Primary metals	331	60	65	61	67	D
Fabricated metal products	332	203	181	149	213	D
Machinery	333	721	677	898	1,748	D
Agriculture, construction, and mining machinery	3331	103	69	290	237	201
Industrial machinery	3332	83	90	D	119	D
Other	na	535	518	D	1,392	1,408
Computers and electronic products	334	3,413	4,487	5,031	6,152	4,867
Computers and peripheral equipment	3341	120	324	D	D	104
Communications equipment	3342	2,243	3,045	3,431	4,607	2,998
Audio and video equipment	3343	D	D	211	D	D
Semiconductors and other electronic components	3344	586	635	917	1,003	1,077
Navigational, measuring, and other instruments	3345	D	D	D	366	675
Magnetic and optical media	3346	D	10	5	9	D
Electrical equipment, appliances, and components	335	781	885	1,195	823	875
Transportation equipment	336	641	2,762	3,204	3,344	3,193
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	500	2,555	D	3,082	2,910
Other	na	141	207	D	262	283
Furniture and related products	337	9	11	D	D	D
Miscellaneous manufacturing	339	392	516	432	238	300
Wholesale trade	42	D	D	D	D	D
Motor vehicles and motor vehicle parts and supplies	4211	325	315	237	283	D
Professional and commercial equipment and supplies	4214	407	202	198	185	184
Electrical goods	4216	328	476	368	533	1,148
Other durable goods	na	135	123	91	123	271
Petroleum and petroleum products	4227	D	D	D	D	D
Other nondurable goods	na	D	D	D	D	D
Retail trade	44-45	3	D	D	D	D
Food and beverage stores	445	*	*	0	0	0
Other	na	3	D	D	D	D
Information	51	260	329	548	790	D
Publishing industries	511	D	D	D	D	D
Motion picture and sound recording industries	512	5	1	*	*	*
Broadcasting and telecommunications	513	7	6	D	D	13
Broadcasting, cable networks, and program distribution	5131, 5132	0	0	0	0	0
Telecommunications	5133	7	6	D	D	13
Information services and data processing services	514	D	D	D	D	180
Finance (except depository institutions) and insurance	52	12	D	D	D	D
Finance, except depository institutions	na	12	D	D	D	D
Insurance carriers and related activities	524	0	2	4	1	1
Real estate and rental and leasing	53	1	12	D	D	D
Real estate	531	*	8	*	*	*
Rental and leasing (except real estate)	532	1	4	D	D	D

Appendix table 4-19

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 1997–2001

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1997	1998	1999	2000	2001
Professional, scientific, and technical services	54	597	685	836	828	804
Architectural, engineering, and related services	5413	12	13	36	18	13
Computer systems design and related services	5415	281	333	315	314	204
Management, scientific, and technical consulting	5416	*	*	0	0	D
Other	na	303	339	485	495	D
Other industries	na	D	506	453	407	426
Agriculture, forestry, fishing, and hunting	11	71	75	89	90	91
Mining	21	D	254	221	213	D
Utilities	22	11	18	D	D	D
Construction	23	9	D	49	D	D
Transportation and warehousing	48–49	D	18	19	7	6
Management of nonbank companies and enterprises	55	D	D	D	D	D
Administration, support, and waste management	56	0	1	*	D	30
Health care and social assistance	62	D	D	D	D	D
Accommodation and food services	72	*	*	*	*	*
Accommodation	721	0	0	0	0	*
Food services and drinking places	722	*	*	*	*	*
Miscellaneous services	na	*	3	7	D	D

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; na = not applicable

NAICS = North American Industry Classification System

NOTES: Data for R&D performance of majority-owned (>50%) nonbank U.S. affiliates of foreign parent companies. Total R&D performed refers to R&D expenditures according to who conducts R&D activity, whether for performer or for others under contract, and excludes R&D expenditures conducted by others under contract. Industry data are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the NAICS. Data for 1997–2001 are based on the 1997 NAICS. Ultimate beneficial owner is person proceeding up U.S. affiliate's ownership chain beginning with and including foreign parent not owned >50% by another person. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis, Survey of Foreign Direct Investment in the United States (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-20

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 2002–06

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2002	2003	2004	2005	2006
All industries	na	27,507	29,803	30,083	31,099	34,625
Manufacturing	31–33	20,128	20,988	20,587	21,506	25,114
Food	311	368	166	440	498	462
Beverages and tobacco products	312	80	D	61	43	53
Textiles, apparel, and leather products	313–16	D	30	27	37	39 e
Paper	322	75	67	64	64	57
Printing and related support activities	323	39	50	2 e	2	3 e
Petroleum and coal products	324	D	D	D	D	D
Chemicals	325	7,610	9,957	9,922	9,888	12,866
Basic chemicals	3251	608	589	655	513	604
Resins and synthetic rubber, fibers, and filaments	3252	331	311	131	78	65
Pharmaceuticals and medicines	3254	6,373	8,505	8,678	8,710	11,638
Soap, cleaning compounds, and toilet preparations	3256	74	304	96	99	108
Other	na	224	248	361	489	451
Plastics and rubber products	326	275	423	374	342	490
Nonmetallic mineral products	327	204	198	207	219	219
Primary and fabricated metals	na	254	194	247	270	258
Primary metals	331	46	28	80	90	60
Fabricated metal products	332	208	165	167	181	198
Machinery	333	1,681	1,572	1,638	1,552	1,752
Agriculture, construction, and mining machinery	3331	387	361	258	243	348
Industrial machinery	3332	192	223 e	322	114	124
Other	na	1,103	988	1,058	1,195	1,279
Computers and electronic products	334	4,985	3,340	2,690	2,847	3,055
Computers and peripheral equipment	3341	D	145	159 e	D	D
Communications equipment	3342	2,055	1,403	630	570	600
Semiconductors and other electronic components	3344	D	444	495	547	409
Navigational, measuring, and other instruments	3345	1,734	1,278	1,307 e	1,453	1,760
Other	na	42	70	99 e	D	D
Electrical equipment, appliances, and components	335	380	336	D	D	385
Transportation equipment	336	3,302	3,669	3,707	4,244	4,052
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	3,041	3,386	3,279	3,663	3,416
Other	na	261	283	428	581	636
Other	na	708	681	798	855	D
Wholesale trade	42	4,855	6,030	6,674	6,529	5,955
Motor vehicles and motor vehicle parts and supplies	4231	337	466	533	347	383
Electrical goods	4236	1,079	1,554	2,191	2,128	2,210
Petroleum and petroleum products	4247	D	D	D	D	D
Other	na	D	D	D	D	D
Retail trade	44–45	D	D	D	D	16
Food and beverage stores	445	*	* e	0	*	0
Other	na	D	D	D	D	16
Information	51	803	852	986	1,009	996
Publishing industries	511	763	632	692	645	640
Motion picture and sound recording industries	512	3	1	* e	* e	* e
Telecommunications	517	11	9	D	D	D
Other	na	26	210	D	D	D
Finance (except depository institutions) and insurance	52	D	13 e	9 e	6 e	5 e
Finance, except depository institutions	na	D	12 e	9 e	6 e	5 e
Insurance carriers and related activities	524	6	1	0	*	* e
Real estate and rental and leasing	53	9	9	6	11	D
Real estate	531	1	* e	* e	* e	* e
Rental and leasing (except real estate)	532	8	8	6	11	D
Professional, scientific, and technical services	54	1,119	1,379	1,436	1,590	1,954
Architectural, engineering, and related services	5413	86	75	80	166	254
Computer systems design and related services	5415	171	278	219	153	252
Management, scientific, and technical consulting	5416	3	3 e	0	*	0
Other	na	859	1,023	1,137	1,271	1,447
Other industries	na	D	D	D	D	D
Agriculture, forestry, fishing, and hunting	11	82	82	41	62	41
Mining	21	D	333	199	208	414

Appendix table 4-20

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 2002–06

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2002	2003	2004	2005	2006
Utilities	22	3	5	0	0	*
Construction	23	D	7	6	5 e	11
Transportation and warehousing	48–49	3	0	D	D	D
Management of nonbank companies and enterprises	55	*	* e	1	1	1
Administration, support, and waste management	56	3	4	*	*	* e
Health care and social assistance	62	D	D	33	51	21
Accommodation and food services	72	*	0	*	0	0
Miscellaneous services	na	D	*	D	D	D

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; e = >50% of value for data cell estimated to account for data not reported by respondents; na = not applicable

NAICS = North American Industry Classification System

NOTES: Data for R&D performance of majority-owned (>50%) nonbank U.S. affiliates of foreign parent companies. Total R&D performed refers to R&D expenditures according to who conducts R&D activity, whether for performer or for others under contract, and excludes R&D expenditures conducted by others under contract. Industry data are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the NAICS. Data for 2002–06 are based on the 2002 NAICS. Ultimate beneficial owner is person proceeding up U.S. affiliate's ownership chain beginning with and including foreign parent not owned >50% by another person. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis, Survey of Foreign Direct Investment in the United States (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-21

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 2007–08

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2007	2008
All industries	na	40,967	40,519
Manufacturing	31–33	30,615	28,190
Food	311	D	557
Beverages and tobacco products	312	54	47
Paper	322	52	43
Petroleum and coal products	324	D	D
Chemicals	325	15,908	14,121
Basic chemicals	3251	603	670
Pharmaceuticals and medicines	3254	14,331	12,537
Other	na	974	914
Plastics and rubber products	326	421	424
Nonmetallic mineral products	327	277	242
Primary and fabricated metals	na	292	364
Primary metals	331	67	112
Fabricated metal products	332	225	252
Machinery	333	1,939	2,535
Computers and electronic products	334	3,838	4,259
Semiconductors and other electronic components	3344	683	783
Navigational, measuring, and other instruments	3345	351	406
Other	na	2,804	3,070
Electrical equipment, appliances, and components	335	446	499
Transportation equipment	336	5,778	4,015
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	2,441	1,444
Other	na	3,336	2,571
Other	na	651	D
Wholesale trade	42	6,635	7,404
Motor vehicles and motor vehicle parts and supplies	4231	464	357
Electrical goods	4236	2,146	2,406
Petroleum and petroleum products	4247	D	D
Other	na	D	D
Retail trade	44–45	D	D
Food and beverage stores	445	0	0
Other	na	D	D
Information	51	1,252	2,108
Publishing industries	511	907	1,760
Telecommunications	517	D	D
Other	na	D	D
Finance and insurance	52	10	8
Depository credit intermediation (banking)	5221	0	0
Finance, except depository institutions	na	10	7
Insurance carriers and related activities	524	*	1
Real estate and rental and leasing	53	D	D
Real estate	531	1	D
Rental and leasing (except real estate)	532	D	D
Professional, scientific, and technical services	54	2,021	2,347
Architectural, engineering, and related services	5413	322	279
Computer systems design and related services	5415	390	311
Management, scientific, and technical consulting	5416	5	5
Other	na	1,305	1,752
Other industries	na	387	410
Mining	21	132	170
Utilities	22	1	8
Construction	23	D	15
Transportation and warehousing	48–49	D	D
Administration, support, and waste management	56	D	D

Appendix table 4-21

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 2007–08

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2007	2008
Health care and social assistance	62	D	D
Accommodation and food services	72	*	*
Miscellaneous services	na	89	87

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; e = >50% of value for data cell estimated to account for data not reported by respondents; na = not applicable

NAICS = North American Industry Classification System

NOTES: Data for R&D performance of majority-owned (>50%) nonbank U.S. affiliates of foreign parent companies. Total R&D performed refers to R&D expenditures according to who conducts R&D activity, whether for performer or for others under contract, and excludes R&D expenditures conducted by others under contract. Industry data are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the NAICS. Data for 2007–08 are based on the 2002 NAICS. Ultimate beneficial owner is person proceeding up U.S. affiliate's ownership chain beginning with and including foreign parent not owned >50% by another person. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis, Survey of Foreign Direct Investment in the United States (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-22

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by region/country/economy: 1997–2008

(Millions of current U.S. dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	14,593	14,664	18,144	20,457	19,702	21,063	22,793	25,840	27,653	29,583	34,446	36,991
Canada	1,823	1,750	1,681	2,332	2,131	2,274	2,444	2,729	2,433	2,439	2,712	3,040
Europe	10,003	10,387	12,217	12,870	12,060	13,453	14,890	16,874	18,805	19,326	22,730	24,155
Austria	77	85	82	D	62	52	34	131	191	313	459	488
Belgium	310	320	375	412	407	502	463	373	920	961	1,191	1,259
Czech Republic	NA	NA	6	18	3	11	18	19	65	71	59	90
Denmark	D	D	57	65	D	D	60	147	140	148	145	292
Finland	51	61	59	78	77	72	102	118	187	113	169	187
France	1,281	1,328	1,452	1,465	1,411	1,690	1,777	1,821	2,248	1,518	1,557	2,171
Germany	2,940	3,022	3,377	3,115	3,280	3,598	3,907	4,184	4,609	4,947	6,403	7,039
Greece	7	7	6	11	12	15	16	8	29	41	36	37
Hungary	NA	NA	13	35	17	19	15	38	31	36	39	49
Ireland	320	363	251	465	537	D	583	815	820	1,074	1,510	1,503
Italy	569	584	504	592	541	548	625	707	580	702	619	582
Luxembourg	D	D	D	D	D	D	91	D	D	268	304	D
Netherlands	480	384	374	369	475	419	513	442	392	536	752	1,484
Norway	23	18	26	19	38	35	21	32	100	41	46	50
Poland	NA	NA	34	22	13	29	37	D	54	74	73	109
Portugal	30	34	14	20	19	29	21	9	16	23	80	44
Russia	NA	NA	1	1	*	2	1	17	28	82	100	116
Spain	181	184	D	213	181	209	290	344	257	278	355	379
Sweden	405	445	1,036	1,341	813	1,317	1,398	1,451	1,652	1,524	1,584	1,576
Switzerland	230	223	231	286	392	392	523	760	878	947	1,162	1,123
Turkey	6	6	6	9	11	13	17	15	27	36	54	61
United Kingdom	2,843	3,065	4,000	4,111	3,642	3,856	4,368	5,361	5,406	5,551	6,000	5,157
Other	54	81	1	7	7	9	8	16	D	41	35	D
Latin America/OWH	663	748	613	663	562	785	680	726	841	1,046	1,169	1,465
South America	523	547	366	335	288	389	370	405	453	636	776	983
Argentina	43	56	26	38	43	24	22	25	21	31	64	87
Brazil	437	446	288	253	199	305	316	350	405	574	607	791
Chile	7	6	4	11	8	6	9	11	7	7	48	D
Colombia	12	11	6	10	11	10	7	5	6	7	16	18
Ecuador	1	1	*	*	*	*	*	*	1	*	3	4
Peru	11	11	2	2	2	2	2	2	4	3	D	33
Venezuela	11	14	40	22	24	42	12	12	7	12	20	19
Other	1	2	*	*	2	1	1	1	1	0	D	D
Central America	131	198	240	321	252	287	D	320	D	D	D	363
Costa Rica	4	6	2	D	4	7	6	8	9	8	7	D
Honduras	*	0	0	0	0	0	0	1	0	0	0	4
Mexico	126	191	238	303	248	280	D	D	D	D	303	329
Panama	1	1	*	*	*	*	*	*	*	*	D	1
Other	*	*	*	D	*	*	*	D	*	*	D	D
OWH	8	4	6	6	22	108	D	1	D	D	D	119
Barbados	0	0	*	*	0	D	D	0	0	0	*	*
Bermuda	*	*	1	1	2	2	0	0	0	2	D	D
Dominican Republic	0	*	1	1	1	D	1	*	*	*	*	1
United Kingdom Islands, Caribbean	8	3	4	4	D	D	D	0	D	D	*	3
Other	0	0	0	*	D	2	1	1	D	D	8	D
Africa	26	35	18	25	29	29	31	28	40	67	59	57
Egypt	1	2	3	3	4	5	4	2	4	4	3	5
Nigeria	*	*	0	1	*	*	0	*	0	2	3	4
South Africa	22	30	14	21	24	D	24	23	31	53	47	43
Other	2	3	1	*	1	D	3	2	4	7	5	6
Middle East	208	141	389	630	726	736	687	875	770	840	1,027	1,063
Israel	208	141	389	630	726	736	687	872	767	839	1,025	1,060
Saudi Arabia	*	*	*	*	*	0	0	*	*	*	*	*
United Arab Emirates	*	*	0	0	0	0	*	2	3	1	2	4
Other	0	0	0	0	0	0	0	0	0	0	0	0
Asia and Pacific	1,869	1,603	3,226	3,936	4,194	3,786	4,062	4,608	4,764	5,864	6,750	7,210
Australia	369	290	294	349	286	310	420	474	556	718	1,072	923

Appendix table 4-22

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by region/country/economy: 1997–2008

(Millions of current U.S. dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China	35	52	319	506	D	645	565	575	668	759	1,173	1,517
Hong Kong	82	66	214	D	289	D	227	213	98	108	93	102
India	22	23	20	D	D	75	81	113	327	337	382	582
Indonesia	5	4	1	2	3	3	4	5	4	11	13	15
Japan	1,089	962	1,523	1,630	1,507	1,541	1,649	1,627	1,717	1,862	1,919	1,872
Malaysia	32	30	161	218	D	D	251	161	201	252	390	360
New Zealand	18	15	9	8	10	6	9	25	35	38	30	26
Philippines	12	10	31	40	48	50	52	44	27	22	45	51
Singapore	73	62	426	551	755	398	514	704	576	845	549	621
South Korea	41	29	101	143	157	169	202	277	456	742	928	966
Taiwan	84	55	122	143	139	69	64	365	68	123	97	102
Thailand	5	4	7	13	18	19	24	24	31	47	54	69
Other	1	1	*	*	*	1	*	*	*	1	3	4
Addenda:												
European Union[a]	9,691	10,058	11,900	12,472	11,578	12,941	14,249	16,048	17,768	18,209	21,365	22,803
OPEC	18	19	42	25	27	45	17	20	14	26	38	47

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; NA = not available

OPEC = Organization of the Petroleum Exporting Countries; OWH = other Western Hemisphere

[a]Reflects the country composition of the European Union for the given year.

NOTES: Preliminary estimates for 2008. Data for majority-owned (> 50%) nonbank foreign affiliates of nonbank U.S. parents. Data include R&D expenditures performed by affiliates, whether for themselves or for others under contract. Data exclude R&D expenditures by others for affiliates under contract. Detail may not add to total because of rounding. Data for the European Union reflect its membership for the given year as calculated by the Bureau of Economic Analysis.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-23

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by selected NAICS industry of affiliate: 1999–2003

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003
All industries	na	18,144	20,457	19,702	21,063	22,793
Mining	21	8	16	10	12	11
Oil and gas extraction	211	4	10	5	8	5
Other	na	4	6	4	4	6
Utilities	22	*	2	1	1	2
Manufacturing	31–33	16,388	18,455	17,383	18,736	19,819
Food	311	367	279	321	341	420
Beverages and tobacco products	312	32	34	12	D	8
Textiles, apparel, and leather products	313–16	37	34	32	56	61
Wood products	321	2	2	*	1	8
Paper	322	265	88	75	81	73
Printing and related support activities	323	3	3	2	2	9
Petroleum and coal products	324	66	63	37	D	44
Chemicals	325	4,340	4,609	4,503	5,141	5,528
Basic chemicals	3251	106	156	143	117	115
Resins and synthetic rubber, fibers, and filaments	3252	173	196	189	218	215
Pharmaceuticals and medicines	3254	3,578	3,882	3,762	4,230	4,630
Soap, cleaning compounds, and toilet preparations	3256	135	87	66	265	181
Other	na	348	289	343	311	386
Plastics and rubber products	326	216	304	261	316	290
Nonmetallic mineral products	327	38	49	57	66	54
Primary and fabricated metals	na	151	184	153	180	228
Primary metals	331	27	23	32	32	35
Fabricated metal products	332	124	161	121	148	193
Machinery	333	748	772	743	634	783
Agriculture, construction, and mining machinery	3331	168	188	179	173	220
Industrial machinery	3332	216	255	237	128	131
Other	na	364	329	327	334	433
Computers and electronic products	334	3,773	5,440	5,697	4,975	4,796
Computers and peripheral equipment	3341	356	342	384	388	402
Communications equipment	3342	2,403	3,853	4,061	3,131	2,987
Audio and video equipment	3343	146	D	D	67	67
Semiconductors and other electronic components	3344	644	854	811	1,043	949
Navigational, measuring, and other instruments	3345	224	316	381	346	391
Magnetic and optical media	3346	0	D	D	0	0
Electrical equipment, appliances, and components	335	214	310	339	425	498
Transportation equipment	336	5,669	5,765	4,690	5,964	6,455
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	5,385	5,463	4,321	5,553	5,928
Other	na	284	303	369	410	527
Furniture and related products	337	D	48	D	57	27
Miscellaneous manufacturing	339	D	471	D	432	535
Wholesale trade	42	515	553	739	610	692
Professional and commercial equipment and supplies	4214	272	225	315	233	295
Other durable goods	na	69	138	86	67	70
Petroleum and petroleum products	4227	D	8	6	1	2
Other nondurable goods	na	D	182	331	309	325
Information	51	161	410	410	591	818
Publishing industries	511	D	381	389	556	773
Motion picture and sound recording industries	512	*	1	1	*	*
Broadcasting and telecommunications	513	1	11	3	11	15
Broadcasting, cable networks, and program distribution	5131, 5132	0	1	1	0	1
Telecommunications	5133	1	10	2	11	15
Information services and data processing services	514	D	16	17	24	29
Finance (except depository institutions) and insurance	52	1	3	D	14	1
Finance, except depository institutions	na	0	2	D	13	1
Securities, commodity contracts, and other intermediation and related activities	523	0	1	D	13	*

Appendix table 4-23

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by selected NAICS industry of affiliate: 1999–2003

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003
Other finance, except depository institutions	na	0	1	0	0	*
Insurance carriers and related activities	524	1	1	1	1	0
Professional, scientific, and technical services	54	1,040	930	1,062	1,019	1,351
Architectural, engineering, and related services	5413	D	73	75	120	51
Computer systems design and related services	5415	305	347	395	447	532
Management, scientific, and technical consulting	5416	D	28	24	23	26
Advertising and related services	5418	0	6	4	1	2
Other	na	519	475	564	428	741
Other industries	na	31	89	D	80	98
Agriculture, forestry, fishing, and hunting	11	5	D	D	D	D
Construction	23	*	*	*	0	*
Retail trade	44–45	1	6	D	D	8
Transportation and warehousing	48–49	0	*	3	1	*
Real estate and rental and leasing	53	1	2	2	2	2
Real estate	531	0	0	0	0	0
Rental and leasing (except real estate)	532	1	2	2	2	2
Management of nonbank companies and enterprises	55	16	50	52	42	D
Administration, support, and waste management	56	0	1	2	6	4
Health care and social assistance	62	*	*	*	*	*
Accommodation and food services	72	*	2	2	3	3
Accommodation	721	0	0	0	0	0
Food services and drinking places	722	*	2	2	3	3
Miscellaneous services	na	8	D	6	5	6

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; na = not applicable

NAICS = North American Industry Classification System

NOTES: Data for majority-owned (>50%) nonbank foreign affiliates of nonbank U.S. parents. Data include R&D expenditures performed by affiliates, whether for themselves or for others under contract. Data exclude R&D expenditures by others for affiliates under contract. Industry data are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the North American Industry Classification System (NAICS). Data for 1999–2003 are based on the 1997 NAICS.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-24

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by selected NAICS industry of affiliate: 2004–08

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2004	2005	2006	2007	2008
All industries	na	25,840	27,653	29,583	34,446	36,991
Mining	21	12	13	23	63	105
Oil and gas extraction	211	4	3	13	38	51
Other	na	8	9	10	25	54
Utilities	22	4	5	7	*	*
Manufacturing	31–33	22,400	23,508	24,172	27,825	29,385
Food	311	627	358	428	517	482
Beverages and tobacco products	312	23	18	18	37	41
Textiles, apparel, and leather products	313–16	68	44	69	89	65
Wood products	321	5	6	5	5	3
Paper	322	88	63	66	50	63
Printing and related support activities	323	11	12	6	9	8
Petroleum and coal products	324	45	25	27	26	24
Chemicals	325	5,629	6,589	6,442	8,670	8,754
Basic chemicals	3251	135	142	163	165	195
Resins and synthetic rubber, fibers, and filaments	3252	235	237	254	253	259
Pharmaceuticals and medicines	3254	4,770	5,665	5,442	7,502	7,578
Soap, cleaning compounds, and toilet preparations	3256	106	151	139	248	220
Other	na	382	393	444	501	502
Plastics and rubber products	326	201	358	388	455	495
Nonmetallic mineral products	327	378	50	43	47	77
Primary and fabricated metals	na	167	303	327	347	353
Primary metals	331	41	53	60	48	72
Fabricated metal products	332	127	250	267	299	280
Machinery	333	781	938	1,120	1,260	1,457
Agriculture, construction, and mining machinery	3331	245	315	330	355	481
Industrial machinery	3332	93	108	256	312	338
Other	na	443	515	533	593	638
Computers and electronic products	334	5,076	4,822	4,954	4,897	6,354
Computers and peripheral equipment	3341	472	211	154	223	912
Communications equipment	3342	2,757	1,961	2,005	1,767	1,863
Audio and video equipment	3343	D	D	D	D	D
Semiconductors and other electronic components	3344	1,271	1,928	2,014	1,917	2,463
Navigational, measuring, and other instruments	3345	517	546	589	676	D
Magnetic and optical media	3346	D	D	D	D	8
Electrical equipment, appliances, and components	335	533	623	652	474	586
Transportation equipment	336	7,926	8,021	8,505	9,663	9,163
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	7,362	7,471	7,911	9,067	8,541
Other	na	564	550	595	596	622
Furniture and related products	337	43	18	17	7	10
Miscellaneous manufacturing	339	798	1,261	1,102	1,275	1,450
Wholesale trade	42	796	931	1,131	1,365	1,461
Professional and commercial equipment and supplies	4234	312	327	466	473	525
Petroleum and petroleum products	4247	2	2	3	3	2
Drugs and druggists' sundries	4242	57	65	148	351	668
Other	na	426	536	515	538	266
Information	51	576	689	1,053	1,618	1,954
Publishing industries	511	547	612	980	D	1,810
Motion picture and sound recording industries	512	0	*	*	0	0
Broadcasting (except Internet) and telecommunications	na	5	D	5	D	D
Broadcasting (except Internet)	515	1	D	1	D	1
Telecommunications	517	4	D	3	5	D
Internet, data processing, and other information services	516, 518, 519	23	D	68	D	D
Finance (except depository institutions) and insurance	52	2	5	1	*	2
Finance, except depository institutions	na	2	4	1	*	1
Securities, commodity contracts, and other intermediation and related activities	523	2	4	1	*	1

Appendix table 4-24

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by selected NAICS industry of affiliate: 2004–08

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2004	2005	2006	2007	2008
Other finance, except depository institutions	na	0	*	*	0	0
Insurance carriers and related activities	524	*	1	*	*	*
Professional, scientific, and technical services	54	1,986	2,371	3,098	3,439	3,963
Architectural, engineering, and related services	5413	D	61	73	D	103
Computer systems design and related services	5415	731	1,218	1,290	987	1,076
Management, scientific, and technical consulting	5416	D	14	D	D	289
Advertising and related services	5418	2	2	2	3	3
Other	na	1,114	1,076	D	2,133	2,492
Other industries	na	65	132	98	135	121
Agriculture, forestry, fishing, and hunting	11	D	9	9	10	11
Construction	23	7	2	7	1	1
Retail trade	44–45	4	16	18	60	D
Transportation and warehousing	48–49	0	*	3	1	1
Real estate and rental and leasing	53	*	1	1	2	2
Real estate	531	0	0	0	0	0
Rental and leasing (except real estate)	532	*	1	1	2	2
Management of nonbank companies and enterprises	55	D	60	8	10	31
Administration, support, and waste management	56	6	33	41	46	D
Health care and social assistance	62	0	0	0	0	0
Accommodation and food services	72	*	3	3	3	3
Accommodation	721	0	0	0	0	0
Food services and drinking places	722	*	3	3	3	3
Miscellaneous services	na	7	7	8	2	1

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; na = not applicable; NA = not available

NAICS = North American Industry Classification System

NOTES: Preliminary estimates for 2008. Data for majority-owned (>50%) nonbank foreign affiliates of nonbank U.S. parents. Data include R&D expenditures performed by affiliates, whether for themselves or for others under contract. Data exclude R&D expenditures by others for affiliates under contract. Industries are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the NAICS. Data for 2004–08 are based on the 2002 NAICS. NAICS revisions, for example, affected several industries under information (NAICS 51). In addition, industry 4214 (Professional and commercial equipment and supplies) under 1997 NAICS code was split among several 2002 NAICS codes, including but not limited to the new code for this industry, NAICS 4234. Therefore, data for this industry in appendix table 4-23 are not necessarily comparable with data in the present table.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-25

R&D performed in United States by U.S. multinational company parent companies, by NAICS industry: 1999–2003

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003
All industries	na	126,291	135,467	143,017	136,977	139,884
Mining	21	212	329	411	274	472
Oil and gas extraction	211	53	46	49	33	25
Other	na	159	284	362	241	447
Utilities	22	81	108	59	53	60
Manufacturing	31–33	104,842	109,744	115,118	110,062	112,681
Food	311	934	890	914	1,370	1,367
Beverages and tobacco products	312	501	467	469	D	448
Textiles, apparel, and leather products	313–16	275	248	125	D	85
Wood products	321	31	D	D	78	84
Paper	322	1,478	1,498	1,358	1,376	1,325
Printing and related support activities	323	129	148	D	157	174
Petroleum and coal products	324	990	977	1,002	1,153	1,266
Chemicals	325	28,198	29,212	31,927	32,273	35,500
Basic chemicals	3251	1,627	1,569	1,742	1,456	1,502
Resins and synthetic rubber, fibers, and filaments	3252	2,784	2,963	2,972	2,530	2,553
Pharmaceuticals and medicines	3254	18,382	20,591	23,169	24,279	26,471
Soap, cleaning compounds, and toilet preparations	3256	1,957	2,249	2,153	1,768	2,683
Other	na	3,449	1,841	1,892	2,239	2,292
Plastics and rubber products	326	1,031	955	929	937	978
Nonmetallic mineral products	327	371	406	339	373	435
Primary and fabricated metals	na	1,320	1,417	1,038	1,340	1,412
Primary metals	331	760	818	484	498	501
Fabricated metal products	332	560	600	554	841	911
Machinery	333	5,252	7,196	8,561	8,405	5,431
Agriculture, construction, and mining machinery	3331	1,340	1,343	1,484	1,733	1,700
Industrial machinery	3332	1,250	1,607	1,579	1,583	1,469
Other	na	2,662	4,247	5,497	5,088	2,263
Computers and electronic products	334	30,298	35,616	38,356	33,948	33,255
Computers and peripheral equipment	3341	5,659	6,952	7,727	7,065	7,064
Communications equipment	3342	13,276	14,614	14,526	11,497	10,359
Audio and video equipment	3343	407	436	359	D	D
Semiconductors and other electronic components	3344	8,997	10,252	11,114	10,620	11,508
Navigational, measuring, and other instruments	3345	1,579	2,960	4,158	4,244	3,824
Magnetic and optical media	3346	381	402	473	D	D
Electrical equipment, appliances, and components	335	2,958	2,511	2,008	1,729	1,350
Transportation equipment	336	29,162	25,834	25,147	23,167	25,565
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	17,513	16,223	18,183	16,535	17,251
Other	na	11,649	9,611	6,964	6,632	8,314
Furniture and related products	337	90	D	128	130	116
Miscellaneous manufacturing	339	1,826	2,176	2,570	3,067	3,890
Wholesale trade	42	4,000	3,755	4,032	2,798	2,850
Professional and commercial equipment and supplies	4214	2,635	2,404	2,489	1,388	1,164
Other durable goods	na	774	577	638	628	790
Petroleum and petroleum products	4227	D	231	238	218	195
Other nondurable goods	na	D	543	666	563	701
Information	51	6,763	8,251	9,514	9,679	9,933
Publishing industries	511	4,050	5,510	6,452	6,718	7,202
Motion picture and sound recording industries	512	D	12	12	27	30
Broadcasting and telecommunications	513	869	820	796	625	442
Broadcasting, cable networks, and program distribution	5131, 5132	D	14	14	37	72
Telecommunications	5133	D	806	782	588	369
Information services and data processing services	514	D	1,909	2,254	2,308	2,259
Finance (except depository institutions) and insurance	52	315	510	617	560	369
Finance, except depository institutions	na	240	458	477	430	249
Securities, commodity contracts, and other intermediation and related activities	523	D	254	D	290	126

Appendix table 4-25

R&D performed in United States by U.S. multinational company parent companies, by NAICS industry: 1999–2003

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003
Other finance, except depository institutions	na	D	204	D	140	123
Insurance carriers and related activities	524	75	52	141	130	120
Professional, scientific, and technical services	54	8,522	10,042	10,348	10,479	10,560
Architectural, engineering, and related services	5413	49	24	18	D	D
Computer systems design and related services	5415	7,453	8,359	8,929	8,917	8,920
Management, scientific, and technical consulting	5416	D	D	D	533	554
Advertising and related services	5418	D	D	D	D	D
Other	na	716	874	802	978	982
Other industries	na	1,556	2,729	2,918	3,073	2,958
Agriculture, forestry, fishing, and hunting	11	2	2	D	D	D
Construction	23	D	D	D	D	D
Retail trade	44–45	D	D	D	D	D
Transportation and warehousing	48–49	26	8	12	5	1
Real estate and rental and leasing	53	D	6	7	D	5
Real estate	531	0	0	0	0	0
Rental and leasing (except real estate)	532	D	6	7	D	5
Management of nonbank companies and enterprises	55	0	0	0	D	0
Administration, support, and waste management	56	6	D	D	D	D
Health care and social assistance	62	D	30	32	31	32
Accommodation and food services	72	25	31	42	29	37
Accommodation	721	0	0	0	0	0
Food services and drinking places	722	25	31	42	29	37
Miscellaneous services	na	15	16	17	128	143

D = suppressed to avoid disclosure of confidential information; na = not applicable

NAICS = North American Industry Classification System

NOTES: Data include R&D performed by parent companies of U.S. multinational companies (MNCs), regardless of funding source, whether for performer itself or others, including R&D performed for federal government; data exclude R&D conducted by others under contract. U.S. MNC parent company is company that resides in United States and owns or controls at least 10% of voting securities or equivalent of foreign business enterprise. Industry data are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the North American Industry Classification System (NAICS). Data for 1999–2003 are based on the 1997 NAICS.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-26

R&D performed in United States by U.S. multinational company parent companies, by NAICS industry: 2004–08

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2004	2005	2006	2007	2008
All industries	na	164,189	177,598	184,428	203,678	199,105
Mining	21	D	403	538	644	691
Oil and gas extraction	211	D	D	8	14	16
Other	na	418	D	530	631	675
Utilities	22	26	31	28	29	17
Manufacturing	31–33	129,246	143,335	146,435	159,182	152,507
Food	311	1,636	1,311	1,739	1,862	1,801
Beverages and tobacco products	312	125	502	497	336	368
Textiles, apparel, and leather products	313–16	85	195	216	152	136
Wood products	321	96	113	121	46	74
Paper	322	1,375	1,408	1,596	1,474	1,152
Printing and related support activities	323	132	96	52	45	96
Petroleum and coal products	324	1,327	2,155	2,289	2,583	2,642
Chemicals	325	41,459	45,004	44,832	51,033	49,077
Basic chemicals	3251	1,464	1,381	1,420	1,601	1,695
Resins and synthetic rubber, fibers, and filaments	3252	2,557	2,510	2,417	2,541	2,611
Pharmaceuticals and medicines	3254	32,507	36,352	36,698	41,962	40,013
Soap, cleaning compounds, and toilet preparations	3256	2,612	2,510	2,200	2,780	2,494
Other	na	2,318	2,252	2,097	2,149	2,264
Plastics and rubber products	326	870	1,079	1,287	1,304	1,291
Nonmetallic mineral products	327	377	389	397	406	361
Primary and fabricated metals	na	1,513	1,165	1,082	991	1,101
Primary metals	331	487	544	444	439	474
Fabricated metal products	332	1,026	621	638	553	627
Machinery	333	4,968	5,492	5,892	7,398	8,106
Agriculture, construction, and mining machinery	3331	1,770	1,955	2,359	2,429	2,598
Industrial machinery	3332	1,066	1,210	2,024	2,155	2,016
Other	na	2,132	2,327	1,509	2,815	3,491
Computers and electronic products	334	34,187	36,560	40,124	41,169	37,472
Computers and peripheral equipment	3341	7,176	7,015	8,081	8,027	6,962
Communications equipment	3342	9,253	9,255	9,336	12,043	9,074
Audio and video equipment	3343	315	360	D	D	D
Semiconductors and other electronic components	3344	13,021	15,020	16,748	15,374	15,357
Navigational, measuring, and other instruments	3345	D	4,807	5,478	5,202	5,547
Magnetic and optical media	3346	D	103	D	D	D
Electrical equipment, appliances, and components	335	1,679	1,618	2,748	2,056	2,301
Transportation equipment	336	35,580	41,692	38,809	43,543	41,510
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	15,264	18,687	14,840	15,610	13,902
Other	na	20,316	23,005	23,969	27,933	27,609
Furniture and related products	337	133	217	226	244	248
Miscellaneous manufacturing	339	3,703	4,341	4,528	4,540	4,772
Wholesale trade	42	D	5,072	5,428	5,876	6,451
Professional and commercial equipment and supplies	4234	D	1,650	1,621	1,625	2,176
Petroleum and petroleum products	4247	D	D	D	D	D
Drugs and druggists' sundries	4242	287	D	D	D	D
Other	na	3,028	2,889	3,289	3,653	3,652
Information	51	14,657	13,161	15,047	17,981	18,148
Publishing industries	511	11,029	9,504	10,995	12,267	13,784
Motion picture and sound recording industries	512	18	D	D	D	D
Broadcasting (except Internet) and telecommunications	na	587	D	D	D	D
Broadcasting (except Internet)	515	88	D	D	D	D
Telecommunications	517	499	D	236	1,262	D
Internet, data processing, and other information services	516, 518, 519	3,023	3,197	3,762	4,277	2,925
Finance (except depository institutions) and insurance	52	221	228	260	180	107
Finance, except depository institutions	na	103	146	166	D	D
Securities, commodity contracts, and other intermediation and related activities	523	D	D	D	D	D

Appendix table 4-26

R&D performed in United States by U.S. multinational company parent companies, by NAICS industry: 2004–08

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2004	2005	2006	2007	2008
Other finance, except depository institutions	na	D	D	D	D	0
Insurance carriers and related activities	524	118	82	94	D	D
Professional, scientific, and technical services	54	13,216	13,750	15,007	16,162	17,072
Architectural, engineering, and related services	5413	154	D	149	149	151
Computer systems design and related services	5415	8,983	9,133	9,246	10,081	11,070
Management, scientific, and technical consulting	5416	132	115	D	D	24
Advertising and related services	5418	D	D	D	D	1
Other	na	D	4,323	5,537	5,852	5,826
Other industries	na	1,523	1,617	1,684	3,623	4,111
Agriculture, forestry, fishing, and hunting	11	39	46	12	13	8
Construction	23	3	4	4	D	D
Retail trade	44–45	D	D	D	D	D
Transportation and warehousing	48–49	1	D	D	D	D
Real estate and rental and leasing	53	D	D	D	D	D
Real estate	531	0	0	0	0	0
Rental and leasing (except real estate)	532	D	D	D	D	D
Management of nonbank companies and enterprises	55	D	0	0	0	1
Administration, support, and waste management	56	D	D	D	D	D
Health care and social assistance	62	24	D	D	D	D
Accommodation and food services	72	9	D	D	D	57
Accommodation	721	0	0	0	0	0
Food services and drinking places	722	9	D	D	D	57
Miscellaneous services	na	174	189	248	265	298

D = suppressed to avoid disclosure of confidential information; na = not applicable

NAICS = North American Industry Classification System

NOTES: Preliminary estimates for 2008. Industries are classified by the Bureau of Economic Analysis using the International Survey Industry classification system based on the NAICS. Data for 2004–08 data are based on the 2002 NAICS and are not fully comparable with earlier data. NAICS revisions, for example, affected several industries under information (NAICS 51). In addition, industry 4214 (Professional and commercial equipment and supplies) under 1997 NAICS code was split among several 2002 NAICS codes, including but not limited to the new code for this industry (NAICS 4234). Therefore data for this industry in appendix table 4-25 are not necessarily comparable with data in the present table. Data include R&D performed by parent companies of U.S. multinational companies (MNCs), regardless of funding source, whether for performer itself or others, including R&D performed for federal government; data exclude R&D conducted by others under contract. U.S. MNC parent company is company that resides in United States and owns or controls at least 10% of voting securities or equivalent of foreign business enterprise.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 15 February 2011.

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Appendix table 4-27

U.S. trade in research, development, and testing services, by affiliation and by selected region/country/economy: 2006–09

(Millions of current U.S. dollars)

Category	2006			2007			2008			2009		
	Exports	Imports	Trade balance	Exports	Imports	Trade balance	Exports	Imports	Trade balance	Exports	Imports	Trade balance
Total by affiliation	12,810	9,276	3,534	15,625	13,032	2,593	17,421	16,279	1,142	18,234	15,753	2,481
Unaffiliated	1,664	2,324	-660	2,252	3,260	-1,008	2,865	4,338	-1,473	2,481	3,501	-1,020
Affiliated	11,146	6,953	4,193	13,373	9,772	3,601	14,556	11,941	2,615	15,752	12,252	3,500
Total by region/country/economy												
Canada	535	867	-332	344	1,307	-963	455	1,693	-1,238	457	1,538	-1,081
Europe	8,089	5,782	2,307	9,125	7,387	1,738	9,339	8,328	1,011	9,459	7,577	1,882
Belgium-Luxembourg	172	341	-169	256	336	-80	325	347	-22	274	386	-112
France	D	548	NA	419	760	-341	475	744	-269	606	723	-117
Germany	823	790	33	934	994	-60	1,038	1,083	-45	766	935	-169
Ireland	1,326	235	1,091	2,120	384	1,736	2,183	389	1,794	2,412	405	2,007
Italy	109	168	-59	142	176	-34	169	255	-86	115	199	-84
Netherlands	1,201	829	372	1,229	931	298	1,221	1,081	140	1,087	1,077	10
Norway	95	41	54	137	34	103	103	52	51	112	48	64
Spain	23	92	-69	44	134	-90	68	185	-117	97	208	-111
Sweden	951	104	847	1,020	124	896	907	136	771	886	136	750
Switzerland	1,297	347	950	1,435	331	1,104	1,425	492	933	1,491	334	1,157
United Kingdom	846	1,899	-1,053	776	2,699	-1,923	638	2,895	-2,257	732	2,418	-1,686
Other	D	388	NA	612	484	128	787	668	119	881	709	172
Latin America and OWH	1,676	231	1,445	3,376	381	2,995	3,512	478	3,034	4,203	718	3,485
South and Central America	118	209	-91	133	347	-214	231	460	-229	261	688	-427
Argentina	16	39	-23	15	35	-20	21	40	-19	25	73	-48
Brazil	20	55	-35	35	56	-21	36	76	-40	20	187	-167
Chile	2	5	-3	1	21	-20	1	9	-8	3	19	-16
Mexico	49	80	-31	47	187	-140	108	271	-163	81	310	-229
Venezuela	17	3	14	16	2	14	20	4	16	10	11	-1
Other	14	27	-13	20	46	-26	45	60	-15	122	88	34
Other Western Hemisphere	1,558	22	1,536	3,242	34	3,208	3,281	18	3,263	3,941	30	3,911
Bermuda	754	1	753	2,072	1	2,071	2,161	*	NA	3,021	*	NA
Other	804	21	783	1,170	33	1,137	1,120	17	1,103	920	30	890
Africa	118	195	-77	201	224	-23	354	281	73	231	265	-34
South Africa	11	39	-28	20	47	-27	53	57	-4	34	52	-18
Other	106	156	-50	182	177	5	301	225	76	197	213	-16
Middle East	107	588	-481	237	775	-538	424	939	-515	385	936	-551
Israel	45	557	-512	52	710	-658	158	860	-702	133	890	-757
Saudi Arabia	7	1	6	20	D	NA	62	1	61	19	1	18
Other	55	30	25	165	D	NA	204	79	125	233	46	187
Asia and Pacific	2,235	1,614	621	2,293	2,956	-663	3,283	4,558	-1,275	3,483	4,718	-1,235
Australia	60	153	-93	70	222	-152	117	237	-120	113	234	-121
China	32	92	-60	43	473	-430	62	748	-686	69	850	-781
Hong Kong	9	38	-29	20	42	-22	12	57	-45	34	47	-13
India	28	427	-399	19	923	-904	18	1,511	-1,493	29	1,435	-1,406
Indonesia	17	12	5	62	28	34	61	26	35	48	22	26
Japan	1,795	550	1,245	1,614	773	841	2,258	1,259	999	2,245	1,347	898
Malaysia	9	38	-29	7	103	-96	17	301	-284	40	292	-252
New Zealand	4	5	-1	4	8	-4	2	13	-11	1	13	-12
Philippines	2	7	-5	5	15	-10	8	23	-15	8	17	-9
Singapore	189	119	70	332	147	185	492	74	418	636	187	449
South Korea	43	61	-18	51	78	-27	149	76	73	192	105	87
Taiwan	25	53	-28	25	103	-78	36	190	-154	31	136	-105

Appendix table 4-27

U.S. trade in research, development, and testing services, by affiliation and by selected region/country/economy: 2006–09

(Millions of current U.S. dollars)

Category	2006			2007			2008			2009		
	Exports	Imports	Trade balance	Exports	Imports	Trade balance	Exports	Imports	Trade balance	Exports	Imports	Trade balance
Thailand	17	8	9	21	9	12	35	14	21	22	11	11
Other	5	50	-45	19	32	-13	15	27	-12	15	23	-8
International organizations and unallocated	49	0	49	49	0	49	54	0	54	15	*	NA
Addenda												
European Union[a]	6,642	5,233	1,409	7,478	6,854	624	7,728	7,582	146	7,794	7,009	785

* = ≤$500,000; D = suppressed to avoid disclosure of confidential information; NA = not available

OWH = other Western Hemisphere

[a]Reflects the country composition of the European Union for the given year.

NOTE: Trade balance is exports minus imports.

SOURCE: Bureau of Economic Analysis, U.S. International Services, http://www.bea.gov/international/international_services.htm, accessed 4 February 2011.

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Appendix table 4-28

Federal budget authority for R&D, by budget function: FY 1980–2010

Year	All functions	All defense	All nondefense	Health	Space research/ technology	Energy	General science	Natural resources/ environment	Transportation	Agriculture	Education, training, employment, and social services	International affairs	Veterans benefits/ services	Commerce/ housing credit	Community/ regional development	Administration of justice	Income security	General government
	Current $millions																	
1980	29,739	14,946	14,793	3,694	2,738	3,603	1,233	999	887	585	468	125	126	101	119	45	47	22
1981	33,735	18,413	15,322	3,871	3,111	3,501	1,340	1,061	869	659	298	160	143	106	104	34	43	22
1982	36,115	22,070	14,045	3,869	2,584	3,012	1,359	965	791	693	228	165	139	104	63	31	32	10
1983	38,768	24,936	13,832	4,298	2,134	2,578	1,502	952	876	745	189	177	157	107	44	37	32	6
1984	44,214	29,287	14,927	4,779	2,300	2,581	1,676	963	1,040	762	200	192	218	110	46	24	26	8
1985	49,887	33,698	16,189	5,418	2,725	2,389	1,862	1,059	1,030	836	220	210	193	114	50	47	21	17
1986	53,249	36,926	16,323	5,565	2,894	2,286	1,873	1,062	917	815	248	211	183	111	88	41	14	14
1987	57,069	39,152	17,917	6,556	3,398	2,053	2,042	1,133	908	822	267	223	215	110	99	49	25	17
1988	59,106	40,099	19,007	7,076	3,683	2,126	2,160	1,160	896	882	285	224	195	122	108	51	23	17
1989	62,115	40,642	21,473	7,773	4,555	2,419	2,373	1,255	1,064	907	347	279	212	128	74	45	27	15
1990	63,781	39,925	23,856	8,308	5,765	2,726	2,410	1,386	1,045	950	374	375	216	140	67	44	33	17
1991	65,898	39,328	26,570	9,226	6,511	2,953	2,635	1,582	1,231	1,052	433	378	219	178	88	51	30	4
1992	68,398	40,083	28,315	10,055	6,744	3,099	2,659	1,688	1,523	1,155	365	371	245	192	127	51	37	4
1993	69,884	41,249	28,635	10,280	6,988	2,677	2,691	1,802	1,703	1,152	348	382	250	220	57	49	36	*
1994	68,331	37,764	30,567	10,993	7,414	2,873	2,712	2,062	1,888	1,193	373	254	265	380	68	46	45	0
1995	68,791	37,204	31,587	11,407	7,916	2,844	2,794	1,988	1,833	1,194	369	287	257	525	70	59	43	1
1996	69,049	37,801	31,248	11,867	7,844	2,521	2,846	1,802	1,795	1,176	331	252	259	432	50	56	16	2
1997	71,653	39,591	32,062	12,670	7,844	2,372	2,944	1,886	1,785	1,203	373	190	267	409	48	59	9	2
1998	73,569	39,823	33,746	13,576	8,198	948	4,360	1,855	1,833	1,249	444	163	587	398	42	72	18	2
1999	77,637	41,306	36,331	15,553	8,245	1,131	4,690	1,842	1,725	1,288	403	190	644	432	59	88	38	3
2000	78,664	42,580	36,084	17,869	5,363	996	4,977	1,999	1,636	1,426	418	200	645	406	46	73	25	6
2001	86,756	45,713	41,043	20,758	6,126	1,314	5,468	2,096	1,640	1,657	411	252	719	429	54	88	30	3
2002	97,624	53,016	44,608	23,560	6,270	1,327	5,753	2,160	1,838	1,606	411	279	756	467	50	91	37	3
2003	112,544	63,048	49,496	26,517	7,355	1,403	6,129	2,151	1,869	1,708	430	269	817	463	48	299	38	0
2004	121,867	69,593	52,274	28,251	7,612	1,343	6,466	2,168	1,863	1,750	459	264	866	454	47	684	47	0
2005	126,601	74,047	52,554	28,824	7,300	1,296	6,570	2,168	1,847	1,820	470	255	742	423	45	758	35	0
2006	131,624	78,037	53,587	28,797	8,204	1,195	6,691	2,120	1,711	1,869	495	255	769	390	55	1,008	27	0
2007	138,087	82,272	55,815	29,461	9,024	1,893	7,809	1,936	1,361	1,857	536	246	819	428	49	369	27	0
2008	140,113	84,713	55,400	29,063	8,323	1,986	8,234	2,106	1,394	1,864	497	255	886	450	50	355	27	0
2009	156,009	85,166	70,843	40,389	6,891	3,318	11,840	2,245	1,440	1,935	479	255	943	618	62	335	63	0
Actual	140,903	84,866	56,037	30,827	6,205	2,014	8,885	2,171	1,336	1,935	469	255	943	507	62	335	63	0
ARRA	15,106	300	14,806	9,562	686	1,304	2,955	74	104	0	10	0	0	111	0	0	0	0
2010 preliminary	143,892	86,082	57,810	30,976	6,622	2,138	9,298	2,300	1,427	2,025	525	255	1,162	542	117	313	77	0
	Constant FY 2005 $millions																	
1980	63,180	31,753	31,428	7,848	5,817	7,655	2,620	2,122	1,884	1,243	994	266	268	215	253	96	100	47
1981	65,239	35,608	29,631	7,486	6,016	6,770	2,591	2,052	1,681	1,274	576	309	277	205	201	66	83	43
1982	65,367	39,946	25,421	7,003	4,677	5,452	2,460	1,747	1,432	1,254	413	299	252	188	114	56	58	18
1983	67,212	43,232	23,981	7,451	3,700	4,469	2,604	1,650	1,519	1,292	328	307	272	186	76	64	55	10

Appendix table 4-28

Federal budget authority for R&D, by budget function: FY 1980–2010

Year	All functions	All defense	All nondefense	Health	Space research/ technology	Energy	General science	Natural resources/ environment	Transportation	Agriculture	Education, training, employment, and social services	International affairs	Veterans benefits/ services	Commerce/ housing credit	Community/ regional development	Administration of justice	Income security	General government
1984	73,924	48,967	24,957	7,990	3,846	4,315	2,802	1,610	1,739	1,274	334	321	364	184	77	40	43	13
1985	80,789	54,572	26,217	8,774	4,413	3,869	3,015	1,715	1,668	1,354	356	340	313	185	81	76	34	28
1986	84,281	58,446	25,836	8,808	4,581	3,618	2,965	1,681	1,451	1,290	393	334	290	176	139	65	22	22
1987	87,988	60,364	27,624	10,108	5,239	3,165	3,148	1,747	1,400	1,267	412	344	331	170	153	76	39	26
1988	88,297	59,903	28,394	10,571	5,502	3,176	3,227	1,733	1,339	1,318	426	335	291	182	161	76	34	25
1989	89,323	58,444	30,879	11,178	6,550	3,479	3,412	1,805	1,530	1,304	499	401	305	184	106	65	39	22
1990	88,462	55,374	33,087	11,523	7,996	3,781	3,343	1,922	1,449	1,318	519	520	300	194	93	61	46	24
1991	88,064	52,556	35,507	12,329	8,701	3,946	3,521	2,114	1,645	1,406	579	505	293	238	118	68	40	5
1992	89,083	52,205	36,878	13,096	8,784	4,036	3,463	2,198	1,984	1,504	475	483	319	250	165	66	48	5
1993	89,047	52,560	36,487	13,099	8,904	3,411	3,429	2,296	2,170	1,468	443	487	319	280	73	62	46	*
1994	85,265	47,123	38,142	13,717	9,251	3,585	3,384	2,573	2,356	1,489	465	317	331	474	85	57	56	0
1995	84,055	45,459	38,596	13,938	9,673	3,475	3,414	2,429	2,240	1,459	451	351	314	641	86	72	53	1
1996	82,773	45,314	37,459	14,226	9,403	3,022	3,412	2,160	2,152	1,410	397	302	310	518	60	67	19	2
1997	84,347	46,605	37,742	14,915	9,234	2,792	3,466	2,220	2,101	1,416	439	224	314	481	57	69	11	2
1998	85,516	46,290	39,226	15,781	9,529	1,102	5,068	2,156	2,131	1,452	516	189	682	463	49	84	21	2
1999	89,064	47,386	41,678	17,842	9,459	1,297	5,380	2,113	1,979	1,478	462	218	739	496	68	101	44	3
2000	88,496	47,902	40,594	20,102	6,033	1,120	5,599	2,249	1,840	1,604	470	225	726	457	52	82	28	7
2001	95,347	50,240	45,107	22,813	6,733	1,444	6,009	2,304	1,802	1,821	452	277	790	471	59	97	33	3
2002	105,551	57,321	48,230	25,473	6,779	1,435	6,220	2,335	1,987	1,736	444	302	817	505	54	98	40	3
2003	119,195	66,774	52,421	28,084	7,790	1,486	6,491	2,278	1,979	1,809	455	285	865	490	51	317	40	0
2004	125,844	71,864	53,980	29,173	7,860	1,387	6,677	2,239	1,924	1,807	474	273	894	469	49	706	49	0
2005	126,601	74,047	52,554	28,824	7,300	1,296	6,570	2,168	1,847	1,820	470	255	742	423	45	758	35	0
2006	127,271	75,456	51,815	27,845	7,933	1,155	6,470	2,050	1,654	1,807	479	247	744	377	53	975	26	0
2007	129,610	77,222	52,389	27,653	8,470	1,777	7,330	1,817	1,277	1,743	503	231	769	402	46	346	25	0
2008	128,568	77,733	50,835	26,668	7,637	1,822	7,556	1,932	1,279	1,710	456	234	813	413	46	326	25	0
2009	141,274	77,122	64,152	36,574	6,240	3,005	10,722	2,033	1,304	1,752	434	231	854	560	56	303	57	0
Actual	127,595	76,270	50,361	27,705	5,577	1,810	7,985	1,951	1,201	1,739	421	229	847	456	56	301	57	0
ARRA	13,679	266	13,132	8,481	608	1,157	2,621	66	92	0	9	0	0	98	0	0	0	0
2010 preliminary	129,318	77,363	51,955	27,839	5,951	1,921	8,356	2,067	1,282	1,820	472	229	1,044	487	105	281	69	0
	Budget function share of totals, percent																	
1980	100	50.3	49.7	12.4	9.2	12.1	4.1	3.4	3.0	2.0	1.6	0.4	0.4	0.3	0.4	0.2	0.2	0.1
1981	100	54.6	45.4	11.5	9.2	10.4	4.0	3.1	2.6	2.0	0.9	0.5	0.4	0.3	0.3	0.1	0.1	0.1
1982	100	61.1	38.9	10.7	7.2	8.3	3.8	2.7	2.2	1.9	0.6	0.5	0.4	0.3	0.2	0.1	0.1	0.0
1983	100	64.3	35.7	11.1	5.5	6.6	3.9	2.5	2.3	1.9	0.5	0.5	0.4	0.3	0.1	0.1	0.1	0.0
1984	100	66.2	33.8	10.8	5.2	5.8	3.8	2.2	2.4	1.7	0.5	0.4	0.5	0.2	0.1	0.1	0.1	0.0
1985	100	67.5	32.5	10.9	5.5	4.8	3.7	2.1	2.1	1.7	0.4	0.4	0.4	0.2	0.1	0.1	0.0	0.0
1986	100	69.3	30.7	10.5	5.4	4.3	3.5	2.0	1.7	1.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0
1987	100	68.6	31.4	11.5	6.0	3.6	3.6	2.0	1.6	1.4	0.5	0.4	0.4	0.2	0.2	0.1	0.0	0.0
1988	100	67.8	32.2	12.0	6.2	3.6	3.7	2.0	1.5	1.5	0.5	0.4	0.3	0.2	0.2	0.1	0.0	0.0

Appendix table 4-28

Federal budget authority for R&D, by budget function: FY 1980–2010

Year	All functions	All defense	All nondefense	Health	Space research/ technology	Energy	General science	Natural resources/ environment	Transportation	Agriculture	Education, training, employment, and social services	International affairs	Veterans benefits/ services	Commerce/ housing credit	Community/ regional development	Administration of justice	Income security	General government
1989	100	65.4	34.6	12.5	7.3	3.9	3.8	2.0	1.7	1.5	0.6	0.4	0.3	0.2	0.1	0.1	0.0	0.0
1990	100	62.6	37.4	13.0	9.0	4.3	3.8	2.2	1.6	1.5	0.6	0.6	0.3	0.2	0.1	0.1	0.1	0.0
1991	100	59.7	40.3	14.0	9.9	4.5	4.0	2.4	1.9	1.6	0.7	0.6	0.3	0.3	0.1	0.1	0.0	0.0
1992	100	58.6	41.4	14.7	9.9	4.5	3.9	2.5	2.2	1.7	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.0
1993	100	59.0	41.0	14.7	10.0	3.8	3.9	2.6	2.4	1.6	0.5	0.5	0.4	0.3	0.1	0.1	0.1	*
1994	100	55.3	44.7	16.1	10.9	4.2	4.0	3.0	2.8	1.7	0.5	0.4	0.4	0.6	0.1	0.1	0.1	0.0
1995	100	54.1	45.9	16.6	11.5	4.1	4.1	2.9	2.7	1.7	0.5	0.4	0.4	0.8	0.1	0.1	0.1	0.0
1996	100	54.7	45.3	17.2	11.4	3.7	4.1	2.6	2.6	1.7	0.5	0.4	0.4	0.6	0.1	0.1	0.0	0.0
1997	100	55.3	44.7	17.7	10.9	3.3	4.1	2.6	2.5	1.7	0.5	0.3	0.4	0.6	0.1	0.1	0.0	0.0
1998	100	54.1	45.9	18.5	11.1	1.3	5.9	2.5	2.5	1.7	0.6	0.2	0.8	0.5	0.1	0.1	0.0	0.0
1999	100	53.2	46.8	20.0	10.6	1.5	6.0	2.4	2.2	1.7	0.5	0.2	0.8	0.6	0.1	0.1	0.0	0.0
2000	100	54.1	45.9	22.7	6.8	1.3	6.3	2.5	2.1	1.8	0.5	0.3	0.8	0.5	0.1	0.1	0.0	0.0
2001	100	52.7	47.3	23.9	7.1	1.5	6.3	2.4	1.9	1.9	0.5	0.3	0.8	0.5	0.1	0.1	0.0	0.0
2002	100	54.3	45.7	24.1	6.4	1.4	5.9	2.2	1.9	1.6	0.4	0.3	0.8	0.5	0.1	0.1	0.0	0.0
2003	100	56.0	44.0	23.6	6.5	1.2	5.4	1.9	1.7	1.5	0.4	0.2	0.7	0.4	0.0	0.3	0.0	0.0
2004	100	57.1	42.9	23.2	6.2	1.1	5.3	1.8	1.5	1.4	0.4	0.2	0.7	0.4	0.0	0.6	0.0	0.0
2005	100	58.5	41.5	22.8	5.8	1.0	5.2	1.7	1.5	1.4	0.4	0.2	0.6	0.3	0.0	0.6	0.0	0.0
2006	100	59.3	40.7	21.9	6.2	0.9	5.1	1.6	1.3	1.4	0.4	0.2	0.6	0.3	0.0	0.8	0.0	0.0
2007	100	59.6	40.4	21.3	6.5	1.4	5.7	1.4	1.0	1.3	0.4	0.2	0.6	0.3	0.0	0.3	0.0	0.0
2008	100	60.5	39.5	20.7	5.9	1.4	5.9	1.5	1.0	1.3	0.4	0.2	0.6	0.3	0.0	0.3	0.0	0.0
2009	100	54.6	45.4	25.9	4.4	2.1	7.6	1.4	0.9	1.2	0.3	0.2	0.6	0.4	0.0	0.2	0.0	0.0
Actual	100	60.2	39.8	21.9	4.4	1.4	6.3	1.5	0.9	1.4	0.3	0.2	0.7	0.4	0.0	0.2	0.0	0.0
ARRA	100	2.0	98.0	63.3	4.5	8.6	19.6	0.5	0.7	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.0	0.0
2010 preliminary	100	59.8	40.2	21.5	4.6	1.5	6.5	1.6	1.0	1.4	0.4	0.2	0.8	0.4	0.1	0.2	0.1	0.0

* = ≤$500,000

ARRA = American Recovery and Reinvestment Act of 2009

NOTES: Detail may not add to total because of rounding. In FY 2009 the National Aeronautics and Space Administration (NASA) adjusted its R&D reporting to more closely match survey data reported to the National Science Foundation. In FY 2007 the Department of Homeland Security (DHS) changed its R&D portfolio to reclassify funding in defense and most administration of justice as general science and basic research. In FY 2004 DHS changed its R&D portfolio to reclassify funding in general science and basic research and in agriculture as administration of justice. In FY 2000 NASA transferred funding for space station program from R&D to R&D plant; this change reflected in budget authority for space research and technology. In FY 2000 National Institutes of Health in the Department of Health and Human Services classified all of their previous development activities as basic research or applied research, with resulting increase in health basic research. In FY 1998 many Department of Energy programs were reclassified from energy to general science and basic research. In FY 1998 Department of Veterans Affairs began reporting medical care support funds as part of its total research budgetary resources; this change reflected in budget authority for veterans benefits and services. 1980–94 data are from agencies' submissions to Office of Management and Budget (OMB), Circular No. A-11, Exhibit 44A, "Research and Development Activities," and supplemental data obtained from agencies' budget offices. 1995–2010 data are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics (NCSES), Federal R&D Funding by Budget Function: FY 2009–11. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-29

Federal budget authority for basic research, by budget function: FY 1980–2010

Year	All functions	All defense	All nondefense	Health	Space research/ technology	Energy	General science	Natural resources/ environment	Transportation	Agriculture	Education, training, employment, and social services	International affairs	Veterans benefits/ services	Commerce/ housing credit	Community/ regional development	Administration of justice	Income security	General government
	Current $millions																	
1980	4,716	552	4,164	1,761	482	200	1,152	136	79	246	61	0	14	15	8	9	1	*
1981	5,107	610	4,497	1,951	445	220	1,256	131	89	281	66	12	15	17	5	5	3	3
1982	5,305	696	4,609	1,953	434	260	1,296	139	102	295	78	10	13	17	7	4	0	2
1983	6,247	788	5,459	2,475	501	320	1,439	156	117	326	70	10	14	19	6	4	0	3
1984	7,072	845	6,227	2,813	646	365	1,606	192	125	353	77	3	15	20	5	5	0	3
1985	7,810	856	6,954	3,243	498	428	1,779	206	255	406	86	4	15	23	6	4	0	4
1986	8,193	960	7,233	3,324	737	456	1,795	204	184	390	83	5	15	26	6	5	0	5
1987	9,021	900	8,121	3,851	843	511	1,942	206	231	397	78	3	17	26	4	8	0	4
1988	9,553	905	8,648	4,087	944	571	2,061	210	197	428	83	3	17	28	7	8	0	5
1989	10,648	965	9,683	4,413	1,099	703	2,265	331	287	433	92	3	16	29	3	7	0	3
1990	11,288	964	10,324	4,661	1,389	761	2,306	336	242	456	106	4	16	31	3	9	0	3
1991	12,405	1,188	11,217	5,021	1,479	878	2,526	389	246	486	115	6	16	39	10	6	0	0
1992	12,973	1,147	11,826	5,506	1,499	921	2,532	383	266	528	118	6	16	35	11	5	0	0
1993	13,440	1,323	12,117	5,700	1,588	917	2,553	376	238	553	121	8	16	34	10	5	0	0
1994	13,552	1,174	12,378	5,889	1,796	921	2,542	224	220	567	145	6	16	38	9	5	0	0
1995	13,772	1,181	12,591	6,068	1,614	930	2,622	187	389	565	153	0	16	35	3	9	0	0
1996	14,442	1,165	13,277	6,395	1,685	1,182	2,662	147	456	547	140	2	13	37	0	12	0	0
1997	14,961	1,090	13,871	6,852	1,653	1,288	2,753	153	420	548	142	2	14	34	0	13	0	0
1998	15,523	1,067	14,456	7,356	1,610	34	4,121	145	411	571	133	1	23	35	0	16	0	0
1999	17,433	1,110	16,323	8,634	1,667	36	4,464	142	358	602	99	0	263	41	0	18	0	0
2000	19,470	1,184	18,286	10,099	1,616	36	4,722	146	542	651	107	42	266	39	0	20	0	0
2001	21,376	1,303	20,073	11,642	1,695	40	5,187	215	17	749	112	50	289	50	0	27	0	0
2002	23,848	1,404	22,444	12,957	1,912	45	5,561	471	17	762	115	53	465	56	0	30	0	0
2003	25,323	1,409	23,914	14,162	2,206	40	5,907	185	23	824	125	18	327	53	1	42	0	0
2004	26,529	1,380	25,149	14,850	2,473	32	6,198	201	20	780	125	18	347	46	0	58	0	0
2005	27,678	1,508	26,170	15,826	2,486	31	6,238	195	65	789	130	18	297	53	0	42	0	0
2006	27,336	1,490	25,846	15,532	2,299	8	6,406	195	0	805	131	18	318	66	0	68	0	0
2007	28,166	1,533	26,633	15,637	2,318	7	6,887	260	2	821	149	18	335	92	0	106	0	0
2008	28,740	1,631	27,109	15,909	2,183	16	7,260	210	0	790	146	18	354	98	0	125	0	0
2009	36,401	1,772	34,629	21,108	932	28	10,727	219	0	799	155	18	375	152	0	115	0	0
Actual	28,161	1,769	26,392	15,767	900	28	7,913	219	0	799	145	18	375	112	0	115	0	0
ARRA	8,240	3	8,237	5,341	32	0	2,814	0	0	0	10	0	0	40	0	0	0	0
2010 preliminary	29,139	1,887	27,252	16,093	884	49	8,268	237	0	876	168	18	464	121	0	73	0	0
	Constant FY 2005 $millions																	
1980	10,019	1,173	8,846	3,741	1,024	425	2,447	289	168	523	130	0	30	32	17	19	2	*
1981	9,876	1,180	8,697	3,773	861	425	2,429	253	172	543	128	23	29	33	10	10	6	6
1982	9,602	1,260	8,342	3,535	786	471	2,346	252	185	534	141	18	24	31	13	7	0	4
1983	10,830	1,366	9,464	4,291	869	555	2,495	270	203	565	121	17	24	33	10	7	0	5

Appendix table 4-29

Federal budget authority for basic research, by budget function: FY 1980–2010

Year	All functions	All defense	All nondefense	Health	Space research/ technology	Energy	General science	Natural resources/ environment	Transportation	Agriculture	Education, training, employment, and social services	International affairs	Veterans benefits/ services	Commerce/ housing credit	Community/ regional development	Administration of justice	Income security	General government
1984	11,824	1,413	10,411	4,703	1,080	610	2,685	321	209	590	129	5	25	33	8	8	0	5
1985	12,648	1,386	11,262	5,252	806	693	2,881	334	413	657	139	6	24	37	10	6	0	6
1986	12,968	1,519	11,448	5,261	1,167	722	2,841	323	291	617	131	8	24	41	9	8	0	8
1987	13,908	1,388	12,521	5,937	1,300	788	2,994	318	356	612	120	5	26	40	6	12	0	6
1988	14,271	1,352	12,919	6,105	1,410	853	3,079	314	294	639	124	4	25	42	10	12	0	7
1989	15,312	1,388	13,924	6,346	1,580	1,011	3,257	476	413	623	132	4	23	42	4	10	0	4
1990	15,656	1,337	14,319	6,465	1,926	1,055	3,198	466	336	632	147	6	22	43	4	12	0	4
1991	16,578	1,588	14,990	6,710	1,976	1,173	3,376	520	329	649	154	8	21	52	13	8	0	0
1992	16,896	1,494	15,402	7,171	1,952	1,200	3,298	499	346	688	154	8	21	46	14	7	0	0
1993	17,125	1,686	15,440	7,263	2,023	1,168	3,253	479	303	705	154	10	20	43	13	6	0	0
1994	16,910	1,465	15,445	7,348	2,241	1,149	3,172	280	275	708	181	7	20	47	11	6	0	0
1995	16,828	1,443	15,385	7,414	1,972	1,136	3,204	228	475	690	187	0	20	43	4	11	0	0
1996	17,312	1,397	15,916	7,666	2,020	1,417	3,191	176	547	656	168	2	16	44	0	14	0	0
1997	17,612	1,283	16,328	8,066	1,946	1,516	3,241	180	494	645	167	2	16	40	0	15	0	0
1998	18,044	1,240	16,803	8,551	1,871	40	4,790	169	478	664	155	1	27	41	0	19	0	0
1999	19,999	1,273	18,725	9,905	1,912	41	5,121	163	411	691	114	0	302	47	0	21	0	0
2000	21,903	1,332	20,571	11,361	1,818	40	5,312	164	610	732	120	47	299	44	0	22	0	0
2001	23,493	1,432	22,061	12,795	1,863	44	5,701	236	19	823	123	55	318	55	0	30	0	0
2002	25,784	1,518	24,266	14,009	2,067	49	6,013	509	18	824	124	57	503	61	0	32	0	0
2003	26,820	1,492	25,327	14,999	2,336	42	6,256	196	24	873	132	19	346	56	1	44	0	0
2004	27,395	1,425	25,970	15,335	2,554	33	6,400	208	21	805	129	19	358	48	0	60	0	0
2005	27,678	1,508	26,170	15,826	2,486	31	6,238	195	65	789	130	18	297	53	0	42	0	0
2006	26,432	1,441	24,991	15,018	2,223	8	6,194	189	0	778	127	17	307	64	0	66	0	0
2007	26,437	1,439	24,998	14,677	2,176	7	6,464	244	2	771	140	17	314	86	0	99	0	0
2008	26,372	1,497	24,875	14,598	2,003	15	6,662	193	0	725	134	17	325	90	0	115	0	0
2009	32,963	1,605	31,358	19,114	844	25	9,714	198	0	724	140	16	340	138	0	104	0	0
Actual	25,501	1,602	23,899	14,278	815	25	7,166	198	0	724	131	16	340	101	0	104	0	0
ARRA	7,462	3	7,459	4,837	29	0	2,548	0	0	0	9	0	0	36	0	0	0	0
2010 preliminary	26,188	1,696	24,492	14,463	794	44	7,431	213	0	787	151	16	417	109	0	66	0	0
	Budget function share of totals, percent																	
1980	100	11.7	88.3	37.3	10.2	4.2	24.4	2.9	1.7	5.2	1.3	0.0	0.3	0.3	0.2	0.2	0.0	*
1981	100	11.9	88.1	38.2	8.7	4.3	24.6	2.6	1.7	5.5	1.3	0.2	0.3	0.3	0.1	0.1	0.1	0.1
1982	100	13.1	86.9	36.8	8.2	4.9	24.4	2.6	1.9	5.6	1.5	0.2	0.2	0.3	0.1	0.1	0.0	0.0
1983	100	12.6	87.4	39.6	8.0	5.1	23.0	2.5	1.9	5.2	1.1	0.2	0.2	0.3	0.1	0.1	0.0	0.0
1984	100	11.9	88.1	39.8	9.1	5.2	22.7	2.7	1.8	5.0	1.1	0.0	0.2	0.3	0.1	0.1	0.0	0.0
1985	100	11.0	89.0	41.5	6.4	5.5	22.8	2.6	3.3	5.2	1.1	0.1	0.2	0.3	0.1	0.1	0.0	0.1
1986	100	11.7	88.3	40.6	9.0	5.6	21.9	2.5	2.2	4.8	1.0	0.1	0.2	0.3	0.1	0.1	0.0	0.1
1987	100	10.0	90.0	42.7	9.3	5.7	21.5	2.3	2.6	4.4	0.9	0.0	0.2	0.3	0.0	0.1	0.0	0.0
1988	100	9.5	90.5	42.8	9.9	6.0	21.6	2.2	2.1	4.5	0.9	0.0	0.2	0.3	0.1	0.1	0.0	0.1

Appendix table 4-29

Federal budget authority for basic research, by budget function: FY 1980–2010

Year	All functions	All defense	All nondefense	Health	Space research/ technology	Energy	General science	Natural resources/ environment	Transportation	Agriculture	Education, training, employment, and social services	International affairs	Veterans benefits/ services	Commerce/ housing credit	Community/ regional development	Administration of justice	Income security	General government
1989	100	9.1	90.9	41.4	10.3	6.6	21.3	3.1	2.7	4.1	0.9	0.0	0.2	0.3	0.0	0.1	0.0	0.0
1990	100	8.5	91.5	41.3	12.3	6.7	20.4	3.0	2.1	4.0	0.9	0.0	0.1	0.3	0.0	0.1	0.0	0.0
1991	100	9.6	90.4	40.5	11.9	7.1	20.4	3.1	2.0	3.9	0.9	0.0	0.1	0.3	0.1	0.0	0.0	0.0
1992	100	8.8	91.2	42.4	11.6	7.1	19.5	3.0	2.1	4.1	0.9	0.0	0.1	0.3	0.1	0.0	0.0	0.0
1993	100	9.8	90.2	42.4	11.8	6.8	19.0	2.8	1.8	4.1	0.9	0.1	0.1	0.3	0.1	0.0	0.0	0.0
1994	100	8.7	91.3	43.5	13.3	6.8	18.8	1.7	1.6	4.2	1.1	0.0	0.1	0.3	0.1	0.0	0.0	0.0
1995	100	8.6	91.4	44.1	11.7	6.8	19.0	1.4	2.8	4.1	1.1	0.0	0.1	0.3	0.0	0.1	0.0	0.0
1996	100	8.1	91.9	44.3	11.7	8.2	18.4	1.0	3.2	3.8	1.0	0.0	0.1	0.3	0.0	0.1	0.0	0.0
1997	100	7.3	92.7	45.8	11.0	8.6	18.4	1.0	2.8	3.7	0.9	0.0	0.1	0.2	0.0	0.1	0.0	0.0
1998	100	6.9	93.1	47.4	10.4	0.2	26.5	0.9	2.6	3.7	0.9	0.0	0.1	0.2	0.0	0.1	0.0	0.0
1999	100	6.4	93.6	49.5	9.6	0.2	25.6	0.8	2.1	3.5	0.6	0.0	1.5	0.2	0.0	0.1	0.0	0.0
2000	100	6.1	93.9	51.9	8.3	0.2	24.3	0.7	2.8	3.3	0.5	0.2	1.4	0.2	0.0	0.1	0.0	0.0
2001	100	6.1	93.9	54.5	7.9	0.2	24.3	1.0	0.1	3.5	0.5	0.2	1.4	0.2	0.0	0.1	0.0	0.0
2002	100	5.9	94.1	54.3	8.0	0.2	23.3	2.0	0.1	3.2	0.5	0.2	1.9	0.2	0.0	0.1	0.0	0.0
2003	100	5.6	94.4	55.9	8.7	0.2	23.3	0.7	0.1	3.3	0.5	0.1	1.3	0.2	0.0	0.2	0.0	0.0
2004	100	5.2	94.8	56.0	9.3	0.1	23.4	0.8	0.1	2.9	0.5	0.1	1.3	0.2	0.0	0.2	0.0	0.0
2005	100	5.4	94.6	57.2	9.0	0.1	22.5	0.7	0.2	2.9	0.5	0.1	1.1	0.2	0.0	0.2	0.0	0.0
2006	100	5.5	94.5	56.8	8.4	0.0	23.4	0.7	0.0	2.9	0.5	0.1	1.2	0.2	0.0	0.2	0.0	0.0
2007	100	5.4	94.6	55.5	8.2	0.0	24.5	0.9	0.0	2.9	0.5	0.1	1.2	0.3	0.0	0.4	0.0	0.0
2008	100	5.7	94.3	55.4	7.6	0.1	25.3	0.7	0.0	2.7	0.5	0.1	1.2	0.3	0.0	0.4	0.0	0.0
2009	100	4.9	95.1	58.0	2.6	0.1	29.5	0.6	0.0	2.2	0.4	0.0	1.0	0.4	0.0	0.3	0.0	0.0
Actual	100	6.3	93.7	56.0	3.2	0.1	28.1	0.8	0.0	2.8	0.5	0.1	1.3	0.4	0.0	0.4	0.0	0.0
ARRA	100	0.0	100.0	64.8	0.4	0.0	34.2	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0
2010 preliminary	100	6.5	93.5	55.2	3.0	0.2	28.4	0.8	0.0	3.0	0.6	0.1	1.6	0.4	0.0	0.3	0.0	0.0

* = ≤$500,000

ARRA = American Recovery and Reinvestment Act of 2009

NOTES: Detail may not add to total because of rounding. In FY 2009 the National Aeronautics and Space Administration (NASA) adjusted its R&D reporting to more closely match survey data reported to the National Science Foundation. In FY 2007 the Department of Homeland Security (DHS) changed its R&D portfolio to reclassify funding in defense and most administration of justice as general science and basic research. In FY 2004 DHS changed its R&D portfolio to reclassify funding in general science and basic research and in agriculture as administration of justice. In FY 2000 NASA transferred funding for space station program from R&D to R&D plant; this change reflected in budget authority for space research and technology. In FY 2000 National Institutes of Health in the Department of Health and Human Services classified all of its previous development activities as basic research or applied research, with resulting increase in health basic research. In FY 1998 many Department of Energy programs were reclassified from energy to general science and basic research. In FY 1998 Department of Veterans Affairs began reporting medical care support funds as part of its total research budgetary resources; this change reflected in budget authority for veteran benefits and services. 1980–94 data are from agencies' submissions to Office of Management and Budget (OMB), Circular No. A-11, Exhibit 44A, "Research and Development Activities," and supplemental data obtained from agencies' budget offices. 1995–2010 data are from agencies' submissions to OMB per MAX Schedule C, budget justification documents, and supplemental data obtained from agencies' budget offices.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics (NCSES), Federal R&D Funding by Budget Function: FY 2009–11. All NSF/NCSES reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-30

Federal obligations for research and development, by character of work and R&D plant: FY 1953–2009

Fiscal year	Total	Total R&D	Basic research	Applied research	Development	R&D plant
	Current $thousands					
1953	2,167,456	1,919,543	115,997	NA	NA	247,913
1954	1,918,046	1,761,840	116,033	NA	NA	156,206
1955	2,251,894	2,044,593	130,068	NA	NA	207,301
1956	3,266,903	2,988,203	206,441	645,506	2,136,256	278,700
1957	4,389,237	3,932,001	262,348	662,199	3,007,454	457,236
1958	4,906,015	4,569,722	334,543	744,264	3,490,915	336,293
1959	7,122,610	6,693,510	465,981	874,272	5,353,257	429,100
1960	8,080,015	7,551,746	590,374	1,282,135	5,679,237	528,269
1961	9,607,023	9,058,623	814,513	1,663,431	6,580,679	548,400
1962	11,069,059	10,289,947	986,314	2,018,481	7,285,152	779,112
1963	13,662,879	12,494,611	1,151,753	2,356,150	8,986,708	1,168,268
1964	15,323,870	14,225,354	1,303,000	2,571,452	10,350,902	1,098,516
1965	15,745,852	14,614,249	1,435,469	2,811,761	10,367,019	1,131,603
1966	16,178,640	15,320,334	1,579,181	3,081,066	10,660,087	858,306
1967	17,149,186	16,529,099	1,845,847	2,785,543	11,897,709	620,087
1968	16,525,038	15,921,208	1,840,562	2,940,500	11,140,146	603,830
1969	16,309,900	15,640,888	1,944,773	2,700,117	10,995,998	669,012
1970	15,863,385	15,338,937	1,925,908	2,974,890	10,438,139	524,448
1971	16,153,756	15,542,512	1,980,141	3,143,030	10,419,341	611,244
1972	17,097,951	16,495,895	2,186,937	3,360,759	10,948,199	602,056
1973	17,574,486	16,800,153	2,232,006	3,349,423	11,218,724	774,333
1974	18,176,457	17,410,128	2,387,681	3,787,559	11,234,888	766,329
1975	19,859,548	19,038,818	2,588,427	4,141,281	12,309,110	820,730
1976	21,616,382	20,779,658	2,767,454	4,851,878	13,160,326	836,724
1977	24,817,577	23,450,377	3,258,640	5,255,475	14,936,262	1,367,200
1978	27,140,849	25,845,137	3,698,604	5,908,154	16,238,379	1,295,712
1979	29,620,597	28,145,142	4,192,665	6,342,340	17,610,137	1,475,455
1980	31,386,095	29,830,432	4,674,156	6,923,222	18,233,054	1,555,663
1981	34,589,634	33,103,924	5,041,295	7,171,485	20,891,144	1,485,710
1982	37,822,363	36,432,589	5,481,605	7,540,580	23,410,404	1,389,774
1983	40,009,032	38,711,537	6,260,131	7,993,394	24,458,012	1,297,495
1984	44,012,149	42,224,865	7,067,359	7,911,414	27,246,092	1,787,284
1985	50,180,369	48,359,565	7,818,682	8,314,739	32,226,144	1,820,804
1986	52,951,181	51,412,364	8,153,076	8,349,123	34,910,165	1,538,817
1987	57,099,656	55,253,693	8,942,425	8,998,096	37,313,172	1,845,963
1988	58,826,512	56,769,425	9,473,618	9,176,527	38,119,280	2,057,087
1989	63,571,605	61,406,484	10,602,011	10,163,520	40,640,953	2,165,121
1990	65,831,189	63,559,471	11,285,593	10,336,771	41,937,107	2,271,718
1991	64,147,951	61,295,152	12,170,794	11,797,583	37,326,775	2,852,799
1992	68,577,184	65,592,590	12,489,864	12,000,734	41,101,992	2,984,594
1993	70,414,697	67,314,025	13,399,121	13,491,376	40,423,528	3,100,672
1994	69,450,776	67,235,390	13,523,476	13,887,733	39,824,181	2,215,386
1995	70,442,935	68,186,798	13,877,031	14,557,365	39,752,402	2,256,137
1996	69,399,164	67,653,047	14,464,035	13,795,729	39,393,283	1,746,117
1997	71,753,430	69,826,779	14,941,892	14,423,397	40,461,490	1,926,651
1998	73,913,988	72,100,724	15,613,012	15,309,257	41,178,455	1,813,264
1999	77,386,368	75,340,622	17,443,653	16,083,861	41,813,108	2,045,746
2000	80,403,169 r	75,910,322 r	19,569,849	18,900,781	37,439,692 r	4,492,847
2001	88,562,348 r	84,492,520 r	21,958,136	22,755,600	39,778,784 r	4,069,828
2002	98,013,347 r	93,708,604 r	23,668,345	24,338,366	45,701,893 r	4,304,743
2003	107,793,778 r	103,527,260 r	24,751,441	26,320,402	52,455,417 r	4,266,518
2004	116,068,604 r	112,074,452 r	26,120,663	27,237,148	58,716,641 r	3,994,152
2005	122,618,991 r	118,847,864 r	27,140,335	26,597,910	65,109,619 r	3,771,127
2006	123,854,731 r	121,729,949 r	26,584,592	26,951,058	68,194,299 r	2,124,782
2007	129,431,246 r	127,262,861 r	26,865,786	27,227,779	73,169,296 r	2,168,385
2008	129,049,527	127,105,666	27,153,966	26,739,712	73,211,988	1,943,861

Appendix table 4-30

Federal obligations for research and development, by character of work and R&D plant: FY 1953–2009

Fiscal year	Total	Total R&D	Basic research	Applied research	Development	R&D plant
2009[a]	136,996,492	133,348,969	32,877,860	30,830,948	69,640,161	3,647,524
	Constant FY 2005 $thousands					
1953	13,362,861	11,834,420	715,148	NA	NA	1,528,440
1954	11,688,275	10,736,380	707,087	NA	NA	951,895
1955	13,614,837	12,361,505	786,385	NA	NA	1,253,331
1956	19,251,049	17,608,739	1,216,506	3,803,807	12,588,427	1,642,310
1957	24,938,847	22,340,915	1,490,614	3,762,494	17,087,807	2,597,932
1958	27,060,204	25,205,306	1,845,245	4,105,152	19,254,909	1,854,898
1959	38,709,837	36,377,772	2,532,505	4,751,478	29,093,788	2,332,065
1960	43,370,988	40,535,405	3,168,943	6,882,099	30,484,364	2,835,582
1961	50,857,718	47,954,595	4,311,874	8,805,881	34,836,840	2,903,123
1962	57,953,188	53,874,068	5,163,948	10,567,963	38,142,157	4,079,120
1963	70,645,703	64,605,021	5,955,290	12,182,782	46,466,949	6,040,683
1964	78,302,862	72,689,596	6,658,150	13,139,765	52,891,681	5,613,265
1965	79,045,442	73,364,704	7,206,170	14,115,266	52,043,268	5,680,738
1966	79,541,003	75,321,209	7,763,918	15,147,817	52,409,474	4,219,794
1967	81,701,696	78,747,494	8,793,935	13,270,810	56,682,749	2,954,202
1968	76,047,115	73,268,329	8,470,143	13,531,983	51,266,203	2,778,785
1969	71,754,949	68,811,650	8,555,974	11,879,089	48,376,586	2,943,300
1970	66,235,428	64,045,666	8,041,370	12,421,253	43,583,044	2,189,762
1971	64,229,646	61,799,252	7,873,324	12,497,137	41,428,791	2,430,394
1972	64,912,494	62,626,784	8,302,722	12,759,146	41,564,916	2,285,710
1973	63,930,469	61,113,689	8,119,338	12,184,151	40,810,200	2,816,781
1974	61,698,768	59,097,515	8,104,823	12,856,616	38,136,076	2,601,253
1975	61,012,436	58,490,992	7,952,157	12,722,829	37,816,006	2,521,444
1976	61,955,810	59,557,633	7,931,940	13,906,214	37,719,478	2,398,177
1977	66,180,205	62,534,339	8,689,707	14,014,600	39,830,032	3,645,867
1978	67,801,272	64,564,419	9,239,580	14,759,316	40,565,523	3,236,852
1979	68,486,929	65,075,473	9,694,023	14,664,370	40,717,080	3,411,457
1980	66,679,615	63,374,617	9,930,223	14,708,354	38,736,040	3,304,999
1981	66,891,576	64,018,418	9,749,168	13,868,662	40,400,588	2,873,158
1982	68,456,766	65,941,338	9,921,457	13,648,109	42,371,772	2,515,428
1983	69,363,786	67,114,315	10,853,209	13,858,173	42,402,933	2,249,471
1984	73,586,606	70,598,336	11,816,350	13,227,577	45,554,409	2,988,270
1985	81,263,755	78,315,085	12,661,833	13,465,164	52,188,087	2,948,670
1986	83,810,036	81,374,429	12,904,520	13,214,820	55,255,089	2,435,608
1987	88,035,239	85,189,166	13,787,273	13,873,105	57,528,788	2,846,073
1988	87,879,462	84,806,431	14,152,402	13,708,585	56,945,444	3,073,031
1989	91,417,321	88,303,831	15,245,917	14,615,358	58,442,555	3,113,490
1990	91,305,394	88,154,606	15,652,695	14,336,714	58,165,197	3,150,788
1991	85,724,911	81,912,538	16,264,592	15,765,847	49,882,099	3,812,373
1992	89,316,468	85,429,265	16,267,080	15,630,026	53,532,159	3,887,202
1993	89,723,110	85,772,203	17,073,294	17,190,846	51,508,063	3,950,907
1994	86,661,812	83,897,417	16,874,814	17,329,340	49,693,263	2,764,395
1995	86,073,967	83,317,202	16,956,294	17,787,592	48,573,316	2,756,766
1996	83,192,477	81,099,313	17,338,810	16,537,676	47,222,828	2,093,164
1997	84,465,486	82,197,503	17,589,043	16,978,690	47,629,770	2,267,982
1998	85,916,527	83,808,816	18,148,334	17,795,254	47,865,227	2,107,711
1999	88,776,377	86,429,531	20,011,074	18,451,143	47,967,314	2,346,846
2000	90,452,434	85,398,045	22,015,805	21,263,113	42,119,127	5,054,390
2001	97,331,957	92,859,127	24,132,472	25,008,902	43,717,754	4,472,830
2002	105,971,832	101,317,552	25,590,167	26,314,592	49,412,794	4,654,279
2003	114,164,137	109,645,478	26,214,193	27,875,876	55,555,409	4,518,659
2004	119,856,055	115,731,570	26,973,010	28,125,927	60,632,632	4,124,486
2005	122,618,991	118,847,864	27,140,335	26,597,910	65,109,619	3,771,127
2006	119,758,974	117,704,457	25,705,465	26,059,812	65,939,179	2,054,518

Appendix table 4-30

Federal obligations for research and development, by character of work and R&D plant: FY 1953–2009

Fiscal year	Total	Total R&D	Basic research	Applied research	Development	R&D plant
2007	121,486,058	119,450,780	25,216,619	25,556,391	68,677,770	2,035,278
2008	118,415,789	116,632,103	24,916,467	24,536,348	67,179,288	1,783,686
2009[a]	124,057,314	120,754,296	29,772,580	27,918,997	63,062,719	3,303,019

NA = not available, data collected for this table were not recorded at that level in that particular fiscal year; r = data significantly revised, replaces previously published data.

[a]Includes obligations from the additional federal R&D funding appropriated by the American Recovery and Reinvestment Act of 2009.

NOTES: Beginning in FY 2000, Department of the Air Force did not report BA 6.7 Operational Systems Development data because the agency misunderstood reporting requirements. During the Volume 57 data collection cycle, Department of the Air Force edited prior year data from FY 2000 to FY 2007 to include BA 6.7 Operational Systems Development data. These data revisions were derived from FY 2007 distribution percentages that were then applied backward to revise FY 2000–06 data.

In FY 2000, National Aeronautics and Space Administration (NASA) reclassified Space Station as a physical asset, reclassified Space Station Research as equipment, and transferred funding for the program from R&D to R&D plant. In FY 2006, NASA reclassified as operational costs funding for Space Operations, the Hubble Space Telescope, Stratospheric Observatory for Infrared Astronomy, and the James Webb Space Telescope previously reported as R&D plant. In FY 2000, National Institutes of Health reclassified all its development activities as research.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development: FY 2009–11.

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Appendix table 4-31

Estimated federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: FY 2009

(Millions of current dollars)

Agency	All federal obligations	Federal intramural	Extramural performers							
				United States and U.S. territories						
			Business firms	Industry FFRDC	Universities and colleges	University FFRDCs	Other nonprofits	Nonprofit FFRDCs	State, local governments	Foreign
Total R&D and R&D plant										
All agencies	136,996.5	31,246.9	53,677.4	4,182.2	32,169.9	4,069.2	7,202.2	3,456.4	391.0	601.3
Department of Agriculture	2,347.2	1,576.9	17.1	0.0	714.5	0.0	24.4	0.0	10.8	3.5
Department of Commerce	1,533.3	1,178.3	66.1	0.0	260.8	2.2	23.6	1.0	1.3	0.1
Department of Defense	68,230.2	17,351.0	46,345.0	321.7	2,425.5	319.3	501.9	703.0	9.2	253.5
Department of Education	322.4	15.6	20.7	0.0	217.2	0.0	68.4	0.0	0.5	0.0
Department of Energy	11,562.2	982.5	1,180.5	2,966.8	1,342.6	2,405.3	166.1	2,498.6	17.2	2.7
Department of Health and Human Services	35,735.9	6,630.0	1,912.2	795.8	20,514.2	61.0	5,289.8	60.0	172.5	300.6
Department of Homeland Security	983.6	399.7	238.9	77.9	89.1	13.4	54.6	105.5	4.1	0.3
Department of the Interior	738.8	602.5	48.1	0.0	70.9	0.0	2.7	0.0	13.5	1.1
Department of Justice	94.0	25.1	16.6	0.0	33.4	0.0	7.3	0.0	11.6	0.0
Department of Transportation	846.3	226.5	333.4	1.6	62.7	6.6	40.5	45.8	128.4	0.7
Department of Veterans Affairs	510.0	510.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agency for International Development	160.1	10.6	10.9	0.0	30.2	0.0	101.2	0.0	0.0	7.2
Environmental Protection Agency	552.8	414.1	68.1	0.0	52.9	0.0	15.9	0.0	0.8	1.2
National Aeronautics and Space Administration	5,937.1	916.3	3,050.8	0.9	730.4	1,023.7	189.7	17.2	1.5	6.7
National Science Foundation	6,924.8	68.3	279.7	0.0	5,604.6	230.8	699.5	4.7	17.5	17.0
Smithsonian Institution	226.7	226.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	291.1	112.9	89.3	17.4	21.2	6.9	16.7	20.7	2.1	6.7
R&D										
All agencies	133,349.0	30,442.3	53,301.6	4,054.5	31,563.0	3,362.6	7,047.8	2,588.1	389.8	599.3
Department of Agriculture	2,269.7	1,499.4	17.1	0.0	714.5	0.0	24.4	0.0	10.8	3.5
Department of Commerce	1,146.9	845.0	66.1	0.0	213.2	2.2	18.1	1.0	1.3	0.1
Department of Defense	68,113.0	17,333.5	46,245.4	321.7	2,425.4	319.3	501.9	703.0	9.2	253.5
Department of Education	322.4	15.6	20.7	0.0	217.2	0.0	68.4	0.0	0.5	0.0
Department of Energy	9,889.9	977.1	1,100.0	2,839.4	1,331.8	1,791.0	166.1	1,664.6	17.2	2.7
Department of Health and Human Services	35,584.0	6,533.2	1,912.2	795.8	20,476.5	61.0	5,272.4	60.0	172.5	300.6
Department of Homeland Security	672.5	246.6	119.6	77.6	88.8	13.4	51.8	71.2	3.2	0.3
Department of the Interior	732.4	602.5	41.7	0.0	70.9	0.0	2.7	0.0	13.5	1.1
Department of Justice	94.0	25.1	16.6	0.0	33.4	0.0	7.3	0.0	11.6	0.0
Department of Transportation	826.0	226.5	313.1	1.6	62.7	6.6	40.5	45.8	128.4	0.7
Department of Veterans Affairs	510.0	510.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agency for International Development	160.1	10.6	10.9	0.0	30.2	0.0	101.2	0.0	0.0	7.2
Environmental Protection Agency	552.8	414.1	68.1	0.0	52.9	0.0	15.9	0.0	0.8	1.2
National Aeronautics and Space Administration	5,937.0	916.3	3,050.7	0.9	730.4	1,023.7	189.7	17.2	1.5	6.7
National Science Foundation	6,095.2	22.0	230.5	0.0	5,094.2	138.5	570.8	4.7	17.5	17.0
Smithsonian Institution	152.0	152.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	291.1	112.9	88.9	17.4	21.2	6.9	16.7	20.7	1.8	4.7
Basic research										
All agencies	32,877.9	5,523.9	1,631.4	678.3	18,232.6	1,964.3	3,487.7	1,059.1	94.4	206.1
Department of Agriculture	924.0	642.7	0.8	0.0	266.6	0.0	9.0	0.0	3.1	1.7
Department of Commerce	138.3	112.6	6.8	0.0	13.8	0.0	4.3	0.7	0.0	0.1
Department of Defense	1,735.0	406.2	221.4	9.4	990.4	3.2	69.0	2.8	0.8	31.9
Department of Education	4.2	0.2	0.0	0.0	2.9	0.0	1.1	0.0	0.0	0.0
Department of Energy	4,061.0	47.1	74.5	236.7	1,043.7	1,598.9	46.3	1,011.1	0.0	2.7
Department of Health and Human Services	18,772.2	3,660.8	920.1	421.8	10,768.1	29.2	2,717.5	29.5	71.3	153.9
Department of Homeland Security	101.3	17.2	6.6	9.9	54.0	1.2	0.6	11.5	0.4	0.0
Department of the Interior	47.1	42.7	0.1	0.0	3.2	0.0	0.2	0.0	0.9	0.0
Department of Justice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 4-31

Estimated federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: FY 2009

(Millions of current dollars)

Agency	All federal obligations	Federal intramural	Extramural performers							
				United States and U.S. territories						
			Business firms	Industry FFRDC	Universities and colleges	University FFRDCs	Other nonprofits	Nonprofit FFRDCs	State, local governments	Foreign
Department of Veterans Affairs	203.3	203.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agency for International Development	0.6	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Environmental Protection Agency	83.7	63.2	10.0	0.0	7.8	0.0	2.3	0.0	0.1	0.2
National Aeronautics and Space Administration	1,021.6	153.2	264.9	0.7	327.4	193.4	78.4	2.3	0.3	1.2
National Science Foundation	5,623.9	20.7	126.0	0.0	4,748.4	138.4	557.2	1.3	17.4	14.4
Smithsonian Institution	152.0	152.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	9.6	1.9	0.2	0.0	5.7	0.0	1.8	0.0	0.0	0.0
Applied research										
All agencies	30,830.9	7,802.0	4,653.1	2,392.2	11,939.9	183.8	3,013.3	402.9	249.2	194.5
Department of Agriculture	1,154.0	684.0	16.3	0.0	430.4	0.0	14.1	0.0	7.6	1.5
Department of Commerce	820.8	587.0	41.2	0.0	176.9	2.2	12.7	0.3	0.6	0.0
Department of Defense	5,071.4	1,549.7	2,557.7	56.7	660.5	29.1	157.7	30.5	0.7	28.9
Department of Education	198.4	9.6	8.3	0.0	145.1	0.0	35.4	0.0	0.0	0.0
Department of Energy	3,127.2	478.6	147.3	1,902.3	162.0	88.7	56.2	283.7	8.5	0.0
Department of Health and Human Services	16,717.7	2,840.0	992.0	374.0	9,683.1	31.8	2,521.8	30.5	97.9	146.6
Department of Homeland Security	245.9	116.2	50.0	40.1	18.1	5.9	7.5	6.9	0.8	0.3
Department of the Interior	610.5	497.2	40.0	0.0	60.8	0.0	2.1	0.0	9.2	1.1
Department of Justice	71.5	9.0	16.6	0.0	33.1	0.0	7.3	0.0	5.5	0.0
Department of Transportation	586.7	171.0	185.1	1.6	50.5	6.6	33.4	22.9	115.3	0.3
Department of Veterans Affairs	274.0	274.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agency for International Development	159.6	10.6	10.9	0.0	29.7	0.0	101.2	0.0	0.0	7.2
Environmental Protection Agency	384.4	286.8	47.8	0.0	37.2	0.0	11.1	0.0	0.5	0.8
National Aeronautics and Space Administration	681.8	190.1	357.8	0.1	91.3	12.6	24.7	4.2	0.7	0.4
National Science Foundation	471.3	1.3	104.6	0.0	345.8	0.1	13.6	3.4	0.1	2.6
Smithsonian Institution	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	255.8	97.0	77.5	17.4	15.4	6.9	14.4	20.7	1.8	4.7
Development										
All agencies	69,640.2	17,116.4	47,017.1	983.9	1,390.5	1,214.4	546.7	1,126.1	46.2	198.8
Department of Agriculture	191.7	172.7	0.0	0.0	17.4	0.0	1.2	0.0	0.1	0.3
Department of Commerce	187.8	145.3	18.2	0.0	22.5	0.0	1.1	0.0	0.7	0.0
Department of Defense	61,306.5	15,377.6	43,466.3	255.6	774.5	287.0	275.3	669.8	7.7	192.7
Department of Education	119.7	5.8	12.4	0.0	69.3	0.0	31.8	0.0	0.5	0.0
Department of Energy	2,701.8	451.5	878.2	700.5	126.1	103.4	63.6	369.9	8.7	0.0
Department of Health and Human Services	94.1	32.4	0.0	0.0	25.3	0.0	33.1	0.0	3.3	0.0
Department of Homeland Security	325.3	113.3	63.0	27.7	16.6	6.3	43.7	52.8	2.0	0.0
Department of the Interior	74.8	62.5	1.5	0.0	6.9	0.0	0.5	0.0	3.4	0.0
Department of Justice	22.5	16.1	0.0	0.0	0.3	0.0	0.0	0.0	6.1	0.0
Department of Transportation	239.2	55.4	128.0	0.0	12.2	0.0	7.0	23.0	13.2	0.5
Department of Veterans Affairs	32.7	32.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agency for International Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental Protection Agency	84.7	64.0	10.2	0.0	7.9	0.0	2.4	0.0	0.1	0.2
National Aeronautics and Space Administration	4,233.5	573.1	2,428.0	0.2	311.7	817.7	86.6	10.7	0.5	5.1
National Science Foundation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Smithsonian Institution	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	25.7	13.9	11.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0
R&D plant										
All agencies	3,647.5	804.6	375.8	127.7	606.9	706.6	154.4	868.3	1.2	2.0
Department of Agriculture	77.5	77.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Commerce	386.4	333.3	0.0	0.0	47.6	0.0	5.5	0.0	0.0	0.0

Appendix table 4-31

Estimated federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: FY 2009

(Millions of current dollars)

			Extramural performers							
				United States and U.S. territories						
Agency	All federal obligations	Federal intramural	Business firms	Industry FFRDC	Universities and colleges	University FFRDCs	Other nonprofits	Nonprofit FFRDCs	State, local governments	Foreign
Department of Defense	117.2	17.5	99.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Department of Education	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Energy	1,672.3	5.4	80.5	127.4	10.8	614.3	0.0	834.0	0.0	0.0
Department of Health and Human Services	151.9	96.8	0.0	0.0	37.7	0.0	17.4	0.0	0.0	0.0
Department of Homeland Security	311.1	153.1	119.3	0.3	0.3	0.0	2.8	34.3	0.9	*
Department of the Interior	6.4	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Justice	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Transportation	20.3	0.0	20.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Veterans Affairs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Agency for International Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental Protection Agency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
National Aeronautics and Space Administration	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
National Science Foundation	829.6	46.3	49.2	0.0	510.4	92.3	128.7	0.0	0.0	0.0
Smithsonian Institution	74.7	74.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3	2.0

FFRDC = federally funded research and development center

[a]Includes costs associated with administration of intramural and extramural programs by federal personnel and actual intramural performance.

NOTES: Detail may not add to total because of rounding. Agencies with total annual R&D of $100 million or more. Includes obligations from the additional federal R&D funding appropriated by the American Recovery and Reinvestment Act of 2009. All other agencies includes Department of Housing and Urban Development, Department of Labor, Department of State, Department of the Treasury, Appalachian Regional Commission, Federal Communications Commission, Federal Trade Commission, Library of Congress, National Archives and Records Commission, Nuclear Regulatory Commission, Social Security Administration.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Federal Funds for Research and Development: FY 2009–11.

Science and Engineering Indicators 2012

Appendix table 4-32

Discrepancy between federal R&D support, as reported by performers and federal agencies: 1985–2009

(Billions of dollars)

	All performers			Business performers[a]		
Year	Performer reported	Agency reported	Difference	Performer reported	Agency reported	Difference
1985	52.6	48.4	4.2	25.3	21.7	3.6
1986	54.6	51.4	3.2	26.0	24.2	1.8
1987	58.6	55.3	3.3	28.8	26.8	2.0
1988	60.1	56.8	3.3	28.2	26.7	1.5
1989	60.5	61.4	-0.9	26.4	28.6	-2.2
1990	61.6	63.6	-2.0	25.8	29.4	-3.6
1991	60.8	61.3	-0.5	24.1	26.4	-2.3
1992	60.9	65.6	-4.7	22.4	29.8	-7.4
1993	60.5	67.3	-6.8	20.8	30.2	-9.4
1994	60.8	67.2	-6.4	20.3	30.5	-10.2
1995	63.0	68.2	-5.2	21.2	30.2	-9.0
1996	63.4	67.7	-4.3	21.4	30.4	-9.0
1997	64.6	69.8	-5.2	21.8	31.4	-9.6
1998	66.4	72.1	-5.7	22.1	32.0	-9.9
1999	67.1	75.3	-8.2	20.5	31.9	-11.4
2000	66.9	75.9	-9.0	17.1	29.4	-12.3
2001	75.0	84.5	-9.5	16.9	28.2	-11.3
2002	80.1	93.7	-13.6	16.4	34.6	-18.2
2003	86.1	103.5	-17.4	17.8	40.7	-22.9
2004	91.7	112.1	-20.4	20.3	43.8	-23.5
2005	96.3	118.9	-22.6	21.9	48.9	-27.0
2006	100.8	121.7	-20.9	24.3	52.8	-28.5
2007	105.8	127.3	-21.5	26.6	55.3	-28.7
2008	117.6	127.1	-9.5	36.4	56.3	-19.9
2009	124.4	133.3	-8.9	39.6	53.3	-13.7

[a]Excludes industry-administered federally funded research and development centers.

NOTE: Performer-reported data are expenditures; agency-reported data are obligations.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics (NSF/NCSES), National Patterns of R&D Resources (annual series); and NSF/NCSES, Federal Funds for Research and Development: FY 2009–11.

Science and Engineering Indicators 2012

Appendix table 4-33

Federally funded research and development centers, R&D expenditures: FY 2008 and FY 2009

(Thousands of current dollars)

FFRDC	FY 2008 Total	FY 2008 Federal funding	FY 2009 Total	FY 2009 Federal funding	Sponsoring agency	Location
All FFRDCs	14,707,088	14,262,947	15,220,621	14,784,361	na	na
University-administered FFRDCs	4,701,645	4,550,332	4,958,944	4,811,485	na	na
Ames Laboratory	27,306	27,306	29,012	29,012	Department of Energy	Ames, IA
Argonne National Laboratory	533,530	487,641	543,169	498,847	Department of Energy	Argonne, IL
Fermi National Accelerator Laboratory	340,486	336,123	376,791	374,668	Department of Energy	Batavia, IL
Jet Propulsion Laboratory	1,733,597	1,733,597	1,711,528	1,711,528	NASA	Pasadena, CA
Lawrence Berkeley National Laboratory	573,917	519,756	611,711	555,842	Department of Energy	Berkeley, CA
MA Institute of Technology Lincoln Laboratory	641,386	637,879	706,555	704,050	DOD, Department of the Air Force	Lexington, MA
National Astronomy and Ionosphere Center	12,586	12,418	14,738	14,032	NSF	Arecibo, PR
National Center for Atmospheric Research	161,130	139,667	203,627	177,877	NSF	Boulder, CO
National Optical Astronomy Observatory	55,922	50,165	56,972	52,089	NSF	Tucson, AZ
National Radio Astronomy Observatory	146,098	145,953	151,396	149,960	NSF	Green Bank, WV
Princeton Plasma Physics Laboratory	78,154	78,039	81,113	80,985	Department of Energy	Princeton, NJ
SLAC National Accelerator Laboratory	234,316	234,316	294,421	294,421	Department of Energy	Stanford, CA
Software Engineering Institute	80,963	66,721	89,077	80,618	DOD, Office of the Secretary of Defense	Pittsburgh, PA
Thomas Jefferson National Accelerator Facility	82,254	80,751	88,834	87,556	Department of Energy	Newport News, VA
Nonprofit-administered FFRDCs	3,689,108	3,536,795	3,827,802	3,687,331	na	na
Aerospace FFRDC	38,940	16,349	41,470	14,386	DOD, Department of the Air Force	El Segundo, CA
Arroyo Center	23,852	23,852	27,692	27,692	DOD, Department of the Army	Santa Monica, CA
Brookhaven National Laboratory	480,455	459,348	569,240	545,267	Department of Energy	Upton, NY
C3I FFRDC	52,053	52,053	46,790	46,790	DOD, Office of the Secretary of Defense	Bedford, MA/McLean, VA
Center for Advanced Aviation System Development	7,470	7,470	10,575	10,575	FAA	McLean, VA
Center for Communications and Computing	59,500	59,500	66,293	66,293	National Security Agency	Alexandria, VA
Center for Enterprise Modernization[a]	9,679	9,679	7,458	7,458	IRS	McLean, VA
Center for Naval Analyses	106,967	94,552	109,694	95,128	DOD, Department of the Navy	Alexandria, VA
Center for Nuclear Waste Regulatory Analyses	17,960	17,169	16,614	15,715	Nuclear Regulatory Commission	San Antonio, TX
Homeland Security Institute[b]	27,400	27,400	na	na	Department of Homeland Security	Arlington, VA
Homeland Security Studies and Analysis Institute[b]	na	na	32,173	32,173	Department of Homeland Security	Arlington, VA
Homeland Security Systems Engineering and Development Institute[b]	na	na	1,559	1,559	Department of Homeland Security	McLean, VA
National Biodefense Analysis and Countermeasures Center[c]	12,979	12,979	19,934	19,934	Department of Homeland Security	Frederick, MD
National Defense Research Institute	40,051	40,051	42,265	42,265	DOD, Office of the Secretary of Defense	Santa Monica, CA
National Renewable Energy Laboratory	229,399	219,296	273,640	264,828	Department of Energy	Golden, CO
Oak Ridge National Laboratory	1,251,336	1,205,784	1,259,259	1,217,301	Department of Energy	Oak Ridge, TN
Pacific Northwest National Laboratory	1,136,773	1,097,019	1,086,884	1,063,705	Department of Energy	Richland, WA
Project Air Force	41,794	41,794	45,162	45,162	DOD, Department of the Air Force	Santa Monica, CA
The Science and Technology Policy Institute	6,000	6,000	5,100	5,100	NSF	Washington, DC
Studies and Analyses Center	146,500	146,500	166,000	166,000	DOD, Office of the Secretary of Defense	Alexandria, VA
Industry-administered FFRDCs	6,316,335	6,175,820	6,433,875	6,285,545	na	na
Idaho National Engineering and Environmental Laboratory	236,037	224,273	388,062	372,502	Department of Energy	Idaho Falls, ID

Appendix table 4-33

Federally funded research and development centers, R&D expenditures: FY 2008 and FY 2009

(Thousands of current dollars)

FFRDC	FY 2008 Total	FY 2008 Federal funding	FY 2009 Total	FY 2009 Federal funding	Sponsoring agency	Location
Lawrence Livermore National Laboratory[d]	1,301,874	1,248,594	1,321,633	1,261,769	Department of Energy	Livermore, CA
Los Alamos National Laboratory[e]	2,073,538	2,051,550	2,172,179	2,141,950	Department of Energy	Los Alamos, NM
NCI Frederick Cancer R&D Center	509,700	509,700	378,200	378,200	NIH	Frederick, MD
Sandia National Laboratory	2,076,786	2,023,303	2,043,509	2,000,832	Department of Energy	Albuquerque, NM
Savannah River Technology Center	118,400	118,400	130,292	130,292	Department of Energy	Aiken, SC

na = not applicable

DOD = Department of Defense; FAA = Federal Aviation Administration; FFRDC = federally funded research and development center; IRS = Internal Revenue Service; NASA = National Aeronautics and Space Administration; NCI = National Cancer Institute; NIH = National Institutes of Health; NSF = National Science Foundation

[a]In prior year tables the Center for Enterprise Modernization was listed as the Internal Revenue Service FFRDC.
[b]On 5 March 2009 Homeland Security Studies and Analysis Institute and Homeland Security Systems Engineering and Development Institute were created. These new FFRDCs replaced Homeland Security Institute.
[c]National Biodefense Analysis and Countermeasures Center was established as an FFRDC by Department of Homeland Security on 20 December 2006.
[d]Prior to FY 2008, Lawrence Livermore National Laboratory was administered by University of California. On 1 October 2007 administration was transferred to Lawrence Livermore National Security LLC.
[e]Prior to FY 2007 Los Alamos National Laboratory was administered by University of California. On 1 June 2006 administration was transferred to Los Alamos National Security LLC.

NOTES: Totals differ from those reported in tables 4-1 and 4-3 for FFRDCs because data in tables 4-1 and 4-3 have been adjusted from a fiscal-year basis to a calendar-year basis.
More information about the FFRDCs can be found on NSF website, http://www.nsf.gov/statistics/ffrdc/.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at FFRDCs, FY 2009.

Science and Engineering Statistics 2012

Appendix table 4-34

Federal obligations for research, by agency and S&E field: FY 2009

Agency	All federal obligations	Environmental sciences	Life sciences	Mathematics and computer sciences	Physical sciences	Psychology	Social sciences	Other sciences, nec	Engineering
	Current $thousands								
All agencies	63,708,807	3,751,416	33,267,736	3,612,518	5,823,381	2,086,663	1,159,294	3,713,351	10,294,449
Departments									
Department of Agriculture	2,077,954	19,339	1,737,019	9,608	105,838	0	160,130	0	46,019
Department of Commerce	959,104	316,256	115,249	84,502	204,357	615	19,104	18,313	200,708
Department of Defense	6,806,471	390,476	923,807	913,224	832,854	69,367	38,921	144,988	3,492,833
Department of Education	202,641	0	12,486	0	0	11,183	172,621	0	6,351
Department of Energy	7,188,114	373,426	349,151	1,002,197	2,612,466	0	0	375,244	2,475,629
Department of Health and Human Services	35,489,910	544,843	27,929,657	187,062	296,785	1,904,199	293,782	2,579,461	1,754,122
Department of Homeland Security	347,202	4,249	91,496	49,293	42,679	10,940	18,041	21,216	109,288
Department of Housing and Urban Development	11,651	0	0	0	0	0	11,589	36	26
Department of Interior	657,608	421,941	210,350	8,970	1,647	0	6,922	268	7,511
Department of Justice	80,864	0	5,980	25,408	3,053	0	36,870	0	9,552
Department of Labor	29,198	0	0	0	0	0	24,740	4,458	0
Department of State	3,724	0	0	0	0	0	3,724	0	0
Department of Transportation	586,739	34,573	36,249	34,056	95	18,727	11,724	44,269	407,046
Department of the Treasury	67,042	0	0	0	2,134	0	0	64,908	0
Department of Veterans Affairs	477,300	0	401,060	0	0	54,263	0	0	21,977
Other agencies									
Agency for International Development	160,129	3,212	140,976	0	0	0	10,060	5,881	0
Appalachian Regional Commission	991	0	0	0	0	0	991	0	0
Environmental Protection Agency	468,074	162,648	219,247	11,321	12,901	0	2,300	0	59,657
Federal Communications Commission	6,879	0	0	525	1,050	0	1,884	0	3,420
Federal Trade Commission	2,389	0	0	0	0	0	2,389	0	0
Library of Congress	483	0	0	0	483	0	0	0	0
National Aeronautics and Space Administration	1,703,453	395,168	96,740	28,855	468,501	6,316	314	87,096	620,463
National Archives and Records Administration	4,620	50	0	4,500	70	0	0	0	0
National Science Foundation	6,095,193	1,078,815	933,678	1,252,996	1,181,285	11,053	252,761	365,957	1,018,649
Nuclear Regulatory Commission	61,198	0	0	0	0	0	0	0	61,198
Smithsonian Institution	152,000	6,419	64,592	0	57,182	0	22,550	1,257	0
Social Security Administration	67,878	0	0	0	0	0	67,878	0	0
	Share by field, percent								
All agencies	100.0	5.9	52.2	5.7	9.1	3.3	1.8	5.8	16.2
Departments									
Department of Agriculture	100.0	0.9	83.6	0.5	5.1	0.0	7.7	0.0	2.2
Department of Commerce	100.0	33.0	12.0	8.8	21.3	0.1	2.0	1.9	20.9
Department of Defense	100.0	5.7	13.6	13.4	12.2	1.0	0.6	2.1	51.3
Department of Education	100.0	0.0	6.2	0.0	0.0	5.5	85.2	0.0	3.1
Department of Energy	100.0	5.2	4.9	13.9	36.3	0.0	0.0	5.2	34.4
Department of Health and Human Services	100.0	1.5	78.7	0.5	0.8	5.4	0.8	7.3	4.9
Department of Homeland Security	100.0	1.2	26.4	14.2	12.3	3.2	5.2	6.1	31.5

Appendix table 4-34

Federal obligations for research, by agency and S&E field: FY 2009

Agency	All federal obligations	Environmental sciences	Life sciences	Mathematics and computer sciences	Physical sciences	Psychology	Social sciences	Other sciences, nec	Engineering
Department of Housing and Urban Development	100.0	0.0	0.0	0.0	0.0	0.0	99.5	0.3	0.2
Department of Interior	100.0	64.2	32.0	1.4	0.3	0.0	1.1	0.0	1.1
Department of Justice	100.0	0.0	7.4	31.4	3.8	0.0	45.6	0.0	11.8
Department of Labor	100.0	0.0	0.0	0.0	0.0	0.0	84.7	15.3	0.0
Department of State	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Department of Transportation	100.0	5.9	6.2	5.8	0.0	3.2	2.0	7.5	69.4
Department of the Treasury	100.0	0.0	0.0	0.0	3.2	0.0	0.0	96.8	0.0
Department of Veterans Affairs	100.0	0.0	84.0	0.0	0.0	11.4	0.0	0.0	4.6
Other agencies									
Agency for International Development	100.0	2.0	88.0	0.0	0.0	0.0	6.3	3.7	0.0
Appalachian Regional Commission	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Environmental Protection Agency	100.0	34.7	46.8	2.4	2.8	0.0	0.5	0.0	12.7
Federal Communications Commission	100.0	0.0	0.0	7.6	15.3	0.0	27.4	0.0	49.7
Federal Trade Commission	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Library of Congress	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
National Aeronautics and Space Administration	100.0	23.2	5.7	1.7	27.5	0.4	0.0	5.1	36.4
National Archives and Records Administration	100.0	1.1	0.0	97.4	1.5	0.0	0.0	0.0	0.0
National Science Foundation	100.0	17.7	15.3	20.6	19.4	0.2	4.1	6.0	16.7
Nuclear Regulatory Commission	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Smithsonian Institution	100.0	4.2	42.5	0.0	37.6	0.0	14.8	0.8	0.0
Social Security Administration	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0

nec = not elsewhere classified

NOTES: Research includes basic research and applied research. Includes obligations from the additional federal R&D funding appropriated by the American Recovery and Reinvestment Act of 2009.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Federal Funds for Research and Development: FY 2009–11

Science and Engineering Indicators 2012

Appendix table 4-35

Federal obligations for research, by detailed S&E field: Selected years, FY 1989–2009

Field of science and engineering	1989	1994	1999	2004	2005	2006	2007	2008	2009	Average annual growth rates in major fields 1989–2009	1999–2009	2004–09
	Current $millions									Percent		
Total, all fields	20,765.5	27,411.2	33,527.5	53,357.8	53,738.2	53,535.7	54,093.6	53,893.7	63,708.8	5.8	6.6	3.6
Environmental sciences	1,773.2	2,838.2	3,095.3	3,741.6	3,502.6	3,430.6	3,170.5	2,984.6	3,751.4	3.8	1.9	0.1
Atmospheric sciences	588.0	1,095.0	1,176.5	1,259.7	1,185.1	1,166.9	964.6	884.5	1,018.2	–	–	–
Geological sciences	542.8	838.0	660.2	704.5	673.5	653.9	638.0	517.5	754.2	–	–	–
Oceanography	491.9	496.8	656.6	809.1	771.5	745.8	787.8	788.7	834.2	–	–	–
Environmental sciences, nec	150.5	408.5	602.0	968.4	872.5	864.0	780.1	793.9	1,144.8	–	–	–
Life sciences	8,495.1	11,284.3	15,422.5	27,728.5	28,127.8	27,927.7	29,463.6	28,918.8	33,267.7	7.1	8.0	3.7
Biological and agricultural	5,020.0	6,103.0	8,047.7	14,848.7	15,144.8	15,485.6	16,326.3	na	na	–	–	–
Agricultural	669.0	727.2	849.4	1,086.8	1,094.2	1,108.2	1,139.4	1,020.3	1,120.4	–	–	–
Biological (excluding environmental)	3,983.2	4,745.8	6,477.6	13,091.9	13,351.6	13,690.8	14,429.7	14,443.1	17,377.0	–	–	–
Environmental biology	367.8	629.9	720.6	670.0	699.0	686.6	757.2	858.0	963.7	–	–	–
Medical sciences	3,222.5	4,862.1	6,801.2	10,898.8	10,862.1	10,592.2	10,790.7	10,387.3	11,392.7	–	–	–
Clinical medical	na	na	na	na	na	na	na	na	na	–	–	–
Other medical	na	na	na	na	na	na	na	na	na	–	–	–
Life sciences, nec	252.6	319.3	573.6	1,981.0	2,120.9	1,849.9	2,346.5	2,210.1	2,414.0	–	–	–
Mathematics and computer sciences	735.4	1,301.6	1,980.6	2,949.4	2,983.4	2,814.9	2,945.7	3,047.3	3,612.5	8.3	6.2	4.1
Computer sciences	364.6	830.2	1,516.1	2,144.9	2,157.1	1,987.8	2,077.7	2,053.0	2,422.5	–	–	–
Mathematics	236.1	342.3	345.3	617.8	686.6	669.2	708.6	782.9	928.1	–	–	–
Mathematics and computer sciences, nec	134.8	129.1	119.2	186.7	139.7	157.9	159.4	211.4	261.8	–	–	–
Physical sciences	3,705.2	4,253.5	4,066.2	5,211.1	5,493.7	5,351.1	5,136.1	5,072.6	5,823.4	2.3	3.7	2.2
Astronomy	541.9	747.6	757.9	920.8	884.9	792.5	655.9	527.9	671.6	–	–	–
Chemistry	782.6	874.4	814.9	1,191.0	1,197.5	1,126.4	1,149.9	1,148.4	1,274.4	–	–	–
Physics	2,190.8	2,443.1	2,221.9	2,598.6	3,041.3	3,001.8	2,939.2	2,968.9	3,357.8	–	–	–
Physical sciences, nec	189.9	188.3	271.4	500.8	370.0	430.5	391.1	427.4	519.6	–	–	–
Psychology	421.7	548.4	632.6	1,854.9	1,891.8	1,747.3	1,837.9	1,740.8	2,086.7	8.3	12.7	2.4
Biological aspects	121.8	48.1	18.0	6.0	2.3	3.0	3.8	21.8	2.2	–	–	–
Social aspects	149.9	116.8	66.6	51.7	46.6	40.9	36.8	18.8	50.9	–	–	–
Psychological sciences, nec	149.9	383.4	547.9	1,797.2	1,842.8	1,703.4	1,797.3	1,700.3	2,033.7	–	–	–
Social sciences	551.0	647.4	854.9	1,089.6	1,097.1	1,123.9	1,147.1	977.0	1,159.3	3.8	3.1	1.2
Anthropology	13.9	16.2	18.3	15.0	18.0	15.1	16.1	17.4	29.4	–	–	–
Economics	166.8	193.3	216.6	204.6	215.9	202.6	250.0	212.3	232.6	–	–	–
Political science	13.5	25.4	20.2	18.7	32.7	44.6	41.2	29.2	24.6	–	–	–
Sociology	94.1	68.1	83.8	120.1	70.2	144.2	217.6	95.2	138.8	–	–	–
Social sciences, nec	262.8	344.4	516.0	731.2	760.4	717.4	622.2	622.9	733.9	–	–	–
History	na	na	na	na	na	na	na	na	na	–	–	–
Linguistics	na	na	na	na	na	na	na	na	na	–	–	–
Other social sciences	na	na	na	na	na	na	na	na	na	–	–	–
Other sciences, nec	641.6	1,058.4	1,212.1	1,916.3	2,088.9	2,461.3	1,403.1	2,177.1	3,713.4	9.2	11.8	14.1
Engineering	4,442.2	5,479.4	6,263.4	8,866.4	8,552.9	8,678.7	8,989.7	8,975.5	10,294.4	4.3	5.1	3.0
Aeronautical	986.8	1,222.7	1,609.7	1,640.8	1,276.3	1,229.2	929.2	810.3	910.7	–	–	–

Appendix table 4-35

Federal obligations for research, by detailed S&E field: Selected years, FY 1989–2009

Field of science and engineering	1989	1994	1999	2004	2005	2006	2007	2008	2009	Average annual growth rates in major fields 1989–2009	1999–2009	2004–09
Astronautical	677.4	499.1	620.6	664.9	494.1	476.3	341.0	288.1	371.1	–	–	–
Chemical	142.2	238.2	203.2	318.8	283.8	294.6	353.8	345.6	447.1	–	–	–
Civil	229.8	277.9	328.5	330.3	279.2	352.7	461.5	488.0	678.9	–	–	–
Electrical	843.1	741.8	698.7	890.9	1,033.5	1,035.5	1,027.5	1,046.5	1,255.1	–	–	–
Mechanical	257.4	378.1	240.4	301.9	323.7	298.2	337.2	292.4	314.5	–	–	–
Metallurgy and materials	521.0	851.4	788.0	1,037.2	1,184.1	1,250.0	1,479.8	1,623.9	1,723.4	–	–	–
Engineering, nec	784.5	1,270.2	1,774.3	3,681.6	3,678.3	3,742.3	4,059.8	4,080.8	4,593.5	–	–	–
	Constant FY 2005 $millions											
Total, all fields	29,861.2	34,204.1	38,462.2	55,098.9	53,738.2	51,765.3	50,773.0	49,452.8	57,691.6	3.3	4.1	0.9
Environmental sciences	2,549.9	3,541.6	3,550.9	3,863.7	3,502.6	3,317.2	2,975.9	2,738.7	3,397.1	1.4	-0.4	-2.5
Atmospheric sciences	845.6	1,366.4	1,349.7	1,300.8	1,185.1	1,128.3	905.4	811.6	922.0	–	–	–
Geological sciences	780.6	1,045.7	757.4	727.5	673.5	632.3	598.8	474.9	683.0	–	–	–
Oceanography	707.4	619.9	753.2	835.5	771.5	721.1	739.4	723.7	755.4	–	–	–
Environmental sciences, nec	216.4	509.7	690.6	1,000.0	872.5	835.4	732.2	728.5	1,036.7	–	–	–
Life sciences	12,216.1	14,080.7	17,692.4	28,633.3	28,127.8	27,004.2	27,655.0	26,535.9	30,125.6	4.6	5.5	1.0
Biological and agricultural	7,218.9	7,615.4	9,232.2	15,333.2	15,144.8	14,973.5	15,324.1	na	na	–	–	–
Agricultural	962.0	907.4	974.4	1,122.3	1,094.2	1,071.6	1,069.5	936.2	1,014.6	–	–	–
Biological (excluding environmental)	5,727.9	5,921.9	7,431.0	13,519.1	13,351.6	13,238.1	13,543.9	13,253.0	15,735.8	–	–	–
Environmental biology	528.9	786.0	826.7	691.9	699.0	663.9	710.7	787.3	872.7	–	–	–
Medical sciences	4,634.0	6,067.0	7,802.2	11,254.4	10,862.1	10,241.9	10,128.3	9,531.4	NA	–	–	–
Clinical medical	na	na	na	na	na	na	na	na	na	–	–	–
Other medical	na	na	na	na	na	na	na	na	na	–	–	–
Life sciences, nec	363.2	398.4	658.0	2,045.6	2,120.9	1,788.7	2,202.5	2,028.0	2,186.0	–	–	–
Mathematics and computer sciences	1,057.5	1,624.2	2,272.1	3,045.6	2,983.4	2,721.8	2,764.9	2,796.2	3,271.3	5.8	3.7	1.4
Computer sciences	524.3	1,035.9	1,739.2	2,214.9	2,157.1	1,922.1	1,950.2	1,883.8	2,193.7	–	–	–
Mathematics	339.5	427.1	396.1	638.0	686.6	647.1	665.1	718.4	840.4	–	–	–
Mathematics and computer sciences, nec	193.8	161.1	136.7	192.8	139.7	152.7	149.6	194.0	237.1	–	–	–
Physical sciences	5,328.2	5,307.6	4,664.7	5,381.1	5,493.7	5,174.1	4,820.8	4,654.6	5,273.4	-0.1	1.2	-0.4
Astronomy	779.3	932.9	869.5	950.8	884.9	766.3	615.6	484.4	608.2	–	–	–
Chemistry	1,125.4	1,091.1	934.8	1,229.9	1,197.5	1,089.2	1,079.3	1,053.8	1,154.0	–	–	–
Physics	3,150.4	3,048.5	2,548.9	2,683.4	3,041.3	2,902.5	2,758.8	2,724.3	3,040.7	–	–	–
Physical sciences, nec	273.1	235.0	311.3	517.1	370.0	416.3	367.1	392.2	470.5	–	–	–
Psychology	606.4	684.3	725.7	1,915.4	1,891.8	1,689.5	1,725.1	1,597.4	1,889.6	5.8	10.0	-0.3
Biological aspects	175.2	60.0	20.6	6.2	2.3	2.9	3.6	20.0	2.0	–	–	–
Social aspects	215.6	145.7	76.4	53.4	46.6	39.5	34.5	17.3	46.1	–	–	–
Psychological sciences, nec	215.6	478.4	628.5	1,855.8	1,842.8	1,647.1	1,687.0	1,560.2	1,841.6	–	–	–
Social sciences	792.3	807.8	980.7	1,125.2	1,097.1	1,086.7	1,076.7	896.5	1,049.8	1.4	0.7	-1.4
Anthropology	20.0	20.2	21.0	15.5	18.0	14.6	15.1	16.0	26.6	–	–	–
Economics	239.9	241.2	248.5	211.3	215.9	195.9	234.7	194.8	210.6	–	–	–
Political science	19.4	31.7	23.2	19.3	32.7	43.1	38.7	26.8	22.3	–	–	–
Sociology	135.3	85.0	96.1	124.0	70.2	139.4	204.2	87.4	125.7	–	–	–

Appendix table 4-35

Federal obligations for research, by detailed S&E field: Selected years, FY 1989–2009

Field of science and engineering	1989	1994	1999	2004	2005	2006	2007	2008	2009	Average annual growth rates in major fields		
										1989–2009	1999–2009	2004–09
Social sciences, nec	377.9	429.7	591.9	755.1	760.4	693.7	584.0	571.6	664.6	–	–	–
History	na	na	na	na	na	na	na	na	na	–	–	–
Linguistics	na	na	na	na	na	na	na	na	na	–	–	–
Other social sciences	na	na	na	na	na	na	na	na	na	–	–	–
Other sciences, nec	922.6	1,320.7	1,390.5	1,978.8	2,088.9	2,379.9	1,317.0	1,997.7	3,362.7	6.7	9.2	11.2
Engineering	6,388.0	6,837.3	7,185.3	9,155.7	8,552.9	8,391.7	8,437.9	8,235.9	9,322.1	1.9	2.6	0.4
Aeronautical	1,419.0	1,525.7	1,846.6	1,694.3	1,276.3	1,188.6	872.2	743.5	824.7	–	–	–
Astronautical	974.1	622.8	711.9	686.6	494.1	460.5	320.1	264.4	336.0	–	–	–
Chemical	204.5	297.2	233.1	329.2	283.8	284.9	332.1	317.1	404.9	–	–	–
Civil	330.5	346.8	376.8	341.1	279.2	341.0	433.2	447.8	614.8	–	–	–
Electrical	1,212.4	925.6	801.5	920.0	1,033.5	1,001.3	964.4	960.3	1,136.6	–	–	–
Mechanical	370.1	471.8	275.8	311.8	323.7	288.3	316.5	268.3	284.8	–	–	–
Metallurgy and materials	749.2	1,062.4	904.0	1,071.0	1,184.1	1,208.7	1,389.0	1,490.1	1,560.6	–	–	–
Engineering, nec	1,128.1	1,585.0	2,035.4	3,801.7	3,678.3	3,618.5	3,810.6	3,744.5	4,159.6	–	–	–

NA = not available, data collected for this table were not recorded at that level in that particular fiscal year; na = not applicable, data collected for this table were not recorded at that level in that particular fiscal year, or agency or subagency did not exist as such or in that organization in that year; nec = not elsewhere classified

NOTES: During the Volume 45 (FY 1995–97) survey cycle, National Aeronautics and Space Administration (NASA) made a statistical adjustment to the 1994 and 1995 field of science and engineering values to diminish a computational error introduced by its software. In FY 2000, NASA reclassified Space Station as a physical asset, reclassified Space Station Research as equipment, and transferred funding for the program from R&D to R&D plant; and National Institutes of Health reclassified all its development activities as research. Figures for FY 2009 include obligations from the additional federal R&D funding appropriated by the American Recovery and Reinvestment Act .

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development: FY 2009–11.

Science and Engineering Indicators 2012

Appendix table 4-36

Federal research and experimentation tax credit claims, by NAICS industry: 1998–2008

(Thousands of current U.S. dollars)

Industry	NAICS code	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All industries	na	5,208,204	5,280,612	7,078,533	6,355,803	5,655,666	5,488,337	5,554,011	6,363,476	7,311,124	8,259,753	8,303,369
Manufacturing	31–33	3,394,758	3,890,851	4,854,499	4,208,607	3,787,025	3,797,439	3,845,792	4,529,302	5,242,803	5,685,322	5,758,082
Food	311	26,618	28,274	37,091	33,716	30,971	49,120	50,836	71,132	82,879	76,498	80,719
Beverage and tobacco products	312	16,433	8,486	7,877	12,115	19,204	3,114	5,129	9,952	8,971	25,197	12,844
Textiles, apparel, and leather	313–16	6,676	8,992	7,828	7,787	12,286	12,091	11,179	7,944	8,973	7,707	9,042
Wood products	321	1,352	1,596	1,999	1,974	2,073	1,735	1,736	2,163	7,113	7,997	5,016
Paper, printing, and support activities	322, 323	47,729	34,566	34,822	59,463	64,289	68,927	55,476	49,864	54,044	68,185	68,643
Petroleum and coal products	324	20,447	9,532	NA	34,959	36,257	39,400	21,545	28,506	25,700	92,216	99,858
Chemicals	325	861,290	960,698	1,070,257	999,405	949,115	1,001,644	989,278	1,147,292	1,136,754	1,492,231	1,489,383
Pharmaceuticals and medicines	3254	628,384	713,343	800,555	805,558	777,856	736,269	757,626	915,201	901,555	1,224,825	1,199,930
Plastics and rubber products	326	20,934	26,256	25,050	18,884	24,218	21,245	22,596	24,796	23,517	30,419	31,366
Nonmetallic mineral products	327	11,249	10,714	8,441	9,735	9,516	9,670	8,587	9,770	9,051	10,285	12,283
Primary metals	331	6,768	6,548	6,191	6,010	8,096	8,077	7,756	10,282	19,989	36,863	32,098
Fabricated metal products	332	23,808	24,698	23,403	24,243	27,912	59,387	66,597	66,794	72,969	83,261	74,863
Machinery	333	178,546	130,311	148,768	154,210	148,668	134,808	182,417	194,382	662,624	292,349	339,851
Computer and electronic products	334	1,144,966	1,566,081	2,209,996	1,677,194	1,152,788	1,168,467	1,490,633	1,647,471	1,746,744	1,889,734	1,812,225
Computers and peripheral equipment	3341	345,842	587,412	691,381	487,777	380,276	386,140	312,726	304,176	344,322	498,230	523,865
Communications equipment	3342	362,243	432,632	650,859	433,269	220,147	212,289	213,885	285,865	386,090	393,950	333,570
Semiconductor and other electronic components	3344	338,138	426,997	739,597	567,390	411,723	461,353	841,903	917,103	855,986	824,571	771,314
Navigational, measuring, electromedical, and control instruments	3345	67,640	81,700	72,234	138,872	100,472	72,156	84,895	102,219	113,202	127,835	146,251
Electrical equipment, appliances, and components	335	119,076	136,135	177,767	180,985	163,536	117,260	122,723	188,450	229,079	168,715	217,724
Transportation equipment	336	747,814	778,059	902,710	785,699	957,277	896,992	581,824	825,671	906,354	1,107,105	1,180,968
Motor vehicles, trailers, and parts	3361–63	612,475	663,472	761,718	638,560	590,750	649,790	458,674	680,488	725,902	596,233	494,280
Aerospace products and parts	3364	108,370	95,697	122,514	130,821	348,498	220,374	105,060	129,979	169,710	486,733	659,976
Furniture and related products	337	7,256	6,217	7,497	8,899	10,374	6,610	10,788	18,593	19,622	14,704	11,240
Miscellaneous manufacturing	339	153,797	153,688	161,798	193,330	170,444	198,891	216,693	226,240	228,420	281,857	279,958
Medical equipment and supplies	3391	130,882	132,983	137,501	155,124	146,312	171,825	181,375	198,289	201,431	241,958	241,822
Nonmanufacturing	na	1,813,446	1,389,761	2,224,034	2,147,196	1,868,642	1,690,898	1,708,219	1,834,174	2,068,321	2,574,431	2,545,288
Agriculture, forestry, fishing, and hunting	11	11,859	10,494	3,927	3,024	3,491	4,499	4,220	4,183	4,205	3,934	5,054
Mining, extraction, and support activities	21	9,163	3,700	14,650	9,669	7,199	18,137	6,937	5,408	13,583	29,589	29,997
Utilities	22	21,916	18,403	10,340	8,546	6,307	4,496	10,241	20,454	32,508	54,410	48,855
Construction	23	2,286	6,744	13,031	9,360	11,060	11,002	4,884	3,424	7,353	15,000	10,278
Wholesale trade and retail trade	42, 44, 45	139,605	123,894	186,537	186,162	193,814	198,050	211,484	235,402	284,845	387,167	430,098
Transportation and warehousing	48, 49	14,237	13,664	20,840	16,186	13,722	12,681	11,515	9,040	8,473	12,334	10,593
Information	51	1,019,710	634,298	1,146,524	1,001,296	801,073	633,275	599,795	636,462	733,840	912,435	944,284
Publishing	511	698,709	277,080	707,071	623,170	493,094	357,528	275,870	285,544	361,218	492,719	579,940
Software	5112	686,171	263,723	685,882	603,049	477,847	336,344	261,122	273,545	351,279	482,232	558,749
Broadcasting and telecommunications	515–17	198,150	187,928	211,282	184,987	171,659	159,731	180,412	201,791	140,571	162,183	150,860
Finance, insurance, and real estate	52, 53	93,988	111,181	141,445	126,025	96,250	99,507	112,798	129,052	137,071	164,868	150,052
Professional, scientific, and technical services	54	419,791	417,648	611,640	649,801	576,581	549,141	609,019	651,093	725,855	853,119	787,671
Architectural, engineering, and related services	5413	14,567	33,776	42,999	43,499	28,175	23,408	33,804	42,384	37,566	46,980	50,604
Computer systems design and related services	5415	230,416	170,514	261,491	231,064	177,596	156,691	147,257	170,262	167,017	230,015	228,503
Scientific R&D services	5417	149,916	174,422	254,308	307,839	320,343	315,495	376,084	378,617	445,760	481,052	465,043

Appendix table 4-36

Federal research and experimentation tax credit claims, by NAICS industry: 1998–2008

(Thousands of current U.S. dollars)

Industry	NAICS code	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Management of companies and enterprises	55	43,108	12,537	36,706	82,295	100,337	94,894	92,007	94,833	76,846	90,557	62,091
Administrative and waste services	56	NA	NA	NA	26,060	25,914	30,788	18,956	11,859	12,405	13,291	22,373
Health care and social assistance	62	NA	NA	NA	22,102	24,105	29,356	20,796	23,609	22,526	28,478	36,625

na = not applicable; NA = not available

NAICS = North American Industry Classification System

NOTES: Estimates are based on a stratified probability sample of unaudited active returns and are subject to sampling and nonsampling errors. Data are for tax years, which cover accounting periods ending any month between July of the calendar year of reference through June of the following calendar year. Data include returns of active corporations, other than forms 1120S (S corporations), 1120-REIT (Real Estate Investment Trusts), and 1120-RIC (Regulated Investment Companies). Active returns are corporate returns reporting any income or deduction items, including tax-exempt interest.

SOURCE: Internal Revenue Service (IRS) Statistics of Income (SOI), special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 4-37

Corporate tax returns claiming the federal research and experimentation tax credit, by NAICS industry: 1998–2008

(Number)

Industry	NAICS code	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All industries	na	9,849	10,019	10,495	10,389	10,254	10,369	10,244	11,290	10,788	12,548	12,736
Manufacturing	31–33	4,990	4,721	4,826	4,766	4,750	4,623	4,686	4,921	5,106	5,636	5,420
Food	311	105	99	122	132	135	121	135	162	132	166	163
Beverage and tobacco products	312	10	8	7	10	10	10	10	10	8	12	18
Textiles, apparel, and leather	313–16	41	41	36	31	30	39	38	30	67	65	83
Wood products	321	34	29	26	31	23	16	14	15	45	40	14
Paper, printing, and support activities	322, 323	127	101	110	78	97	86	86	104	114	97	96
Petroleum and coal products	324	26	27	NA	30	28	29	27	19 *	21 *	33	40
Chemicals	325	711	580	564	650	634	593	600	536	648	700	701
Pharmaceuticals and medicines	3254	381	250	247	297	275	267	314	264	292	347	343
Plastics and rubber products	326	163	113	108	118	97	116	123	168	189	183	202
Nonmetallic mineral products	327	42	36	36	27	29	42	37	58	49	54	70
Primary metals	331	31	36	55	43	43	44	39	78	79	101	116
Fabricated metal products	332	368	310	271	260	220	273	287	338	336	462	457
Machinery	333	446	417	450	425	388	344	505	474	501	591	651
Computer and electronic products	334	1,623	1,626	1,617	1,604	1,663	1,565	1,429	1,343	1,266	1,394	1,319
Computers and peripheral equipment	3341	279	252	245	346	320	256	265	279	158	199	212
Communications equipment	3342	424	377	285	345	312	287	234	235	272	238	210
Semiconductor and other electronic components	3344	555	539	596	552	564	482	492	494	408	471	400
Navigational, measuring, electromedical, and control instruments	3345	291	304	331	209	318	408	331	272	325	400	357
Electrical equipment, appliances, and components	335	418	401	397	411	536	516	497	768	622	726	555
Transportation equipment	336	162	125	195	186	191	201	192	242	269	289	291
Motor vehicles, trailers, and parts	3361–63	80	72	84	83	117	130	133	158	166	182	175
Aerospace products and parts	3364	43	34	47	53	46	44	43	65	81	84	82
Furniture and related products	337	43	38	57	32	60	20	21	39	74	78	70
Miscellaneous manufacturing	339	639	734	751	699	566	608	645	538	685	646	575
Medical equipment and supplies	3391	382	488	433	431	353	380	428	376	443	420	347
Nonmanufacturing	na	4,859	5,298	5,669	5,623	5,504	5,746	5,558	6,369	5,682	6,912	7,316
Agriculture, forestry, fishing, and hunting	11	55	36	39	35	51	60	40	61	72	100	83
Mining, extraction, and support activities	21	15	12	15	44	20	21	22	19	17	36	36
Utilities	22	44	34	29	23	18	18	17	37	47	78	129
Construction	23	31	33	11	15	31	20	21	18	29	59	56
Wholesale trade and retail trade	42, 44, 45	392	751	608	693	616	594	812	718	832	829	865
Transportation and warehousing	48, 49	18	17	21	19	17	17	23	43	39	33	58
Information	51	953	1,466	1,506	1,502	1,242	1,149	977	1,076	1,025	1,257	1,132
Publishing	511	635	858	913	975	835	761	689	592	611	544	699
Software	5112	612	840	890	952	816	442	656	565	583	515	673
Broadcasting and telecommunications	515–17	111	206	182	179	203	167	144	229	203	220	169
Finance, insurance, and real estate	52, 53	109	98	109	124	208	206	150	157	189	227	267
Professional, scientific, and technical services	54	2,383	2,645	2,959	2,887	2,900	3,446	3,304	3,335	2,961	3,699	3,932
Architectural, engineering, and related services	5413	142	211	163	136	98	326	377	415	238	452	637
Computer systems design and related services	5415	741	1,193	1,329	1,204	1,230	1,340	1,219	1,215	927	1,279	1,442
Scientific R&D services	5417	1,298	929	1,122	1,190	1,200	1,276	1,435	1,431	1,467	1,587	1,476

Appendix table 4-37

Corporate tax returns claiming the federal research and experimentation tax credit, by NAICS industry: 1998–2008

(Number)

Industry	NAICS code	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Management of companies and enterprises	55	55	39	66	52	55	50	70	326	137	178	276
Administrative and waste services	56	NA	NA	NA	47	31	82	23	420	183	197	288
Health care and social assistance	62	NA	NA	NA	137	73	64	70	106	80	80	81

* = Estimate should be used with caution because of the small number of returns on which it was based; na = not applicable; NA = not available

NAICS = North American Industry Classification System

NOTES: Estimates are based on a stratified probability sample of unaudited active returns and are subject to sampling and nonsampling errors. Data are for tax years, which cover accounting periods ending any month between July of the calendar year of reference through June of the following calendar year. Data include returns of active corporations, other than forms 1120S (S corporations), 1120-REIT (Real Estate Investment Trusts), and 1120-RIC (Regulated Investment Companies). Active returns are corporate returns reporting any income or deduction items, including tax-exempt interest.

SOURCE: Internal Revenue Service (IRS) Statistics of Income (SOI), special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 4-38

Federal technology transfer activity indicators, U.S. agencies with federal labs: FY 2001–09

Agency	2001	2002	2003	2004	2005	2006	2007	2008	2009
Invention disclosures and patenting									
All 10 agencies									
Inventions disclosed	3,962	4,149	5,106	5,454	4,771	5,193	4,486	4,365	4,422
Patent applications filed	2,175	2,130	2,318	1,768	1,745	1,912	1,825	1,938	2,080
Patents issued	1,610	1,511	1,631	1,391	1,012	1,284	1,405	1,272	1,494
USDA									
Inventions disclosed	118	151	121	142	125	105	126	133	153
Patent applications filed	83	90	60	81	88	83	114	123	117
Patents issued	64	53	64	50	27	39	37	30	21
DOC									
Inventions disclosed	26	17	21	25	21	14	32	40	49
Patent applications filed	12	12	5	12	12	5	8	21	19
Patents issued	21	20	9	12	10	7	3	2	7
DOD									
Inventions disclosed	1,005	1,122	1,332	1,369	534	1,056	838	1,018	831
Patent applications filed	809	829	810	517	354	691	597	590	690
Patents issued	619	617	619	426	191	472	425	462	404
DOE									
Inventions disclosed	1,527	1,498	1,469	1,617	1,776	1,694	1,575	1,460	1,439
Patent applications filed	792	711	866	661	812	726	693	904	919
Patents issued	605	551	627	520	467	438	441	370	520
EPA									
Inventions disclosed	17	16	14	18	12	12	16	9	8
Patent applications filed	14	14	23	12	13	13	15	6	3
Patents issued	12	9	8	11	9	10	10	4	9
HHS									
Inventions disclosed	434	431	472	461	452	442	447	437	389
Patent applications filed	255	262	279	216	230	166	261	164	156
Patents issued	119	116	136	167	154	164	379	278	397
DHS									
Inventions disclosed	na	na	na	NA	NA	NA	NA	10	32
Patent applications filed	na	na	na	NA	NA	NA	NA	0	2
Patents issued	na	na	na	NA	NA	NA	NA	1	2
DOI									
Inventions disclosed	6	14	9	6	4	5	7	7	4
Patent applications filed	17	12	8	6	3	2	5	7	8
Patents issued	7	13	5	9	9	5	6	1	4
NASA									
Inventions disclosed	696	775	1,485	1,612	1,682	1,713	1,487	1,297	1,373
Patent applications filed	152	166	231	207	209	219	193	166	128
Patents issued	159	128	155	189	139	146	108	135	114
DOT									
Inventions disclosed	2	0	0	0	4	3	2	3	3
Patent applications filed	3	0	0	2	5	3	2	0	1
Patents issued	0	0	0	0	2	0	3	2	1
VA									
Inventions disclosed	131	125	183	204	165	157	175	164	150
Patent applications filed	38	34	36	54	26	27	25	13	37
Patents issued	4	4	8	7	10	5	8	10	15
Licensing									
All 10 agencies									
All licenses, total active in the FY	4,391	6,063	6,497	7,567	9,577	10,186	10,352	11,098	10,913
Invention licenses	3,140	3,588	3,747	3,804	4,236	4,163	3,935	4,172	4,226
Other intellectual property licenses	1,254	2,475	2,771	3,775	5,341	6,023	6,405	6,972	6,730
USDA									
All licenses, total active in the FY	255	267	270	296	320	332	339	328	316
Invention licenses	255	267	270	296	320	332	339	328	316

Appendix table 4-38

Federal technology transfer activity indicators, U.S. agencies with federal labs: FY 2001–09

Agency	2001	2002	2003	2004	2005	2006	2007	2008	2009
Other intellectual property licenses	0	0	0	0	0	0	0	0	0
DOC									
All licenses, total active in the FY	40	41	101	125	133	111	222	29	40
Invention licenses	40	41	101	125	133	111	222	29	40
Other intellectual property licenses	0	0	0	0	0	0	0	0	0
DOD									
All licenses, total active in the FY	285	471	364	369	412	444	495	365	432
Invention licenses	283	350	361	364	406	438	460	351	386
Other intellectual property licenses	5	121	3	5	6	6	35	14	46
DOE									
All licenses, total active in the FY	2,005	3,459	3,687	4,345	5,677	5,916	5,842	6,196	5,752
Invention licenses	1,162	1,327	1,223	1,362	1,535	1,420	1,354	1,418	1,452
Other intellectual property licenses	843	2,132	2,464	2,983	4,142	4,496	4,488	4,748	4,300
EPA									
All licenses, total active in the FY	16	23	32	38	39	35	38	37	40
Invention licenses	16	23	32	38	39	35	38	37	40
Other intellectual property licenses	0	0	0	0	0	0	0	0	0
HHS									
All licenses, total active in the FY	1,367	1,356	1,423	1,424	1,532	1,535	1,418	1,675	1,584
Invention licenses	1,007	1,213	1,350	1,173	1,237	1,213	915	1,376	1,304
Other intellectual property licenses	360	143	82	251	295	322	460	352	327
DHS									
All licenses, total active in the FY	na	na	na	NA	NA	NA	NA	18	63
Invention licenses	na	na	na	NA	NA	NA	NA	0	0
Other intellectual property licenses	na	na	na	NA	NA	NA	NA	18	63
DOI									
All licenses, total active in the FY	8	8	11	13	20	21	15	19	21
Invention licenses	8	8	10	12	19	20	15	18	18
Other intellectual property licenses	0	0	1	1	1	1	0	1	1
NASA									
All licenses, total active in the FY	328	357	521	861	1,340	1,680	2,035	2,337	2,497
Invention licenses	292	290	312	338	443	482	474	486	504
Other intellectual property licenses	36	67	209	523	897	1,198	1,561	1,851	1,993
DOT									
All licenses, total active in the FY	1	0	0	1	5	5	5	5	2
Invention licenses	1	0	0	1	5	5	1	5	3
Other intellectual property licenses	0	0	0	0	0	0	0	0	0
VA									
All licenses, total active in the FY	86	81	88	95	101	112	130	153	163
Invention licenses	76	69	88	95	101	112	130	153	163
Other intellectual property licenses	10	12	12	12	0	0	0	0	0
Collaborative R&D relationships									
All 10 agencies									
CRADAs, total active in FY	3,676	5,377	5,603	6,015	5,947	7,268	7,326	6,923	7,733
Traditional CRADAs	2,837	2,858	2,316	3,546	3,962	3,666	3,819	3,664	4,219
Other collaborative R&D relationships	NA	NA	8,162	7,454	11,767	9,738	10,164	11,411	16,319
USDA									
CRADAs, total active in FY	219	225	229	205	199	195	230	252	233
Traditional CRADAs	217	222	212	185	171	163	184	202	191
Other collaborative R&D relationships	NA	NA	2,769	1,166	5,028	3,477	4,084	5,466	9,960
DOC									
CRADAs, total active in FY	247	1,883	1,903	1,969	1,906	3,008	2,778	2,390	2,386
Traditional CRADAs	188	139	92	67	80	149	154	131	77
Other collaborative R&D relationships	1,575	1,694	1,814	2,301	2,714	2,769	3,414	3,476	3,608
DOD									
CRADAs, total active in FY	1,965	1,913	2,134	2,833	3,210	2,999	2,971	2,596	2,870
Traditional CRADAs	1,418	1,376	1,523	2,425	2,736	2,424	2,383	1,993	2,247

Appendix table 4-38

Federal technology transfer activity indicators, U.S. agencies with federal labs: FY 2001–09

Agency	2001	2002	2003	2004	2005	2006	2007	2008	2009
Other collaborative R&D relationships	0	0	0	0	0	0	0	3	1
DOE									
CRADAs, total active in FY	558	680	661	610	644	631	697	711	744
Traditional CRADAs	558	680	661	610	644	631	697	711	744
Other collaborative R&D relationships	0	0	0	0	0	0	0	0	0
EPA									
CRADAs, total active in FY	48	59	91	104	107	94	84	112	155
Traditional CRADAs	45	55	77	82	95	83	67	74	51
Other collaborative R&D relationships	0	0	0	0	0	0	0	0	0
HHS									
CRADAs, total active in FY	498	470	427	220	215	164	284	453	457
Traditional CRADAs	289	261	254	119	117	92	206	295	284
Other collaborative R&D relationships	0	0	0	0	0	0	0	0	0
DHS									
CRADAs, total active in FY	na	na	na	NA	NA	NA	NA	23	23
Traditional CRADAs	na	na	na	NA	NA	NA	NA	21	22
Other collaborative R&D relationships	na	na	na	NA	NA	NA	NA	3	5
DOI									
CRADAs, total active in FY	56	52	51	61	70	82	170	170	248
Traditional CRADAs	41	42	51	45	49	31	20	33	36
Other collaborative R&D relationships	0	0	0	0	0	0	0	0	0
NASA									
CRADAs, total active in FY	1	1	0	0	1	1	1	1	1
Traditional CRADAs	1	1	0	0	1	1	1	1	1
Other collaborative R&D relationships	1,053	2,659	3,579	3,987	4,038	3,509	2,887	2,750	2,743
DOT									
CRADAs, total active in FY	82	92	96	0	57	59	36	23	22
Traditional CRADAs	78	80	96	0	55	59	36	23	0
Other collaborative R&D relationships	0	0	0	0	0	0	0	0	2
VA									
CRADAs, total active in FY	2	2	11	13	14	37	82	221	606
Traditional CRADAs	2	2	11	13	14	33	74	207	566
Other collaborative R&D relationships	0	0	0	0	0	0	0	0	0

na = not applicable; NA = data not available

CRADA = cooperative research and development agreement; DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; DOI = Department of the Interior; DOT = Department of Transportation; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; USDA = Department of Agriculture; VA = Department of Veterans Affairs

NOTES: The Department of Homeland Security started to operate in early 2003; it did not start to provide technology transfer statistics until FY 2008. Invention licenses refers to inventions which are patented or could be patented. Other Intellectual Property refers to IP protected through mechanisms other than a patent, e.g., copyright. Total CRADAs refers to all agreements executed under CRADA authority (15 USC 3710a). Traditional CRADAs are collaborative R&D partnerships between a federal lab and one or more nonfederal organizations. (Nontraditional CRADAs are established for special purposes, such as material transfer or technical assistance that may result in protected information.) Federal agencies have varying authorities for other kinds of collaborative R&D relationships.

SOURCES: National Institute of Standards and Technology, *Federal Laboratory Technology Transfer, Fiscal Year 2009 Summary Report to the President and the Congress*, March 2011 (http://www.nist.gov/tpo/publications/upload/Federal-Lab-TT-Report-FY2009.pdf). U.S. Department of Commerce, Office of the Secretary, *Summary Report on Federal Laboratory Technology Transfer: FY 2003 Activity Metrics and Outcomes, Report to the President and the Congress*, December 2004 (http://www.nist.gov/tpo/publications/upload/summaryreportfy2003.pdf)

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Appendix table 4-39

SBIR and STTR awards, by type of award: FY 1983–2008

	SBIR			STTR		
Fiscal year	Phase I	Phase II	Total	Phase I	Phase II	Total
1983	686	0	686	NA	NA	NA
1984	999	338	1,337	NA	NA	NA
1985	1,397	407	1,804	NA	NA	NA
1986	1,945	564	2,509	NA	NA	NA
1987	2,189	768	2,957	NA	NA	NA
1988	2,013	711	2,724	NA	NA	NA
1989	2,137	749	2,886	NA	NA	NA
1990	2,346	837	3,183	NA	NA	NA
1991	2,553	788	3,341	NA	NA	NA
1992	2,559	916	3,475	NA	NA	NA
1993	2,898	1,141	4,039	NA	NA	NA
1994	3,102	928	4,030	198	0	198
1995	3,085	1,263	4,348	238	22	260
1996	2,841	1,191	4,032	238	88	326
1997	3,371	1,404	4,775	260	89	349
1998	3,022	1,320	4,342	208	109	317
1999	3,334	1,256	4,590	251	78	329
2000	3,166	1,330	4,496	233	95	328
2001	3,215	1,533	4,748	244	93	337
2002	4,243	1,577	5,820	356	114	470
2003	4,465	1,759	6,224	397	111	508
2004	4,638	2,013	6,651	667	193	860
2005	4,300	1,871	6,171	611	221	832
2006	3,836	2,026	5,862	644	234	878
2007	3,814	1,542	5,356	634	213	847
2008	3,626	1,771	5,397	483	251	734

NA = not available

SBIR = Small Business Innovation Research program; STTR = Small Business Technology Transfer program

SOURCE: Small Business Administration, SBIR and STTR Annual Reports.

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Appendix table 4-40

SBIR award funding, by type of award and federal agency: FY 1983–2008

(Millions of current dollars)

Fiscal year	All	Phase I	Phase II	DOD	HHS	NASA	DOE	NSF	DHS[a]	USDA	DOT	EPA	ED	DOC
1983	44.5	44.5	0.0	20	7	5	5	5	NA	1	*	*	*	0
1984	108.4	48.0	60.4	45	23	13	16	7	NA	2	2	1	1	0
1985	199.1	69.1	130.0	78	45	29	26	10	NA	3	3	2	1	0
1986	297.9	98.5	199.4	151	57	36	29	15	NA	4	4	3	2	1
1987	350.5	109.6	240.9	194	67	32	28	17	NA	4	3	3	2	2
1988	389.1	101.9	248.9	208	73	47	30	17	NA	4	3	3	2	1
1989	431.9	107.7	321.7	233	79	52	33	19	NA	4	4	3	2	1
1990	460.7	118.1	341.8	241	84	62	39	20	NA	4	4	3	2	1
1991	483.1	127.9	335.9	241	93	69	39	22	NA	5	6	4	3	1
1992	508.4	127.9	371.2	242	102	79	43	23	NA	6	3	4	2	2
1993	698.0	154.0	490.7	385	126	86	50	29	NA	7	4	5	3	2
1994	717.6	220.4	473.6	354	133	116	53	34	NA	7	7	5	3	4
1995	834.5	232.2	601.9	414	181	118	70	42	NA	9	10	7	3	8
1996	916.3	228.9	645.8	479	189	114	62	41	NA	9	7	5	3	6
1997	1,106.9	277.6	789.1	569	252	121	75	54	NA	10	8	6	4	7
1998	1,066.7	262.3	804.4	540	267	96	76	53	NA	13	6	5	5	7
1999	1,096.5	299.5	797.0	514	314	89	81	60	NA	13	6	5	5	7
2000	1,190.2	302.0	888.2	549	355	93	86	65	NA	15	6	8	6	7
2001	1,294.3	317.0	977.3	576	412	106	87	72	NA	16	6	6	7	7
2002	1,434.7	411.4	1,023.3	621	487	110	96	78	NA	17	6	6	8	7
2003	1,670.3	455.3	1,215.0	804	531	109	94	90	NA	17	3	6	8	8
2004	1,867.6	498.8	1,368.8	929	572	106	104	90	19	19	4	8	9	9
2005	1,865.9	461.2	1,404.7	926	580	113	100	79	22	19	4	6	8	9
2006	1,883.2	411.2	1,472.0	940	573	104	104	90	30	17	3	7	9	7
2007	1,644.8	447.3	1,197.4	825	489	97	109	68	16	18	4	7	11	2
2008	1,783.7	438.2	1,345.5	896	542	99	130	62	17	19	1	3	10	6

* = ≤$500,000; NA = not available

DHS = Department of Homeland Security; DOC = Department of Commerce; DOD = Department of Defense; DOE = Department of Energy; DOT = Department of Transportation; ED = Department of Education; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation; SBIR = Small Business Innovation Research program; USDA = U.S. Department of Agriculture

[a]DHS, established by Homeland Security Act of 2002 and formed in January 2003, held first SBIR competition in FY 2004.

NOTE: Detail may not add to total because of rounding.

SOURCE: Small Business Administration, SBIR Annual Reports.

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Appendix table 4-41

Small Business Technology Transfer Program award funding, by type of award and federal agency: FY 1994–2008

(Millions of current dollars)

Fiscal year	All	Phase I	Phase II	DOD	HHS	NASA	DOE	NSF	DHS[a]
1994	18.9	18.9	0.0	9	5	2	2	1	NA
1995	33.8	23.0	10.8	15	9	3	5	2	NA
1996	64.4	22.7	41.8	29	18	9	5	3	NA
1997	69.0	24.1	44.8	37	13	12	4	3	NA
1998	64.8	19.7	45.1	33	17	6	5	3	NA
1999	65.0	24.3	41.0	31	20	6	5	3	NA
2000	70.0	24.0	46.0	33	22	6	5	5	NA
2001	71.4	25.4	46.0	27	25	6	5	8	NA
2002	91.6	36.3	55.3	43	31	7	6	6	NA
2003	92.1	41.1	51.0	43	31	6	6	6	NA
2004	184.6	76.8	107.8	89	67	13	11	10	NA
2005	220.3	74.0	146.3	114	73	13	12	9	NA
2006	226.2	74.0	152.3	119	70	13	13	11	1
2007	243.0	83.0	159.0	115	77	10	15	23	2
2008	240.0	61.0	178.0	108	74	12	18	27	NA

NA = not available

DHS = Department of Homeland Security; DOD = Department of Defense; DOE = Department of Energy; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation

[a]DHS, established by Homeland Security Act of 2002 and formed in January 2003, held first Small Business Technology Transfer (STTR) competition in FY 2006.

NOTE: Detail may not add to total because of rounding.

SOURCE: Small Business Administration, Small Business Technology Transfer Program Annual Reports.

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Appendix table 4-42

Technology Innovation Program summary data: FY 2008–10

Characteristic	2008	2009	2010
	Number		
Participants	31	38	9
Small businesses	12	25	9
Medium-sized businesses	5	4	0
Large businesses	0	1	0
Universities	11	6	0
Nonprofit organizations/other	3	2	0
Awards	9	20	9
JV, by type of JV lead	7	9	0
Small businesses	1	4	0
Medium-sized businesses	2	1	0
Universities	4	4	0
Single applicants	2	11	9
Small businesses	2	10	9
Medium-sized businesses	0	1	0
Universities	0	0	0
	Current $millions		
Awards funding			
Total project funding	89	146	46
TIP share	43	71	22
To joint ventures	38	45	0
Led by small businesses	4	18	0
Led by medium-sized businesses	10	8	0
Led by universities	24	19	0
To single applicants	5	26	22
Small businesses	5	23	22
Medium-sized businesses	0	3	0
Universities	0	0	0
Industry cost-share	46	75	24
From joint ventures	42	48	0
Led by small businesses	6	20	0
Led by medium-sized businesses	10	9	0
Led by universities	26	19	0
From single applicants	4	27	24
Small businesses	4	24	24
Medium-sized businesses	0	3	0
Universities	0	0	0

JV = joint ventures; TIP = Technology Innovation Program

NOTES: Small businesses are those with <500 employees. Medium-sized businesses have ≥500 employees but revenues below Fortune 1000 firms. For multiyear projects, total funding is attributed to year award made. Participants include single applicants, JV leaders, and JV members and exclude subcontractors and informal collaborators.

SOURCE: National Institute of Standards and Technology, Technology Innovation Program, special tabulations (2011).

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Appendix table 4-43

Gross expenditures for R&D and expenditures for R&D as share of gross domestic product, for selected countries: 1981–2009

Year	United States	EU	Germany	France	United Kingdom	Japan	China	South Korea
				GERD PPP $billions				
1981	72.7	na	18.3	11.0	11.9	25.6	NA	NA
1982	81.2	na	19.9	12.5	NA	29.2	NA	NA
1983	90.4	na	21.0	13.4	12.9	33.1	NA	NA
1984	102.9	na	22.5	14.7	NA	37.1	NA	NA
1985	115.2	na	25.4	15.8	14.9	42.7	NA	NA
1986	120.6	na	26.8	16.4	15.9	44.3	NA	NA
1987	126.7	na	29.2	17.6	16.6	48.8	NA	NA
1988	134.2	na	31.2	19.1	17.6	54.4	NA	NA
1989	142.2	na	33.4	21.0	18.8	61.4	NA	NA
1990	152.4	na	35.1	23.3	19.6	69.1	NA	NA
1991	161.4	na	39.2	24.4	19.3	73.4	7.5	7.1
1992	165.8	na	39.0	25.4	19.4	74.7	8.8	8.1
1993	166.1	na	38.4	26.2	20.6	74.9	9.8	9.6
1994	169.6	na	38.6	26.7	21.5	75.7	10.3	11.7
1995	184.1	138.3	40.2	27.5	21.9	82.3	10.5	13.3
1996	197.8	143.8	41.4	28.1	22.3	83.0	11.7	14.9
1997	212.7	151.0	43.3	28.5	23.1	87.8	14.7	16.3
1998	226.9	158.7	45.2	29.3	24.0	91.1	16.3	14.6
1999	245.5	170.2	49.4	30.8	25.9	92.8	20.6	15.8
2000	268.6	184.1	52.3	33.0	27.9	98.9	27.2	18.6
2001	280.3	196.2	54.4	35.8	29.2	104.0	31.7	21.3
2002	279.2	205.8	56.7	38.2	30.6	108.2	39.6	22.5
2003	292.0	210.1	59.4	36.8	31.0	112.3	47.1	24.0
2004	303.6	218.1	61.3	38.0	32.0	117.5	57.8	27.9
2005	325.9	229.9	64.3	39.2	34.1	128.7	71.1	30.6
2006	350.9	253.5	70.2	42.0	37.0	138.6	86.7	35.3
2007	377.6	270.4	74.1	44.0	38.8	147.8	102.4	40.7
2008	403.7	294.2	81.8	46.3	40.1	148.7	120.8	43.9
2009	401.6	297.9	82.7	48.0	40.3	137.9	154.1	NA
				GERD constant 2000 PPP $billions				
1981	123.6	na	30.0	19.1	21.2	43.9	NA	NA
1982	130.0	na	30.8	20.4	NA	47.1	NA	NA
1983	139.3	na	31.3	21.1	20.7	51.4	NA	NA
1984	152.7	na	32.2	22.4	NA	55.5	NA	NA
1985	166.0	na	35.4	23.3	22.3	61.9	NA	NA
1986	169.9	na	36.6	23.7	23.4	62.9	NA	NA
1987	173.4	na	38.6	24.7	23.7	67.3	NA	NA
1988	177.6	na	39.9	25.8	24.3	72.5	NA	NA
1989	181.3	na	41.2	27.4	25.0	78.9	NA	NA
1990	187.1	na	41.6	29.3	25.1	85.4	NA	NA
1991	191.3	na	44.9	29.6	23.9	87.6	8.9	8.5
1992	192.0	na	43.7	30.1	23.5	87.1	10.2	9.4
1993	188.3	na	42.1	30.4	24.3	85.5	11.1	10.9
1994	188.3	na	41.4	30.3	24.8	84.7	11.4	13.0
1995	200.2	151.4	42.3	30.5	24.8	90.2	11.4	14.5
1996	211.0	154.1	42.8	30.6	24.5	89.2	12.4	15.9
1997	223.0	158.6	44.4	30.3	24.3	92.7	15.4	17.1
1998	235.3	164.5	46.0	30.6	25.1	95.1	16.8	15.2
1999	250.8	174.5	49.5	31.9	26.9	95.5	21.0	16.1
2000	268.6	184.1	52.3	33.0	27.9	98.9	27.2	18.6
2001	274.1	190.5	53.1	34.3	28.1	101.7	31.0	20.8
2002	268.7	194.0	53.8	35.2	28.7	103.3	38.1	21.7
2003	275.1	195.5	54.3	34.6	28.8	105.9	44.4	23.0
2004	278.1	197.6	54.2	35.2	28.6	107.7	53.0	26.0

Appendix table 4-43

Gross expenditures for R&D and expenditures for R&D as share of gross domestic product, for selected countries: 1981–2009

Year	United States	EU	Germany	France	United Kingdom	Japan	China	South Korea
2005	288.9	202.8	54.6	35.0	30.0	115.2	63.5	28.1
2006	301.3	213.4	57.4	35.7	31.2	120.5	75.0	31.9
2007	314.9	220.9	58.9	36.2	32.6	124.8	86.1	35.7
2008	329.5	231.3	63.1	36.8	32.5	123.1	99.4	38.3
2009	324.6	230.0	62.4	37.6	32.3	113.2	125.7	NA
	GERD/GDP (%)							
1981	2.34	na	2.35	1.90	2.35	2.29	NA	NA
1982	2.51	na	2.42	1.99	NA	2.38	NA	NA
1983	2.58	na	2.43	2.03	2.17	2.52	NA	NA
1984	2.64	na	2.43	2.12	NA	2.61	NA	NA
1985	2.75	na	2.60	2.17	2.20	2.73	NA	NA
1986	2.72	na	2.63	2.15	2.22	2.70	NA	NA
1987	2.70	na	2.74	2.19	2.15	2.78	NA	NA
1988	2.65	na	2.73	2.19	2.10	2.79	NA	NA
1989	2.61	na	2.71	2.23	2.11	2.88	NA	NA
1990	2.65	na	2.61	2.32	2.10	2.95	NA	NA
1991	2.72	na	2.47	2.32	2.03	2.93	0.73	1.80
1992	2.64	na	2.35	2.33	1.99	2.89	0.74	1.89
1993	2.51	na	2.28	2.38	2.02	2.83	0.70	2.06
1994	2.41	na	2.18	2.32	1.97	2.78	0.64	2.26
1995	2.50	1.66	2.19	2.29	1.91	2.91	0.57	2.30
1996	2.54	1.66	2.19	2.27	1.83	2.80	0.57	2.36
1997	2.55	1.66	2.24	2.19	1.77	2.87	0.64	2.41
1998	2.58	1.67	2.27	2.14	1.76	3.00	0.65	2.26
1999	2.63	1.72	2.40	2.16	1.82	3.02	0.76	2.17
2000	2.70	1.74	2.45	2.15	1.81	3.04	0.90	2.30
2001	2.72	1.76	2.46	2.20	1.79	3.12	0.95	2.47
2002	2.62	1.77	2.49	2.23	1.79	3.17	1.07	2.40
2003	2.62	1.76	2.52	2.17	1.75	3.20	1.13	2.49
2004	2.56	1.73	2.49	2.15	1.68	3.17	1.23	2.68
2005	2.58	1.74	2.49	2.10	1.73	3.32	1.32	2.79
2006	2.62	1.77	2.53	2.10	1.75	3.40	1.39	3.01
2007	2.69	1.77	2.53	2.07	1.78	3.44	1.40	3.21
2008	2.82	1.84	2.68	2.11	1.77	3.44	1.47	3.36
2008	2.88	1.90	2.78	2.21	1.85	3.33	1.70	NA

na = not applicable; NA = not available

EU = European Union; GDP = gross domestic product; GERD = gross expenditures for R&D; OECD = Organisation for Economic Co-operation and Development

NOTES: Conversions of foreign currencies to U.S. dollars calculated with each country's GDP implicit price deflator and with OECD purchasing power parity exchange rates. Data for United States in this table reflect international standards for calculating gross expenditures on R&D, which vary slightly from NSF protocol for tallying U.S. total R&D. EU data for all years are based on current 27 EU member countries. Data for Germany, 1981–90, are for West Germany. Data for Japan for 1996 onward many not be consistent with earlier data due to changes in methodology.

SOURCES: OECD, Main Science and Technology Indicators (2011/1).

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Appendix table 4-44

Gross expenditures on R&D, by performing and funding sectors, for selected countries: 2008

(Millions of current PPP dollars)

Country/R&D performer	Source of R&D funds						Performers, % distribution
	All sources	Business	Government	Higher education	Private nonprofit	Abroad	
United States	403,668	249,631	118,239	14,225	12,578	8,995	100.0
Business	290,681	245,326	36,360	0	0	8,995	72.0
Government	45,246	0	45,246	0	0	NA	11.2
Higher education	51,650	3,004	30,341	14,225	4,080	NA	12.8
Private nonprofit	16,091	1,301	6,292	0	8,498	NA	4.0
Sources, % distribution	99.9	61.8	29.3	3.5	3.1	2.2	na
Germany	81,849	55,062	23,247	0	255	3,285	99.9
Business	56,680	51,929	2,550	0	97	2,104	69.2
Government	11,499	1,064	9,653	0	158	624	14.0
Higher education	13,670	2,069	11,044	**	**	557	16.7
Private nonprofit	0	**	**	**	**	**	0.0
Sources, % distribution	100.0	67.3	28.4	0.0	0.3	4.0	na
France	46,263	23,474	18,002	576	487	3,724	99.9
Business	29,039	22,694	3,305	10	22	3,008	62.8
Government	7,375	505	6,401	22	45	402	15.9
Higher education	9,272	199	8,212	528	70	263	20.0
Private nonprofit	577	76	84	16	350	51	1.2
Sources, % distribution	99.9	50.7	38.9	1.2	1.1	8.0	na
United Kingdom	40,095	18,213	12,295	496	1,976	7,115	100.1
Business	24,857	17,338	1,635	**	38	5,846	62.0
Government	3,671	291	3,097	33	128	122	9.2
Higher education	10,624	488	7,194	449	1,480	1,013	26.5
Private nonprofit	943	96	369	14	330	134	2.4
Sources, % distribution	99.9	45.4	30.7	1.2	4.9	17.7	na
Japan	148,717	116,257	23,229	7,647	1,022	562	100.0
Business	116,687	114,991	1,073	11	93	519	78.5
Government	12,386	88	12,225	17	40	16	8.3
Higher education	17,306	517	8,973	7,615	188	13	11.6
Private nonprofit	2,338	661	958	4	701	14	1.6
Sources, % distribution	100.0	78.2	15.6	5.1	0.7	0.4	na
China	120,775	86,645	28,490	NA	NA	1,496	100.1
Business	88,480	82,083	3,807	NA	NA	1,261	73.3
Government	22,087	1,033	18,783	NA	NA	109	18.3
Higher education	10,208	3,529	5,900	NA	NA	126	8.5
Private nonprofit	NA	NA	NA	NA	NA	NA	0.0
Sources, % distribution	96.5	71.7	23.6	NA	NA	1.2	na
South Korea	43,906	31,999	11,155	442	174	136	100.0
Business	33,091	31,031	1,951	19	8	82	75.4
Government	5,294	186	5,049	4	38	17	12.1
Higher education	4,893	588	3,803	418	50	34	11.1
Private nonprofit	628	194	352	1	78	3	1.4
Sources, % distribution	100.0	72.9	25.4	1.0	0.4	0.3	na

** = included in other categories; NA = not available; na = not applicable

PPP = purchasing power parity

NOTES: Top seven R&D performing countries globally. Foreign currencies converted to dollars through purchasing power parities. Data for United States reflect international standards for calculating gross expenditures on R&D , which vary slightly from NSF protocol for tallying U.S. total R&D.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series); Organisation for Economic Co-operation and Development, special tabulations (June 2011).

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Appendix table 4-45

Government budget appropriations or outlays for R&D, by socioeconomic objectives, selected countries: 2009

Socioeconomic objective	United States	Germany	France[b]	United Kingdom	Japan	China	South Korea
	Current U.S. PPP $millions						
All objectives	164,292	25,858	16,172	15,146	31,073	NA	13,210
Defense	84,771	1,466	4,578	2,766	1,149	–	2,200
Nondefense	79,522	24,392	11,594	12,380	29,923	NA	11,010
Exploration and exploitation of Earth	1,677	477	146	407	587	–	292
Environment	565	791	438	404	305	–	606
Exploration and exploitation of space	9,060	1,317	1,451	283	2,238	–	403
Transport, telecommunication, and other infrastructures	1,536	457	156	199	1,265	–	271
Energy	3,794	1,082	964	157	4,091	–	984
Industrial production and technology	963	3,285	1,389	369	2,603	–	3,497
Health	43,927	1,244	1,154	2,749	1,255	–	1,152
Agriculture	2,629	787	303	427	1,177	–	979
Education	464	240	na	99	74	–	NA
Culture, recreation, religion, and mass media	25	277	na	290	109	–	NA
Political and social systems, structures, and processes	754	495	417	313	111	–	NA
General advancement of knowledge: R&D financed from GUF[a]	na	9,669	4,517	3,730	10,622	–	**
General advancement of knowledge: R&D financed from sources other than GUF	14,128	4,429	741	2,953	5,486	–	2,513
	Percent						
Share of all objectives	100.0	100.0	100.0	100.0	100.0	NA	100.0
Defense	51.6	5.7	28.3	18.3	3.7	–	16.7
Nondefense	48.4	94.3	71.7	81.7	96.3	–	83.3
Share of nondefense objectives	99.9	100.6	100.8	100.0	100.0	NA	97.3
Exploration and exploitation of Earth	2.1	2.0	1.3	3.3	2.0	–	2.7
Environment	0.7	3.2	3.8	3.3	1.0	–	5.5
Exploration and exploitation of space	11.4	5.4	12.5	2.3	7.5	–	3.7
Transport, telecommunication, and other infrastructures	1.9	1.9	1.3	1.6	4.2	–	2.5
Energy	4.8	4.4	8.3	1.3	13.7	–	8.9
Industrial production and technology	1.2	13.5	12.0	3.0	8.7	–	31.8
Health	55.2	5.1	10.0	22.2	4.2	–	10.5
Agriculture	3.3	3.2	2.6	3.4	3.9	–	8.9
Education	0.6	1.0	na	0.8	0.2	–	NA
Culture, recreation, religion, and mass media	0.0	1.1	na	2.3	0.4	–	NA

Appendix table 4-45

Government budget appropriations or outlays for R&D, by socioeconomic objectives, selected countries: 2009

Socioeconomic objective	United States	Germany	France[b]	United Kingdom	Japan	China	South Korea
Political and social systems, structures, and processes	0.9	2.0	3.6	2.5	0.4	–	NA
General advancement of knowledge: R&D financed from GUF[a]	na	39.6	39.0	30.1	35.5	–	**
General advancement of knowledge: R&D financed from sources other than GUF	17.8	18.2	6.4	23.9	18.3	–	22.8

** = included in other categories; na = not applicable; NA = not available

GUF = general university funds; PPP = purchasing power parity

[a]United States and South Korea do not have a category equivalent to general university funds (GUF).
[b]Data for France are for 2008, the most recent year available.

NOTES: United States data are based on federal budget authority. Socioeconomic objective categories reflect the new NABS 2007 classifications (Nomenclature for the Analysis and Comparison of Scientific Programs and Budgets). Conversions of foreign currencies to U.S. dollars are based on purchasing power parity exchange rates. Because of GUF and slight differences in accounting practices, distribution of government budgets among socioeconomic objectives may not completely reflect actual distribution of government-funded research in particular objectives. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Federal R&D Budget Authority by Spending Category, FY 2009–11; Organization for Economic Co-operation and Development, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 4-46

Share of business expenditures for R&D, by industry and selected country/economy: 2007–10

(Percent)

Industry	ISIC	Australia 2010	Austria 2007	Belgium 2007	Czech Republic 2009	France 2007	Germany 2008	Greece 2007	Hungary 2008	Israel 2010	Italy 2010	Japan 2009	South Korea 2008	Mexico 2007
Total business enterprise		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufacturing	15–37	26.6	69.8	68.1	65.8	83.6	89.0	46.0	73.1	32.9	73.0	87.1	88.6	69.3
Food products, beverages, and tobacco	15–16	2.7	0.6	2.1	0.9	2.1	0.6	2.5	1.2	NA	1.6	2.0	1.3	10.9
Textiles, textile products, leather, and footwear	17–19	0.2	0.7	1.2	0.8	0.7	0.4	0.5	0.0	NA	3.7	1.0	0.6	4.7
Wood, paper, printing, and publishing	20–22	1.4	0.9	0.5	0.1	0.4	0.5	0.6	0.5	NA	0.6	0.7	0.2	0.7
Chemical, rubber, plastics, and fuel products	23–25	5.4	11.2	34.7	8.2	24.0	16.6	15.7	41.0	NA	11.6	19.0	9.6	18.7
Coke, refined petroleum products, and nuclear fuel	23	0.6	0.2	0.4	0.0	0.9	0.2	0.0	2.4	NA	0.1	0.4	0.4	2.3
Chemicals and chemical products	24	4.3	8.7	31.7	6.4	20.0	14.4	13.9	37.7	NA	9.3	16.3	7.4	13.8
Chemicals excluding pharmaceuticals	24 (minus 2423)	1.9	2.9	7.0	2.8	5.7	7.0	10.2	2.2	NA	3.4	6.3	5.0	7.9
Pharmaceuticals	2423	2.4	5.8	24.7	3.6	14.3	7.4	3.7	35.6	NA	5.9	10.0	2.4	5.9
Rubber and plastics products	25	0.5	2.2	2.6	1.8	3.1	2.0	1.7	0.9	NA	2.1	2.3	1.7	2.6
Other nonmetallic mineral products	26	0.7	1.5	1.1	1.0	1.1	0.6	2.2	0.3	NA	0.8	1.2	0.6	2.2
Basic metals	27	3.8	2.4	2.2	0.6	1.2	0.9	1.1	0.5	NA	0.9	2.5	2.0	6.6
Fabricated metal products (excluding machinery and equipment)	28	1.0	2.1	1.5	1.7	1.0	1.3	7.0	0.4	NA	1.8	0.6	0.9	7.2
Machinery and equipment, instruments, and transportation equipment	29–35	11.2	48.9	24.5	52.0	52.2	67.7	16.3	29.0	NA	51.1	59.0	73.1	18.0
Machinery and equipment, nec	29	1.9	11.4	5.8	8.5	4.6	10.9	1.2	5.3	NA	12.9	9.2	6.2	2.3
Computers, office and accounting machines	30	0.3	0.4	0.6	0.2	0.7	1.5	0.0	NA	NA	0.4	3.7	1.0	0.8
Electrical machinery and apparatus, nec	31	0.5	13.4	4.1	4.2	4.4	3.1	0.4	3.3	NA	2.4	8.0	2.2	3.2
Communication, TV, and radio equipment	32	1.7	9.6	7.7	2.8	10.4	7.1	12.9	6.2	NA	7.5	16.8	45.7	1.5
Instruments, watches, and clocks	33	2.2	3.3	2.5	6.2	6.3	7.1	1.0	2.5	NA	5.4	5.0	2.6	0.1
Motor vehicles	34	3.4	8.3	1.9	24.7	14.0	32.8	0.8	11.5	NA	11.0	15.6	13.2	10.0
Other transportation equipment	35	1.2	2.5	2.0	5.4	11.9	5.1	0.1	NA	NA	11.4	0.7	2.1	0.2
Building and repairing ships and boats	351	0.3	0.0	0.0	0.0	0.4	NA	NA	NA	NA	0.5	0.1	1.8	0.0
Aircraft and spacecraft	353	0.3	0.3	2.0	1.7	10.8	NA	NA	NA	NA	9.9	0.5	0.1	0.0
Railroad and other transportation equipment, nec	352+359	0.6	2.2	0.0	3.7	0.7	NA	NA	NA	NA	1.0	0.2	0.2	0.2
Furniture, manufacturing, nec	36	0.2	1.6	0.3	0.5	0.8	0.3	0.0	0.2	NA	1.0	1.0	0.3	0.3
Recycling	37	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	NA	0.0	NA	0.1	0.0
Electricity, gas, and water	40–41	1.8	0.2	0.2	0.2	1.6	0.3	0.5	0.2	1.8	0.8	0.5	1.0	0.4
Construction	45	5.2	0.4	1.3	1.2	0.4	0.1	0.1	0.3	NA	0.9	1.0	2.5	0.2
Services	50–99	42.3	29.4	29.8	32.2	12.3	10.3	52.7	24.6	65.2	23.7	11.2	7.9	29.5
Wholesale and retail trade, repairs	50–52	6.3	4.6	1.7	2.6	NA	NA	2.3	7.4	NA	1.6	0.4	0.5	0.0
Hotels and restaurants	55	0.2	0.0	0.0	0.0	NA	NA	0.0	0.0	NA	0.0	NA	0.0	0.0
Transport, storage, and communication	60–64	5.2	1.1	3.9	1.3	3.3	0.5	0.7	0.4	NA	8.5	2.6	1.7	1.4
Financial intermediation	65–67	12.2	0.2	1.9	1.5	NA	NA	0.0	0.2	0.9	1.6	0.0	0.0	4.1
Real estate, renting, and business activities	70–74	16.9	23.3	21.4	24.8	8.8	8.9	49.3	14.0	64.3	11.2	8.2	5.5	2.3
Computer and related activities	72	6.3	5.3	4.9	10.3	7.0	NA	41.1	6.8	31.7	2.2	2.1	3.4	0.8
Software consultancy and supply	722	6.0	4.1	2.9	7.8	4.8	NA	29.9	2.4	NA	1.9	NA	2.8	0.8
Other computer and related activities, nec	72 (minus 722)	0.3	1.2	2.0	2.4	2.2	NA	11.1	4.4	NA	0.3	NA	0.6	0.0
R&D	73	4.6	9.4	9.7	9.7	0.2	2.7	3.4	0.3	32.7	7.0	5.6	0.4	1.5
Other business activities	74	6.0	8.6	6.8	4.7	1.7	2.6	4.9	6.5	NA	2.0	0.5	1.6	0.1
Community, social, and personal services	75–99	1.6	0.2	0.8	2.1	0.2	NA	0.3	2.6	NA	0.7	NA	0.1	21.6
All other industries	–	24.1	0.2	0.6	0.6	2.1	0.3	0.7	1.8	NA	1.6	0.2	0.0	0.6

Appendix table 4-46

Share of business expenditures for R&D, by industry and selected country/economy: 2007–10

(Percent)

Industry	ISIC	New Zealand 2007	Norway 2008	Portugal 2008	Slovak Republic 2009	Slovenia 2008	Turkey 2008	United Kingdom 2008	United States[a] 2008	China 2009	Russian Federation 2009	Singapore 2008	South Africa 2007	Taiwan 2009
Total business enterprise		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufacturing	15–37	48.4	43.2	34.6	67.3	85.9	64.1	73.8	67.1	84.0	12.0	73.2	38.9	92.4
Food products, beverages, and tobacco	15–16	12.8	4.2	1.9	0.8	0.4	2.0	1.9	1.5	3.6	0.0	0.5	2.0	0.7
Textiles, textile products, leather, and footwear	17–19	0.8	0.3	1.5	0.0	1.2	1.8	0.1	0.3	2.5	0.0	0.0	0.1	1.5
Wood, paper, printing, and publishing	20–22	0.3	1.6	2.3	0.0	1.2	0.4	0.3	NA	1.4	0.0	0.0	1.4	0.3
Chemical, rubber, plastics, and fuel products	23–25	10.8	7.7	NA	17.7	40.0	7.1	33.0	NA	13.2	0.7	2.5	14.3	6.1
Coke, refined petroleum products, and nuclear fuel	23	NA	0.0	NA	NA	0.0	0.0	1.4	NA	0.9	0.0	0.0	NA	0.4
Chemicals and chemical products	24	NA	7.3	8.3	8.1	38.3	5.6	31.1	18.5	10.3	0.6	2.0	NA	4.6
Chemicals excluding pharmaceuticals	24 (minus 2423)	NA	5.0	1.3	NA	3.6	NA	3.9	2.6	7.1	0.5	1.4	NA	3.2
Pharmaceuticals	2423	NA	2.2	6.9	NA	34.7	NA	27.2	15.9	3.2	0.1	0.6	NA	1.4
Rubber and plastics products	25	NA	0.4	NA	9.6	1.7	1.6	0.5	0.9	2.0	0.0	0.4	NA	1.1
Other nonmetallic mineral products	26	0.4	0.4	1.8	0.6	1.2	1.5	0.3	0.5	1.9	0.0	0.1	1.3	0.1
Basic metals	27	0.2	2.0	1.1	3.2	1.8	0.6	0.4	0.2	10.0	0.2	0.2	3.0	1.0
Fabricated metal products (excluding machinery and equipment)	28	2.1	1.1	1.7	2.6	3.3	0.9	0.5	0.9	1.6	0.0	3.0	4.1	0.6
Machinery and equipment, instruments, and transportation equipment	29–35	19.3	25.2	13.0	42.4	36.3	49.1	37.1	NA	49.2	10.8	66.9	12.0	81.6
Machinery and equipment, nec	29	NA	9.8	2.4	5.0	8.9	10.4	5.2	3.5	12.3	1.5	2.4	NA	2.8
Computers, office, and accounting machines	30	NA	0.0	0.2	0.0	0.5	0.0	0.5	3.3	NA	0.3	NA	NA	16.2
Electrical machinery and apparatus, nec	31	NA	2.5	1.7	6.1	9.6	2.0	3.6	1.1	9.4	0.7	0.4	1.6	3.1
Communication, TV, and radio equipment	32	NA	4.2	3.7	5.2	8.5	9.2	4.2	12.5	NA	1.9	59.4	3.6	53.1
Instruments, watches, and clocks	33	NA	4.6	0.4	1.4	4.4	0.7	3.7	NA	NA	1.2	2.0	1.5	3.0
Motor vehicles	34	NA	1.3	4.3	NA	3.8	23.5	7.9	4.6	NA	0.5	1.6	5.4	1.7
Other transportation equipment	35	NA	2.9	0.3	8.7	0.7	3.3	12.0	10.2	NA	4.6	1.1	NA	1.7
Building and repairing ships and boats	351	NA	2.7	0.3	NA	0.5	NA	1.0	NA	NA	1.5	0.1	NA	0.0
Aircraft and spacecraft	353	NA	0.1	NA	NA	0.0	NA	10.8	9.7	NA	2.7	0.9	NA	NA
Railroad and other transportation equipment, nec	352+359	NA	0.0	NA	NA	0.2	NA	0.2	0.5	NA	0.4	0.1	NA	1.6
Furniture, manufacturing, nec	36	1.8	0.5	0.6	NA	0.6	0.7	0.2	NA	NA	0.3	0.1	0.6	0.5
Recycling	37	0.0	0.1	0.1	NA	0.0	0.0	0.0	NA	NA	0.0	0.0	0.0	0.0
Electricity, gas, and water	40–41	NA	2.2	6.0	0.0	0.1	0.2	0.2	NA	2.5	0.0	0.0	16.2	0.2
Construction	45	NA	1.4	1.7	0.2	0.1	0.4	0.1	NA	1.3	0.0	0.1	0.1	0.1
Services	50–99	43.6	40.9	57.2	31.5	13.0	34.8	24.7	32.3	7.3	85.8	26.7	36.3	7.3
Wholesale and retail trade, repairs	50–52	6.7	2.9	2.2	0.0	0.5	2.2	0.5	NA	NA	0.0	6.7	5.2	0.3
Hotels and restaurants	55	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	0.0	0.0	NA	0.0
Transport, storage, and communication	60–64	NA	3.6	13.5	1.4	0.3	4.1	9.0	NA	NA	0.2	1.0	4.7	1.3
Financial intermediation	65–67	NA	4.6	14.4	0.0	0.1	5.7	3.1	0.5	NA	0.0	2.1	22.0	0.6
Real estate, renting, and business activities	70–74	36.8	29.7	26.0	29.7	12.1	22.2	11.9	NA	NA	84.6	15.6	NA	3.8
Computer and related activities	72	16.6	15.4	10.8	1.5	3.7	13.9	9.4	14.2	NA	0.3	2.0	NA	3.0
Software consultancy and supply	722	NA	13.7	9.3	1.2	0.4	NA	NA	9.9	NA	0.2	0.4	NA	NA
Other computer and related activities, nec	72 (minus 722)	NA	1.8	1.6	0.3	3.4	NA	NA	4.3	NA	0.1	1.6	NA	NA
R&D	73	6.4	4.0	1.7	25.4	2.3	7.5	2.5	6.9	NA	82.0	9.5	NA	0.5

Appendix table 4-46

Share of business expenditures for R&D, by industry and selected country/economy: 2007–10

(Percent)

Industry	ISIC	New Zealand 2007	Norway 2008	Portugal 2008	Slovak Republic 2009	Slovenia 2008	Turkey 2008	United Kingdom 2008	United States[a] 2008	China 2009	Russian Federation 2009	Singapore 2008	South Africa 2007	Taiwan 2009
Other business activities	74	13.8	10.3	13.4	2.8	5.8	0.8	NA	NA	NA	2.3	3.7	NA	0.4
Community, social, and personal services	75–99	NA	0.1	1.1	0.4	0.1	0.6	0.2	NA	NA	1.0	1.3	4.4	1.1
All other industries	–	NA	12.3	0.5	1.0	0.9	0.5	1.2	NA	4.9	2.2	0.0	8.5	0.0

NA = not available; nec = not elsewhere classified

ISIC = International Standard Industrial Classification, Rev. 3; OECD = Organisation for Economic Co-operation and Development

[a]Source data for U.S. business R&D in this figure are preliminary (NSF 2010a); final statistics were used for other business R&D analyses in Chapter 4.

NOTES: Data years are in parentheses. Because OECD and National Science Foundation analysts adjust country data to achieve internationally comparable estimates, these data may differ from individual countries' survey estimates. Detail may not sum to total.

SOURCE: OECD, Analytical Business Enterprise R&D (ANBERD)-Statistical Analysis Database (STAN)-R&D Expenditure in Industry, http://www.oecd.org/document/17/0,3746,en_2649_34451_1822033_1_1_1_1,00.html, accessed July 27, 2011, and NSF Business R&D and Innovation Survey: 2008.

Science and Engineering Indicators 2012

Appendix table 5-1

R&D expenditures at academic institutions and academic share of U.S. total R&D performance, distributed by character of work: 1970–2009

(Percent distribution)

	R&D expenditures					Share of U.S total R&D performance				
		Research					Research			
Year	Total	Total	Basic	Applied	Development	Total	Total	Basic	Applied	Development
1970	100.0	95.4	76.7	18.7	4.6	9.2	24.7	51.6	7.8	0.7
1971	100.0	96.2	76.7	19.5	3.8	9.5	25.8	52.9	8.6	0.6
1972	100.0	96.4	73.9	22.5	3.7	9.6	26.6	52.9	10.1	0.5
1973	100.0	95.8	71.2	24.6	4.3	9.5	26.3	51.3	10.9	0.6
1974	100.0	95.6	71.0	24.7	4.4	9.6	25.9	50.6	10.8	0.7
1975	100.0	95.6	69.5	26.2	4.4	10.0	26.3	50.9	11.5	0.7
1976	100.0	95.3	68.6	26.7	4.7	9.9	25.9	49.8	11.6	0.7
1977	100.0	94.2	68.3	25.9	5.8	10.0	26.1	49.4	11.7	0.9
1978	100.0	92.5	67.6	25.0	7.5	10.3	26.2	48.5	11.6	1.2
1979	100.0	91.8	67.0	24.8	8.2	10.3	26.3	48.9	11.7	1.3
1980	100.0	92.0	66.8	25.1	8.0	10.2	26.4	49.3	11.8	1.3
1981	100.0	92.0	66.9	25.1	8.0	9.8	25.1	49.0	10.9	1.2
1982	100.0	92.1	67.0	25.2	7.9	9.4	24.3	47.8	10.5	1.2
1983	100.0	92.5	66.9	25.6	7.5	9.2	23.7	46.4	10.4	1.1
1984	100.0	92.6	67.1	25.5	7.4	9.0	23.7	46.1	10.4	1.0
1985	100.0	92.7	68.1	24.5	7.3	9.0	23.8	47.6	9.9	1.0
1986	100.0	92.9	68.8	24.1	7.1	9.6	24.2	46.3	10.2	1.1
1987	100.0	92.6	67.5	25.1	7.4	10.1	25.5	46.8	11.5	1.2
1988	100.0	92.3	65.7	26.6	7.7	10.6	26.6	47.2	12.8	1.3
1989	100.0	92.2	65.4	26.8	7.8	11.0	26.6	46.7	13.0	1.4
1990	100.0	91.7	65.7	26.0	8.3	11.1	26.8	48.3	12.6	1.5
1991	100.0	91.6	66.3	25.3	8.4	11.3	25.4	44.4	11.9	1.6
1992	100.0	91.8	66.6	25.2	8.2	11.7	27.1	46.8	12.9	1.6
1993	100.0	91.7	66.6	25.1	8.3	12.4	28.5	47.5	13.8	1.7
1994	100.0	91.6	66.6	24.9	8.4	12.8	29.9	48.6	14.7	1.8
1995	100.0	92.0	67.0	25.0	8.0	12.3	29.5	51.2	13.8	1.6
1996	100.0	92.4	67.6	24.8	7.6	12.0	28.9	48.9	13.6	1.5
1997	100.0	93.1	70.9	22.2	6.9	11.7	27.8	47.8	11.9	1.3
1998	100.0	93.8	74.0	19.9	6.2	11.6	30.1	54.7	11.2	1.1
1999	100.0	95.1	74.6	20.5	4.9	11.5	29.5	54.0	11.1	0.9
2000	100.0	95.8	74.6	21.2	4.2	11.5	29.6	53.6	11.5	0.8
2001	100.0	95.7	74.8	20.9	4.3	12.1	28.9	52.9	11.0	0.9
2002	100.0	96.0	75.2	20.9	4.0	13.4	35.0	54.4	15.3	0.8
2003	100.0	95.5	74.2	21.4	4.5	13.9	33.4	55.0	14.1	1.0
2004	100.0	95.0	74.2	20.8	5.0	14.3	32.7	57.0	13.0	1.2
2005	100.0	95.4	75.3	20.1	4.6	13.9	33.3	57.0	13.0	1.1
2006	100.0	96.0	75.9	20.1	4.0	13.4	32.8	58.2	12.4	0.9
2007	100.0	96.1	76.0	20.1	3.9	13.0	31.6	56.3	11.9	0.8
2008	100.0	96.3	75.2	21.1	3.7	12.8	34.4	55.3	14.6	0.7
2009	100.0	96.5	74.6	21.9	3.5	13.6	35.6	53.4	16.7	0.8

NOTES: Expenditure levels for academic R&D are calendar year, based on approximations of fiscal year data . Research is the sum of basic research and applied research. Because of changes in survey procedures, character-of-work data before FY 1998 not directly comparable to that of later years. Data are from appendix tables 4-3, 4-4, 4-5, and 4-6. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, *National Patterns of R&D Resources* (annual series).

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Appendix table 5-2

Academic R&D expenditures, by source of funding: 1972–2009

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
			Current $millions			
1972	2,630	1,795	269	74	305	187
1973	2,884	1,985	295	84	318	202
1974	3,022	2,032	308	95	368	219
1975	3,409	2,288	332	113	417	259
1976	3,729	2,512	364	123	446	285
1977	4,067	2,726	374	139	514	314
1978[a]	4,625	3,059	414	170	623	359
1979	5,366	3,598	472	193	735	368
1980	6,063	4,098	491	236	835	403
1981	6,847	4,571	546	291	1,004	435
1982	7,324	4,768	616	337	1,111	491
1983	7,882	4,989	626	389	1,302	576
1984	8,620	5,431	690	475	1,411	613
1985	9,687	6,064	752	560	1,617	694
1986	10,928	6,712	915	700	1,869	732
1987	12,153	7,343	1,023	790	2,168	828
1988	13,463	8,193	1,106	872	2,356	935
1989	14,979	8,993	1,224	994	2,698	1,071
1990	16,290	9,640	1,324	1,127	3,006	1,191
1991	17,589	10,238	1,474	1,204	3,367	1,307
1992	18,821	11,095	1,491	1,279	3,548	1,409
1993	19,954	11,960	1,559	1,360	3,589	1,486
1994	21,035	12,654	1,555	1,423	3,828	1,575
1995	22,179	13,337	1,690	1,489	4,048	1,614
1996	23,055	13,847	1,812	1,606	4,172	1,619
1997	24,380	14,321	1,910	1,737	4,699	1,712
1998	25,867	15,159	1,945	1,889	5,004	1,871
1999	27,544	16,112	2,022	2,033	5,382	1,995
2000	30,084	17,548	2,200	2,156	5,925	2,255
2001	32,824	19,244	2,321	2,219	6,615	2,426
2002	36,405	21,873	2,506	2,191	7,134	2,701
2003	40,100	24,771	2,647	2,162	7,664	2,857
2004	43,258	27,644	2,879	2,129	7,753	2,852
2005	45,799	29,209	2,940	2,291	8,266	3,093
2006	47,751	30,128	2,962	2,402	9,062	3,196
2007	49,493	30,443	3,143	2,670	9,705	3,533
2008	51,934	31,281	3,452	2,865	10,408	3,928
2009	54,935	32,588	3,647	3,197	11,198	4,305
			2005 constant $millions			
1972	9,874	6,739	1,010	278	1,145	702
1973	10,259	7,061	1,049	299	1,131	719
1974	9,855	6,626	1,004	310	1,200	714
1975	10,157	6,817	989	337	1,242	772
1976	10,507	7,078	1,026	347	1,257	803
1977	10,773	7,221	991	368	1,362	832
1978[a]	11,448	7,572	1,025	421	1,542	889
1979	12,262	8,222	1,079	441	1,680	841
1980	12,697	8,582	1,028	494	1,749	844
1981	13,111	8,753	1,045	557	1,922	833
1982	13,217	8,605	1,112	608	2,005	886
1983	13,683	8,661	1,087	675	2,260	1,000
1984	14,423	9,087	1,154	795	2,361	1,026
1985	15,732	9,848	1,221	909	2,626	1,127
1986	17,363	10,664	1,454	1,112	2,970	1,163
1987	18,765	11,338	1,580	1,220	3,348	1,278
1988	20,098	12,231	1,651	1,302	3,517	1,396

Appendix table 5-2

Academic R&D expenditures, by source of funding: 1972–2009

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
1989	21,547	12,936	1,761	1,430	3,881	1,541
1990	22,562	13,352	1,834	1,561	4,163	1,650
1991	23,527	13,694	1,972	1,610	4,504	1,748
1992	24,592	14,497	1,948	1,671	4,636	1,841
1993	25,509	15,289	1,993	1,739	4,588	1,900
1994	26,336	15,843	1,947	1,782	4,793	1,972
1995	27,201	16,357	2,073	1,826	4,965	1,979
1996	27,747	16,665	2,181	1,933	5,021	1,949
1997	28,833	16,937	2,259	2,054	5,557	2,025
1998	30,250	17,728	2,275	2,209	5,852	2,188
1999	31,744	18,569	2,330	2,343	6,203	2,299
2000	33,937	19,795	2,482	2,432	6,684	2,544
2001	36,210	21,229	2,560	2,448	7,297	2,676
2002	39,520	23,745	2,720	2,378	7,744	2,932
2003	42,614	26,324	2,813	2,298	8,145	3,036
2004	44,701	28,566	2,975	2,200	8,012	2,947
2005	45,799	29,209	2,940	2,291	8,266	3,093
2006	46,245	29,178	2,869	2,326	8,776	3,095
2007	46,598	28,662	2,959	2,514	9,137	3,326
2008	47,873	28,835	3,182	2,641	9,594	3,621
2009	50,045	29,687	3,322	2,912	10,201	3,922
	Percent distribution					
1972	100.0	68.3	10.2	2.8	11.6	7.1
1973	100.0	68.8	10.2	2.9	11.0	7.0
1974	100.0	67.2	10.2	3.1	12.2	7.2
1975	100.0	67.1	9.7	3.3	12.2	7.6
1976	100.0	67.4	9.8	3.3	12.0	7.6
1977	100.0	67.0	9.2	3.4	12.6	7.7
1978[a]	100.0	66.1	9.0	3.7	13.5	7.8
1979	100.0	67.1	8.8	3.6	13.7	6.9
1980	100.0	67.6	8.1	3.9	13.8	6.6
1981	100.0	66.8	8.0	4.3	14.7	6.4
1982	100.0	65.1	8.4	4.6	15.2	6.7
1983	100.0	63.3	7.9	4.9	16.5	7.3
1984	100.0	63.0	8.0	5.5	16.4	7.1
1985	100.0	62.6	7.8	5.8	16.7	7.2
1986	100.0	61.4	8.4	6.4	17.1	6.7
1987	100.0	60.4	8.4	6.5	17.8	6.8
1988	100.0	60.9	8.2	6.5	17.5	6.9
1989	100.0	60.0	8.2	6.6	18.0	7.2
1990	100.0	59.2	8.1	6.9	18.5	7.3
1991	100.0	58.2	8.4	6.8	19.1	7.4
1992	100.0	59.0	7.9	6.8	18.9	7.5
1993	100.0	59.9	7.8	6.8	18.0	7.4
1994	100.0	60.2	7.4	6.8	18.2	7.5
1995	100.0	60.1	7.6	6.7	18.3	7.3
1996	100.0	60.1	7.9	7.0	18.1	7.0
1997	100.0	58.7	7.8	7.1	19.3	7.0
1998	100.0	58.6	7.5	7.3	19.3	7.2
1999	100.0	58.5	7.3	7.4	19.5	7.2
2000	100.0	58.3	7.3	7.2	19.7	7.5
2001	100.0	58.6	7.1	6.8	20.2	7.4
2002	100.0	60.1	6.9	6.0	19.6	7.4
2003	100.0	61.8	6.6	5.4	19.1	7.1
2004	100.0	63.9	6.7	4.9	17.9	6.6
2005	100.0	63.8	6.4	5.0	18.0	6.8
2006	100.0	63.1	6.2	5.0	19.0	6.7

Appendix table 5-2

Academic R&D expenditures, by source of funding: 1972–2009

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
2007	100.0	61.5	6.4	5.4	19.6	7.1
2008	100.0	60.2	6.6	5.5	20.0	7.6
2009	100.0	59.3	6.6	5.8	20.4	7.8

[a]FY 1978 data are estimated based on data collected from doctorate-granting institutions only.

NOTES: Science and engineering; non-S&E R&D not included. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2005 dollars. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009

Science and Engineering Indicators 2012

Appendix table 5-3

Federal obligations for academic R&D, by agency: 1970–2009

Year	All agencies	DOD	DOE[a]	NASA	NIH[b]	NSF	USDA	All other agencies
	Current $millions							
1970	1,476	216	100	131	518	228	65	217
1971	1,645	211	94	134	603	267	72	264
1972	1,904	217	85	119	756	362	87	277
1973	1,917	204	83	111	761	374	94	289
1974	2,214	197	94	99	1,027	389	95	312
1975	2,411	203	132	108	1,077	435	108	348
1976	2,552	240	145	119	1,185	437	120	307
1977	2,905	273	188	118	1,311	511	140	364
1978	3,375	383	240	127	1,493	537	186	408
1979	3,889	438	260	139	1,880	617	200	355
1980	4,263	495	285	158	2,012	685	216	412
1981	4,466	573	300	171	2,101	702	243	376
1982	4,605	664	277	186	2,140	715	255	369
1983	4,966	724	297	189	2,392	783	275	306
1984	5,547	830	321	204	2,715	880	261	335
1985	6,340	940	357	237	3,158	1,002	293	352
1986	6,559	1,098	345	254	3,243	992	274	355
1987	7,337	1,017	386	294	3,903	1,096	280	361
1988	7,828	1,071	406	338	4,199	1,143	305	366
1989	8,672	1,189	454	434	4,565	1,254	328	449
1990	9,138	1,213	500	471	4,779	1,321	348	505
1991	10,169	1,152	621	534	5,521	1,436	386	520
1992	10,271	1,403	640	586	5,064	1,540	438	600
1993	11,208	1,616	583	614	5,848	1,562	433	553
1994	11,797	1,703	565	641	6,191	1,680	439	577
1995	11,928	1,589	594	708	6,271	1,734	435	597
1996	11,978	1,447	601	665	6,620	1,740	376	529
1997	12,559	1,345	583	719	7,057	1,819	441	595
1998	13,381	1,419	623	787	7,565	1,875	415	697
1999	14,959	1,474	630	787	8,761	2,076	492	739
2000	16,821	1,606	668	845	10,087	2,265	554	796
2001	19,588	2,285	743	942	11,528	2,498	652	939
2002	21,290	2,219	762	1,075	13,062	2,696	592	885
2003	22,693	1,934	790	1,096	14,350	2,978	641	904
2004	24,170	2,036	854	1,171	15,184	3,122	653	1,150
2005	24,842	2,192	831	1,098	15,657	3,072	710	1,282
2006	24,336	2,096	858	975	15,489	3,112	727	1,079
2007	25,548	2,615	765	553	16,569	3,266	723	1,057
2008	26,027	2,363	817	1,152	16,569	3,379	708	1,039
2009	31,564	2,425	1,332	730	20,175	5,095	714	1,093
ARRA	5,130	4	410	11	3,085	1,598	*	22
non-ARRA	26,434	2,421	922	719	17,090	3,497	714	1,071
	2005 constant $millions							
1970	6,069	888	411	539	2,130	938	267	892
1971	6,443	826	368	525	2,362	1,046	282	1,034
1972	7,150	815	319	447	2,839	1,359	327	1,040
1973	6,820	726	295	395	2,707	1,330	334	1,028
1974	7,219	642	306	323	3,349	1,268	310	1,017
1975	7,184	605	393	322	3,209	1,296	322	1,037
1976	7,191	676	409	335	3,339	1,231	338	865
1977	7,695	723	498	313	3,473	1,354	371	964
1978	8,354	948	594	314	3,696	1,329	460	1,010
1979	8,887	1,001	594	318	4,296	1,410	457	811
1980	8,928	1,037	597	331	4,214	1,435	452	863
1981	8,552	1,097	574	327	4,023	1,344	465	720

Appendix table 5-3

Federal obligations for academic R&D, by agency: 1970–2009

Year	All agencies	DOD	DOE[a]	NASA	NIH[b]	NSF	USDA	All other agencies
1982	8,311	1,198	500	336	3,862	1,290	460	666
1983	8,622	1,257	516	328	4,153	1,359	477	531
1984	9,281	1,389	537	341	4,542	1,472	437	560
1985	10,296	1,526	580	385	5,128	1,627	476	572
1986	10,421	1,745	548	404	5,153	1,576	435	564
1987	11,330	1,570	596	454	6,027	1,692	432	557
1988	11,685	1,599	606	505	6,268	1,706	455	546
1989	12,474	1,710	653	624	6,566	1,804	472	646
1990	12,657	1,680	693	652	6,619	1,830	482	699
1991	13,602	1,541	831	714	7,385	1,921	516	696
1992	13,421	1,833	836	766	6,617	2,012	572	784
1993	14,329	2,066	745	785	7,476	1,997	554	707
1994	14,770	2,132	707	803	7,751	2,103	550	722
1995	14,628	1,949	728	868	7,691	2,127	533	732
1996	14,416	1,741	723	800	7,967	2,094	453	637
1997	14,852	1,591	689	850	8,346	2,151	522	704
1998	15,648	1,659	729	920	8,847	2,193	485	815
1999	17,240	1,699	726	907	10,097	2,393	567	852
2000	18,960	1,810	753	952	11,369	2,553	624	897
2001	21,589	2,518	819	1,038	12,706	2,753	719	1,035
2002	23,091	2,407	826	1,166	14,167	2,924	642	960
2003	24,106	2,054	839	1,164	15,243	3,163	681	960
2004	24,972	2,104	882	1,210	15,688	3,226	675	1,188
2005	24,842	2,192	831	1,098	15,657	3,072	710	1,282
2006	23,575	2,030	831	944	15,004	3,015	704	1,045
2007	24,050	2,462	720	521	15,597	3,074	681	995
2008	23,970	2,176	752	1,061	15,260	3,112	652	957
2009	28,765	2,210	1,214	665	18,386	4,643	651	996
ARRA	4,675	4	374	10	2,811	1,456	*	20
non-ARRA	24,090	2,206	840	655	15,575	3,187	651	976
	Percent distribution							
1970	100.0	14.6	6.8	8.9	35.1	15.4	4.4	14.7
1971	100.0	12.8	5.7	8.1	36.7	16.2	4.4	16.0
1972	100.0	11.4	4.5	6.3	39.7	19.0	4.6	14.5
1973	100.0	10.6	4.3	5.8	39.7	19.5	4.9	15.1
1974	100.0	8.9	4.2	4.5	46.4	17.6	4.3	14.1
1975	100.0	8.4	5.5	4.5	44.7	18.0	4.5	14.4
1976	100.0	9.4	5.7	4.7	46.4	17.1	4.7	12.0
1977	100.0	9.4	6.5	4.1	45.1	17.6	4.8	12.5
1978	100.0	11.3	7.1	3.8	44.2	15.9	5.5	12.1
1979	100.0	11.3	6.7	3.6	48.3	15.9	5.1	9.1
1980	100.0	11.6	6.7	3.7	47.2	16.1	5.1	9.7
1981	100.0	12.8	6.7	3.8	47.0	15.7	5.4	8.4
1982	100.0	14.4	6.0	4.0	46.5	15.5	5.5	8.0
1983	100.0	14.6	6.0	3.8	48.2	15.8	5.5	6.2
1984	100.0	15.0	5.8	3.7	48.9	15.9	4.7	6.0
1985	100.0	14.8	5.6	3.7	49.8	15.8	4.6	5.6
1986	100.0	16.7	5.3	3.9	49.4	15.1	4.2	5.4
1987	100.0	13.9	5.3	4.0	53.2	14.9	3.8	4.9
1988	100.0	13.7	5.2	4.3	53.6	14.6	3.9	4.7
1989	100.0	13.7	5.2	5.0	52.6	14.5	3.8	5.2
1990	100.0	13.3	5.5	5.2	52.3	14.5	3.8	5.5
1991	100.0	11.3	6.1	5.3	54.3	14.1	3.8	5.1
1992	100.0	13.7	6.2	5.7	49.3	15.0	4.3	5.8
1993	100.0	14.4	5.2	5.5	52.2	13.9	3.9	4.9
1994	100.0	14.4	4.8	5.4	52.5	14.2	3.7	4.9

Appendix table 5-3

Federal obligations for academic R&D, by agency: 1970–2009

Year	All agencies	DOD	DOE[a]	NASA	NIH[b]	NSF	USDA	All other agencies
1995	100.0	13.3	5.0	5.9	52.6	14.5	3.6	5.0
1996	100.0	12.1	5.0	5.6	55.3	14.5	3.1	4.4
1997	100.0	10.7	4.6	5.7	56.2	14.5	3.5	4.7
1998	100.0	10.6	4.7	5.9	56.5	14.0	3.1	5.2
1999	100.0	9.9	4.2	5.3	58.6	13.9	3.3	4.9
2000	100.0	9.5	4.0	5.0	60.0	13.5	3.3	4.7
2001	100.0	11.7	3.8	4.8	58.9	12.8	3.3	4.8
2002	100.0	10.4	3.6	5.0	61.4	12.7	2.8	4.2
2003	100.0	8.5	3.5	4.8	63.2	13.1	2.8	4.0
2004	100.0	8.4	3.5	4.8	62.8	12.9	2.7	4.8
2005	100.0	8.8	3.3	4.4	63.0	12.4	2.9	5.2
2006	100.0	8.6	3.5	4.0	63.6	12.8	3.0	4.4
2007	100.0	10.2	3.0	2.2	64.9	12.8	2.8	4.1
2008	100.0	9.1	3.1	4.4	63.7	13.0	2.7	4.0
2009	100.0	7.7	4.2	2.3	63.9	16.1	2.3	3.5
ARRA	100.0	0.1	8.0	0.2	60.1	31.2	*	0.4
non-ARRA	100.0	9.2	3.5	2.7	64.7	13.2	2.7	4.1

* = non-zero but < $500,000

DOD = Department of Defense; DOE = Department of Energy; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health; NSF = National Science Foundation; USDA = U.S. Department of Agriculture; ARRA = American Recovery and Reinvestment Act of 2009

[a]DOE data for 1970–73 from Atomic Energy Commission, for 1974–76 from Energy Research and Development Administration, and for 1977 and thereafter from DOE.
[b]NIH data include Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), an agency in the Department of Health and Human Services replaced in 1992 by the Substance Abuse and Mental Health Services Administration. Three research entities of ADAMHA (National Institute of Mental Health, National Institute on Alcohol Abuse and Alcoholism, and National Institute on Drug Abuse) merged at that time into NIH.

NOTES: Detail may not add to total because of rounding. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2005 dollars.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Federal Funds for Research and Development: FY 2009–11; and Federal Funds for Research and Development: Detailed Historical Tables: FY 1970–2003, NSF 04-335 (2004), http://www.nsf.gov/statistics/nsf04335/tables.htm.

Science and Engineering Indicators 2012

Appendix table 5-4

Federal obligations for academic R&D, by character of work: 2007–09

Year and character of work	All agencies	DOD	DOE	NASA	NIH	NSF	USDA
	Current $millions						
2007							
All R&D	25,548	2,615	765	553	16,569	3,266	723
Basic	14,220	811	576	180	9,202	3,025	304
Applied	9,747	704	143	104	7,367	241	402
Development	1,581	1,099	46	269	0	0	16
2008							
All R&D	26,027	2,363	817	1,152	16,569	3,379	708
Basic	14,646	895	626	352	9,279	3,089	257
Applied	9,678	691	130	80	7,290	290	433
Development	1,703	777	61	720	0	0	17
2009							
All R&D[a]	31,563	2,426	1,332	730	20,175	5,094	715
Basic	18,233	990	1,044	327	10,692	4,748	267
Applied	11,940	661	162	91	9,482	346	430
Development	1,390	775	126	312	1	0	18
	Percent distribution						
2007							
All R&D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Basic	55.7	31.0	75.3	32.5	55.5	92.6	42.0
Applied	38.2	26.9	18.7	18.8	44.5	7.4	55.6
Development	6.2	42.0	6.0	48.6	0.0	0.0	2.2
2008							
All R&D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Basic	56.3	37.9	76.6	30.6	56.0	91.4	36.3
Applied	37.2	29.2	15.9	6.9	44.0	8.6	61.2
Development	6.5	32.9	7.5	62.5	0.0	0.0	2.4
2009							
All R&D[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Basic	57.8	40.8	78.4	44.8	53.0	93.2	37.3
Applied	37.8	27.2	12.2	12.5	47.0	6.8	60.1
Development	4.4	31.9	9.5	42.7	0.0	0.0	2.5

DOD = Department of Defense; DOE = Department of Energy; NASA = National Aeronautics and Space Administration; NIH = National Institutes of Health; NSF = National Science Foundation; USDA = U.S. Department of Agriculture.

[a]Data for 2009 include obligations from the additional federal R&D funding appropriated by the American Recovery and Reinvestment Act of 2009.

NOTE: Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development: FY 2009–11.

Science and Engineering Indicators 2012

Appendix table 5-5

R&D expenditures at academic institutions, by S&E field and source of funds: 2009

Field	All R&D expenditures		Federally financed expenditures		Nonfederally financed expenditures	
	Amount ($millions)	Percent distribution	Amount ($millions)	Percent distribution	Amount ($millions)	Percent distribution
All fields	54,935	100.0	32,588	100.0	22,348	100.0
Science	46,285	84.3	27,551	84.5	18,733	83.8
Computer sciences	1,592	2.9	1,107	3.4	485	2.2
Environmental sciences	2,940	5.4	1,899	5.8	1,042	4.7
Atmospheric sciences	415	0.8	324	1.0	91	0.4
Earth sciences	1,027	1.9	648	2.0	379	1.7
Oceanography	1,087	2.0	713	2.2	374	1.7
Environmental sciences nec	411	0.7	213	0.7	198	0.9
Life sciences	32,791	59.7	19,326	59.3	13,465	60.3
Agricultural sciences	3,057	5.6	866	2.7	2,192	9.8
Biological sciences	10,153	18.5	6,622	20.3	3,531	15.8
Medical sciences	18,240	33.2	11,058	33.9	7,181	32.1
Life sciences nec	1,341	2.4	779	2.4	561	2.5
Mathematical sciences	553	1.0	369	1.1	184	0.8
Physical sciences	4,294	7.8	2,964	9.1	1,331	6.0
Astronomy	580	1.1	389	1.2	191	0.9
Chemistry	1,589	2.9	1,037	3.2	552	2.5
Physics	1,874	3.4	1,361	4.2	513	2.3
Physical sciences nec	252	0.5	177	0.5	75	0.3
Psychology	979	1.8	659	2.0	320	1.4
Social sciences	2,075	3.8	852	2.6	1,223	5.5
Economics	379	0.7	121	0.4	258	1.2
Political science	369	0.7	137	0.4	232	1.0
Sociology	408	0.7	202	0.6	207	0.9
Social sciences nec	919	1.7	392	1.2	526	2.4
Sciences nec	1,060	1.9	377	1.2	683	3.1
Engineering	8,651	15.7	5,036	15.5	3,615	16.2
Aeronautical/astronautical	614	1.1	431	1.3	182	0.8
Bioengineering/biomedical	650	1.2	385	1.2	265	1.2
Chemical	695	1.3	360	1.1	336	1.5
Civil	978	1.8	401	1.2	577	2.6
Electrical	1,846	3.4	1,200	3.7	646	2.9
Mechanical	1,244	2.3	801	2.5	443	2.0
Metallurgical/materials	689	1.3	389	1.2	300	1.3
Engineering nec	1,934	3.5	1,068	3.3	866	3.9

nec = not elsewhere classified

NOTES: Detail may not add to total because of rounding. See appendix table 5-2 for detail on nonfederal sources.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-6

R&D expenditures at academic institutions, by S&E field: Selected years, 1975–2009

Field	1975	1980	1985	1990	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Current $millions															
All fields	3,409	6,063	9,687	16,290	22,179	27,544	30,084	32,824	36,405	40,100	43,258	45,799	47,751	49,493	51,934	54,935
Science	3,028	5,200	8,268	13,632	18,663	23,281	25,529	27,802	30,881	34,104	36,942	39,053	40,659	41,980	43,976	46,284
Computer sciences	46	124	281	515	682	861	877	956	1,126	1,305	1,404	1,406	1,438	1,430	1,472	1,592
Environmental sciences	255	508	705	1,069	1,434	1,692	1,766	1,829	2,018	2,195	2,353	2,555	2,602	2,686	2,806	2,940
Atmospheric sciences	NA	76	108	173	208	288	288	302	341	396	415	460	508	447	424	415
Earth sciences	NA	188	254	355	457	546	563	555	640	724	828	920	897	913	953	1,027
Oceanography	NA	176	258	377	473	604	633	673	718	770	779	812	840	993	1,055	1,087
Environmental sciences nec	255	68	86	164	295	254	282	300	318	305	332	363	358	334	374	411
Life sciences	1,901	3,218	5,279	8,726	12,190	15,632	17,471	19,230	21,439	23,757	25,949	27,605	28,804	29,806	31,210	32,791
Agricultural sciences	384	676	999	1,349	1,815	2,036	2,177	2,322	2,450	2,555	2,695	2,657	2,797	2,912	2,996	3,057
Biological sciences	630	1,028	1,781	2,859	3,837	5,041	5,621	5,957	6,603	7,385	8,152	8,844	9,049	9,208	9,774	10,153
Medical sciences	811	1,423	2,318	4,154	6,070	8,003	8,987	10,191	11,488	12,779	14,037	14,878	15,806	16,555	17,260	18,240
Life sciences nec	75	91	181	363	468	552	686	760	898	1,038	1,064	1,226	1,152	1,131	1,180	1,341
Mathematical sciences	40	78	128	222	279	314	342	360	388	428	448	494	533	573	620	553
Physical sciences	350	677	1,148	1,807	2,257	2,606	2,713	2,806	3,017	3,277	3,547	3,704	3,813	3,864	3,941	4,294
Astronomy	27	59	96	170	304	385	386	378	402	392	420	454	470	468	540	580
Chemistry	121	244	422	648	772	920	962	1,009	1,129	1,226	1,318	1,372	1,414	1,461	1,491	1,589
Physics	174	323	551	842	990	1,149	1,208	1,241	1,287	1,418	1,522	1,597	1,611	1,616	1,611	1,874
Physical sciences nec	29	52	80	147	191	153	158	178	199	240	286	280	318	320	299	252
Psychology	80	110	158	253	371	465	517	583	673	770	783	826	875	872	929	979
Social sciences	256	339	383	703	1,019	1,252	1,300	1,444	1,597	1,675	1,676	1,685	1,706	1,802	1,947	2,075
Economics	56	91	118	201	250	266	255	272	284	313	317	325	340	349	398	379
Political science	29	54	59	115	173	200	230	255	283	304	308	324	316	347	338	369
Sociology	69	87	75	132	215	272	301	328	375	368	355	370	400	397	404	408
Social sciences nec	102	107	131	255	381	514	513	588	654	689	695	667	650	708	807	919
Sciences nec	100	146	186	337	431	459	543	594	623	697	782	778	888	947	1,051	1,060
Engineering	381	862	1,418	2,657	3,516	4,263	4,557	5,022	5,525	5,997	6,315	6,746	7,093	7,514	7,958	8,651
Aeronautical/astronautical	NA	53	81	164	241	262	259	342	346	406	437	445	385	471	537	614
Bioengineering/biomedical	NA	NA	NA	NA	NA	137	174	213	282	314	370	420	477	539	604	650
Chemical	NA	61	116	218	297	349	376	414	431	453	493	506	560	599	656	695
Civil	NA	83	153	284	431	529	601	664	717	776	789	788	858	859	923	978
Electrical	NA	183	337	663	819	1,017	1,118	1,164	1,306	1,401	1,438	1,582	1,615	1,636	1,707	1,846
Mechanical	NA	140	208	391	521	625	633	687	780	821	875	936	1,048	1,127	1,160	1,244
Metallurgical/materials	NA	NA	NA	274	330	384	399	453	468	548	565	612	643	633	647	689
Engineering nec	381	341	523	663	877	960	998	1,085	1,195	1,278	1,348	1,456	1,507	1,650	1,725	1,934
	2005 constant $millions															
All fields	10,157	12,697	15,732	22,562	27,201	31,744	33,937	36,210	39,520	42,614	44,701	45,799	46,245	46,598	47,873	50,045
Science	9,022	10,890	13,427	18,881	22,889	26,831	28,799	30,670	33,524	36,242	38,175	39,053	39,376	39,524	40,537	42,164
Computer sciences	137	260	456	713	836	992	989	1,055	1,222	1,387	1,451	1,406	1,393	1,346	1,357	1,450
Environmental sciences	760	1,064	1,145	1,481	1,759	1,950	1,992	2,018	2,191	2,333	2,432	2,555	2,520	2,529	2,587	2,678
Atmospheric sciences	NA	159	175	240	255	332	325	333	370	421	429	460	492	421	391	378
Earth sciences	NA	394	413	492	560	629	635	612	695	769	856	920	869	860	878	936
Oceanography	NA	369	419	522	580	696	714	742	779	818	805	812	814	935	973	990

Appendix table 5-6

R&D expenditures at academic institutions, by S&E field: Selected years, 1975–2009

Field	1975	1980	1985	1990	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Environmental sciences nec	760	142	140	227	362	293	318	331	345	324	343	363	347	314	345	374
Life sciences	5,664	6,739	8,573	12,086	14,950	18,016	19,709	21,214	23,274	25,247	26,815	27,605	27,895	28,062	28,770	29,872
Agricultural sciences	1,144	1,416	1,622	1,868	2,226	2,346	2,456	2,562	2,660	2,715	2,785	2,657	2,709	2,742	2,762	2,785
Biological sciences	1,877	2,153	2,892	3,960	4,706	5,810	6,341	6,571	7,168	7,848	8,424	8,844	8,764	8,669	9,010	9,249
Medical sciences	2,416	2,980	3,764	5,753	7,445	9,223	10,138	11,242	12,471	13,580	14,505	14,878	15,307	15,587	15,910	16,617
Life sciences nec	223	191	294	503	574	636	774	838	975	1,103	1,100	1,226	1,116	1,065	1,088	1,222
Mathematical sciences	119	163	208	307	342	362	386	397	421	455	463	494	516	539	572	504
Physical sciences	1,043	1,418	1,864	2,503	2,768	3,003	3,060	3,095	3,275	3,482	3,665	3,704	3,693	3,638	3,633	3,912
Astronomy	80	124	156	235	373	444	435	417	436	417	434	454	455	441	498	528
Chemistry	361	511	685	898	947	1,060	1,085	1,113	1,226	1,303	1,362	1,372	1,369	1,376	1,374	1,448
Physics	518	676	895	1,166	1,214	1,324	1,363	1,369	1,397	1,507	1,573	1,597	1,560	1,521	1,485	1,707
Physical sciences nec	86	109	130	204	234	176	178	196	216	255	296	280	308	301	276	230
Psychology	238	230	257	350	455	536	583	643	731	818	809	826	847	821	856	892
Social sciences	763	710	622	974	1,250	1,443	1,466	1,593	1,734	1,780	1,732	1,685	1,652	1,697	1,795	1,890
Economics	167	191	192	278	307	307	288	300	308	333	328	325	329	329	367	345
Political science	86	113	96	159	212	230	259	281	307	323	318	324	306	327	312	336
Sociology	206	182	122	183	264	313	340	362	407	391	367	370	387	374	372	372
Social sciences nec	304	224	213	353	467	592	579	649	710	732	718	667	629	667	744	837
Sciences nec	298	306	302	467	529	529	613	655	676	741	808	778	860	892	969	966
Engineering	1,135	1,805	2,303	3,680	4,312	4,913	5,141	5,540	5,998	6,373	6,526	6,746	6,869	7,074	7,336	7,881
Aeronautical/astronautical	NA	111	132	227	296	302	292	377	376	431	452	445	373	443	495	559
Bioengineering/biomedical	NA	NA	NA	NA	NA	158	196	235	306	334	382	420	462	507	557	592
Chemical	NA	128	188	302	364	402	424	457	468	481	509	506	542	564	605	633
Civil	NA	174	248	393	529	610	678	732	778	825	815	788	831	809	851	891
Electrical	NA	383	547	918	1,004	1,172	1,261	1,284	1,418	1,489	1,486	1,582	1,564	1,540	1,574	1,682
Mechanical	NA	293	338	542	639	720	714	758	847	872	904	936	1,015	1,061	1,069	1,133
Metallurgical/materials	NA	NA	NA	379	405	443	450	500	508	582	584	612	623	596	596	628
Engineering nec	1,135	714	849	918	1,076	1,106	1,126	1,197	1,297	1,358	1,393	1,456	1,459	1,553	1,590	1,762
	Percent distribution															
All fields	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Science	88.8	85.8	85.4	83.7	84.1	84.5	84.9	84.7	84.8	85.0	85.4	85.3	85.1	84.8	84.7	84.3
Computer sciences	1.3	2.0	2.9	3.2	3.1	3.1	2.9	2.9	3.1	3.3	3.2	3.1	3.0	2.9	2.8	2.9
Environmental sciences	7.5	8.4	7.3	6.6	6.5	6.1	5.9	5.6	5.5	5.5	5.4	5.6	5.4	5.4	5.4	5.4
Atmospheric sciences	NA	1.3	1.1	1.1	0.9	1.0	1.0	0.9	0.9	1.0	1.0	1.0	1.1	0.9	0.8	0.8
Earth sciences	NA	3.1	2.6	2.2	2.1	2.0	1.9	1.7	1.8	1.8	1.9	2.0	1.9	1.8	1.8	1.9
Oceanography	NA	2.9	2.7	2.3	2.1	2.2	2.1	2.1	2.0	1.9	1.8	1.8	1.8	2.0	2.0	2.0
Environmental sciences nec	7.5	1.1	0.9	1.0	1.3	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7
Life sciences	55.8	53.1	54.5	53.6	55.0	56.8	58.1	58.6	58.9	59.2	60.0	60.3	60.3	60.2	60.1	59.7
Agricultural sciences	11.3	11.1	10.3	8.3	8.2	7.4	7.2	7.1	6.7	6.4	6.2	5.8	5.9	5.9	5.8	5.6
Biological sciences	18.5	17.0	18.4	17.6	17.3	18.3	18.7	18.1	18.1	18.4	18.8	19.3	19.0	18.6	18.8	18.5
Medical sciences	23.8	23.5	23.9	25.5	27.4	29.1	29.9	31.0	31.6	31.9	32.4	32.5	33.1	33.4	33.2	33.2
Life sciences nec	2.2	1.5	1.9	2.2	2.1	2.0	2.3	2.3	2.5	2.6	2.5	2.7	2.4	2.3	2.3	2.4
Mathematical sciences	1.2	1.3	1.3	1.4	1.3	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.2	1.2	1.0
Physical sciences	10.3	11.2	11.9	11.1	10.2	9.5	9.0	8.5	8.3	8.2	8.2	8.1	8.0	7.8	7.6	7.8

Appendix table 5-6

R&D expenditures at academic institutions, by S&E field: Selected years, 1975–2009

Field	1975	1980	1985	1990	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Astronomy	0.8	1.0	1.0	1.0	1.4	1.4	1.3	1.2	1.1	1.0	1.0	1.0	1.0	0.9	1.0	1.1
Chemistry	3.5	4.0	4.4	4.0	3.5	3.3	3.2	3.1	3.1	3.1	3.0	3.0	3.0	3.0	2.9	2.9
Physics	5.1	5.3	5.7	5.2	4.5	4.2	4.0	3.8	3.5	3.5	3.5	3.5	3.4	3.3	3.1	3.4
Physical sciences nec	0.9	0.9	0.8	0.9	0.9	0.6	0.5	0.5	0.5	0.6	0.7	0.6	0.7	0.6	0.6	0.5
Psychology	2.3	1.8	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.9	1.8	1.8	1.8	1.8	1.8	1.8
Social sciences	7.5	5.6	4.0	4.3	4.6	4.5	4.3	4.4	4.4	4.2	3.9	3.7	3.6	3.6	3.7	3.8
Economics	1.6	1.5	1.2	1.2	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.7
Political science	0.9	0.9	0.6	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Sociology	2.0	1.4	0.8	0.8	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.7
Social sciences nec	3.0	1.8	1.4	1.6	1.7	1.9	1.7	1.8	1.8	1.7	1.6	1.5	1.4	1.4	1.6	1.7
Sciences nec	2.9	2.4	1.9	2.1	1.9	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.9	1.9	2.0	1.9
Engineering	11.2	14.2	14.6	16.3	15.9	15.5	15.1	15.3	15.2	15.0	14.6	14.7	14.9	15.2	15.3	15.7
Aeronautical/astronautical	NA	0.9	0.8	1.0	1.1	1.0	0.9	1.0	1.0	1.0	1.0	1.0	0.8	1.0	1.0	1.1
Bioengineering/biomedical	NA	NA	NA	NA	NA	0.5	0.6	0.6	0.8	0.8	0.9	0.9	1.0	1.1	1.2	1.2
Chemical	NA	1.0	1.2	1.3	1.3	1.3	1.2	1.3	1.2	1.1	1.1	1.1	1.2	1.2	1.3	1.3
Civil	NA	1.4	1.6	1.7	1.9	1.9	2.0	2.0	2.0	1.9	1.8	1.7	1.8	1.7	1.8	1.8
Electrical	NA	3.0	3.5	4.1	3.7	3.7	3.7	3.5	3.6	3.5	3.3	3.5	3.4	3.3	3.3	3.4
Mechanical	NA	2.3	2.1	2.4	2.3	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.2	2.3	2.2	2.3
Metallurgical/materials	NA	NA	NA	1.7	1.5	1.4	1.3	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.2	1.3
Engineering nec	11.2	5.6	5.4	4.1	4.0	3.5	3.3	3.3	3.3	3.2	3.1	3.2	3.2	3.3	3.3	3.5

NA = not available; nec = not elsewhere classified

NOTES: Detail may not add to total because of rounding. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2005 dollars.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-7

Federally financed R&D expenditures at academic institutions, by S&E field and agency: FY 2009

Field	All agencies	DOD	DOE	HHS	NASA	NSF	USDA	Other
	Current $millions							
All fields	32,588	3,367	1,236	18,054	1,106	3,948	901	2,945
Science	27,551	1,760	814	17,585	818	3,068	856	2,246
Computer sciences	1,107	348	35	66	22	446	2	119
Environmental sciences	1,899	176	101	74	251	636	78	548
Atmospheric sciences	324	25	14	1	86	75	5	108
Earth sciences	648	52	69	13	131	196	54	131
Oceanography	713	80	6	17	19	314	5	250
Environmental sciences nec	213	18	12	43	15	51	14	59
Life sciences	19,326	607	177	16,075	77	587	726	977
Agricultural sciences	866	18	30	66	8	75	493	159
Biological sciences	6,622	171	108	5,324	35	435	183	291
Medical sciences	11,058	391	32	10,068	33	48	31	448
Life sciences nec	779	27	7	617	2	29	20	79
Mathematical sciences	369	58	13	35	4	208	3	21
Physical sciences	2,964	385	438	498	437	893	7	176
Astronomy	389	18	9	1	214	86	0	36
Chemistry	1,037	131	77	445	13	294	4	55
Physics	1,361	205	336	36	181	456	2	68
Physical sciences nec	177	31	17	16	29	57	1	17
Psychology	659	37	3	473	11	60	1	67
Social sciences	852	66	28	307	8	140	34	262
Economics	121	4	5	25	0	20	22	44
Political science	137	18	3	39	0	23	2	52
Sociology	202	4	0	125	0	34	4	32
Social sciences nec	392	40	19	119	8	62	6	135
Sciences nec	377	83	19	58	8	100	5	76
Engineering	5,036	1,606	422	465	288	875	44	697
Aeronautical/astronautical	431	172	10	4	107	14	0	46
Bioengineering/biomedical	385	51	8	252	4	36	10	25
Chemical	360	74	72	57	5	94	6	38
Civil	401	52	27	9	12	87	6	205
Electrical	1,200	542	37	52	31	263	1	81
Mechanical	801	277	120	33	30	116	2	85
Metallurgical/materials	389	177	48	11	8	98	1	45
Engineering nec	1,068	261	100	46	91	167	18	172
	Percent distribution							
All fields	100.0	10.3	3.8	55.4	3.4	12.1	2.8	9.0
Science	100.0	6.4	3.0	63.8	3.0	11.1	3.1	8.2
Computer sciences	100.0	31.4	3.2	5.9	2.0	40.3	0.2	10.8
Environmental sciences	100.0	9.3	5.3	3.9	13.2	33.5	4.1	28.9
Atmospheric sciences	100.0	7.7	4.3	0.3	26.7	23.3	1.4	33.4
Earth sciences	100.0	8.1	10.6	2.0	20.2	30.2	8.4	20.1
Oceanography	100.0	11.3	0.8	2.4	2.7	43.9	0.7	35.1
Environmental sciences nec	100.0	8.5	5.7	20.1	7.0	23.8	6.6	27.6
Life sciences	100.0	3.1	0.9	83.2	0.4	3.0	3.8	5.1
Agricultural sciences	100.0	2.1	3.4	7.7	0.9	8.7	56.9	18.4
Biological sciences	100.0	2.6	1.6	80.4	0.5	6.6	2.8	4.4
Medical sciences	100.0	3.5	0.3	91.0	0.3	0.4	0.3	4.0
Life sciences nec	100.0	3.4	0.9	79.1	0.2	3.7	2.5	10.1
Mathematical sciences	100.0	15.8	3.5	9.5	1.1	56.4	0.9	5.7
Physical sciences	100.0	13.0	14.8	16.8	14.7	30.1	0.2	5.9
Astronomy	100.0	4.6	2.2	0.3	54.9	22.1	0.0	9.2
Chemistry	100.0	12.6	7.4	42.9	1.2	28.4	0.4	5.3
Physics	100.0	15.1	24.7	2.6	13.3	33.5	0.1	5.0
Physical sciences nec	100.0	17.7	9.4	8.9	16.6	32.0	0.7	9.5
Psychology	100.0	5.7	0.5	71.8	1.6	9.1	0.2	10.2
Social sciences	100.0	7.7	3.3	36.1	1.0	16.4	4.0	30.8

Appendix table 5-7

Federally financed R&D expenditures at academic institutions, by S&E field and agency: FY 2009

Field	All agencies	DOD	DOE	HHS	NASA	NSF	USDA	Other
Economics	100.0	3.1	4.1	20.7	0.3	16.7	18.0	35.9
Political science	100.0	13.0	2.2	28.3	0.2	17.2	1.4	37.7
Sociology	100.0	2.1	0.2	61.8	0.1	17.0	2.0	16.0
Social sciences nec	100.0	10.3	4.9	30.3	1.9	15.7	1.6	34.3
Sciences nec	100.0	21.9	5.2	15.4	2.2	26.4	1.2	20.1
Engineering	100.0	31.9	8.4	9.2	5.7	17.4	0.9	13.8
Aeronautical/astronautical	100.0	39.9	2.4	0.9	24.9	3.2	0.1	10.6
Bioengineering/biomedical	100.0	13.1	2.1	65.5	1.0	9.2	2.6	6.5
Chemical	100.0	20.6	20.0	15.8	1.3	26.1	1.7	10.6
Civil	100.0	13.0	6.8	2.3	3.0	21.8	1.5	51.1
Electrical	100.0	45.1	3.0	4.3	2.6	21.9	0.1	6.8
Mechanical	100.0	34.6	15.0	4.2	3.7	14.5	0.3	10.6
Metallurgical/materials	100.0	45.5	12.3	2.9	2.1	25.2	0.3	11.7
Engineering nec	100.0	24.4	9.3	4.3	8.5	15.6	1.7	16.1

nec = not elsewhere classified

DOD = Department of Defense; DOE = Department of Energy; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation; USDA = U.S. Department of Agriculture

NOTES: "Other" includes all other agencies reported. Detail may not add to total because some institutions unable to provide complete agency data by field. Data not adjusted for nonresponse.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-8

Academic R&D funds provided by federal government, by S&E field: Selected years, 1975–2009

(Percent)

Field	1975	1980	1985	1990	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All fields	67.1	67.6	62.6	59.2	60.1	58.5	58.3	58.6	60.1	61.8	63.9	63.8	63.1	61.5	60.2	59.3
Science	67.0	67.4	62.9	59.5	60.2	58.7	58.6	59.0	60.4	62.0	64.2	64.2	63.5	61.9	60.4	59.5
Computer sciences	74.3	70.4	69.7	66.5	70.9	67.7	66.6	67.4	68.4	71.8	73.0	72.7	70.7	71.8	70.4	69.5
Environmental sciences	70.8	73.1	67.2	63.7	67.1	65.2	64.3	64.9	64.0	65.9	67.8	67.7	68.0	67.5	65.2	64.6
Atmospheric sciences	NA	84.1	79.8	75.7	78.7	77.5	77.5	77.3	73.4	75.2	77.4	78.7	80.1	79.5	79.9	78.0
Earth sciences	NA	69.7	60.7	57.7	59.9	58.9	58.9	59.3	57.8	60.8	64.8	67.0	66.0	66.0	63.3	63.1
Oceanography	NA	77.6	72.7	69.6	70.0	67.1	66.7	66.8	67.6	69.8	70.2	67.2	66.8	67.8	65.2	65.6
Environmental sciences nec	70.8	59.1	53.9	50.8	65.3	60.1	55.8	58.5	58.3	56.2	57.7	57.0	58.4	54.4	53.9	51.9
Life sciences	65.1	64.9	60.4	58.3	58.4	57.3	57.6	58.3	60.0	61.7	64.2	64.1	63.5	61.5	59.8	58.9
Agricultural sciences	29.4	30.9	29.4	26.2	29.3	26.8	26.6	26.6	28.1	29.9	32.2	31.8	31.6	30.9	28.9	28.3
Biological sciences	72.5	74.0	67.9	64.5	64.9	64.0	65.1	65.0	67.0	68.0	70.5	70.1	69.0	67.2	65.1	65.2
Medical sciences	75.6	74.4	68.0	64.3	63.0	60.8	60.6	61.4	62.7	64.5	66.9	66.5	66.0	63.8	62.3	60.6
Life sciences nec	71.8	67.3	60.0	59.1	56.7	58.2	56.8	59.3	59.7	60.3	62.7	61.4	61.8	59.9	58.1	58.1
Mathematical sciences	78.6	78.4	75.9	72.6	73.5	67.0	67.3	67.3	69.2	68.9	70.9	70.0	70.4	71.3	72.1	66.7
Physical sciences	81.4	81.9	77.5	72.8	72.6	71.5	70.6	70.3	70.7	71.9	72.4	72.2	70.8	69.6	69.6	69.0
Astronomy	73.4	75.6	67.0	66.1	68.2	70.9	71.8	68.7	69.0	69.3	68.8	68.4	67.5	65.4	65.5	67.1
Chemistry	76.8	77.7	74.2	68.7	69.1	67.1	65.6	65.5	65.3	66.9	69.9	69.4	68.4	66.8	66.6	65.3
Physics	86.4	86.8	82.2	77.5	77.0	75.6	74.7	74.7	75.8	76.7	76.8	76.8	75.4	75.5	75.4	72.6
Physical sciences nec	77.7	78.7	75.1	71.8	70.8	68.7	66.9	70.7	71.4	73.7	66.2	65.1	62.4	58.8	61.0	70.2
Psychology	76.8	73.3	66.9	64.8	67.1	66.7	67.9	68.4	70.7	71.9	75.0	74.0	71.9	69.2	68.6	67.3
Social sciences	55.2	53.8	40.1	32.2	38.1	37.7	37.8	38.0	38.7	39.9	41.6	41.4	41.8	42.3	41.9	41.1
Economics	48.2	48.8	37.0	27.1	32.0	33.8	34.9	33.0	35.1	34.0	34.4	33.6	35.4	35.6	32.0	32.0
Political science	41.8	43.4	33.1	22.0	34.5	27.0	27.3	28.9	28.2	31.9	36.6	34.9	33.8	38.6	36.7	37.1
Sociology	65.5	65.0	53.5	45.5	48.5	45.0	45.5	45.3	47.5	48.8	51.2	52.3	54.1	52.0	50.2	49.4
Social sciences nec	55.9	54.1	38.5	33.9	37.8	40.1	39.3	40.1	39.7	41.4	42.2	42.4	41.4	42.0	44.7	42.7
Sciences nec	57.2	53.6	49.3	41.3	45.4	35.4	35.2	32.8	36.4	35.4	35.2	38.8	38.4	37.2	36.3	35.5
Engineering	68.1	68.6	61.2	57.4	59.8	57.4	56.6	56.8	58.5	60.3	61.9	61.3	60.7	59.3	59.4	58.2
Aeronautical/astronautical	NA	79.5	76.4	77.7	76.2	70.6	70.9	75.3	72.3	76.3	76.5	75.3	74.7	72.2	74.3	70.3
Bioengineering/biomedical	NA	NA	NA	NA	NA	52.9	52.3	56.9	59.4	60.8	63.7	60.8	61.8	59.5	60.3	59.3
Chemical	NA	64.4	55.6	50.6	54.2	51.6	52.3	51.8	53.4	54.7	54.4	58.4	57.1	53.8	52.0	51.7
Civil	NA	64.0	51.5	41.1	43.2	41.0	39.4	39.9	41.9	42.1	44.1	42.9	39.0	41.2	41.8	41.0
Electrical	NA	75.7	67.7	65.1	66.4	64.0	62.7	62.4	62.8	66.1	67.5	66.2	66.6	65.2	65.1	65.0
Mechanical	NA	67.0	64.6	61.0	65.2	62.1	60.6	60.6	65.1	64.9	67.2	67.0	65.4	61.8	63.6	64.4
Metallurgical/materials	NA	NA	NA	50.9	53.2	56.8	56.8	53.2	56.2	57.2	62.3	60.3	60.0	59.7	58.2	56.5
Engineering nec	68.1	65.7	57.3	54.6	58.4	55.9	56.4	56.4	58.1	60.0	60.2	59.4	61.2	59.3	58.6	55.2

NA = not available; nec = not elsewhere classified

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009

Science and Engineering Indicators 2012

Appendix table 5-9

Sources of R&D funds at private and public academic institutions: 1989, 1999, and 2009

Source of funds	All institutions		Private institutions		Public institutions	
	Amount (current $millions)	Percent distribution	Amount (current $millions)	Percent distribution	Amount (current $millions)	Percent distribution
1989						
All sources	14,979	100.0	5,166	100.0	9,814	100.0
Federal government	8,993	60.0	3,796	73.5	5,196	52.9
State/local government	1,224	8.2	123	2.4	1,100	11.2
Industry	994	6.6	362	7.0	633	6.4
Academic institutions	2,698	18.0	451	8.7	2,246	22.9
Other	1,071	7.2	433	8.4	638	6.5
1999						
All sources	27,544	100.0	8,878	100.0	18,666	100.0
Federal government	16,112	58.5	6,391	72.0	9,721	52.1
State/local government	2,022	7.3	177	2.0	1,845	9.9
Industry	2,033	7.4	693	7.8	1,340	7.2
Academic institutions	5,382	19.5	837	9.4	4,546	24.4
Other	1,995	7.2	780	8.8	1,215	6.5
2009						
All sources	54,935	100.0	17,413	100.0	37,522	100.0
Federal government	32,588	59.3	12,382	71.1	20,206	53.9
State/local government	3,647	6.6	416	2.4	3,231	8.6
Industry	3,197	5.8	1,018	5.8	2,179	5.8
Academic institutions	11,198	20.4	2,059	11.8	9,139	24.4
Other	4,305	7.8	1,539	8.8	2,767	7.4

NOTE: Science and engineering; non-S&E R&D activities not included. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-10

Top 100 academic institutions in S&E R&D expenditures, by source of funds: 2009

(Millions of current dollars)

Rank	academic institution	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
All institutions		54,935	32,588	3,647	3,197	11,198	4,305
1	Johns Hopkins University, The[a] (private)	1,856	1,588	9	37	97	126
2	University of Michigan, all campuses (public)	1,007	636	4	41	272	54
3	University of Wisconsin–Madison (public)	952	508	39	18	283	104
4	University of California–San Francisco (public)	948	484	30	65	165	204
5	University of California–Los Angeles (public)	890	468	23	47	199	154
6	University of California–San Diego (public)	879	511	36	62	134	136
7	Duke University (private)	805	439	23	184	97	63
8	University of Washington (public)	778	619	13	77	43	26
9	Pennsylvania State University, all campuses (public)	753	439	63	103	146	2
10	University of Minnesota, all campuses (public)	741	391	63	33	177	78
	Total, top 10	9,610	6,082	303	667	1,613	946
11	Massachusetts Institute of Technology (private)	736	533	1	103	8	92
12	University of Pennsylvania (private)	727	499	17	47	62	101
13	Ohio State University, all campuses (public)	716	340	119	120	103	35
14	Stanford University (private)	704	478	24	58	67	77
15	University of California–Davis (public)	682	296	57	35	211	82
16	Cornell University, all campuses (private)	671	363	80	27	118	84
17	University of California–Berkeley (public)	652	262	45	71	171	102
18	University of Colorado, all campuses (public)	648	500	28	40	42	38
19	University of North Carolina–Chapel Hill (public)	646	432	61	12	141	*
20	Texas A&M University (public)	631	261	133	35	181	21
	Total, top 20	16,424	10,046	869	1,216	2,716	1,577
21	Washington University in St. Louis (private)	628	414	19	36	90	70
22	University of Pittsburgh, all campuses (public)	623	463	17	10	99	35
23	University of Florida (public)	592	233	98	36	182	44
24	Columbia University in the City of New York (private)	590	483	16	13	56	21
25	University of Texas M. D. Anderson Cancer Center (public)	579	195	157	44	100	83
26	University of Arizona (public)	565	288	33	19	181	44
27	University of Illinois at Urbana-Champaign (public)	564	288	36	19	191	29
28	Georgia Institute of Technology, all campuses (public)	562	322	11	44	168	17
29	University of Southern California (private)	533	375	10	73	76	*
30	Northwestern University (private)	515	301	7	12	142	54
	Total, top 30	22,175	13,408	1,273	1,520	4,001	1,973
31	Yale University (private)	509	379	6	17	28	80
32	University of Texas at Austin (public)	506	309	22	49	96	30
33	Harvard University (private)	462	386	3	19	*	55
34	Purdue University, all campuses (public)	454	175	50	67	161	1
35	Emory University (private)	449	296	8	24	100	21
36	Baylor College of Medicine (private)	449	267	2	18	64	97
37	Indiana University, all campuses (public)	441	198	6	23	150	63
38	University of Alabama at Birmingham, The (public)	432	300	*	21	83	26
39	Vanderbilt University (private)	432	336	1	6	56	32
40	Case Western Reserve University (private)	416	313	17	6	55	24
	Total, top 40	26,725	16,367	1,388	1,772	4,795	2,403
41	University of Maryland at College Park (public)	409	247	23	11	118	10
42	University of Texas Southwestern Medical Center Dallas (public)	402	207	48	24	39	84
43	Louisiana State University, all campuses (public)	401	158	86	18	112	28
44	Virginia Polytechnic Institute and State University (public)	397	148	100	20	106	22
45	University of Rochester (private)	395	296	13	22	44	21
46	Scripps Research Institute, The (private)	382	288	4	24	47	19
47	North Carolina State University (public)	381	135	116	41	89	*
48	University of Chicago (private)	378	301	6	8	32	31
49	University of Kentucky, all campuses (public)	373	145	48	15	122	43
50	Michigan State University (public)	373	164	43	11	138	17
	Total, top 50	30,617	18,458	1,873	1,966	5,642	2,678

Appendix table 5-10

Top 100 academic institutions in S&E R&D expenditures, by source of funds: 2009

(Millions of current dollars)

Rank	academic institution	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
51	University of Nebraska, all campuses (public)	367	149	9	14	167	28
52	University of Maryland at Baltimore (public)	360	169	16	45	83	46
53	University of Cincinnati, all campuses (public)	357	229	24	10	77	17
54	Rutgers, The State University of New Jersey, all campuses (public)	352	162	38	13	101	38
55	University of Georgia (public)	350	107	38	6	187	12
56	California Institute of Technology (private)	342	306	2	9	5	21
57	University of Illinois at Chicago (public)	342	197	14	5	101	26
58	SUNY at Albany (public)	340	97	92	77	62	12
59	SUNY at Buffalo, all campuses (public)	338	152	20	21	100	45
60	University of Utah (public)	331	192	1	15	104	18
	Total, top 60	34,095	20,217	2,126	2,182	6,630	2,940
61	University of Iowa (public)	330	252	4	15	36	22
62	University of California–Irvine (public)	325	177	17	16	68	47
63	Mt. Sinai School of Medicine (private)	318	265	6	13	8	26
64	Oregon Health & Science University (public)	310	234	6	16	30	24
65	University of South Florida (public)	309	191	32	20	61	5
66	New York University (private)	309	203	8	7	36	56
67	Colorado State University (public)	304	212	19	19	42	13
68	University of Hawaii at Manoa (public)	291	203	17	30	32	8
69	Washington State University (public)	286	96	52	9	116	13
70	University of Tennessee, all campuses (public)	285	156	45	14	56	14
	Total, top 70	37,162	22,206	2,331	2,342	7,115	3,168
71	Arizona State University (public)	282	135	27	18	77	25
72	Boston University (private)	281	255	1	5	5	16
73	University of Virginia, all campuses (public)	262	218	1	8	18	17
74	SUNY at Stony Brook, all campuses (public)	258	107	23	5	114	8
75	Rockefeller University (private)	252	74	1	2	155	20
76	Wayne State University (public)	252	117	9	8	82	37
77	University of Miami (private)	248	172	5	25	15	32
78	University of Missouri–Columbia (public)	245	119	21	5	91	10
79	University of Kansas, all campuses (public)	226	127	6	4	78	10
80	University of Connecticut, all campuses (public)	225	121	9	8	72	15
	Total, top 80	39,693	23,652	2,434	2,429	7,822	3,357
81	Iowa State University (public)	224	96	47	16	57	8
82	University of Medicine and Dentistry of New Jersey (public)	224	116	12	16	51	29
83	University of Texas Health Science Center San Antonio (public)	222	129	5	19	47	21
84	Carnegie Mellon University (private)	218	170	3	19	15	10
85	University of Texas Health Science Center Houston (public)	218	135	19	7	32	24
86	Mississippi State University (public)	217	103	33	8	73	*
87	Medical University of South Carolina (public)	217	114	1	13	81	8
88	University of California–Santa Barbara (public)	216	114	4	16	44	38
89	Oregon State University (public)	209	118	43	5	40	3
90	University of Massachusetts–Worcester (public)	204	146	5	14	21	18
	Total, top 90	41,860	24,893	2,605	2,562	8,283	3,516
91	University of New Mexico main campus (public)	202	133	5	5	53	5
92	Wake Forest University (private)	201	144	18	17	8	13
93	Princeton University (private)	201	129	1	6	52	13
94	University of Oklahoma, all campuses (public)	197	96	18	15	55	13
95	Florida State University (public)	195	117	16	1	54	6
96	Yeshiva University (private)	193	137	*	2	39	15
97	Uniformed Services University of the Health Sciences (public)	192	124	*	*	50	18

Appendix table 5-10

Top 100 academic institutions in S&E R&D expenditures, by source of funds: 2009

(Millions of current dollars)

Rank/academic institution		All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
98	Dartmouth College (private)	189	134	1	3	40	12
99	University of South Carolina, all campuses (public)	187	108	2	5	57	16
100	Clemson University (public)	186	55	19	15	92	4
	Total, top 100	43,804	26,071	2,686	2,632	8,783	3,632

* = <$500,000

[a]The Johns Hopkins University includes Applied Physics Laboratory, with $978 million in total R&D expenditures and $921 million in federally financed R&D expenditures.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-11

Top 50 academic institutions in non-S&E R&D expenditures, by non-S&E field: 2009

(Millions of current dollars)

Rank/institution		All non-S&E fields	Education	Business and management	Humanities	Other
All institutions		2,386	921	341	253	871
1	Purdue University, all campuses (public)	70	9	15	3	44
2	University of Michigan, all campuses (public)	63	18	12	3	30
3	Harvard University (private)	63	11	*	1	52
4	University of South Florida (public)	62	31	9	2	20
5	University of Wisconsin–Madison (public)	62	5	38	10	8
6	University of Texas at Austin (public)	60	24	7	3	26
7	University of Florida (public)	52	8	3	2	40
8	Oregon State University (public)	49	1	*	*	47
9	Florida State University (public)	43	26	2	1	14
10	Northwestern University (private)	40	9	21	1	9
	Total, top 10	563	141	107	25	290
11	University of Central Florida (public)	35	29	6	*	1
12	University of California–Los Angeles (public)	34	17	8	5	3
13	Michigan State University (public)	33	17	3	*	12
14	University of Pennsylvania (private)	31	10	9	3	10
15	University of California–Berkeley (public)	30	12	2	4	12
16	New York University (private)	30	14	2	3	11
17	Arizona State University (public)	30	7	1	4	18
18	University of Washington (public)	28	10	*	4	14
19	University of Southern Maine (public)	27	4	3	1	20
20	Ohio State University, all campuses (public)	27	21	*	3	3
	Total, top 20	869	280	142	52	394
21	University of California–Santa Cruz (public)	26	24	*	2	1
22	Brown University (private)	26	7	1	13	4
23	University of Colorado, all campuses (public)	26	14	2	1	10
24	Indiana University, all campuses (public)	25	7	6	*	12
25	Old Dominion University (public)	24	14	5	2	3
26	Vanderbilt University (private)	24	19	*	1	4
27	University of Southern California (private)	24	6	1	5	11
28	Massachusetts Institute of Technology (private)	24	5	13	3	3
29	University of Minnesota, all campuses (public)	21	10	5	2	5
30	Texas A&M University (public)	21	15	5	1	1
	Total, top 30	1,110	401	180	81	448
31	University of Louisville (public)	20	8	1	*	11
32	University of Georgia (public)	20	10	*	3	7
33	Georgia State University (public)	18	6	3	1	9
34	American University (private)	18	2	2	2	11
35	University of Illinois at Urbana-Champaign (public)	18	6	1	2	9
36	University of Nebraska, all campuses (public)	18	3	4	6	5
37	Southern Illinois University–Edwardsville (public)	17	15	1	*	1
38	San Jose State University (public)	16	3	2	*	10
39	University of Oklahoma, all campuses (public)	16	7	*	1	8
40	Louisiana State University, all campuses (public)	16	3	2	2	9
	Total, top 40	1,288	465	197	98	527
41	Washington State University (public)	15	3	4	1	8
42	Columbia University in the City of New York (private)	15	2	*	*	13
43	Syracuse University, all campuses (private)	15	5	2	*	7
44	Texas Tech University (public)	15	3	3	1	8
45	University of Cincinnati, all campuses (public)	13	4	*	4	5
46	Stanford University (private)	13	10	1	*	2
47	Rutgers, The State University of New Jersey, all campuses (public)	13	10	1	*	2

Appendix table 5-11

Top 50 academic institutions in non-S&E R&D expenditures, by non-S&E field: 2009

(Millions of current dollars)

Rank/institution		All non-S&E fields	Education	Business and management	Humanities	Other
48	University of Wisconsin–Milwaukee (public)	12	6	3	1	2
49	University of Arkansas, main campus (public)	12	5	2	1	4
50	Princeton University (private)	12	2	*	9	2
	Total, top 50	1,423	514	212	117	580

* = <$500,000

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

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Appendix table 5-12

Expenditures for academic R&D passed through to and received by subrecipients: FY 2000–09

(Millions of current dollars)

Source of funds and year	Expenditures passed through			Expenditures received		
	All passed through	To educational subrecipients	To other subrecipients	All received	From higher education passthrough entities	From other passthrough entities
All R&D						
2000	1,423	699	482	1,808	669	889
2001	1,620	789	552	1,776	734	771
2002	2,091	967	663	2,206	911	929
2003	2,449	1,126	784	2,606	1,142	1,073
2004	2,732	1,251	986	3,007	1,379	1,310
2005	3,055	1,547	1,027	3,287	1,487	1,535
2006	3,148	1,622	1,137	3,605	1,583	1,748
2007	3,340	1,712	1,199	3,735	1,704	1,760
2008	3,482	1,696	1,294	3,866	1,699	1,879
2009	3,801	1,873	1,429	4,135	1,783	2,067
Federally financed R&D						
2000	1,203	626	380	1,464	586	699
2001	1,376	705	436	1,531	655	682
2002	1,782	858	525	1,933	818	816
2003	2,122	1,011	627	2,317	1,038	938
2004	2,382	1,132	802	2,674	1,240	1,143
2005	2,660	1,372	877	2,919	1,352	1,322
2006	2,744	1,456	944	3,262	1,468	1,533
2007	2,844	1,494	977	3,387	1,571	1,560
2008	3,028	1,527	1,086	3,483	1,556	1,656
2009	3,236	1,660	1,172	3,714	1,620	1,830

NOTES: Science and engineering; non-S&E R&D not included. Total should be viewed as undercount because a small percentage of institutions does not have systems in place to provide data on passthrough funding and data are not adjusted for nonresponse. Detail may not add to total because of rounding and because some institutions could not break out totals by type of entity.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-13

S&E research space in academic institutions, by field: FY 1988–2009

Field	1988	1990	1992	1994	1996	1998	1999	2001	2003	2005	2007	2009
	Millions of net assignable square feet[a]											
All fields	112	116	122	127	136	143	148	155	172.7	185.1	191.9	196.1
Agricultural and natural resources	18	21	20	20	22	25	24	27	26.4	26.8	28.4	29.5
Biological and biomedical sciences	24	27	28	28	30	31	32	33	36.0	38.5	45.6	50.3
Computer and information sciences	1	1	2	2	2	2	2	2	3.1	4.1	4.9	5.2
Engineering	16	17	18	21	22	23	24	26	27.4	28.9	30.2	30.2
Health and clinical sciences	19	20	22	23	25	25	26	28	34.9	39.7	37.0	36.3
Mathematics and statistics	1	1	1	1	1	1	1	1	1.5	1.6	1.7	1.5
Physical sciences	22	22	23	24	25	26	27	27	29.3	29.6	29.3	28.5
Earth, atmospheric, and ocean sciences	6	6	7	7	7	8	8	8	8.9	8.6	8.5	8.0
Astronomy, chemistry, and physics	16	16	16	17	18	18	19	19	20.4	21.0	20.8	20.5
Psychology	3	3	3	3	3	3	3	4	4.4	4.8	5.0	5.2
Social sciences	3	3	3	3	4	5	5	5	5.7	6.3	6.2	5.5
Other sciences	4	2	2	2	2	3	3	3	3.8	4.9	3.7	3.9
Research animal space	na	na	9	11	12	12	13	na	16.7	16.5	18.3	18.1
	Change over previous period, percent											
All fields	na	3.6	5.2	4.1	7.1	5.1	3.5	4.7	11.4	7.2	3.7	2.2
Agricultural and natural resources	na	16.7	-4.8	0.0	10.0	13.6	-4.0	12.5	-2.2	1.5	6.0	3.9
Biological and biomedical sciences	na	12.5	3.7	0.0	7.1	3.3	3.2	3.1	9.1	6.9	18.4	10.3
Computer and information sciences	na	0.0	100.0	0.0	0.0	0.0	0.0	0.0	55.0	32.3	19.5	6.1
Engineering	na	6.3	5.9	16.7	4.8	4.5	4.3	8.3	5.4	5.5	4.5	0.0
Health and clinical sciences	na	5.3	10.0	4.5	8.7	0.0	4.0	7.7	24.6	13.8	-6.8	-1.9
Mathematics and statistics	na	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	6.7	6.3	-11.8
Physical sciences	na	0.0	4.5	4.3	4.2	4.0	3.8	0.0	8.5	1.0	-1.0	-2.7
Earth, atmospheric, and ocean sciences	na	0.0	16.7	0.0	0.0	14.3	0.0	0.0	11.3	-3.4	-1.2	-5.9
Astronomy, chemistry, and physics	na	0.0	0.0	6.3	5.9	0.0	5.6	0.0	7.4	2.9	-1.0	-1.4
Psychology	na	0.0	0.0	0.0	0.0	0.0	0.0	33.3	10.0	9.1	4.2	4.0
Social sciences	na	0.0	0.0	0.0	33.3	25.0	0.0	0.0	14.0	10.5	-1.6	-11.3
Other sciences	na	-50.0	0.0	0.0	0.0	50.0	0.0	0.0	26.7	28.9	-24.5	5.4
Research animal space	na	na	na	22.2	9.1	0.0	8.3	na	na	-1.2	10.9	-1.1
	Share of total square feet, percent											
All fields	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural and natural resources	16.1	18.1	16.4	15.7	16.2	17.5	16.2	17.4	15.3	14.5	14.8	15.0
Biological and biomedical sciences	21.4	23.3	23.0	22.0	22.1	21.7	21.6	21.3	20.8	20.8	23.8	25.7
Computer and information sciences	0.9	0.9	1.6	1.6	1.5	1.4	1.4	1.3	1.8	2.2	2.6	2.7
Engineering	14.3	14.7	14.8	16.5	16.2	16.1	16.2	16.8	15.9	15.6	15.7	15.4
Health and clinical sciences	17.0	17.2	18.0	18.1	18.4	17.5	17.6	18.1	20.2	21.4	19.3	18.5
Mathematics and statistics	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.9	0.9	0.9	0.8
Physical sciences	19.6	19.0	18.9	18.9	18.4	18.2	18.2	17.4	17.0	16.0	15.3	14.5
Earth, atmospheric, and ocean sciences	5.4	5.2	5.7	5.5	5.1	5.6	5.4	5.2	5.2	4.6	4.4	4.1
Astronomy, chemistry, and physics	14.3	13.8	13.1	13.4	13.2	12.6	12.8	12.3	11.8	11.3	10.8	10.5
Psychology	2.7	2.6	2.5	2.4	2.2	2.1	2.0	2.6	2.5	2.6	2.6	2.7
Social sciences	2.7	2.6	2.5	2.4	2.9	3.5	3.4	3.2	3.3	3.4	3.2	2.8
Other sciences	3.6	1.7	1.6	1.6	1.5	2.1	2.0	1.9	2.2	2.6	1.9	2.0
Research animal space	na	na	na	na	na	na	na	na	na	na	na	na

na = not applicable, question not asked

[a]Precision reflects level of detail at which data were originally published.

NOTES: Detail may not add to total because of rounding. Figures for research animal space listed separately and also included in individual field totals. S&E fields are those used in the National Center for Education Statistics (NCES) Classification of Instructional Programs (CIP). NCES updates the CIP every 10 years; S&E fields here reflect the NCES 2000 CIP update. For comparison of subfields in the FY 2005 and FY 2007 surveys, see S&E Research Facilities: FY 2007, detailed statistical tables.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities: FY 1988–2009.

Science and Engineering Indicators 2012

Appendix table 5-14

Current expenditures for research equipment at academic institutions, by S&E field: Selected years, 1985–2009

Field	1985	1990	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Current $millions														
All fields	672	1,013	1,240	1,296	1,328	1,437	1,514	1,703	1,820	1,894	1,879	1,828	1,835	1,899	1,956
Science	548	792	968	998	1,042	1,131	1,182	1,340	1,435	1,500	1,440	1,385	1,407	1,465	1,482
Computer sciences	35	48	77	63	63	56	65	101	99	105	72	70	76	85	90
Environmental sciences	48	72	83	102	99	100	88	132	121	126	123	123	136	145	128
Atmospheric sciences	8	11	14	15	14	12	12	15	18	20	26	34	31	27	18
Earth sciences	18	27	27	37	35	37	29	33	42	43	44	35	37	39	47
Oceanography	16	20	28	33	37	34	34	74	50	41	40	44	62	70	53
Environmental sciences nec	5	13	15	17	13	17	11	11	11	22	13	10	7	9	11
Life sciences	283	420	464	496	557	630	689	737	819	836	825	757	748	819	800
Agricultural sciences	52	54	63	76	72	77	83	72	78	79	72	75	79	104	80
Biological sciences	105	171	192	191	245	269	284	296	337	348	326	301	273	308	297
Medical sciences	114	177	187	213	221	263	303	339	371	376	378	343	351	373	385
Life sciences nec	12	19	22	16	19	21	20	29	33	34	49	37	46	34	39
Mathematical sciences	6	10	14	14	12	10	12	10	8	8	9	9	9	8	9
Physical sciences	142	191	240	255	249	251	242	276	298	339	325	329	311	302	332
Astronomy	7	13	22	25	29	25	15	19	19	25	23	20	29	28	30
Chemistry	54	73	82	92	103	104	101	123	120	118	113	122	113	114	135
Physics	71	91	115	122	106	110	113	122	139	160	159	153	143	136	148
Physical sciences nec	10	14	22	16	11	13	13	12	20	36	30	34	25	25	20
Psychology	9	11	12	13	12	14	14	19	23	18	15	18	14	15	24
Social sciences	10	15	27	22	18	19	17	17	18	14	18	12	18	20	24
Economics	3	4	7	4	4	3	2	2	3	2	2	2	1	2	1
Political science	1	1	3	3	2	2	2	2	2	2	2	1	1	1	2
Sociology	2	3	4	4	3	3	3	4	3	2	3	2	3	2	5
Social sciences nec	4	7	12	11	9	11	9	9	9	8	11	7	14	15	17
Sciences nec	15	25	51	33	32	51	55	48	49	54	53	67	95	71	75
Engineering	124	220	272	298	286	306	333	364	385	394	439	443	427	433	472
Aeronautical/astronautical	7	13	17	19	22	20	23	24	22	21	20	22	23	34	27
Bioengineering/biomedical	NA	NA	NA	6	8	14	15	18	20	19	29	25	27	28	31
Chemical	11	18	22	28	27	26	31	30	32	55	37	39	37	39	48
Civil	10	20	22	21	23	29	32	43	31	34	29	27	28	31	33
Electrical	33	58	68	82	70	72	79	79	86	81	91	94	92	88	98
Mechanical	17	32	42	51	51	54	48	54	55	55	76	84	74	76	77
Metallurgical/materials	NA	27	28	29	28	30	49	41	61	38	51	54	54	52	58
Engineering nec	46	51	73	60	57	61	55	74	78	91	106	98	92	85	100
	2005 constant $millions														
All fields	1,091	1,403	1,521	1,516	1,531	1,621	1,670	1,849	1,934	1,957	1,879	1,770	1,728	1,751	1,782
Science	890	1,097	1,187	1,167	1,201	1,276	1,304	1,455	1,525	1,550	1,440	1,341	1,325	1,350	1,350
Computer sciences	57	66	94	74	73	63	72	110	105	109	72	68	72	78	82
Environmental sciences	78	100	102	119	114	113	97	143	129	130	123	119	128	134	117
Atmospheric sciences	13	15	17	18	16	14	13	16	19	21	26	33	29	25	16
Earth sciences	29	37	33	43	40	42	32	36	45	44	44	34	35	36	43
Oceanography	26	28	34	39	43	38	38	80	53	42	40	43	58	65	48

Appendix table 5-14

Current expenditures for research equipment at academic institutions, by S&E field: Selected years, 1985–2009

Field	1985	1990	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Environmental sciences nec	8	18	18	20	15	19	12	12	12	23	13	10	7	8	10
Life sciences	460	582	569	580	642	711	760	800	870	864	825	733	704	755	729
Agricultural sciences	84	75	77	89	83	87	92	78	83	82	72	73	74	96	73
Biological sciences	171	237	235	223	282	303	313	321	358	360	326	292	257	284	271
Medical sciences	185	245	229	249	255	297	334	368	394	389	378	332	330	344	351
Life sciences nec	19	26	27	19	22	24	22	31	35	35	49	36	43	31	36
Mathematical sciences	10	14	17	16	14	11	13	11	9	8	9	9	8	7	8
Physical sciences	231	265	294	298	287	283	267	300	317	350	325	319	293	278	302
Astronomy	11	18	27	29	33	28	17	21	20	26	23	19	27	26	27
Chemistry	88	101	101	108	119	117	111	134	128	122	113	118	106	105	123
Physics	115	126	141	143	122	124	125	132	148	165	159	148	135	125	135
Physical sciences nec	16	19	27	19	13	15	14	13	21	37	30	33	24	23	18
Psychology	15	15	15	15	14	16	15	21	24	19	15	17	13	14	22
Social sciences	16	21	33	26	21	21	19	18	19	14	18	12	17	18	22
Economics	5	6	9	5	5	3	2	2	3	2	2	2	1	2	1
Political science	2	1	4	4	2	2	2	2	2	2	2	1	1	1	2
Sociology	3	4	5	5	3	3	3	4	3	2	3	2	3	2	5
Social sciences nec	6	10	15	13	10	12	10	10	10	8	11	7	13	14	15
Sciences nec	24	35	63	39	37	58	61	52	52	56	53	65	89	65	68
Engineering	201	305	334	348	330	345	367	395	409	407	439	429	402	399	430
Aeronautical/astronautical	11	18	21	22	25	23	25	26	23	22	20	21	22	31	25
Bioengineering/biomedical	NA	NA	NA	7	9	16	17	20	21	20	29	24	25	26	28
Chemical	18	25	27	33	31	29	34	33	34	57	37	38	35	36	44
Civil	16	28	27	25	27	33	35	47	33	35	29	26	26	29	30
Electrical	54	80	83	96	81	81	87	86	91	84	91	91	87	81	89
Mechanical	28	44	52	60	59	61	53	59	58	57	76	81	70	70	70
Metallurgical/materials	NA	37	34	34	32	34	54	45	65	39	51	52	51	48	53
Engineering nec	75	71	90	70	66	69	61	80	83	94	106	95	87	78	91
	Percent distribution														
All fields	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Science	81.5	78.2	78.1	77.0	78.5	78.7	78.1	78.7	78.8	79.2	76.6	75.8	76.7	77.1	75.8
Computer sciences	5.2	4.7	6.2	4.9	4.7	3.9	4.3	5.9	5.4	5.5	3.8	3.8	4.1	4.5	4.6
Environmental sciences	7.1	7.1	6.7	7.9	7.5	7.0	5.8	7.8	6.6	6.7	6.5	6.7	7.4	7.6	6.5
Atmospheric sciences	1.2	1.1	1.1	1.2	1.1	0.8	0.8	0.9	1.0	1.1	1.4	1.9	1.7	1.4	0.9
Earth sciences	2.7	2.7	2.2	2.9	2.6	2.6	1.9	1.9	2.3	2.3	2.3	1.9	2.0	2.1	2.4
Oceanography	2.4	2.0	2.3	2.5	2.8	2.4	2.2	4.3	2.7	2.2	2.1	2.4	3.4	3.7	2.7
Environmental sciences nec	0.7	1.3	1.2	1.3	1.0	1.2	0.7	0.6	0.6	1.2	0.7	0.5	0.4	0.5	0.6
Life sciences	42.1	41.5	37.4	38.3	41.9	43.8	45.5	43.3	45.0	44.1	43.9	41.4	40.8	43.1	40.9
Agricultural sciences	7.7	5.3	5.1	5.9	5.4	5.4	5.5	4.2	4.3	4.2	3.8	4.1	4.3	5.5	4.1
Biological sciences	15.6	16.9	15.5	14.7	18.4	18.7	18.8	17.4	18.5	18.4	17.3	16.5	14.9	16.2	15.2
Medical sciences	17.0	17.5	15.1	16.4	16.6	18.3	20.0	19.9	20.4	19.9	20.1	18.8	19.1	19.6	19.7
Life sciences nec	1.8	1.9	1.8	1.2	1.4	1.5	1.3	1.7	1.8	1.8	2.6	2.0	2.5	1.8	2.0
Mathematical sciences	0.9	1.0	1.1	1.1	0.9	0.7	0.8	0.6	0.4	0.4	0.5	0.5	0.5	0.4	0.5
Physical sciences	21.1	18.9	19.4	19.7	18.8	17.5	16.0	16.2	16.4	17.9	17.3	18.0	16.9	15.9	17.0

Appendix table 5-14

Current expenditures for research equipment at academic institutions, by S&E field: Selected years, 1985–2009

Field	1985	1990	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Astronomy	1.0	1.3	1.8	1.9	2.2	1.7	1.0	1.1	1.0	1.3	1.2	1.1	1.6	1.5	1.5
Chemistry	8.0	7.2	6.6	7.1	7.8	7.2	6.7	7.2	6.6	6.2	6.0	6.7	6.2	6.0	6.9
Physics	10.6	9.0	9.3	9.4	8.0	7.7	7.5	7.2	7.6	8.4	8.5	8.4	7.8	7.2	7.6
Physical sciences nec	1.5	1.4	1.8	1.2	0.8	0.9	0.9	0.7	1.1	1.9	1.6	1.9	1.4	1.3	1.0
Psychology	1.3	1.1	1.0	1.0	0.9	1.0	0.9	1.1	1.3	1.0	0.8	1.0	0.8	0.8	1.2
Social sciences	1.5	1.5	2.2	1.7	1.4	1.3	1.1	1.0	1.0	0.7	1.0	0.7	1.0	1.1	1.2
Economics	0.4	0.4	0.6	0.3	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Political science	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sociology	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.3
Social sciences nec	0.6	0.7	1.0	0.8	0.7	0.8	0.6	0.5	0.5	0.4	0.6	0.4	0.8	0.8	0.9
Sciences nec	2.2	2.5	4.1	2.5	2.4	3.5	3.6	2.8	2.7	2.9	2.8	3.7	5.2	3.7	3.8
Engineering	18.5	21.7	21.9	23.0	21.5	21.3	22.0	21.4	21.2	20.8	23.4	24.2	23.3	22.8	24.1
Aeronautical/astronautical	1.0	1.3	1.4	1.5	1.7	1.4	1.5	1.4	1.2	1.1	1.1	1.2	1.3	1.8	1.4
Bioengineering/biomedical	NA	NA	NA	0.5	0.6	1.0	1.0	1.1	1.1	1.0	1.5	1.4	1.5	1.5	1.6
Chemical	1.6	1.8	1.8	2.2	2.0	1.8	2.0	1.8	1.8	2.9	2.0	2.1	2.0	2.1	2.5
Civil	1.5	2.0	1.8	1.6	1.7	2.0	2.1	2.5	1.7	1.8	1.5	1.5	1.5	1.6	1.7
Electrical	4.9	5.7	5.5	6.3	5.3	5.0	5.2	4.6	4.7	4.3	4.8	5.1	5.0	4.6	5.0
Mechanical	2.5	3.2	3.4	3.9	3.8	3.8	3.2	3.2	3.0	2.9	4.0	4.6	4.0	4.0	3.9
Metallurgical/materials	NA	2.7	2.3	2.2	2.1	2.1	3.2	2.4	3.4	2.0	2.7	3.0	2.9	2.7	3.0
Engineering nec	6.8	5.0	5.9	4.6	4.3	4.2	3.6	4.3	4.3	4.8	5.6	5.4	5.0	4.5	5.1

NA = not available; nec = not elsewhere classified

NOTES: See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2005 dollars. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009.

Science and Engineering Indicators 2012

Appendix table 5-15

Federal share of current funding for research equipment at academic institutions, by S&E field: Selected years, 1985–2009

(Percent)

Field	1985	1990	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All fields	64.4	59.9	59.3	59.7	58.2	56.3	55.4	59.0	63.3	62.0	62.6	59.6	58.2	56.7	55.3
Science	64.7	60.1	59.0	59.8	58.1	56.6	56.0	59.2	64.1	63.5	64.1	60.2	58.4	56.6	55.1
Computer sciences	83.0	65.8	63.5	70.4	69.0	60.4	64.0	73.7	83.3	80.5	78.9	73.4	70.8	79.3	76.7
Environmental sciences	67.7	65.9	69.9	67.8	67.4	63.9	61.4	61.5	73.0	74.3	77.0	73.2	74.9	70.5	65.9
Atmospheric sciences	84.2	76.8	71.5	81.0	78.7	79.0	74.0	75.9	80.5	80.3	88.4	87.7	87.7	84.8	75.7
Earth sciences	56.3	56.8	63.0	66.4	59.3	50.9	55.3	58.2	61.7	67.0	67.6	63.9	64.8	53.8	61.6
Oceanography	74.2	75.1	76.5	70.8	72.1	74.4	63.4	61.5	81.2	79.5	79.0	68.4	75.9	75.8	67.3
Environmental sciences nec	60.7	61.4	68.5	53.8	63.0	60.8	56.8	51.5	67.2	73.2	80.4	77.9	61.6	57.6	61.6
Life sciences	55.6	53.2	48.6	50.9	49.9	52.8	52.6	55.5	59.9	60.7	61.7	56.3	53.3	48.8	49.1
Agricultural sciences	29.1	28.3	31.9	32.0	33.3	28.0	28.3	29.8	40.4	39.5	42.5	36.1	30.4	27.2	28.1
Biological sciences	67.3	60.2	56.0	56.5	57.0	60.2	58.7	59.5	63.8	63.3	62.6	59.6	56.3	53.2	57.0
Medical sciences	57.4	54.3	48.3	53.2	48.3	53.1	53.7	58.3	61.2	62.7	66.4	57.5	53.9	50.5	47.4
Life sciences nec	49.1	50.6	34.6	43.1	41.2	43.9	49.3	45.5	51.3	60.9	48.0	58.2	71.0	56.9	49.1
Mathematical sciences	82.1	65.7	65.5	70.5	64.3	67.1	51.9	66.5	71.2	72.7	75.2	69.0	74.5	68.3	62.9
Physical sciences	79.8	75.2	74.5	73.8	74.7	69.9	66.8	70.1	73.0	68.1	69.5	67.1	69.4	70.1	64.3
Astronomy	69.3	63.1	61.5	81.6	86.5	83.4	83.1	80.6	74.4	79.5	77.3	82.0	83.6	77.9	70.4
Chemistry	76.6	71.2	69.8	66.8	67.1	61.1	57.5	61.8	64.8	66.0	70.9	65.0	64.5	62.6	60.5
Physics	84.5	81.1	81.7	76.4	79.7	76.8	71.9	76.5	78.8	71.4	73.2	72.9	76.2	78.8	66.6
Physical sciences nec	70.9	69.5	67.6	81.5	67.1	55.2	76.3	72.8	81.3	52.6	39.2	40.1	37.2	47.6	64.4
Psychology	71.5	63.8	63.4	62.4	65.4	64.0	62.8	70.8	74.1	71.7	63.2	68.5	61.1	58.3	60.8
Social sciences	40.1	32.4	39.5	39.8	38.0	32.3	36.8	36.6	45.1	44.5	39.0	38.6	59.9	62.0	70.7
Economics	35.6	27.2	38.9	34.3	37.3	54.3	40.1	36.7	56.9	35.6	42.0	33.0	41.0	36.5	26.3
Political science	32.1	24.4	36.8	46.9	31.8	36.7	35.6	21.3	51.0	72.2	56.9	54.7	50.8	31.3	41.3
Sociology	53.5	43.2	46.9	47.7	42.5	44.9	35.5	43.0	50.9	48.3	39.7	29.1	52.7	60.7	74.7
Social sciences nec	39.1	32.8	38.0	36.6	38.0	22.0	36.6	37.4	38.0	39.2	35.6	40.9	64.0	68.7	75.4
Sciences nec	46.2	46.0	63.7	46.7	26.1	24.9	38.5	18.4	19.5	20.2	25.6	32.5	26.3	30.9	25.9
Engineering	62.9	58.9	60.4	59.6	58.5	55.1	53.4	58.5	60.4	56.4	57.6	57.7	57.7	56.9	55.7
Aeronautical/astronautical	75.0	81.1	77.5	69.1	70.7	63.7	71.3	79.0	83.5	71.9	67.5	62.7	65.2	72.1	62.3
Bioengineering/biomedical	NA	NA	NA	42.3	46.7	43.1	47.4	52.7	57.8	53.0	43.5	46.1	50.2	53.1	53.9
Chemical	58.7	46.1	58.8	55.5	49.1	52.3	51.7	55.2	55.7	32.4	53.9	57.7	51.0	46.4	44.9
Civil	58.5	58.7	44.2	43.1	49.1	35.2	39.1	59.1	60.7	61.0	58.1	46.1	49.2	52.9	43.1
Electrical	68.5	61.8	61.7	66.7	65.3	61.8	58.4	59.9	67.7	69.1	66.7	66.5	66.6	63.6	59.6
Mechanical	65.1	56.8	63.7	64.2	63.7	64.9	59.2	63.6	69.1	65.8	69.7	77.8	72.4	62.1	65.1
Metallurgical/materials	NA	66.5	50.5	59.4	60.9	60.9	45.1	53.2	45.8	65.1	66.1	58.3	65.2	61.6	54.8
Engineering nec	58.5	52.2	62.7	52.7	49.5	46.4	52.3	51.9	53.7	45.3	40.3	36.9	37.8	43.8	53.4

NA = not available; nec = not elsewhere classified

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2009

Science and Engineering Indicators 2012

Appendix table 5-16

SEH doctorate holders employed in academia, by type of position and degree field: 1973–2008

(Thousands)

Position and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
All positions																		
All fields	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	259.5	272.8	272.8
Physical sciences	25.5	27.5	29.2	28.8	30.0	29.9	32.2	32.8	33.6	33.7	35.0	35.7	37.5	38.7	38.6	39.9	39.6	39.3
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	16.7	17.4	17.4
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2	5.8	6.9
Life sciences	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9	84.3	90.0	95.5	94.0
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.8	35.0	34.3
Social sciences	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.1	50.0	50.9
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.9	22.8	23.1	23.8	26.6	25.5	26.6	27.8	29.6	29.8
All full-time faculty																		
All fields	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	195.0	197.1	199.5
Physical sciences	20.8	22.3	23.6	23.5	24.3	24.2	25.4	26.4	26.2	26.2	25.8	25.6	26.5	27.3	27.5	28.4	27.8	27.7
Mathematics	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1	12.6	14.2	14.1	14.5
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3	3.3	4.2	4.9	5.7
Life sciences	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1	60.4	63.7	64.5	64.8
Psychology	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9	22.6	22.0	23.7	23.3
Social sciences	21.6	25.5	28.8	30.4	33.7	34.4	36.1	37.7	39.0	39.0	39.2	37.1	37.7	39.2	39.2	40.1	39.8	41.0
Engineering	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1	21.9	22.3	22.3	22.5
Full-time professors																		
All fields	42.6	47.9	51.0	57.5	64.4	69.9	72.8	79.1	83.1	82.5	80.0	77.7	80.9	83.1	84.8	87.7	85.3	89.3
Physical sciences	9.0	10.0	10.8	11.7	13.1	13.9	14.6	15.5	15.5	14.8	14.2	13.9	13.8	14.2	14.0	14.3	13.3	13.9
Mathematics	3.2	3.5	3.9	4.4	5.0	5.6	6.1	6.5	6.9	6.7	7.1	6.6	6.9	6.6	6.6	7.2	6.9	6.9
Computer sciences	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.7	0.8	1.2	1.6	1.9
Life sciences	12.3	13.6	13.9	15.5	17.0	19.3	19.6	21.7	22.5	22.9	21.2	22.5	22.5	23.3	24.5	25.7	25.6	26.5
Psychology	3.9	4.6	4.8	5.6	6.5	7.0	7.6	8.3	9.1	9.5	8.7	8.7	9.5	9.4	9.9	9.8	9.8	10.1
Social sciences	9.4	10.6	11.3	12.9	14.7	15.1	15.9	16.8	18.5	18.6	18.4	16.6	17.1	18.2	18.2	18.6	17.5	18.5
Engineering	4.7	5.6	6.4	7.4	8.0	9.0	9.2	10.4	10.6	9.9	10.3	9.1	10.7	10.6	10.7	10.9	10.6	11.6
Full-time associate professors																		
All fields	31.4	36.3	39.7	39.7	42.9	45.7	46.9	48.2	47.9	50.5	48.6	49.6	51.0	53.6	52.2	54.3	54.1	55.6
Physical sciences	6.2	7.1	7.2	7.1	6.6	6.3	6.3	6.1	5.8	6.3	6.4	6.1	6.5	6.6	6.7	6.9	6.9	6.8
Mathematics	2.8	3.4	3.7	3.9	4.0	4.1	4.0	4.1	4.0	5.1	4.4	4.0	3.9	4.1	3.6	4.0	3.8	4.1
Computer sciences	NA	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.7	1.4	1.4	1.4	1.6	1.7	1.6	1.9
Life sciences	8.6	9.8	10.7	11.5	12.5	13.4	14.1	14.1	14.0	14.6	14.6	14.7	15.8	17.3	16.7	17.7	18.1	17.9
Psychology	3.3	4.1	4.3	4.3	5.2	5.9	5.9	6.0	5.9	5.9	5.6	5.8	5.8	6.2	6.0	5.9	6.3	6.9
Social sciences	6.5	7.9	9.4	8.8	10.2	11.2	11.8	12.7	12.6	12.0	11.6	11.5	11.7	11.9	11.4	12.1	11.8	12.2
Engineering	4.0	4.2	4.4	4.2	4.4	4.7	4.7	4.9	5.3	5.9	5.3	6.2	5.8	6.0	6.1	5.9	5.6	5.8
Full-time junior faculty																		
All fields	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4	50.5	53.0	57.7	54.6
Physical sciences	5.6	5.2	5.7	4.7	4.6	4.0	4.6	4.7	4.8	5.0	5.2	5.6	6.1	6.6	6.7	7.2	7.5	6.9
Mathematics	3.3	3.5	3.3	3.1	2.6	2.5	2.7	2.4	2.6	2.4	3.2	2.4	2.8	2.4	2.3	3.0	3.4	3.4
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.6	0.6	0.9	1.0	1.4	1.2	1.3	1.2	0.9	1.3	1.7	1.9
Life sciences	8.5	9.7	10.3	10.3	11.3	10.8	11.9	12.3	12.8	13.7	15.0	15.6	16.9	17.5	19.2	20.3	20.8	20.4
Psychology	3.6	4.2	4.8	4.4	4.8	4.5	5.0	4.9	5.2	5.4	5.2	5.5	5.5	6.2	6.6	6.3	7.6	6.4
Social sciences	5.7	7.1	8.2	8.6	8.8	8.1	8.4	8.2	7.9	8.4	9.3	9.0	8.9	9.1	9.6	9.5	10.5	10.3

Appendix table 5-16

SEH doctorate holders employed in academia, by type of position and degree field: 1973–2008

(Thousands)

Position and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Engineering	2.6	2.5	2.7	2.8	2.3	2.7	4.0	4.0	4.3	4.3	4.5	4.8	5.0	4.5	5.1	5.5	6.1	5.2
Other full-time positions																		
All fields	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3	31.7	35.4	36.7	39.9
Physical sciences	2.2	2.2	2.4	2.5	2.9	3.0	3.7	3.4	4.0	4.1	4.8	4.9	6.0	7.0	7.1	7.7	6.4	6.8
Mathematics	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.6	0.5	0.6	0.8	0.8	1.0	1.2	1.1	1.4
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.6	0.6	0.8
Life sciences	2.5	2.4	2.8	3.9	4.0	4.6	6.2	6.0	6.7	7.2	7.7	8.4	8.4	9.5	10.5	12.2	13.8	14.5
Psychology	0.8	1.0	1.2	1.8	2.2	2.2	2.9	2.8	2.9	2.8	3.9	3.9	4.0	4.6	4.9	5.7	6.0	6.3
Social sciences	1.0	1.5	1.2	1.9	2.0	2.2	3.2	2.6	3.5	3.5	3.7	3.6	3.9	4.3	4.5	4.4	5.6	5.6
Engineering	0.8	0.9	0.8	0.9	1.1	1.1	1.5	1.1	1.5	1.8	1.5	2.1	3.1	3.0	3.4	3.6	3.1	4.4
Postdocs																		
All fields	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.7	23.3	18.0
Physical sciences	1.8	2.2	2.4	2.0	2.1	1.6	2.1	2.3	2.7	2.2	3.5	4.4	3.8	3.4	3.0	2.6	3.9	3.3
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6	0.8	0.5	1.0	0.5
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2
Life sciences	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7	11.0	10.0	12.8	10.5
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2	1.2	0.9	1.7	1.0
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5	0.6	0.5	0.9	0.3
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1	0.9	1.1	3.0	2.1
Part-time positions																		
All fields	2.9	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2	9.0	13.3	15.7	15.4
Physical sciences	0.7	0.7	0.7	0.8	0.7	1.1	1.1	0.8	0.7	1.2	1.0	0.9	1.2	1.0	1.0	1.1	1.5	1.6
Mathematics	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.7	0.7	0.6	0.9	1.2	1.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1
Life sciences	0.9	0.9	1.0	1.2	1.2	1.7	1.7	1.6	1.9	2.3	1.6	1.2	2.9	2.6	2.4	4.0	4.4	4.3
Psychology	0.4	0.5	0.6	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.3	1.8	3.2	3.6	3.7
Social sciences	0.7	0.8	0.8	1.0	1.0	1.6	2.2	1.8	1.7	2.0	1.3	1.3	2.6	2.2	2.7	3.1	3.7	3.9
Engineering	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.8	1.1	0.8

NA = not available

SEH = science, engineering, and health

NOTES: Detail may not add to total because of rounding. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities. Junior faculty includes assistant professors and instructors. Other full-time positions include positions such as research associates, adjunct positions, lecturers, and administrative positions. Part-time employment excludes those employed part-time because they are students or retired. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-17

SEH doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2008

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
All positions																		
Both sexes, all fields	118.0	134.1	145.5	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	259.5	272.8	272.8
Physical sciences	25.5	27.5	29.2	28.8	30.0	29.9	32.2	32.8	33.6	33.7	35.0	35.7	37.5	38.7	38.6	39.9	39.6	39.3
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	16.7	17.4	17.4
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2	5.8	6.9
Life sciences	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9	84.3	90.0	95.5	94.0
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.8	35.0	34.3
Social sciences	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.1	50.0	50.9
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.9	22.8	23.1	23.8	26.6	25.5	26.6	27.8	29.6	29.8
Male, all fields	107.2	120.3	129.0	136.0	144.0	149.8	159.2	162.0	168.0	168.7	166.9	165.1	173.3	175.8	175.0	180.7	182.7	179.4
Physical sciences	24.0	25.9	27.4	26.9	27.8	27.7	29.8	30.0	30.5	30.8	31.4	31.4	32.4	33.4	32.8	33.7	32.3	31.7
Mathematics	9.0	10.3	10.8	11.3	11.3	11.8	12.3	12.5	13.0	13.9	13.7	12.8	13.5	12.9	12.6	13.8	14.1	13.7
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.6	2.1	2.5	2.6	2.9	2.9	4.3	4.5	5.5
Life sciences	30.8	34.3	36.6	40.1	42.9	44.5	46.7	47.9	49.5	50.1	49.4	50.1	52.6	55.1	54.9	56.6	57.9	55.3
Psychology	10.0	11.8	12.6	13.5	14.9	15.1	16.0	16.2	16.5	16.0	14.7	14.7	15.4	15.6	15.7	15.6	16.0	15.5
Social sciences	21.0	24.7	26.9	28.5	30.9	32.3	34.3	33.9	35.1	34.6	33.4	31.3	31.9	32.4	31.7	32.0	31.9	32.0
Engineering	12.3	13.3	14.7	15.7	15.9	17.8	19.5	20.6	22.2	21.8	22.1	22.3	24.8	23.4	24.3	24.8	26.0	25.8
Female, all fields	10.7	13.8	16.5	19.4	23.1	26.5	31.1	34.0	38.7	41.9	46.9	52.4	59.2	64.4	70.5	78.7	90.1	93.4
Physical sciences	1.4	1.6	1.7	1.9	2.1	2.2	2.5	2.8	3.1	3.0	3.6	4.4	5.1	5.3	5.8	6.1	7.3	7.7
Mathematics	0.6	0.8	0.9	0.9	1.1	1.1	1.3	1.4	1.5	1.4	1.7	1.8	2.1	2.2	2.3	2.9	3.3	3.8
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.7	0.8	0.8	1.0	1.2	1.4
Life sciences	4.0	5.1	6.0	6.9	8.4	10.3	12.1	13.3	15.3	16.8	18.8	21.5	24.7	26.7	29.4	33.4	37.6	38.8
Psychology	2.2	3.0	3.6	4.3	5.2	5.9	7.1	7.6	8.5	9.2	10.3	11.5	11.9	13.4	14.7	16.2	19.0	18.8
Social sciences	2.4	3.3	4.2	5.2	6.0	6.5	7.7	8.3	9.4	10.2	10.9	11.2	13.0	13.8	15.2	16.2	18.2	19.0
Engineering	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.6	0.7	1.0	1.1	1.5	1.7	2.1	2.3	3.0	3.6	4.0
Full-time senior faculty																		
Both sexes, all fields	74.0	84.3	90.7	97.2	107.3	115.6	119.7	127.3	131.0	133.0	128.6	127.3	131.9	136.7	136.9	142.0	139.4	144.9
Physical sciences	15.2	17.1	18.0	18.8	19.7	20.2	20.8	21.5	21.4	21.2	20.6	20.0	20.5	20.7	20.7	21.3	20.2	20.7
Mathematics	5.9	6.9	7.6	8.3	9.1	9.7	10.0	10.5	10.9	11.8	11.5	10.6	10.8	10.8	10.2	11.2	10.7	11.1
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.3	0.4	0.9	0.9	1.7	1.7	2.1	2.4	2.9	3.2	3.8
Life sciences	21.0	23.4	24.6	27.0	29.6	32.6	33.7	35.8	36.4	37.4	35.8	37.2	38.3	40.6	41.2	43.4	43.7	44.4
Psychology	7.3	8.7	9.1	9.9	11.7	12.8	13.5	14.3	15.0	15.3	14.3	14.5	15.3	15.6	15.9	15.8	16.1	16.9
Social sciences	15.9	18.5	20.7	21.7	24.9	26.3	27.7	29.5	31.1	30.6	29.9	28.1	28.8	30.1	29.6	30.7	29.3	30.7
Engineering	8.7	9.7	10.7	11.6	12.4	13.7	13.9	15.3	15.9	15.8	15.7	15.3	16.6	16.6	16.8	16.8	16.2	17.3
Male, all fields	69.7	78.9	84.7	90.2	98.7	104.9	107.4	113.2	115.2	115.5	110.3	107.0	109.4	110.6	108.3	109.7	104.6	106.1
Physical sciences	14.7	16.6	17.4	18.1	19.0	19.4	20.0	20.6	20.3	20.3	19.5	18.8	18.9	19.0	18.6	18.9	17.6	17.6
Mathematics	5.6	6.5	7.2	7.9	8.6	9.1	9.3	9.8	10.0	10.8	10.5	9.8	10.0	9.7	9.1	9.9	9.2	9.2
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.8	1.4	1.3	1.6	2.0	2.4	2.6	3.2
Life sciences	19.5	21.6	22.7	24.8	26.9	29.1	29.4	31.0	31.0	31.4	29.3	29.3	30.0	31.1	30.4	30.9	30.4	29.9
Psychology	6.4	7.6	7.8	8.4	9.7	10.5	10.8	11.2	11.5	11.3	10.2	10.1	10.7	10.3	10.3	9.5	9.1	9.3
Social sciences	14.7	16.9	18.8	19.5	22.3	23.2	24.1	25.3	26.4	25.5	24.7	22.8	22.4	23.2	21.9	22.4	20.7	20.9
Engineering	8.7	9.7	10.7	11.5	12.2	13.6	13.7	15.1	15.7	15.4	15.3	14.8	16.1	15.8	15.9	15.7	15.0	16.0
Female, all fields	4.3	5.4	6.0	7.0	8.6	10.7	12.4	14.0	15.8	17.6	18.3	20.3	22.5	26.1	28.6	32.3	34.8	38.8
Physical sciences	0.5	0.5	0.6	0.7	0.7	0.8	0.9	1.0	1.1	0.9	1.1	1.2	1.5	1.9	2.1	2.4	2.7	3.1

Appendix table 5-17

SEH doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2008

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Mathematics	0.3	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.0	0.8	0.8	1.1	1.1	1.3	1.4	1.9
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.5	0.4	0.5	0.6	0.6
Life sciences	1.5	1.8	1.9	2.2	2.7	3.5	4.3	4.8	5.4	6.1	6.5	7.8	8.3	9.5	10.8	12.5	13.3	14.5
Psychology	0.8	1.1	1.2	1.4	2.0	2.4	2.7	3.1	3.5	4.0	4.1	4.4	4.6	5.4	5.6	6.3	7.0	7.6
Social sciences	1.1	1.5	1.8	2.2	2.6	3.1	3.6	4.1	4.7	5.1	5.2	5.3	6.4	7.0	7.7	8.3	8.7	9.8
Engineering	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.5	0.5	0.8	0.9	1.1	1.2	1.3
Full-time junior faculty																		
Both sexes, all fields	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4	50.5	53.0	57.7	54.6
Physical sciences	5.6	5.2	5.7	4.7	4.6	4.0	4.6	4.7	4.8	5.0	5.2	5.6	6.1	6.6	6.7	7.2	7.5	6.9
Mathematics	3.3	3.5	3.3	3.1	2.6	2.5	2.7	2.4	2.6	2.4	3.2	2.4	2.8	2.4	2.3	3.0	3.4	3.4
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.6	0.6	0.9	1.0	1.4	1.2	1.3	1.2	0.9	1.3	1.7	1.9
Life sciences	8.5	9.7	10.3	10.3	11.3	10.8	11.9	12.3	12.8	13.7	15.0	15.6	16.9	17.5	19.2	20.3	20.8	20.4
Psychology	3.6	4.2	4.8	4.4	4.8	4.5	5.0	4.9	5.2	5.4	5.2	5.5	5.5	6.2	6.6	6.3	7.6	6.4
Social sciences	5.7	7.1	8.2	8.6	8.8	8.1	8.4	8.2	7.9	8.4	9.3	9.0	8.9	9.1	9.6	9.5	10.5	10.3
Engineering	2.6	2.5	2.7	2.8	2.3	2.7	4.0	4.0	4.3	4.3	4.5	4.8	5.0	4.5	5.1	5.5	6.1	5.2
Male, all fields	26.0	27.5	28.9	27.3	27.1	25.2	27.8	27.2	27.6	28.1	29.7	28.5	29.5	30.1	31.0	31.5	33.3	31.7
Physical sciences	5.2	4.9	5.2	4.3	4.1	3.5	3.9	4.1	4.1	4.1	4.2	4.1	4.5	5.1	5.1	5.5	5.6	5.0
Mathematics	3.1	3.2	2.9	2.7	2.2	2.2	2.3	2.0	2.2	2.2	2.7	2.0	2.2	1.7	1.7	2.1	2.4	2.4
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.5	0.5	0.8	0.8	1.1	1.0	1.0	0.9	0.7	1.0	1.3	1.4
Life sciences	7.5	8.1	8.4	8.1	8.9	8.1	8.5	8.5	8.4	8.8	9.5	9.5	9.8	10.4	11.0	11.2	11.1	10.8
Psychology	2.7	3.0	3.3	2.8	3.0	2.6	2.7	2.7	2.9	3.0	2.3	2.4	2.1	2.7	2.7	2.4	2.8	2.4
Social sciences	5.0	5.9	6.5	6.6	6.5	5.9	6.0	5.6	5.2	5.3	5.9	5.5	5.5	5.4	5.5	4.9	5.3	5.8
Engineering	2.6	2.4	2.7	2.7	2.2	2.6	3.8	3.8	4.0	3.9	4.0	4.1	4.4	3.9	4.3	4.5	4.8	3.9
Female, all fields	3.3	4.6	6.0	6.8	7.5	7.7	9.4	10.0	11.2	12.0	14.1	15.6	17.0	17.3	19.4	21.5	24.4	22.9
Physical sciences	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.9	1.1	1.5	1.6	1.5	1.6	1.7	1.9	1.9
Mathematics	0.2	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.5	0.5	0.6	0.7	0.6	0.9	1.1	1.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.5
Life sciences	1.1	1.6	1.9	2.2	2.4	2.7	3.4	3.8	4.5	4.9	5.5	6.1	7.1	7.1	8.1	9.1	9.7	9.6
Psychology	0.9	1.2	1.5	1.6	1.8	1.9	2.3	2.2	2.3	2.4	2.9	3.1	3.4	3.5	3.9	3.9	4.8	4.0
Social sciences	0.8	1.2	1.7	2.1	2.3	2.1	2.4	2.6	2.7	3.0	3.4	3.5	3.5	3.7	4.1	4.6	5.2	4.5
Engineering	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.6	0.5	0.8	1.0	1.3	1.3
Other full-time positions																		
Both sexes, all fields	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3	31.7	35.4	36.7	39.9
Physical sciences	2.2	2.2	2.4	2.5	2.9	3.0	3.7	3.4	4.0	4.1	4.8	4.9	6.1	6.8	7.1	7.7	6.4	6.8
Mathematics	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.7	0.5	0.6	0.8	0.8	1.0	1.2	1.1	1.4
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.6	0.6	0.8
Life sciences	2.5	2.4	2.8	3.9	4.0	4.6	6.2	6.0	6.7	7.2	7.7	8.4	8.4	9.5	10.5	12.2	13.8	14.5
Psychology	0.8	1.0	1.2	1.8	2.2	2.2	2.9	2.8	2.9	2.8	3.9	3.9	4.0	4.6	4.9	5.7	6.0	6.3
Social sciences	1.0	1.5	1.2	1.9	2.0	2.2	3.2	2.6	3.5	3.5	3.7	3.6	3.9	4.3	4.5	4.4	5.6	5.6
Engineering	0.8	0.9	0.8	0.9	1.1	1.1	1.5	1.1	1.5	1.8	1.5	2.1	3.1	3.0	3.4	3.6	3.1	4.4
Male, all fields	6.5	7.2	7.4	9.4	10.0	10.3	14.3	12.0	13.9	14.4	15.4	16.1	18.0	20.5	21.4	23.7	23.4	23.6
Physical sciences	2.1	2.1	2.2	2.3	2.6	2.7	3.4	2.9	3.5	3.6	4.2	4.1	5.2	6.0	6.1	6.6	5.2	5.4
Mathematics	0.1	0.2	0.4	0.2	0.3	0.2	0.4	0.5	0.4	0.5	0.4	0.4	0.7	0.8	0.8	0.8	0.8	1.0
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.6	0.5	0.7

Appendix table 5-17

SEH doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2008

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Life sciences	2.0	1.9	2.2	3.0	3.0	3.2	4.6	4.1	4.6	4.9	5.1	5.6	5.3	6.2	6.5	7.4	8.3	7.7
Psychology	0.7	0.8	0.9	1.4	1.4	1.4	1.8	1.6	1.5	1.2	1.9	1.7	1.8	2.1	2.0	2.5	2.6	2.4
Social sciences	0.8	1.3	0.9	1.6	1.6	1.7	2.5	1.8	2.4	2.4	2.2	2.1	2.2	2.6	2.7	2.7	3.3	2.9
Engineering	0.8	0.9	0.8	0.9	1.1	1.0	1.5	1.0	1.4	1.7	1.5	2.0	2.7	2.6	3.1	3.1	2.7	3.7
Female, all fields	1.1	1.0	1.4	2.0	2.6	3.1	3.8	4.5	5.3	5.8	6.7	7.7	8.4	8.8	10.4	11.7	13.3	16.3
Physical sciences	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.5	0.6	0.8	0.9	0.8	1.0	1.1	1.2	1.4
Mathematics	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.3	0.3	0.4
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1
Life sciences	0.6	0.5	0.6	0.9	1.0	1.3	1.6	1.8	2.1	2.4	2.6	2.8	3.1	3.3	4.0	4.8	5.5	6.9
Psychology	0.2	0.2	0.3	0.5	0.8	0.8	1.1	1.3	1.4	1.6	2.0	2.2	2.2	2.5	2.9	3.1	3.4	3.9
Social sciences	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.1	1.1	1.5	1.5	1.7	1.7	1.8	1.7	2.3	2.7
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.5	0.4	0.7
Postdocs																		
Both sexes, all fields	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.7	23.3	18.0
Physical sciences	1.8	2.2	2.4	2.0	2.1	1.6	2.1	2.3	2.7	2.2	3.5	4.4	3.8	3.4	3.0	2.6	3.9	3.3
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6	0.8	0.5	1.0	0.5
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2
Life sciences	1.9	3.0	3.9	4.8	5.2	5.1	5.3	5.4	6.8	6.3	8.2	9.1	10.8	11.6	11.0	10.0	12.8	10.5
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2	1.2	0.9	1.7	1.0
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5	0.6	0.5	0.9	0.3
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1	0.9	1.1	3.0	2.1
Male, all fields	3.5	4.9	6.1	6.3	6.3	5.8	6.0	6.8	8.2	6.8	9.2	11.1	12.1	11.2	10.5	9.8	13.8	10.9
Physical sciences	1.6	2.0	2.1	1.8	1.8	1.4	1.7	1.9	2.2	1.8	2.9	3.7	3.0	2.7	2.3	2.1	2.9	2.5
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.3	0.3	0.5	0.6	0.3	0.8	0.4
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.2
Life sciences	1.5	2.2	2.9	3.5	3.6	3.3	3.4	3.8	4.7	4.1	5.2	5.5	6.2	6.6	6.2	5.7	6.7	5.6
Psychology	0.1	0.2	0.4	0.4	0.5	0.3	0.4	0.3	0.4	0.3	0.1	0.3	0.6	0.2	0.4	0.4	0.5	0.5
Social sciences	0.1	0.1	0.2	0.2	0.1	0.4	0.2	0.1	0.2	0.2	0.1	0.2	0.5	0.3	0.3	0.3	0.4	0.1
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.5	0.4	0.9	1.0	1.4	0.9	0.7	0.9	2.4	1.7
Female, all fields	0.6	1.3	1.6	1.8	2.2	2.5	2.6	2.6	3.3	3.0	4.1	5.7	6.8	7.3	6.9	6.0	9.5	7.1
Physical sciences	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.7	0.7	0.7	0.8	0.7	0.5	1.0	0.8
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.4	0.8	1.1	1.2	1.6	1.8	1.8	1.8	2.2	2.3	3.0	3.7	4.6	5.1	4.7	4.3	6.1	4.9
Psychology	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.3	0.3	0.7	0.8	0.9	0.8	0.5	1.1	0.6
Social sciences	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.5	0.2
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.6	0.4
Part-time positions																		
Both sexes, all fields	2.9	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2	9.0	13.3	15.7	15.4
Physical sciences	0.7	0.7	0.7	0.8	0.7	1.1	1.1	0.8	0.7	1.2	1.0	0.9	1.2	1.0	1.0	1.1	1.5	1.6
Mathematics	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.7	0.7	0.6	0.9	1.2	1.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1
Life sciences	0.9	0.9	1.0	1.2	1.2	1.7	1.7	1.6	1.9	2.3	1.6	1.2	2.9	2.6	2.4	4.0	4.4	4.3
Psychology	0.4	0.5	0.6	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.3	1.8	3.2	3.6	3.7

Appendix table 5-17

SEH doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2008

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Social sciences	0.7	0.8	0.8	1.0	1.0	1.6	2.2	1.8	1.7	2.0	1.3	1.3	2.6	2.2	2.7	3.1	3.7	3.9
Engineering	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.8	1.1	0.8
Male, all fields	1.5	1.8	1.8	2.7	1.9	3.5	3.6	2.7	3.1	3.8	2.3	2.4	4.4	3.4	3.8	6.1	7.6	6.9
Physical sciences	0.4	0.4	0.5	0.6	0.4	0.9	0.7	0.5	0.4	0.8	0.7	0.7	0.8	0.7	0.6	0.7	1.1	1.1
Mathematics	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.4	0.3	0.6	0.9	0.6
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1
Life sciences	0.4	0.5	0.4	0.5	0.4	0.7	0.7	0.5	0.8	1.0	0.4	0.3	1.3	0.8	0.7	1.3	1.5	1.4
Psychology	0.1	0.2	0.2	0.5	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.3	0.3	0.3	0.8	0.9	1.0
Social sciences	0.4	0.5	0.4	0.6	0.5	1.1	1.4	1.0	0.8	1.2	0.5	0.7	1.4	1.0	1.4	1.7	2.2	2.2
Engineering	0.1	0.1	0.1	0.3	0.2	0.3	0.3	0.3	0.5	0.5	0.4	0.3	0.2	0.2	0.4	0.7	1.0	0.6
Female, all fields	1.4	1.5	1.6	1.9	2.1	2.5	2.9	3.0	3.1	3.5	3.6	3.1	4.5	4.9	5.1	7.3	8.1	8.5
Physical sciences	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.2	0.4	0.4	0.3	0.4	0.5	0.5
Mathematics	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.3	0.3	0.2	0.3	0.4
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Life sciences	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.1	1.1	1.3	1.2	0.9	1.6	1.8	1.7	2.7	3.0	2.9
Psychology	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.7	0.9	1.1	1.0	0.8	1.0	1.5	2.4	2.8	2.7
Social sciences	0.3	0.3	0.3	0.4	0.5	0.5	0.9	0.8	0.8	0.8	0.8	0.7	1.2	1.2	1.3	1.4	1.5	1.7
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3

NA = not available

SEH = science, engineering, and health

NOTES: Detail may not add to total because of rounding. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities. Senior faculty includes professors and associate professors; junior faculty includes assistant professors and instructors. Other full-time positions include positions such as research associates, adjunct positions, lecturers, and administrative positions. Part-time employment excludes those employed part-time because they are students or retired. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-18

SEH doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2008

(Thousands)

Position, race/ethnicity, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
All positions																		
All races/ethnicities, all fields	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	259.5	272.8	272.8
Physical sciences	25.5	27.5	29.2	28.8	29.9	29.9	32.2	32.8	33.6	33.8	35.0	35.8	37.5	38.7	38.6	39.9	39.6	39.3
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	16.7	17.4	17.4
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2	5.8	6.9
Life sciences	34.9	39.4	42.6	47.0	51.3	54.8	58.7	61.2	64.8	66.9	68.2	71.6	77.3	81.9	84.3	90.0	95.5	94.0
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.8	35.0	34.3
Social sciences	23.4	28.0	31.1	33.6	36.9	38.8	41.9	42.1	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.1	50.0	50.9
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.8	22.8	23.1	23.8	26.6	25.5	26.6	27.8	29.6	29.8
White, all fields	107.7	121.6	131.4	140.0	149.9	157.2	168.4	172.8	181.0	183.5	181.8	182.6	193.2	198.2	201.0	204.3	212.2	209.4
Physical sciences	23.0	24.8	26.1	25.9	26.6	26.4	28.3	28.5	29.2	29.5	29.3	29.5	31.0	32.3	32.0	32.1	31.4	31.2
Mathematics	8.8	10.0	10.6	10.8	11.0	11.5	11.9	12.2	12.6	13.0	12.9	12.0	12.6	12.3	12.1	13.0	13.2	13.2
Computer sciences	NA	NA	NA	0.1	0.2	0.4	0.6	0.9	1.1	1.4	1.6	2.1	2.2	2.7	2.7	3.4	3.7	4.0
Life sciences	32.1	35.8	38.8	42.4	46.1	49.3	52.7	54.6	57.6	59.2	59.1	61.3	64.9	67.2	68.4	70.4	74.2	72.5
Psychology	11.6	13.9	15.2	16.8	18.8	19.6	21.3	22.0	23.2	23.2	22.9	23.6	24.4	25.5	26.6	27.1	29.5	28.6
Social sciences	21.4	25.3	28.2	30.5	33.1	34.7	37.2	37.5	39.4	39.1	38.6	36.5	38.0	38.9	39.0	39.1	40.7	40.5
Engineering	10.8	11.6	12.6	13.5	14.0	15.2	16.4	17.2	18.1	18.2	17.5	17.6	20.2	19.4	20.2	19.2	19.4	19.4
Asian/Pacific Islander, all fields	5.0	6.1	6.7	9.8	10.8	11.8	14.0	15.0	16.3	16.8	20.9	22.4	25.4	26.3	27.6	34.7	37.4	39.0
Physical sciences	1.2	1.4	1.5	1.9	2.1	2.4	2.9	3.1	3.1	2.8	4.2	4.6	4.6	4.6	4.5	5.5	5.6	5.5
Mathematics	0.4	0.5	0.5	0.9	0.9	1.0	1.1	1.1	1.3	1.6	1.9	1.8	2.2	2.1	2.0	2.8	3.1	3.1
Computer sciences	NA	NA	NA	0.0	0.1	0.1	0.1	0.1	0.3	0.5	0.7	0.9	0.9	0.9	0.9	1.5	1.7	2.4
Life sciences	1.3	1.8	2.0	3.1	3.6	3.6	4.0	4.4	4.7	5.1	6.3	6.8	8.5	9.9	11.0	13.3	14.0	13.8
Psychology	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.1	1.4	1.6
Social sciences	1.0	1.1	1.2	1.6	2.0	2.0	2.5	2.2	2.4	2.6	2.7	2.8	3.2	3.5	3.6	4.1	3.8	4.3
Engineering	1.1	1.1	1.3	1.9	1.8	2.4	3.0	3.5	4.1	3.7	4.7	4.9	5.2	4.6	4.8	6.4	7.8	8.1
Underrepresented minority, all fields	2.4	3.2	3.7	4.9	5.8	6.5	7.2	7.8	9.0	9.9	10.7	12.4	13.7	15.6	16.8	20.4	23.2	24.4
Physical sciences	0.5	0.5	0.6	0.8	1.0	1.0	1.0	1.1	1.2	1.3	1.5	1.6	1.9	1.8	2.0	2.3	2.6	2.6
Mathematics	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.8	0.7	0.8	0.8	1.0	1.1	1.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.4	0.4
Life sciences	0.8	1.1	1.2	1.3	1.5	1.7	1.8	2.1	2.4	2.6	2.7	3.5	3.9	4.7	4.9	6.2	7.4	7.7
Psychology	0.3	0.4	0.6	0.5	0.8	1.0	1.2	1.2	1.3	1.5	1.6	2.0	2.3	2.7	2.9	3.6	4.0	4.0
Social sciences	0.5	0.8	0.8	1.5	1.8	2.0	2.1	2.3	2.8	3.0	3.1	3.2	3.6	3.9	4.3	4.9	5.5	6.1
Engineering	0.2	0.2	0.3	0.4	0.3	0.5	0.5	0.5	0.7	0.9	0.9	1.2	1.2	1.5	1.6	2.1	2.3	2.3
Full-time faculty																		
All races/ethnicities, all fields	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	195.0	197.1	199.5
Physical sciences	20.8	22.3	23.6	23.5	24.3	24.2	25.4	26.4	26.2	26.2	25.8	25.6	26.5	27.3	27.5	28.4	27.8	27.7
Mathematics	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1	12.6	14.2	14.1	14.5
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3	3.3	4.2	4.9	5.7
Life sciences	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1	60.4	63.7	64.5	64.8
Psychology	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9	22.6	22.0	23.7	23.3
Social sciences	21.6	25.5	28.8	30.3	33.7	34.4	36.1	37.6	39.0	39.0	39.2	37.1	37.7	39.2	39.2	40.1	39.8	41.0
Engineering	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1	21.9	22.3	22.3	22.5
White, all fields	94.9	106.2	114.3	118.7	128.1	133.4	139.7	146.2	149.8	151.8	148.7	147.1	151.1	155.4	156.3	156.6	158.3	156.9

Appendix table 5-18

SEH doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2008

(Thousands)

Position, race/ethnicity, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Physical sciences	19.0	20.5	21.5	21.3	22.1	21.6	22.8	23.4	23.3	23.2	22.2	22.1	22.6	23.4	23.2	23.6	23.2	22.6
Mathematics	8.5	9.5	9.9	10.1	10.3	10.9	11.1	11.4	11.7	12.2	12.3	10.7	11.0	10.7	10.1	11.1	10.9	11.1
Computer sciences	NA	NA	NA	0.0	0.2	0.3	0.5	0.7	1.0	1.3	1.5	1.9	2.0	2.4	2.3	2.6	3.0	3.3
Life sciences	27.5	30.4	32.1	33.9	37.2	39.7	41.3	43.3	44.4	46.0	45.1	46.7	48.3	50.2	51.4	51.9	52.7	52.0
Psychology	10.3	12.1	13.0	13.6	15.4	16.2	17.1	17.9	18.8	19.2	18.0	18.4	18.8	19.6	20.1	19.1	20.3	19.8
Social sciences	19.7	23.2	26.1	27.5	30.1	30.7	32.2	33.5	34.4	33.8	34.1	31.9	31.8	33.0	32.8	32.9	32.8	32.8
Engineering	10.0	10.6	11.6	12.2	12.7	14.0	14.8	15.9	16.2	16.2	15.6	15.3	16.7	16.1	16.5	15.5	15.4	15.4
Asian/Pacific Islander, all fields	4.0	4.7	5.0	7.8	8.4	9.1	10.9	11.7	12.3	12.6	14.8	14.5	16.5	17.0	18.4	23.0	22.4	25.2
Physical sciences	0.7	0.8	1.0	1.4	1.3	1.6	1.7	2.0	1.9	1.8	2.4	2.3	2.4	2.5	2.6	3.1	2.7	3.1
Mathematics	0.4	0.5	0.5	0.8	0.9	1.0	1.1	1.1	1.3	1.5	1.7	1.6	2.0	1.7	1.7	2.3	2.3	2.4
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.3	0.5	0.7	0.8	0.8	0.8	0.8	1.4	1.5	2.0
Life sciences	0.9	1.2	1.2	2.1	2.3	2.4	2.8	3.1	3.0	3.0	3.7	3.5	4.1	4.9	5.7	7.3	6.9	7.7
Psychology	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.7	0.9	1.0
Social sciences	0.9	1.1	1.1	1.5	1.9	1.9	2.1	2.1	2.1	2.4	2.3	2.4	2.8	2.9	3.1	3.3	2.9	3.5
Engineering	0.9	1.0	1.1	1.8	1.7	1.9	2.7	3.0	3.4	3.1	3.7	3.6	3.8	3.8	4.0	5.0	5.1	5.5
Underrepresented minority, all fields	2.0	2.7	3.2	4.2	5.0	5.4	5.8	6.3	7.4	8.4	8.6	9.8	10.6	11.6	12.5	15.2	16.3	17.4
Physical sciences	0.4	0.4	0.4	0.7	0.9	0.9	0.8	0.9	0.9	1.1	1.2	1.1	1.4	1.5	1.6	1.7	1.8	2.0
Mathematics	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.6	0.7	0.7	0.8	0.9	0.9
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.4
Life sciences	0.7	0.9	1.0	1.1	1.3	1.3	1.4	1.6	1.8	2.0	2.0	2.6	2.7	3.1	3.3	4.5	4.9	5.1
Psychology	0.2	0.3	0.5	0.4	0.6	0.7	0.9	0.9	1.0	1.1	1.1	1.3	1.5	1.8	2.0	2.2	2.5	2.5
Social sciences	0.4	0.6	0.8	1.4	1.6	1.7	1.8	2.0	2.5	2.8	2.8	2.8	3.1	3.3	3.4	4.0	4.1	4.7
Engineering	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8	0.8	1.1	1.0	1.1	1.4	1.7	1.8	1.7
Postdocs																		
All races/ethnicities, all fields	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.7	23.3	18.0
Physical sciences	1.8	2.2	2.4	2.0	2.1	1.6	2.1	2.3	2.7	2.2	3.5	4.4	3.8	3.4	3.0	2.6	3.9	3.3
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6	0.8	0.5	0.9	0.5
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2
Life sciences	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7	11.0	10.0	12.8	10.5
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2	1.2	0.9	1.7	1.0
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5	0.6	0.5	0.9	0.3
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1	0.9	1.1	3.0	2.1
White, all fields	3.6	5.0	6.2	6.8	6.9	6.8	7.1	7.4	9.0	7.1	9.1	11.2	12.5	11.9	11.4	9.9	13.4	10.4
Physical sciences	1.5	1.8	1.8	1.6	1.5	1.4	1.4	1.5	1.8	1.4	2.4	2.6	2.5	2.3	2.2	1.5	2.4	1.9
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.3	0.3	0.5	0.7	0.4	0.6	0.4
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0
Life sciences	1.7	2.4	3.3	4.1	4.4	4.3	4.5	4.7	5.6	4.8	5.9	6.5	7.0	7.2	6.7	6.4	7.3	6.5
Psychology	0.1	0.4	0.4	0.6	0.6	0.5	0.7	0.6	0.8	0.4	0.3	0.9	1.1	0.9	1.0	0.7	1.3	0.8
Social sciences	0.1	0.2	0.3	0.3	0.3	0.5	0.3	0.1	0.3	0.2	0.1	0.3	0.6	0.3	0.4	0.3	0.6	0.2
Engineering	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.5	0.9	0.7	0.6	0.5	1.2	0.7
Asian/Pacific Islander, all fields	0.5	1.0	1.1	1.1	1.4	1.1	1.1	1.6	1.9	2.3	3.6	4.7	5.3	5.2	4.9	4.8	8.1	6.1
Physical sciences	0.2	0.4	0.4	0.4	0.6	0.2	0.5	0.6	0.7	0.7	1.0	1.5	1.2	1.1	0.8	0.9	1.3	1.2
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.1

Appendix table 5-18

SEH doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2008

(Thousands)

Position, race/ethnicity, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2
Life sciences	0.2	0.5	0.5	0.5	0.8	0.6	0.6	0.6	0.9	1.3	1.9	2.2	3.2	3.6	3.6	3.0	4.4	3.1
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1
Engineering	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.3	0.7	0.7	0.7	0.2	0.3	0.5	1.7	1.2
Underrepresented minority, all fields	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.4	0.6	0.4	0.6	0.9	1.1	1.5	1.1	1.1	1.9	1.5
Physical sciences	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.4	0.5	0.6	0.8	0.6	0.6	1.1	1.0
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.2	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.0
Engineering	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.2
Other positions																		
All races/ethnicities, all fields	10.5	11.5	12.2	15.9	16.6	19.4	24.6	22.1	25.4	27.6	28.1	29.4	35.3	37.5	40.7	48.7	52.4	55.3
Physical sciences	2.9	2.9	3.1	3.3	3.6	4.2	4.8	4.2	4.7	5.4	5.8	5.8	7.2	8.0	8.1	8.8	7.9	8.4
Mathematics	0.4	0.6	0.7	0.7	0.6	0.5	0.7	0.6	0.8	0.9	0.8	1.1	1.5	1.5	1.6	2.0	2.3	2.4
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.9	0.8	1.0
Life sciences	3.4	3.3	3.7	5.0	5.2	6.3	7.8	7.6	8.7	9.5	9.2	9.6	11.3	12.0	12.9	16.3	18.2	18.7
Psychology	1.2	1.5	1.8	2.8	3.0	3.1	3.9	3.8	4.0	4.0	5.1	5.0	5.2	5.9	6.6	8.9	9.6	10.0
Social sciences	1.6	2.2	1.9	2.9	2.9	3.8	5.5	4.3	5.1	5.5	5.0	5.0	6.5	6.5	7.1	7.5	9.3	9.6
Engineering	0.9	1.0	0.9	1.2	1.3	1.4	1.8	1.4	2.0	2.2	2.0	2.5	3.4	3.3	3.9	4.3	4.3	5.2
White, all fields	9.3	10.4	10.9	14.5	15.0	17.0	21.6	19.3	22.2	24.6	24.0	24.3	29.6	31.0	33.3	37.8	40.4	42.1
Physical sciences	2.5	2.7	2.8	3.1	3.2	3.6	4.1	3.6	4.0	4.8	4.8	4.8	5.9	6.6	6.8	7.0	5.8	6.7
Mathematics	0.3	0.5	0.6	0.6	0.6	0.5	0.7	0.6	0.7	0.8	0.6	0.9	1.2	1.1	1.3	1.5	1.7	1.7
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.7	0.6	0.7
Life sciences	3.0	2.9	3.3	4.4	4.5	5.3	6.9	6.6	7.5	8.4	8.1	8.1	9.5	9.8	10.2	12.2	14.2	14.1
Psychology	1.1	1.5	1.7	2.6	2.8	2.9	3.5	3.5	3.6	3.6	4.5	4.3	4.5	5.0	5.6	7.4	7.9	8.0
Social sciences	1.5	2.0	1.7	2.7	2.7	3.5	4.7	3.9	4.7	5.1	4.4	4.3	5.6	5.5	5.9	5.9	7.3	7.5
Engineering	0.7	0.9	0.8	1.1	1.2	1.1	1.6	1.1	1.6	1.8	1.6	1.8	2.7	2.6	3.1	3.1	2.9	3.4
Asian/Pacific Islander, all fields	0.6	0.4	0.6	0.9	1.0	1.6	2.0	1.8	2.0	1.9	2.5	3.2	3.6	4.1	4.3	6.9	6.9	7.8
Physical sciences	0.2	0.1	0.1	0.2	0.2	0.5	0.6	0.6	0.5	0.4	0.8	0.8	1.1	1.0	1.0	1.4	1.6	1.2
Mathematics	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.5	0.6
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.2
Life sciences	0.2	0.1	0.3	0.4	0.6	0.7	0.7	0.7	0.9	0.8	0.8	1.1	1.2	1.5	1.7	3.0	2.6	3.0
Psychology	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.5
Social sciences	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.7	0.8	0.8
Engineering	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.3	0.4	0.3	0.3	0.6	0.6	0.6	0.5	0.9	1.0	1.4
Underrepresented minority, all fields	0.3	0.4	0.3	0.5	0.5	0.8	1.0	1.1	1.1	1.1	1.5	1.8	2.1	2.5	3.1	4.1	5.0	5.5
Physical sciences	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.5	0.5	0.5
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.8	1.0	1.1	1.4	1.7

Appendix table 5-18

SEH doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2008

(Thousands)

Position, race/ethnicity, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Psychology	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.6	0.7	0.8	1.2	1.4	1.4
Social sciences	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.5	0.8	0.9	1.2	1.3
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4

NA = not available

SEH = science, engineering, and health

NOTES: Detail may not add to total because of rounding. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities. Full-time faculty includes full, associate, and assistant professors plus instructors. Other positions include full-time positions such as research associates, adjunct appointments, lecturers, and administrative positions, and part-time positions of all kinds. Part-time employment excludes those employed part-time because they are students or retired. Underrepresented minorities include blacks, Hispanics, and American Indians/Alaska Natives. Total includes other and unknown race/ethnicity not shown separately. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-19

SEH doctorate holders employed in academia, by type of position, degree field, and citizenship: 2008

(Thousands)

Position and field	All doctorate holders	Native-born U.S. citizens	Foreign born	
			Naturalized U.S. citizens	Noncitizens
All positions	272.8	205.9	34.6	32.3
Physical sciences	39.3	29.3	4.9	5.2
Mathematics and statistics	17.4	11.4	2.9	3.2
Computer and information sciences	6.9	3.4	1.6	1.9
Life sciences	94.0	73.5	10.7	9.9
Psychology	34.3	31.2	1.8	1.3
Social sciences	50.9	40.9	5.2	4.8
Engineering	29.8	16.2	7.6	6.1
Full-time faculty	199.5	153.8	27.0	18.7
Physical sciences	27.7	21.6	3.8	2.3
Mathematics and statistics	14.5	9.6	2.5	2.3
Computer and information sciences	5.7	2.7	1.4	1.5
Life sciences	64.8	52.8	7.7	4.2
Psychology	23.3	21.3	1.1	0.9
Social sciences	41.0	33.2	4.0	3.9
Engineering	22.5	12.5	6.4	3.6
Postdocs	18.0	9.7	1.1	7.2
Physical sciences	3.3	1.4	0.1	1.7
Mathematics and statistics	0.5	0.2	S	0.3
Computer and information sciences	0.2	S	S	0.2
Life sciences	10.5	6.5	0.6	3.4
Psychology	1.0	0.9	0.1	0.1
Social sciences	0.3	0.2	S	0.1
Engineering	2.1	0.6	0.1	1.4
Other positions	55.3	42.4	6.5	6.4
Physical sciences	8.3	6.3	1.0	1.2
Mathematics and statistics	2.4	1.6	0.4	0.6
Computer and information sciences	1.0	0.7	0.2	0.2
Life sciences	18.7	14.2	2.4	2.3
Psychology	10.0	9.0	0.6	0.3
Social sciences	9.6	7.5	1.2	0.8
Engineering	5.2	3.1	1.1	1.1

S = data suppressed for reasons of confidentiality and/or reliability

SEH = science, engineering, and health

NOTES: Detail may not add to total because of rounding. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities. Full-time faculty includes full, associate, and assistant professors plus instructors. Other positions include full-time positions such as research associates, adjunct appointments, lecturers, and administrative positions, and part-time positions of all kinds. Part-time employment excludes those employed part time because they are students or retired. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-20

SEH doctorate holders employed in academia, by research priority, type of position, and degree field: 1973–2008

(Thousands)

Research priority, position, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
All research priorities																		
All positions	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	259.5	272.8	272.8
Physical sciences	25.5	27.5	29.2	28.8	29.9	29.9	32.2	32.8	33.6	33.8	35.0	35.8	37.5	38.7	38.6	39.9	39.6	39.3
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	16.7	17.4	17.4
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2	5.8	6.9
Life sciences	34.9	39.4	42.6	47.0	51.3	54.8	58.7	61.2	64.8	66.9	68.2	71.6	77.3	81.9	84.3	90.0	95.5	94.0
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.8	35.0	34.3
Social sciences	23.4	28.0	31.1	33.6	36.9	38.8	41.9	42.1	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.1	50.0	50.9
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.8	22.8	23.1	23.8	26.6	25.5	26.6	27.8	29.6	29.8
Full-time faculty	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	195.0	197.1	199.5
Physical sciences	20.8	22.3	23.6	23.5	24.3	24.2	25.4	26.4	26.2	26.2	25.8	25.6	26.5	27.3	27.5	28.4	27.8	27.7
Mathematics	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1	12.6	14.2	14.1	14.5
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3	3.3	4.2	4.9	5.7
Life sciences	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1	60.4	63.7	64.5	64.8
Psychology	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9	22.6	22.0	23.7	23.3
Social sciences	21.6	25.5	28.8	30.3	33.7	34.4	36.1	37.6	39.0	39.0	39.2	37.1	37.7	39.2	39.2	40.1	39.8	41.0
Engineering	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1	21.9	22.3	22.3	22.5
Research as primary/secondary activity																		
All positions	82.3	90.6	85.0	90.0	100.7	104.7	115.2	144.0	151.6	156.6	150.1	153.5	164.7	168.1	172.5	179.3	183.7	184.7
Physical sciences	18.8	19.8	19.2	18.2	19.5	19.3	21.4	24.9	25.7	25.9	25.0	25.8	27.4	27.2	27.3	28.2	26.9	26.5
Mathematics	6.8	7.5	6.8	6.9	6.8	7.2	7.6	9.7	10.2	10.7	9.5	9.4	10.1	9.9	9.8	10.7	11.4	11.4
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.6	1.0	1.3	1.7	2.0	2.4	2.4	2.6	2.6	3.9	4.1	4.8
Life sciences	26.0	29.0	28.7	32.1	37.1	38.3	41.4	48.8	51.8	53.3	51.8	53.8	57.9	60.8	63.1	65.6	66.7	66.3
Psychology	7.3	8.5	7.7	8.3	9.9	10.5	10.7	14.3	14.3	15.7	14.9	15.6	16.1	17.2	18.2	19.1	20.5	21.2
Social sciences	14.3	16.9	13.8	14.7	17.6	17.8	20.9	28.5	30.5	31.1	29.3	28.1	29.8	30.9	31.4	31.5	32.7	32.8
Engineering	9.0	9.0	8.9	9.8	9.5	11.2	12.5	16.8	17.6	18.2	17.5	18.5	20.9	19.4	20.2	20.3	21.4	21.8
Full-time faculty	72.0	78.9	71.6	74.1	83.8	86.9	95.1	121.4	125.8	131.4	121.7	121.6	127.0	129.2	133.2	137.3	135.1	137.8
Physical sciences	15.1	15.9	14.8	13.9	15.1	15.1	16.3	19.7	19.9	20.1	18.0	17.9	18.8	18.7	19.1	20.1	18.4	18.6
Mathematics	6.6	7.1	6.4	6.4	6.5	6.9	7.3	9.1	9.8	10.2	9.1	8.4	8.9	8.6	8.3	9.3	9.6	9.8
Computer sciences	NA	NA	NA	S	0.2	0.3	0.5	0.8	1.2	1.6	1.8	2.2	2.2	2.3	2.3	3.3	3.6	4.0
Life sciences	21.8	24.1	22.9	24.7	28.7	29.6	31.9	38.3	39.0	41.0	38.4	39.5	41.2	42.5	44.6	46.4	45.1	45.1
Psychology	6.6	7.5	6.7	6.6	8.0	8.8	9.0	12.1	12.2	13.9	12.5	12.9	13.3	13.9	14.6	14.7	15.1	16.0
Social sciences	13.6	15.9	12.9	13.5	16.5	16.0	18.8	26.1	27.9	28.3	26.7	25.3	25.8	27.2	27.8	27.2	27.4	28.2
Engineering	8.2	8.3	8.0	8.9	8.8	10.2	11.4	15.2	15.7	16.2	15.1	15.5	16.7	15.9	16.6	16.3	15.8	16.2
Research as primary activity																		
All positions	27.8	30.8	37.0	41.3	46.5	48.9	55.9	66.5	72.2	73.9	80.2	83.0	88.6	91.4	93.8	102.9	108.2	106.7
Physical sciences	6.6	7.2	8.9	8.5	9.4	9.2	11.0	12.3	13.3	13.1	14.7	15.2	15.6	15.1	15.0	16.2	16.3	15.4
Mathematics	1.5	1.5	1.8	2.1	1.9	2.0	2.7	3.2	3.5	3.5	3.4	3.3	3.5	2.9	3.3	3.8	5.0	5.4
Computer sciences	NA	NA	NA	0.0	0.1	0.2	0.4	0.7	0.8	1.1	0.9	1.0	1.1	1.1	1.3	1.9	2.0	2.6
Life sciences	12.8	14.5	16.6	19.7	23.2	24.3	27.1	31.5	33.8	34.5	36.0	37.7	40.5	43.2	43.7	46.4	47.0	45.3
Psychology	2.0	2.2	2.8	3.4	4.1	4.4	4.6	5.2	5.9	6.2	6.7	7.4	8.0	8.6	8.7	10.0	11.2	11.1
Social sciences	2.8	3.2	4.1	4.2	4.5	4.9	5.7	7.5	8.2	8.4	10.7	9.8	9.8	11.1	11.7	13.0	13.6	13.5
Engineering	2.1	2.3	2.9	3.4	3.3	3.9	4.4	6.2	6.9	7.2	7.9	8.7	10.1	9.4	10.1	11.6	13.1	13.3

Appendix table 5-20

SEH doctorate holders employed in academia, by research priority, type of position, and degree field: 1973–2008

(Thousands)

Research priority, position, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Full-time faculty	19.8	21.4	25.8	28.1	31.8	33.6	39.5	48.6	51.6	53.8	56.8	56.6	58.0	60.4	62.8	71.5	70.9	71.4
Physical sciences	3.5	3.9	5.0	5.0	5.4	5.4	6.5	7.8	8.0	8.2	8.7	8.4	8.4	8.2	8.3	9.9	9.3	9.2
Mathematics	1.4	1.3	1.6	1.8	1.8	1.8	2.5	2.7	3.2	3.2	3.1	2.7	2.8	2.3	2.3	3.1	3.8	4.5
Computer sciences	NA	NA	NA	0.0	0.1	0.1	0.3	0.5	0.7	1.0	0.7	0.9	1.0	0.9	1.1	1.6	1.7	2.1
Life sciences	9.3	10.3	11.4	13.1	15.5	16.5	18.6	22.3	22.6	23.8	24.1	24.7	25.7	27.0	27.7	30.1	28.4	27.7
Psychology	1.6	1.5	2.0	2.2	2.5	2.9	3.3	3.9	4.5	5.0	5.3	5.4	5.9	6.1	6.3	7.1	7.9	7.9
Social sciences	2.5	2.7	3.6	3.4	3.8	3.8	4.6	6.3	7.1	7.1	8.9	8.3	7.6	9.2	9.7	10.8	11.4	11.3
Engineering	1.5	1.7	2.3	2.6	2.7	3.0	3.7	5.0	5.4	5.5	6.0	6.3	6.7	6.7	7.4	8.9	8.5	8.7
Teaching as primary activity																		
All positions	73.3	83.8	82.2	83.8	95.9	97.7	101.0	99.3	100.9	103.4	98.3	100.2	105.4	108.6	109.0	105.9	109.4	112.3
Physical sciences	16.3	17.3	16.5	15.9	17.5	16.8	17.4	16.9	16.7	16.8	15.7	15.9	16.7	17.8	17.9	17.0	16.9	17.3
Mathematics	7.4	8.5	8.5	8.6	9.1	9.4	9.3	9.2	9.5	10.1	10.3	9.8	10.2	10.5	10.2	9.4	9.9	10.0
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.3	0.3	0.6	0.7	1.4	1.8	1.8	2.1	1.9	2.5	3.0	3.2
Life sciences	16.6	19.0	18.1	18.1	20.5	21.1	20.9	20.1	20.3	20.9	20.2	21.8	23.4	25.1	25.7	25.2	27.6	28.1
Psychology	7.7	9.7	9.4	9.5	11.7	11.6	12.3	13.0	12.8	12.8	11.6	11.9	12.4	13.0	13.3	13.3	14.3	14.3
Social sciences	16.9	20.5	21.0	22.6	26.8	27.7	29.1	28.5	28.8	29.8	27.6	26.9	28.3	28.0	28.0	27.3	27.5	28.8
Engineering	8.4	8.9	8.7	9.1	10.1	10.8	11.7	11.3	12.2	12.2	11.6	12.1	12.6	12.1	11.9	11.2	10.2	10.7
Full-time faculty	69.9	80.2	78.4	79.7	92.1	91.9	94.9	93.6	93.9	96.7	91.4	91.9	95.4	98.6	97.9	85.0	90.8	94.0
Physical sciences	15.5	16.5	15.7	15.1	16.9	15.8	16.5	16.2	15.6	15.6	14.3	14.4	15.1	16.1	16.2	15.0	14.5	14.5
Mathematics	7.2	8.2	8.1	8.3	8.8	9.0	8.9	9.0	9.0	9.6	10.0	9.0	9.3	9.4	9.2	8.2	8.3	8.5
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.3	0.3	0.5	0.7	1.3	1.7	1.7	2.0	1.8	2.3	2.6	2.8
Life sciences	15.7	18.1	17.1	17.1	19.6	19.6	19.5	18.7	18.7	19.1	18.4	19.8	20.7	22.5	22.8	21.4	22.6	23.5
Psychology	7.3	9.2	8.9	8.9	11.0	10.9	11.6	12.1	11.9	12.2	10.5	10.9	11.3	11.9	11.9	10.8	11.2	11.3
Social sciences	16.1	19.5	20.1	21.4	25.7	25.9	26.8	26.5	26.4	27.6	25.9	24.6	25.3	24.9	24.9	23.7	22.4	24.0
Engineering	8.1	8.7	8.5	8.9	10.0	10.4	11.2	11.0	11.7	11.8	11.0	11.5	12.0	11.7	11.2	10.2	9.0	9.4
Other primary activity																		
All positions	16.9	19.4	26.2	30.2	24.7	29.6	33.3	30.1	33.5	33.2	35.2	34.3	38.6	40.2	42.8	49.5	55.2	53.9
Physical sciences	2.6	3.0	3.8	4.4	3.0	3.8	3.8	3.5	3.6	3.8	4.6	4.6	5.2	5.8	5.8	7.2	6.5	6.7
Mathematics	0.8	1.0	1.4	1.6	1.3	1.6	1.6	1.4	1.5	1.6	1.8	1.5	1.8	1.7	1.4	2.2	2.5	2.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.5	0.5	0.8	0.8	1.1
Life sciences	5.5	5.9	8.0	9.3	7.6	9.4	10.6	9.7	10.7	11.5	12.0	12.2	13.4	13.6	14.8	17.6	20.9	20.7
Psychology	2.5	2.9	4.0	4.8	4.4	5.0	6.2	5.6	6.3	6.2	6.7	6.9	7.0	7.3	8.4	8.1	9.5	9.0
Social sciences	3.7	4.3	6.0	6.8	5.6	6.1	7.1	6.1	7.6	6.6	6.1	5.8	6.8	7.2	7.2	8.2	8.8	8.6
Engineering	1.9	2.3	3.1	3.3	2.7	3.5	3.8	3.7	3.7	3.4	3.7	3.0	3.8	4.0	4.7	5.5	6.2	5.8
Full-time faculty	13.6	14.8	21.3	23.4	18.0	22.9	22.5	22.2	24.2	22.6	24.1	22.9	24.9	25.0	26.8	37.6	35.4	34.0
Physical sciences	1.8	2.0	2.9	3.3	2.0	3.0	2.4	2.4	2.5	2.3	2.7	2.7	3.0	3.0	3.0	3.8	3.9	3.9
Mathematics	0.7	0.9	1.2	1.3	1.1	1.4	1.3	1.2	1.3	1.4	1.6	1.3	1.5	1.4	1.1	1.7	2.0	1.5
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.6	0.7
Life sciences	4.5	4.7	6.4	7.1	5.8	7.4	7.4	7.2	7.9	8.2	8.3	8.3	8.7	8.6	9.9	11.7	13.5	13.6

Appendix table 5-20

SEH doctorate holders employed in academia, by research priority, type of position, and degree field: 1973–2008

(Thousands)

Research priority, position, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Psychology	2.0	2.1	3.0	3.2	2.9	3.5	3.6	3.3	3.8	3.6	3.7	3.8	3.6	3.9	4.3	3.8	4.6	4.2
Social sciences	3.0	3.3	5.2	5.5	4.2	4.7	4.7	4.8	5.4	4.3	4.5	4.2	4.8	5.1	4.7	6.0	6.1	5.7
Engineering	1.6	1.8	2.7	2.8	2.0	2.9	2.9	3.3	3.1	2.7	3.1	2.2	2.8	2.7	3.3	3.7	4.8	4.4

NA = not available; S = data suppressed for reasons of reliability

SEH = science, engineering, and health

NOTES: Detail may not add to total because of rounding. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities, excluding those employed part-time because they are students or retired. Full-time faculty includes full, associate, and assistant professors plus instructors. Research includes basic or applied research, development, or design. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-21

Early career SEH doctorate holders employed in academia, by Carnegie institution type, years since doctorate, and type of position: 1973–2008

(Percent distribution)

	1–3 years				4–7 years			
Carnegie institution type	Total	Full-time faculty	Postdocs	Other positions	Total	Full-time faculty	Postdocs	Other positions
All universities and colleges								
1973	100.0	73.6	13.0	13.4	100.0	89.2	2.3	8.4
1975	100.0	70.4	18.3	11.3	100.0	87.1	4.3	8.3
1977	100.0	64.8	22.9	12.3	100.0	85.0	5.3	9.7
1979	100.0	59.2	25.0	15.8	100.0	81.2	6.1	12.9
1981	100.0	56.9	28.4	14.7	100.0	80.8	6.3	13.2
1983	100.0	56.5	27.9	15.7	100.0	76.8	5.7	17.2
1985	100.0	54.7	27.4	17.9	100.0	76.9	6.9	16.4
1987	100.0	51.8	29.8	18.5	100.0	75.0	7.6	17.2
1989	100.0	47.6	33.5	19.0	100.0	73.2	9.1	17.8
1991	100.0	55.1	27.4	17.5	100.0	75.0	7.1	17.6
1993	100.0	47.6	33.4	19.0	100.0	72.1	11.1	16.7
1995	100.0	41.4	39.6	19.0	100.0	70.3	12.9	16.8
1997	100.0	40.6	41.4	18.0	100.0	66.3	14.8	19.0
1999	100.0	37.3	43.1	19.5	100.0	65.4	14.1	20.5
2001	100.0	43.6	39.1	17.3	100.0	63.1	13.2	23.7
2003	100.0	44.5	34.0	21.6	100.0	64.9	9.7	25.4
2006	100.0	37.7	45.4	16.8	100.0	61.2	15.4	23.4
2008	100.0	42.0	35.8	22.2	100.0	63.2	11.3	25.5
Research universities								
1973	100.0	60.3	21.8	17.9	100.0	86.6	3.7	9.7
1975	100.0	56.6	29.0	14.4	100.0	82.1	7.7	9.8
1977	100.0	50.5	36.0	13.5	100.0	77.8	9.4	13.3
1979	100.0	47.7	35.6	16.6	100.0	74.0	9.8	16.7
1981	100.0	45.6	38.8	15.6	100.0	74.4	8.9	16.8
1983	100.0	43.3	40.5	16.2	100.0	70.5	8.7	21.2
1985	100.0	43.5	37.2	19.3	100.0	69.1	10.9	20.0
1987	100.0	40.0	40.3	19.7	100.0	67.0	11.4	21.9
1989	100.0	36.3	44.2	19.5	100.0	65.1	13.7	20.9
1991	100.0	41.9	38.4	19.7	100.0	65.9	11.6	22.8
1993	100.0	33.4	46.3	20.3	100.0	64.5	17.5	18.6
1995	100.0	26.7	54.4	18.8	100.0	59.9	19.8	19.9
1997	100.0	26.8	56.4	16.9	100.0	55.2	21.3	23.1
1999	100.0	24.1	57.9	18.0	100.0	54.8	21.0	24.3
2001	100.0	29.8	52.8	17.5	100.0	50.0	22.1	28.0
2003	100.0	31.2	47.6	21.2	100.0	53.7	15.9	30.4
2006	100.0	27.6	56.6	15.9	100.0	54.2	20.1	25.7
2008	100.0	32.6	47.0	20.4	100.0	55.5	15.6	28.9
Other universities and colleges								
1973	100.0	87.1	4.0	8.9	100.0	92.0	0.9	7.1
1975	100.0	86.5	5.9	7.6	100.0	91.8	1.1	6.8
1977	100.0	82.0	7.2	10.8	100.0	92.1	1.6	6.5
1979	100.0	75.6	9.9	14.5	100.0	89.2	1.9	8.7
1981	100.0	75.7	11.1	13.1	100.0	87.9	3.4	9.3
1983	100.0	75.2	9.9	14.9	100.0	84.4	2.7	13.4
1985	100.0	73.5	10.8	15.7	100.0	86.2	2.2	12.1
1987	100.0	73.2	10.6	16.1	100.0	87.4	2.4	10.9
1989	100.0	67.9	14.2	17.9	100.0	84.6	2.4	13.3
1991	100.0	75.0	10.7	14.3	100.0	86.3	2.2	11.2
1993	100.0	69.9	13.2	16.9	100.0	82.6	3.4	14.6
1995	100.0	63.3	17.5	19.2	100.0	81.6	5.1	13.2
1997	100.0	57.9	22.7	19.4	100.0	77.5	7.7	14.9
1999	100.0	55.0	23.4	21.6	100.0	75.3	7.6	16.9
2001	100.0	62.3	20.7	17.0	100.0	76.1	4.5	19.4

Appendix table 5-21

Early career SEH doctorate holders employed in academia, by Carnegie institution type, years since doctorate, and type of position: 1973–2008

(Percent distribution)

	1–3 years				4–7 years			
Carnegie institution type	Total	Full-time faculty	Postdocs	Other positions	Total	Full-time faculty	Postdocs	Other positions
2003	100.0	62.2	15.7	22.1	100.0	75.6	3.8	20.6
2006	100.0	59.3	21.8	18.9	100.0	72.6	7.8	19.6
2008	100.0	59.0	15.4	25.6	100.0	74.2	5.1	20.7

SEH = science, engineering, and health

NOTES: Detail may not add to total because of rounding. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities, excluding those employed part time because they are students or retired. Full-time faculty includes full, associate, and assistant professors plus instructors. Other positions include full-time positions such as research associates, adjunct appointments, lecturers, administrative positions, and part-time positions of all kinds. Institutions designated by 2005 Carnegie classification code. For information on these institutional categories, see The Carnegie Classification of Institutions of Higher Education, http://classifications.carnegiefoundation.org/index.php, accessed 11 February 2011.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-22

Academic SEH doctorate holders with federal support, by degree field, research activity, and type of position: 1973–2008

(Percent)

Field, research activity, and position	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
All fields	44.5	40.5	39.7	38.2	35.5	39.8	31.4	46.5	47.9	48.5	36.1	39.4	38.6	45.7	45.1	45.9	46.9	44.7
Research primary/secondary activity	51.9	48.9	52.3	51.8	50.8	55.9	44.5	56.1	58.1	57.8	46.4	50.0	48.2	56.6	56.4	56.7	58.1	55.8
Full-time faculty	42.0	39.6	38.2	36.2	38.8	41.7	34.3	45.6	46.6	48.0	32.9	35.7	34.7	43.1	43.2	44.6	45.8	43.6
Other full-time positions	60.2	58.8	68.1	58.3	58.5	59.4	49.8	60.6	60.9	58.8	42.5	43.1	47.0	49.9	49.1	47.8	47.3	44.9
Postdocs	87.7	86.3	86.0	82.1	86.3	82.2	78.5	82.1	83.5	84.5	83.1	80.1	74.1	80.3	74.3	78.1	70.7	72.5
Physical sciences	47.3	44.0	43.8	42.8	42.1	46.5	38.2	54.1	57.9	57.0	45.7	49.3	48.6	57.0	55.3	56.5	56.4	53.9
Research primary/secondary activity	56.2	54.1	56.2	57.0	59.0	63.3	52.5	66.2	69.6	68.9	58.6	62.3	59.6	70.1	68.3	69.2	70.0	67.1
Full-time faculty	42.2	38.7	38.3	37.4	37.1	42.6	33.2	49.5	53.7	53.5	38.7	42.9	41.7	52.5	50.8	54.0	53.9	53.7
Other full-time positions	67.0	61.4	62.8	68.3	59.1	64.8	58.1	71.2	70.1	69.1	60.6	57.0	65.5	69.6	65.3	62.7	62.0	54.9
Postdocs	90.3	87.4	86.3	81.9	82.5	81.9	75.4	87.9	84.6	81.2	82.0	85.3	81.2	81.3	83.0	78.8	75.7	67.2
Mathematics	26.9	19.1	19.0	21.7	21.3	30.1	21.5	31.1	33.5	34.5	18.8	22.3	20.9	29.1	31.9	31.1	34.8	32.1
Research primary/secondary activity	32.4	23.6	25.0	27.0	27.0	41.3	26.4	36.9	40.8	40.6	24.8	27.0	26.9	35.3	41.7	38.6	43.4	39.1
Full-time faculty	26.8	18.8	18.0	20.4	21.0	29.9	21.4	30.4	32.8	34.0	18.3	21.1	19.4	28.3	30.1	31.3	34.6	31.8
Other full-time positions	33.6	33.5	46.9	54.6	30.1	43.4	29.1	47.8	52.8	67.2	40.6	34.6	43.9	38.4	48.0	28.2	34.9	34.5
Postdocs	48.8	35.8	55.1	43.2	56.3	66.3	48.5	34.4	53.4	80.4	S	45.3	35.6	54.7	61.9	65.9	64.2	53.7
Computer sciences	NA	NA	NA	34.8	29.7	44.6	45.0	61.7	52.4	49.4	39.9	43.2	41.1	55.6	47.2	48.9	44.0	43.0
Research primary/secondary activity	NA	NA	NA	34.8	26.9	44.9	36.1	55.6	52.8	54.3	41.1	46.0	46.3	59.3	57.9	54.9	53.8	54.6
Full-time faculty	NA	NA	NA	25.0	26.6	38.1	38.0	58.1	52.8	48.2	37.7	40.7	38.8	54.1	46.8	49.7	43.4	43.7
Other full-time positions	NA	NA	NA	S	25.0	67.9	80.6	79.7	47.1	67.7	59.1	62.9	63.1	74.9	47.2	47.7	48.3	43.6
Postdocs	NA	NA	NA	57.1	100.0	100.0	S	88.2	100.0	S	100.0	78.0	97.2	100.0	100.0	95.8	97.9	50.0
Life sciences	59.3	58.9	58.1	55.3	59.6	60.0	53.5	65.3	65.1	65.5	52.2	52.5	51.0	57.9	56.6	57.2	58.0	56.6
Research primary/secondary activity	65.8	64.2	66.8	65.2	63.3	68.3	57.8	72.3	73.1	72.0	62.7	63.6	61.6	69.5	67.9	68.0	69.4	69.3
Full-time faculty	57.1	56.4	54.9	51.4	55.6	57.8	50.5	63.4	62.1	63.7	48.6	49.0	47.6	55.1	55.5	56.9	57.6	55.7
Other full-time positions	68.1	70.9	72.1	64.8	68.5	68.5	58.4	71.0	74.1	67.2	45.8	46.3	46.2	49.9	47.4	47.2	54.4	52.2
Postdocs	88.8	87.7	88.4	84.6	86.0	82.6	78.3	82.1	86.8	84.4	84.1	81.9	77.7	82.6	77.6	81.3	71.5	77.7
Psychology	37.5	36.1	33.2	32.6	32.7	30.1	25.9	31.2	35.5	34.7	25.7	27.6	27.4	32.9	34.3	34.7	36.5	32.1
Research primary/secondary activity	45.4	41.7	41.9	42.7	41.9	42.6	36.6	39.8	46.6	43.5	37.0	39.5	40.5	46.5	48.1	48.2	52.2	43.2
Full-time faculty	36.4	34.1	30.6	28.3	27.5	27.3	23.6	28.3	34.0	32.9	25.2	25.1	24.9	31.5	32.9	34.4	37.4	33.8
Other full-time positions	48.1	41.6	65.4	46.3	52.3	40.3	32.7	37.1	39.6	36.3	23.8	30.7	28.3	30.4	38.2	36.1	31.3	25.7
Postdocs	84.9	86.4	82.5	86.8	92.0	84.2	70.8	88.1	66.3	95.8	71.7	71.4	71.8	71.8	59.2	69.0	69.4	61.1
Social sciences	25.5	23.7	23.3	20.4	21.8	23.7	17.2	27.2	27.7	28.4	14.2	16.1	15.2	22.9	21.5	21.8	23.1	20.5
Research primary/secondary activity	29.5	26.8	30.6	29.4	25.5	31.4	20.4	30.0	31.1	31.2	17.3	20.9	17.7	27.2	26.5	27.1	28.9	25.6
Full-time faculty	25.2	23.7	22.6	19.0	21.2	22.5	16.2	27.1	27.4	27.8	13.4	15.4	14.8	22.5	21.3	21.6	23.6	19.8
Other full-time positions	36.3	31.6	35.3	37.3	32.7	34.0	26.6	36.2	33.8	32.7	22.1	22.6	22.7	29.3	29.4	28.7	27.4	23.8
Postdocs	57.6	54.6	54.7	84.9	47.9	64.6	54.7	27.4	57.6	52.5	88.1	68.5	33.9	65.0	35.8	42.9	22.9	42.8

Appendix table 5-22

Academic SEH doctorate holders with federal support, by degree field, research activity, and type of position: 1973–2008

(Percent)

Field, research activity, and position	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006	2008
Engineering	53.5	50.6	51.1	49.1	51.0	54.7	43.0	57.1	56.3	63.2	42.6	49.9	49.7	56.9	56.8	57.4	58.7	58.8
Research primary/secondary activity	58.4	57.3	60.5	57.5	59.2	61.5	45.0	63.1	63.8	68.3	49.5	57.9	55.4	62.5	64.1	64.7	67.3	67.5
Full-time faculty	52.5	49.9	49.3	49.5	49.8	54.7	42.2	56.0	55.2	62.9	40.9	48.4	46.4	55.2	56.7	56.1	57.8	57.6
Other full-time positions	65.5	67.3	86.6	53.0	60.7	63.1	44.3	76.4	71.2	66.8	59.5	56.7	67.9	64.2	61.8	66.8	56.4	63.7
Postdocs	84.7	84.3	74.7	51.1	98.9	82.7	91.4	74.8	76.0	90.0	65.7	72.7	62.1	80.4	56.8	73.8	76.8	72.9

NA = not available; S = data suppressed for reasons of confidentiality and/or reliability

SEH = science, engineering, and health

NOTES: Data for 1985 and 1993–97 not comparable with other years and understate degree of federal support. In 1985 and 1993–97, federal support question asks whether work performed during week of April 15 was supported by government; in other years, question pertains to work conducted over course of entire year. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities. Full-time faculty includes full, associate, and assistant professors plus instructors. Other full-time positions include positions such as research associates, adjunct appointments, lecturers, and administrative positions. Research includes basic or applied research, development, and design. Total includes part-time employment not shown separately, but excludes those employed part-time because they are students or retired. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-23

SEH doctorate holders and full-time faculty with federal support, by degree field and Carnegie classification of employer: 2008

(Percent)

Position and field	All academic institutions	Research universities (very high research activity)	Research universities (high research activity)	Doctoral/ research universities	Masters-granting universities	Baccalaureate colleges	Medical schools	Other universities and colleges
All S&E doctorate holders employed in academic institutions	44.7	62.6	46.9	27.9	19.6	18.9	64.2	16.3
Physical sciences	53.9	76.0	64.7	24.0	31.1	26.9	41.7	16.1
Mathematics	32.1	52.4	27.9	32.5	18.5	7.5	64.8	5.5
Computer sciences	43.0	63.4	57.0	17.7	17.8	21.8	S	S
Life sciences	56.6	70.0	56.6	38.9	26.6	30.4	67.2	24.4
Psychology	32.1	50.9	41.2	16.6	11.6	10.7	65.1	8.8
Social sciences	20.5	33.4	17.9	20.0	9.3	10.1	49.2	9.5
Engineering	58.8	71.6	59.7	54.7	25.3	26.1	63.8	26.9
Full-time faculty	43.6	64.0	47.5	28.2	20.2	18.6	64.4	14.8
Physical sciences	53.7	83.6	65.1	27.2	32.0	26.3	49.3	14.9
Mathematics	31.8	56.0	28.2	31.3	18.6	8.1	59.1	2.2
Computer sciences	43.7	69.4	60.4	14.6	17.9	24.1	S	S
Life sciences	55.7	73.1	56.7	40.1	26.9	28.6	66.8	21.1
Psychology	33.8	52.9	45.6	17.7	13.1	10.8	70.1	11.3
Social sciences	19.8	34.0	17.3	17.6	8.7	9.9	46.7	8.8
Engineering	57.6	70.4	62.7	56.3	26.3	24.6	45.9	19.1

S = data suppressed for reasons of confidentiality and/or reliability

SEH = science, engineering, and health

NOTES: Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities, excluding those employed part time because they are students or retired. Full-time faculty includes full, associate, and assistant professors plus instructors. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences. Institutions designated by 2005 Carnegie classification code. Engineering schools included in masters-granting universities. For information on these institutional categories, see The Carnegie Classification of Institutions of Higher Education, http://classifications.carnegiefoundation.org/index.php, accessed 11 February 2011.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-24

SEH doctorate holders employed in academia with federal support, by degree field, years since doctorate, and type of position: 1973–2008

(Percent)

	1–3 years since doctorate				4–7 years since doctorate			
Field	All positions	Full-time faculty	Other full-time	Postdocs	All positions	Full-time faculty	Other full-time	Postdocs
All fields								
1973	44.1	32.9	72.5	87.1	47.1	42.3	55.3	80.8
1975	44.2	31.1	58.3	87.8	42.5	40.0	66.2	83.2
1977	44.5	28.8	61.2	87.0	42.2	37.8	71.6	85.3
1979	47.2	29.6	58.9	86.6	43.0	37.4	67.3	83.1
1981	51.0	30.8	63.1	87.9	46.5	41.2	64.8	86.9
1983	50.2	33.7	59.0	86.1	50.1	45.3	68.1	84.8
1985	43.2	23.9	59.3	79.1	42.4	36.2	63.3	81.0
1987	53.3	36.7	56.1	82.0	54.8	49.7	71.6	84.2
1989	57.2	38.7	58.7	84.7	57.8	53.5	70.0	89.1
1991	53.6	38.3	56.6	83.8	57.4	53.4	66.6	88.7
1993	43.5	20.8	43.7	80.7	41.1	34.0	46.8	87.3
1995	47.0	23.2	40.1	78.5	43.9	36.1	52.0	86.0
1997	45.3	21.0	42.4	74.1	41.9	33.7	49.6	78.5
1999	52.8	28.8	45.5	79.5	47.4	41.4	46.6	83.3
2001	48.4	29.4	45.5	73.4	46.1	39.8	50.7	78.6
2003	48.4	30.5	45.9	77.3	47.5	42.3	55.3	81.1
2006	51.7	29.5	50.7	68.7	47.2	41.7	46.5	76.0
2008	46.5	27.4	49.0	71.0	43.5	38.4	44.8	76.6
Physical sciences								
1973	58.4	31.2	78.3	88.5	44.8	39.5	72.1	98.5
1975	64.1	27.9	60.7	93.2	43.8	36.6	77.3	85.1
1977	63.2	28.9	95.7	88.5	51.6	40.5	77.5	92.4
1979	59.1	25.5	73.7	84.7	52.0	39.0	72.1	91.7
1981	69.3	25.2	94.3	88.1	57.9	49.4	84.5	97.9
1983	70.4	33.8	82.7	88.2	66.2	56.3	85.3	84.8
1985	64.3	18.7	86.6	84.6	50.8	35.7	78.7	91.4
1987	80.9	66.7	69.9	90.2	68.7	56.0	97.1	93.1
1989	77.9	49.2	82.1	88.0	72.4	61.9	89.0	90.6
1991	69.9	44.1	78.8	87.2	67.2	55.1	88.5	100.0
1993	63.1	21.3	64.9	84.5	58.2	43.9	70.0	94.5
1995	62.8	21.0	41.9	84.1	53.9	37.8	60.2	86.7
1997	64.2	30.0	71.4	77.7	53.4	41.2	67.9	96.5
1999	68.0	39.3	69.9	80.5	57.0	46.7	65.5	89.4
2001	62.2	31.0	55.4	80.9	54.1	39.4	73.9	83.7
2003	62.3	40.1	59.7	79.9	54.8	50.6	63.1	70.2
2006	67.5	29.3	66.6	76.8	57.6	52.8	64.2	72.2
2008	55.5	40.6	62.4	65.0	53.6	48.5	58.4	77.3
Mathematics								
1973	17.5	16.3	58.5	38.7	29.0	29.4	15.4	100.0
1975	14.5	13.0	37.6	28.3	18.9	18.5	31.8	57.9
1977	16.2	12.2	45.9	56.4	19.2	17.6	44.0	52.2
1979	24.8	22.5	52.9	42.5	32.3	30.2	64.9	46.9
1981	10.8	9.5	S	44.1	29.7	27.6	62.7	81.5
1983	31.8	29.8	S	73.4	39.8	39.8	51.3	100.0
1985	14.7	14.1	S	34.6	27.0	26.8	S	100.0
1987	15.6	7.4	S	37.6	34.9	35.5	7.3	S
1989	29.1	24.9	S	52.4	39.0	39.1	S	100.0
1991	39.8	35.8	54.9	80.4	28.3	28.6	S	S
1993	15.7	14.8	0.0	100.0	15.2	14.0	100.0	S
1995	17.7	13.4	0.0	40.0	25.6	19.6	S	70.6
1997	14.9	3.5	29.1	32.9	16.7	14.9	S	42.2
1999	36.4	24.0	S	58.7	32.2	33.5	S	47.2
2001	34.6	21.6	34.6	56.3	42.2	38.6	62.4	100.0
2003	34.1	24.1	18.5	67.8	34.8	37.1	S	54.4
2006	37.0	19.1	S	58.1	32.0	29.7	24.8	79.3
2008	27.7	17.8	24.9	54.1	29.6	29.9	57.0	46.1

Appendix table 5-24

SEH doctorate holders employed in academia with federal support, by degree field, years since doctorate, and type of position: 1973–2008

(Percent)

	1–3 years since doctorate				4–7 years since doctorate			
Field	All positions	Full-time faculty	Other full-time	Postdocs	All positions	Full-time faculty	Other full-time	Postdocs
Computer sciences								
1973	NA	NA	NA	NA	NA	NA	NA	NA
1975	NA	NA	NA	NA	NA	NA	NA	NA
1977	NA	NA	NA	NA	NA	NA	NA	NA
1979	34.8	25.0	S	57.1	S	S	S	S
1981	27.7	24.1	25.0	100.0	52.4	52.4	S	S
1983	45.7	35.1	60.0	100.0	43.5	40.4	92.3	S
1985	54.1	46.4	77.2	S	36.7	31.0	100.0	S
1987	47.2	46.3	42.0	100.0	73.2	66.3	100.0	S
1989	33.0	29.3	50.0	100.0	70.8	78.0	35.7	100.0
1991	23.1	23.1	25.1	S	66.2	63.9	100.0	100.0
1993	44.7	39.5	100.0	100.0	30.7	30.9	27.3	100.0
1995	38.2	31.4	61.1	75.9	38.1	38.3	23.9	S
1997	40.5	29.7	74.3	97.0	40.4	37.7	75.6	S
1999	59.7	50.6	77.5	100.0	56.6	56.5	85.9	S
2001	31.4	25.9	44.2	100.0	49.2	47.3	53.2	S
2003	41.7	32.6	22.2	95.8	43.6	40.8	59.5	S
2006	35.5	10.5	55.6	100.0	44.8	42.4	66.8	S
2008	36.6	30.0	69.9	48.3	45.8	47.0	43.6	S
Life sciences								
1973	60.8	48.3	77.0	89.0	59.7	57.3	75.1	89.2
1975	61.8	46.4	72.5	87.6	60.1	57.6	76.2	87.5
1977	61.6	38.1	70.4	88.9	59.6	56.6	73.3	90.2
1979	65.9	40.6	75.8	85.9	57.3	51.4	76.5	84.2
1981	71.8	51.7	76.5	88.1	64.0	58.8	70.8	85.7
1983	68.2	52.8	65.1	84.7	67.1	64.5	72.6	83.7
1985	59.6	34.1	67.2	78.9	61.1	55.6	72.3	81.7
1987	70.2	53.5	73.8	82.1	71.4	68.3	81.0	83.0
1989	74.5	50.2	79.3	89.1	71.9	67.5	79.1	89.3
1991	68.1	49.9	60.0	83.0	70.6	66.8	79.2	86.3
1993	61.2	32.2	44.8	81.9	55.7	46.4	52.0	86.7
1995	58.5	30.3	35.3	80.3	54.0	43.9	47.4	87.4
1997	58.3	23.0	42.2	77.5	52.3	42.4	48.4	78.8
1999	65.0	35.0	46.2	82.4	57.2	47.2	49.3	83.0
2001	59.2	34.2	39.0	76.8	56.4	48.9	49.5	78.8
2003	62.5	37.1	51.7	81.8	57.3	50.3	56.9	83.0
2006	56.6	33.5	57.7	67.1	57.5	49.7	49.6	77.0
2008	59.9	36.1	55.4	75.5	54.5	44.8	56.8	83.7
Psychology								
1973	34.3	28.5	59.7	95.3	37.8	36.9	52.1	71.4
1975	35.0	25.5	53.7	88.5	35.3	34.9	32.8	71.2
1977	35.3	26.8	71.7	86.0	31.5	27.9	60.5	73.0
1979	35.2	22.5	22.2	95.5	39.3	31.4	76.5	87.6
1981	46.5	33.2	41.6	93.4	34.7	28.6	54.5	88.2
1983	31.2	19.8	34.2	89.3	32.3	28.2	37.1	87.2
1985	30.6	15.6	44.5	70.1	29.2	26.2	38.7	72.5
1987	37.5	28.5	28.8	82.7	33.2	25.6	40.3	97.9
1989	41.7	34.6	36.1	64.9	36.1	36.7	33.1	63.1
1991	35.9	23.9	24.3	100.0	38.8	38.6	24.8	86.9
1993	21.6	12.0	27.5	61.6	23.2	24.6	15.5	48.2
1995	33.5	17.5	40.6	63.5	26.1	21.8	36.0	82.1
1997	34.5	24.2	19.0	70.9	29.5	22.3	36.4	77.3
1999	33.4	22.4	29.9	63.6	35.6	34.7	23.8	100.0
2001	35.5	20.0	41.7	64.1	34.9	32.6	42.7	45.6
2003	31.8	28.4	33.0	57.8	37.5	32.4	46.9	100.0
2006	52.1	42.7	35.9	70.7	35.9	37.1	23.8	88.6
2008	35.7	26.7	29.9	67.6	26.8	28.1	18.7	39.7

Appendix table 5-24

SEH doctorate holders employed in academia with federal support, by degree field, years since doctorate, and type of position: 1973–2008

(Percent)

	1–3 years since doctorate				4–7 years since doctorate			
Field	All positions	Full-time faculty	Other full-time	Postdocs	All positions	Full-time faculty	Other full-time	Postdocs
Social sciences								
1973	24.7	23.7	53.7	23.9	29.0	28.7	34.1	93.1
1975	23.1	22.5	29.0	61.7	26.2	26.2	42.4	39.2
1977	24.8	24.2	12.3	61.4	24.6	23.2	56.3	48.0
1979	26.6	22.8	37.6	97.5	20.8	19.2	52.2	70.8
1981	20.4	16.3	48.7	56.0	24.3	24.3	25.2	60.0
1983	28.2	23.6	49.0	77.9	28.1	23.6	57.5	93.8
1985	15.6	12.3	27.8	44.4	19.3	15.7	51.0	41.0
1987	22.5	20.9	34.5	21.4	29.9	27.7	54.0	S
1989	25.6	24.7	24.3	41.9	33.2	31.6	51.4	83.9
1991	21.7	19.5	38.8	31.7	36.6	33.8	44.2	100.0
1993	11.2	7.2	25.4	88.2	14.9	14.4	21.9	100.0
1995	15.9	10.7	28.8	80.8	17.8	16.0	41.8	49.8
1997	14.1	10.9	26.8	33.7	17.4	15.6	26.3	57.7
1999	21.1	15.2	26.1	77.1	22.8	21.7	31.3	48.1
2001	20.5	21.2	24.0	41.8	21.2	20.3	28.0	63.3
2003	18.5	14.7	36.9	38.5	22.5	22.1	32.0	55.9
2006	19.4	15.9	37.1	22.4	21.5	21.9	26.8	4.5
2008	16.9	13.3	22.4	43.4	19.9	19.7	20.2	27.3
Engineering								
1973	50.8	45.2	74.2	87.1	50.7	49.9	78.6	S
1975	53.7	48.9	65.8	83.8	54.4	53.1	82.3	S
1977	55.2	47.2	84.8	72.9	52.9	52.3	64.8	64.9
1979	55.5	48.5	71.9	99.4	55.1	58.8	33.8	16.9
1981	54.4	43.2	100.0	100.0	65.6	61.9	83.9	S
1983	47.1	36.7	58.2	98.3	64.3	62.2	99.0	S
1985	43.9	37.8	66.1	94.5	47.6	46.3	66.4	S
1987	53.3	43.7	79.2	75.7	65.5	64.2	97.6	100.0
1989	56.0	48.9	71.9	73.3	70.8	68.6	91.8	100.0
1991	66.6	62.1	67.7	89.9	73.2	73.0	79.7	S
1993	43.4	32.1	65.1	68.7	51.2	49.4	65.9	70.3
1995	51.1	38.5	50.3	72.6	62.1	60.3	72.5	86.5
1997	50.0	35.5	66.4	66.3	51.3	48.4	62.5	60.5
1999	58.5	40.0	70.9	78.1	55.5	56.4	44.8	94.2
2001	54.9	49.1	77.0	57.1	58.3	59.2	54.9	74.2
2003	56.4	48.2	60.6	71.2	63.2	60.2	72.8	100.0
2006	61.2	45.5	47.4	73.4	63.7	61.3	64.6	87.8
2008	57.3	38.6	74.0	72.8	61.9	58.2	68.3	71.7

NA = not available; S = data suppressed for reasons of confidentiality and/or reliability

SEH = science, engineering, and health

NOTES: Data for 1985 and 1993–97 not comparable with other years and understate degree of federal support. In 1985 and 1993–97, federal support question asks whether work performed during week of April 15 supported by government; in other years, question pertains to work conducted over course of entire year. Academic employment limited to U.S. doctorate holders employed at 2- or 4-year colleges or universities. Full-time faculty includes full, associate, and assistant professors plus instructors. Other full-time positions include positions such as research associates, adjunct appointments, lecturers, and administrative positions. Total excludes those employed part time because they are students or retired. Physical sciences include earth, atmospheric, and ocean sciences; life sciences include biological, agricultural, environmental, and health sciences.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of the Survey of Doctorate Recipients.

Science and Engineering Indicators 2012

Appendix table 5-25
Regions and countries/economies in S&E publications data

United States
European Union
- Austria
- Belgium
- Bulgaria
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- United Kingdom

Other Western Europe
- Albania
- Andorra
- Bosnia and Herzegovina
- Croatia
- Iceland
- Liechtenstein
- Macedonia
- Monaco
- Montenegro
- Norway
- San Marino
- Serbia
- Serbia and Montenegro
- Switzerland
- Turkey
- Vatican City
- Yugoslavia

Asia
- China
- Japan
- Asia-8
  - India
  - Indonesia
  - Malaysia

Asia-8 (continued)
- Philippines
- Singapore
- South Korea
- Taiwan
- Thailand

Other Asia
- Afghanistan
- Bangladesh
- Bhutan
- Brunei
- Burma
- Cambodia
- Laos
- Maldives
- Mongolia
- Nepal
- North Korea
- Pakistan
- Sri Lanka
- Vietnam

Other former USSR
- Armenia
- Azerbaijan
- Belarus
- Georgia
- Kazakhstan
- Kyrgyzstan
- Moldova
- Russia
- Tajikistan
- Turkmenistan
- Ukraine
- Uzbekistan

Near East/North Africa
- Algeria
- Bahrain
- Egypt
- Iran
- Iraq
- Israel
- Jordan
- Kuwait
- Lebanon
- Libya
- Morocco
- North Yemen
- Oman
- Qatar
- Saudi Arabia
- South Yemen
- Syria
- Tunisia

Near East/North Africa (continued)
- United Arab Emirates
- Yemen

Central/South America
- Antigua and Barbuda
- Argentina
- Bahamas
- Barbados
- Belize
- Bolivia
- Brazil
- Chile
- Colombia
- Costa Rica
- Cuba
- Dominica
- Dominican Republic
- Ecuador
- El Salvador
- Grenada
- Guatemala
- Guyana
- Haiti
- Honduras
- Jamaica
- Mexico
- Nicaragua
- Panama
- Paraguay
- Peru
- St Kitts and Nevis
- St Lucia
- St Vincent
- Suriname
- Trinidad and Tobago
- Uruguay
- Venezuela
- West Indies Assoc States

Sub-Saharan Africa
- Angola
- Benin
- Botswana
- Burkina Faso
- Burundi
- Cameroon
- Cape Verde
- Central African Republic
- Chad
- Comoros
- Congo (Brazzaville)
- Congo (Kinshasa)
- Côte d'Ivoire
- Djibouti

Sub-Saharan Africa (continued)
- Equatorial Guinea
- Eritrea
- Ethiopia
- Gabon
- Gambia
- Ghana
- Guinea
- Guinea-Bissau
- Kenya
- Lesotho
- Liberia
- Madagascar
- Malawi
- Mali
- Mauritania
- Mauritius
- Mozambique
- Namibia
- Niger
- Nigeria
- Rwanda
- São Tomé and Príncipe
- Senegal
- Senegambia
- Seychelles
- Sierra Leone
- Somalia
- South Africa
- Sudan
- Swaziland
- Tanzania
- Togo
- Uganda
- Zambia
- Zimbabwe

Other
- Australia
- Canada
- Fiji
- Kiribati
- Marshall Islands
- Micronesia
- Nauru
- New Zealand
- Niue
- Palau
- Papua New Guinea
- Solomon Islands
- Tonga
- Tuvalu
- Vanuatu
- Western Samoa

USSR = Union of Soviet Socialist Republics

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, Science Citation Index and Social Sciences Citation Index, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-26
Fields and subfields of S&E publications data

Engineering	Biological sciences	Medical sciences (continued)
Aerospace engineering	General biomedical research	Urology
Chemical engineering	Miscellaneous biomedical research	Nephrology
Civil engineering	Biophysics	Allergy
Electrical engineering	Botany	Fertility
Mechanical engineering	Anatomy and morphology	Geriatrics
Metals and metallurgy	Cell biology, cytology, and histology	Embryology
Materials engineering	Ecology	Tropical medicine
Industrial engineering	Entomology	Addictive diseases
Operations research and management	Immunology	Microscopy
Biomedical engineering	Microbiology	Other life sciences
Nuclear technology	Nutrition and dietetics	Speech/language pathology and audiology
General engineering	Parasitology	Nursing
Miscellaneous engineering and technology	Genetics and heredity	Rehabilitation
Astronomy	Pathology	Health policy and services
Chemistry	Pharmacology	Psychology
Analytical chemistry	Physiology	Clinical psychology
Organic chemistry	General zoology	Behavioral and comparative psychology
Physical chemistry	Miscellaneous zoology	Developmental and child psychology
Polymers	General biology	Experimental psychology
General chemistry	Miscellaneous biology	Human factors
Applied chemistry	Biochemistry and molecular biology	Social psychology
Inorganic and nuclear chemistry	Virology	General psychology
Physics	Medical sciences	Miscellaneous psychology
Acoustics	Endocrinology	Psychoanalysis
Chemical physics	Neurology and neurosurgery	Social sciences
Nuclear and particle physics	Dentistry	Economics
Optics	Environmental and occupational health	International relations
Solid state physics	Public health	Political science and public administration
Applied physics	Surgery	Demography
Fluids and plasmas	General and internal medicine	Sociology
General physics	Ophthalmology	Anthropology and archaeology
Miscellaneous physics	Pharmacy	Area studies
Geosciences	Veterinary medicine	Criminology
Meteorology and atmospheric sciences	Miscellaneous clinical medicine	Geography and regional sciences
Geology	Anesthesiology	Planning and urban studies
Earth and planetary sciences	Cardiovascular system	General social sciences
Oceanography and limnology	Cancer	Miscellaneous social sciences
Marine biology and hydrobiology	Gastroenterology	Science studies
Environmental sciences	Hematology	Gerontology and aging
Mathematics	Obstetrics and gynecology	Social studies of medicine
Applied mathematics	Otorhinolaryngology	
Probability and statistics	Pediatrics	
General mathematics	Psychiatry	
Miscellaneous mathematics	Radiology and nuclear medicine	
Computer sciences	Dermatology and venereal disease	
Agricultural sciences	Orthopedics	
Dairy and animal sciences	Arthritis and rheumatism	
Agricultural and food sciences	Respiratory system	

SOURCES: The Patent Board™, and National Science Foundation, National Center for Science and Engineering Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR) database system, http://webcaspar.nsf.gov.

Science and Engineering Indicators 2012

Appendix table 5-27

S&E articles in all fields, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	564,644.7	581,760.0	588,488.0	602,430.0	610,203.0	630,452.0	629,361.0	638,381.0	661,752.6	688,668.0	710,289.0	740,388.0	758,576.0	783,325.8	788,347.0
United States	193,336.9	193,161.2	189,751.9	190,431.4	188,004.1	192,743.0	190,593.6	190,496.1	196,445.3	202,097.3	205,564.6	209,272.3	209,898.0	212,883.0	208,600.8
European Union	195,896.6	203,948.0	208,899.6	214,764.3	217,185.6	222,687.6	220,408.2	221,720.5	224,854.1	230,486.6	235,121.1	242,847.5	245,972.8	249,956.3	248,655.6
Austria	3,425.0	3,646.2	3,947.4	4,074.0	4,157.8	4,257.1	4,479.5	4,460.0	4,692.1	4,716.0	4,567.9	4,614.3	4,827.2	4,815.6	4,832.2
Belgium	5,171.6	5,554.4	5,531.8	5,687.7	5,712.5	5,735.4	5,827.0	6,036.7	6,302.3	6,625.4	6,847.0	6,735.9	7,077.8	7,297.6	7,217.6
Bulgaria	958.6	954.1	985.4	929.0	867.3	909.3	746.1	814.8	774.7	807.8	766.5	766.8	801.4	761.4	735.4
Cyprus	43.0	44.5	56.6	54.7	49.3	59.0	67.9	78.5	75.7	87.3	91.3	119.9	139.1	169.0	195.2
Czech Republic	1,954.5	2,185.5	2,304.4	2,263.5	2,359.9	2,481.3	2,570.5	2,746.6	2,820.4	3,178.4	3,172.1	3,565.7	3,689.7	3,936.2	3,946.2
Denmark	4,330.1	4,368.7	4,597.4	4,717.9	4,783.3	4,882.9	4,915.2	4,760.7	5,005.8	5,009.0	5,047.5	5,133.1	5,240.6	5,303.5	5,306.1
Estonia	215.1	270.4	229.8	304.9	340.6	327.5	346.0	321.2	354.6	389.1	439.0	456.9	502.3	477.0	518.1
Finland	4,077.0	4,329.6	4,452.2	4,513.4	4,719.4	4,843.8	4,930.0	4,904.3	4,899.4	5,018.7	4,813.4	5,088.0	4,989.6	5,112.4	4,949.1
France	28,847.5	29,746.0	30,321.9	31,393.1	31,345.4	31,427.1	30,597.9	30,530.9	30,303.5	29,892.2	30,339.9	31,218.5	30,751.6	31,981.8	31,748.3
Germany	37,645.0	39,213.4	41,414.6	42,955.0	42,962.9	43,509.1	42,674.2	42,436.0	42,229.9	43,013.8	44,194.1	44,543.8	44,428.2	44,913.1	45,002.8
Greece	2,058.1	2,249.3	2,434.0	2,611.3	2,625.9	2,976.1	3,203.8	3,447.1	3,586.9	3,928.3	4,292.0	4,874.1	4,981.7	4,953.4	4,881.0
Hungary	1,763.8	1,813.1	1,991.5	2,201.9	2,199.6	2,358.4	2,396.9	2,322.7	2,450.7	2,408.6	2,618.5	2,592.2	2,452.1	2,554.1	2,397.2
Ireland	1,217.7	1,253.8	1,330.8	1,520.5	1,458.9	1,580.9	1,588.3	1,628.9	1,681.1	1,935.4	2,120.4	2,302.6	2,498.4	2,661.9	2,798.5
Italy	17,880.5	19,233.8	19,401.6	20,056.0	20,327.1	21,409.4	22,090.9	22,482.6	23,764.5	24,759.1	24,662.9	25,802.9	26,561.0	26,853.7	26,755.3
Latvia	162.9	143.5	159.3	161.6	179.3	149.5	164.4	174.7	132.6	157.3	134.0	120.0	146.8	160.7	161.6
Lithuania	178.9	188.6	215.8	257.1	273.9	262.0	283.3	334.5	307.9	404.3	406.1	515.2	457.1	515.0	387.6
Luxembourg	27.8	17.9	33.6	32.1	28.9	40.1	45.5	39.4	38.4	61.7	58.8	65.0	73.4	111.2	136.8
Malta	18.2	11.5	22.6	20.2	18.6	17.7	20.6	23.4	38.9	21.0	25.5	20.1	22.5	44.9	38.2
Netherlands	12,089.4	12,412.8	12,444.3	12,500.4	12,168.2	12,340.7	12,117.4	12,481.3	12,658.0	13,240.7	13,894.1	13,989.7	14,215.7	14,637.2	14,866.0
Poland	4,549.4	4,506.9	4,565.5	4,785.8	5,100.2	5,505.6	5,629.4	6,019.3	6,581.8	6,672.3	6,853.8	7,232.3	7,137.5	7,529.1	7,355.4
Portugal	990.3	1,096.7	1,255.0	1,418.4	1,710.7	1,879.5	2,081.2	2,331.4	2,423.3	2,853.1	2,911.5	3,628.5	3,424.2	3,856.8	4,156.5
Romania	678.0	823.5	916.9	847.0	917.2	970.9	926.9	965.2	874.9	938.0	887.8	1,014.8	1,252.3	1,397.9	1,366.6
Slovakia	1,079.2	1,140.2	1,069.7	1,140.4	979.4	978.0	922.9	954.4	897.9	1,070.2	921.8	1,006.9	970.7	1,084.0	1,000.4
Slovenia	434.3	476.6	603.2	622.9	707.8	891.6	850.6	848.3	950.9	928.7	1,035.4	1,062.7	1,282.8	1,304.9	1,234.2
Spain	11,315.9	12,495.1	13,075.3	13,719.5	14,513.7	14,795.2	15,323.0	16,062.3	16,099.3	17,025.0	18,345.5	19,525.8	20,993.3	21,509.1	21,542.6
Sweden	9,287.2	9,557.9	9,655.1	9,835.0	9,889.7	9,883.4	10,022.3	9,872.2	9,676.5	9,853.6	10,016.5	10,105.3	9,917.5	9,681.7	9,477.8
United Kingdom	45,497.6	46,213.9	45,883.9	46,141.3	46,787.9	48,216.1	45,586.5	44,642.9	45,232.1	45,491.6	45,658.1	46,746.5	47,138.2	46,333.1	45,648.8
Other Western Europe	13,198.8	14,172.3	14,730.8	15,315.7	15,927.8	16,589.6	16,811.3	17,705.5	19,005.4	21,426.5	22,360.6	23,480.4	24,479.5	24,796.5	24,984.7
Albania	15.1	18.6	10.4	14.5	15.9	6.7	10.3	16.8	8.9	7.3	9.0	10.2	12.3	13.5	8.0
Andorra	0.0	0.0	0.5	0.0	0.2	0.5	0.6	1.0	0.5	0.7	0.6	1.5	2.7	0.1	0.3
Bosnia and Herzegovina	10.2	6.6	10.7	13.0	9.5	9.6	16.8	9.1	18.5	14.0	26.1	29.5	53.7	41.0	63.8
Croatia	600.0	640.3	580.5	624.6	647.1	678.0	696.4	719.1	798.3	868.0	953.0	985.7	1,101.6	1,188.3	1,164.1
Iceland	155.9	145.3	142.6	174.2	143.2	150.2	177.2	195.2	195.0	190.9	206.2	232.3	232.0	232.8	259.1
Liechtenstein	12.8	8.9	11.7	5.3	16.6	11.1	6.2	6.8	11.7	12.5	12.0	13.2	14.4	16.5	13.0
Macedonia	30.8	39.1	53.8	37.1	48.8	56.3	67.7	54.2	57.0	52.6	42.8	41.5	57.5	46.4	57.2
Monaco	13.6	20.7	13.3	20.0	22.7	10.8	20.1	18.1	26.6	26.3	23.5	18.6	14.1	15.7	23.4
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6	14.7	19.7	10.6
Norway	2,920.0	2,931.8	2,964.9	3,038.7	3,042.5	3,136.0	3,214.6	3,099.9	3,130.5	3,370.3	3,651.2	3,896.2	4,081.1	4,299.9	4,440.0
San Marino	0.0	0.5	0.8	0.8	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.6	0.8	0.3
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	435.3	1,057.0	1,043.0	1,172.6
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	849.3	395.3	NA	NA	NA
Switzerland	7,220.0	7,568.4	7,863.9	7,983.9	8,194.5	8,503.8	7,949.9	7,878.8	8,133.9	8,674.1	8,766.8	9,233.1	9,194.6	9,334.4	9,469.2
Turkey	1,714.7	2,228.0	2,480.7	2,795.0	3,222.7	3,484.1	4,150.9	5,226.1	6,038.8	7,434.3	7,816.5	8,180.5	8,640.7	8,543.0	8,300.9
Vatican City	1.3	1.1	2.7	2.0	1.1	0.9	1.0	0.8	1.3	3.0	3.5	0.8	1.5	1.4	2.2

Appendix table 5-27

S&E articles in all fields, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	504.3	563.1	594.5	606.6	562.7	541.6	499.7	479.7	584.2	772.1	NA	NA	NA	NA	NA
Other former USSR	22,870.8	22,536.8	21,927.2	20,919.1	20,919.6	20,881.9	19,162.0	19,333.4	18,475.7	18,256.7	17,834.5	16,737.0	16,994.1	16,930.6	16,824.8
Armenia	166.0	197.9	172.3	165.9	163.9	175.4	156.7	172.8	184.1	191.2	179.9	179.5	174.8	190.7	164.2
Azerbaijan	139.1	118.2	85.8	92.0	65.7	78.6	67.9	78.1	110.3	110.1	115.9	116.4	96.8	100.2	150.9
Belarus	650.2	567.8	596.3	583.4	578.6	572.3	502.7	492.3	520.6	496.8	490.6	446.7	411.5	387.0	380.2
Georgia	118.2	126.6	135.9	127.8	131.9	134.3	115.8	127.9	111.5	150.4	144.6	177.7	129.4	137.1	128.6
Kazakhstan	157.6	141.4	115.3	128.5	104.6	112.8	113.6	122.6	119.0	104.7	96.0	86.0	105.5	76.7	98.7
Kyrgyzstan	13.2	12.3	14.4	17.6	13.9	18.4	17.6	20.3	11.4	11.7	15.0	17.9	16.1	16.5	15.4
Moldova	137.1	119.4	108.3	92.1	93.4	98.7	72.7	73.6	83.1	67.6	89.1	85.3	69.8	73.2	79.8
Russia	18,603.5	18,553.3	18,133.4	17,165.6	17,145.4	17,180.1	15,657.9	15,847.2	15,147.3	14,921.8	14,424.5	13,561.6	13,953.7	13,970.2	14,016.2
Tajikistan	35.9	22.8	25.3	16.1	26.0	16.2	21.1	29.1	18.3	19.5	16.2	15.9	21.7	13.5	12.0
Turkmenistan	7.3	7.3	6.0	2.7	0.8	4.9	2.8	3.2	2.3	1.0	1.2	1.1	1.6	0.3	0.5
Ukraine	2,515.8	2,420.2	2,265.2	2,283.9	2,354.9	2,267.6	2,238.0	2,182.8	1,993.4	2,011.5	2,104.5	1,909.6	1,846.9	1,843.6	1,638.9
Uzbekistan	326.9	249.5	269.0	243.5	240.6	222.5	195.2	183.6	174.5	170.3	157.1	139.2	166.2	121.5	139.2
Asia	76,921.6	83,950.7	88,144.1	94,470.3	100,316.7	107,232.6	111,681.1	116,294.8	126,600.5	136,624.4	146,061.9	158,952.5	167,420.1	180,261.9	189,841.4
Afghanistan	1.0	0.0	0.0	0.2	1.0	0.0	0.0	0.0	1.2	2.8	3.9	4.0	3.8	6.6	11.7
Bangladesh	162.1	156.3	136.3	141.5	166.6	154.8	181.0	150.6	200.1	186.7	195.1	218.6	235.3	237.4	259.6
Bhutan	2.3	0.0	1.0	1.5	0.5	1.3	1.2	2.8	2.3	5.4	1.9	8.8	3.4	3.2	6.9
Brunei	9.5	8.3	9.7	15.2	21.3	22.2	10.3	11.5	19.2	14.8	13.0	10.7	16.2	11.9	10.6
Burma	15.6	5.2	4.3	5.3	9.9	7.3	5.8	6.7	6.4	8.7	11.2	15.5	13.4	10.0	10.2
Cambodia	3.7	2.5	4.3	3.7	7.2	5.5	7.2	10.5	12.7	18.5	21.0	26.1	25.5	23.4	26.9
China	9,061.4	10,526.1	12,171.6	13,781.3	15,714.7	18,478.7	21,134.1	23,269.1	28,767.9	34,845.6	41,603.6	49,575.1	56,811.2	65,300.5	74,019.2
India	9,370.1	9,752.8	9,617.6	9,944.8	10,190.4	10,276.4	10,800.5	11,664.7	12,462.2	13,368.7	14,635.3	16,743.3	18,202.9	18,987.4	19,917.3
Indonesia	129.5	141.0	146.1	136.0	162.7	181.6	188.7	178.3	156.6	181.6	205.2	215.1	197.5	218.9	262.0
Japan	47,067.9	50,345.0	51,462.4	53,838.3	55,273.8	57,100.9	56,081.7	56,346.5	57,228.2	56,535.4	55,527.1	54,467.1	52,908.6	51,842.0	49,627.0
Laos	1.8	0.9	2.4	5.5	3.8	3.9	4.5	4.7	8.6	12.1	9.2	18.0	12.3	12.2	12.2
Malaysia	365.8	362.2	349.0	387.1	471.4	459.6	472.4	494.5	479.3	586.1	614.6	724.1	808.1	951.0	1,351.3
Maldives	1.0	1.5	0.0	1.8	2.0	0.0	1.8	0.5	1.1	1.0	1.0	2.2	1.5	0.7	2.6
Mongolia	8.3	18.9	16.9	8.6	12.2	12.1	19.0	16.1	18.4	20.1	21.5	21.1	21.6	26.9	41.8
Nepal	32.0	29.6	38.7	37.4	39.9	44.0	43.7	42.7	54.9	65.7	65.0	80.9	72.0	56.2	55.9
North Korea	0.0	0.0	0.5	2.5	2.2	1.6	0.0	1.0	3.8	5.7	4.0	2.5	10.0	10.6	8.3
Pakistan	313.2	254.9	268.1	268.1	295.9	267.1	279.4	342.5	359.7	413.1	493.1	600.7	741.2	947.5	1,043.4
Philippines	144.7	157.8	170.4	171.4	175.8	184.6	141.2	181.5	183.6	163.1	177.9	180.6	194.8	224.1	223.3
Singapore	1,141.4	1,141.2	1,338.5	1,584.2	1,897.2	2,361.0	2,434.3	2,631.9	2,939.4	3,384.3	3,611.2	3,838.0	3,793.3	4,069.3	4,186.8
South Korea	3,803.2	4,770.9	5,802.2	7,056.6	8,478.2	9,571.8	11,007.2	11,734.5	13,400.9	15,254.6	16,395.8	17,909.9	18,469.1	21,090.8	22,270.8
Sri Lanka	85.4	71.0	62.2	83.5	86.9	97.8	73.2	102.6	141.5	119.1	135.8	125.7	125.5	133.6	134.9
Taiwan	4,758.7	5,700.9	6,016.1	6,355.3	6,642.7	7,190.1	7,911.8	8,123.3	8,928.7	10,133.4	10,845.4	12,371.8	12,741.7	13,775.4	13,999.7
Thailand	339.6	386.6	405.3	540.8	549.5	663.3	726.9	834.0	1,018.6	1,130.5	1,248.9	1,568.0	1,727.7	1,959.5	2,032.7
Vietnam	103.5	117.0	120.5	99.7	110.9	146.8	155.2	144.4	205.1	167.4	221.3	224.6	283.2	362.7	326.2
Near East/North Africa	9,476.2	9,488.7	9,989.0	10,228.7	10,408.3	11,136.3	11,431.8	11,934.6	12,862.8	13,265.9	13,854.6	15,185.7	16,605.0	17,874.5	19,127.2
Algeria	146.3	155.6	159.6	156.4	185.4	211.3	220.5	229.7	280.7	344.0	350.3	413.4	480.7	536.6	606.5
Bahrain	42.2	36.8	36.2	30.4	34.9	21.0	24.8	20.4	38.2	35.5	33.3	40.9	48.3	43.4	35.8
Egypt	1,387.8	1,292.2	1,266.1	1,274.8	1,293.0	1,432.8	1,463.5	1,564.0	1,716.8	1,661.1	1,658.2	1,785.6	1,934.4	2,018.9	2,247.3
Iran	279.5	317.7	390.6	541.3	664.8	841.1	1,034.9	1,313.8	1,789.8	2,115.8	2,634.9	3,422.7	4,366.2	5,228.3	6,313.3
Iraq	50.8	36.2	40.4	24.7	22.9	28.7	32.5	24.0	25.6	27.3	39.1	66.5	73.3	68.2	70.0
Israel	5,740.7	5,750.7	6,047.4	6,020.3	5,928.8	6,289.8	6,233.5	6,381.0	6,524.2	6,462.0	6,321.5	6,558.5	6,632.2	6,606.4	6,304.2
Jordan	154.1	163.1	200.5	220.4	230.3	246.6	232.5	242.2	250.7	281.0	274.8	285.4	344.1	411.9	382.6

Appendix table 5-27

S&E articles in all fields, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	189.3	208.9	224.0	234.8	295.9	238.3	244.7	227.8	230.5	244.3	234.1	256.5	242.0	239.7	214.4
Lebanon	54.7	62.6	103.2	102.6	124.3	143.7	195.0	158.8	210.7	198.3	233.7	250.3	238.1	279.8	256.2
Libya	33.9	20.0	16.2	20.6	17.8	15.8	21.4	19.5	24.9	17.1	19.7	26.2	30.4	37.3	33.6
Morocco	239.8	273.9	297.4	376.0	437.8	466.1	457.5	466.0	400.3	417.1	443.2	399.5	378.6	413.3	390.7
Oman	57.1	51.5	63.0	79.5	89.4	92.3	100.8	113.4	108.1	98.7	110.8	108.2	129.4	124.5	114.1
Qatar	23.5	28.2	22.2	28.5	22.8	17.3	20.7	12.8	20.9	48.1	39.0	42.1	48.3	59.9	64.2
Saudi Arabia	753.2	734.5	676.2	682.7	604.9	590.0	564.7	582.8	549.3	550.8	576.3	557.6	589.2	620.8	710.2
Syria	50.8	45.1	60.5	44.3	57.8	54.6	62.8	48.6	68.3	79.3	76.8	62.4	79.6	66.5	71.5
Tunisia	143.0	160.4	220.2	226.8	256.8	292.3	351.5	354.8	436.1	454.5	571.3	656.4	758.1	851.2	1,022.4
United Arab Emirates	120.2	143.1	151.6	155.5	129.9	144.7	156.0	163.3	178.3	210.2	229.3	229.6	214.0	255.5	264.8
Yemen	9.3	8.2	13.6	9.1	10.7	9.9	14.4	11.5	9.5	20.8	8.3	23.9	18.2	12.5	25.4
Central/South America	9,521.0	10,505.5	11,696.4	13,008.1	13,994.4	15,062.1	16,077.7	17,462.0	18,225.9	19,712.3	20,437.6	21,736.1	23,344.2	24,754.9	24,044.1
Antigua and Barbuda	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.8	0.5	0.0
Argentina	1,967.2	2,287.2	2,450.8	2,550.7	2,635.8	2,846.1	2,930.7	3,178.1	2,919.8	2,981.6	3,058.4	3,264.0	3,364.1	3,567.1	3,655.2
Bahamas	1.3	1.7	0.8	1.4	1.2	2.5	3.1	2.0	2.8	1.4	1.6	1.3	4.6	3.1	2.5
Barbados	16.5	11.4	16.4	15.3	13.5	14.2	22.3	20.1	26.8	29.2	17.6	19.8	15.0	21.4	12.6
Belize	2.3	1.3	3.7	0.8	2.5	0.3	1.7	0.9	1.6	1.0	3.0	2.9	1.1	1.9	2.0
Bolivia	23.9	21.3	34.7	28.2	40.7	29.1	28.9	33.2	38.8	31.7	39.0	43.1	50.6	49.6	45.2
Brazil	3,436.1	3,813.4	4,497.6	5,234.1	5,859.3	6,407.3	7,052.3	7,881.1	8,330.2	9,573.0	9,896.7	10,799.5	11,890.8	12,909.2	12,306.3
Chile	888.6	920.3	954.3	991.8	1,058.9	1,115.1	1,159.4	1,311.4	1,406.4	1,464.1	1,559.3	1,630.4	1,741.2	1,784.7	1,867.8
Colombia	162.3	194.7	234.9	247.7	240.3	331.5	315.8	355.6	325.5	358.5	401.3	469.7	489.4	574.6	608.4
Costa Rica	65.8	74.7	76.5	72.7	69.2	80.0	90.3	89.1	88.9	84.9	105.6	80.1	100.2	107.0	98.3
Cuba	167.8	206.4	167.0	236.3	256.6	283.8	272.1	206.0	268.3	254.5	261.4	295.2	243.5	252.6	222.4
Dominica	0.0	0.3	0.0	1.5	0.0	0.1	2.0	0.7	2.0	2.3	2.7	2.7	2.1	2.5	3.0
Dominican Republic	5.0	10.0	6.2	7.6	5.5	12.9	5.8	5.2	5.1	6.7	4.6	5.4	8.1	7.7	6.1
Ecuador	34.3	32.0	44.2	31.2	23.7	37.4	30.0	50.7	53.5	50.2	48.6	40.0	66.0	69.9	67.5
El Salvador	1.9	3.7	1.9	0.0	1.1	3.4	3.1	7.6	1.2	4.3	5.8	5.7	4.5	2.9	5.5
Grenada	1.0	0.0	0.5	0.0	1.9	0.8	0.3	1.5	1.2	2.3	2.2	5.9	6.8	5.5	8.5
Guatemala	19.5	23.8	17.9	16.1	15.8	13.9	16.9	19.0	15.1	16.0	19.7	22.2	22.4	15.9	22.1
Guyana	7.0	2.8	6.3	3.0	4.2	4.1	4.5	8.6	2.8	3.0	9.2	3.8	6.4	3.4	2.8
Haiti	3.2	1.2	1.7	2.7	0.7	4.7	3.0	4.8	3.2	6.4	3.2	8.7	4.3	5.2	7.0
Honduras	5.5	7.9	10.6	11.2	12.4	7.4	7.7	6.4	5.9	7.5	8.3	7.5	5.8	7.1	6.2
Jamaica	70.0	57.0	58.3	46.8	50.0	36.1	57.4	54.8	47.2	51.1	51.9	39.8	49.4	41.4	50.8
Mexico	1,937.3	2,123.9	2,301.7	2,658.9	2,883.5	2,970.7	3,202.8	3,320.2	3,658.5	3,870.0	3,931.6	3,998.2	4,223.6	4,256.8	4,127.7
Nicaragua	4.4	8.9	13.1	6.5	8.3	10.3	7.1	6.8	9.5	11.0	14.2	18.2	10.6	16.4	11.9
Panama	35.3	33.9	38.2	34.4	44.3	38.2	50.9	49.9	49.7	60.7	54.1	57.5	77.7	75.0	72.6
Paraguay	6.4	8.7	6.9	9.4	5.3	7.5	7.2	7.9	9.9	8.8	8.0	4.7	12.4	5.9	11.1
Peru	65.1	69.8	75.0	65.6	61.8	79.3	93.8	87.6	130.3	106.2	134.4	134.8	153.4	161.1	158.6
St Kitts and Nevis	0.0	0.3	0.0	0.0	1.5	1.5	0.0	0.1	0.0	0.0	0.0	1.8	0.3	0.0	1.7
St Lucia	0.0	2.8	1.0	2.7	0.5	0.0	0.9	0.2	0.0	0.0	0.5	0.5	0.3	0.3	0.0
St Vincent	0.3	1.0	1.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.7	0.0	0.5	0.3
Suriname	1.3	2.6	2.6	1.8	3.4	2.9	2.8	4.4	4.2	3.9	3.0	1.9	1.8	2.8	1.1
Trinidad and Tobago	48.3	43.7	41.1	52.9	38.7	43.0	42.3	44.7	46.5	50.4	47.3	41.7	67.0	46.4	47.7
Uruguay	103.4	110.9	140.6	140.6	150.3	155.6	148.8	161.5	185.5	193.7	204.4	196.8	215.1	247.9	246.2
Venezuela	437.3	426.2	488.4	533.9	498.0	515.8	510.1	536.4	576.8	475.3	534.0	525.1	497.7	496.8	353.5
West Indies Assoc States	1.5	1.5	2.3	2.2	5.5	6.3	3.8	5.6	8.4	2.5	5.8	6.2	7.3	12.0	11.5

Appendix table 5-27

S&E articles in all fields, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	4,052.0	3,908.8	3,971.9	3,929.6	4,001.6	3,927.1	3,860.3	4,049.9	3,947.0	4,098.1	4,183.5	4,615.9	4,953.1	5,074.6	5,081.6
Angola	2.9	1.0	2.6	0.8	3.4	4.4	5.0	4.6	1.1	2.6	3.5	2.6	3.2	2.2	6.2
Benin	13.7	13.7	21.4	19.3	21.2	25.1	21.1	29.4	27.5	30.8	27.9	29.9	43.1	43.6	47.7
Botswana	28.0	39.1	31.6	34.9	38.7	54.9	50.6	60.4	66.5	63.6	48.4	67.1	61.6	57.8	44.9
Burkina Faso	13.2	17.2	22.1	32.1	22.9	25.6	25.4	27.8	40.6	41.8	32.3	48.5	42.9	43.4	49.9
Burundi	10.4	7.9	11.5	2.2	5.1	0.7	2.9	1.3	5.1	3.1	2.5	1.2	3.2	2.0	2.6
Cameroon	66.0	60.5	83.3	74.2	70.6	73.3	76.1	107.4	120.4	126.8	130.9	151.2	154.2	161.1	145.1
Cape Verde	0.3	0.7	0.3	0.2	0.6	0.0	0.2	0.0	1.3	0.3	0.3	1.2	0.0	0.7	2.1
Central African Republic	6.3	3.3	5.6	6.4	4.2	2.6	2.9	4.3	6.0	6.5	8.5	6.1	3.9	7.8	4.0
Chad	3.2	1.4	1.9	2.0	2.8	2.8	2.0	4.4	5.4	2.8	7.2	6.1	3.3	3.1	2.3
Comoros	0.3	0.0	0.0	0.5	1.0	0.5	0.1	0.0	0.7	0.5	1.6	0.0	1.2	0.6	0.5
Congo (Brazzaville)	5.8	9.9	7.6	11.9	12.5	9.2	4.9	9.8	13.8	16.5	18.9	20.8	20.9	16.7	17.7
Congo (Kinshasa)	19.3	13.8	15.8	6.9	6.0	7.4	2.8	5.2	7.1	4.6	6.2	3.8	7.2	11.1	19.1
Côte d'Ivoire	39.9	31.1	40.0	53.9	47.9	48.7	45.0	36.2	52.6	41.6	39.4	41.1	37.4	38.9	56.0
Djibouti	1.3	0.2	0.0	0.7	0.3	0.0	0.3	0.5	0.5	0.9	0.9	0.3	0.6	0.5	1.6
Equatorial Guinea	0.7	0.5	0.7	0.3	2.2	0.3	1.0	0.5	1.2	1.3	0.2	0.5	1.3	0.0	1.6
Eritrea	0.7	2.2	0.2	6.1	2.7	5.9	5.0	10.3	5.7	3.7	8.0	8.6	7.9	4.5	3.7
Ethiopia	93.7	97.3	95.4	79.1	109.5	89.9	77.9	101.7	92.0	106.3	87.6	121.2	148.5	158.6	175.3
Gabon	16.2	11.5	18.7	21.4	23.3	13.3	21.8	20.6	22.5	16.3	20.3	18.3	15.8	17.4	18.0
Gambia	21.8	24.4	30.0	23.4	19.7	25.7	27.9	23.0	19.8	23.7	22.7	24.4	17.2	18.5	19.5
Ghana	58.3	71.8	81.9	71.3	74.1	92.1	78.7	79.3	75.8	86.2	81.3	90.2	109.4	111.1	101.5
Guinea	2.8	2.6	2.8	3.0	2.1	2.0	3.8	2.9	1.2	2.9	4.5	9.5	4.2	2.0	3.4
Guinea-Bissau	1.6	3.5	4.3	2.2	6.9	4.0	4.5	7.2	7.0	7.3	5.8	5.9	9.7	5.0	5.5
Kenya	287.0	274.2	271.9	265.4	242.6	231.7	228.5	241.6	239.4	224.7	225.8	236.5	262.2	285.4	290.5
Lesotho	2.5	1.0	2.3	1.3	2.6	6.0	2.4	2.4	2.6	2.8	0.8	5.7	3.0	4.8	3.5
Liberia	0.3	1.0	0.3	1.3	0.0	1.0	1.0	1.3	0.0	1.1	1.3	2.3	0.0	1.4	0.0
Madagascar	15.9	16.6	16.0	19.9	20.9	28.7	30.0	23.0	36.0	27.8	33.5	46.2	47.9	38.0	34.9
Malawi	38.3	45.5	40.3	30.9	36.4	43.6	44.2	48.5	43.1	42.3	40.5	46.7	62.9	53.7	52.5
Mali	13.2	15.9	12.9	15.6	10.7	11.7	11.5	17.7	16.6	23.5	24.3	25.0	19.4	19.5	25.0
Mauritania	2.1	3.5	2.1	1.7	2.2	5.4	6.5	6.5	7.1	3.9	7.1	6.2	3.3	1.7	2.9
Mauritius	6.4	5.1	3.3	8.2	16.7	13.2	14.6	23.6	13.5	20.0	15.4	19.0	17.8	21.1	21.5
Mozambique	12.8	6.6	9.5	14.6	13.9	9.9	14.3	12.6	9.1	12.9	24.2	20.9	23.9	24.7	28.6
Namibia	9.6	18.2	13.3	18.3	14.7	12.6	17.3	21.6	19.7	12.3	23.4	20.6	14.1	16.3	13.6
Niger	20.3	19.6	27.8	25.9	16.0	19.2	13.5	17.8	14.1	11.7	21.6	17.9	22.4	14.8	15.7
Nigeria	449.6	434.7	436.9	401.7	416.5	400.5	304.0	362.8	357.8	380.7	364.2	406.2	427.9	462.6	461.8
Rwanda	9.6	5.9	5.0	6.6	2.7	1.4	2.8	2.4	1.3	4.9	5.6	10.4	12.3	8.6	11.7
São Tomé and Príncipe	0.0	0.3	0.0	0.3	0.0	0.5	0.3	0.9	0.5	0.3	0.0	0.3	0.5	0.2	0.1
Senegal	68.1	69.7	61.8	67.3	75.5	73.6	58.8	51.4	76.7	63.2	82.8	53.3	68.4	59.9	56.3
Seychelles	5.5	5.0	1.7	2.7	1.7	4.5	3.0	1.5	4.2	1.9	2.8	2.9	4.0	3.6	4.3
Sierra Leone	3.8	10.4	9.3	2.2	1.3	2.8	4.3	1.8	0.6	1.0	2.1	1.6	2.6	2.0	2.9
Somalia	1.4	0.8	0.5	0.0	0.5	0.5	0.0	0.8	0.5	0.3	0.0	1.0	0.0	0.1	0.7
South Africa	2,350.7	2,215.6	2,222.9	2,224.7	2,302.5	2,220.7	2,291.4	2,328.0	2,204.8	2,319.5	2,395.4	2,642.7	2,808.0	2,915.5	2,863.6
Sudan	48.2	45.8	42.0	52.1	43.1	36.9	33.9	47.1	37.4	41.7	47.1	35.7	35.9	56.4	63.0
Swaziland	5.2	6.3	5.0	6.3	4.3	4.3	2.4	3.5	5.7	2.0	2.8	1.4	4.3	6.2	7.5
Tanzania	97.0	102.6	98.4	96.1	87.2	95.5	80.9	92.9	76.3	88.8	107.0	128.2	122.8	129.7	152.0
Togo	9.1	4.0	5.2	9.9	9.9	12.1	10.2	5.5	9.8	10.9	10.4	10.2	12.1	8.2	6.7
Uganda	41.7	50.5	51.5	63.9	71.1	77.5	82.9	72.8	87.6	120.1	93.4	113.7	164.6	126.1	143.2

Appendix table 5-27

S&E articles in all fields, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	35.9	22.5	28.7	29.9	25.9	22.6	30.1	28.6	22.0	25.6	30.9	39.6	35.9	42.2	34.9
Zimbabwe	111.5	113.9	125.3	110.1	104.8	102.1	111.6	96.7	86.8	63.8	62.2	63.2	80.1	65.6	56.1
Other	39,370.6	40,087.9	39,377.1	39,362.8	39,445.0	40,191.8	39,335.0	39,384.2	41,336.1	42,700.4	44,870.4	47,560.5	48,909.1	50,793.5	51,186.8
Australia	13,125.4	13,623.3	13,815.7	14,307.4	14,341.1	14,588.6	14,483.7	14,255.2	14,933.6	15,587.9	15,972.4	17,216.9	17,833.8	18,776.4	18,923.3
Canada	23,739.8	23,841.8	22,780.9	22,200.7	22,125.4	22,701.3	21,945.2	22,341.5	23,553.8	24,232.3	25,861.6	27,205.9	27,833.9	28,636.7	29,016.9
Fiji	10.2	9.0	12.5	10.7	14.1	9.8	16.1	13.6	15.5	22.9	22.4	29.9	35.2	33.1	30.9
Kiribati	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Marshall Islands	1.8	2.0	2.6	0.0	1.2	0.3	0.2	0.5	0.5	0.8	0.5	0.7	0.0	0.3	0.8
Micronesia	4.5	3.0	0.0	0.3	1.7	1.6	0.5	0.0	1.5	1.7	1.2	0.6	0.7	0.3	2.2
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	2,442.3	2,575.5	2,726.3	2,801.7	2,915.4	2,850.8	2,850.9	2,739.8	2,799.8	2,825.1	2,987.2	3,081.8	3,175.8	3,323.4	3,187.8
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	3.9	2.4	0.5	0.9	2.9	3.5	2.2	3.1	0.4	0.8
Papua New Guinea	40.5	30.3	28.9	33.8	32.8	26.8	32.4	26.4	22.1	18.4	15.9	15.0	21.3	19.2	17.2
Solomon Islands	0.7	1.8	4.5	4.4	7.7	4.0	1.7	0.8	4.1	1.2	1.1	2.6	2.1	1.0	2.0
Tonga	1.6	0.0	1.1	0.5	0.8	0.5	0.5	0.5	1.2	0.5	0.0	0.4	0.5	0.3	1.3
Tuvalu	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	1.3	1.2	1.9	0.8	3.6	3.0	1.3	3.9	2.8	4.1	4.6	1.8	1.6	2.2	3.6
Western Samoa	2.6	0.0	2.3	1.5	1.3	0.1	0.0	1.4	0.0	2.5	0.1	2.5	1.1	0.3	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-28

S&E articles in agricultural sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	11,437.0	11,803.0	12,180.0	12,390.0	12,219.0	13,041.0	12,570.0	13,843.0	13,790.0	14,185.0	14,822.0	16,188.0	17,877.0	17,651.0	17,983.0
United States	3,638.4	3,460.3	3,521.0	3,435.1	3,171.5	3,412.8	3,388.4	3,717.1	3,600.7	3,673.3	3,585.7	3,825.9	3,712.2	3,671.3	3,469.2
European Union	3,482.4	3,714.2	4,055.2	4,257.9	4,247.8	4,497.9	4,225.5	4,598.8	4,657.6	4,701.1	5,082.4	5,440.4	6,011.4	5,870.1	5,958.9
Austria	30.0	44.1	47.6	40.6	55.8	51.3	55.4	59.1	49.9	42.6	54.2	80.9	72.2	67.5	78.6
Belgium	109.8	126.8	122.3	133.5	144.3	163.7	142.8	157.3	194.7	207.7	228.1	245.0	274.9	249.1	230.5
Bulgaria	17.4	18.4	22.3	12.0	16.5	12.9	8.7	8.7	11.6	9.5	14.2	17.0	14.7	13.5	18.2
Cyprus	4.0	2.0	2.3	1.0	2.0	2.3	0.5	1.5	1.3	2.0	1.8	0.1	2.3	2.5	4.4
Czech Republic	16.3	24.3	29.6	25.7	31.5	36.2	33.7	37.3	42.7	46.5	53.4	68.4	77.1	85.4	107.2
Denmark	141.3	131.2	157.3	186.4	187.3	208.4	225.3	194.6	233.2	250.0	229.8	228.1	289.3	233.1	198.6
Estonia	3.3	3.5	0.8	2.9	5.6	6.3	3.3	4.3	4.3	6.6	9.5	8.9	9.3	14.4	10.9
Finland	79.5	88.4	115.1	93.1	87.2	103.6	112.1	137.3	108.2	114.9	114.9	139.4	130.6	121.2	131.9
France	399.8	456.9	449.2	502.5	480.7	552.1	521.1	524.9	514.6	523.1	522.7	579.4	619.4	597.9	634.1
Germany	630.6	628.9	638.9	686.9	652.0	621.4	656.6	658.3	634.3	628.4	731.5	741.9	672.2	716.5	739.1
Greece	66.3	79.4	82.3	72.3	93.5	108.3	127.5	129.2	128.3	126.2	182.7	197.6	220.7	204.3	186.7
Hungary	30.3	23.6	23.7	43.1	35.2	39.8	25.4	40.0	48.0	28.2	66.0	50.7	36.1	31.3	67.2
Ireland	51.7	54.4	81.5	122.3	115.6	135.3	125.3	139.1	116.2	120.8	136.7	195.5	157.5	202.5	214.5
Italy	202.7	220.6	258.9	253.0	258.5	332.9	304.7	371.2	391.4	453.7	485.6	480.0	634.6	686.8	691.7
Latvia	1.0	1.0	1.0	0.0	0.5	0.0	1.0	0.0	0.0	0.5	0.0	1.8	0.1	4.0	2.2
Lithuania	1.2	3.0	2.5	4.8	2.0	3.3	7.7	5.6	9.2	4.5	7.7	12.2	11.5	8.7	7.5
Luxembourg	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5	0.3	0.0	0.3	1.0	0.9	2.1
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Netherlands	274.8	262.2	336.9	308.3	305.2	307.7	239.6	300.6	327.8	285.1	281.9	310.7	338.5	303.6	261.0
Poland	46.4	71.7	70.4	83.9	92.0	89.6	80.9	123.7	125.8	141.1	154.5	140.5	204.2	190.5	179.0
Portugal	30.2	39.5	45.9	60.7	63.8	72.0	67.8	78.3	83.3	83.0	93.6	144.7	165.9	156.2	166.8
Romania	4.5	3.3	2.6	5.0	2.5	4.5	2.1	2.3	2.1	2.8	3.6	3.4	3.5	5.9	4.7
Slovakia	19.5	9.4	13.7	15.5	12.7	10.7	17.1	17.9	13.4	15.8	13.2	18.5	18.5	23.1	23.5
Slovenia	4.5	8.3	5.6	6.6	7.2	7.4	11.7	7.0	18.6	15.7	15.1	19.7	31.9	41.6	37.7
Spain	385.7	457.3	550.1	563.9	633.0	619.2	592.4	719.8	762.7	827.4	918.2	1,019.3	1,203.9	1,164.4	1,262.6
Sweden	130.8	151.6	156.2	169.4	172.7	161.9	144.9	147.1	155.7	179.6	153.4	152.3	172.2	150.0	148.8
United Kingdom	800.8	804.2	838.5	864.4	790.5	847.1	717.8	733.6	679.7	584.3	610.0	584.2	649.2	594.9	549.5
Other Western Europe	176.5	196.5	249.2	245.3	296.8	301.7	361.2	394.2	477.6	606.2	636.4	690.8	812.6	674.6	660.2
Albania	0.8	0.0	0.5	1.3	1.1	0.5	0.5	0.0	0.0	1.0	0.0	0.0	0.7	0.4	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.1	0.5	0.5	1.0	2.0
Croatia	9.0	8.6	5.0	6.3	7.8	4.3	13.1	11.8	18.0	21.6	24.9	30.5	38.7	30.1	34.2
Iceland	2.0	3.0	6.3	0.0	2.8	2.9	7.0	4.1	2.5	7.5	4.9	6.9	5.7	5.6	4.6
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	1.0	0.0	0.0	1.0	1.0	1.7	0.3	0.0	0.0	0.7	0.3	0.1	0.7
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.7	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.6	0.0
Norway	57.0	55.4	63.1	61.3	97.1	72.3	84.2	77.7	85.8	106.6	122.5	120.9	130.1	116.4	116.0
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7	38.4	27.1	29.3
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.8	13.3	NA	NA	NA
Switzerland	67.7	80.0	106.4	98.9	109.7	110.6	127.4	111.8	130.2	108.2	133.4	133.8	147.4	161.4	135.7
Turkey	36.0	44.4	55.4	71.2	73.4	103.8	124.5	180.3	235.2	349.3	334.2	380.4	450.1	331.9	337.6
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-28

S&E articles in agricultural sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	4.1	5.0	11.5	6.2	5.0	6.2	3.5	6.3	5.5	12.0	NA	NA	NA	NA	NA
Other former USSR	141.7	410.3	205.0	202.3	181.2	207.3	188.5	176.3	25.6	25.9	23.5	29.6	33.2	22.5	24.6
Armenia	0.0	0.5	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.3	0.0	0.0	0.3
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	1.0	0.0	0.0	0.8	1.3	0.0	0.0
Belarus	4.0	3.0	4.0	5.0	7.0	7.0	2.1	2.5	0.5	0.0	0.5	0.0	0.0	0.0	0.0
Georgia	0.0	1.3	1.0	1.0	2.0	0.0	3.2	1.0	1.3	0.0	0.3	1.0	0.8	0.0	0.0
Kazakhstan	0.0	2.5	0.0	0.5	0.0	0.0	0.5	1.2	0.0	2.2	0.8	1.8	1.9	1.4	0.0
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5
Moldova	1.0	3.5	0.8	3.5	2.0	0.3	1.1	0.8	1.3	0.0	0.3	0.0	1.0	1.5	0.3
Russia	131.7	374.5	186.0	181.7	159.7	192.8	168.3	160.0	17.4	16.7	16.1	22.9	24.2	16.8	17.8
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Ukraine	4.0	22.5	11.7	10.5	10.0	5.7	12.8	7.3	3.6	3.7	2.7	2.5	2.3	1.6	3.0
Uzbekistan	1.0	2.5	0.5	0.0	0.5	1.0	0.0	0.7	0.5	2.8	2.5	0.3	1.7	1.3	2.7
Asia	1,475.5	1,472.6	1,485.4	1,614.7	1,873.4	2,012.3	1,935.2	2,191.1	2,268.0	2,378.0	2,644.3	3,001.2	3,778.2	3,950.6	4,307.8
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Bangladesh	8.4	7.8	10.5	11.6	10.7	5.3	11.2	7.9	8.2	9.3	11.0	5.7	10.0	8.6	17.2
Bhutan	0.0	0.0	0.0	0.0	0.0	0.3	1.2	1.0	1.0	0.3	0.6	0.3	0.0	0.0	1.0
Brunei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Burma	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.3	0.3
Cambodia	0.0	0.0	0.7	0.0	1.0	1.3	1.0	0.1	0.5	0.3	1.0	1.2	3.3	0.3	0.5
China	53.4	61.2	61.7	95.1	117.3	127.8	149.8	201.7	232.2	338.8	458.5	695.7	1,129.9	1,206.4	1,396.9
India	203.4	216.8	222.8	250.0	282.7	296.2	258.1	280.7	288.9	306.3	335.6	420.0	589.1	499.8	486.5
Indonesia	7.7	9.2	17.3	13.7	15.3	13.8	7.2	6.7	6.2	12.6	18.2	8.7	7.6	12.9	14.3
Japan	1,026.2	994.8	951.3	981.0	1,136.5	1,197.1	1,127.2	1,209.7	1,201.9	1,165.5	1,200.4	1,171.8	1,153.7	1,251.8	1,241.6
Laos	0.5	0.0	0.8	0.5	0.3	1.9	0.0	1.2	3.0	2.5	0.0	2.5	0.5	1.4	1.0
Malaysia	24.8	23.2	18.2	28.0	28.8	33.6	22.5	36.4	28.1	37.8	34.7	38.1	55.3	68.5	93.5
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	0.3	0.8	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.8	2.3	0.8	0.0	0.5
Nepal	2.7	3.8	5.6	7.2	4.5	4.0	3.4	4.4	3.1	5.2	4.6	6.1	5.4	0.9	2.7
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	1.6	0.8	0.0
Pakistan	13.5	10.2	15.7	20.3	18.7	15.3	24.6	20.1	29.9	35.3	33.2	38.6	73.6	67.9	67.7
Philippines	29.0	30.2	32.8	26.0	30.4	29.0	19.2	36.5	12.9	19.4	15.4	23.6	23.7	32.1	33.3
Singapore	8.7	2.5	6.2	3.9	5.7	3.3	5.6	14.9	6.6	16.6	13.8	24.0	21.0	17.7	18.3
South Korea	21.7	30.6	53.3	59.6	91.8	119.7	129.1	162.9	217.6	194.6	230.5	242.7	273.2	360.8	443.7
Sri Lanka	10.4	6.7	6.5	10.6	8.4	14.3	6.2	5.5	24.6	8.2	16.0	13.1	14.9	15.9	12.4
Taiwan	46.2	55.0	62.0	83.2	90.8	107.0	123.7	149.7	139.4	147.1	179.2	201.2	266.4	238.9	297.5
Thailand	16.8	19.2	15.9	21.1	29.0	35.6	40.9	45.3	58.0	69.7	77.6	96.7	131.0	151.6	164.6
Vietnam	2.0	0.5	3.2	2.3	1.0	6.2	4.3	6.3	5.9	8.1	12.7	8.9	14.6	14.2	14.2
Near East/North Africa	221.2	220.9	216.8	228.9	231.0	264.1	239.6	264.8	261.8	283.8	283.1	318.0	425.1	437.9	507.2
Algeria	3.0	3.3	0.5	2.5	4.1	4.8	3.2	2.1	4.6	4.3	5.7	7.3	3.6	10.6	10.7
Bahrain	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.5	0.0	2.0	0.0	0.5	0.0	2.0	0.0
Egypt	40.7	42.8	47.1	50.2	49.4	49.0	44.6	48.3	37.1	30.7	31.2	46.1	50.6	48.5	62.4
Iran	6.7	4.5	10.2	3.8	7.3	13.9	17.3	28.2	43.1	52.2	54.1	90.3	153.7	149.0	189.9
Iraq	1.5	4.0	2.0	1.2	1.0	1.0	2.0	3.0	0.0	2.0	1.0	2.0	4.3	3.5	1.0
Israel	107.9	106.6	94.2	96.7	101.2	118.5	98.1	110.2	104.8	106.3	100.9	85.1	104.7	93.5	110.2
Jordan	5.3	4.0	6.0	18.2	15.3	13.0	13.3	16.5	18.2	25.2	14.6	12.2	22.5	30.8	24.5

Appendix table 5-28

S&E articles in agricultural sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	3.0	3.0	4.0	2.0	2.0	3.0	4.0	3.5	2.0	3.6	0.8	2.0	1.2	4.8	1.0
Lebanon	2.8	3.7	2.3	3.3	2.8	6.5	7.0	3.2	8.5	4.0	8.5	7.9	2.5	5.2	7.6
Libya	0.0	0.0	0.5	1.0	1.0	0.0	0.5	0.0	0.3	0.0	1.0	1.0	0.3	0.0	1.0
Morocco	8.9	6.5	8.3	8.1	10.3	6.2	9.1	15.6	6.9	9.9	12.7	14.7	10.2	16.8	8.1
Oman	7.0	4.5	1.0	8.1	5.2	2.7	7.8	11.2	7.1	10.5	11.2	3.2	10.2	4.8	5.0
Qatar	0.0	0.0	0.0	0.0	0.0	1.0	0.5	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	12.3	16.5	14.7	16.0	13.0	14.3	7.6	8.1	3.8	5.8	4.8	2.0	4.6	4.9	3.3
Syria	17.7	14.8	18.4	13.6	10.8	22.8	14.8	5.3	14.5	13.4	14.8	14.8	11.5	11.7	14.5
Tunisia	2.2	4.2	4.7	1.8	3.9	3.8	6.9	6.6	7.5	9.5	14.0	16.9	41.9	43.3	61.5
United Arab Emirates	1.5	2.0	2.5	2.0	2.0	3.5	2.8	0.5	2.5	3.3	7.7	10.7	3.3	8.6	5.6
Yemen	0.5	0.0	0.0	0.0	1.0	0.0	0.0	1.1	0.0	0.0	0.0	1.3	0.0	0.0	0.8
Central/South America	267.5	289.0	376.2	392.4	358.8	411.2	472.5	633.5	558.1	599.6	686.0	787.4	898.4	876.1	985.8
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	86.0	94.0	118.1	110.2	113.6	121.0	154.0	184.2	123.3	152.8	161.4	197.0	197.9	214.2	204.3
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.3	0.0	1.0	1.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Belize	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Bolivia	0.0	1.0	1.5	1.0	0.5	1.3	0.0	0.5	4.0	1.5	1.0	2.4	0.8	3.8	2.1
Brazil	47.4	64.4	95.1	126.6	111.0	130.4	138.6	216.1	209.1	214.3	273.8	311.6	368.0	372.4	445.1
Chile	9.5	9.4	16.8	10.5	19.3	15.4	17.1	33.7	26.2	44.3	43.3	44.5	56.6	51.0	73.1
Colombia	14.7	12.7	18.7	14.3	9.4	13.5	13.3	15.4	14.1	10.5	14.8	17.4	18.6	19.4	28.4
Costa Rica	7.4	3.5	5.5	6.3	5.4	5.1	4.6	6.7	3.9	3.3	8.8	4.6	4.6	5.5	4.0
Cuba	1.8	3.1	1.3	3.0	3.5	5.2	8.7	8.0	5.8	5.2	5.7	4.5	6.8	6.2	6.2
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.3	0.3	0.3	0.5	0.3	1.8	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.2
Ecuador	3.3	0.0	1.3	1.6	0.5	1.0	0.8	3.3	2.1	1.4	1.6	0.9	2.7	4.4	2.8
El Salvador	0.0	0.0	0.7	0.0	0.0	0.0	0.0	1.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	1.5	0.3	0.0	0.3	1.6	0.3	0.0	0.0	0.3	1.8	1.2	2.2	1.0	0.1	0.0
Guyana	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0
Honduras	2.0	1.8	4.8	0.2	4.3	2.6	1.0	1.5	2.1	1.7	1.0	2.1	0.3	0.3	0.3
Jamaica	3.8	1.5	1.5	2.7	1.2	3.5	0.0	1.0	0.5	1.7	2.8	0.0	0.3	4.3	1.1
Mexico	58.7	65.9	66.5	76.2	61.0	87.1	103.7	118.3	116.5	120.8	125.9	147.4	169.5	139.6	161.2
Nicaragua	0.0	0.0	1.5	0.0	0.3	0.0	2.0	0.0	0.6	0.4	0.9	1.0	0.5	0.5	1.0
Panama	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	2.2	1.6	0.9	1.3	1.9
Paraguay	0.0	0.6	0.0	0.0	0.0	0.5	0.8	0.3	0.0	0.2	0.0	0.3	0.3	0.0	0.2
Peru	4.5	9.0	4.7	2.3	4.0	3.8	7.3	3.8	15.2	4.7	4.7	4.4	7.4	3.5	11.2
St Kitts and Nevis	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	1.0	0.0	1.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	10.0	7.2	7.0	9.3	2.5	3.7	2.3	6.7	1.8	2.0	6.0	6.0	9.5	3.2	5.4
Uruguay	3.4	6.2	10.8	6.0	8.4	5.7	7.7	13.7	14.2	13.0	12.5	20.5	17.7	25.4	20.2
Venezuela	12.7	6.7	16.3	19.3	11.1	8.5	10.6	18.0	17.2	18.6	18.2	17.3	34.6	19.3	17.0
West Indies Assoc States	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.5	0.5	0.0	1.0	0.0	1.0	0.0

Appendix table 5-28

S&E articles in agricultural sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	262.8	236.5	291.4	293.8	279.8	254.7	230.8	293.0	316.0	285.3	287.3	294.2	325.1	324.3	285.0
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	0.0
Benin	0.5	0.8	3.2	3.8	2.0	4.9	0.9	5.0	6.3	8.2	4.1	8.4	3.3	5.8	9.3
Botswana	1.0	4.3	1.3	1.0	2.6	7.5	3.3	3.5	3.5	5.8	4.4	1.5	4.7	2.8	2.8
Burkina Faso	1.0	0.8	3.7	6.6	4.7	2.7	1.3	1.3	3.4	4.1	8.9	5.3	7.6	3.9	1.4
Burundi	0.5	1.5	0.5	0.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Cameroon	6.5	4.8	6.7	4.7	7.0	7.5	4.3	9.6	12.7	7.2	12.1	11.4	10.6	14.0	9.4
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Central African Republic	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.3	0.0	0.0	0.0	0.0	0.7	1.5	0.5	1.3	0.0	0.2	1.0	0.5	0.5
Congo (Kinshasa)	1.3	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Côte d'Ivoire	0.0	2.8	5.3	7.9	4.8	6.6	7.8	6.8	6.7	1.2	1.0	4.1	3.4	3.4	5.8
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	4.0	1.5	0.0	0.0	0.3	0.0	0.0	0.5	0.0
Ethiopia	25.9	17.2	22.4	16.2	17.2	12.9	7.7	18.2	16.0	17.8	11.6	17.6	19.6	25.3	22.9
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5	0.5	0.3	0.5	0.3	0.3	0.0	0.0
Gambia	0.5	1.0	1.6	1.5	0.3	0.5	0.0	0.0	0.5	0.3	0.7	0.0	0.0	0.0	0.3
Ghana	9.0	11.3	12.7	10.6	10.2	11.5	9.3	13.1	10.0	13.6	6.9	11.1	13.8	10.7	10.4
Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.3	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	25.1	20.7	24.9	21.9	24.9	25.7	25.6	29.4	32.9	26.3	31.0	33.0	33.7	36.6	30.2
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Madagascar	0.5	0.0	0.5	1.0	1.0	0.0	0.0	0.1	1.0	0.3	0.3	0.5	2.5	1.6	3.6
Malawi	3.0	2.0	5.7	5.6	4.3	3.5	3.2	2.4	3.1	1.0	0.6	3.6	4.1	2.2	1.3
Mali	1.0	0.8	0.5	2.8	2.7	1.8	1.1	1.7	4.7	4.0	3.7	2.2	2.6	1.3	1.5
Mauritania	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	1.1	0.0	0.0	0.8	0.0	0.0	0.0
Mauritius	0.0	2.0	0.0	1.0	6.5	1.8	0.0	1.5	0.9	0.3	0.7	0.0	1.5	0.0	0.5
Mozambique	1.0	0.5	0.3	4.3	2.0	0.3	0.8	1.3	1.3	0.7	0.8	1.8	1.1	1.3	0.7
Namibia	0.3	0.0	0.0	0.0	0.5	0.0	0.8	0.0	0.0	0.0	0.0	0.8	0.9	0.0	0.5
Niger	7.7	5.6	8.3	9.7	3.0	7.4	2.2	8.4	2.8	2.8	5.7	3.8	0.9	2.1	1.4
Nigeria	97.9	83.3	82.1	85.3	96.0	69.2	66.4	78.0	84.5	81.7	61.1	68.4	80.1	71.3	55.9
Rwanda	0.3	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.3	0.6
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	4.3	3.5	6.2	8.2	5.7	6.2	7.5	10.1	8.4	7.3	4.5	2.9	5.9	4.4	4.4
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	1.0	0.0	1.7	1.0	0.3	0.0	0.3	0.0	0.5	0.0	0.0	2.5	0.0	0.5
Somalia	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
South Africa	50.0	46.6	56.2	55.6	46.0	53.7	47.5	64.8	72.3	68.3	84.6	78.3	89.1	92.0	89.5
Sudan	4.3	4.5	9.0	10.2	9.8	6.5	5.2	8.0	7.6	5.5	8.5	3.0	5.5	5.6	4.5
Swaziland	0.5	0.0	0.0	1.0	0.0	0.0	0.3	0.0	0.5	0.0	0.3	0.0	0.3	1.8	0.5
Tanzania	5.0	8.2	12.4	14.6	6.5	2.2	4.2	6.1	7.3	2.5	5.1	8.9	12.6	11.6	7.7
Togo	2.8	0.0	0.3	1.0	0.0	0.5	0.5	0.3	2.8	2.8	3.7	2.9	1.4	1.3	0.2
Uganda	1.0	1.5	3.2	6.9	5.1	4.9	6.5	2.9	10.4	8.8	7.7	7.7	4.8	8.6	8.6

Appendix table 5-28

S&E articles in agricultural sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.3	1.7	4.2	2.2	1.9	2.2	4.0	1.0	2.0	5.1	4.7	3.7	2.0	2.7	0.7
Zimbabwe	11.6	8.8	18.6	7.5	12.0	13.2	14.2	15.1	11.5	7.7	12.9	10.6	9.2	11.9	7.5
Other	1,771.0	1,802.6	1,779.9	1,719.5	1,578.7	1,678.9	1,528.3	1,574.2	1,624.6	1,631.7	1,593.3	1,800.4	1,880.9	1,823.7	1,784.4
Australia	647.5	652.8	652.4	623.3	577.8	602.7	581.8	585.4	630.4	609.4	621.8	674.5	739.0	686.2	669.7
Canada	886.0	909.6	872.0	835.4	728.4	816.9	711.2	754.6	753.9	770.1	729.0	886.5	892.2	848.7	885.9
Fiji	0.0	0.3	1.8	1.5	0.5	1.0	0.5	0.0	0.0	0.0	0.5	0.3	0.2	1.6	1.0
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	234.3	236.8	251.7	249.4	269.6	254.7	233.7	233.4	240.0	250.8	241.4	237.0	248.7	284.2	226.9
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	1.2	3.2	1.5	8.0	1.0	3.0	1.0	0.8	0.0	0.0	0.0	0.7	0.8	1.8	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.7	0.4	0.0	1.2	0.8
Western Samoa	2.0	0.0	0.5	1.5	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-29

S&E articles in astronomy, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	6,706.0	7,596.0	7,084.0	7,554.0	7,788.0	7,392.0	8,359.0	7,891.0	8,607.0	8,756.0	8,546.0	8,766.0	9,415.0	9,302.8	9,983.0
United States	2,525.0	2,769.6	2,445.5	2,491.9	2,602.1	2,557.0	2,783.5	2,612.9	2,771.3	2,916.8	2,838.9	2,796.1	2,997.5	2,862.4	3,186.7
European Union	2,372.7	2,960.2	2,834.4	3,018.0	3,036.3	2,808.6	3,337.1	3,141.6	3,566.5	3,454.9	3,344.1	3,454.8	3,677.7	3,634.0	3,840.4
Austria	21.5	22.6	44.0	38.1	35.2	32.1	30.7	30.9	49.0	41.2	43.3	42.7	45.8	44.8	50.6
Belgium	43.3	52.9	48.1	61.7	50.2	49.9	59.6	55.7	70.3	58.6	82.6	62.9	84.9	80.5	84.6
Bulgaria	17.7	12.0	13.0	14.7	23.5	11.9	18.2	12.2	8.1	11.6	5.5	7.8	17.8	16.2	16.3
Cyprus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.2	0.7	1.3	0.1	0.3	1.1
Czech Republic	23.8	31.4	30.1	27.3	36.9	29.5	30.6	25.4	26.7	27.3	45.4	44.0	47.4	53.8	54.8
Denmark	43.5	36.4	49.6	61.5	48.2	48.5	51.4	42.1	49.8	41.7	30.8	34.6	29.0	27.8	32.9
Estonia	10.7	7.0	5.6	5.9	9.1	6.7	7.7	11.5	6.5	2.1	8.1	8.5	5.7	4.3	5.4
Finland	22.9	29.7	30.7	37.3	38.4	39.8	47.5	47.6	40.9	48.6	39.1	45.7	40.6	41.4	47.8
France	333.9	439.9	418.5	414.7	440.1	450.6	501.3	467.6	506.7	506.1	495.4	498.7	543.3	576.2	581.6
Germany	467.2	664.9	592.8	579.7	565.2	525.7	639.9	601.6	704.0	679.3	593.4	632.1	712.7	726.4	709.9
Greece	31.0	34.5	27.9	27.6	34.5	34.2	54.1	43.0	45.0	48.4	51.4	62.3	40.7	46.3	60.0
Hungary	14.4	24.5	14.6	20.7	18.7	22.2	21.8	23.3	20.7	24.2	16.2	26.5	47.2	22.0	29.7
Ireland	11.4	14.1	8.7	11.0	17.0	12.1	6.1	11.9	16.0	17.8	26.3	15.7	24.7	30.1	30.2
Italy	321.9	382.8	381.9	396.2	434.0	386.6	478.6	454.6	546.9	519.0	497.5	532.3	573.7	526.3	573.3
Latvia	3.0	2.2	4.7	4.1	4.0	1.8	1.0	0.0	0.5	0.0	0.8	0.5	0.2	2.0	0.7
Lithuania	1.2	4.0	3.3	2.6	2.6	2.1	3.1	14.0	2.5	2.2	1.1	0.9	1.2	2.0	1.1
Luxembourg	0.0	0.0	1.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	146.2	210.3	178.4	166.7	211.3	167.4	198.2	183.5	209.9	188.8	199.5	186.1	180.8	178.3	186.2
Poland	71.1	76.3	77.5	87.4	100.9	103.0	96.4	85.6	123.2	112.9	109.6	105.4	103.0	103.4	113.0
Portugal	7.4	9.6	7.7	32.2	9.1	18.8	15.2	15.0	28.2	25.1	22.1	26.8	28.2	30.0	30.0
Romania	1.0	3.1	7.5	3.0	3.6	3.4	3.9	4.0	5.4	5.7	4.5	4.9	6.8	6.3	9.7
Slovakia	2.7	10.1	8.1	9.3	5.9	7.6	9.9	8.6	10.0	6.7	10.0	12.3	11.1	18.9	13.8
Slovenia	0.9	3.0	2.3	0.8	0.0	1.3	1.0	1.5	3.2	1.6	4.1	2.0	1.9	3.3	2.3
Spain	145.0	188.7	225.9	281.0	211.3	194.7	277.6	208.7	236.7	248.6	243.7	269.0	285.7	284.9	334.8
Sweden	44.7	55.9	61.3	55.5	55.7	60.8	60.7	75.1	62.6	66.3	62.3	64.9	62.2	64.7	68.7
United Kingdom	586.2	644.2	591.3	679.1	681.0	597.6	722.6	717.3	792.6	770.9	750.9	766.6	782.7	743.9	802.0
Other Western Europe	83.1	108.0	94.8	119.2	117.5	100.0	125.1	131.6	151.2	182.1	185.8	176.4	193.1	158.5	181.1
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	1.2	0.6	1.3	2.4	3.1	4.6	5.3	5.8	2.5	5.8	5.1	3.9	9.3	5.9	6.7
Iceland	2.0	0.6	0.0	0.2	0.0	2.0	0.7	1.5	0.1	2.9	1.1	2.2	2.1	0.0	0.4
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.5	0.3	0.0
Norway	9.6	15.1	11.1	12.0	14.7	10.1	13.7	6.3	14.8	16.1	19.9	19.5	20.3	15.4	26.3
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2	11.9	12.3	8.5
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.3	4.4	NA	NA	NA
Switzerland	56.0	63.6	61.5	78.6	86.7	68.0	73.4	94.7	94.0	116.7	106.8	96.8	111.3	93.1	101.2
Turkey	7.1	16.7	14.8	11.2	6.5	11.6	22.0	14.0	25.7	26.5	40.3	44.4	36.1	29.9	36.6
Vatican City	0.5	0.3	0.3	1.0	0.0	0.0	0.0	0.0	0.3	0.3	1.1	0.8	0.5	1.1	1.5

Appendix table 5-29

S&E articles in astronomy, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	6.8	11.3	5.8	13.2	6.6	3.8	10.1	9.2	13.9	13.8	NA	NA	NA	NA	NA
Other former USSR	455.6	456.4	416.3	387.0	439.5	376.0	462.4	404.5	410.1	387.5	382.1	370.7	397.9	419.2	432.2
Armenia	9.8	10.6	7.9	3.9	26.2	6.7	6.8	6.4	12.2	10.0	6.2	7.6	9.4	6.5	9.7
Azerbaijan	0.7	0.5	1.2	2.0	0.0	1.0	3.0	1.0	2.3	2.3	1.8	3.0	2.3	1.8	2.8
Belarus	1.0	1.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.3	0.0
Georgia	10.5	2.0	5.3	4.2	5.9	3.0	8.2	5.1	5.0	4.7	9.1	6.9	8.8	7.8	10.4
Kazakhstan	4.0	7.0	1.5	3.5	3.2	2.3	3.6	4.2	1.2	1.2	0.5	0.3	0.1	1.4	0.9
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moldova	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Russia	360.8	362.7	327.5	312.3	342.1	300.9	368.5	326.9	326.5	324.6	306.7	295.1	333.8	338.0	358.0
Tajikistan	0.3	0.7	1.0	0.3	0.5	0.8	2.0	1.5	3.8	3.0	0.0	0.0	1.8	1.7	1.7
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	64.5	67.0	65.4	53.7	54.8	57.6	61.5	57.2	57.3	38.4	51.9	54.7	36.8	59.8	45.3
Uzbekistan	4.0	5.0	6.5	7.0	6.4	2.7	8.9	2.2	1.7	3.3	6.0	2.7	3.8	1.8	3.3
Asia	485.1	571.5	589.1	765.6	791.0	779.0	857.2	771.4	841.6	839.2	884.8	1,027.9	1,163.0	1,242.5	1,336.8
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	0.0	0.0	0.0	2.0	0.5	0.5	0.0	0.0	0.0	1.5	0.0	1.0	0.0	1.0	1.0
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burma	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	91.2	102.6	114.7	148.6	132.0	156.5	221.6	183.8	197.4	209.8	294.1	384.3	420.0	410.4	484.5
India	104.3	120.0	127.1	120.0	119.8	151.6	155.7	152.2	148.0	119.4	149.8	194.2	170.5	211.7	210.9
Indonesia	2.7	2.0	1.4	0.2	4.5	0.8	2.6	1.4	2.0	1.7	1.1	0.0	1.5	0.9	1.0
Japan	258.1	302.5	306.8	448.1	473.8	415.1	412.6	366.8	423.9	421.1	352.5	354.4	436.9	485.1	466.4
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaysia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.3	0.5	3.0
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Nepal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.5	0.3
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Pakistan	0.5	0.0	1.0	1.5	0.0	0.1	1.0	0.3	0.5	0.2	0.1	2.2	0.8	2.5	2.6
Philippines	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singapore	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.8	0.5	0.2
South Korea	17.5	28.0	27.2	32.7	44.7	38.1	41.6	45.1	43.1	49.6	61.0	59.6	80.4	74.7	100.6
Sri Lanka	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taiwan	7.6	14.9	8.5	11.1	14.5	16.0	22.1	18.7	22.6	33.3	21.7	26.2	46.1	50.2	61.1
Thailand	1.3	1.0	1.0	0.0	1.0	0.0	0.0	3.1	3.9	2.2	3.8	3.5	4.7	3.0	3.8
Vietnam	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.6	1.0	0.0 *	0.0 *	0.8
Near East/North Africa	80.9	66.9	62.4	67.0	67.2	76.9	76.0	88.7	97.8	94.6	88.4	100.2	107.2	110.3	119.5
Algeria	0.5	1.2	1.0	0.6	1.2	1.3	0.8	1.3	0.0	0.5	2.2	1.8	2.6	2.0	2.8
Bahrain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.5
Egypt	15.8	8.3	2.8	11.2	3.2	6.1	4.7	10.3	9.2	7.5	8.4	2.8	9.9	9.3	8.3
Iran	4.0	2.9	3.0	2.5	1.7	5.8	9.2	9.7	14.2	12.8	11.2	18.9	17.2	17.7	23.5
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Israel	56.7	51.7	52.6	45.2	58.1	52.9	54.9	61.7	64.5	64.5	58.6	68.2	62.2	73.2	75.6
Jordan	0.0	0.0	1.0	3.0	0.0	2.5	0.3	0.0	0.3	0.0	0.1	0.0	1.0	0.5	0.5

Appendix table 5-29

S&E articles in astronomy, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	0.3
Lebanon	0.8	0.0	0.0	0.0	0.3	1.0	0.7	1.5	0.0	0.8	0.0	0.0	0.5	0.4	2.1
Libya	0.8	0.5	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Morocco	0.5	1.3	0.7	1.0	0.1	4.8	1.9	1.5	0.8	3.5	2.2	2.1	2.5	2.8	0.7
Oman	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.8	1.2	0.8	1.0	0.3
Qatar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Saudi Arabia	1.7	1.0	0.0	3.0	2.3	1.4	2.0	0.8	8.0	2.5	2.3	1.0	2.0	1.1	0.6
Syria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Tunisia	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	2.0	0.8	2.2	2.3	1.0	1.8
United Arab Emirates	0.0	0.0	0.3	0.0	0.0	1.0	1.5	1.5	0.5	0.0	0.7	1.0	2.3	1.0	1.5
Yemen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0
Central/South America	225.5	238.2	265.7	291.4	295.4	302.9	321.3	335.2	333.9	361.2	348.2	372.5	404.4	391.0	385.5
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	47.1	38.1	35.2	51.7	48.0	44.4	60.9	64.4	61.0	65.9	53.5	61.9	66.6	67.7	65.8
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.6	0.1	0.5	0.1
Brazil	53.7	73.9	87.8	82.2	86.3	112.6	82.5	83.1	83.1	86.2	87.2	107.0	109.7	110.8	100.7
Chile	64.0	56.1	62.2	48.3	53.6	60.3	68.3	94.9	85.9	96.4	93.1	113.7	103.9	104.7	105.5
Colombia	3.0	2.2	0.5	4.5	0.0	0.1	1.5	1.0	0.6	1.3	1.0	1.3	0.3	2.0	0.5
Costa Rica	0.0	0.0	0.0	0.0	0.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	1.3	0.4	0.8
Cuba	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.2	1.2	2.3	0.7	1.1
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guyana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	49.0	60.2	72.7	75.3	95.7	78.8	99.7	83.8	95.6	100.2	100.5	81.9	113.3	96.9	102.7
Nicaragua	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Paraguay	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	0.0	0.0	1.5	0.0	0.2	0.9	1.3	0.3	0.0	0.0	0.7	0.0	0.6
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.3	0.0	0.2	0.5	0.5	0.5	0.2	0.0
Uruguay	1.0	1.4	2.1	1.0	0.7	0.7	0.8	0.4	0.3	0.6	1.2	0.0	0.0	1.7	1.2
Venezuela	7.3	5.6	4.7	26.7	9.0	5.0	7.0	6.0	5.9	9.1	11.0	3.8	5.5	4.6	6.4
West Indies Assoc States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0

Appendix table 5-29

S&E articles in astronomy, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	89.4	39.1	41.2	50.1	45.3	30.8	36.8	51.6	40.3	33.6	36.2	37.7	50.4	45.1	54.1
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Botswana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Burkina Faso	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cameroon	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Côte d'Ivoire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.5	0.0	0.0
Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Madagascar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malawi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	0.3	0.0	0.0	0.3	0.0	1.0	1.5	7.8	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Namibia	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.3	0.3	0.4	0.5
Niger	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	4.5	3.9	2.0	4.2	1.5	0.3	0.3	2.5	1.0	0.0	0.5	1.3	2.5	4.6	4.3
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	84.6	34.5	37.7	42.8	43.5	29.4	33.9	40.0	39.2	31.9	33.2	35.6	44.3	39.1	44.9
Sudan	0.0	0.0	1.5	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.5	0.0	0.7	1.0	1.0
Swaziland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tanzania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.0	0.5	0.0	0.0	0.0

Appendix table 5-29

S&E articles in astronomy, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0 *	0.0	0.0	0.1	0.0	0.0	0.0
Zimbabwe	0.0	0.0	0.0	1.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	388.6	386.1	334.7	363.7	393.6	360.8	359.6	353.4	394.3	486.0	437.4	429.5	423.8	439.8	446.8
Australia	152.8	190.8	157.4	173.7	185.8	156.3	193.1	166.3	179.1	257.5	220.7	210.6	182.1	187.4	204.6
Canada	226.1	184.5	169.6	180.5	195.7	191.2	158.3	176.3	207.6	217.4	206.8	211.5	237.4	246.4	233.0
Fiji	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	9.8	10.8	7.7	9.6	12.1	13.3	8.3	10.8	7.7	11.1	9.9	7.4	4.3	6.1	9.2
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* = rounds to zero; NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-30

S&E articles in biological sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	142,506.0	142,588.0	141,863.0	145,556.0	144,485.0	147,031.0	144,465.0	146,119.0	149,263.7	154,509.0	156,226.0	157,420.0	159,204.0	159,740.0	157,294.0
United States	53,983.0	52,955.4	51,821.3	51,769.9	50,844.6	52,165.4	51,495.3	51,155.1	51,515.8	53,560.9	53,133.1	52,637.9	52,585.8	51,593.4	49,614.1
European Union	48,881.4	49,252.5	49,063.1	50,375.3	49,990.1	50,405.7	49,178.8	49,575.7	49,851.6	50,480.8	50,963.7	50,751.9	50,534.0	50,672.3	49,623.4
Austria	779.6	868.4	894.2	901.8	944.7	884.7	982.5	980.2	958.9	1,043.4	1,006.7	981.8	1,003.3	983.4	1,005.3
Belgium	1,481.4	1,503.9	1,477.4	1,456.0	1,495.3	1,413.3	1,430.5	1,448.5	1,491.4	1,580.1	1,638.0	1,511.7	1,543.8	1,584.6	1,597.1
Bulgaria	167.8	164.9	209.0	160.6	162.0	182.7	140.2	151.7	140.4	145.7	136.9	123.1	136.7	140.7	129.6
Cyprus	2.2	8.0	8.8	7.9	10.9	11.6	7.9	9.3	4.6	9.8	7.5	11.7	12.1	13.8	17.3
Czech Republic	440.9	488.3	531.3	545.4	603.4	601.8	629.3	688.7	733.7	792.9	797.8	808.6	892.2	974.0	919.1
Denmark	1,204.7	1,179.8	1,296.3	1,290.2	1,304.8	1,392.7	1,362.6	1,314.5	1,391.7	1,403.2	1,293.1	1,333.6	1,303.2	1,306.2	1,263.2
Estonia	49.1	61.0	54.4	80.4	92.5	93.0	85.4	83.7	80.3	100.8	128.8	123.0	132.0	103.9	144.8
Finland	1,049.5	1,117.4	1,049.3	1,202.3	1,244.7	1,266.1	1,263.2	1,241.1	1,242.4	1,267.2	1,220.7	1,251.7	1,213.1	1,240.7	1,109.3
France	7,665.9	7,914.0	7,689.5	7,736.5	7,606.8	7,537.3	7,211.8	7,031.7	6,877.9	6,794.9	6,781.4	6,613.9	6,526.7	6,453.4	6,287.0
Germany	8,551.5	8,670.5	8,958.2	9,482.3	9,284.5	9,303.5	9,082.2	9,027.1	8,870.9	9,111.8	9,389.4	9,141.7	9,099.0	8,984.7	8,818.9
Greece	342.3	344.6	378.7	448.8	389.8	539.8	507.9	562.5	567.5	621.1	711.8	792.1	742.1	828.2	746.2
Hungary	380.6	361.9	438.0	518.2	500.2	500.4	503.7	526.3	549.5	593.0	585.1	625.8	559.3	614.9	552.6
Ireland	300.1	323.1	299.8	354.9	372.1	352.3	355.3	365.3	373.7	401.2	462.0	462.6	513.1	512.1	553.8
Italy	4,240.0	4,394.8	4,388.5	4,386.9	4,354.0	4,501.9	4,392.0	4,562.4	4,773.9	4,876.7	4,947.2	5,105.1	5,074.9	5,109.9	5,073.0
Latvia	27.0	19.1	24.0	22.1	23.7	20.0	23.5	31.0	19.7	24.9	17.4	19.4	21.5	24.4	20.1
Lithuania	32.5	22.5	32.3	31.2	40.2	31.5	55.3	48.0	62.0	51.4	62.1	63.0	60.5	56.1	50.1
Luxembourg	9.7	8.4	10.5	16.3	9.8	17.1	19.1	14.5	15.7	25.0	17.3	23.3	21.9	31.3	37.8
Malta	2.1	1.5	4.5	3.3	1.5	1.0	2.8	3.3	13.8	9.2	1.4	2.9	3.8	6.3	7.6
Netherlands	3,322.6	3,204.7	3,058.1	3,040.0	3,000.5	2,957.0	2,826.6	2,951.7	2,866.1	2,948.6	2,986.5	2,862.5	2,899.8	2,976.3	2,859.9
Poland	631.0	689.4	670.6	703.0	741.4	834.0	802.7	914.3	1,087.9	1,000.9	1,142.3	1,243.7	1,175.1	1,163.1	1,157.9
Portugal	226.3	242.1	266.1	248.9	340.8	413.8	431.1	466.4	564.5	576.2	574.0	668.1	666.4	736.7	817.2
Romania	42.3	48.4	43.3	54.3	42.4	47.9	44.3	40.2	51.3	50.9	43.1	53.2	61.9	63.3	66.6
Slovakia	237.3	222.4	212.5	211.7	249.5	217.3	202.1	226.8	194.5	224.0	179.0	215.8	225.0	232.7	208.7
Slovenia	76.8	69.2	108.9	122.3	139.2	239.8	157.4	134.5	175.9	145.7	207.1	180.4	221.3	238.7	218.0
Spain	3,001.9	3,191.3	3,229.5	3,304.0	3,536.1	3,436.6	3,545.5	3,737.9	3,842.3	3,818.3	4,121.1	4,183.9	4,233.6	4,332.3	4,424.3
Sweden	2,701.6	2,565.1	2,528.1	2,659.9	2,615.2	2,548.8	2,634.9	2,553.3	2,531.1	2,459.2	2,422.6	2,429.9	2,345.7	2,256.1	2,112.7
United Kingdom	11,914.5	11,567.9	11,201.0	11,385.8	10,884.1	11,059.9	10,479.0	10,460.9	10,369.8	10,404.6	10,083.3	9,919.4	9,846.1	9,704.4	9,425.2
Other Western Europe	3,105.0	3,212.6	3,270.1	3,397.8	3,512.8	3,575.8	3,566.2	3,721.0	3,898.5	4,202.2	4,325.9	4,486.7	4,403.9	4,251.5	4,218.7
Albania	2.4	4.3	0.3	2.5	1.8	1.7	2.9	1.1	2.3	1.1	3.7	2.6	3.0	1.8	1.8
Andorra	0.0	0.0	0.5	0.0	0.0	0.5	0.3	1.0	0.5	0.0	0.0	0.0	0.2	0.0	0.0
Bosnia and Herzegovina	6.5	0.5	2.4	2.8	0.0	0.5	2.1	0.9	2.7	3.5	5.5	8.3	4.4	3.7	7.2
Croatia	61.1	73.6	74.1	78.3	98.4	93.9	101.8	99.6	125.5	131.2	154.2	182.1	167.6	169.5	176.9
Iceland	29.8	20.7	28.5	45.4	35.4	32.4	38.7	38.9	50.6	51.4	53.3	41.6	51.5	43.7	46.8
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2	0.5	0.3	0.5	0.6	0.0
Macedonia	2.8	0.5	2.5	3.6	1.7	2.6	7.5	2.9	1.9	5.8	7.1	3.6	6.8	7.2	4.8
Monaco	3.8	4.4	1.9	6.8	2.2	1.7	2.4	2.1	6.4	3.1	2.6	4.3	1.3	1.1	2.5
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	1.4	1.5	1.0
Norway	609.6	601.3	673.9	703.1	704.8	746.9	788.4	742.6	723.0	758.0	794.7	841.1	831.7	812.7	836.5
San Marino	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.7	152.7	184.9	146.0
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	165.3	68.8	NA	NA	NA
Switzerland	2,023.2	2,102.1	2,080.8	2,076.5	2,157.2	2,155.7	2,031.4	2,043.2	1,998.3	2,104.4	2,054.6	2,129.6	2,073.6	2,013.9	2,094.1
Turkey	265.0	307.2	332.7	376.7	414.2	447.1	510.0	717.3	887.6	1,007.0	1,084.3	1,134.6	1,109.0	1,010.9	901.1
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-30

S&E articles in biological sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	100.7	97.9	72.4	101.6	97.2	92.8	80.7	71.3	99.5	135.2	NA	NA	NA	NA	NA
Other former USSR	3,733.9	3,791.1	3,615.2	3,449.4	3,551.7	2,601.9	1,667.4	1,885.2	1,911.6	1,866.4	1,760.9	1,347.3	1,319.6	1,115.2	1,050.9
Armenia	31.0	40.1	22.0	18.2	17.7	15.1	11.7	19.4	13.6	13.4	13.9	18.5	10.6	12.4	6.0
Azerbaijan	11.0	9.9	8.5	10.3	7.7	6.0	1.1	3.3	3.7	7.2	11.5	3.6	3.6	0.3	2.3
Belarus	78.8	90.0	92.4	63.3	79.2	73.1	53.7	55.4	53.1	55.8	49.1	31.8	38.0	29.5	33.5
Georgia	11.3	13.5	17.5	11.1	4.6	13.0	7.1	9.1	6.3	11.3	15.2	13.6	7.4	13.4	6.8
Kazakhstan	14.8	17.3	12.8	14.4	9.5	6.9	6.8	7.7	10.5	9.0	5.7	3.4	7.4	4.2	5.9
Kyrgyzstan	3.5	0.9	2.0	2.0	0.5	1.0	0.4	0.2	0.5	1.1	0.4	1.5	1.0	1.3	1.2
Moldova	16.9	7.3	8.6	4.1	6.2	8.0	6.0	4.5	4.8	5.4	2.8	3.8	1.9	3.2	4.3
Russia	3,350.1	3,417.6	3,236.5	3,129.3	3,244.0	2,365.8	1,489.2	1,653.2	1,704.6	1,653.1	1,570.0	1,188.5	1,155.1	971.4	936.6
Tajikistan	16.0	8.2	10.3	6.0	12.5	4.5	2.1	1.8	0.5	0.8	0.0	1.0	0.2	1.5	0.2
Turkmenistan	3.0	3.5	1.8	1.2	0.5	1.7	1.3	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Ukraine	175.4	166.8	190.5	170.0	151.6	96.2	80.1	124.8	105.6	103.5	84.6	71.2	86.5	69.7	49.4
Uzbekistan	22.0	16.0	12.3	19.6	17.7	10.5	8.0	5.1	8.3	5.5	7.7	10.4	8.1	8.2	4.7
Asia	16,472.5	16,975.7	17,417.9	19,376.8	19,575.8	20,686.3	20,797.5	21,412.4	23,048.8	24,808.2	26,092.2	27,509.1	28,831.3	30,212.0	31,298.9
Afghanistan	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5	0.0	0.6	0.3	0.3	1.1	0.5
Bangladesh	30.4	26.2	27.4	27.5	30.7	27.7	28.2	27.4	39.4	40.1	35.1	40.4	42.3	42.3	47.7
Bhutan	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.0	1.3	0.3	4.6	1.4	1.3	2.8
Brunei	1.7	1.0	4.2	3.5	4.3	6.5	3.3	1.6	1.3	2.5	1.8	2.7	6.7	3.7	2.3
Burma	3.7	0.8	0.1	2.7	1.2	2.5	2.1	1.5	3.2	1.3	3.2	5.2	3.6	2.2	5.0
Cambodia	0.5	0.0	0.7	1.3	2.0	1.0	1.3	1.6	6.4	4.7	8.7	8.6	6.4	6.2	9.4
China	889.4	1,157.6	1,219.9	1,906.2	2,018.4	2,222.7	2,597.8	2,819.5	3,684.9	4,485.6	5,538.8	6,832.8	7,945.2	9,009.9	10,516.8
India	1,871.2	1,901.4	1,863.1	1,963.6	2,033.3	1,976.4	2,118.9	2,252.2	2,517.1	2,633.9	2,822.9	3,037.4	3,206.6	3,246.1	3,360.3
Indonesia	43.3	45.7	37.3	51.1	48.9	58.9	48.9	55.6	46.7	55.7	56.7	60.2	57.6	60.1	67.8
Japan	11,792.6	11,785.8	12,048.2	12,725.8	12,560.5	13,089.7	12,485.9	12,398.7	12,324.9	12,322.5	11,984.3	11,519.6	11,342.8	11,159.6	10,374.3
Laos	0.5	0.0	0.5	4.0	0.0	1.1	1.7	0.3	1.3	3.3	4.5	3.8	3.1	1.5	5.8
Malaysia	79.5	86.1	74.6	76.3	90.3	91.9	87.0	93.9	93.0	114.9	129.4	118.2	125.0	139.2	183.5
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	1.0	0.0	0.0	0.0	1.3
Mongolia	4.7	4.5	7.3	2.7	3.6	1.1	4.5	2.1	5.9	3.6	5.1	6.7	7.5	9.7	17.2
Nepal	8.9	7.5	10.5	5.9	11.8	9.6	13.1	10.3	15.7	17.4	16.6	24.1	18.8	13.8	15.5
North Korea	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	0.3	0.0	2.8	1.2	3.0
Pakistan	77.2	51.5	72.9	72.9	83.7	56.0	63.6	66.7	77.5	90.3	92.0	108.5	111.5	164.4	191.5
Philippines	53.1	46.1	56.2	48.4	54.5	51.4	36.8	44.0	51.3	44.1	56.6	41.7	41.3	53.2	55.1
Singapore	196.5	176.9	197.4	216.9	255.8	291.6	275.4	340.3	386.3	475.5	530.4	547.8	544.3	555.4	633.2
South Korea	491.1	643.7	721.3	1,085.3	1,254.7	1,548.1	1,643.9	1,871.1	2,230.1	2,618.4	2,822.7	2,973.8	3,157.0	3,246.4	3,407.5
Sri Lanka	26.9	19.8	19.8	20.6	30.0	23.1	23.4	33.3	42.2	35.0	37.0	32.2	25.5	27.4	27.8
Taiwan	766.6	889.9	918.9	973.8	896.7	1,010.8	1,128.9	1,131.2	1,198.0	1,487.7	1,559.3	1,694.3	1,669.8	1,925.4	1,831.3
Thailand	121.8	116.1	116.6	165.8	166.1	193.0	197.4	234.3	287.8	332.9	344.5	393.9	466.8	499.5	489.1
Vietnam	11.9	15.1	21.1	21.9	26.8	23.0	35.4	26.4	32.8	36.6	40.6	52.4	45.0	42.5	50.5
Near East/North Africa	2,003.8	1,750.3	1,982.8	2,015.0	1,974.4	2,105.8	2,152.6	2,275.0	2,432.1	2,399.9	2,432.1	2,493.8	2,778.0	2,783.0	2,816.0
Algeria	15.9	14.1	8.9	8.7	16.5	8.5	12.9	17.9	20.1	17.3	16.6	23.5	27.8	33.5	37.5
Bahrain	2.3	1.8	2.5	1.6	1.0	5.0	4.3	3.5	10.3	6.2	8.3	9.3	7.3	9.9	4.0
Egypt	189.7	154.6	149.0	178.1	181.1	175.9	187.2	207.8	217.0	195.2	198.4	197.0	196.2	214.3	264.8
Iran	77.0	44.0	66.8	74.5	76.5	101.9	121.5	160.6	247.7	275.8	356.8	397.7	606.7	573.0	641.8
Iraq	10.7	4.5	9.7	7.3	4.5	3.9	4.5	2.0	4.8	2.1	3.4	9.0	5.1	4.4	2.8
Israel	1,372.6	1,202.8	1,372.8	1,351.1	1,310.3	1,456.5	1,403.6	1,479.5	1,477.4	1,465.5	1,385.8	1,387.0	1,408.9	1,398.4	1,279.0
Jordan	29.8	18.7	29.4	39.8	31.1	42.0	35.9	35.9	41.2	36.7	35.5	34.8	40.2	40.8	43.5

Appendix table 5-30

S&E articles in biological sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	44.4	34.2	40.7	50.2	65.6	51.5	52.0	41.3	55.1	48.8	56.7	38.9	48.1	43.8	42.3
Lebanon	4.2	12.2	27.7	28.4	25.0	25.2	48.4	38.5	51.3	40.4	36.8	34.7	39.4	44.7	36.2
Libya	6.5	3.8	2.5	6.6	4.7	0.8	7.6	4.7	3.8	0.9	4.6	5.6	3.9	3.4	4.5
Morocco	21.2	32.9	41.0	56.6	65.8	50.6	58.4	62.4	43.7	54.4	49.0	42.1	41.1	40.3	38.8
Oman	10.2	11.0	11.3	19.7	12.7	13.4	10.5	12.7	18.9	12.9	17.3	13.4	11.4	11.9	9.9
Qatar	2.0	5.8	3.0	6.2	1.5	1.6	3.0	0.3	1.0	6.1	2.9	5.5	4.3	7.5	9.7
Saudi Arabia	138.1	144.6	132.7	110.9	98.0	88.0	96.6	100.9	105.5	87.3	79.1	75.6	83.4	75.5	98.6
Syria	14.0	14.1	12.2	14.0	15.1	8.4	14.6	9.6	20.2	17.7	12.1	8.9	12.7	12.2	11.9
Tunisia	31.9	22.8	35.9	31.7	36.1	41.1	63.1	66.3	67.8	82.8	114.0	150.0	195.5	214.0	246.5
United Arab Emirates	30.2	25.5	34.1	25.5	27.7	27.9	24.0	27.6	42.0	46.8	52.1	55.4	44.2	55.1	41.2
Yemen	2.9	3.0	2.6	3.9	1.2	3.5	4.6	3.3	4.5	3.0	2.8	5.2	1.7	0.5	2.9
Central/South America	2,803.0	3,093.8	3,313.5	3,615.1	3,663.2	3,916.1	4,075.9	4,627.5	4,972.0	5,368.9	5,253.7	5,605.6	5,914.6	6,400.6	6,091.9
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.5	0.0
Argentina	584.6	691.4	735.8	774.8	720.3	828.6	855.4	936.6	947.2	867.1	902.3	1,022.8	994.8	1,061.0	1,102.9
Bahamas	0.0	1.6	0.5	0.9	1.2	0.7	0.3	0.3	0.6	0.5	0.2	0.7	1.1	1.0	0.4
Barbados	2.3	2.9	5.8	6.3	3.9	3.4	3.5	4.9	4.8	2.5	2.3	3.7	1.5	5.8	1.1
Belize	1.2	0.2	1.1	0.3	0.9	0.3	0.7	0.9	0.8	0.3	1.4	2.4	0.6	0.0	0.5
Bolivia	5.5	10.5	16.0	9.8	13.5	16.4	11.1	16.0	16.9	13.8	17.2	20.1	26.3	17.4	21.9
Brazil	1,034.6	1,168.8	1,292.3	1,462.1	1,606.8	1,691.8	1,732.2	2,124.6	2,284.0	2,637.2	2,454.3	2,771.8	2,920.2	3,345.0	3,138.7
Chile	231.8	194.2	211.4	221.9	230.3	210.0	223.0	258.6	275.0	315.9	334.5	288.9	352.7	352.4	337.7
Colombia	58.8	66.8	58.7	58.3	72.1	82.4	89.1	107.7	99.2	115.6	115.7	113.2	114.6	113.3	121.2
Costa Rica	31.6	45.4	39.8	40.0	32.4	38.1	48.2	41.9	51.0	47.7	58.7	33.2	50.8	51.5	45.2
Cuba	55.4	70.5	57.4	85.5	71.7	85.5	94.0	65.9	93.6	92.6	78.9	99.7	68.9	74.5	71.3
Dominica	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.3
Dominican Republic	1.0	5.1	3.1	2.8	1.1	3.3	2.0	1.4	2.4	2.5	0.3	1.3	1.1	2.4	1.2
Ecuador	10.7	9.5	12.4	10.0	6.1	12.0	6.9	14.4	15.0	19.1	15.8	15.0	26.9	22.3	27.8
El Salvador	0.5	1.0	0.8	0.0	0.0	0.5	0.5	0.9	0.5	1.3	2.6	0.8	2.4	1.4	1.4
Grenada	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.6	1.3	1.0	3.2	2.8	0.7	3.6
Guatemala	9.0	10.0	11.5	9.3	5.7	7.7	9.7	12.4	5.2	9.3	6.7	4.5	8.7	6.2	9.3
Guyana	2.2	1.2	0.5	1.0	0.8	1.7	1.3	4.2	1.1	0.7	2.1	0.2	2.6	0.6	0.0
Haiti	0.3	0.0 *	0.2	0.5	0.3	0.8	0.7	0.8	1.9	0.5	0.0	1.6	1.1	0.7	2.6
Honduras	1.6	3.8	2.6	6.1	1.6	2.0	2.5	2.4	1.1	1.2	2.3	2.0	1.9	0.4	1.4
Jamaica	14.6	14.6	18.3	9.8	12.8	10.4	14.5	15.3	8.6	13.6	10.5	15.1	8.1	5.4	6.3
Mexico	536.6	548.3	587.6	663.6	638.9	663.7	706.1	747.6	848.1	911.0	942.9	919.5	985.6	1,011.3	921.6
Nicaragua	1.6	2.3	4.2	1.0	3.3	2.5	0.8	0.5	2.5	3.7	5.1	3.0	4.0	4.1	2.6
Panama	28.8	21.4	28.7	25.0	31.9	25.4	37.2	38.2	34.3	43.0	35.5	39.1	54.2	47.5	48.4
Paraguay	3.0	5.5	3.2	3.1	3.0	2.9	4.0	3.7	5.4	3.4	5.7	1.4	4.9	4.3	5.1
Peru	27.4	27.3	24.7	25.6	15.6	24.2	30.6	32.7	41.9	34.9	41.2	43.7	62.1	49.3	47.2
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.4
St Lucia	0.0	0.0	0.5	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0
St Vincent	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Suriname	0.0	1.2	2.1	0.9	2.5	0.9	0.5	1.2	1.6	2.3	1.5	0.9	0.1	1.0	0.0
Trinidad and Tobago	17.6	12.7	16.8	15.5	9.0	13.0	9.6	8.1	18.4	15.0	10.5	6.0	11.7	10.8	8.0
Uruguay	33.6	33.6	40.3	40.6	45.6	49.6	48.6	46.7	72.3	74.9	69.8	65.9	62.4	68.7	82.0
Venezuela	108.1	142.5	136.7	138.3	131.0	136.3	140.6	139.0	136.8	137.2	133.2	123.0	139.0	135.6	78.7
West Indies Assoc States	0.3	1.0	0.8	1.0	0.8	0.5	1.9	0.5	1.2	0.8	0.6	2.1	2.7	5.4	1.9

Appendix table 5-30

S&E articles in biological sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	1,157.5	1,152.1	1,154.9	1,194.3	1,175.3	1,246.4	1,254.9	1,260.5	1,260.5	1,276.0	1,330.2	1,379.6	1,472.3	1,470.9	1,465.0
Angola	0.3	0.0	0.9	0.5	1.4	2.0	2.6	0.8	0.9	1.0	1.4	0.9	2.0	0.5	0.9
Benin	8.0	9.0	12.2	8.7	7.6	9.9	11.1	13.8	9.4	9.6	13.0	10.3	10.6	19.8	20.2
Botswana	6.0	9.2	7.0	10.5	5.0	4.7	5.1	9.5	19.4	10.7	11.2	13.3	16.9	8.4	13.5
Burkina Faso	4.2	5.7	7.4	11.8	6.0	8.8	10.7	9.2	18.6	15.3	12.3	20.1	14.1	15.8	24.5
Burundi	1.7	1.7	1.2	0.8	1.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0
Cameroon	19.0	17.6	25.4	29.8	24.3	23.5	29.1	34.6	39.1	42.6	32.3	41.1	51.4	39.7	33.6
Cape Verde	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.5
Central African Republic	2.1	0.8	1.6	1.2	2.4	1.2	1.7	1.4	3.7	3.1	3.1	3.0	3.0	2.5	3.1
Chad	0.7	0.0	0.1	0.0	0.3	0.5	0.3	0.7	0.8	0.3	2.8	1.5	0.7	0.7	1.5
Comoros	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.7	0.2	1.0	0.0	0.3	0.3	0.0
Congo (Brazzaville)	2.3	4.8	6.4	5.1	8.7	5.8	0.9	4.3	4.5	8.7	7.7	7.6	5.0	7.6	7.1
Congo (Kinshasa)	3.9	7.1	4.8	1.6	4.3	2.6	0.9	1.4	1.5	1.7	3.7	0.3	2.3	3.9	5.6
Côte d'Ivoire	16.2	14.2	13.8	12.9	15.9	17.4	15.6	13.9	22.8	18.2	16.5	16.0	17.8	15.2	20.7
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.4	0.4	0.2	0.3	0.0	0.5
Equatorial Guinea	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.2	0.9	0.5	0.2	0.0	0.7	0.0	0.3
Eritrea	0.0	0.5	0.0	1.3	1.3	3.2	0.0	2.1	1.3	0.5	1.1	3.1	0.6	0.8	0.3
Ethiopia	21.9	19.5	20.3	17.9	20.0	19.3	24.6	33.1	36.5	24.2	29.0	30.7	37.7	27.2	37.7
Gabon	6.9	6.3	7.1	13.6	15.3	6.1	13.3	14.6	12.6	12.0	12.5	11.2	9.4	11.3	12.3
Gambia	7.9	11.1	11.2	11.0	7.1	9.4	9.7	8.3	7.6	9.5	9.0	13.0	8.9	10.3	12.4
Ghana	10.4	19.3	11.6	10.6	20.4	20.2	19.3	21.1	18.0	20.2	25.4	23.8	29.9	31.1	23.8
Guinea	0.3	0.7	1.0	1.5	1.4	1.0	1.1	0.5	0.2	1.1	2.4	3.3	1.5	1.4	1.5
Guinea-Bissau	0.9	1.8	2.2	1.6	2.6	2.0	4.1	3.1	2.2	4.2	4.3	3.3	3.4	2.8	2.7
Kenya	106.5	92.2	94.7	92.6	70.6	78.8	90.8	97.7	95.7	88.1	90.0	106.1	102.6	117.4	119.9
Lesotho	0.0	0.0	0.0	0.0	1.0	2.5	1.2	1.0	0.3	0.0	0.0	0.0	0.0	0.2	0.9
Liberia	0.3	1.0	0.3	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.5	0.9	0.0	0.5	0.0
Madagascar	6.4	6.1	6.9	8.3	13.4	17.5	16.9	13.1	17.3	18.1	21.2	21.8	24.2	17.7	18.7
Malawi	10.8	7.3	7.5	7.1	7.8	10.5	12.9	14.7	14.0	9.8	12.2	15.4	14.4	16.6	12.6
Mali	1.7	4.7	3.1	3.5	3.3	5.5	5.9	6.2	5.5	11.2	12.5	12.7	7.1	10.3	10.4
Mauritania	0.7	0.3	0.6	1.4	0.9	2.2	0.9	0.5	1.2	1.2	1.0	1.3	0.3	0.5	0.5
Mauritius	3.2	0.8	0.5	4.0	3.3	4.3	4.9	6.7	4.6	10.8	4.4	7.9	5.0	3.4	4.0
Mozambique	0.0	1.9	0.5	2.5	2.6	2.4	3.7	3.1	2.9	3.3	11.0	4.2	5.5	6.3	9.2
Namibia	6.3	9.4	7.0	10.7	5.8	9.1	11.7	9.0	12.5	7.8	14.5	10.0	5.6	7.8	6.9
Niger	3.7	7.8	7.4	7.5	7.4	4.3	3.2	4.3	1.3	2.0	3.2	5.1	8.1	3.9	5.6
Nigeria	82.4	92.4	91.7	89.0	94.5	110.3	85.1	86.4	95.3	79.9	70.9	76.9	89.6	84.5	81.9
Rwanda	6.3	2.9	2.0	3.4	1.0	0.4	1.1	0.8	0.6	1.6	2.7	1.5	3.9	2.4	3.0
São Tomé and Príncipe	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.3	0.0	0.2	0.0
Senegal	33.7	24.7	23.5	24.2	31.1	27.2	20.8	16.8	23.4	28.2	34.4	21.1	25.9	19.2	13.3
Seychelles	3.1	1.8	1.0	0.7	0.3	1.3	2.5	0.3	3.8	1.0	0.5	1.6	2.3	1.1	1.9
Sierra Leone	0.8	1.8	1.6	0.0	0.0	0.3	2.3	1.3	0.1	0.0	0.3	0.0	0.0	0.6	0.5
Somalia	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
South Africa	690.3	674.3	672.5	692.2	675.9	722.7	733.9	712.9	666.4	698.0	751.8	761.1	762.7	830.8	798.6
Sudan	13.0	8.9	8.1	14.2	15.7	12.7	11.0	11.4	11.2	13.4	11.4	13.5	14.8	13.4	15.1
Swaziland	2.2	3.5	3.0	3.6	1.0	1.0	0.5	1.0	2.0	0.0	0.5	1.0	0.9	2.2	2.8
Tanzania	23.0	27.6	22.0	20.6	23.3	28.2	22.2	28.9	24.5	29.3	31.6	36.8	40.3	42.3	43.7
Togo	0.0	0.8	2.9	2.5	4.0	1.4	0.5	1.1	3.4	0.7	3.1	4.3	2.4	0.9	2.6
Uganda	15.8	12.5	18.9	20.8	24.8	28.2	31.0	24.3	33.9	62.0	33.8	40.8	95.7	53.6	57.9

Appendix table 5-30

S&E articles in biological sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	6.9	4.8	7.7	7.4	4.7	5.9	8.9	7.9	8.1	8.0	9.1	13.5	12.2	13.8	9.6
Zimbabwe	27.5	34.8	37.2	36.9	36.8	31.6	32.4	37.4	31.4	17.4	20.3	18.9	31.7	21.5	22.5
Other	10,365.9	10,404.5	10,224.1	10,362.3	10,197.0	10,327.5	10,276.3	10,206.7	10,372.7	10,545.4	10,934.2	11,208.1	11,364.6	11,241.0	11,115.1
Australia	3,566.9	3,579.4	3,663.2	3,804.5	3,831.0	3,768.1	3,861.0	3,800.7	3,798.9	3,915.2	3,945.4	4,130.5	4,118.2	4,195.2	4,188.2
Canada	6,082.0	6,087.3	5,838.3	5,779.7	5,583.6	5,730.7	5,616.2	5,620.1	5,782.8	5,856.4	6,153.5	6,216.5	6,403.6	6,228.2	6,082.0
Fiji	2.1	2.8	1.5	1.5	1.5	0.8	3.3	6.7	2.4	2.5	4.8	6.5	4.7	5.0	4.4
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.8	1.0	2.6	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.0	0.3	0.0	0.0	0.0
Micronesia	2.0	2.0	0.0	0.0	0.7	1.3	0.5	0.0	0.8	0.0	0.9	0.0	0.0	0.0	1.2
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	699.5	724.2	710.1	767.0	767.3	816.5	778.8	765.9	772.8	760.1	820.2	845.7	827.8	801.9	829.0
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.9	0.5	0.4	1.5	0.0	0.0
Papua New Guinea	10.7	6.9	8.1	7.7	9.5	8.8	15.8	10.4	13.1	7.4	7.9	7.0	7.9	9.7	9.3
Solomon Islands	0.0	0.5	0.2	1.0	1.8	0.8	0.0	0.3	1.0	0.2	0.4	0.8	0.1	0.0	0.0
Tonga	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.6	0.3	0.0	0.0	1.2	0.5	0.0	1.0	0.1	1.4	0.7	0.5	0.8	1.0	1.0
Western Samoa	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* = rounds to zero; NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-31

S&E articles in chemistry, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	68,319.0	71,475.0	72,073.0	73,538.0	74,803.0	75,679.0	76,538.0	78,072.0	81,409.0	87,695.0	89,757.0	93,693.0	95,693.0	98,587.0	102,825.0
United States	14,737.9	14,857.9	14,537.0	14,424.2	14,236.3	14,378.5	14,304.4	14,469.3	15,294.2	15,949.9	16,204.4	16,593.8	15,780.7	16,155.6	16,429.8
European Union	26,277.3	27,702.7	27,994.8	28,670.0	28,268.7	27,634.0	27,515.8	27,405.8	27,439.6	28,813.7	29,015.3	29,306.4	29,595.3	29,578.9	30,416.9
Austria	384.8	342.5	439.5	419.8	422.3	413.7	461.3	397.4	431.5	493.0	455.0	442.0	473.3	480.2	518.4
Belgium	599.6	687.0	753.2	639.1	666.4	656.2	648.3	699.0	697.7	766.7	790.0	701.6	753.0	731.5	766.7
Bulgaria	298.9	263.7	265.7	237.8	224.8	237.1	189.0	211.9	200.7	217.5	185.5	239.3	213.4	183.2	174.9
Cyprus	1.5	2.0	0.7	3.3	3.8	4.9	8.6	13.0	5.3	15.2	15.9	20.0	25.3	19.2	37.8
Czech Republic	552.3	695.4	636.9	644.7	598.7	631.5	584.4	642.9	612.4	680.9	675.5	825.4	769.4	792.7	842.0
Denmark	302.0	294.0	345.9	369.5	355.8	355.6	383.1	334.8	366.1	366.2	405.8	355.1	355.1	356.8	417.3
Estonia	28.9	40.1	37.9	42.0	34.8	33.9	32.0	35.4	39.1	48.9	44.5	56.6	44.2	49.0	54.6
Finland	284.5	353.3	339.2	327.4	378.1	379.0	382.8	400.4	378.3	420.0	388.8	400.8	401.6	385.9	410.8
France	4,242.3	4,140.5	4,252.8	4,589.1	4,395.5	4,012.8	3,961.3	3,907.6	3,967.2	3,967.9	3,981.8	4,066.4	4,095.2	4,289.5	4,253.9
Germany	5,944.0	6,253.3	6,333.7	6,480.1	6,280.0	5,921.1	5,546.2	5,325.6	5,412.1	5,724.9	5,743.1	5,717.5	5,729.0	5,984.8	6,158.4
Greece	273.0	332.9	323.3	322.9	327.3	338.6	414.8	435.0	430.4	464.3	480.7	570.4	533.9	505.1	519.9
Hungary	526.7	545.1	610.0	593.2	618.0	585.6	572.7	526.2	494.9	500.3	521.5	519.0	469.6	475.9	432.1
Ireland	93.7	119.2	133.6	148.6	135.9	120.9	142.7	151.1	178.9	180.6	199.3	206.8	243.6	275.5	277.9
Italy	2,266.1	2,424.4	2,286.7	2,419.7	2,498.3	2,459.2	2,663.9	2,647.3	2,747.5	2,784.1	2,907.8	2,770.9	2,933.9	2,863.1	2,957.4
Latvia	45.4	47.0	56.4	51.8	58.2	50.1	37.6	50.6	45.6	45.5	33.1	25.4	43.3	30.7	37.9
Lithuania	34.5	46.4	44.9	77.2	49.7	73.1	48.6	68.9	47.5	66.4	56.0	81.5	68.6	64.8	64.6
Luxembourg	2.2	0.0	1.8	2.3	1.0	0.0	0.5	2.2	1.8	1.8	3.0	4.1	6.0	9.8	10.6
Malta	0.8	1.3	1.8	2.0	0.0	0.0	2.0	2.8	1.0	0.5	1.8	0.3	1.5	0.0	0.0
Netherlands	1,028.9	1,175.2	1,163.4	1,107.2	1,101.1	1,017.4	1,095.5	1,016.5	1,034.3	1,114.6	1,172.3	1,071.1	990.8	955.4	1,111.3
Poland	1,373.9	1,307.9	1,251.4	1,430.6	1,464.6	1,510.3	1,474.5	1,610.6	1,673.5	1,751.4	1,787.8	1,702.7	1,815.1	1,830.2	1,774.0
Portugal	170.4	200.3	258.5	266.5	308.2	338.2	431.9	417.7	416.1	509.2	572.1	627.3	654.2	728.8	754.5
Romania	270.0	276.8	346.0	332.0	347.5	329.3	335.4	349.4	303.5	294.0	313.1	324.4	361.2	403.4	415.8
Slovakia	249.8	379.6	283.1	415.1	233.9	235.5	203.9	189.8	179.5	207.3	203.0	204.3	200.2	193.9	192.7
Slovenia	109.2	111.1	142.7	118.3	116.7	133.8	140.6	152.1	151.9	143.8	180.3	146.5	195.2	195.1	199.7
Spain	2,206.6	2,413.6	2,457.0	2,487.9	2,695.2	2,750.2	2,879.6	3,023.5	2,871.6	3,150.2	3,292.7	3,365.1	3,647.1	3,320.2	3,468.5
Sweden	757.8	792.1	802.2	847.1	764.1	790.7	855.2	817.9	851.3	935.8	863.5	920.4	842.2	758.9	778.9
United Kingdom	4,229.6	4,457.8	4,426.2	4,294.8	4,188.6	4,255.3	4,019.2	3,976.4	3,899.6	3,962.4	3,741.2	3,941.3	3,729.5	3,695.3	3,786.2
Other Western Europe	1,663.7	1,863.0	1,936.9	1,915.3	2,146.4	2,072.9	2,094.2	2,036.1	2,206.8	2,577.7	2,618.8	2,679.4	2,805.7	2,683.1	2,780.9
Albania	2.8	3.2	2.3	1.3	1.7	1.7	2.2	5.3	1.0	0.8	1.2	0.7	0.0	0.0	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.5	1.0	1.5	1.0	0.0	2.0	0.3	0.5	1.6	0.8	1.8	1.2	2.9	0.0	1.0
Croatia	155.0	166.7	148.0	138.5	165.3	147.6	135.6	140.5	146.5	158.5	184.5	164.0	178.7	178.0	185.5
Iceland	3.6	7.5	6.4	7.8	4.8	7.5	5.8	8.2	6.5	6.7	1.3	4.4	9.0	8.2	8.1
Liechtenstein	3.3	4.0	5.3	2.5	7.0	1.0	3.5	2.0	2.3	2.0	1.5	3.2	1.8	3.2	4.3
Macedonia	10.7	15.3	24.6	14.5	28.9	27.5	34.0	19.1	24.7	16.6	17.4	13.0	19.4	13.7	14.1
Monaco	0.2	3.1	1.3	1.5	4.8	1.7	8.1	2.5	0.8	3.0	5.1	0.2	0.5	0.0	2.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1	1.6	0.0	0.8
Norway	248.7	246.9	224.2	261.0	245.8	222.8	206.2	163.6	167.6	219.0	249.9	282.4	256.7	238.9	233.0
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	67.6	209.7	145.0	194.1
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	144.8	73.2	NA	NA	NA
Switzerland	853.8	940.4	1,029.0	982.7	1,110.1	1,059.4	1,021.2	960.7	1,050.6	1,154.7	1,118.5	1,103.9	1,029.7	1,081.6	1,109.1
Turkey	291.9	367.7	371.5	390.4	461.7	496.2	581.1	651.6	684.8	860.2	892.8	964.6	1,095.5	1,014.7	1,028.9
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-31

S&E articles in chemistry, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	93.2	107.3	122.8	114.1	116.1	105.5	96.2	81.9	120.2	155.3	NA	NA	NA	NA	NA
Other former USSR	5,565.2	5,648.8	5,266.1	4,982.0	4,863.3	5,252.4	5,055.7	5,050.3	4,958.4	5,157.3	4,931.7	4,787.6	5,130.5	5,102.8	4,937.3
Armenia	23.7	24.4	35.2	28.3	31.2	41.0	26.7	23.7	35.5	41.1	52.2	44.3	46.9	47.2	35.0
Azerbaijan	46.2	50.3	34.0	28.8	16.9	29.8	24.8	27.2	34.4	45.0	51.7	49.2	37.8	39.9	66.9
Belarus	164.4	131.5	151.1	137.3	153.0	150.3	143.5	140.8	139.0	149.8	119.2	145.5	106.4	106.0	100.0
Georgia	16.6	28.8	23.8	19.8	28.3	30.4	22.1	21.9	13.5	19.4	21.2	37.1	25.7	19.7	17.3
Kazakhstan	69.5	61.2	43.7	50.3	40.5	48.3	41.0	50.6	51.7	40.4	47.6	40.2	36.3	30.3	39.2
Kyrgyzstan	2.0	2.7	2.5	1.8	2.5	2.5	1.3	2.0	1.0	0.5	3.6	2.0	1.3	1.3	3.0
Moldova	46.7	44.3	24.3	22.3	24.1	40.5	27.6	22.9	21.6	26.2	26.7	33.8	21.9	21.8	28.8
Russia	4,421.1	4,609.2	4,277.0	4,055.1	3,929.6	4,328.5	4,246.2	4,190.0	4,161.9	4,255.6	4,049.5	3,919.6	4,330.6	4,300.6	4,173.4
Tajikistan	6.0	7.8	10.0	6.8	7.0	4.0	5.8	6.3	5.0	5.0	3.9	6.5	6.5	5.5	4.5
Turkmenistan	0.3	1.8	3.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Ukraine	585.0	568.7	519.3	511.1	510.4	479.3	431.6	492.9	433.1	495.1	498.0	465.0	473.9	498.4	440.0
Uzbekistan	183.7	118.0	141.8	120.2	119.9	97.8	85.1	71.4	61.8	79.1	57.5	44.5	43.2	32.1	29.2
Asia	14,119.6	15,056.4	16,041.6	17,067.0	18,733.0	19,423.9	20,533.4	21,761.7	23,595.3	26,734.4	27,924.5	30,892.1	32,707.7	34,914.2	37,616.2
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	24.3	25.3	20.2	15.9	26.2	14.1	30.7	22.8	27.7	29.3	28.9	32.0	29.8	27.1	33.5
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	2.0	2.6	0.3	4.1	2.5	1.0	1.6	0.9	1.3	3.0	1.0	1.3	0.0	0.3	0.3
Burma	6.5	0.8	1.0	0.5	1.0	0.5	0.0	0.0	0.9	0.8	2.4	0.3	0.8	0.3	0.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.7	0.3
China	2,013.7	2,350.8	2,749.6	3,102.5	4,111.0	4,771.1	5,571.2	6,250.5	7,395.1	9,319.4	10,494.3	12,510.1	13,924.5	15,722.1	17,762.7
India	2,472.3	2,574.4	2,549.3	2,625.4	2,661.8	2,514.8	2,729.8	3,113.0	3,298.3	3,759.7	3,910.5	4,593.4	4,804.9	4,704.6	4,946.0
Indonesia	7.7	5.1	14.2	7.9	13.6	12.4	18.3	11.1	15.7	16.6	23.7	15.6	19.9	19.2	23.5
Japan	7,598.1	7,805.6	8,148.1	8,511.6	8,599.8	8,768.0	8,448.3	8,392.7	8,579.6	8,800.2	8,675.3	8,344.3	8,494.4	8,249.0	8,253.7
Laos	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.3
Malaysia	101.1	102.1	108.5	117.8	145.7	128.3	149.8	106.9	88.1	110.3	92.7	109.6	128.1	139.8	190.1
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.5	1.0	1.3	0.3	1.3	1.5	3.5	2.7	0.7	2.0	2.3	0.5	1.0	2.2	2.6
Nepal	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.7	2.9	1.5	1.3	0.5	2.2
North Korea	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	1.0	0.0	0.0	1.3	0.0	1.3	0.8
Pakistan	67.6	48.3	38.2	40.2	53.1	50.9	49.5	78.8	75.8	92.5	111.7	119.5	124.4	135.7	171.6
Philippines	2.0	2.2	1.0	3.9	4.5	4.3	2.0	5.4	7.6	3.1	7.4	5.6	5.5	11.5	8.2
Singapore	129.8	151.7	158.9	224.2	272.6	273.6	296.2	333.2	391.3	505.2	474.2	521.2	512.8	623.2	742.7
South Korea	892.7	1,096.0	1,314.1	1,456.9	1,666.8	1,752.1	1,943.1	2,135.8	2,280.9	2,474.6	2,394.6	2,641.4	2,799.1	3,247.7	3,327.9
Sri Lanka	11.2	7.3	3.9	8.8	5.5	9.3	8.9	6.8	6.8	10.5	14.7	12.3	7.7	6.0	7.6
Taiwan	760.4	836.6	892.2	896.7	1,109.7	1,029.6	1,162.3	1,164.6	1,253.3	1,423.0	1,469.7	1,719.7	1,588.2	1,718.9	1,813.3
Thailand	19.4	27.5	33.7	42.6	49.3	84.3	103.9	129.0	160.0	170.6	202.4	249.3	252.2	287.9	304.5
Vietnam	10.3	19.1	6.6	7.4	7.7	7.6	13.8	6.7	10.9	11.7	15.4	13.1	12.5	16.0	24.2
Near East/North Africa	1,231.8	1,299.1	1,326.0	1,421.6	1,483.9	1,662.0	1,710.7	1,974.7	2,163.7	2,309.8	2,459.5	2,706.2	2,989.9	3,148.7	3,281.1
Algeria	28.4	35.2	42.0	28.6	43.5	47.0	32.1	47.6	48.0	66.1	52.2	79.6	84.1	90.8	93.6
Bahrain	9.0	6.5	2.5	4.5	3.0	3.0	0.5	4.1	5.5	2.0	0.3	2.0	1.0	1.5	2.0
Egypt	453.9	461.4	418.6	418.7	387.8	474.0	426.1	513.5	542.0	518.2	507.9	559.1	622.5	598.0	579.2
Iran	75.0	106.7	122.8	213.2	288.5	329.1	427.8	518.2	712.8	837.3	993.4	1,120.4	1,320.8	1,475.9	1,649.6
Iraq	14.3	10.1	6.3	6.0	4.8	5.5	9.5	8.5	4.5	8.1	11.1	8.0	13.2	11.9	10.7
Israel	363.1	408.6	425.5	430.5	421.7	459.9	500.4	494.4	490.5	486.5	508.7	520.7	498.3	551.1	520.4
Jordan	27.3	29.5	34.7	22.2	38.7	20.4	22.4	34.2	30.7	32.8	38.0	58.0	58.6	68.3	61.7

Appendix table 5-31

S&E articles in chemistry, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	29.2	31.0	33.2	31.0	31.3	22.9	26.4	28.5	18.5	26.5	34.3	42.8	41.7	32.9	24.7
Lebanon	4.0	3.0	2.5	1.8	4.8	9.5	7.9	8.7	7.7	10.2	13.4	16.0	10.2	21.3	18.7
Libya	7.0	1.3	2.3	2.0	3.0	0.5	2.6	4.0	2.6	4.3	5.6	5.2	7.7	9.2	2.7
Morocco	75.2	71.4	80.2	118.9	104.7	121.3	107.1	116.4	91.4	83.0	66.5	61.6	75.2	64.6	60.9
Oman	4.3	1.8	2.9	5.1	3.7	6.5	4.6	8.6	9.5	9.5	7.7	15.0	7.1	15.1	9.3
Qatar	4.2	2.8	8.3	6.3	4.3	4.0	1.7	3.2	3.0	13.5	9.5	4.2	5.8	7.6	7.0
Saudi Arabia	79.6	68.2	66.9	62.7	63.0	74.6	72.2	90.4	90.3	93.1	94.0	80.8	103.2	85.1	112.4
Syria	3.8	6.0	8.4	5.6	6.5	5.9	4.8	9.1	11.8	12.8	10.8	9.5	6.8	8.7	6.2
Tunisia	43.8	39.5	54.7	58.4	65.4	65.3	51.4	69.1	81.9	86.8	85.7	102.4	101.9	89.8	94.8
United Arab Emirates	9.5	15.4	9.5	6.0	7.8	10.8	9.6	15.8	10.7	11.4	20.1	17.5	27.4	14.7	22.7
Yemen	0.0	0.5	4.5	0.0	1.3	1.9	3.5	0.3	2.3	7.7	0.3	3.5	4.5	2.0	4.5
Central/South America	1,162.6	1,318.2	1,471.1	1,558.3	1,730.1	1,909.4	2,098.9	2,234.8	2,264.8	2,491.7	2,804.4	2,678.6	2,688.7	2,969.4	2,973.0
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	257.8	327.6	319.4	343.2	372.8	361.7	383.8	397.6	393.2	364.8	436.1	406.4	392.6	490.1	474.3
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Barbados	2.0	0.8	1.6	4.9	1.3	3.0	2.5	0.5	4.3	2.8	2.5	2.5	1.3	2.0	0.0
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	2.3	0.3	0.5	0.5	0.3	1.0	1.2	0.6	0.7	1.6	0.3	0.5	1.4	3.1	0.8
Brazil	377.9	440.2	541.9	581.3	692.7	860.2	983.9	1,102.3	1,082.7	1,257.8	1,415.6	1,483.0	1,398.2	1,560.8	1,549.9
Chile	146.6	149.5	161.7	155.9	157.6	184.6	187.6	192.4	224.9	192.2	208.6	191.3	187.7	191.8	213.9
Colombia	11.2	16.7	17.7	26.6	22.6	26.6	27.5	36.9	25.5	41.5	46.9	47.7	48.2	86.0	85.4
Costa Rica	1.8	4.9	8.8	7.6	7.7	12.8	10.0	7.8	1.5	4.3	3.3	1.4	4.1	5.5	1.6
Cuba	24.7	37.5	30.1	43.3	54.3	51.0	45.8	33.8	35.0	39.4	51.0	46.6	41.8	38.1	28.2
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Ecuador	0.3	0.5	0.5	0.2	0.8	1.0	0.0	2.3	4.0	0.6	0.8	1.6	2.3	2.0	1.6
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guyana	0.8	0.0	0.0	0.0	0.0	0.0	1.5	2.5	1.0	1.0	6.0	1.0	2.0	1.0	2.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	11.5	7.2	12.5	6.3	6.7	7.0	10.2	13.0	8.8	7.5	9.2	4.4	7.6	3.3	10.0
Mexico	226.6	229.3	256.9	270.5	294.4	280.3	332.0	324.4	349.3	451.7	488.8	391.5	485.3	455.7	491.3
Nicaragua	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Panama	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.6	0.8	1.4	0.7	0.9	0.9
Paraguay	0.0	0.5	0.0	0.0	0.5	0.7	0.5	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.5
Peru	2.2	0.0	1.0	2.7	2.0	0.8	2.9	2.7	7.2	1.3	7.7	1.7	1.7	3.5	4.3
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0
Trinidad and Tobago	2.3	2.8	1.0	3.2	4.2	3.4	4.6	3.8	1.2	3.4	5.0	0.0	2.3	2.3	2.3
Uruguay	6.1	8.9	15.1	20.3	20.0	15.3	13.8	9.7	13.7	18.8	16.2	17.3	27.6	27.0	27.9
Venezuela	88.4	90.6	101.9	90.2	91.7	98.4	90.0	104.5	110.8	100.5	104.8	80.1	82.5	94.0	77.7
West Indies Assoc States	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0

Appendix table 5-31

S&E articles in chemistry, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	304.0	285.5	279.0	261.8	263.0	259.9	265.4	279.2	304.4	345.8	298.9	331.8	338.3	323.9	338.2
Angola	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.8	0.0	0.3	0.0	0.0	0.5	0.0	0.3
Benin	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	4.2	0.3	0.0	1.3	0.0	0.0
Botswana	1.5	0.5	7.5	4.0	5.3	11.0	9.3	8.4	11.0	18.2	8.0	11.2	7.8	10.2	6.2
Burkina Faso	1.0	0.8	0.0	0.5	0.8	0.5	0.0	1.5	0.0	4.6	0.0	0.5	2.8	0.3	2.2
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.5	1.0
Cameroon	4.6	4.3	3.8	4.7	4.0	2.8	3.2	4.0	4.7	3.7	5.8	7.3	6.8	11.8	10.5
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Comoros	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	1.0	0.5	0.0	0.8	0.0
Congo (Kinshasa)	2.5	1.0	0.8	0.5	0.5	0.5	0.0	1.0	1.5	0.0	0.5	0.0	0.0	0.0	0.5
Côte d'Ivoire	1.0	0.0	0.0	4.0	4.5	3.2	2.8	3.7	2.8	5.2	5.2	4.7	2.4	4.7	4.8
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Ethiopia	4.8	8.2	6.2	6.8	1.8	3.5	4.5	1.2	2.3	3.2	1.7	4.7	3.8	2.0	2.7
Gabon	0.3	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.5	0.0	0.4	0.0	0.0	0.5
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	1.7	2.0	1.0	4.3	1.9	4.3	4.5	1.5	4.6	2.2	2.3	5.2	2.2	4.2	2.7
Guinea	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	2.0	3.0	2.0	3.3	3.0	4.0	6.0	2.3	3.7	6.6	3.2	1.8	1.1	2.0	3.7
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Madagascar	0.8	0.8	1.1	0.0	0.7	1.1	1.1	0.7	0.5	1.8	3.8	2.6	1.0	1.0	1.1
Malawi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.2
Mali	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.3	0.3
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.6	1.5	1.0	0.8	0.0	0.8	1.0
Mauritius	0.0	0.0	0.5	0.0	3.5	3.0	3.5	3.0	3.0	3.0	2.8	4.0	5.7	1.2	3.8
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.3	0.5
Namibia	0.3	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0
Niger	0.3	0.5	0.0	0.0	0.0	0.8	0.0	0.0	0.0	1.5	0.5	0.3	2.0	0.0	0.0
Nigeria	39.9	52.6	26.9	19.2	17.8	22.3	11.7	16.7	22.4	23.4	30.0	19.5	28.5	23.8	26.9
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	3.8	0.8	1.7	2.7	3.0	3.2	1.3	1.6	6.9	4.1	5.0	1.3	6.3	3.0	3.6
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	230.2	209.7	222.4	204.2	209.1	194.4	212.8	227.3	235.2	254.3	222.9	257.7	256.0	253.3	255.7
Sudan	0.3	0.0	1.3	2.0	1.2	2.0	0.0	1.8	1.3	1.0	0.8	1.5	0.3	1.0	4.9
Swaziland	0.0	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.7	0.3
Tanzania	1.0	0.0	1.0	0.0	1.7	0.8	0.0	0.0	1.3	1.0	3.0	1.0	1.3	0.0	2.2
Togo	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0	1.2	0.0	0.0	1.0	0.3	0.0
Uganda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.8	0.0	0.7	1.0	0.8

Appendix table 5-31

S&E articles in chemistry, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	2.5	0.5	0.0	1.0	0.0	0.5	0.3	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0
Zimbabwe	2.1	0.3	2.8	3.1	2.8	1.7	3.3	0.5	1.5	0.0	0.0	2.7	1.5	0.0	0.0
Other	3,257.1	3,443.4	3,220.5	3,237.7	3,078.2	3,085.9	2,959.5	2,860.0	3,181.8	3,314.7	3,499.6	3,717.1	3,656.2	3,710.4	4,051.7
Australia	1,006.6	1,133.5	1,112.3	1,103.6	1,093.6	1,069.0	1,013.9	945.0	1,107.8	1,121.3	1,141.8	1,209.2	1,184.8	1,230.4	1,409.3
Canada	2,069.1	2,131.8	1,906.7	1,914.8	1,792.8	1,828.8	1,789.2	1,754.3	1,911.7	2,042.6	2,178.4	2,342.8	2,277.6	2,310.4	2,444.3
Fiji	0.1	0.5	0.0	1.0	0.7	0.3	0.0	0.3	2.0	2.0	6.0	1.0	2.1	3.0	5.9
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	179.4	177.1	201.6	218.3	189.2	186.8	155.3	159.9	160.1	148.8	173.1	163.4	190.8	166.6	190.6
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Papua New Guinea	1.3	0.5	0.0	0.0	1.8	0.6	1.0	0.5	0.2	0.0	0.2	0.4	0.5	0.0	1.6
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-32

S&E articles in computer sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	3,967.0	4,292.0	4,399.0	4,801.0	5,039.0	5,422.0	5,625.0	5,527.0	6,139.0	6,220.0	6,521.0	7,307.0	7,573.0	8,088.0	7,821.0
United States	1,947.8	1,963.6	1,924.2	1,948.9	2,039.7	2,070.7	2,027.8	2,012.2	2,173.1	2,248.8	2,332.1	2,533.8	2,398.1	2,282.9	2,188.3
European Union	1,033.4	1,171.1	1,176.2	1,376.4	1,498.3	1,538.4	1,767.6	1,748.5	1,996.9	1,856.8	1,945.6	2,288.6	2,250.5	2,501.4	2,407.6
Austria	29.0	20.7	27.9	31.1	27.2	26.0	41.9	38.0	54.7	41.9	32.9	46.9	54.1	53.0	57.3
Belgium	41.8	28.7	52.6	43.6	46.6	32.8	48.1	50.2	70.6	52.0	61.2	71.6	84.1	81.4	77.5
Bulgaria	8.0	8.3	1.8	7.0	4.7	3.8	5.1	3.3	6.3	5.8	4.5	1.0	1.6	8.0	1.0
Cyprus	1.5	1.5	1.3	1.5	0.5	1.0	2.5	2.9	1.5	1.7	3.0	6.5	5.9	4.3	5.6
Czech Republic	10.0	18.7	10.5	10.9	14.5	20.8	23.1	21.1	30.6	29.7	33.1	33.2	39.5	43.8	50.2
Denmark	21.4	26.5	22.4	23.5	32.2	23.9	34.5	25.6	34.0	31.2	29.1	37.9	39.7	39.2	26.1
Estonia	0.3	0.0	1.0	0.0	0.0	0.0	1.8	2.0	2.5	0.5	0.3	3.2	2.0	3.2	3.0
Finland	16.4	30.3	25.1	31.6	31.7	38.5	42.2	42.9	42.0	36.2	48.5	58.9	60.1	54.6	52.4
France	167.0	185.6	183.1	204.4	209.6	241.3	250.4	275.3	322.2	282.5	289.7	346.4	301.3	383.5	357.4
Germany	181.7	176.5	208.1	234.8	239.6	259.3	269.4	249.9	286.6	256.7	283.3	304.6	296.3	292.6	298.2
Greece	17.6	25.9	28.5	29.7	46.9	48.0	49.2	72.8	73.1	74.7	73.0	95.8	102.4	113.5	105.3
Hungary	15.5	25.7	17.1	32.4	33.6	22.9	26.5	32.8	30.0	16.1	28.4	21.6	26.2	32.5	19.1
Ireland	3.5	11.1	3.2	12.0	10.3	9.2	11.8	13.8	13.7	28.3	40.4	43.2	47.8	34.5	27.7
Italy	145.3	168.0	149.9	184.6	226.6	223.4	235.8	220.5	249.0	233.5	235.2	262.8	285.8	314.0	299.4
Latvia	2.2	1.5	0.5	0.2	2.3	3.3	3.3	0.3	0.7	0.0	1.0	2.2	1.0	3.7	5.3
Lithuania	0.0	0.0	1.5	0.5	0.0	3.0	1.0	1.5	2.2	2.5	2.5	4.7	1.7	5.0	3.5
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.7	1.3	0.3	2.1	2.0
Malta	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.6	1.0
Netherlands	56.9	71.6	78.5	68.9	76.5	91.7	98.4	87.1	120.3	94.4	114.3	130.1	119.2	127.0	130.1
Poland	20.7	22.5	17.0	32.2	24.1	25.5	35.0	36.7	31.4	41.2	33.5	49.2	31.7	46.8	49.6
Portugal	5.0	9.2	8.7	14.2	12.5	14.8	18.7	18.4	34.2	26.6	27.8	32.0	26.9	37.1	30.8
Romania	3.8	5.5	5.2	6.9	3.5	7.5	10.2	9.0	7.7	10.4	8.2	10.4	11.2	19.2	24.3
Slovakia	4.0	8.8	6.0	5.2	13.3	6.8	10.2	3.7	7.7	11.3	12.8	6.5	8.7	11.9	12.6
Slovenia	1.5	8.8	4.0	8.3	9.2	6.5	10.2	8.0	14.0	10.3	15.5	11.3	17.6	14.4	14.8
Spain	59.0	63.0	72.9	80.1	99.5	121.4	171.8	162.9	172.4	192.7	198.9	215.9	235.0	279.0	325.9
Sweden	29.0	49.8	43.1	60.1	60.2	34.1	55.4	65.1	65.5	55.3	46.1	64.6	54.5	58.4	62.8
United Kingdom	191.7	202.6	206.3	252.6	273.1	272.1	311.0	304.6	324.0	321.2	321.5	426.4	395.5	438.2	364.7
Other Western Europe	60.7	82.4	85.4	92.7	92.9	115.6	131.0	95.8	133.9	158.5	173.4	198.8	239.7	260.8	253.0
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	1.5	1.0	2.2	1.3	1.5	1.0	3.5	1.8	3.9	4.3	2.5	1.3	2.6	1.3	6.9
Iceland	0.3	0.0	1.5	0.3	0.5	0.7	1.8	1.0	1.2	1.1	1.3	0.7	1.0	1.9	2.6
Liechtenstein	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.0	0.0	1.0	0.0	1.5	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.3
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0
Norway	22.3	31.0	24.6	14.7	22.3	22.8	28.2	20.7	27.3	34.6	39.9	37.6	34.0	42.6	49.1
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	10.5	14.1	17.7
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.5	6.0	NA	NA	NA
Switzerland	22.1	25.6	33.8	44.5	41.2	44.3	55.9	38.9	65.4	61.8	75.6	90.8	93.3	113.2	91.6
Turkey	7.3	12.2	13.3	20.5	18.8	30.2	28.2	28.1	29.3	43.0	42.6	60.5	98.2	87.7	84.7
Vatican City	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-32

S&E articles in computer sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	7.2	12.0	10.1	11.5	7.1	16.5	11.8	5.3	6.8	12.8	NA	NA	NA	NA	NA
Other former USSR	13.4	26.4	51.5	34.7	87.1	123.6	33.2	28.1	28.0	26.9	33.2	22.7	19.1	29.6	22.3
Armenia	0.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	3.0	0.5	0.0	1.0	1.0	0.0
Azerbaijan	0.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.8	0.0	1.3
Belarus	1.0	1.0	0.0	2.3	3.7	2.5	3.0	2.7	3.0	0.3	2.0	1.8	1.0	0.5	1.2
Georgia	0.0	0.0	0.5	0.0	1.0	0.0	1.3	1.0	0.8	0.5	5.3	4.5	1.0	1.5	1.7
Kazakhstan	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.3	0.0
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moldova	0.0	1.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.8	0.0	0.0	0.6
Russia	11.4	18.4	47.7	25.3	29.3	27.1	23.7	20.2	20.7	20.5	22.3	14.8	13.9	23.3	17.0
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Ukraine	1.0	2.0	3.0	5.5	53.1	92.0	4.7	4.2	2.5	0.8	2.5	0.8	0.8	3.0	0.5
Uzbekistan	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0
Asia	508.6	620.8	662.3	845.7	834.3	989.4	1,061.3	1,036.5	1,124.7	1,265.0	1,325.6	1,412.9	1,768.3	2,019.3	1,916.2
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	0.0	2.0	1.0	0.5	0.0	1.8	0.0	1.0	1.0	1.7	1.5	0.0	0.0	0.4	1.2
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.5	0.0
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	73.7	103.6	123.6	193.8	210.2	252.6	302.6	357.2	384.5	485.9	494.9	554.4	764.2	961.4	941.8
India	75.9	90.6	92.0	92.1	87.6	96.9	93.2	82.0	86.4	101.8	82.8	112.4	125.6	146.9	123.1
Indonesia	0.0	1.0	1.0	0.5	0.5	0.0	0.0	0.3	0.5	0.0	0.0	1.3	0.0	0.7	0.3
Japan	152.0	164.6	164.8	215.8	187.8	239.1	201.7	209.2	204.6	192.8	208.0	194.9	186.1	163.6	173.1
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaysia	0.5	0.0	2.3	0.8	1.7	1.0	4.0	4.0	5.5	5.7	9.3	7.3	10.4	10.7	7.2
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.3	0.0
Pakistan	1.5	1.5	0.0	2.5	1.5	0.3	0.5	0.0	0.5	1.0	1.4	3.0	8.5	11.8	11.7
Philippines	0.0	0.0	0.0	1.5	0.3	0.8	0.0	0.5	0.6	0.0	0.3	0.5	2.5	0.2	0.0
Singapore	29.3	41.3	31.8	45.5	57.0	54.0	64.7	76.5	80.7	84.5	113.4	120.0	99.1	113.2	90.3
South Korea	53.5	66.7	80.1	108.6	90.7	115.4	162.2	117.7	153.7	157.4	176.0	185.9	206.2	234.7	253.0
Sri Lanka	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	2.3	1.3	0.3
Taiwan	119.8	146.0	162.7	180.5	193.1	223.4	223.0	179.2	199.9	228.1	229.0	215.7	338.3	359.4	300.0
Thailand	1.5	2.1	1.3	1.3	3.3	3.9	5.7	6.0	4.3	3.5	7.5	16.8	18.3	12.5	12.5
Vietnam	0.8	1.3	1.5	1.8	0.5	0.0	3.5	2.5	2.0	2.0	0.3	0.7	6.2	1.7	1.6
Near East/North Africa	125.6	115.3	160.4	173.1	151.7	176.5	178.9	177.0	166.9	190.8	196.9	247.5	269.7	345.4	327.8
Algeria	0.0	2.5	1.0	2.0	0.5	2.5	2.8	3.3	3.0	3.5	5.2	4.0	4.5	6.2	3.5
Bahrain	2.1	0.5	1.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0
Egypt	22.7	14.0	16.5	18.3	11.5	17.3	15.7	10.6	7.7	9.4	8.5	12.6	17.2	23.9	24.6
Iran	1.5	5.5	5.3	2.0	2.5	6.8	6.8	8.3	11.7	6.4	18.7	22.3	47.9	73.6	78.3
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.5
Israel	82.3	80.7	113.8	127.5	115.4	124.8	128.2	125.5	121.1	144.4	146.0	174.0	170.3	201.2	185.8
Jordan	0.0	1.5	0.0	3.0	1.3	4.5	5.7	2.5	2.0	3.3	1.5	4.1	6.8	8.3	5.8

Appendix table 5-32

S&E articles in computer sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	3.7	3.5	3.5	1.6	7.0	2.7	2.5	2.3	2.5	2.0	3.5	2.5	4.5	1.5	3.5
Lebanon	0.0	1.0	2.5	0.0	0.0	3.0	1.5	1.7	2.3	2.5	2.8	4.2	3.1	5.3	5.5
Libya	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Morocco	1.0	0.6	1.0	0.0	2.3	0.0	3.5	1.8	1.0	1.2	0.0	1.5	0.8	3.3	3.6
Oman	0.5	0.0	2.5	3.0	1.5	2.5	1.3	1.5	1.5	0.5	1.0	0.4	0.7	1.3	2.0
Qatar	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.2	0.0	1.8	1.5	2.1	1.5
Saudi Arabia	8.0	4.5	6.3	9.3	4.5	8.2	7.3	8.8	4.5	4.3	3.5	8.2	3.9	6.7	4.8
Syria	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tunisia	3.8	1.0	5.0	4.0	2.2	2.2	1.7	7.0	4.8	7.2	1.8	2.7	3.5	4.0	3.9
United Arab Emirates	0.0	0.0	2.0	2.5	1.0	1.0	1.5	3.5	4.8	4.7	4.3	7.8	5.0	6.9	3.1
Yemen	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Central/South America	22.5	31.2	37.4	32.8	36.7	56.0	70.7	70.0	88.6	74.7	83.3	91.2	120.4	111.2	127.0
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	2.1	1.3	5.2	1.2	2.8	1.3	7.8	11.2	3.8	4.1	11.0	8.2	6.5	10.7	11.0
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	8.8	11.4	14.7	12.2	19.2	27.8	30.5	34.4	42.7	36.8	45.6	53.5	64.7	51.6	65.4
Chile	4.3	7.0	8.3	7.5	3.2	7.0	12.2	6.3	12.1	11.6	11.3	5.7	13.1	18.9	15.1
Colombia	2.2	2.0	0.0	0.5	2.0	0.8	0.0	1.2	2.8	0.5	0.0	1.5	2.0	6.1	1.9
Costa Rica	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cuba	2.0	1.3	0.0	0.0	0.5	0.8	1.3	0.0	2.0	0.0	1.5	2.5	2.8	1.3	2.7
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.5	0.0	0.0
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guyana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Jamaica	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	2.5	5.5	6.2	7.5	5.3	14.3	12.7	12.0	21.3	17.8	10.9	16.2	24.3	16.0	28.5
Nicaragua	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0
Paraguay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uruguay	0.0	0.0	0.0	1.0	1.3	1.0	2.0	2.0	0.8	1.2	1.3	2.5	3.3	2.8	1.3
Venezuela	0.0	1.8	3.0	2.8	2.0	2.2	4.2	3.0	3.2	1.8	1.1	0.3	3.2	3.5	0.6
West Indies Assoc States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-32

S&E articles in computer sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	4.3	6.0	8.8	3.5	6.7	11.5	15.3	13.2	16.7	14.7	14.8	19.3	12.0	19.8	12.4
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Botswana	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burkina Faso	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cameroon	0.0	0.5	1.0	0.0	0.0	0.0	0.0	0.0	2.3	1.0	1.3	1.0	0.0	1.0	2.0
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Côte d'Ivoire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Ethiopia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Madagascar	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malawi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Namibia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Niger	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	0.0	0.0	0.0	0.0	0.0	1.0	1.5	3.0	0.0	2.5	0.0	0.0	0.0	0.5	1.0
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	4.3	4.5	7.8	3.5	6.7	9.5	10.3	10.2	13.8	11.2	12.1	18.3	11.0	16.8	8.2
Sudan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.0	0.0
Swaziland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tanzania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6

Appendix table 5-32

S&E articles in computer sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zimbabwe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Other	250.8	275.2	292.8	293.2	291.7	340.4	339.2	345.8	410.2	383.8	416.1	492.0	495.2	517.5	566.4
Australia	47.1	80.1	88.1	85.4	100.3	104.5	105.9	98.0	109.8	102.2	105.5	130.7	124.0	138.4	153.0
Canada	194.2	184.9	196.7	192.2	177.8	228.4	214.9	228.4	277.0	265.1	295.2	341.2	351.0	358.9	398.0
Fiji	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	8.4	10.2	8.0	15.6	13.5	7.5	18.4	19.3	23.3	16.6	15.3	19.6	20.2	19.2	15.3
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-33

S&E articles in engineering, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	42,103.0	41,896.0	43,609.0	45,829.0	48,907.0	53,846.0	54,161.0	55,170.0	58,445.0	63,045.0	68,102.0	71,598.0	72,024.0	76,578.0	79,994.0
United States	12,645.4	11,791.6	11,724.4	12,248.1	11,772.5	12,951.2	12,388.8	12,056.7	12,888.4	13,307.2	14,064.5	14,036.7	14,561.5	14,612.4	14,609.1
European Union	12,698.0	12,551.7	13,612.8	14,299.4	15,547.2	17,064.3	17,129.8	17,228.7	16,994.7	18,508.7	19,250.9	20,135.7	20,026.7	20,653.1	21,105.5
Austria	189.9	220.7	219.9	203.1	218.6	247.7	275.5	276.2	291.7	315.3	330.0	323.8	373.7	390.2	388.2
Belgium	266.2	314.8	312.9	355.0	360.5	401.9	420.3	486.3	430.4	505.4	549.8	520.8	602.5	613.5	592.9
Bulgaria	102.9	109.4	109.4	125.3	118.0	123.0	85.3	107.3	138.4	102.5	110.7	86.9	93.1	80.3	90.6
Cyprus	7.0	2.8	6.3	6.0	6.3	7.3	14.3	6.1	6.7	12.3	8.9	13.1	22.3	29.1	25.7
Czech Republic	161.8	122.2	182.4	146.1	158.4	174.5	206.5	196.5	234.3	271.1	289.5	257.6	256.7	296.8	344.4
Denmark	145.8	150.0	200.8	204.1	237.7	220.2	260.6	225.0	222.7	284.2	294.7	302.3	286.0	338.4	311.7
Estonia	9.5	8.5	7.2	11.1	33.7	40.7	38.1	39.3	37.9	40.9	54.1	43.5	53.0	47.5	60.9
Finland	246.9	241.0	249.0	293.0	326.1	343.2	364.5	386.7	369.8	399.9	415.7	465.8	413.8	407.7	432.1
France	1,774.7	1,831.5	2,066.8	2,019.5	2,222.4	2,390.8	2,406.9	2,576.9	2,450.6	2,622.6	2,712.9	2,948.0	2,839.8	3,169.4	3,255.6
Germany	2,700.2	2,503.8	2,912.3	2,865.7	3,208.3	3,334.9	3,413.5	3,155.9	3,190.1	3,152.0	3,332.5	3,379.7	3,284.4	3,221.2	3,294.6
Greece	243.1	265.7	243.0	327.3	315.0	344.0	324.7	427.9	404.8	498.5	438.7	531.0	653.2	645.1	641.8
Hungary	82.4	80.2	94.2	100.7	128.5	139.9	118.6	136.0	152.8	155.5	221.6	155.9	139.5	126.0	155.3
Ireland	73.6	67.9	68.0	107.7	102.6	113.8	107.4	115.5	140.7	162.0	212.8	189.5	244.4	221.1	253.7
Italy	1,140.8	1,173.5	1,218.6	1,352.5	1,441.7	1,737.4	1,807.0	1,746.0	1,853.5	2,069.4	2,042.6	2,230.0	2,255.3	2,335.7	2,447.9
Latvia	10.5	12.2	12.3	17.7	25.7	14.8	17.7	27.0	14.7	19.2	18.7	12.3	23.2	23.7	32.8
Lithuania	15.8	20.6	15.4	22.1	42.5	30.1	30.8	47.3	36.1	44.9	47.5	64.2	49.2	55.5	46.2
Luxembourg	3.0	0.0	2.1	1.8	2.0	1.0	3.9	2.4	3.5	2.7	5.9	4.7	4.6	12.2	9.8
Malta	0.0	0.8	1.5	2.0	3.0	1.0	1.7	2.0	2.5	0.5	3.1	2.7	3.2	5.8	5.9
Netherlands	622.6	604.4	623.6	709.7	683.5	821.6	775.3	772.0	733.5	799.6	864.0	813.3	902.5	904.0	924.3
Poland	371.4	317.2	359.1	386.0	408.3	499.2	597.4	612.6	584.7	710.1	627.2	716.7	658.6	745.8	706.2
Portugal	123.9	164.4	164.8	223.8	228.3	321.3	279.0	422.8	317.4	590.1	470.9	740.9	457.1	503.8	540.9
Romania	94.5	92.1	124.4	95.7	112.9	149.2	119.6	133.4	102.9	153.8	122.2	140.6	147.0	174.7	181.6
Slovakia	69.7	49.2	79.8	53.0	63.3	65.6	77.5	69.7	57.0	101.1	100.1	79.5	76.8	78.9	77.7
Slovenia	53.3	65.0	79.5	77.5	110.3	118.1	141.8	142.6	129.4	155.3	136.1	160.0	182.4	179.0	170.3
Spain	608.8	668.8	759.6	846.2	909.4	948.6	1,126.5	1,305.2	1,181.5	1,317.0	1,575.7	1,738.5	1,866.7	2,058.3	2,068.9
Sweden	480.0	511.3	577.6	570.0	683.5	811.4	733.3	784.7	685.5	798.2	847.8	848.9	804.8	805.5	773.8
United Kingdom	3,099.4	2,953.7	2,922.2	3,176.7	3,396.7	3,663.1	3,381.9	3,025.3	3,221.4	3,224.5	3,416.9	3,365.3	3,333.0	3,183.8	3,271.7
Other Western Europe	818.9	912.1	968.5	1,047.8	1,117.1	1,273.3	1,257.7	1,489.3	1,555.8	2,094.9	1,931.2	2,166.3	2,084.0	2,478.1	2,616.5
Albania	1.3	0.0	0.3	2.8	1.7	1.8	0.5	2.0	1.0	0.3	0.0	0.3	2.3	0.0	0.7
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.8	0.5	3.0	1.8	0.0	3.0	0.5	1.0	2.0	2.9	0.8	5.2	4.0	4.3
Croatia	34.0	22.5	23.0	27.3	26.2	51.3	31.1	34.0	42.1	53.2	53.5	51.3	48.8	59.9	70.0
Iceland	2.3	2.0	3.3	4.7	3.8	3.5	4.7	5.2	4.3	2.7	5.8	6.4	7.6	8.8	8.9
Liechtenstein	6.3	2.3	4.3	0.3	5.0	8.7	1.8	3.3	3.7	5.3	3.3	5.2	7.5	3.3	3.3
Macedonia	7.7	5.3	8.3	4.1	4.0	8.3	4.0	6.0	7.0	5.8	1.8	7.6	8.2	3.0	10.6
Monaco	0.0	0.0	0.0	0.6	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.3
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.0	3.2	8.5	3.5
Norway	139.8	166.5	144.6	145.5	154.7	188.9	185.0	193.9	173.7	187.4	226.7	249.3	266.0	285.6	354.0
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	105.8	147.7	150.6	198.4
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	151.9	59.8	NA	NA	NA
Switzerland	340.1	346.9	387.2	434.7	473.5	486.0	475.7	515.6	510.8	609.7	590.7	697.7	671.4	726.1	708.8
Turkey	209.8	271.1	280.7	314.8	357.0	398.1	469.2	648.9	700.8	1,060.8	894.6	980.1	915.8	1,227.9	1,253.7
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-33

S&E articles in engineering, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	77.5	94.6	116.2	110.0	89.5	126.7	82.1	79.8	110.8	167.4	NA	NA	NA	NA	NA
Other former USSR	2,042.3	1,762.1	1,901.2	1,747.2	1,869.6	1,918.3	1,973.3	1,903.6	1,637.3	1,587.9	1,633.3	1,383.7	1,225.8	1,212.2	1,206.8
Armenia	4.3	9.3	9.8	7.7	4.5	5.0	9.7	10.3	7.7	8.4	9.3	6.4	12.7	11.7	15.0
Azerbaijan	8.0	7.3	8.3	8.3	6.0	6.0	6.3	4.5	10.2	3.2	3.0	4.8	3.5	4.9	6.3
Belarus	43.3	45.8	43.0	59.0	50.5	52.0	43.6	59.1	55.7	47.8	42.7	43.2	32.5	37.4	34.4
Georgia	9.7	8.8	2.0	7.0	10.1	6.3	7.8	8.5	12.6	13.2	11.5	7.7	7.4	7.0	9.2
Kazakhstan	9.8	12.8	10.1	10.8	5.0	11.7	9.0	18.7	4.8	15.6	5.5	4.6	14.4	8.8	5.6
Kyrgyzstan	1.4	0.3	0.3	0.0	1.0	0.0	2.0	0.3	0.2	0.0	0.3	0.0	0.8	3.0	0.8
Moldova	4.8	2.7	9.1	4.0	6.2	5.7	6.1	6.2	5.6	3.1	5.1	4.5	6.7	5.0	6.1
Russia	1,551.6	1,361.6	1,471.9	1,282.5	1,407.3	1,458.9	1,479.9	1,425.3	1,208.6	1,152.4	1,171.1	970.5	955.2	929.3	964.7
Tajikistan	2.0	1.0	0.0	1.0	0.5	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	403.0	306.5	338.7	357.8	370.3	363.5	399.1	350.9	326.4	339.2	380.0	333.9	177.3	193.9	153.2
Uzbekistan	4.5	5.8	8.0	9.0	8.3	9.2	9.8	13.6	5.3	5.0	4.8	8.1	15.2	10.3	10.9
Asia	9,468.0	10,548.4	11,067.8	11,954.1	13,485.3	15,262.4	15,883.2	16,950.1	19,167.5	20,967.5	23,964.0	26,065.6	25,855.1	28,608.1	30,603.5
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	15.7	18.2	13.3	17.2	21.0	26.5	18.0	21.8	25.2	25.9	29.6	42.4	30.1	26.0	36.5
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5
Brunei	0.0	1.3	0.5	2.0	1.3	0.0	0.0	1.8	0.0	2.0	0.5	0.0	1.0	0.0	1.3
Burma	0.0	0.0	0.0	0.0	0.5	0.0	0.3	0.0	0.0	0.5	1.5	0.2	0.0	0.0	0.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
China	1,273.1	1,528.6	1,725.0	1,961.2	2,368.7	3,104.7	3,345.0	3,812.0	4,641.6	5,560.3	7,415.9	8,240.6	9,101.8	10,728.6	12,234.3
India	1,169.9	1,187.2	1,153.4	1,181.1	1,337.2	1,360.1	1,497.5	1,497.3	1,647.2	1,802.2	1,962.8	2,417.2	2,965.8	3,156.6	3,300.1
Indonesia	7.0	8.7	9.9	8.1	11.1	13.1	23.4	16.0	11.3	17.9	14.6	30.2	16.5	20.2	23.4
Japan	4,948.2	5,412.7	5,410.2	5,661.9	6,192.7	6,353.0	6,276.6	6,687.3	7,006.7	6,932.0	6,962.0	6,996.2	5,885.8	5,462.4	5,549.6
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Malaysia	29.5	24.7	32.0	42.1	62.0	51.6	59.3	66.3	81.4	130.0	143.9	242.9	193.2	233.2	383.7
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	0.0	0.3	1.5	1.3	3.1	2.0	2.4	1.6	3.3	1.7	2.6	1.0	0.2	1.3
Nepal	1.0	0.3	0.5	0.0	0.5	0.5	0.0	0.3	0.5	0.3	0.8	2.3	1.4	1.6	1.2
North Korea	0.0	0.0	0.0	2.5	0.3	1.1	0.0	0.7	0.8	2.7	0.2	0.0	1.2	3.8	1.8
Pakistan	24.8	12.3	28.2	23.1	20.0	24.4	25.4	28.0	29.0	39.5	57.3	64.4	110.3	149.9	151.2
Philippines	2.5	2.3	4.4	1.8	1.8	4.3	5.9	5.5	8.5	5.6	7.9	6.2	4.7	6.4	10.7
Singapore	268.7	264.5	332.9	412.2	465.2	674.1	701.7	689.3	807.7	826.4	979.5	959.3	944.9	1,009.2	888.2
South Korea	700.3	909.2	1,103.5	1,367.0	1,663.8	2,076.4	2,271.7	2,446.6	2,895.0	3,453.3	4,012.9	4,124.1	3,649.9	4,563.9	4,680.5
Sri Lanka	3.8	2.3	0.7	1.5	4.6	3.2	1.5	3.5	7.9	4.8	5.3	3.8	3.5	7.8	5.7
Taiwan	998.4	1,135.1	1,212.5	1,219.7	1,281.4	1,490.7	1,577.1	1,574.3	1,887.7	2,010.4	2,197.9	2,702.6	2,685.7	2,912.5	2,990.3
Thailand	20.1	34.6	34.4	46.2	43.3	59.6	67.8	91.8	104.9	142.2	150.6	211.5	240.6	295.0	312.9
Vietnam	5.0	6.4	5.8	5.0	8.3	15.9	10.0	5.2	10.2	8.2	18.9	18.5	17.4	30.1	29.6
Near East/North Africa	839.1	871.5	882.5	959.6	1,037.1	1,172.4	1,213.1	1,197.1	1,386.2	1,532.0	1,597.7	1,810.0	2,103.9	2,404.0	3,002.9
Algeria	20.6	22.6	27.5	30.2	34.9	48.7	47.4	40.9	75.4	97.1	87.5	96.0	127.7	144.9	170.9
Bahrain	16.1	15.3	12.3	8.5	18.5	5.8	9.8	4.0	9.7	11.7	9.0	6.8	16.6	6.5	10.5
Egypt	180.3	187.7	175.8	176.6	165.2	212.3	223.9	250.0	266.4	278.8	285.8	271.2	294.7	303.0	395.1
Iran	25.2	32.7	42.7	51.3	69.0	103.3	124.0	145.0	235.2	270.8	354.5	511.8	655.8	959.7	1,359.9
Iraq	8.5	1.8	6.0	3.5	4.5	12.5	2.5	1.5	4.5	6.0	5.0	10.4	12.5	5.6	10.0
Israel	330.9	375.6	356.3	376.1	397.9	423.8	422.7	388.3	402.6	407.5	410.1	465.8	484.5	431.8	438.2
Jordan	18.9	28.8	36.3	41.8	49.9	51.7	59.2	39.8	50.9	63.2	58.7	45.1	67.5	77.7	71.8

Appendix table 5-33

S&E articles in engineering, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	35.5	38.3	47.8	47.6	64.7	52.4	54.9	49.7	42.5	48.7	39.7	45.8	43.2	47.7	42.4
Lebanon	11.2	7.2	9.5	12.5	6.5	9.3	12.3	14.9	18.4	15.8	16.6	24.7	20.7	24.2	27.1
Libya	3.3	1.0	3.1	4.6	3.8	5.5	4.5	1.0	9.5	6.3	4.6	2.3	11.7	11.3	3.8
Morocco	17.0	25.2	20.1	31.3	41.4	37.0	56.4	49.0	44.8	60.5	47.5	44.8	50.8	54.3	49.5
Oman	2.5	3.8	9.5	9.2	14.9	15.5	18.8	27.2	19.4	21.0	22.3	21.2	35.8	20.8	26.8
Qatar	6.3	3.7	2.3	2.5	4.8	5.5	5.3	4.2	3.0	5.0	5.7	8.2	7.3	11.7	12.3
Saudi Arabia	134.8	103.5	103.0	129.7	119.8	119.8	93.4	93.5	95.2	111.3	104.4	121.3	110.8	114.3	136.3
Syria	2.8	1.1	1.5	1.5	4.3	2.5	3.5	5.0	3.3	7.7	8.2	4.0	9.8	6.2	2.3
Tunisia	9.4	8.9	12.9	18.5	24.2	44.4	47.4	50.9	72.2	81.8	95.4	94.9	122.0	138.7	178.7
United Arab Emirates	15.8	13.4	14.8	14.2	12.4	21.2	24.9	29.2	33.1	38.8	41.7	32.8	30.6	43.9	64.3
Yemen	0.0	0.7	0.8	0.0	0.3	1.2	2.0	3.0	0.0	0.0	1.0	2.8	1.5	1.7	2.8
Central/South America	514.4	578.9	675.3	801.4	1,124.8	1,165.5	1,317.5	1,394.2	1,547.1	1,608.4	1,761.4	1,791.1	1,787.4	1,973.1	2,041.2
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	114.2	142.2	134.0	128.0	167.2	179.2	193.7	191.2	182.3	210.5	220.8	223.9	228.3	257.0	231.9
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.0	0.0	1.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	1.0	0.0	0.8	0.3	0.5	0.0	0.8	0.3	1.0	0.3	1.3	1.9	0.5	0.8	0.8
Brazil	219.7	217.7	295.7	381.1	574.1	602.8	663.2	676.8	808.1	820.3	949.5	906.8	881.9	985.6	1,017.0
Chile	26.3	39.5	28.0	38.8	57.2	66.9	65.8	66.1	113.1	89.6	119.6	99.2	116.0	124.9	159.0
Colombia	4.3	8.8	10.9	9.4	16.0	11.9	15.3	30.0	17.6	16.4	24.9	29.0	41.8	46.4	68.5
Costa Rica	0.0	1.0	2.8	0.5	2.7	4.0	1.0	4.1	3.4	3.2	0.8	1.6	2.5	4.4	2.1
Cuba	17.7	16.2	16.2	19.6	29.0	28.8	26.3	26.7	25.5	30.4	29.2	28.5	27.1	20.1	18.8
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.7	0.0	0.3	0.0	0.0
Ecuador	1.0	1.0	2.5	1.7	0.5	2.9	3.5	1.3	2.8	0.3	0.6	0.5	1.0	1.5	2.3
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.5
Guyana	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	0.0	1.5	0.0	3.5	1.0	0.0	0.0	1.0	0.5	0.0	0.0	2.0	1.5	3.8	1.6
Mexico	91.7	114.8	138.0	175.8	222.9	225.4	289.9	323.8	326.0	384.7	351.2	447.4	416.6	457.5	479.4
Nicaragua	0.0	0.5	0.5	0.5	0.3	0.3	0.0	0.0	1.3	0.3	1.0	0.3	0.3	0.0	0.0
Panama	0.0	0.0	0.0	0.0	2.0	1.5	0.0	0.5	0.0	0.8	0.6	0.3	1.3	0.0	0.3
Paraguay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Peru	3.0	2.6	4.7	4.5	4.8	0.8	4.9	2.5	6.0	6.1	6.3	5.0	5.1	4.2	4.7
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	2.5	2.0	3.0	2.5	2.0	1.5	6.1	4.7	3.8	7.5	11.3	3.0	8.1	3.5	3.2
Uruguay	2.2	4.7	1.3	3.2	2.9	3.9	4.3	7.3	2.8	7.5	7.5	7.2	14.8	11.7	15.0
Venezuela	28.9	26.4	35.3	31.0	41.2	35.5	41.3	55.7	52.7	30.4	36.3	34.5	38.3	51.1	36.0
West Indies Assoc States	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0

Appendix table 5-33

S&E articles in engineering, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	174.7	166.5	150.9	157.8	181.6	192.6	202.5	191.1	212.3	209.0	234.8	278.2	314.7	304.3	319.8
Angola	2.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0
Benin	0.0	0.3	0.0	0.0	0.0	1.5	0.5	1.8	2.0	0.0	1.2	0.0	1.5	0.0	0.3
Botswana	2.0	0.0	0.0	0.0	2.0	1.0	0.3	0.3	1.7	1.3	0.3	2.9	1.3	3.3	1.0
Burkina Faso	0.5	1.3	1.3	0.5	0.5	0.5	0.5	0.0	1.5	0.5	0.0	0.8	0.3	1.0	1.3
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5	0.0	0.0
Cameroon	1.0	3.8	1.0	1.2	1.3	1.0	1.7	1.8	3.7	4.2	3.8	5.9	7.2	9.2	8.8
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Central African Republic	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	1.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	2.0	0.0	0.5	0.0	0.8
Congo (Kinshasa)	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.8
Côte d'Ivoire	1.3	0.0	0.0	1.0	0.1	0.5	1.5	0.0	3.0	2.4	1.3	0.0	1.5	0.5	3.9
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	1.5	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.5
Ethiopia	3.0	0.0	2.0	0.0	2.3	0.0	0.3	0.5	1.0	0.8	0.7	0.9	2.2	1.0	2.1
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.0
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Ghana	0.5	2.0	6.7	5.5	3.5	0.0	2.5	2.8	2.0	2.0	4.2	2.6	2.3	2.7	13.3
Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	2.0	3.0	4.0	0.0	3.5	2.5	1.3	2.7	3.5	2.3	2.8	4.0	1.8	3.0	2.4
Lesotho	2.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.0	0.0	0.3
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Madagascar	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	1.0	2.0	1.5	3.7	2.0	0.7	1.0
Malawi	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	0.0	3.9
Mali	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.3	0.0	0.0	1.0	0.0	0.0
Mauritania	0.0	0.0	0.0	0.0	0.0	0.8	0.0	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.2
Mauritius	0.0	0.0	1.0	0.3	0.5	0.0	0.0	0.0	0.5	1.0	1.3	0.5	0.0	2.0	1.0
Mozambique	0.0	0.0	0.0	0.5	2.0	0.0	0.0	0.0	0.3	0.5	0.3	0.0	0.5	0.0	0.0
Namibia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.5	0.0	1.0	0.0
Niger	1.2	0.0	0.0	0.5	0.0	0.0	2.5	0.3	1.3	0.5	0.5	0.5	2.3	0.5	0.7
Nigeria	33.2	25.3	25.0	19.1	29.1	22.3	19.4	22.9	21.3	32.8	28.6	39.0	37.7	44.5	49.3
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.3	0.0	0.3
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	2.8	2.6	0.5	0.0	1.5	1.3	1.3	2.5	1.5	0.5	2.7	0.9	0.8	1.1
Seychelles	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	117.7	119.1	97.7	121.3	120.6	154.0	153.9	149.1	158.7	149.5	180.6	199.6	239.3	219.6	218.7
Sudan	2.5	0.5	0.5	0.5	1.0	1.0	1.5	1.7	0.0	0.3	0.7	1.7	1.0	4.3	1.5
Swaziland	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.3
Tanzania	0.3	2.5	0.3	1.7	3.2	2.3	2.3	0.7	0.0	1.5	0.0	4.8	4.2	5.7	4.5
Togo	0.0	0.3	0.3	0.0	0.0	0.0	0.5	0.3	0.5	1.5	0.0	0.0	1.0	2.3	0.0
Uganda	1.0	0.5	1.0	1.0	0.5	0.0	1.0	0.0	1.0	2.5	0.0	1.0	0.6	1.0	0.0

Appendix table 5-33

S&E articles in engineering, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.5	1.0	1.8	1.0	2.5	0.0	1.0	0.2	0.0	0.0	1.5	0.0	0.0	0.0	0.5
Zimbabwe	0.6	1.5	3.0	2.3	6.8	3.8	9.0	2.5	2.5	0.7	3.2	0.8	0.8	0.0	1.3
Other	2,902.1	2,713.1	2,625.6	2,613.7	2,771.8	2,846.0	2,795.0	2,759.2	3,055.7	3,229.3	3,664.2	3,930.7	4,064.8	4,332.7	4,488.7
Australia	731.5	734.2	774.3	795.9	878.1	920.9	913.6	898.8	978.0	991.3	1,090.4	1,209.0	1,264.3	1,325.4	1,397.0
Canada	2,073.4	1,875.2	1,732.9	1,691.3	1,760.2	1,812.2	1,726.4	1,738.2	1,931.7	2,077.8	2,433.4	2,559.5	2,631.8	2,805.6	2,917.6
Fiji	0.0	0.0	0.5	0.0	1.0	0.0	0.8	1.5	2.0	6.8	2.5	4.5	4.2	3.0	1.7
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	95.8	102.7	116.7	125.4	130.2	111.6	153.4	120.7	143.6	152.9	138.0	157.8	164.3	198.7	172.2
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	1.3	1.0	1.2	1.0	2.3	0.0	1.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-34

S&E articles in geosciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	27,659.0	28,394.0	28,331.0	29,948.0	29,838.0	31,578.0	33,339.0	33,254.0	35,221.0	36,136.0	37,227.0	40,244.0	40,800.0	43,618.0	45,240.0
United States	9,852.3	9,884.0	9,423.7	9,899.5	9,516.7	9,897.6	10,211.0	10,077.4	10,735.0	10,634.7	10,730.5	11,398.5	11,558.3	12,101.3	11,620.8
European Union	8,867.8	9,278.7	9,517.5	10,335.1	10,423.9	10,782.6	11,119.7	11,137.0	11,550.2	11,521.4	12,165.1	12,905.7	13,041.3	13,854.1	14,405.3
Austria	145.9	139.9	129.5	140.7	170.1	161.8	212.9	187.8	196.2	212.8	172.3	196.0	207.5	212.5	238.5
Belgium	181.2	230.9	214.9	262.7	258.8	268.4	289.0	306.5	330.2	307.1	348.2	340.3	318.8	390.0	350.5
Bulgaria	27.7	27.7	21.7	27.4	30.8	28.5	30.6	33.8	30.1	29.6	37.3	26.9	36.7	32.5	44.5
Cyprus	5.0	3.7	2.2	2.0	3.4	0.0	1.5	1.2	4.5	2.0	2.0	1.2	6.0	1.9	12.0
Czech Republic	90.8	104.1	87.8	112.2	74.7	78.8	101.0	130.2	162.6	148.5	166.9	183.7	202.6	209.2	257.8
Denmark	274.0	314.9	314.1	341.3	331.4	383.5	360.8	400.7	379.0	328.6	345.4	369.7	345.5	352.3	346.9
Estonia	16.4	42.6	21.9	31.3	38.9	21.2	33.4	26.8	41.6	38.6	45.5	42.9	36.5	58.8	44.7
Finland	238.2	224.6	231.4	271.6	232.1	222.9	299.9	269.2	278.5	277.8	259.7	263.8	278.4	322.5	274.9
France	1,460.6	1,679.1	1,630.4	1,779.1	1,829.3	1,780.2	1,802.5	1,762.3	1,800.2	1,868.7	1,916.2	2,009.6	1,971.8	2,098.8	2,258.0
Germany	1,261.0	1,390.3	1,626.9	1,657.5	1,716.9	1,774.4	1,799.3	1,823.5	1,810.3	1,766.9	1,945.1	1,831.7	1,886.3	2,068.7	2,066.1
Greece	140.4	156.4	173.2	183.9	175.6	193.2	185.5	226.7	245.3	230.0	265.9	310.3	316.4	295.9	322.0
Hungary	63.6	65.7	58.5	77.3	61.3	53.7	54.8	62.2	89.8	76.3	75.4	76.9	88.2	77.2	101.9
Ireland	68.8	66.4	68.8	57.0	59.9	67.4	87.5	74.5	76.5	79.2	109.6	128.0	114.8	126.8	149.7
Italy	627.3	660.2	695.3	772.3	856.6	960.4	998.5	981.4	1,161.2	1,213.5	1,195.7	1,343.0	1,380.4	1,480.5	1,541.4
Latvia	1.5	13.3	3.3	4.0	8.0	5.4	7.1	3.5	5.9	6.0	4.4	2.6	3.8	3.0	3.3
Lithuania	4.7	3.0	3.5	6.4	7.7	7.0	12.5	11.3	7.8	28.7	10.3	19.6	14.8	14.5	18.2
Luxembourg	1.8	0.3	0.5	1.9	0.9	2.2	2.8	1.1	2.8	6.1	10.6	4.2	6.7	6.2	10.9
Malta	4.8	2.5	1.4	0.3	0.0	2.8	1.4	3.0	4.2	0.8	2.5	4.0	0.3	3.9	2.8
Netherlands	588.2	539.0	583.3	629.1	561.6	560.2	562.2	619.7	565.3	589.2	633.1	624.8	603.3	631.0	651.0
Poland	137.8	130.7	145.8	142.6	136.7	131.1	183.2	169.4	202.3	195.1	236.8	241.6	265.3	275.2	353.2
Portugal	78.3	58.9	70.8	110.0	119.5	118.4	155.4	201.3	200.7	200.7	269.5	343.1	356.2	419.1	524.2
Romania	4.5	16.6	18.4	12.4	20.5	20.4	24.3	27.0	29.4	22.0	33.4	29.7	35.8	31.8	53.2
Slovakia	35.4	27.0	31.8	30.6	20.6	25.1	18.6	25.5	27.0	18.2	38.1	40.0	35.8	55.1	58.0
Slovenia	16.7	22.4	20.5	26.9	28.0	27.0	28.1	22.0	34.7	45.4	37.1	48.8	51.8	34.7	60.7
Spain	566.4	617.8	683.7	738.6	782.9	807.5	827.0	878.2	944.1	927.9	1,075.0	1,221.1	1,288.5	1,468.8	1,534.8
Sweden	461.8	498.6	385.8	505.5	472.6	437.6	524.8	443.2	493.6	529.0	528.0	553.6	507.0	546.4	509.5
United Kingdom	2,365.0	2,241.9	2,292.2	2,410.6	2,425.2	2,643.6	2,515.3	2,445.1	2,426.2	2,372.8	2,401.1	2,648.8	2,681.8	2,636.7	2,616.4
Other Western Europe	882.9	915.9	972.8	1,071.7	1,052.4	1,083.2	1,227.4	1,273.5	1,378.6	1,494.7	1,481.6	1,712.0	1,804.5	1,930.3	2,056.5
Albania	3.8	1.9	1.0	2.9	2.8	1.1	3.4	3.7	0.3	0.5	1.5	0.6	1.6	4.1	1.4
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	0.3
Bosnia and Herzegovina	0.7	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.3	0.5	0.7	0.0	1.5	0.7	2.0
Croatia	54.1	36.6	29.9	34.2	25.6	37.5	41.2	37.4	48.9	59.4	56.0	74.7	65.2	81.5	102.1
Iceland	34.5	25.5	28.6	31.0	22.4	37.7	31.2	41.2	39.0	32.8	45.8	53.2	53.5	49.8	45.8
Liechtenstein	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.2	0.0
Macedonia	1.3	0.0	1.0	1.3	0.5	0.0	1.5	1.5	0.0	1.7	1.3	1.6	2.3	2.6	2.0
Monaco	3.1	10.1	7.2	7.8	14.9	5.3	5.7	10.1	11.2	12.8	8.3	8.8	7.2	9.9	11.9
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.3	0.1
Norway	372.5	403.5	392.9	446.1	400.1	426.8	460.1	499.2	481.7	532.1	477.4	559.9	603.8	599.4	624.2
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.9	35.6	35.8	48.8
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.3	10.3	NA	NA	NA
Switzerland	293.6	308.4	377.9	372.9	379.2	406.4	468.7	404.0	470.2	479.2	514.6	529.7	548.0	611.4	641.5
Turkey	103.6	115.9	119.6	159.9	192.6	154.7	200.5	263.8	321.1	356.5	356.8	456.7	485.4	534.5	576.3
Vatican City	0.0	0.0	0.8	0.0	0.1	0.3	1.0	0.0	0.0	0.5	0.5	0.0	0.0	0.2	0.0

Appendix table 5-34

S&E articles in geosciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	15.7	13.8	13.3	15.6	14.2	13.1	13.5	12.6	5.9	18.3	NA	NA	NA	NA	NA
Other former USSR	786.3	797.6	816.2	747.6	727.9	991.1	1,029.2	1,033.4	1,006.8	1,004.8	1,026.8	1,019.6	972.2	1,071.3	1,016.9
Armenia	0.7	1.5	1.6	2.1	1.1	0.1	3.1	3.2	2.7	1.2	1.5	4.5	1.0	2.3	3.2
Azerbaijan	0.0	0.0	2.3	0.5	0.3	3.5	4.0	2.0	2.8	7.0	4.5	2.9	2.2	0.7	3.6
Belarus	3.0	6.2	10.0	6.8	6.5	10.6	6.7	4.5	6.3	6.5	11.1	4.0	2.6	4.2	3.4
Georgia	1.3	4.1	4.5	5.7	3.2	1.8	3.3	4.4	7.2	4.6	2.3	10.3	6.3	9.0	7.5
Kazakhstan	4.1	3.5	8.5	1.7	3.5	6.0	8.0	3.6	5.4	4.6	6.1	3.9	8.5	5.0	4.2
Kyrgyzstan	0.3	2.5	2.6	1.0	0.0	1.0	2.6	1.6	0.8	0.4	0.9	4.8	3.9	2.7	1.4
Moldova	0.0	0.0	0.5	0.8	0.5	0.0	0.3	1.0	0.0	0.0	1.1	0.0	0.0	0.3	0.5
Russia	719.1	720.4	733.9	691.2	664.5	927.5	949.2	952.5	927.5	928.4	947.6	945.8	901.9	1,006.8	947.5
Tajikistan	6.3	1.5	1.5	0.0	2.0	3.8	5.2	3.2	5.6	3.2	2.8	2.4	5.0	0.0	0.6
Turkmenistan	0.0	1.5	0.0	0.7	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	0.0
Ukraine	49.4	54.2	45.6	33.7	44.6	35.5	44.7	56.6	43.9	42.0	46.8	36.8	38.5	38.6	39.1
Uzbekistan	2.2	2.2	5.2	3.5	1.7	0.8	2.2	0.8	4.5	7.0	2.1	4.2	1.3	1.6	6.0
Asia	2,546.0	2,757.9	2,901.7	3,098.2	3,096.7	3,588.1	4,380.9	4,426.6	4,952.5	5,562.3	5,718.1	6,633.3	6,919.8	7,597.5	8,665.2
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.5
Bangladesh	6.9	8.3	4.2	4.6	7.8	10.1	11.2	11.0	17.7	11.7	13.3	18.5	30.1	17.7	17.1
Bhutan	1.0	0.0	1.0	0.0	0.0	0.5	0.0	0.5	0.3	1.3	0.5	0.3	1.0	1.0	1.2
Brunei	3.1	1.5	0.0	1.3	4.3	8.7	2.2	4.8	8.4	2.6	1.5	0.5	1.5	1.8	1.8
Burma	0.0	1.0	0.0	0.7	0.7	1.9	0.0	0.5	0.0	2.0	1.3	1.2	0.9	1.2	0.5
Cambodia	0.0	0.0	0.0	0.0	0.5	0.3	2.0	0.5	1.0	0.0	0.8	2.4	1.6	5.3	3.0
China	306.0	389.3	468.2	510.2	580.2	701.1	933.6	933.4	1,226.7	1,528.1	1,657.6	2,175.5	2,451.4	2,791.7	3,597.6
India	384.6	380.2	400.9	330.4	408.8	388.6	443.2	507.7	510.0	594.0	707.3	754.4	834.3	908.9	1,022.3
Indonesia	18.7	16.0	19.1	12.7	20.8	28.7	22.1	20.6	23.0	21.4	17.2	16.2	21.9	27.6	36.8
Japan	1,453.8	1,415.3	1,445.3	1,599.9	1,445.7	1,693.4	1,947.0	1,921.9	1,974.2	2,098.2	2,078.7	2,218.4	2,093.1	2,213.0	2,131.9
Laos	0.0	0.0	0.7	0.0	0.5	0.0	0.5	1.0	1.0	0.5	1.8	5.3	1.2	0.7	0.2
Malaysia	23.3	26.6	24.4	17.8	18.1	25.1	26.1	46.1	38.5	36.6	38.3	27.2	52.0	67.1	101.4
Maldives	1.0	1.5	0.0	1.5	2.0	0.0	0.8	0.0	0.0	0.0	0.0	0.2	1.5	0.5	0.5
Mongolia	0.3	4.7	1.8	0.5	2.5	2.2	2.9	1.6	2.8	4.1	5.0	2.2	6.3	5.7	6.1
Nepal	3.0	2.5	5.9	2.6	5.5	6.6	6.3	5.4	6.1	7.3	9.9	7.3	8.8	8.9	6.3
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.8
Pakistan	9.5	13.6	8.7	7.6	7.2	7.2	9.7	13.9	12.2	13.6	17.1	22.3	32.0	36.5	75.6
Philippines	23.2	40.2	38.1	40.3	42.2	41.2	28.5	27.9	32.9	27.9	19.0	26.0	32.4	28.1	25.8
Singapore	39.0	53.4	54.2	40.9	37.5	64.2	67.7	71.9	91.6	85.0	82.7	75.5	71.2	81.5	69.1
South Korea	64.3	107.4	121.0	155.6	146.8	210.4	343.3	373.9	415.6	527.9	468.9	527.3	517.8	597.6	663.3
Sri Lanka	5.7	6.5	5.8	8.3	6.5	6.7	6.2	7.1	11.9	12.4	12.3	8.2	14.0	17.3	11.6
Taiwan	164.6	253.5	265.5	309.2	315.7	337.4	454.0	407.3	506.4	507.4	492.6	623.6	621.3	660.6	766.7
Thailand	31.0	27.8	31.6	48.4	34.4	41.9	64.1	57.9	64.2	74.0	76.9	104.3	102.9	101.1	98.6
Vietnam	7.1	8.6	5.2	5.7	8.9	11.8	9.5	11.8	8.0	6.4	15.1	15.6	22.6	22.3	26.6
Near East/North Africa	390.9	382.7	404.5	389.3	392.5	448.7	458.0	404.7	469.7	497.3	514.4	657.0	637.1	753.8	975.8
Algeria	7.1	11.4	7.3	9.2	8.2	9.3	14.8	8.1	9.5	14.2	13.3	19.2	12.6	28.0	42.9
Bahrain	2.5	3.0	0.0	1.5	2.0	0.5	1.3	3.0	2.8	0.3	1.1	0.0	0.3	1.2	1.0
Egypt	66.1	38.1	52.8	45.3	57.4	48.1	56.6	50.4	76.8	66.7	63.9	66.5	77.9	96.1	121.9
Iran	9.2	11.9	7.9	14.7	11.8	15.2	19.9	27.4	40.1	53.9	71.2	143.2	138.0	162.6	308.1
Iraq	4.0	5.0	5.2	2.7	0.5	1.0	1.0	0.0	0.0	1.0	1.1	2.0	0.0	4.9	6.7
Israel	183.4	189.4	224.7	198.5	185.7	242.3	224.6	204.4	213.7	216.4	211.9	237.8	223.8	238.4	227.8
Jordan	11.0	12.2	11.0	15.6	17.4	16.8	26.0	12.2	17.3	19.9	20.3	17.1	21.1	24.0	22.1

Appendix table 5-34

S&E articles in geosciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	14.3	30.2	10.0	15.6	29.0	14.9	18.1	5.2	11.0	14.8	9.1	17.5	13.5	11.9	13.0
Lebanon	2.6	1.8	8.2	3.5	8.7	4.5	9.1	6.0	10.7	12.2	11.6	13.5	16.2	12.6	11.5
Libya	3.2	1.0	0.2	1.3	0.2	1.5	1.0	1.7	0.8	1.6	1.6	2.3	0.8	3.2	3.9
Morocco	16.6	20.2	14.8	25.9	23.2	33.8	28.3	31.8	26.0	32.7	38.8	40.1	34.0	44.0	41.9
Oman	7.5	3.8	6.3	5.2	6.9	7.4	7.2	6.9	8.8	9.1	9.8	13.7	19.6	14.4	14.9
Qatar	0.0	0.5	0.5	2.0	2.3	0.0	2.2	0.0	2.8	1.0	0.8	0.0	0.8	0.3	2.0
Saudi Arabia	38.7	27.7	28.5	20.5	15.8	22.0	16.8	16.0	16.8	22.1	15.9	25.8	17.8	25.9	29.4
Syria	2.0	0.8	7.1	1.7	1.7	2.4	4.6	3.8	4.4	6.5	5.4	4.6	8.1	5.1	1.9
Tunisia	5.5	10.5	9.2	14.9	11.2	17.0	16.3	17.5	18.5	15.6	24.5	40.6	37.5	57.8	110.1
United Arab Emirates	15.3	12.8	8.2	9.6	10.3	9.6	8.4	10.4	8.2	9.0	13.0	11.5	13.5	21.7	16.2
Yemen	2.1	2.2	2.6	1.7	0.3	2.3	1.7	0.0	1.4	0.5	1.0	1.6	1.7	1.9	0.5
Central/South America	518.7	593.7	608.0	742.4	820.7	932.7	983.8	1,101.3	1,164.1	1,312.6	1,326.6	1,453.8	1,448.2	1,550.1	1,762.2
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Argentina	99.2	122.5	131.9	159.1	140.0	159.4	156.4	201.6	196.6	223.1	248.8	255.9	282.3	321.3	356.9
Bahamas	1.3	0.0	0.3	0.5	0.0	1.5	0.5	0.1	0.0	0.6	0.2	0.2	1.2	0.3	0.3
Barbados	3.5	1.0	1.5	1.0	1.8	3.1	2.2	0.1	1.3	1.5	1.8	2.3	0.5	2.0	0.5
Belize	0.0	0.0	0.5	0.0	1.0	0.0	0.4	0.1	0.8	0.7	1.5	0.5	0.0	1.2	0.0
Bolivia	5.0	2.2	0.9	4.0	9.4	3.0	4.5	4.9	8.2	5.2	9.7	7.9	8.7	6.9	4.6
Brazil	163.8	177.2	174.0	217.6	266.2	290.1	328.6	360.9	364.9	423.8	481.4	515.5	547.5	556.0	723.2
Chile	54.7	75.1	54.0	61.4	88.9	94.5	124.0	118.2	130.3	161.0	132.3	159.6	169.3	181.7	175.1
Colombia	8.1	5.0	22.2	9.2	12.2	20.3	19.8	26.4	14.4	15.4	16.5	38.7	19.0	27.2	37.4
Costa Rica	7.5	4.3	5.1	1.3	2.9	7.5	4.9	5.8	5.7	3.0	6.5	10.6	10.3	7.2	14.0
Cuba	5.7	6.0	3.6	6.8	14.2	7.7	13.8	3.6	10.2	6.7	10.3	12.1	11.9	10.7	9.8
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0
Dominican Republic	0.1	0.5	0.0	0.6	0.0	0.3	0.7	0.1	0.3	0.3	0.0	0.3	0.2	0.8	0.3
Ecuador	5.5	6.8	5.9	7.0	3.1	7.6	7.7	8.9	12.2	8.0	9.6	6.0	8.5	16.9	9.0
El Salvador	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	0.0	1.0	0.3	1.3	1.1	0.4	1.5
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Guatemala	0.3	1.0	1.0	0.2	0.2	0.7	0.2	0.3	0.6	1.4	0.8	1.9	0.6	0.5	0.0
Guyana	0.0	1.3	0.0	0.5	1.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.5	0.0	0.3
Haiti	0.0	0.0	0.0	0.0	0.2	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.8
Honduras	0.0	0.0	0.0	0.5	1.0	0.7	1.0	0.0	0.0	0.3	0.6	0.8	0.0	0.3	1.6
Jamaica	6.3	7.7	4.1	4.5	6.7	1.5	5.9	12.7	16.6	8.8	7.1	4.4	5.6	7.2	4.5
Mexico	111.3	140.4	158.2	222.3	219.5	280.6	250.2	296.4	341.8	380.8	316.1	344.5	313.7	320.7	342.8
Nicaragua	0.0	0.8	0.5	1.8	1.3	1.0	1.7	1.5	1.3	2.8	1.4	2.4	1.7	5.2	1.2
Panama	2.5	6.2	6.7	3.8	2.5	3.7	6.3	4.6	6.8	6.4	5.7	5.9	5.6	14.5	12.5
Paraguay	0.0	0.3	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.6	0.3	0.7	0.0	0.0	0.0
Peru	4.1	2.8	4.0	3.0	4.3	5.6	8.4	10.7	8.0	14.8	11.1	18.7	12.8	22.4	16.7
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
St Vincent	0.0	0.5	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Suriname	1.0	1.0	0.0	0.0	0.0	1.0	0.8	0.5	0.3	1.2	0.0	0.2	1.2	1.0	0.5
Trinidad and Tobago	3.3	4.0	0.1	7.0	2.8	3.8	2.8	1.9	2.5	4.3	2.5	6.0	9.0	6.1	4.4
Uruguay	7.8	3.3	5.9	4.3	11.2	7.3	12.6	15.4	15.6	13.6	19.0	20.7	15.5	21.2	20.1
Venezuela	26.7	23.2	25.4	24.5	29.6	30.4	28.3	22.7	23.4	26.7	40.0	34.7	20.8	16.8	20.7
West Indies Assoc States	1.0	0.5	0.1	1.2	0.8	0.3	1.2	1.5	1.9	0.6	2.5	1.3	0.1	1.2	3.1

Appendix table 5-34

S&E articles in geosciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	355.3	340.3	334.5	295.4	346.0	312.3	350.0	379.5	342.3	377.6	350.5	409.6	404.0	396.7	484.3
Angola	0.0	0.0	0.7	0.1	0.5	0.7	0.7	0.0	0.0	0.3	0.8	0.0	0.0	0.0	1.7
Benin	0.5	0.3	0.0	0.5	0.7	0.8	0.7	0.3	1.0	0.3	0.7	2.1	1.6	1.2	2.8
Botswana	4.4	5.8	3.5	4.7	2.4	4.0	2.8	4.5	6.4	5.2	7.1	12.9	6.7	6.0	3.8
Burkina Faso	0.7	0.3	0.2	1.0	0.7	1.9	1.8	1.2	2.9	1.5	0.8	1.1	1.1	0.6	4.3
Burundi	1.0	0.3	1.0	0.0	1.7	0.5	0.8	0.0	1.4	0.3	0.9	0.3	0.0	0.7	0.0
Cameroon	3.5	4.7	5.7	4.9	3.1	7.1	4.5	5.2	6.3	5.4	8.2	7.8	10.2	12.2	10.7
Cape Verde	0.3	0.0	0.3	0.0	0.2	0.0	0.2	0.0	1.3	0.3	0.3	0.8	0.0	0.0	1.0
Central African Republic	1.3	0.3	0.1	0.4	0.3	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.3	1.3	0.1
Chad	0.0	0.0	0.3	0.4	0.0	1.3	1.4	0.9	1.6	0.5	1.9	0.3	1.9	1.0	0.3
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	3.2	1.2	0.8	0.1	0.0	1.1	0.0	0.5	0.3	1.3	2.0	1.9	1.8	2.0
Congo (Kinshasa)	1.5	0.0	0.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.4
Côte d'Ivoire	6.3	2.3	3.9	7.7	2.1	2.9	1.2	1.8	3.8	2.1	2.7	1.6	2.7	3.2	4.7
Djibouti	0.5	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.3	0.0	0.1
Equatorial Guinea	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.2	0.2	1.2	0.2	0.5	0.5	2.2	1.1	1.8	2.1	3.3	0.5	0.5	0.5
Ethiopia	1.1	7.9	2.8	4.0	5.1	1.1	3.2	5.8	8.9	7.2	8.7	11.9	15.8	16.3	18.9
Gabon	1.8	1.0	1.3	0.3	0.0	0.1	1.1	0.0	1.3	0.0	0.5	0.3	0.4	0.6	0.7
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0
Ghana	3.5	4.5	0.8	2.3	3.3	5.3	4.9	5.4	2.5	5.1	2.7	9.7	6.5	10.6	7.9
Guinea	0.5	0.5	0.0	0.0	0.5	0.5	0.9	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.6
Guinea-Bissau	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	14.6	15.2	11.7	11.9	16.3	17.2	26.9	25.2	21.6	14.9	20.9	16.2	25.5	15.4	23.1
Lesotho	0.0	0.0	0.0	0.0	1.3	0.5	0.0	0.0	1.0	0.0	0.2	0.1	0.0	1.0	0.8
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Madagascar	3.7	1.5	2.9	4.1	0.9	3.4	0.9	0.7	4.8	0.8	0.8	5.5	2.2	2.6	3.1
Malawi	2.0	5.8	3.3	0.0	2.0	1.8	0.3	1.5	1.3	1.0	1.2	3.6	0.7	0.8	0.1
Mali	0.0	0.3	0.0	0.0	0.2	0.3	0.0	1.6	0.3	0.9	0.0	1.0	0.5	1.0	4.0
Mauritania	0.0	0.3	0.5	0.3	0.8	0.5	0.5	0.7	0.7	0.2	2.1	0.5	1.2	0.3	1.2
Mauritius	0.0	0.0	0.0	1.5	1.2	0.8	1.0	1.3	1.3	1.2	1.4	2.1	2.0	1.8	0.6
Mozambique	3.0	0.0	1.0	2.3	1.7	2.2	4.0	3.2	0.8	3.1	5.8	3.8	2.3	3.8	2.6
Namibia	1.6	4.8	2.0	0.5	5.7	0.7	4.0	3.4	2.2	1.9	3.0	3.4	4.6	5.0	2.6
Niger	1.9	0.3	7.9	2.5	1.4	0.5	1.0	2.0	1.3	1.3	2.4	2.1	2.0	3.5	4.1
Nigeria	15.2	23.5	26.3	18.2	19.6	21.5	14.5	25.4	20.3	25.6	24.7	31.0	24.5	29.0	33.3
Rwanda	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.2
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Senegal	0.5	3.7	6.0	1.0	6.4	5.5	3.7	4.9	6.4	4.6	7.4	5.9	2.8	6.7	6.1
Seychelles	1.5	2.5	0.5	1.0	0.0	0.8	0.3	0.5	0.0	0.4	0.6	0.7	0.9	1.9	1.2
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	255.2	229.5	230.6	197.2	248.1	212.6	248.6	258.5	216.8	269.1	214.2	255.2	261.3	242.9	312.0
Sudan	1.5	1.3	0.0	0.7	0.8	0.3	0.0	1.0	1.3	1.0	1.6	0.8	0.0	0.7	1.9
Swaziland	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.3	0.3	0.0	0.3
Tanzania	11.4	9.1	7.6	13.8	8.0	5.7	5.8	12.8	6.1	8.9	15.5	10.4	9.8	9.9	12.5
Togo	0.0	0.0	0.3	1.0	0.5	0.5	0.5	0.5	0.1	0.3	0.0	0.2	0.5	0.0	0.5
Uganda	0.6	3.0	1.1	2.5	2.5	3.5	3.5	1.3	7.5	3.8	4.3	5.9	6.3	6.5	6.1

Appendix table 5-34

S&E articles in geosciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	2.1	0.0	0.5	1.3	1.9	0.5	1.9	0.3	1.0	0.8	2.5	2.8	1.1	0.5	2.0
Zimbabwe	12.8	7.8	10.3	6.9	5.4	6.2	6.2	6.7	7.1	6.8	2.2	3.9	5.7	5.7	3.4
Other	3,458.8	3,443.3	3,352.1	3,368.7	3,461.3	3,541.7	3,578.9	3,420.5	3,621.7	3,730.7	3,913.4	4,054.4	4,014.6	4,363.0	4,252.9
Australia	1,098.7	1,061.6	1,081.3	1,233.0	1,235.2	1,316.4	1,375.5	1,211.7	1,380.3	1,432.4	1,470.4	1,503.8	1,578.9	1,697.0	1,642.5
Canada	2,096.3	2,093.9	1,932.7	1,800.6	1,872.2	1,905.2	1,822.3	1,866.4	1,836.2	1,941.8	2,069.7	2,179.1	2,075.8	2,293.9	2,246.0
Fiji	4.7	1.0	3.4	2.4	4.8	2.3	2.9	2.0	1.2	3.9	1.6	4.3	4.1	2.9	5.3
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Marshall Islands	0.5	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.3	0.0
Micronesia	1.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	1.0	0.0	0.3	0.4	0.0	0.1
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	253.0	283.2	329.7	327.0	340.1	310.2	372.8	337.2	396.3	347.2	366.9	363.0	351.4	368.4	354.1
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.7	0.5	3.0	0.6	1.3	0.4	0.5
Papua New Guinea	3.5	0.9	1.6	2.2	2.2	4.5	2.6	2.5	4.6	3.1	0.6	1.2	1.6	0.1	2.0
Solomon Islands	0.0	1.0	2.7	3.0	5.4	2.2	0.7	0.5	1.6	0.3	0.4	1.0	1.2	0.0	0.5
Tonga	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.1	0.7	0.7	0.5	0.3	0.6	0.3	0.3	0.5	0.4	0.8	0.6	0.0	0.0	1.8
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-35

S&E articles in mathematics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	9,341.0	9,816.0	10,729.0	10,956.0	12,006.0	14,015.0	14,127.0	13,625.0	14,518.0	14,802.0	14,923.0	16,507.0	17,415.0	18,156.0	19,214.0
United States	3,197.1	3,255.2	3,326.2	3,368.0	3,381.9	3,977.5	3,645.2	3,455.3	3,690.1	3,691.0	3,782.6	4,031.2	4,085.3	4,186.8	4,190.5
European Union	3,622.8	3,701.3	4,207.2	4,367.6	4,985.9	5,636.5	5,731.0	5,522.6	5,836.5	5,782.9	5,815.4	6,413.8	6,737.0	6,715.6	7,200.5
Austria	59.6	57.6	72.2	65.8	79.0	95.0	120.6	120.6	127.7	114.3	124.7	159.2	157.8	158.2	159.0
Belgium	83.3	89.7	80.1	85.0	120.8	122.1	118.6	120.1	145.4	175.1	157.4	174.0	184.3	211.8	184.7
Bulgaria	32.0	30.3	31.2	27.9	30.3	37.7	35.5	31.2	28.1	33.2	33.0	30.2	31.0	33.1	29.0
Cyprus	1.1	5.3	3.2	3.8	3.0	5.0	8.0	2.5	7.8	10.5	8.8	11.8	9.6	18.5	16.3
Czech Republic	33.2	40.4	52.3	46.2	59.0	75.2	106.9	76.2	79.1	85.4	78.6	105.5	124.0	135.5	138.3
Denmark	59.2	49.6	64.7	64.0	73.6	63.2	73.4	64.1	78.6	74.7	80.6	78.2	63.0	52.9	68.3
Estonia	1.0	1.8	4.3	4.5	7.2	6.0	6.3	3.8	4.0	4.5	8.0	5.7	11.3	8.8	6.0
Finland	42.9	40.0	46.6	38.4	61.2	74.2	70.4	67.7	72.5	73.0	61.4	88.9	90.7	87.2	81.8
France	939.0	937.7	1,044.5	1,154.2	1,248.7	1,355.3	1,369.0	1,381.5	1,360.3	1,335.6	1,367.1	1,409.9	1,388.4	1,393.8	1,546.0
Germany	634.8	648.8	735.8	812.4	907.0	1,025.8	936.1	888.1	930.8	959.0	937.3	989.0	1,071.0	1,031.9	1,102.7
Greece	46.7	60.5	80.7	52.5	73.2	69.9	96.0	82.5	94.8	100.0	113.5	117.4	96.2	101.7	124.6
Hungary	56.9	50.2	52.8	65.0	72.3	95.4	97.7	82.3	100.0	81.6	106.4	110.3	88.9	128.0	118.8
Ireland	20.6	25.6	28.5	34.7	34.9	49.8	42.0	32.6	34.0	42.4	42.5	61.4	49.3	48.0	54.4
Italy	341.0	334.6	438.5	404.8	472.0	564.4	638.3	640.3	660.8	652.0	665.5	755.7	793.0	774.4	878.5
Latvia	0.0	3.3	2.5	1.5	1.5	2.5	2.5	0.0	0.5	0.3	1.0	0.0	2.3	0.0	1.0
Lithuania	2.0	2.9	3.0	5.7	17.7	10.5	8.3	10.3	30.0	11.6	5.2	9.0	43.9	10.0	11.1
Luxembourg	0.0	0.0	0.0	1.0	1.0	0.0	1.5	0.0	1.8	2.8	0.0	0.5	4.2	8.8	5.4
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.5	2.0	2.2	2.5
Netherlands	158.5	145.5	145.9	142.3	130.4	178.2	162.9	140.0	189.7	154.1	161.2	163.3	161.7	181.4	166.4
Poland	107.5	108.2	138.5	128.2	175.3	187.8	226.9	199.0	224.0	227.6	211.8	207.6	277.7	296.8	329.2
Portugal	28.8	27.9	26.3	33.4	30.6	49.1	73.4	78.7	82.2	76.2	98.8	102.8	105.0	110.9	159.8
Romania	33.8	46.7	50.9	48.4	58.6	61.9	74.4	81.1	73.2	68.9	68.3	79.0	114.2	104.0	141.3
Slovakia	22.9	19.2	26.2	13.7	20.6	27.4	35.4	27.9	17.7	25.7	23.8	22.7	36.8	34.2	30.8
Slovenia	17.3	15.2	18.2	24.8	22.3	28.3	28.6	65.5	38.0	49.2	50.6	46.7	82.5	62.8	69.7
Spain	237.1	286.1	320.8	317.8	439.8	510.1	528.7	495.3	550.1	565.5	533.9	617.4	675.6	683.3	704.6
Sweden	93.8	92.0	100.3	118.2	132.4	137.6	130.0	130.2	146.1	159.8	155.7	179.9	171.5	164.4	164.3
United Kingdom	569.8	582.0	638.9	673.1	713.3	803.9	739.0	701.2	758.3	699.8	720.2	887.0	901.1	872.8	905.8
Other Western Europe	157.7	171.4	189.2	217.0	217.3	253.0	289.3	265.5	271.0	329.9	362.7	426.7	476.1	482.4	532.5
Albania	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	1.0	0.5	0.5	2.5	0.0	1.0	0.5	0.0	1.5	4.0	3.5	3.2	1.7
Croatia	9.7	13.0	14.3	19.3	9.5	21.0	20.4	15.2	9.2	17.2	20.7	28.0	24.8	32.1	29.9
Iceland	3.5	2.3	4.0	2.0	1.7	0.3	4.1	2.5	3.0	2.1	1.8	3.5	5.0	5.7	6.1
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	1.0	0.0	2.0	0.5	1.0	0.0	1.0	2.0	0.0	0.0	0.0	1.5	1.5
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	1.0	1.0	0.8
Norway	32.8	37.3	37.1	53.7	45.5	59.2	67.9	43.4	51.7	63.7	50.6	72.4	79.2	88.1	93.6
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.5	54.2	53.2	63.3
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.9	20.4	NA	NA	NA
Switzerland	91.9	90.9	84.3	99.6	105.8	116.5	118.3	130.1	127.5	134.9	154.5	148.3	161.5	148.1	172.3
Turkey	14.3	15.5	25.0	27.9	36.7	40.0	54.3	47.5	57.0	88.7	94.4	129.9	146.3	149.4	163.2
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-35

S&E articles in mathematics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	5.5	12.4	22.5	14.1	15.1	13.1	23.3	24.4	21.1	21.3	NA	NA	NA	NA	NA
Other former USSR	393.5	339.3	363.2	380.9	404.1	561.8	688.5	643.3	618.4	652.6	652.6	616.7	620.9	632.5	656.1
Armenia	4.5	8.0	0.7	6.5	3.3	4.5	1.5	10.1	6.3	8.0	2.0	9.2	8.3	7.0	12.5
Azerbaijan	4.3	0.5	2.3	0.0	2.5	3.5	5.3	3.8	4.0	5.5	6.0	8.3	12.3	8.7	12.3
Belarus	12.4	7.7	10.7	13.0	16.0	14.8	18.3	9.5	12.4	12.8	14.3	15.2	15.9	10.3	11.5
Georgia	7.3	4.7	4.8	4.2	9.6	10.4	11.5	9.0	9.7	13.7	12.2	14.3	13.2	17.4	17.3
Kazakhstan	1.8	0.0	3.3	5.5	3.0	2.8	9.3	4.3	9.8	6.0	6.0	7.0	6.9	7.0	5.3
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	2.0	0.0	0.0	1.0	0.0	1.0
Moldova	1.0	3.5	4.5	5.5	1.0	2.0	1.5	0.3	0.8	1.0	2.0	1.8	2.5	1.0	1.5
Russia	322.5	274.4	294.5	297.3	302.7	458.3	563.5	539.0	508.8	537.2	533.4	473.3	480.7	509.8	515.1
Tajikistan	0.0	1.0	0.0	1.0	0.5	1.0	4.0	7.5	3.0	5.5	7.8	4.5	1.0	0.0	2.0
Turkmenistan	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Ukraine	35.8	36.6	37.7	45.5	61.4	58.1	68.7	55.2	60.2	58.3	64.4	77.2	72.2	67.9	68.9
Uzbekistan	2.3	2.8	4.8	2.5	4.0	6.5	3.8	4.6	3.3	2.7	4.5	5.8	6.4	3.3	8.7
Asia	886.9	1,143.6	1,341.7	1,359.5	1,596.0	2,009.0	2,181.8	2,109.6	2,433.0	2,583.9	2,508.3	3,035.0	3,462.3	3,922.7	4,261.1
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	1.0	1.0	1.5	2.0	1.0	0.5	0.5	2.5	0.0	0.0	1.0	1.0	0.3	0.5	0.0
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	0.5	0.0	1.0	1.0	1.0	2.5	1.0	0.0	2.8	0.0	3.0	0.0	1.8	1.0	0.5
Burma	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
China	295.3	363.8	458.4	483.4	555.7	712.4	817.5	856.1	1,037.7	1,193.7	1,203.3	1,507.3	1,858.2	2,169.6	2,400.5
India	89.6	104.2	126.4	114.8	134.4	156.0	131.3	148.3	153.7	170.3	153.8	179.0	207.4	202.4	250.0
Indonesia	1.0	0.0	0.0	0.3	0.0	0.0	0.5	1.5	1.6	0.8	1.6	2.5	2.3	3.8	2.7
Japan	313.4	412.6	464.2	437.0	561.1	664.5	761.8	626.1	721.5	700.7	616.8	707.6	705.5	771.8	792.5
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaysia	1.5	3.5	1.0	1.5	3.3	2.7	4.8	3.5	5.7	4.0	5.3	6.8	8.3	8.4	21.7
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.5	0.7	0.0	0.0	0.0	0.0
Nepal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	1.0
Pakistan	1.2	3.3	2.3	2.3	3.5	4.0	3.8	3.2	0.5	2.0	8.0	10.9	10.8	20.6	21.6
Philippines	1.5	0.0	3.5	1.0	1.0	4.5	3.0	3.3	5.5	1.3	2.5	2.6	2.2	6.0	1.8
Singapore	48.2	48.2	47.7	47.2	58.9	72.2	86.3	94.2	93.0	84.9	77.8	92.5	101.2	89.4	73.8
South Korea	49.2	74.4	95.5	122.0	135.4	181.4	186.8	193.6	229.8	228.7	239.3	273.2	305.5	309.3	332.3
Sri Lanka	0.0	0.0	0.0	0.5	1.5	1.5	0.0	0.0	0.5	0.1	0.0	0.8	1.3	0.3	1.3
Taiwan	61.7	109.9	113.2	130.4	124.4	174.6	156.5	152.1	145.3	165.1	153.7	207.0	204.5	271.2	270.5
Thailand	0.5	1.0	0.5	0.5	2.2	5.0	3.8	4.5	7.2	8.7	9.6	18.2	17.8	18.2	29.1
Vietnam	22.3	21.6	26.5	15.5	12.5	26.7	24.2	19.9	27.2	22.7	31.7	24.8	35.2	50.1	60.9
Near East/North Africa	241.4	272.8	324.3	333.1	366.0	396.3	439.7	432.4	443.0	445.2	488.3	537.3	582.8	687.8	698.4
Algeria	4.5	4.8	4.5	3.5	8.0	6.5	12.2	12.2	15.0	12.8	14.8	16.4	23.2	28.4	33.5
Bahrain	1.8	2.0	1.0	1.5	0.3	2.0	0.0	0.0	1.5	0.7	1.0	1.5	0.0	2.5	0.5
Egypt	13.7	8.7	9.7	15.3	8.1	14.0	11.0	12.1	17.7	17.5	26.3	24.9	27.1	33.1	24.0
Iran	3.5	8.0	14.8	16.5	26.8	23.2	40.7	33.3	39.6	57.2	71.8	84.5	129.3	161.7	186.9
Iraq	0.0	2.0	1.0	0.0	0.5	0.0	2.0	0.5	0.5	1.0	0.5	1.5	0.0	1.5	0.5
Israel	179.4	198.1	212.3	225.0	232.7	255.7	246.7	255.0	243.3	233.3	246.4	274.1	255.6	303.0	278.6
Jordan	2.5	1.0	4.1	0.5	2.0	2.3	2.0	4.8	6.0	8.5	5.2	6.0	10.0	18.3	7.7

Appendix table 5-35

S&E articles in mathematics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	2.0	2.0	11.2	7.3	7.5	10.2	6.8	5.8	4.8	7.1	3.2	6.6	3.2	5.0	6.4
Lebanon	2.0	2.5	3.8	3.5	4.0	3.0	6.0	3.0	8.6	7.0	3.5	1.6	6.8	8.5	3.1
Libya	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.8	0.0	3.0
Morocco	12.8	21.2	21.2	20.2	32.7	31.2	48.7	31.2	41.3	33.3	35.2	38.2	32.7	31.0	37.7
Oman	2.0	1.0	2.3	1.5	2.5	3.5	1.5	3.8	3.8	2.2	4.3	5.0	4.3	7.8	7.3
Qatar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.5	0.5	2.1
Saudi Arabia	8.5	11.3	21.3	14.0	13.5	14.2	20.5	21.2	17.8	13.2	20.7	21.3	29.0	34.7	37.9
Syria	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Tunisia	6.3	7.7	15.6	21.8	25.9	27.7	38.3	37.0	32.4	32.7	44.2	43.3	48.8	45.8	60.0
United Arab Emirates	0.5	2.5	0.0	2.0	0.0	2.8	3.0	10.9	10.1	17.7	11.2	10.3	10.6	5.3	8.2
Yemen	1.3	0.0	1.0	0.5	1.5	0.0	0.3	1.5	0.0	0.0	0.0	1.0	1.0	0.5	1.0
Central/South America	175.7	179.0	243.4	229.4	285.8	353.3	388.0	421.9	416.6	432.0	439.1	490.8	498.1	566.0	578.1
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	17.7	29.2	32.2	20.8	45.2	59.2	59.8	62.3	51.1	58.8	53.5	73.1	73.4	85.5	76.4
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.0	0.0	0.0	0.0	1.0	0.5	1.0	2.0	1.3	0.5	0.5	0.0	0.5	0.0	0.0
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Brazil	82.0	81.3	105.7	114.8	126.3	160.3	179.2	197.8	193.5	194.3	204.2	221.4	230.3	253.8	289.4
Chile	18.6	19.7	33.7	33.5	31.1	35.1	37.5	49.4	58.4	59.6	52.5	76.5	77.6	74.7	95.1
Colombia	4.8	1.8	2.2	3.3	3.7	5.7	9.0	7.3	8.7	5.2	6.2	12.6	11.2	9.9	16.1
Costa Rica	1.5	0.5	1.0	1.0	1.7	0.5	0.0	0.0	1.5	0.0	1.0	1.5	0.0	1.8	0.5
Cuba	5.4	1.3	0.0	3.8	2.7	2.8	1.0	2.5	2.8	2.1	2.3	5.5	3.2	6.7	2.0
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.5	0.8	1.8
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guyana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	1.0	0.0	1.0	0.5	0.8	0.5	1.5	0.0	0.5	0.0	0.8	0.8	0.5	0.8	1.2
Mexico	24.3	31.7	40.7	35.8	53.2	55.2	68.7	72.3	74.2	88.8	92.8	80.4	82.8	106.0	74.9
Nicaragua	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Panama	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paraguay	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	0.0	0.0	0.0	2.0	1.0	0.8	1.5	0.0	1.0	2.0	0.7	1.5	1.8
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Uruguay	4.5	1.5	7.6	4.0	4.8	6.2	5.5	8.0	7.5	4.5	6.0	4.3	5.3	7.9	11.3
Venezuela	15.8	11.5	18.9	11.7	15.2	25.3	23.7	19.5	15.4	18.3	17.7	12.2	11.9	16.5	6.5
West Indies Assoc States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-35

S&E articles in mathematics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	40.5	34.4	37.3	47.7	65.7	58.0	61.6	58.2	53.5	48.0	56.9	63.3	88.4	80.0	89.0
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benin	0.0	0.0	0.5	0.0	0.0	0.0	1.0	1.3	0.0	1.0	0.0	1.2	0.8	1.0	1.0
Botswana	0.0	1.0	0.0	1.0	0.5	3.3	3.3	4.0	0.0	3.0	1.8	0.0	0.0	0.0	1.5
Burkina Faso	0.5	1.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.3	0.0	0.0	1.3
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0
Cameroon	2.0	0.0	0.0	1.0	1.0	1.0	1.3	1.0	2.8	2.1	4.0	4.0	6.6	5.9	3.3
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	1.0	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.2	0.5	0.0
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Côte d'Ivoire	0.5	2.0	1.0	2.5	2.5	0.0	2.0	1.0	2.0	0.0	2.0	0.3	0.0	0.5	2.2
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	3.0	3.0
Gabon	0.0	0.0	0.0	0.5	0.0	0.5	1.5	0.5	1.0	0.0	0.0	0.0	0.0	0.0	2.2
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.3	0.0
Guinea	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	0.8	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5
Lesotho	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Madagascar	1.5	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.5	0.5	0.0	1.0	0.0	1.5	0.0
Malawi	0.0	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.0	0.0
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritania	0.5	1.0	0.0	0.0	0.0	0.3	0.8	0.8	0.5	0.3	1.8	1.5	0.7	0.0	0.0
Mauritius	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	0.5	0.0	0.0	1.0	0.0	4.5	3.0
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Namibia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Niger	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.0	0.5	0.0
Nigeria	3.5	3.5	6.0	2.5	6.0	6.0	7.0	3.0	1.5	2.0	2.8	3.0	6.5	2.3	1.0
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.5	0.0	1.3	0.5	0.0	0.0	1.5	0.8	2.5	1.3	1.3	2.4	1.0	3.8	2.6
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	28.7	24.4	25.5	34.8	52.7	43.9	40.6	42.2	37.6	33.6	37.7	44.7	67.8	53.1	65.4
Sudan	0.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0
Swaziland	0.0	0.0	0.0	0.5	0.5	0.3	0.0	0.5	0.5	0.0	0.5	0.0	0.0	0.0	0.0
Tanzania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.3	0.0	0.0	0.0	0.0	0.0
Uganda	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.3

Appendix table 5-35

S&E articles in mathematics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zimbabwe	2.0	0.5	1.0	0.0	0.0	0.5	0.5	0.5	0.3	0.5	0.0	0.0	1.3	0.0	0.8
Other	625.4	718.8	696.4	652.8	703.3	769.4	702.0	716.1	756.0	836.4	817.2	892.2	864.2	882.1	1,007.9
Australia	184.2	227.4	244.4	223.1	241.0	277.7	242.3	222.1	218.0	257.3	239.0	242.8	239.8	243.8	269.6
Canada	411.1	457.2	411.0	385.6	424.9	442.0	408.5	435.2	491.1	529.5	532.4	592.9	576.1	597.1	684.6
Fiji	0.0	1.0	0.5	0.5	1.5	0.7	0.0	1.0	1.0	0.0	0.5	0.3	0.0	0.5	0.0
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	29.1	33.2	40.5	43.6	35.8	48.1	51.1	57.8	45.9	48.6	45.4	56.1	47.3	40.7	53.7
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-36

S&E articles in medical sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	135,648.0	140,884.0	144,819.0	148,378.0	149,672.0	154,835.0	152,922.0	153,483.0	158,517.0	162,570.0	167,524.0	171,800.0	174,390.0	178,420.0	179,021.0
United States	51,658.6	51,810.8	52,196.9	52,146.9	52,106.6	53,042.3	52,592.2	52,894.8	54,935.8	56,152.4	57,221.3	57,874.3	58,323.1	59,717.9	58,663.7
European Union	50,904.2	53,586.2	55,648.5	57,256.2	57,312.0	59,425.8	58,477.0	57,678.7	58,866.2	59,426.6	60,835.6	62,204.3	62,094.5	61,904.4	61,773.6
Austria	1,187.7	1,283.2	1,437.3	1,611.9	1,556.2	1,693.9	1,638.6	1,709.6	1,755.6	1,657.2	1,604.8	1,574.9	1,596.2	1,500.0	1,479.5
Belgium	1,463.7	1,525.0	1,560.6	1,738.2	1,602.3	1,632.3	1,627.5	1,623.4	1,664.9	1,682.8	1,673.1	1,762.9	1,805.2	1,821.9	1,844.0
Bulgaria	64.4	72.1	67.1	90.8	63.8	69.2	76.5	63.3	65.4	76.4	81.1	75.0	72.1	88.6	70.0
Cyprus	4.4	4.4	5.1	8.5	2.6	9.3	8.6	12.7	12.8	9.8	11.8	16.6	8.7	10.7	21.2
Czech Republic	170.2	188.3	227.6	213.6	211.4	275.3	289.9	281.6	334.3	348.3	380.2	471.8	484.1	489.8	480.0
Denmark	1,553.4	1,532.7	1,521.1	1,509.7	1,574.2	1,504.7	1,466.0	1,453.7	1,565.9	1,547.0	1,608.5	1,655.1	1,713.9	1,728.8	1,746.1
Estonia	23.5	36.5	31.2	47.0	42.6	40.9	45.1	33.9	45.6	45.9	48.1	57.2	63.4	59.9	65.7
Finland	1,582.7	1,638.3	1,753.4	1,577.1	1,715.7	1,733.6	1,650.5	1,601.0	1,563.6	1,587.6	1,526.8	1,552.1	1,462.1	1,474.8	1,407.8
France	6,356.7	6,442.1	6,664.7	7,143.4	6,894.6	6,967.0	6,747.5	6,572.4	6,611.7	5,952.7	6,201.6	6,157.0	6,078.3	6,153.7	6,099.5
Germany	8,781.0	9,373.2	10,377.3	10,855.2	11,102.7	11,805.5	11,558.7	11,588.3	11,552.1	11,725.3	11,903.7	12,033.9	11,890.6	11,743.8	11,779.0
Greece	533.2	581.7	645.8	700.1	699.6	790.8	900.6	886.0	1,012.3	1,150.4	1,325.3	1,431.0	1,462.9	1,402.8	1,369.8
Hungary	267.7	260.8	333.4	391.6	377.5	479.2	550.8	458.4	502.6	491.6	541.7	535.2	506.5	532.4	499.3
Ireland	356.2	363.5	426.7	398.2	368.2	433.9	428.5	418.5	442.8	506.2	470.6	546.7	559.4	605.1	613.9
Italy	5,322.8	5,943.0	5,924.7	6,180.6	6,081.7	6,305.4	6,655.2	6,482.0	6,989.2	7,121.9	7,161.0	7,560.4	7,635.9	7,684.7	7,698.3
Latvia	5.2	4.4	5.4	7.3	7.6	8.2	11.7	7.8	5.8	7.7	8.4	7.5	11.5	12.0	9.9
Lithuania	7.3	14.5	12.0	17.1	19.8	27.7	17.3	20.4	24.2	31.8	38.4	45.7	36.5	39.9	36.1
Luxembourg	6.4	6.4	15.4	5.8	6.8	15.5	12.0	14.1	5.4	11.6	15.3	10.5	19.2	17.2	25.6
Malta	4.3	3.0	7.8	6.6	12.1	9.0	8.2	5.8	10.4	6.3	7.8	3.7	6.4	12.6	8.9
Netherlands	3,804.4	3,964.0	4,093.0	4,129.2	3,953.0	4,062.1	3,961.4	4,044.7	4,300.9	4,561.8	4,880.0	5,110.2	5,126.3	5,227.7	5,375.6
Poland	391.4	418.1	441.8	477.7	504.2	528.8	596.3	638.2	682.8	704.6	768.9	859.3	846.2	824.9	904.4
Portugal	139.2	133.8	179.8	166.7	222.5	178.7	189.5	208.0	215.0	262.6	264.1	318.8	311.7	391.4	444.3
Romania	19.6	19.0	31.4	27.1	22.8	34.4	25.7	24.0	18.5	35.7	30.7	49.1	70.9	55.2	87.1
Slovakia	160.5	124.4	112.6	107.5	115.7	108.3	99.7	76.8	97.3	101.6	103.2	121.5	98.6	103.7	141.6
Slovenia	55.8	57.3	91.4	91.1	104.9	155.2	146.6	135.8	154.1	168.0	149.8	201.0	146.3	206.0	186.9
Spain	2,388.7	2,709.2	2,761.8	3,051.3	2,989.7	3,260.1	3,088.9	3,144.1	3,086.1	3,269.3	3,485.7	3,693.5	3,823.6	4,047.0	3,902.7
Sweden	3,241.1	3,368.4	3,510.4	3,390.8	3,365.1	3,302.6	3,200.7	3,127.5	3,033.0	2,947.2	3,163.9	3,059.1	3,059.4	2,892.4	2,959.3
United Kingdom	13,012.9	13,519.0	13,409.6	13,312.1	13,694.8	13,994.2	13,474.8	13,046.6	13,113.7	13,415.5	13,381.0	13,294.5	13,198.4	12,777.3	12,517.5
Other Western Europe	3,879.1	4,110.7	4,314.0	4,557.5	4,779.3	5,117.4	5,058.9	5,411.5	5,725.0	6,414.8	6,948.1	6,993.9	7,105.2	7,039.0	6,929.2
Albania	2.0	2.5	4.8	1.6	3.0	0.0	0.9	2.3	2.0	2.4	1.3	2.1	1.6	3.8	1.3
Andorra	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.7	0.3	0.6	2.2	0.1	0.0
Bosnia and Herzegovina	1.0	1.5	1.3	1.0	3.7	0.5	4.8	2.3	6.2	1.8	3.3	4.1	20.7	10.9	14.6
Croatia	105.2	110.4	115.1	114.9	120.7	126.1	131.7	132.9	135.6	155.1	141.7	162.1	180.2	199.9	164.3
Iceland	59.4	59.1	45.8	57.1	46.8	41.9	51.4	59.5	57.1	50.3	57.4	71.2	55.3	49.4	64.3
Liechtenstein	1.5	0.3	0.0	0.1	1.5	0.0	0.0	0.0	1.0	0.2	4.8	3.8	3.0	7.3	3.1
Macedonia	2.0	8.1	5.7	2.4	5.1	7.2	8.2	8.7	10.7	4.5	4.7	5.8	6.8	4.8	10.1
Monaco	6.5	2.8	2.9	3.3	0.8	1.4	3.6	2.8	7.1	7.1	5.8	4.5	2.3	4.6	5.9
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.6	0.3	0.9	2.3
Norway	1,014.9	953.0	905.3	937.1	937.6	954.2	926.2	870.4	901.4	934.3	1,084.8	1,070.2	1,106.1	1,231.8	1,271.7
San Marino	0.0	0.5	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.6	157.8	178.3	191.6
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	121.4	64.2	NA	NA	NA
Switzerland	2,019.6	2,064.6	2,188.7	2,280.6	2,281.5	2,510.6	2,188.9	2,174.6	2,160.3	2,342.4	2,364.8	2,533.5	2,541.3	2,542.5	2,599.9
Turkey	580.2	817.4	951.4	1,073.5	1,294.3	1,417.6	1,663.8	2,094.4	2,366.5	2,807.0	3,157.8	3,005.8	3,026.5	2,804.7	2,599.7
Vatican City	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3

Appendix table 5-36

S&E articles in medical sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	86.6	90.4	92.2	85.3	84.1	57.8	79.4	63.7	76.9	108.9	NA	NA	NA	NA	NA
Other former USSR	807.3	817.2	752.5	702.8	643.2	645.6	626.1	623.5	586.7	592.1	680.2	632.9	647.0	651.1	653.9
Armenia	3.3	7.3	5.2	3.5	6.3	8.5	11.5	6.7	5.9	9.3	6.7	7.3	5.9	6.9	4.9
Azerbaijan	1.5	1.5	1.3	2.7	3.8	2.9	0.7	1.1	1.2	0.3	0.1	4.1	0.3	3.7	0.3
Belarus	12.0	18.0	14.9	11.8	15.9	25.3	16.2	15.5	13.2	20.5	19.7	20.6	15.1	21.0	16.2
Georgia	7.8	2.0	4.0	8.6	10.1	4.3	9.4	13.4	6.2	22.3	19.9	21.0	8.9	7.4	7.3
Kazakhstan	0.0	0.0	2.3	4.2	1.1	2.4	2.8	2.3	4.3	2.6	1.9	6.6	2.5	1.2	3.7
Kyrgyzstan	1.5	0.0	2.0	0.0	0.8	0.0	1.3	1.6	0.3	0.2	0.7	1.2	1.7	0.8	2.8
Moldova	1.0	1.0	0.5	0.0	4.5	0.3	0.2	0.7	3.2	2.3	4.7	2.1	1.0	3.1	1.1
Russia	701.3	707.0	644.9	594.6	522.9	541.6	505.7	517.5	491.4	472.6	566.3	528.5	576.4	568.8	582.1
Tajikistan	0.0	0.0	0.0	0.9	0.0	0.5	0.0	1.0	0.3	0.3	0.0	0.3	1.2	0.3	0.0 *
Turkmenistan	0.0	0.0	0.0	0.0	0.0	1.2	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	76.6	74.3	73.3	72.2	76.8	57.9	73.8	61.1	56.1	59.1	54.9	40.1	29.3	35.1	32.8
Uzbekistan	2.4	6.0	4.0	4.3	1.0	0.7	4.0	2.2	4.5	2.5	5.1	1.2	4.8	2.9	2.6
Asia	13,907.4	15,462.9	16,346.0	17,922.7	18,330.4	19,704.9	19,686.9	20,092.5	20,854.1	21,680.4	22,642.7	23,461.5	24,641.4	26,540.2	28,356.0
Afghanistan	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.7	2.8	1.8	1.3	2.3	3.7	4.7
Bangladesh	40.7	24.4	28.9	24.4	25.8	24.8	36.6	22.0	24.5	27.6	27.1	33.8	36.1	43.9	40.6
Bhutan	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	2.5	0.0	0.0	1.4
Brunei	1.0	0.0	2.1	2.3	4.5	2.0	0.0	1.0	3.0	2.4	1.2	3.8	1.8	3.6	1.4
Burma	4.9	2.1	3.2	1.0	5.5	1.7	2.5	2.6	0.8	3.8	1.6	7.3	3.6	4.1	3.2
Cambodia	2.2	0.0	1.2	0.6	2.9	2.3	1.3	6.6	2.3	10.7	7.5	10.5	10.4	7.9	9.5
China	852.6	1,034.2	1,164.1	1,326.2	1,359.2	1,570.5	1,753.1	2,049.6	2,402.5	2,814.4	3,194.3	3,970.2	4,771.0	5,992.1	7,428.6
India	930.2	994.6	1,018.7	1,133.0	1,112.6	1,219.5	1,181.0	1,275.8	1,381.9	1,407.8	1,636.6	1,799.7	1,825.2	2,010.2	2,150.4
Indonesia	25.3	24.6	28.5	19.8	25.6	26.8	33.3	29.8	20.3	18.5	29.9	38.1	26.0	30.0	34.6
Japan	10,366.4	11,332.6	11,795.6	12,743.8	12,747.0	13,355.0	12,890.4	12,682.2	12,465.4	12,309.0	11,946.6	11,256.0	11,250.7	11,041.5	10,665.8
Laos	0.8	0.5	0.0	1.0	0.0	0.8	1.4	1.4	2.9	4.2	2.0	6.5	6.6	6.7	3.6
Malaysia	64.7	60.0	57.1	65.3	85.5	77.8	72.6	55.6	75.8	64.0	85.0	77.0	96.9	116.5	137.6
Maldives	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	1.0	1.0	0.0	2.0	0.0	0.0	0.8
Mongolia	0.0	0.3	1.4	1.7	1.7	2.2	2.8	2.6	3.1	3.3	4.4	5.6	2.7	4.6	9.2
Nepal	12.1	10.4	10.3	14.6	15.3	17.2	13.3	14.1	22.8	27.6	21.2	31.8	29.0	21.4	21.2
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.6	0.0	1.0	0.2
Pakistan	54.2	49.4	50.3	52.8	44.4	46.3	36.2	53.8	54.6	64.9	61.4	69.8	77.8	97.3	107.2
Philippines	12.1	14.6	15.4	13.9	14.8	15.0	14.9	25.0	29.8	25.3	32.8	26.4	33.4	27.5	32.3
Singapore	187.2	175.2	223.0	247.6	271.5	332.0	312.4	339.8	389.6	464.7	447.7	451.0	447.4	477.1	502.9
South Korea	333.5	426.7	559.5	731.9	982.0	1,294.8	1,515.0	1,515.3	1,745.5	1,970.2	2,591.0	2,900.0	3,259.4	3,783.7	4,226.9
Sri Lanka	11.9	14.0	14.9	19.9	20.8	29.3	18.0	27.4	25.2	24.5	27.8	31.1	33.7	38.8	44.9
Taiwan	897.9	1,158.1	1,218.5	1,346.8	1,422.5	1,474.6	1,594.4	1,757.8	1,928.0	2,173.4	2,245.8	2,379.2	2,394.2	2,445.4	2,533.7
Thailand	101.3	125.7	135.6	162.6	172.8	188.9	193.9	210.6	247.5	227.3	237.1	320.5	297.0	333.8	357.4
Vietnam	7.0	15.5	17.8	12.9	16.0	23.5	13.9	18.8	26.7	32.2	39.9	36.9	36.0	49.4	37.9
Near East/North Africa	2,418.1	2,513.0	2,524.1	2,487.3	2,534.9	2,594.1	2,688.2	2,621.9	2,815.4	2,847.3	2,989.7	3,228.6	3,320.6	3,359.0	3,438.7
Algeria	10.8	10.1	4.9	9.5	9.7	8.9	8.0	6.5	8.9	8.6	4.9	11.7	12.7	12.3	20.8
Bahrain	2.0	1.5	7.2	5.5	5.3	4.0	3.6	2.7	2.8	2.1	5.3	7.8	7.3	6.6	7.1
Egypt	202.7	190.0	199.0	187.6	212.7	191.3	216.2	192.7	236.1	236.9	243.2	263.1	277.6	330.7	384.2
Iran	39.5	50.2	47.6	68.0	74.4	103.4	121.5	159.2	179.7	205.7	291.0	459.2	618.7	671.2	714.3
Iraq	8.3	6.0	9.2	3.0	6.0	4.2	8.0	3.7	5.3	3.3	8.2	20.7	17.2	22.8	17.0
Israel	1,658.9	1,708.0	1,719.9	1,642.5	1,649.9	1,736.3	1,755.9	1,759.9	1,847.0	1,873.0	1,836.7	1,817.4	1,763.9	1,590.5	1,601.6
Jordan	31.3	35.0	39.5	45.8	49.5	41.7	33.6	38.6	41.3	45.3	50.6	52.1	59.1	71.0	66.9

Appendix table 5-36

S&E articles in medical sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	34.9	43.3	45.2	50.4	66.7	55.3	63.9	61.9	70.7	58.3	54.8	63.4	56.1	51.0	45.0
Lebanon	16.8	18.4	36.6	36.9	58.5	55.7	69.3	60.2	79.3	69.7	94.1	114.2	100.5	123.4	99.4
Libya	7.4	7.3	4.4	4.9	4.2	5.2	4.1	4.7	5.4	1.5	1.6	6.2	3.4	4.9	10.8
Morocco	48.5	31.9	33.9	30.0	45.6	50.1	42.4	45.7	49.3	46.0	50.0	68.1	59.7	65.4	65.7
Oman	16.3	21.0	20.2	21.8	29.3	28.9	35.5	29.3	21.1	19.1	20.8	21.1	24.8	23.0	23.0
Qatar	9.5	11.3	5.0	10.0	6.5	5.2	6.5	2.8	5.9	17.2	15.3	13.5	14.0	16.4	17.2
Saudi Arabia	258.4	281.8	238.9	251.5	213.9	203.9	177.8	167.0	131.2	136.0	171.9	140.5	143.9	168.6	152.7
Syria	4.5	3.6	7.0	4.0	15.2	4.3	11.8	5.5	9.2	10.7	9.1	6.3	11.6	11.8	14.9
Tunisia	27.0	36.7	44.6	36.8	38.7	45.8	67.6	42.2	85.1	66.3	90.1	111.1	108.7	136.2	145.5
United Arab Emirates	39.8	55.8	59.6	76.4	46.4	49.7	61.3	37.0	36.3	41.5	41.1	46.9	39.1	50.1	45.6
Yemen	1.6	1.3	1.6	2.5	2.5	0.3	1.3	2.3	0.9	6.0	0.9	5.1	2.4	3.1	7.1
Central/South America	1,715.3	1,903.7	2,124.1	2,364.5	2,616.3	2,869.1	2,904.0	3,142.0	3,263.2	3,547.9	3,825.3	4,332.0	4,802.3	5,206.8	5,027.4
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.0	0.0
Argentina	371.2	394.3	465.0	463.9	526.5	564.7	547.7	572.5	461.4	505.4	479.1	500.5	494.8	474.4	542.1
Bahamas	0.0	0.1	0.0	0.0	0.0	0.3	0.3	0.5	1.0	0.0	0.2	0.1	0.3	0.3	0.7
Barbados	4.1	1.7	3.7	0.3	2.9	1.7	1.7	2.3	3.9	9.3	5.2	6.1	6.1	4.3	4.3
Belize	1.1	1.1	1.2	0.6	0.7	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.0
Bolivia	6.2	6.3	9.1	9.7	13.0	5.0	8.6	7.2	4.5	5.8	5.3	7.0	10.0	11.7	8.8
Brazil	587.4	658.5	793.7	932.9	996.9	1,170.8	1,259.3	1,443.9	1,658.5	1,858.0	2,122.7	2,494.1	2,996.0	3,352.8	3,130.5
Chile	251.4	286.5	271.3	287.6	302.9	312.1	301.6	306.4	328.6	321.0	358.4	386.6	368.7	371.7	403.3
Colombia	27.6	37.2	32.2	49.7	48.2	57.3	65.5	72.1	57.6	60.7	79.3	73.8	101.5	101.0	105.8
Costa Rica	10.4	11.7	5.6	7.7	10.1	6.0	12.4	14.6	11.2	13.2	16.2	17.3	16.7	19.7	21.1
Cuba	17.0	32.8	21.5	33.1	40.2	34.8	35.9	23.2	39.1	39.4	28.8	41.4	34.1	48.5	40.0
Dominica	0.0	0.0	0.0	1.5	0.0	0.1	2.0	0.7	1.0	2.0	0.0	0.9	0.3	0.0	0.3
Dominican Republic	2.0	4.0	1.6	2.5	3.2	3.5	2.5	1.9	1.7	3.9	3.6	3.8	4.0	2.2	3.5
Ecuador	11.2	12.4	19.7	9.8	10.9	10.6	6.5	12.6	14.5	14.5	10.5	9.7	14.4	14.0	12.7
El Salvador	0.2	1.7	0.0	0.0	1.1	2.8	2.6	3.5	0.7	1.6	2.2	0.7	1.0	0.8	1.3
Grenada	1.0	0.0	0.0	0.0	0.9	0.3	0.0	0.0	0.6	0.6	1.2	1.7	1.5	4.3	4.6
Guatemala	6.6	5.9	4.6	3.6	6.7	3.0	5.3	5.1	7.8	2.9	10.1	10.3	8.9	5.5	8.5
Guyana	1.0	0.3	1.0	0.0	1.9	1.3	0.5	1.1	0.3	0.0	1.1	2.6	1.0	0.8	0.2
Haiti	1.3	0.8	1.5	1.9	0.3	3.1	2.3	3.5	1.2	3.9	2.9	4.6	3.2	2.6	2.9
Honduras	1.5	1.0	2.6	4.2	5.1	1.3	1.8	1.3	2.2	2.4	3.9	1.8	3.7	2.6	2.9
Jamaica	15.9	16.7	13.1	11.7	14.1	5.2	18.9	9.1	8.8	12.5	15.7	7.7	14.9	10.3	15.0
Mexico	275.9	316.3	327.7	390.8	476.5	508.3	478.1	495.5	487.8	528.0	496.7	570.1	548.4	591.0	545.9
Nicaragua	1.8	3.2	3.5	2.2	2.6	5.1	2.0	4.5	2.2	2.8	2.8	8.5	2.1	4.4	6.0
Panama	1.8	2.8	1.6	2.9	2.9	3.6	5.5	3.6	2.8	5.8	6.6	5.6	7.3	8.5	6.2
Paraguay	2.1	1.4	2.1	3.5	1.8	2.1	1.8	3.2	1.7	3.5	2.0	1.6	6.5	1.7	4.5
Peru	17.8	15.1	23.1	22.5	24.1	27.2	24.0	25.9	31.1	32.2	40.5	46.9	37.7	54.3	49.3
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.3
St Lucia	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0
St Vincent	0.0	0.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.3	0.4	0.0	0.8	0.8	1.0	1.0	1.6	2.0	0.4	0.9	0.0	0.5	0.8	0.3
Trinidad and Tobago	8.0	8.4	8.3	10.5	13.6	11.6	12.2	13.3	15.6	10.5	8.4	14.7	18.7	13.9	14.4
Uruguay	28.6	31.1	41.3	39.5	34.3	43.3	23.3	31.8	29.4	30.9	38.3	32.5	30.7	47.0	30.7
Venezuela	61.5	51.1	68.6	71.2	71.7	79.5	79.2	77.6	81.1	76.4	79.9	77.3	65.4	54.6	54.1
West Indies Assoc States	0.3	0.0	0.5	0.0	2.4	3.1	0.7	3.6	4.8	0.3	2.7	1.8	2.9	3.3	6.2

Appendix table 5-36

S&E articles in medical sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	1,138.1	1,119.5	1,162.8	1,083.0	1,091.8	1,043.4	894.3	872.7	842.4	896.3	899.9	986.7	1,054.2	1,049.7	1,143.7
Angola	0.7	0.0	1.0	0.0	0.5	1.1	0.5	1.5	0.1	1.0	0.9	0.9	0.5	1.4	2.4
Benin	1.6	1.9	1.7	4.8	4.6	1.3	3.8	4.0	3.6	3.5	5.9	5.6	10.0	8.8	7.5
Botswana	0.0	3.7	4.6	8.4	6.7	11.1	6.5	6.0	8.4	5.7	3.9	6.8	5.1	5.1	8.0
Burkina Faso	4.3	3.2	7.9	9.3	8.1	8.2	8.4	10.5	9.8	12.0	8.9	16.2	14.0	19.1	9.3
Burundi	5.2	4.0	7.8	0.8	0.5	0.2	0.0	0.8	1.2	1.1	0.6	0.3	0.8	0.4	0.3
Cameroon	12.8	16.0	19.5	19.8	17.9	15.1	19.4	27.2	23.0	24.3	20.4	25.2	26.1	20.1	27.7
Cape Verde	0.0	0.2	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Central African Republic	2.8	1.7	3.4	4.8	1.0	1.5	0.9	2.5	1.0	1.8	3.3	3.1	0.2	2.8	0.8
Chad	2.5	1.4	1.5	1.7	1.6	1.0	0.0	2.3	2.3	1.0	2.1	2.8	0.3	1.1	0.5
Comoros	0.0	0.0	0.0	0.0	1.0	0.5	0.1	0.0	0.0	0.3	0.0	0.0	0.9	0.3	0.5
Congo (Brazzaville)	2.1	0.9	0.0	5.5	3.2	2.9	1.0	3.3	6.0	4.0	5.1	6.7	8.2	4.9	4.1
Congo (Kinshasa)	7.7	3.8	8.2	2.7	1.2	2.4	1.2	1.2	3.1	2.9	2.1	2.6	4.9	4.6	6.3
Côte d'Ivoire	10.8	8.8	14.5	13.4	12.5	13.3	8.9	7.7	8.2	9.9	6.8	8.3	5.3	6.8	8.8
Djibouti	0.8	0.2	0.0	0.4	0.0	0.0	0.0	0.5	0.5	0.0	0.5	0.1	0.0	0.0	0.5
Equatorial Guinea	0.3	0.5	0.3	0.0	2.2	0.3	0.7	0.3	0.3	0.8	0.0	0.5	0.7	0.0	1.3
Eritrea	0.0	0.0	0.0	0.7	0.0	0.3	0.5	0.4	1.7	1.0	1.4	1.3	4.6	1.4	0.5
Ethiopia	33.0	40.7	37.4	26.8	54.2	48.9	28.5	29.5	19.5	40.2	25.1	33.5	40.0	48.7	60.1
Gabon	6.6	4.2	9.8	7.1	6.2	6.3	4.3	4.3	5.9	3.5	4.2	4.2	4.1	2.9	1.6
Gambia	13.4	9.7	14.6	9.9	12.1	15.4	17.3	11.0	11.2	12.8	12.8	10.5	7.3	7.3	6.3
Ghana	22.7	25.7	32.6	26.5	20.4	33.7	25.3	24.9	19.7	28.8	27.1	27.3	27.1	18.9	25.2
Guinea	0.8	1.1	1.1	0.0	0.3	0.5	1.8	2.0	0.3	1.2	1.7	5.7	2.8	0.2	1.1
Guinea-Bissau	0.4	1.7	1.9	0.4	4.3	2.0	0.5	3.8	4.8	2.8	1.5	2.6	6.3	2.2	2.8
Kenya	110.9	116.7	120.0	116.3	102.0	87.1	52.6	48.6	59.5	72.0	52.5	53.4	60.3	62.9	69.3
Lesotho	0.5	0.0	0.3	0.3	0.3	0.5	0.2	0.1	0.3	0.0	0.0	0.5	0.6	0.6	0.1
Liberia	0.0	0.0	0.0	1.3	0.0	0.0	0.8	0.7	0.0	0.3	0.3	0.0	0.0	0.1	0.0
Madagascar	2.4	6.4	4.6	2.8	3.5	4.3	7.8	6.3	6.8	3.7	3.5	4.8	12.4	9.8	5.6
Malawi	15.6	26.6	19.7	13.3	18.8	26.5	25.2	24.9	20.9	23.7	21.6	19.9	25.0	19.0	22.6
Mali	7.4	8.7	7.4	7.6	4.2	2.8	3.0	5.7	4.7	5.0	7.2	7.9	8.2	4.9	6.9
Mauritania	0.9	0.8	1.0	0.0	0.4	0.7	3.9	2.6	2.3	0.8	1.3	1.2	0.7	0.0	0.1
Mauritius	1.4	0.8	1.3	1.1	1.2	0.9	1.9	0.3	1.7	1.2	1.2	0.6	0.7	0.7	0.8
Mozambique	7.3	4.2	6.0	2.2	4.6	2.3	4.8	3.2	2.9	5.2	5.2	6.8	8.8	10.6	10.3
Namibia	0.0	3.5	1.1	4.3	1.5	0.3	0.3	2.4	3.0	0.8	0.7	1.7	0.8	1.1	0.6
Niger	5.6	3.1	3.2	5.6	3.2	5.0	1.3	0.8	3.9	3.3	5.6	3.8	5.3	3.0	2.5
Nigeria	139.4	113.5	146.8	126.5	118.0	120.7	70.5	75.4	72.2	88.6	104.3	108.6	109.4	125.5	143.8
Rwanda	3.0	1.7	1.8	3.2	1.6	1.0	0.7	1.2	0.7	2.3	1.6	5.9	6.8	3.6	4.6
São Tomé and Príncipe	0.0	0.0	0.0	0.3	0.0	0.5	0.3	0.5	0.3	0.3	0.0	0.0	0.5	0.0	0.0
Senegal	16.0	22.6	17.4	23.0	24.8	24.5	14.6	11.1	16.8	11.4	16.3	12.3	17.1	12.1	13.3
Seychelles	0.3	0.7	0.2	1.0	1.4	2.5	0.1	0.7	0.3	0.5	0.6	0.5	0.8	0.5	0.6
Sierra Leone	1.5	4.8	7.7	0.5	0.0	0.8	1.6	0.2	0.0	0.5	0.8	0.6	0.1	0.3	1.9
Somalia	1.4	0.5	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.3	0.0	0.7	0.0	0.0	0.7
South Africa	546.0	510.3	523.6	497.2	528.2	456.3	450.7	430.2	418.0	403.5	422.8	457.5	492.3	517.8	520.7
Sudan	24.2	26.2	16.8	20.9	13.0	10.0	13.0	17.7	15.4	14.7	20.8	11.4	11.5	17.9	25.6
Swaziland	1.0	1.8	0.0	0.0	0.0	0.0	0.8	0.1	0.8	0.7	0.3	0.0	0.2	0.9	0.8
Tanzania	43.0	48.4	45.3	36.6	32.0	45.4	41.9	32.9	30.0	36.6	33.5	45.6	40.7	34.0	57.0
Togo	5.3	2.3	1.3	4.4	5.2	8.7	7.2	2.4	0.9	1.6	3.5	1.5	5.2	3.1	2.7
Uganda	20.0	30.0	21.3	26.8	31.5	33.4	25.5	32.1	24.2	28.5	33.7	45.3	42.7	35.7	47.7

Appendix table 5-36

S&E articles in medical sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	19.5	11.3	11.7	13.5	10.8	10.9	9.9	11.7	6.1	9.7	10.2	13.7	15.3	14.1	16.5
Zimbabwe	36.7	45.2	36.4	31.1	26.8	32.4	26.0	16.8	19.9	22.3	18.7	18.7	19.4	14.4	12.9
Other	9,220.0	9,559.9	9,750.2	9,857.2	10,257.6	10,392.4	9,994.5	10,145.4	10,628.2	11,012.1	11,481.3	12,085.7	12,401.7	12,951.8	13,034.7
Australia	3,279.8	3,345.2	3,463.9	3,570.1	3,614.6	3,818.4	3,667.3	3,777.5	3,941.5	4,177.6	4,225.2	4,615.0	4,712.6	4,930.5	4,960.1
Canada	5,314.8	5,572.2	5,620.8	5,610.5	5,925.7	5,882.5	5,666.5	5,714.4	6,104.9	6,177.5	6,579.4	6,806.3	6,984.0	7,257.0	7,356.0
Fiji	1.3	2.0	1.3	1.3	1.1	1.6	2.5	1.0	2.4	2.3	1.8	6.3	0.8	2.4	1.5
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.6
Micronesia	0.0	0.0	0.0	0.3	1.0	0.0	0.0	0.0	0.4	0.7	0.3	0.3	0.0	0.0	0.9
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	605.5	623.5	647.5	662.1	702.3	679.8	645.2	638.4	571.3	644.6	664.2	650.1	693.9	756.2	711.3
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.3	0.6	0.0	0.8	0.3	0.0	0.0
Papua New Guinea	17.1	16.6	13.3	12.4	12.0	7.9	10.3	10.0	3.4	5.3	7.3	5.7	8.4	4.5	3.5
Solomon Islands	0.7	0.3	0.6	0.1	0.5	1.0	1.0	0.0	1.0	0.5	0.3	0.9	0.2	1.0	0.5
Tonga	0.0	0.0	1.1	0.0	0.3	0.0	0.5	0.0	0.7	0.0	0.0	0.3	0.5	0.3	0.3
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.6	0.3	0.6	0.3	0.0	0.8	1.0	2.7	1.8	2.0	2.3	0.0	0.8	0.0	0.0
Western Samoa	0.3	0.0	1.3	0.0	0.0	0.0	0.0	1.2	0.0	1.0	0.0	0.0	0.1	0.0	0.0

* = rounds to zero; NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-37

S&E articles in other life sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	3,787.0	4,693.0	4,892.0	4,962.0	5,089.0	5,257.0	5,171.0	5,327.0	5,552.0	5,792.0	6,425.0	7,316.0	8,704.0	9,766.0	9,420.0
United States	2,281.0	2,933.3	2,921.5	2,982.4	3,053.6	3,124.1	2,925.4	2,949.5	2,954.6	3,170.1	3,498.7	4,035.5	4,118.2	4,572.4	4,576.0
European Union	842.7	1,019.8	1,138.1	1,154.1	1,136.7	1,255.4	1,292.9	1,236.9	1,362.9	1,346.4	1,464.9	1,616.2	2,149.3	2,376.6	2,278.1
Austria	0.8	2.8	1.3	2.0	5.7	1.9	4.3	9.5	10.9	6.6	5.7	11.0	5.2	12.9	11.9
Belgium	9.5	15.3	18.5	23.2	16.1	24.9	22.9	21.5	33.7	37.0	44.9	46.6	56.1	64.1	79.7
Bulgaria	1.5	2.0	1.8	0.0	0.0	0.0	1.0	0.0	1.5	0.8	0.0	1.0	0.5	2.0	1.0
Cyprus	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.0	0.1	0.0	0.0	1.0	3.0	2.2	2.2
Czech Republic	2.0	1.0	0.5	0.8	0.5	0.0	0.0	1.3	0.0	1.0	3.5	1.0	5.4	3.4	2.5
Denmark	8.1	3.1	8.6	17.3	5.1	10.7	14.0	15.5	18.9	18.2	34.5	18.8	31.7	43.9	52.9
Estonia	0.0	0.0	0.3	0.0	0.0	3.1	2.2	2.0	3.5	3.4	1.0	2.0	4.0	3.0	7.0
Finland	26.2	33.1	41.9	60.0	50.3	51.5	56.7	65.6	73.0	55.8	50.4	49.0	78.9	87.4	93.6
France	34.7	33.6	57.0	39.6	45.3	45.7	35.1	34.5	54.6	43.2	52.0	53.8	71.5	81.7	70.2
Germany	34.2	40.2	36.1	40.6	28.0	42.8	50.4	51.9	63.9	61.7	67.4	66.8	104.7	133.9	123.2
Greece	3.3	3.7	5.1	7.6	5.0	2.9	8.4	13.6	7.7	11.6	16.7	22.8	17.2	38.2	31.1
Hungary	0.0	2.1	4.7	0.0	0.3	0.0	1.6	1.0	2.5	3.9	2.7	3.0	27.3	6.0	4.8
Ireland	5.8	10.8	11.0	16.8	11.0	20.2	16.4	19.2	18.3	29.3	38.4	50.5	64.7	75.0	82.1
Italy	15.5	17.8	22.0	29.4	19.0	27.4	30.5	31.1	35.2	37.1	45.8	48.4	94.0	110.0	101.3
Latvia	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.0	3.8	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.5	0.8	1.0	1.0	4.4	0.4	2.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0
Malta	0.0	0.3	2.5	1.5	0.0	1.0	2.0	2.7	1.0	0.0	0.5	2.0	1.0	4.0	0.0
Netherlands	68.1	84.3	101.2	104.6	116.1	114.0	116.7	102.7	130.4	137.5	176.1	193.8	193.8	238.8	294.6
Poland	3.5	3.5	2.5	0.5	0.8	0.0	2.1	4.0	1.5	6.2	4.5	7.4	17.7	10.0	14.5
Portugal	2.0	1.0	1.2	1.1	0.4	0.7	1.6	2.7	3.5	2.0	5.0	3.3	8.0	11.5	6.6
Romania	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.8	1.7	0.2	29.2	19.5	0.5
Slovakia	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	2.8
Slovenia	0.0	2.1	5.5	3.0	2.0	3.0	2.4	1.6	2.3	3.4	4.6	2.5	22.0	8.5	10.3
Spain	12.2	19.6	17.9	27.2	33.0	20.8	37.9	38.8	36.4	26.0	36.7	43.0	69.5	93.3	71.7
Sweden	74.7	93.8	98.4	98.3	116.5	149.9	167.3	168.8	172.6	186.9	197.0	229.3	281.8	310.5	291.4
United Kingdom	540.7	649.5	700.3	679.5	681.9	732.2	719.0	647.1	690.2	672.9	674.4	757.6	953.7	1,016.0	920.4
Other Western Europe	26.6	32.9	44.7	41.9	47.4	66.3	64.6	81.0	118.9	121.9	154.0	157.3	206.0	336.9	280.6
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Croatia	0.0	2.0	0.6	0.0	0.0	2.0	2.0	2.0	1.2	0.6	0.7	4.9	3.5	10.1	7.4
Iceland	1.5	2.5	1.5	3.0	3.3	2.8	3.0	7.3	4.7	3.7	10.7	9.7	6.7	20.9	13.8
Liechtenstein	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.3	0.0	0.0
Norway	16.8	13.2	27.2	20.4	31.4	25.7	28.9	44.2	51.8	45.4	53.1	49.6	62.8	143.6	102.2
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	2.2	4.0	3.8
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0	0.0	NA	NA	NA
Switzerland	7.4	11.2	9.9	13.5	9.0	25.4	18.0	16.3	28.4	22.6	36.0	37.4	35.5	58.3	45.7
Turkey	0.0	2.0	4.5	4.0	3.7	10.4	12.7	10.2	31.7	46.7	52.5	55.7	94.5	99.9	105.8
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0

Appendix table 5-37

S&E articles in other life sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	0.8	2.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	NA	NA	NA	NA	NA
Other former USSR	5.5	4.0	3.0	2.0	0.0	1.4	2.7	2.6	4.3	2.6	4.6	2.8	5.8	8.2	4.2
Armenia	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Belarus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Georgia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.5	1.7	0.9
Kazakhstan	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Russia	5.5	3.5	2.5	2.0	0.0	1.4	1.7	2.6	4.3	1.1	1.3	2.5	3.2	5.3	2.6
Tajikistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.0	0.3	1.3	0.0	0.7
Uzbekistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.8	0.0	0.0
Asia	46.0	73.8	87.5	97.7	154.9	130.2	167.3	239.8	237.3	278.7	316.2	335.4	441.3	636.7	614.4
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	1.4
Bangladesh	0.0	1.0	1.0	1.0	1.3	0.0	3.3	0.0	1.5	0.0	1.0	2.2	1.1	2.5	1.2
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.2	0.8	0.8	1.1	0.8	2.4
China	12.7	21.0	33.0	37.5	54.9	47.1	67.2	84.3	62.0	81.4	74.8	88.5	122.2	123.7	153.3
India	3.5	7.0	5.4	6.3	14.4	9.7	10.9	13.7	13.8	23.9	27.1	27.4	32.0	33.4	33.1
Indonesia	0.0	1.5	0.5	1.3	1.0	1.0	0.0	0.7	1.2	2.0	2.9	2.0	1.0	1.2	3.9
Japan	17.5	18.7	25.9	28.3	42.1	26.2	24.5	52.2	54.4	53.7	52.5	67.6	67.2	113.8	77.1
Laos	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2
Malaysia	1.0	0.0	1.0	0.0	1.8	1.0	2.5	1.0	0.0	1.0	1.0	1.6	2.6	6.0	6.9
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2
Nepal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.0	0.5	0.2	0.0	0.3	1.2
North Korea	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	0.0	0.0	1.0	0.0	0.0	0.0	2.0	2.4	1.2	1.4	3.1	2.0	1.3	4.1	8.2
Philippines	1.5	0.7	1.0	1.0	2.5	0.5	1.0	0.8	1.6	1.3	2.3	3.2	5.5	2.4	3.8
Singapore	0.0	2.5	2.0	4.7	2.8	4.5	4.0	8.5	6.0	8.2	7.5	5.7	14.3	14.8	16.7
South Korea	3.6	11.2	4.2	5.2	7.2	8.6	15.1	16.9	42.5	25.5	39.9	40.3	55.4	144.0	83.1
Sri Lanka	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.5	1.7	1.8	0.5	2.0	2.7	3.5	0.2
Taiwan	2.5	7.9	10.2	10.0	17.4	25.1	27.7	52.4	40.5	65.0	84.8	79.3	113.0	153.7	195.1
Thailand	2.3	0.0	2.3	2.2	5.4	4.6	8.5	5.6	9.4	10.5	15.9	11.3	19.4	29.6	21.0
Vietnam	0.5	1.5	0.0	0.3	1.0	1.4	0.3	0.5	1.0	0.8	1.7	1.2	2.3	1.3	5.4
Near East/North Africa	29.3	44.2	57.5	49.9	57.3	59.9	60.5	68.8	66.6	86.5	76.1	89.3	134.9	129.3	173.3
Algeria	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Bahrain	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.5	1.5
Egypt	0.0	1.5	1.0	1.0	0.0	1.0	1.0	0.7	0.3	1.8	0.0	0.5	1.5	4.9	5.9
Iran	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.3	0.0	4.3	2.5	16.0	28.0	27.5	38.4
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	3.5	0.0	0.0
Israel	25.5	34.7	50.5	41.8	46.5	49.7	50.7	57.2	59.6	67.7	59.6	55.2	78.1	69.7	91.1
Jordan	0.0	1.0	0.5	1.5	2.2	4.0	4.2	4.8	1.3	4.2	8.2	5.3	11.7	11.8	17.5

Appendix table 5-37

S&E articles in other life sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	0.0	0.0	1.0	2.0	0.0	0.0	1.2	1.3	2.0	0.0	1.3	1.0	4.0	4.0	4.0
Lebanon	0.8	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	3.0	0.8	4.4	4.4	3.4	3.0
Libya	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morocco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.3	0.0	1.0	1.4
Oman	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.8
Qatar	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Saudi Arabia	2.0	3.5	0.0	1.2	5.5	3.0	1.0	1.0	0.5	1.7	1.5	3.3	1.0	5.3	3.3
Syria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Tunisia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.0	0.0	0.0	0.0	1.0
United Arab Emirates	0.0	2.0	1.0	1.0	2.0	1.3	1.2	2.0	1.8	2.5	1.0	2.8	1.0	0.7	2.6
Yemen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Central/South America	82.0	63.0	62.4	60.8	76.3	65.1	76.0	89.5	115.9	71.5	79.6	82.7	393.7	344.9	172.7
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	1.0	1.8	4.0	1.0	4.0	2.0	2.5	3.0	2.5	1.5	2.6	1.0	4.4	8.4	4.4
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Barbados	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.3
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
Bolivia	0.0	0.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	2.5	6.3	3.5	4.4	5.5	9.7	9.7	9.3	14.0	14.6	21.9	21.5	287.8	238.4	44.7
Chile	2.0	3.5	2.0	0.2	2.8	3.0	2.5	1.5	3.3	1.1	1.1	3.2	10.6	12.8	8.6
Colombia	2.5	2.0	0.0	1.0	2.0	1.8	2.2	1.3	1.0	1.1	2.3	3.5	8.8	7.7	5.1
Costa Rica	0.0	0.3	1.0	0.2	0.0	0.0	0.0	0.0	2.0	0.5	0.0	0.0	1.7	0.2	0.0
Cuba	1.0	0.3	1.0	0.7	1.0	0.3	0.0	0.7	1.0	0.5	0.0	0.7	1.0	0.8	0.0
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.3	0.0
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.6	0.3	0.5	0.5	0.7
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.2	0.0
Grenada	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.3	0.2	0.0
Guyana	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.7	0.3
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.5	0.0
Jamaica	0.0	1.1	0.0	1.5	1.0	0.3	2.0	1.7	0.0	1.0	0.0	0.7	0.8	0.0	3.9
Mexico	71.0	46.5	49.2	49.4	54.4	44.5	56.2	67.9	86.0	49.4	50.0	46.7	72.6	62.4	98.7
Nicaragua	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.3	1.2	0.8
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Paraguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Peru	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.3	0.8	4.7	1.0
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	0.0	0.0	0.0	0.0	2.0	1.0	0.0	0.6	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.0	0.0	0.5	0.0	0.0	2.4
Venezuela	2.0	0.0	0.0	1.3	2.5	2.5	1.0	1.0	2.0	0.0	0.0	1.2	0.5	3.5	1.0
West Indies Assoc States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-37

S&E articles in other life sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	21.5	19.9	20.6	21.3	19.2	20.7	26.4	38.0	35.0	46.5	55.8	59.0	128.3	119.2	108.0
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0
Benin	0.0	0.0	0.9	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.4	0.5
Botswana	3.0	0.0	1.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	2.2	4.9	7.3	4.8	2.5
Burkina Faso	0.0	2.0	0.0	0.0	0.0	0.0	0.5	0.5	0.8	0.6	0.3	0.5	0.7	1.0	1.1
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Cameroon	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.1	0.0	0.3	0.0	3.0	2.0	0.3
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.0	0.1
Congo (Kinshasa)	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0
Côte d'Ivoire	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.1	1.5	0.4	0.0
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Ethiopia	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.0	0.0	0.6	0.0	2.0	2.0	3.9	4.1
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gambia	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.1	1.0	0.0	0.7
Ghana	0.0	0.0	1.3	0.5	0.5	0.5	0.3	0.0	3.4	2.0	1.0	0.9	5.0	2.0	1.7
Guinea	0.5	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	0.5	1.0	0.0	1.6	0.8	0.3	0.7	1.0	1.7	0.5	3.3	2.9	6.6	7.2	4.3
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.0	0.4
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
Madagascar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malawi	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	2.2	2.0	2.5	0.1	5.5	6.1	3.1
Mali	0.0	1.0	1.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.8
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.4	1.1
Namibia	0.0	0.0	1.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.3	0.5
Niger	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.5	0.0	0.7	0.1	0.0
Nigeria	1.3	0.0	1.2	2.5	0.0	3.7	1.0	6.0	1.5	4.7	6.5	8.9	12.8	10.6	9.8
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.0	0.0	0.4	0.7
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	0.3	0.4	0.0	0.0	0.0	0.3	0.0	0.5	1.0	0.0	0.5	0.0	0.1	1.5
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	1.0	0.5	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	7.5	8.7	7.0	10.2	9.5	11.2	11.3	20.2	17.2	20.9	31.0	27.4	62.9	58.2	49.2
Sudan	0.0	1.0	1.0	0.2	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.0	0.5	0.5	1.5
Swaziland	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.3	0.5	0.3	0.7	0.1	1.1	0.6	1.2
Tanzania	1.2	0.8	0.5	1.4	1.8	0.9	0.8	1.1	0.1	2.0	1.7	2.8	4.2	6.0	6.6
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Uganda	0.0	1.0	1.5	0.5	2.3	2.5	4.5	2.1	3.6	6.5	3.4	2.8	7.1	8.6	9.8

Appendix table 5-37

S&E articles in other life sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.5	0.7	1.5	0.0	0.3	0.2	0.2	2.3	1.0	0.4	0.5	1.5	1.0	3.0	2.7
Zimbabwe	5.0	1.0	1.0	4.5	0.8	0.0	2.5	1.4	0.7	1.1	0.3	0.0	2.8	1.3	1.5
Other	452.2	502.0	556.6	551.8	543.6	533.9	555.2	620.8	656.5	667.9	775.1	937.7	1,126.5	1,241.7	1,212.6
Australia	232.3	262.8	278.4	311.6	266.3	266.4	275.2	278.4	307.8	309.9	334.4	452.8	535.4	616.3	544.8
Canada	200.5	210.4	241.9	207.1	249.2	233.8	234.5	314.3	318.5	318.7	394.6	434.3	522.0	553.4	595.5
Fiji	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.8
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	19.5	28.8	36.3	33.2	28.0	33.7	45.4	28.2	30.2	38.5	46.0	50.1	69.0	72.1	70.7
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.8
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-38

S&E articles in physics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	80,282.7	83,083.0	84,021.0	84,205.0	85,767.0	86,351.0	86,385.0	90,134.0	92,949.0	96,435.0	99,755.0	105,372.0	106,231.0	109,171.0	106,834.0
United States	19,356.4	18,871.4	17,959.6	18,071.7	17,715.9	17,395.6	17,205.8	17,573.8	18,065.4	18,693.9	19,778.5	20,055.7	19,470.9	19,209.1	18,227.2
European Union	28,383.8	29,637.7	30,213.8	30,064.6	30,807.0	31,015.4	30,176.9	31,734.5	31,318.9	32,539.5	32,115.4	33,777.6	32,921.3	33,439.4	31,931.1
Austria	456.0	503.3	483.0	480.1	483.6	531.6	495.8	507.7	587.5	551.9	560.5	548.2	594.1	607.5	557.5
Belgium	692.2	778.9	672.1	665.8	723.9	710.8	734.5	798.9	861.0	855.7	853.9	850.8	846.0	856.0	801.2
Bulgaria	207.2	225.7	226.2	206.8	185.2	193.2	149.0	183.9	136.8	171.5	154.5	148.6	172.0	149.7	148.3
Cyprus	10.7	10.8	15.8	15.8	9.8	10.3	5.4	15.0	14.2	13.4	20.4	25.0	21.2	30.3	26.6
Czech Republic	330.0	342.6	368.0	380.3	447.9	439.9	435.8	514.4	435.0	598.6	495.9	585.9	526.4	556.2	547.9
Denmark	461.3	491.3	502.8	488.8	458.5	491.1	468.5	469.6	455.0	432.2	444.2	445.7	457.1	469.5	477.3
Estonia	61.9	62.5	54.6	64.4	60.5	58.8	75.6	57.4	59.1	64.1	63.7	67.1	87.1	76.5	69.6
Finland	351.2	379.1	387.4	386.9	384.5	408.0	435.7	437.0	480.7	486.4	464.6	509.4	524.9	535.4	533.3
France	4,719.1	4,950.9	5,188.3	5,001.5	5,162.9	5,250.4	5,006.0	5,171.8	4,988.6	5,076.9	5,046.3	5,476.5	5,139.0	5,357.0	5,125.1
Germany	7,082.8	7,397.7	7,502.1	7,789.7	7,426.7	7,285.1	7,082.1	7,351.5	7,024.2	7,105.6	7,212.9	7,441.5	7,160.2	7,179.6	7,149.6
Greece	300.4	301.6	354.0	359.1	396.2	414.4	445.7	465.0	428.2	451.3	472.1	560.0	619.7	558.7	555.4
Hungary	271.9	313.2	298.1	314.0	322.9	368.1	372.0	379.9	403.6	374.7	397.3	400.9	369.6	409.3	324.7
Ireland	142.0	106.3	122.7	147.5	149.1	155.6	166.9	172.2	168.7	241.9	251.9	278.3	279.4	316.0	313.1
Italy	2,956.6	3,175.1	3,281.9	3,327.2	3,340.4	3,523.6	3,451.7	3,895.1	3,867.8	4,284.1	3,934.6	4,053.2	4,040.5	3,937.7	3,505.1
Latvia	62.6	39.5	48.7	49.9	46.9	40.8	56.9	50.9	34.7	50.0	41.9	41.9	30.3	43.1	42.5
Lithuania	75.2	70.1	93.9	85.1	90.2	71.1	87.3	90.6	77.4	140.3	153.9	191.4	120.3	158.5	131.0
Luxembourg	1.8	1.2	0.3	0.0	2.2	0.6	1.6	2.5	3.3	8.0	2.4	3.8	2.0	10.9	13.9
Malta	0.7	0.0	0.8	0.0	0.0	1.0	0.0	1.5	0.0	1.3	4.0	1.0	2.6	7.0	4.3
Netherlands	1,229.3	1,271.9	1,177.1	1,184.4	1,126.9	1,141.8	1,107.1	1,230.9	1,144.4	1,239.8	1,156.2	1,156.5	1,076.7	1,086.5	1,037.6
Poland	1,333.5	1,301.4	1,340.9	1,270.1	1,392.5	1,544.6	1,481.6	1,565.4	1,779.4	1,708.2	1,676.4	1,854.3	1,630.6	1,871.0	1,652.2
Portugal	148.3	165.1	203.1	226.9	336.2	311.6	368.9	367.3	418.7	429.2	409.3	493.4	495.8	536.8	486.3
Romania	197.5	301.8	277.9	260.9	296.8	305.4	281.5	286.0	275.5	286.7	253.9	304.0	322.9	368.1	360.0
Slovakia	152.6	164.8	174.4	161.2	143.9	158.7	148.1	213.4	192.0	233.1	142.9	189.9	170.1	231.8	163.8
Slovenia	88.7	101.5	116.1	120.0	147.2	146.9	146.5	146.7	189.8	146.8	184.2	201.7	211.6	213.8	199.7
Spain	1,472.4	1,612.9	1,676.5	1,706.4	1,853.8	1,752.4	1,834.4	1,893.2	1,925.6	2,125.2	2,166.3	2,304.4	2,474.2	2,397.9	2,414.6
Sweden	942.4	994.7	985.1	963.9	1,007.8	1,026.3	1,088.5	1,099.6	985.5	1,044.4	1,022.4	1,013.2	970.8	913.4	878.4
United Kingdom	4,635.2	4,573.8	4,661.5	4,407.6	4,810.5	4,673.4	4,249.6	4,366.8	4,382.2	4,418.4	4,528.6	4,631.0	4,576.4	4,561.2	4,412.1
Other Western Europe	1,781.3	1,896.0	1,955.5	1,926.0	1,942.5	1,873.9	1,811.3	1,976.5	2,130.9	2,289.1	2,371.3	2,498.4	2,682.9	2,537.5	2,563.1
Albania	1.5	4.9	1.1	0.5	1.0	0.0	0.0	0.0	1.0	0.7	1.3	1.6	1.9	1.0	2.1
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	1.0	2.6	3.9	3.4	1.5	1.2	2.2	2.0	3.7	1.2	5.0	4.7	5.4	7.2	8.1
Croatia	78.8	83.4	77.1	78.3	86.7	69.4	81.6	99.3	99.0	119.5	117.0	94.4	118.6	104.5	105.3
Iceland	6.4	8.6	6.3	11.9	13.3	8.7	10.6	14.1	12.6	10.7	12.1	11.8	12.4	16.8	25.9
Liechtenstein	1.7	2.0	0.5	0.3	2.6	1.4	0.8	1.0	4.3	3.4	0.8	0.8	1.6	1.9	2.3
Macedonia	6.3	6.8	7.7	8.0	4.7	9.2	8.9	13.3	11.2	13.5	9.3	8.2	10.4	13.6	11.2
Monaco	0.0	0.3	0.0	0.0	0.0	0.7	0.0	0.5	1.0	0.0	1.0	0.8	1.3	0.0	0.8
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.4	4.9	5.5	2.1
Norway	187.5	167.8	203.8	148.1	166.6	166.8	155.3	157.7	147.9	174.2	201.9	225.8	242.2	238.6	201.6
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71.8	192.2	204.8	243.2
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	162.3	70.8	NA	NA	NA
Switzerland	1,233.7	1,319.1	1,292.1	1,278.9	1,243.8	1,249.2	1,095.3	1,126.2	1,191.0	1,231.3	1,217.9	1,314.8	1,271.9	1,155.1	1,142.4
Turkey	160.8	190.6	239.6	266.6	299.8	269.6	364.3	440.8	542.0	620.3	640.8	690.6	819.1	788.3	817.7
Vatican City	0.8	0.3	1.3	1.0	1.0	0.5	0.0	0.5	0.5	0.5	2.0	0.0	1.0	0.1	0.3

Appendix table 5-38

S&E articles in physics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	102.8	109.4	122.0	129.0	121.5	97.2	92.1	121.0	116.7	113.8	NA	NA	NA	NA	NA
Other former USSR	8,486.0	8,091.8	8,124.3	7,859.9	7,686.4	7,752.7	7,120.3	7,217.4	6,890.6	6,560.8	6,464.6	6,246.4	6,327.3	6,423.0	6,485.5
Armenia	87.7	93.6	88.0	94.6	72.2	92.1	85.6	89.5	98.1	96.8	87.6	78.2	78.8	94.4	77.1
Azerbaijan	67.4	46.1	27.9	39.4	28.5	25.4	21.7	35.1	47.6	39.4	36.2	39.7	32.5	38.4	54.8
Belarus	324.2	256.1	268.7	256.7	241.5	224.0	212.1	200.9	230.6	193.5	229.0	182.4	192.5	169.7	172.8
Georgia	52.0	56.9	70.5	65.7	56.9	62.2	38.0	51.0	45.8	59.3	44.5	57.4	47.1	47.6	46.2
Kazakhstan	52.6	33.0	31.4	26.2	36.6	27.5	29.1	28.6	28.6	17.6	19.4	17.1	25.1	13.8	29.9
Kyrgyzstan	4.5	6.0	3.0	10.5	8.0	11.5	5.8	12.2	7.6	4.0	7.9	6.8	5.9	5.6	3.7
Moldova	65.7	54.1	59.6	50.8	48.0	41.9	29.9	37.2	44.8	28.3	46.2	37.5	34.6	37.3	34.8
Russia	6,626.5	6,340.2	6,514.3	6,232.4	6,118.8	6,174.9	5,572.5	5,717.0	5,407.8	5,209.6	5,016.8	4,946.9	4,912.1	5,095.9	5,198.8
Tajikistan	3.8	1.6	2.5	0.0	3.0	1.3	2.0	1.8	0.0	1.8	1.7	1.2	5.6	3.7	2.5
Turkmenistan	2.5	0.5	0.8	0.8	0.3	1.0	0.0	1.0	2.0	0.0	0.0	1.0	0.3	0.3	0.5
Ukraine	1,094.1	1,112.7	971.8	1,005.3	991.7	1,002.2	1,054.1	962.2	896.4	850.9	909.8	816.1	915.2	857.6	793.9
Uzbekistan	104.9	90.9	85.8	77.4	80.9	88.7	69.5	81.0	81.3	59.6	65.6	62.0	77.6	58.7	70.4
Asia	15,791.0	17,964.6	18,854.0	19,067.1	20,458.1	21,083.8	22,596.3	23,717.3	26,365.5	27,722.4	30,014.0	33,174.3	34,993.9	37,435.2	37,527.0
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	10.2	20.6	14.9	24.5	24.1	22.5	26.4	25.6	35.6	26.2	28.8	28.6	37.0	50.1	42.6
Bhutan	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.8	0.0	1.0	0.5	0.5	0.0	0.0	0.0
Brunei	0.3	0.0	0.7	0.0	2.3	0.0	1.3	0.0	1.0	1.8	2.5	2.0	2.0	1.0	3.0
Burma	0.5	0.0	0.0	0.0	0.5	0.3	0.3	0.5	1.4	0.0	0.8	1.0	0.3	0.0	0.1
Cambodia	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.7	0.0	0.0
China	2,986.6	3,182.4	3,754.9	3,758.5	3,935.4	4,499.1	5,035.0	5,372.2	7,147.6	8,392.9	10,372.3	12,074.0	13,652.9	15,392.5	16,201.8
India	1,852.0	2,003.7	1,882.1	1,957.3	1,867.8	1,908.6	1,990.0	2,156.8	2,235.6	2,283.5	2,660.9	2,971.8	3,201.6	3,601.9	3,759.1
Indonesia	4.2	9.5	5.2	9.4	8.1	8.1	15.4	14.0	13.0	15.0	20.5	17.8	21.5	20.0	25.9
Japan	8,683.9	10,166.8	10,142.2	9,927.6	10,750.9	10,678.1	10,929.0	11,242.0	11,705.5	10,950.5	10,735.1	10,914.7	10,421.6	10,111.2	9,064.8
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.7	0.0
Malaysia	24.5	17.0	18.7	27.0	21.0	28.1	32.0	60.3	41.5	66.4	56.2	60.1	109.5	113.2	164.5
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Mongolia	1.8	4.3	2.7	1.3	0.3	1.0	1.0	1.5	2.3	1.5	1.0	1.2	1.8	3.5	3.8
Nepal	0.0	0.5	0.5	2.0	0.0	2.3	0.5	1.5	1.8	2.2	1.8	3.5	0.4	0.2	0.0
North Korea	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.8	2.3	0.0	4.1	0.9	0.8
Pakistan	50.9	42.9	39.7	39.7	53.4	54.8	54.8	63.7	61.0	59.9	96.4	143.0	174.8	242.7	217.6
Philippines	5.9	7.7	6.7	11.5	6.5	14.2	14.6	19.8	13.5	23.1	17.3	19.7	20.5	23.4	17.1
Singapore	174.3	173.9	226.2	272.0	392.8	488.5	516.9	577.7	548.2	710.6	750.3	866.3	868.8	887.8	939.9
South Korea	1,118.1	1,306.7	1,650.9	1,870.0	2,275.2	2,131.3	2,613.2	2,711.6	2,979.1	3,373.7	3,159.0	3,703.1	3,860.1	4,181.7	4,406.0
Sri Lanka	8.2	7.0	3.7	6.4	6.4	6.9	6.6	14.9	16.8	17.2	15.3	16.2	12.2	7.5	6.8
Taiwan	829.5	983.1	1,057.3	1,107.7	1,071.1	1,183.6	1,301.2	1,385.9	1,436.1	1,693.8	1,970.9	2,210.4	2,402.9	2,512.5	2,418.9
Thailand	12.2	14.3	18.3	28.2	19.4	26.8	22.7	27.9	49.5	66.0	84.6	94.0	127.5	168.6	193.6
Vietnam	27.8	24.2	28.4	23.8	22.8	29.0	35.5	39.8	75.8	36.2	37.4	46.0	73.6	115.7	60.6
Near East/North Africa	1,387.0	1,444.2	1,536.8	1,567.1	1,614.3	1,676.9	1,679.6	1,875.9	1,968.6	2,010.6	2,173.1	2,328.3	2,562.2	2,860.8	2,941.0
Algeria	53.4	47.9	59.3	60.9	56.3	72.7	85.2	89.0	96.2	119.2	147.8	151.6	178.1	176.3	188.4
Bahrain	5.5	5.2	6.3	3.3	3.8	0.7	3.0	1.7	3.2	6.8	6.3	9.1	11.2	10.2	7.4
Egypt	192.3	169.5	183.2	154.7	205.6	233.0	260.3	256.9	297.2	287.7	275.6	329.6	338.4	340.7	350.2
Iran	35.6	49.0	63.1	90.8	99.7	125.2	134.3	205.6	240.3	318.8	382.0	507.1	600.4	888.0	1,040.7
Iraq	2.5	2.8	1.0	1.0	1.0	0.7	3.0	3.5	6.0	2.8	6.5	10.5	17.4	11.5	17.4
Israel	920.0	962.8	980.5	1,019.3	985.4	939.7	897.4	981.4	1,011.6	944.0	923.7	958.7	1,035.1	986.6	879.8
Jordan	23.9	24.6	32.9	24.9	15.3	39.3	23.8	48.5	36.5	33.9	35.2	41.5	39.8	52.2	47.9

Appendix table 5-38

S&E articles in physics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	11.7	11.6	15.9	17.3	13.7	15.3	7.8	8.8	5.3	13.5	7.0	7.8	12.2	17.8	20.4
Lebanon	5.5	5.8	6.1	6.8	9.2	17.2	14.7	14.9	9.1	17.6	33.6	16.4	23.5	18.4	19.8
Libya	3.7	3.2	2.2	0.2	0.5	1.8	1.1	3.2	1.0	1.5	0.5	2.0	1.3	4.5	1.5
Morocco	36.7	58.2	75.5	81.7	106.2	127.6	99.4	107.9	92.2	88.1	135.2	82.8	69.5	83.5	73.3
Oman	6.5	3.1	5.8	4.5	12.8	8.8	10.0	9.3	15.7	12.9	15.7	13.1	10.2	21.3	10.9
Qatar	0.5	4.0	2.0	1.5	0.8	0.0	1.3	1.3	4.3	1.9	3.3	5.9	10.3	10.0	10.2
Saudi Arabia	66.1	60.4	59.0	49.9	41.4	36.8	64.1	65.2	66.8	63.4	66.7	70.2	83.0	90.8	119.5
Syria	5.4	3.7	4.9	3.4	4.2	7.5	7.7	9.7	3.8	10.6	15.8	11.1	18.3	9.6	19.2
Tunisia	12.7	27.8	33.6	36.8	46.7	41.4	55.8	56.3	63.3	67.7	94.6	86.5	87.1	112.3	100.6
United Arab Emirates	4.3	4.7	5.5	9.8	10.0	8.8	10.3	12.9	15.8	18.2	22.4	22.1	21.7	24.3	29.9
Yemen	0.5	0.0	0.0	0.0	1.5	0.2	0.3	0.0	0.3	2.0	1.3	2.3	4.4	2.8	3.7
Central/South America	1,757.9	1,906.9	2,190.9	2,578.0	2,647.8	2,657.7	3,004.6	3,025.2	3,080.8	3,395.3	3,290.4	3,476.2	3,453.9	3,323.9	3,135.1
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	344.0	399.2	425.8	440.6	447.1	458.4	464.2	507.8	443.1	465.8	429.2	445.3	509.6	447.0	491.2
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
Barbados	1.5	1.0	0.8	1.3	1.0	1.1	6.8	3.8	9.8	9.8	4.3	2.0	1.0	2.3	2.5
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	1.7	0.3	0.8	0.8	0.6	0.2	0.5	0.6	2.8	0.6	0.8	0.4	0.3	0.3	0.8
Brazil	779.5	820.2	1,007.6	1,199.5	1,252.7	1,210.3	1,512.2	1,491.4	1,460.3	1,862.1	1,649.6	1,712.4	1,769.4	1,681.4	1,513.0
Chile	66.5	59.0	77.9	104.6	92.4	87.4	94.9	151.3	107.4	132.2	144.6	190.2	165.9	171.0	180.7
Colombia	16.3	28.5	54.1	56.6	40.8	97.1	52.8	42.7	63.3	66.3	71.9	104.3	74.1	110.8	98.2
Costa Rica	2.6	0.0	3.5	5.8	5.5	2.3	4.5	5.1	5.8	4.6	3.9	4.7	4.7	4.1	2.0
Cuba	30.4	33.9	32.8	36.9	38.2	57.4	43.2	39.1	48.2	34.5	50.2	46.3	36.8	40.0	35.5
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Dominican Republic	0.5	0.0	1.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Ecuador	0.0 *	0.0	0.0	0.0 *	1.1	1.8	4.6	5.8	2.6	2.8	5.1	4.8	5.8	2.8	5.9
El Salvador	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.5	0.0	0.5	0.0	0.3	0.0	0.0	0.0	0.3	0.3	0.2	0.3	0.3
Guyana	0.0	0.0	1.0	0.0	0.5	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.3	0.0
Jamaica	6.8	0.0	3.5	1.5	0.2	0.0	0.0	0.0	0.5	0.0	0.0	2.0	1.2	0.0	2.0
Mexico	412.6	486.3	499.0	610.3	657.5	633.4	707.7	676.5	778.5	731.5	817.4	803.1	787.0	767.6	726.0
Nicaragua	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.1	0.0
Panama	0.0	0.3	1.0	0.0	2.2	0.7	1.0	0.0	2.0	0.3	0.2	0.0	0.5	0.0	0.8
Paraguay	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	5.1	4.8	5.8	1.2	3.3	8.2	7.8	5.1	10.3	5.8	8.7	5.5	14.1	5.2	7.7
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	3.0	3.5	3.0	1.3	0.5	2.4	3.0	0.5	1.0	3.0	1.0	2.0	1.5	0.0	0.0
Uruguay	14.2	18.0	13.3	18.4	21.2	21.4	25.4	18.7	24.9	23.1	24.3	18.2	25.5	25.3	26.6
Venezuela	72.9	51.7	58.6	99.1	81.4	73.9	75.3	76.4	119.4	51.4	78.7	133.4	56.2	64.6	40.5
West Indies Assoc States	0.0	0.0	0.0	0.0	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Appendix table 5-38

S&E articles in physics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	174.0	180.3	173.0	200.9	233.8	183.4	194.7	209.3	191.3	201.2	219.9	250.9	246.1	256.5	295.3
Angola	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benin	2.1	1.3	2.8	1.0	6.3	6.3	2.0	2.2	3.5	2.3	2.8	1.2	10.9	5.3	5.0
Botswana	2.0	0.0	1.0	0.3	1.7	3.5	3.0	5.3	9.0	4.0	1.0	2.2	2.8	4.0	1.0
Burkina Faso	0.0	0.5	0.5	0.8	0.3	0.8	1.5	1.0	2.0	1.4	0.3	1.1	0.3	1.2	1.0
Burundi	2.0	0.5	1.0	0.0	0.0	0.0	1.8	0.5	1.5	0.7	0.0	0.3	0.7	0.0	0.0
Cameroon	11.5	7.5	13.5	6.4	7.7	9.3	4.5	15.6	21.2	26.4	33.2	37.0	22.9	36.1	29.9
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.3	0.7	0.0	0.0	0.5	0.0	0.0	0.6	0.6	0.7	0.5	2.5	1.0	0.0	2.3
Congo (Kinshasa)	0.0	1.0	0.5	1.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Côte d'Ivoire	0.7	0.0	0.2	0.5	0.0	0.2	0.0	0.3	0.0	1.1	1.0	1.6	0.8	2.3	1.4
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
Ethiopia	0.5	0.5	0.7	3.5	3.8	1.5	4.8	3.0	1.0	4.2	3.3	5.2	11.4	11.5	6.5
Gabon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.0	0.3	0.3
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.8	3.0	1.8	0.5	1.8	4.3	2.3	2.0	5.2	2.6	2.8	0.5	2.8	0.7	1.7
Guinea	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	3.8	0.5	2.0	2.0	1.5	1.3	1.8	2.2	2.1	2.3	1.9	1.3	1.5	1.6	2.7
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	2.5	0.0	0.5	1.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Madagascar	0.0	0.8	0.0	0.5	0.5	0.0	0.5	0.6	1.5	0.2	1.0	1.7	2.3	1.0	1.1
Malawi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.3	0.0	0.3	0.0
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	0.0	1.0	0.0	0.0	0.0	0.3	0.3	0.5	0.0	0.0	1.5	2.0	2.0	2.0	3.5
Mozambique	0.5	0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.3	0.0	0.0	0.0	0.0
Namibia	0.0	0.0	1.2	0.0	0.0	1.0	0.0	3.5	0.5	1.3	2.0	0.6	0.4	0.1	0.5
Niger	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.5	2.0	0.3	1.3	0.3	0.5	0.5	0.5
Nigeria	8.8	15.0	5.6	9.7	16.5	5.0	8.0	14.0	11.3	10.6	15.2	14.1	8.6	15.8	13.6
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.2
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	6.3	3.5	0.6	3.2	1.3	1.3	2.8	2.7	4.7	1.3	6.3	2.1	3.9	4.1	3.3
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	131.0	137.2	136.1	164.9	185.4	140.9	157.0	138.4	119.9	135.3	140.6	167.9	170.6	160.8	210.6
Sudan	1.0	1.3	2.7	2.5	1.1	1.3	1.4	4.0	0.0	3.7	1.0	1.2	0.2	3.8	1.6
Swaziland	1.0	1.0	0.0	0.0	0.5	0.3	0.8	1.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Tanzania	0.3	0.3	0.3	0.5	2.0	0.0	0.5	2.3	2.0	0.0	0.2	1.0	0.0	0.6	2.3
Togo	0.0	0.5	0.0	0.0	0.0	1.0	0.5	0.5	0.3	0.5	0.0	0.3	0.0	0.3	0.7
Uganda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.3	0.0	0.0	0.2	0.5	0.0

Appendix table 5-38

S&E articles in physics, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.0	0.0	0.0	0.7	2.0	1.0	0.0	2.3	0.3	0.0	0.3	0.5	0.3	1.0	1.2
Zimbabwe	1.3	2.5	2.3	2.8	1.0	2.0	0.5	2.0	2.0	0.5	0.3	2.8	1.0	1.1	1.8
Other	3,165.4	3,090.2	3,013.1	2,869.9	2,661.1	2,711.5	2,595.5	2,804.2	2,937.0	3,022.2	3,327.7	3,564.2	3,572.6	3,685.5	3,728.7
Australia	1,091.2	1,138.0	1,132.2	1,154.1	1,058.4	1,011.0	986.3	1,013.2	1,035.4	1,084.0	1,121.8	1,232.6	1,277.4	1,281.4	1,368.9
Canada	1,976.0	1,854.7	1,748.9	1,582.3	1,458.3	1,574.0	1,479.2	1,685.9	1,780.1	1,807.6	2,040.8	2,174.0	2,134.0	2,237.8	2,188.3
Fiji	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.8	0.0	0.0
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	98.2	97.5	132.0	133.4	141.4	126.5	129.1	104.9	121.4	130.6	164.1	157.6	159.4	166.3	171.2
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Papua New Guinea	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* = rounds to zero; NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

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Appendix table 5-39

S&E articles in psychology, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	13,554.0	14,721.0	14,479.0	14,298.0	14,375.0	14,672.0	14,620.0	14,583.0	15,005.0	15,642.0	16,386.0	18,007.0	19,678.0	21,778.0	21,494.0
United States	7,781.1	8,356.8	8,093.7	7,833.5	7,715.4	7,824.6	7,707.9	7,679.6	7,706.9	7,860.8	8,011.7	8,715.1	8,957.0	9,795.6	9,805.3
European Union	3,172.8	3,540.1	3,649.8	3,677.7	3,821.2	3,883.5	3,971.3	3,972.4	4,252.4	4,543.1	4,981.4	5,507.8	6,331.3	7,052.2	6,745.8
Austria	37.7	44.3	61.9	44.2	40.5	31.7	56.8	62.2	57.6	68.6	61.5	62.3	67.2	103.8	96.4
Belgium	81.7	77.6	87.7	99.5	96.7	96.3	119.8	121.3	137.4	172.4	198.6	232.8	254.7	307.3	298.4
Bulgaria	3.8	8.3	5.0	5.5	2.7	2.8	1.6	0.1	2.1	1.9	1.3	2.9	3.3	2.5	5.2
Cyprus	1.0	0.0	0.1	0.5	1.0	2.0	1.9	2.6	4.8	1.5	3.3	3.5	7.7	10.8	7.0
Czech Republic	45.0	43.7	52.9	35.6	38.2	36.9	42.7	43.0	36.8	38.0	44.1	54.9	73.5	64.1	57.4
Denmark	28.9	38.7	22.2	41.7	47.5	43.4	53.4	63.0	61.8	67.3	63.5	75.9	71.7	78.0	85.8
Estonia	3.5	4.0	4.4	2.7	7.8	7.0	4.1	5.2	12.0	9.7	9.8	9.2	16.5	12.7	14.9
Finland	73.9	90.4	100.5	94.2	83.4	91.5	94.6	82.2	103.2	115.7	110.3	117.7	128.2	142.7	156.5
France	290.2	272.6	274.8	305.0	302.8	285.7	282.6	295.5	287.6	332.3	347.0	369.8	413.7	546.0	444.8
Germany	615.2	693.8	715.9	730.0	773.1	778.4	819.5	808.6	854.5	885.3	979.2	1,078.8	1,213.2	1,340.8	1,274.5
Greece	10.6	11.3	15.4	10.2	15.1	16.2	17.1	16.5	26.9	32.4	36.8	51.4	46.4	55.4	66.2
Hungary	12.1	21.2	16.9	10.2	10.4	13.2	20.8	12.0	17.9	21.7	25.9	19.3	34.2	29.4	37.6
Ireland	27.5	37.1	22.5	45.8	20.9	30.1	28.9	40.6	20.5	45.9	41.3	26.4	47.3	57.8	66.3
Italy	131.8	137.5	157.9	149.8	140.7	131.2	163.3	170.6	207.7	196.3	209.8	274.7	315.0	378.1	397.5
Latvia	3.5	0.0	0.0	1.0	0.0	1.0	1.0	1.0	0.5	0.7	0.5	0.0	0.5	1.9	0.7
Lithuania	0.0	0.3	0.5	0.4	0.0	0.0	1.0	1.3	0.0 *	1.5	6.5	1.7	3.5	2.4	3.8
Luxembourg	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.8	1.0	0.0	0.0	2.0	1.5	3.3	3.6
Malta	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0 *	0.0 *	1.3	1.5	0.3	0.0	1.5
Netherlands	383.0	418.5	425.4	420.3	433.4	433.1	444.2	488.0	508.1	534.4	620.8	661.0	781.9	934.7	914.6
Poland	7.5	27.5	16.3	14.0	23.0	16.8	18.6	21.7	22.7	24.8	30.5	23.0	42.5	43.4	35.8
Portugal	6.2	17.4	8.5	11.4	11.1	10.1	18.2	14.5	21.5	18.0	29.8	42.3	44.9	58.7	68.2
Romania	1.5	0.0	1.6	0.0	3.0	1.4	1.5	2.0	1.2	2.3	2.5	11.0	12.0	17.3	3.7
Slovakia	52.8	35.5	46.7	49.0	41.5	46.0	29.0	24.0	23.0	32.2	18.3	24.6	29.7	25.7	20.6
Slovenia	2.0	2.3	1.5	7.0	1.6	7.7	5.3	6.1	5.8	8.8	10.8	10.3	10.1	11.7	10.3
Spain	104.4	126.3	145.6	127.6	133.3	150.1	142.5	152.1	188.9	197.7	262.7	322.0	430.6	510.7	349.4
Sweden	155.4	171.8	187.5	171.9	173.5	196.3	187.1	188.5	209.1	195.9	211.8	232.0	262.0	255.4	233.3
United Kingdom	1,092.7	1,259.8	1,278.0	1,299.5	1,419.8	1,454.5	1,414.8	1,347.5	1,439.6	1,537.7	1,653.4	1,796.8	2,019.2	2,057.6	2,091.7
Other Western Europe	195.3	223.1	218.6	212.9	203.3	249.5	270.4	242.0	297.1	294.0	348.1	412.3	511.7	598.2	624.9
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.1	0.0	0.3
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	0.0	0.3	1.0	0.0	0.6	0.3	1.3	0.0	0.7	0.0	0.7	1.5	0.3
Croatia	14.8	10.0	6.1	9.5	8.6	6.5	11.5	3.3	10.9	3.1	8.1	7.2	17.9	13.6	5.5
Iceland	6.0	6.5	5.0	2.7	2.2	3.8	8.3	5.7	7.2	10.4	2.6	10.9	7.1	13.8	12.2
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	1.5
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.0
Norway	69.1	79.7	96.5	82.7	80.7	80.7	105.4	111.3	106.7	94.6	111.3	123.4	131.4	153.0	177.2
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	32.0	22.6	6.5
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	1.2	NA	NA	NA
Switzerland	93.8	98.7	88.5	98.4	83.7	124.2	96.7	76.3	113.7	126.9	146.4	178.4	209.5	271.3	273.8
Turkey	11.5	25.9	19.0	17.3	23.6	30.3	44.9	43.7	55.1	55.8	73.6	88.3	113.1	122.4	147.5
Vatican City	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-39

S&E articles in psychology, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	0.0	2.4	3.3	2.0	3.5	4.0	3.0	0.9	2.1	2.9	NA	NA	NA	NA	NA
Other former USSR	140.9	148.6	139.9	146.6	162.4	159.6	75.5	139.8	139.5	146.1	67.7	66.9	81.7	80.0	147.0
Armenia	1.0	0.0	1.0	0.0	0.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0 *	0.0	1.0	0.0
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0
Belarus	1.0	1.0	1.0	2.5	4.0	9.0	0.0	1.5	0.0	0.0	0.0	0.0	1.0	2.0	4.1
Georgia	0.7	2.5	0.0	0.0	0.2	0.5	0.0	1.0	0.0	0.0 *	0.0	0.0 *	0.0	1.0	0.0
Kazakhstan	0.0	0.2	0.5	0.0	1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
Kyrgyzstan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Moldova	0.0	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.0	0.0
Russia	124.7	139.4	132.9	133.9	151.9	139.7	71.1	133.5	134.5	139.7	67.3	65.1	78.7	74.3	139.8
Tajikistan	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	12.5	4.5	4.5	10.3	4.5	8.4	3.4	3.7	2.0	6.2	0.4	1.8	0.5	1.3	2.7
Uzbekistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Asia	363.7	462.1	465.7	458.1	474.7	506.6	496.4	484.5	541.6	606.5	684.0	703.0	911.6	967.1	1,091.7
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.3
Bangladesh	0.8	0.0	0.3	0.3	0.8	0.7	0.0	0.8	2.5	0.0 *	0.5	0.0	1.2	0.5	0.0 *
Bhutan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cambodia	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
China	64.0	78.3	82.4	91.8	88.6	96.9	108.9	106.8	123.2	142.7	121.4	148.9	198.5	230.4	300.7
India	22.0	25.8	20.0	26.2	14.4	29.4	17.2	14.5	24.8	25.7	22.4	29.6	34.5	28.5	36.4
Indonesia	0.2	1.2	1.5	0.5	0.8	0.9	0.8	0.8	0.7	1.5	1.4	3.4	1.9	2.1	4.3
Japan	232.8	308.8	299.3	281.0	281.5	284.6	279.3	261.7	234.7	284.5	369.0	307.7	361.4	343.8	359.8
Laos	0.0	0.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaysia	2.8	2.8	3.2	1.3	3.7	2.5	2.5	7.2	5.5	5.7	3.0	6.2	2.7	4.8	8.8
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nepal	0.0	1.8	1.0	2.2	1.0	0.0	1.3	1.3	0.5	0.8	0.6	0.0 *	0.0	0.0	0.7
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	2.2	0.3	1.5	0.0	3.3	1.3	0.0	0.9	1.3	4.5	1.0	2.5	2.7	4.9	4.3
Philippines	0.9	1.0	2.0	3.7	2.2	2.0	3.0	5.3	2.3	1.0	3.6	3.4	2.7	6.2	2.4
Singapore	9.0	3.5	8.0	14.5	14.5	25.2	14.7	17.8	26.7	18.2	18.4	26.7	35.6	56.0	60.1
South Korea	10.5	15.5	12.7	9.6	26.3	19.0	31.9	29.6	42.2	43.9	55.6	56.2	75.9	74.8	93.2
Sri Lanka	0.0	0.0	0.0	1.4	0.3	0.5	0.0	1.0	0.5	0.5	0.0	0.8	0.3	1.2	0.5
Taiwan	17.7	17.7	30.9	23.5	32.8	37.7	33.3	33.5	69.7	74.1	74.4	104.3	175.1	201.0	210.0
Thailand	0.9	3.5	2.9	2.4	3.3	5.8	3.5	1.5	7.0	3.3	10.9	11.8	17.0	11.9	7.7
Vietnam	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	1.9	0.5	1.2	0.5	2.5
Near East/North Africa	215.7	189.4	186.5	211.2	206.5	203.6	242.2	240.5	245.4	220.0	250.1	286.1	316.1	364.7	338.5
Algeria	0.5	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.5	0.0
Bahrain	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.3
Egypt	0.7	2.4	0.5	2.5	3.3	0.0	6.7	0.7	0.3	1.0	1.0	2.2	3.8	2.3	3.1
Iran	0.0	0.0	3.3	0.8	5.6	7.7	4.5	10.5	15.9	14.3	16.3	25.8	21.3	36.1	26.7
Iraq	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.3	0.0	0.0	0.5	0.3
Israel	205.0	176.2	167.8	194.3	176.6	179.5	214.0	205.0	206.6	178.6	200.1	227.3	270.4	300.2	286.3
Jordan	0.0	0.8	0.0	2.5	4.0	6.0	1.5	1.0	0.5	1.5	1.0	3.1	1.0	0.5	2.3

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S&E articles in psychology, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	4.0	2.5	5.7	5.3	5.0	4.5	4.0	10.8	9.8	11.7	15.8	20.8	7.0	10.8	5.6
Lebanon	0.6	2.0	0.2	1.0	2.0	0.5	3.8	0.5	0.8	2.8	4.8	2.7	4.3	2.0	2.6
Libya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.0	0.3	0.5
Morocco	0.7	0.5	0.0	0.2	0.3	0.8	0.0	0.5	0.0	0.5	1.0	0.2	0.0	2.3	0.7
Oman	0.3	0.0	0.0	0.0	0.0	0.0	1.0	0.5	1.5	0.0	0.0	0.0	2.0	0.5	0.0
Qatar	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Saudi Arabia	0.5	2.0	1.0	1.0	4.0	0.0	1.0	4.0	3.3	2.2	5.0	2.1	2.0	1.4	2.5
Syria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Tunisia	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.5	0.7	1.7	1.5
United Arab Emirates	2.0	3.0	5.0	3.0	4.7	4.5	4.0	6.5	5.5	6.5	2.5	0.0 *	2.8	4.3	5.0
Yemen	0.3	0.0	0.5	0.5	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central/South America	89.3	112.7	124.3	131.0	144.8	146.3	104.4	136.4	155.2	153.1	187.6	203.2	323.8	361.3	238.6
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	11.2	16.5	17.2	14.5	23.0	18.7	9.8	13.1	14.6	18.3	22.1	16.9	34.4	39.3	26.4
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.3	0.0	0.0	0.3	0.0	0.0	0.5
Barbados	0.0	2.0	0.0	0.0	0.5	0.5	0.0	1.0	0.5	1.3	0.0	1.3	0.0	0.0	1.5
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	0.0	0.0	1.0	0.0	0.0	1.8	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
Brazil	19.9	27.7	32.9	45.6	43.0	45.3	32.2	54.4	52.2	53.8	70.0	76.3	137.0	191.3	92.5
Chile	1.5	4.5	10.2	6.0	6.3	4.4	2.5	7.6	11.0	11.0	12.2	21.9	22.5	24.6	27.6
Colombia	3.7	6.3	9.0	6.2	4.7	3.9	6.3	4.2	8.2	10.8	8.5	13.5	22.9	20.1	13.5
Costa Rica	0.9	1.0	0.5	0.5	0.3	0.3	1.3	1.0	0.0	1.1	1.8	2.3	3.0	0.5	1.6
Cuba	2.0	1.0	1.8	3.0	1.3	7.5	1.8	0.0	1.3	2.5	1.4	0.3	1.7	2.0	1.3
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
Dominican Republic	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.2	0.0	0.0	0.0	0.0 *	0.0	0.0	0.0
Ecuador	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	1.0	0.0	0.2	1.0	0.6	0.3
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.0	0.0	1.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	6.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.3	1.3
Guyana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Jamaica	2.9	0.2	0.3	1.5	0.7	2.7	0.3	0.5	0.8	0.7	2.0	0.0	1.5	1.0	1.0
Mexico	34.8	37.1	35.4	41.3	56.1	48.8	44.2	42.7	60.9	46.6	58.0	59.9	77.7	67.7	58.9
Nicaragua	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.0	0.0	0.0	0.0
Panama	2.2	1.3	0.3	1.9	1.3	3.0	0.9	0.5	2.1	1.2	2.1	3.1	3.7	1.3	1.3
Paraguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Peru	0.0	0.5	2.3	0.5	0.5	2.0	0.0	0.7	0.5	1.2	1.5	1.4	4.0	1.7	2.4
St Kitts and Nevis	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.3
Trinidad and Tobago	0.2	0.0	0.0	0.0	0.0	1.0	0.0	0.3	0.3	0.8	0.0	0.0 *	0.0	0.3	1.0
Uruguay	1.2	0.0	2.0	0.0	0.0	0.3	2.5	2.0	0.0	0.3	4.5	3.0	7.0	5.1	1.6
Venezuela	8.5	8.0	11.0	10.0	6.5	3.6	1.3	5.1	1.7	1.3	1.9	1.3	6.8	4.0	3.6
West Indies Assoc States	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-39

S&E articles in psychology, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	84.7	91.4	96.2	103.2	93.8	87.6	80.6	75.1	84.3	86.0	86.5	119.4	96.2	168.1	102.8
Angola	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Botswana	1.0	0.0	0.0	1.0	0.0	0.0 *	0.0	0.5	0.0	1.0	0.0	0.5	2.0	0.5	0.0 *
Burkina Faso	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.8	0.0 *	0.0	0.0	0.0 *
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cameroon	1.5	0.0	0.5	0.0	1.0	0.0	0.0	0.0	0.8	0.0	0.0	1.0	0.5	0.0	0.5
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.3	0.0	0.0	0.3	0.5	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.3	1.0	1.3	0.8	0.5	0.5	0.3
Congo (Kinshasa)	0.3	0.3	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Côte d'Ivoire	1.0	0.0	0.8	0.0	0.0	1.5	0.8	0.8	0.8	0.3	1.9	1.0	0.0	0.5	1.2
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Ethiopia	1.0	0.0	0.8	1.2	0.0	0.0	0.3	0.3	0.0	1.0	0.0	0.8	0.0	0.2	1.0
Gabon	0.3	0.0	0.5	0.0	1.0	0.0	0.1	0.8	1.0	0.0	2.7	1.2	0.5	0.6	0.4
Gambia	0.0	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.0	0.3	0.0	1.5	1.3	2.1	1.0	0.0	0.5	0.0	0.0	0.5	0.8	0.1	1.0
Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	2.5	2.8	2.3	2.3	2.7	2.6	1.3	1.5	2.2	2.4	2.9	2.3	4.1	3.8	2.6
Lesotho	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Madagascar	0.3	0.0	0.0	0.5	0.0	1.6	0.0	0.7	1.0	0.4	0.4	1.9	0.9	0.9	0.3
Malawi	1.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.0	0.0
Mozambique	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Namibia	1.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Niger	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	3.0	3.7	2.2	1.5	0.0	1.7	0.0	1.4	2.6	2.7	2.0	5.7	4.9	5.4	10.0
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.5
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	65.7	80.0	85.2	90.1	85.3	74.8	70.2	65.0	72.3	75.0	72.5	98.5	79.1	142.6	77.7
Sudan	0.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.3	1.0
Swaziland	0.0	0.0	0.0	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.0	0.0
Tanzania	2.9	0.2	0.0	1.0	0.0	1.0	1.8	0.3	0.0 *	0.3	0.5	2.1	0.3	0.8	1.2
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uganda	0.0	0.0	0.0	0.3	0.2	0.3	1.9	1.7	1.0	1.6	0.0	1.2	1.3	2.8	2.5

Appendix table 5-39

S&E articles in psychology, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.5	1.5	0.0
Zimbabwe	1.5	2.4	1.5	1.9	1.3	1.6	2.0	0.5	0.7	0.0 *	0.3	0.5	0.0	3.5	0.3
Other	1,510.5	1,596.6	1,504.3	1,523.7	1,552.9	1,610.7	1,671.3	1,612.6	1,582.7	1,732.4	1,769.0	1,993.2	2,148.5	2,390.8	2,399.5
Australia	382.3	438.1	433.2	477.5	474.9	519.7	549.9	559.8	542.2	567.8	626.9	675.0	762.6	871.4	848.0
Canada	1,025.7	1,042.8	955.1	949.3	932.0	962.4	996.1	927.4	911.0	1,004.3	1,009.7	1,138.7	1,217.6	1,345.4	1,398.8
Fiji	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.3	1.3	1.0	1.3
Kiribati	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	102.5	115.8	116.0	96.7	146.0	128.6	124.8	125.4	129.0	159.3	132.1	179.2	166.1	173.0	151.0
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0
Solomon Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0	0.0	0.0

* = rounds to zero; NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-40

S&E articles in social sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
World	19,335.0	20,519.0	20,009.0	20,015.0	20,215.0	21,333.0	21,079.0	21,353.0	22,337.0	22,881.0	24,075.0	26,170.0	29,572.0	32,470.0	31,224.0
United States	9,732.9	10,251.5	9,857.0	9,811.3	9,847.1	9,945.6	9,918.0	9,842.5	10,114.1	10,237.6	10,382.6	10,737.6	11,349.5	12,121.8	12,020.3
European Union	5,357.3	5,831.8	5,788.4	5,912.1	6,110.6	6,739.3	6,484.8	6,739.2	7,160.1	7,510.7	8,141.3	9,044.2	10,602.4	11,704.3	10,968.5
Austria	102.4	96.2	89.1	94.7	118.7	85.5	103.1	80.7	120.7	127.1	116.4	144.5	176.7	201.6	191.0
Belgium	118.0	122.7	131.2	124.2	130.7	162.7	165.1	147.9	174.4	224.9	221.2	214.9	269.4	305.8	309.8
Bulgaria	9.2	11.2	11.0	13.1	5.0	6.5	5.3	7.3	5.3	1.8	2.0	7.2	8.3	11.2	6.9
Cyprus	4.6	4.1	10.7	3.8	6.0	5.4	8.7	10.2	11.1	9.0	7.0	8.2	14.9	25.2	17.9
Czech Republic	78.2	84.9	94.4	74.7	84.9	80.9	86.4	87.9	92.2	110.2	108.2	125.7	191.5	231.5	144.8
Denmark	86.5	120.3	91.5	119.6	127.1	136.9	161.6	157.6	149.0	164.3	187.4	198.1	255.4	276.5	279.0
Estonia	7.0	3.0	6.0	12.7	7.8	9.8	11.0	15.8	18.1	23.1	17.4	29.2	37.3	35.2	30.6
Finland	62.4	64.0	82.8	100.5	85.9	92.0	109.9	125.8	146.2	135.6	112.5	144.7	166.6	211.0	217.0
France	463.7	461.7	402.4	503.7	506.7	557.7	502.4	529.0	561.3	585.8	625.6	689.2	763.2	880.6	834.9
Germany	760.9	771.4	776.4	740.2	779.0	831.3	820.3	905.9	896.3	956.9	1,075.2	1,184.4	1,308.7	1,488.2	1,488.6
Greece	50.2	51.1	75.9	69.1	54.2	75.6	72.3	86.3	122.8	119.3	123.5	131.9	129.9	158.3	152.0
Hungary	41.5	38.7	29.5	35.3	20.7	38.0	30.2	42.2	38.2	41.5	30.2	47.1	59.5	69.3	54.0
Ireland	62.8	54.3	56.0	64.0	61.6	80.2	69.5	74.5	81.0	79.9	88.7	98.0	152.2	157.2	161.0
Italy	168.7	201.5	196.8	199.0	203.8	255.7	271.2	280.1	280.3	317.8	334.5	386.5	544.0	652.4	590.5
Latvia	1.0	0.0	0.5	2.0	1.0	1.0	1.0	2.7	3.5	2.5	6.2	6.3	5.5	12.2	5.3
Lithuania	4.5	1.3	3.0	4.0	1.5	2.5	10.0	14.3	8.3	17.7	13.7	20.3	41.0	97.1	12.4
Luxembourg	2.0	1.7	2.0	3.0	5.0	3.0	3.0	0.5	2.5	2.7	3.5	9.9	5.9	8.2	15.0
Malta	5.0	2.0	2.3	4.0	2.0	2.0	2.0	2.0	5.0	1.3	3.0	1.0	1.0	2.5	3.6
Netherlands	405.9	460.9	479.4	489.8	468.6	488.5	529.4	544.0	527.2	592.8	648.1	706.3	840.2	892.6	953.4
Poland	53.8	32.2	33.6	29.7	36.5	34.7	33.7	38.0	42.6	48.3	70.0	80.9	69.8	128.1	86.5
Portugal	24.2	27.5	13.6	22.5	27.8	32.0	30.5	40.2	38.0	54.2	74.5	85.0	103.9	135.9	126.9
Romania	5.0	10.2	7.7	0.5	3.0	4.5	4.0	6.8	4.2	4.0	2.6	4.9	75.7	129.2	18.3
Slovakia	71.8	89.8	74.8	68.5	58.4	68.0	71.5	70.4	78.8	93.4	77.3	70.6	59.2	73.9	53.8
Slovenia	7.5	10.3	7.0	16.4	19.3	16.5	30.5	24.8	33.1	34.7	40.2	31.7	108.2	95.3	53.7
Spain	127.5	140.5	174.0	187.3	196.9	223.4	270.3	302.6	300.8	359.1	435.1	532.7	759.3	868.9	680.0
Sweden	174.1	212.8	219.0	224.2	270.3	225.5	239.5	271.1	284.8	296.0	341.8	357.3	383.3	505.6	496.0
United Kingdom	2,458.9	2,757.5	2,717.8	2,705.6	2,828.3	3,219.3	2,842.4	2,870.5	3,134.6	3,106.7	3,375.4	3,727.8	4,071.6	4,051.0	3,985.5
Other Western Europe	368.1	447.6	431.0	470.7	401.9	507.2	554.1	587.7	660.2	660.5	823.5	881.4	1,154.1	1,365.6	1,287.4
Albania	0.5	1.8	0.0	1.5	2.3	0.0	0.0	1.5	1.3	0.0	0.0	1.8	0.0	1.8	0.3
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.5	0.2	0.0	1.0	1.0	2.7	3.3	1.1	1.2	4.3	4.6	6.0	9.0	8.8	20.8
Croatia	75.5	111.8	83.7	114.3	93.8	112.9	117.5	135.5	154.8	138.6	184.1	181.3	245.6	302.0	269.4
Iceland	4.5	7.0	5.5	8.2	6.3	6.0	9.8	5.7	6.3	8.7	8.3	9.9	15.1	8.2	19.6
Liechtenstein	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	0.0	3.0	2.0	1.5	1.0	0.0	0.0	1.0	0.2	1.7	0.0	0.4	2.8	0.0	0.3
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	1.5	1.0	0.0
Norway	139.4	161.1	160.6	153.2	141.2	158.6	165.0	168.9	197.0	204.3	218.6	244.1	316.8	333.8	354.5
San Marino	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.7	12.0	10.3	21.3
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4	2.9	NA	NA	NA
Switzerland	117.1	116.8	123.8	124.0	113.2	147.6	179.0	186.3	193.6	181.2	253.0	238.5	300.3	358.3	353.0
Turkey	27.1	41.5	53.0	60.9	40.4	74.4	75.3	85.4	102.0	112.5	151.6	188.9	250.9	340.8	247.9
Vatican City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix table 5-40

S&E articles in social sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yugoslavia	3.5	4.5	2.3	4.0	2.7	5.0	4.0	2.2	3.7	9.2	NA	NA	NA	NA	NA
Other former USSR	299.2	243.2	272.8	276.7	303.2	290.2	239.0	225.3	258.3	245.7	173.3	209.9	213.2	162.9	187.1
Armenia	0.0	0.0	0.0	1.0	1.0	1.5	0.0	2.0	0.0	0.0	0.0	3.3	0.2	0.2	0.5
Azerbaijan	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	1.5	0.3
Belarus	5.0	6.5	0.5	25.5	1.3	3.0	3.5	0.0	6.8	9.7	2.8	2.0	5.5	5.0	3.0
Georgia	1.0	2.0	2.0	0.5	0.0	2.5	3.9	2.4	3.0	1.0	3.2	3.8	2.3	3.6	3.9
Kazakhstan	1.0	3.0	0.5	10.5	1.2	2.8	3.5	1.3	2.6	4.5	2.5	1.0	0.9	3.4	4.0
Kyrgyzstan	0.0	0.0	2.0	2.3	1.2	1.8	2.2	1.5	1.0	3.0	1.3	1.7	0.5	1.5	0.7
Moldova	0.0	1.0	0.0	0.5	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.8	0.2	0.0	1.8
Russia	277.2	224.2	264.0	228.2	272.6	262.7	218.4	209.5	233.3	210.4	155.9	188.1	187.8	129.9	162.8
Tajikistan	0.5	1.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Turkmenistan	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Ukraine	14.5	4.2	3.8	8.3	25.7	11.2	3.5	6.6	6.4	13.3	7.6	9.2	12.4	16.6	9.5
Uzbekistan	0.0	0.3	0.0	0.0	0.2	3.7	4.0	2.0	1.3	2.3	0.0	0.0	2.9	1.3	0.7
Asia	851.2	840.1	883.5	843.1	913.0	1,056.7	1,103.6	1,101.2	1,170.5	1,197.8	1,343.2	1,701.1	1,946.4	2,215.7	2,246.5
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.0	1.0	0.3	4.0
Bangladesh	23.7	21.4	13.0	10.1	16.4	20.3	14.9	7.7	16.7	13.4	17.2	12.9	17.3	16.8	21.0
Bhutan	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.0	0.3	0.0
Brunei	0.0	2.0	1.0	1.0	1.0	1.5	1.0	0.0	1.0	0.5	1.5	0.3	0.0	0.0	0.0
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	0.0	0.3	0.3	0.0	2.4	1.3	0.0
Cambodia	1.0	2.0	1.5	1.8	0.7	0.5	1.0	1.7	2.5	2.5	2.0	2.2	2.0	1.5	1.5
China	149.7	152.7	215.9	166.3	183.0	216.1	231.0	241.8	232.3	292.6	283.2	392.9	471.3	561.7	599.8
India	191.3	147.0	156.3	144.6	115.5	168.5	173.7	170.5	156.5	140.2	162.8	207.0	205.4	236.5	239.0
Indonesia	11.7	16.5	10.4	10.5	12.4	17.2	16.2	19.8	14.4	18.0	17.6	19.1	19.7	20.3	23.5
Japan	224.9	224.2	260.4	276.4	294.4	337.0	297.5	296.0	330.9	304.8	345.8	413.9	509.4	475.3	476.5
Laos	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	0.1	1.6	0.8	0.0	0.0	1.0	0.8
Malaysia	12.5	16.1	8.0	9.2	9.5	16.0	9.3	13.2	16.0	9.2	15.6	28.9	23.6	43.1	49.4
Maldives	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	0.0	2.3	1.2	0.0	1.5	0.5	2.3	2.0	1.0	0.8	0.5	0.0	0.5	1.0	0.5
Nepal	4.3	2.8	4.4	2.9	1.3	3.3	5.3	4.2	3.4	2.2	5.9	2.7	5.8	7.0	4.8
North Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	10.1	21.5	8.6	5.0	7.0	6.3	8.2	10.7	15.7	7.9	10.5	14.0	12.8	9.4	12.4
Philippines	12.9	12.9	9.2	17.3	15.2	17.2	12.3	7.4	17.1	11.0	12.8	21.7	20.5	27.1	32.9
Singapore	49.7	47.5	49.1	54.6	62.9	77.7	88.7	67.6	111.3	104.4	115.4	147.6	131.9	143.5	151.3
South Korea	47.0	54.7	58.8	52.2	92.8	76.5	110.4	114.4	125.9	136.7	144.2	182.3	229.0	271.6	252.8
Sri Lanka	7.4	6.3	6.5	5.0	1.9	3.0	2.3	2.5	3.5	3.2	6.8	5.3	7.5	6.7	15.7
Taiwan	85.9	93.2	63.6	62.7	72.5	79.6	107.5	116.6	101.8	124.8	166.2	208.4	236.1	325.7	311.4
Thailand	10.7	13.9	11.2	19.5	20.0	13.9	14.8	16.5	14.7	19.7	27.6	35.9	32.6	46.6	37.8
Vietnam	8.7	3.2	4.3	3.0	4.9	1.5	4.8	6.5	4.5	2.4	4.9	4.9	16.5	18.9	11.4
Near East/North Africa	291.5	318.4	324.4	325.5	291.5	299.0	292.8	312.9	345.6	348.0	305.2	383.4	377.5	489.8	507.0
Algeria	1.5	2.5	1.8	0.0	1.5	1.0	1.0	0.7	0.0	0.3	0.0	2.0	3.7	2.7	2.0
Bahrain	1.0	0.4	2.0	2.5	0.5	0.0	1.0	1.0	1.5	3.2	1.0	3.3	0.5	1.5	0.0
Egypt	9.2	13.0	10.0	15.3	7.7	10.8	9.5	10.0	9.0	9.8	8.0	10.0	17.0	14.1	23.6
Iran	2.2	2.3	2.0	3.1	1.0	4.5	7.4	6.5	9.5	6.3	11.2	25.2	28.4	32.2	55.3
Iraq	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.9	0.0	1.5	2.2
Israel	255.0	255.5	276.6	271.8	247.6	250.2	236.4	258.4	281.7	274.3	232.9	287.2	276.5	368.8	329.7
Jordan	4.0	6.0	5.0	1.5	3.4	2.3	4.5	3.1	4.3	6.5	6.0	6.0	4.7	7.5	10.3

Appendix table 5-40

S&E articles in social sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kuwait	6.5	9.3	5.8	4.5	3.2	5.5	3.0	8.9	6.1	9.3	7.8	7.3	6.5	8.3	5.8
Lebanon	3.3	4.8	2.8	4.8	1.5	8.2	13.3	5.9	13.0	12.2	7.3	10.1	6.0	10.3	19.5
Libya	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0	0.3	0.5	0.5
Morocco	0.6	4.2	0.8	2.0	5.1	2.7	2.3	2.0	2.8	3.5	5.1	3.0	2.2	4.1	8.5
Oman	0.0	1.0	1.0	1.5	0.0	3.0	2.5	2.0	0.8	1.0	0.0	1.0	2.0	2.5	2.8
Qatar	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.3	1.5	3.0	3.8	2.5	0.5
Saudi Arabia	4.5	9.5	4.0	13.0	10.0	3.8	4.5	6.0	5.5	7.8	6.5	5.5	4.5	6.5	8.8
Syria	0.0	1.0	1.0	0.5	0.0	0.3	1.0	0.6	0.8	0.0	0.4	2.5	0.8	1.3	0.5
Tunisia	0.3	1.3	2.5	1.5	2.5	3.5	2.8	1.1	2.5	1.7	6.0	5.3	8.2	6.6	16.5
United Arab Emirates	1.3	6.0	9.0	3.5	5.5	2.6	3.5	5.5	7.0	9.7	11.5	10.8	12.5	18.9	18.8
Yemen	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	1.7
Central/South America	186.6	197.0	204.0	210.5	193.8	276.6	259.9	250.4	265.5	295.2	352.3	371.1	610.3	680.4	525.6
Antigua and Barbuda	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	31.0	29.2	27.0	41.8	25.2	47.4	34.5	32.6	39.6	43.6	38.1	51.1	78.4	90.6	67.7
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.5	0.3
Barbados	2.7	2.0	1.0	0.0	1.0	1.0	4.5	4.0	0.8	1.5	1.0	1.3	4.1	3.5	2.0
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	2.3	0.6	3.5	1.4	2.8	0.5	2.3	2.1	0.6	2.7	3.3	2.3	2.1	4.6	4.8
Brazil	58.9	65.8	52.6	73.9	78.5	95.1	100.2	86.1	77.2	113.7	121.0	124.6	180.1	209.1	196.2
Chile	11.2	16.2	16.8	15.5	13.2	34.4	22.5	25.0	30.2	28.4	47.7	49.0	96.6	104.4	73.1
Colombia	5.0	4.4	8.6	8.2	6.6	10.2	13.5	9.4	12.5	13.2	13.2	13.3	26.4	24.7	26.4
Costa Rica	1.6	2.0	2.8	1.8	0.0	2.1	2.8	2.3	2.9	3.8	4.5	2.8	0.5	6.1	5.4
Cuba	4.7	2.4	1.1	0.0	0.0	2.0	0.3	2.0	3.8	1.1	1.8	5.8	5.0	3.1	5.5
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	2.0	1.0	1.5	1.0	2.0
Dominican Republic	1.0	0.0	0.0	1.2	1.0	0.8	0.2	1.0	0.5	0.0	0.0	0.0	1.3	1.8	0.2
Ecuador	2.0	1.3	2.0	0.9	0.3	0.0	0.0	0.5	0.3	2.5	3.0	0.0	1.8	3.5	2.5
El Salvador	1.2	1.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.4	1.7	0.0	0.0	0.0
Grenada	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.5	0.3
Guatemala	1.7	0.0	0.3	2.5	0.5	2.2	0.0	1.1	1.3	0.0	0.4	2.3	2.2	2.3	2.2
Guyana	2.0	0.0	2.0	1.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3
Haiti	1.0	0.3	0.0	0.3	0.0	0.0	0.0	0.3	0.0	1.0	0.3	2.0	0.0	0.0	0.3
Honduras	0.5	1.3	0.6	0.3	0.5	0.5	1.3	0.9	0.5	0.8	0.5	0.5	0.0	1.5	0.0
Jamaica	6.7	5.8	4.0	3.3	4.8	4.7	4.2	0.5	1.5	5.3	3.7	2.7	7.5	5.2	4.3
Mexico	42.2	41.6	63.5	40.1	48.1	50.3	53.6	59.1	72.5	58.6	80.3	89.4	146.8	164.4	95.7
Nicaragua	1.0	2.0	1.7	0.0	0.5	1.3	0.5	0.3	1.5	0.5	1.0	1.7	1.6	0.5	0.3
Panama	0.0	1.0	0.0	0.9	1.0	0.3	0.0	2.0	1.5	0.0	0.5	0.0	2.7	0.9	0.3
Paraguay	1.0	0.0	0.5	1.0	0.0	1.3	0.0	0.0	1.0	0.0	0.0	0.5	0.0	0.0	0.5
Peru	1.1	7.5	4.8	3.3	1.7	4.5	6.7	1.8	4.2	4.8	11.6	5.3	6.3	10.5	10.9
St Kitts and Nevis	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	1.3	3.0	1.3	3.0	2.0	1.6	1.8	4.5	1.8	3.8	2.0	3.5	5.2	6.2	7.9
Uruguay	1.0	2.3	1.0	2.3	0.0	1.0	2.3	5.0	3.1	5.4	3.8	4.3	5.1	4.0	5.8
Venezuela	4.5	7.3	7.8	7.7	5.1	14.5	7.7	8.0	7.2	3.5	11.0	5.8	33.0	28.7	10.6
West Indies Assoc States	0.0	0.0	0.5	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0

Appendix table 5-40

S&E articles in social sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa	245.2	237.2	221.2	216.6	199.6	225.6	246.9	328.5	247.9	277.9	311.8	386.1	423.1	516.2	384.1
Angola	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benin	0.0	0.0	0.3	0.5	0.0	0.4	1.0	0.0	1.2	1.1	0.0	1.3	3.0	0.8	1.0
Botswana	7.2	14.5	5.7	4.0	12.5	8.7	12.8	18.0	7.0	8.7	8.5	11.0	6.8	12.6	4.1
Burkina Faso	0.5	1.5	1.2	1.3	1.9	1.6	0.3	1.6	1.6	1.9	0.0	2.7	2.0	0.5	3.1
Burundi	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Cameroon	3.5	0.3	6.3	1.5	2.0	5.1	8.2	7.3	3.7	10.0	9.4	9.4	9.0	9.1	8.0
Cape Verde	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Central African Republic	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Comoros	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo (Brazzaville)	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.3
Congo (Kinshasa)	2.1	0.5	0.5	0.0	0.0	1.0	0.0	0.0	0.5	0.0	0.0	0.4	0.0	1.2	1.6
Côte d'Ivoire	2.2	1.0	0.5	4.0	5.4	3.3	4.3	0.3	2.3	1.3	1.0	2.3	1.8	1.5	1.5
Djibouti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	0.3	0.0	0.0	2.0	0.8	1.0	0.0	3.0	1.0	0.0	2.0	0.8	1.5	1.0	0.5
Ethiopia	2.5	3.3	2.8	2.2	4.0	2.8	3.3	9.2	6.7	7.1	7.6	13.2	14.9	18.9	15.2
Gabon	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.4	0.0	1.2	0.0
Gambia	0.0	2.2	1.7	0.7	0.3	0.3	0.3	3.2	0.0	1.0	0.3	0.7	0.0	0.6	0.0
Ghana	9.8	3.7	13.6	8.9	10.8	10.0	9.4	8.4	9.9	9.6	8.6	8.5	15.5	28.8	13.7
Guinea	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Guinea-Bissau	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Kenya	18.3	19.1	10.3	13.6	17.2	11.3	21.6	30.9	16.4	9.4	17.4	15.5	24.6	35.3	31.8
Lesotho	0.0	0.0	1.0	1.0	0.0	2.5	1.0	0.0	1.0	1.5	0.0	1.5	1.0	2.0	0.0
Liberia	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
Madagascar	0.0	0.0	0.0	1.0	1.0	0.8	2.8	0.8	1.5	0.0	1.0	2.8	0.3	1.3	0.3
Malawi	3.2	2.5	2.2	3.8	2.5	1.3	2.5	3.5	1.7	3.8	1.8	1.5	11.2	8.7	7.0
Mali	1.6	0.5	0.8	1.7	0.3	1.3	1.3	2.0	0.6	0.6	0.7	0.5	0.0	1.1	1.0
Mauritania	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Mauritius	1.5	0.5	0.0	0.0	0.5	0.0	0.5	2.0	1.0	2.0	1.0	1.0	1.0	5.5	4.3
Mozambique	1.0	0.0	1.3	2.8	1.0	2.1	0.5	1.8	0.3	0.2	0.5	3.6	1.5	1.9	4.3
Namibia	0.0	0.3	0.0	1.5	1.0	1.5	0.0	3.0	1.5	0.0	2.0	0.0	1.4	0.5	1.5
Niger	0.0	1.0	1.0	0.0	1.0	1.3	2.3	0.3	0.5	0.0	1.3	2.0	0.6	0.8	1.0
Nigeria	20.5	18.0	21.2	23.8	17.4	16.3	18.5	28.1	23.9	26.2	17.7	29.9	22.7	44.7	30.8
Rwanda	0.0	0.5	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5	1.6	0.3	0.0	0.5
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	2.8	7.5	2.0	4.0	3.2	4.2	4.9	2.2	4.7	2.5	7.0	2.0	3.5	5.0	7.1
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	1.8	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.5	0.0
Somalia	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	139.5	136.6	120.6	110.8	91.6	117.4	120.7	169.1	137.3	168.9	191.4	240.8	271.8	288.5	212.3
Sudan	1.0	1.0	1.0	0.0	0.5	2.0	0.3	1.3	0.0	0.0	0.8	0.9	1.3	4.9	4.5
Swaziland	0.5	0.0	1.0	0.0	0.0	2.5	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.2
Tanzania	8.8	5.7	8.9	5.8	8.8	9.0	1.4	7.8	3.9	6.5	15.9	13.8	9.3	18.8	12.7
Togo	1.0	0.0	0.0	1.0	0.0	0.0	0.5	0.0	1.0	1.0	0.0	1.0	0.5	0.0	0.0
Uganda	3.3	2.0	4.5	4.6	4.2	4.7	8.0	6.8	5.9	6.0	8.7	8.7	5.1	6.7	8.9

Appendix table 5-40

S&E articles in social sciences, by region/country/economy: 1995–2009

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Zambia	3.5	2.5	1.3	2.8	0.7	1.3	3.4	2.8	3.6	0.5	2.3	2.5	3.5	5.7	1.8
Zimbabwe	10.3	9.1	11.3	12.1	11.0	9.0	15.0	13.3	9.2	6.7	3.6	4.4	6.6	6.2	4.1
Other	2,002.9	2,152.1	2,026.7	1,948.5	1,954.4	1,992.8	1,979.8	1,965.3	2,114.7	2,107.7	2,241.8	2,455.2	2,895.6	3,213.3	3,097.4
Australia	704.6	779.4	734.6	751.6	784.1	757.4	717.8	698.4	704.5	761.9	829.3	930.4	1,114.8	1,373.0	1,267.5
Canada	1,184.6	1,237.2	1,154.4	1,071.4	1,024.5	1,093.4	1,122.0	1,126.1	1,247.2	1,223.5	1,238.6	1,322.8	1,530.9	1,554.0	1,586.9
Fiji	2.0	1.5	3.5	2.3	3.0	3.3	5.1	1.0	4.5	4.3	3.3	5.3	15.9	12.7	9.0
Kiribati	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marshall Islands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0
Nauru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	107.3	131.7	128.4	120.5	139.8	133.5	134.6	137.8	157.9	116.0	170.7	194.8	232.6	270.0	232.4
Niue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Palau	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	4.3	1.2	3.3	2.5	1.0	1.0	0.3	2.0	0.0	1.5	0.0	0.0	0.0	3.0	0.0
Solomon Islands	0.0	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.7	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Western Samoa	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0	1.5	1.0	0.3	0.0

NA = not available, country did not exist as such

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year of publication and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-41

Internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	World	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway
World																				
1995	79,128	36,361	1,897	3,199	1,273	2,470	1,762	12,099	14,694	991	1,276	621	7,362	5,204	2,791	659	4,121	4,392	14,597	1,403
2010	185,303	79,581	5,446	7,963	3,307	5,292	4,111	25,484	34,869	3,037	2,166	2,657	17,411	12,781	4,904	3,498	14,987	8,982	34,661	3,900
United States																				
1995	36,361	na	467	754	274	729	599	3,265	4,424	299	427	144	2,490	1,585	739	158	1,071	1,329	4,567	411
2010	79,581	na	1,409	1,963	788	1,628	1,183	7,005	10,615	1,063	598	781	5,822	3,970	1,342	696	4,182	2,624	11,192	1,126
Austria																				
1995	1,897	467	na	69	86	70	56	168	693	52	67	6	155	122	105	39	95	83	202	36
2010	5,446	1,409	na	324	233	177	161	761	2,241	122	164	77	741	467	253	102	524	365	888	135
Belgium																				
1995	3,199	754	69	na	82	108	73	809	455	77	48	30	295	507	140	62	187	188	469	56
2010	7,963	1,963	324	na	221	299	209	1,961	1,571	226	163	121	1,029	1,563	350	185	886	459	1,586	170
Czech Republic																				
1995	1,273	274	86	82	na	51	46	215	290	39	20	5	138	95	88	33	76	85	158	40
2010	3,307	788	233	221	na	110	128	598	872	107	114	85	401	259	344	95	306	256	574	94
Denmark																				
1995	2,470	729	70	108	51	na	150	239	397	77	14	18	200	220	100	51	159	451	463	212
2010	5,292	1,628	177	299	110	na	354	715	1,157	134	85	91	574	588	185	112	500	908	1,138	485
Finland																				
1995	1,762	599	56	73	46	150	na	181	261	50	61	14	126	152	80	43	107	337	222	108
2010	4,111	1,183	161	209	128	354	na	542	868	120	127	87	494	442	192	87	410	792	876	309
France																				
1995	12,099	3,265	168	809	215	239	181	na	1,652	211	150	68	1,167	649	473	161	819	388	1,577	150
2010	25,484	7,005	761	1,961	598	715	542	na	4,712	589	354	356	3,502	1,973	972	568	2,871	1,171	4,449	520
Germany																				
1995	14,694	4,424	693	455	290	397	261	1,652	na	206	290	68	1,028	937	612	125	571	593	1,728	165
2010	34,869	10,615	2,241	1,571	872	1,157	868	4,712	na	701	578	473	3,597	3,306	1,301	543	2,737	1,830	6,052	675
Greece																				
1995	991	299	52	77	39	77	50	211	206	na	14	9	121	73	53	41	91	64	235	44
2010	3,037	1,063	122	226	107	134	120	589	701	na	64	55	520	311	168	89	447	224	799	94
Hungary																				
1995	1,276	427	67	48	20	14	61	150	290	14	na	7	99	80	28	11	32	50	155	11
2010	2,166	598	164	163	114	85	127	354	578	64	na	36	301	171	180	58	235	175	426	62
Ireland																				
1995	621	144	6	30	5	18	14	68	68	9	7	na	42	50	6	12	29	17	244	6
2010	2,657	781	77	121	85	91	87	356	473	55	36	na	240	268	96	56	277	243	958	60
Italy																				
1995	7,362	2,490	155	295	138	200	126	1,167	1,028	121	99	42	na	457	283	96	487	285	1,150	93
2010	17,411	5,822	741	1,029	401	574	494	3,502	3,597	520	301	240	na	1,640	629	400	2,583	1,016	3,679	368
Netherlands																				
1995	5,204	1,585	122	507	95	220	152	649	937	73	80	50	457	na	163	80	287	252	1,015	119
2010	12,781	3,970	467	1,563	259	588	442	1,973	3,306	311	171	268	1,640	na	422	279	1,324	878	3,207	436
Poland																				
1995	2,791	739	105	140	88	100	80	473	612	53	28	6	283	163	na	40	138	191	299	59
2010	4,904	1,342	253	350	344	185	192	972	1,301	168	180	96	629	422	na	133	539	349	892	127
Portugal																				
1995	659	158	39	62	33	51	43	161	125	41	11	12	96	80	40	na	101	66	185	39
2010	3,498	696	102	185	95	112	87	568	543	89	58	56	400	279	133	na	885	187	669	86
Spain																				
1995	4,121	1,071	95	187	76	159	107	819	571	91	32	29	487	287	138	101	na	150	740	66
2010	14,987	4,182	524	886	306	500	410	2,871	2,737	447	235	277	2,583	1,324	539	885	na	870	2,999	350

Appendix table 5-41
Internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	World	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway
Sweden																				
1995	4,392	1,329	83	188	85	451	337	388	593	64	50	17	285	252	191	66	150	na	509	335
2010	8,982	2,624	365	459	256	908	792	1,171	1,830	224	175	243	1,016	878	349	187	870	na	1,975	786
United Kingdom																				
1995	14,597	4,567	202	469	158	463	222	1,577	1,728	235	155	244	1,150	1,015	299	185	740	509	na	218
2010	34,661	11,192	888	1,586	574	1,138	876	4,449	6,052	799	426	958	3,679	3,207	892	669	2,999	1,975	na	859
Norway																				
1995	1,403	411	36	56	40	212	108	150	165	44	11	6	93	119	59	39	66	335	218	na
2010	3,900	1,126	135	170	94	485	309	520	675	94	62	60	368	436	127	86	350	786	859	na
Switzerland																				
1995	4,873	1,509	180	220	95	163	115	908	1,271	104	98	31	672	317	166	66	210	204	702	93
2010	11,290	3,509	669	599	245	366	279	2,070	3,679	211	145	145	1,618	945	371	175	928	578	2,034	224
Turkey																				
1995	473	138	2	13	2	10	1	24	74	4	1	1	27	20	2	0	9	5	91	3
2010	2,221	901	76	109	61	54	60	231	323	85	48	18	232	165	67	44	142	80	318	39
China																				
1995	2,914	1,112	50	43	5	45	28	189	317	30	28	6	149	74	17	3	67	113	353	17
2010	24,164	10,917	222	334	194	227	208	1,312	2,020	115	100	161	576	601	212	100	411	641	2,277	172
India																				
1995	1,583	606	12	20	7	25	20	148	198	5	24	1	100	47	13	4	46	30	212	7
2010	6,033	2,021	110	136	155	75	77	615	866	94	62	68	367	251	199	67	277	198	724	73
Japan																				
1995	7,554	3,603	56	88	45	83	86	430	719	28	58	20	295	216	133	13	83	180	718	55
2010	15,144	5,587	284	306	219	199	234	1,329	1,747	144	131	94	804	487	291	79	551	442	1,610	138
Singapore																				
1995	359	106	2	2	0	2	5	11	14	1	3	0	1	4	0	1	2	6	65	2
2010	3,424	1,062	26	45	15	46	41	145	207	20	8	31	87	84	32	9	67	71	388	24
South Korea																				
1995	1,283	821	20	6	3	21	16	75	104	16	17	0	79	45	25	1	54	15	83	4
2010	8,064	4,342	81	96	128	59	83	418	615	85	44	53	246	182	153	37	185	140	576	40
Taiwan																				
1995	1,013	742	2	2	1	2	14	28	34	2	11	0	45	12	2	2	14	16	38	3
2010	4,032	2,063	67	33	59	21	82	232	305	59	21	15	139	64	78	22	125	69	338	25
Russia																				
1995	5,509	1,309	84	148	140	138	182	715	1,221	66	61	24	454	257	274	44	168	286	444	106
2010	6,791	1,840	195	244	269	110	324	1,156	1,997	147	132	106	678	383	440	109	492	370	895	178
Iran																				
1995	109	52	1	1	1	0	0	4	9	0	1	0	2	5	0	0	3	0	17	1
2010	1,874	429	29	48	23	34	23	130	182	19	13	9	103	87	27	18	80	62	262	18
Israel																				
1995	2,639	1,550	21	42	14	31	19	246	380	10	17	4	175	77	48	10	56	35	241	23
2010	4,193	2,259	103	157	76	94	66	470	804	65	71	32	407	266	102	45	292	140	524	77
Argentina																				
1995	733	243	9	15	5	10	10	99	86	6	4	3	41	16	3	2	120	34	36	5
2010	2,444	856	50	74	65	34	26	337	323	26	28	48	212	114	53	47	521	95	260	20
Brazil																				
1995	1,893	773	37	76	38	39	37	279	180	35	9	5	167	70	56	62	108	51	264	40
2010	5,629	2,235	108	173	124	92	90	841	694	60	58	63	464	264	117	285	534	178	732	68
Chile																				
1995	519	229	1	20	0	3	6	53	67	3	6	2	27	16	12	3	59	15	49	2
2010	1,958	761	34	90	17	48	21	348	378	26	10	19	204	123	73	51	377	73	297	21

Appendix table 5-41
Internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	World	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway
Mexico																				
1995	1,044	465	5	12	17	4	6	131	57	3	4	4	43	17	25	2	104	13	80	2
2010	2,917	1,294	49	89	94	33	41	352	317	51	30	47	224	137	73	60	594	90	337	24
South Africa																				
1995	682	231	17	24	7	12	9	40	92	9	3	3	28	25	12	4	31	9	158	9
2010	2,587	945	65	126	45	85	40	301	328	25	50	33	154	183	75	45	140	150	670	88
Australia																				
1995	3,940	1,448	47	61	20	69	21	223	381	7	12	13	119	131	30	8	53	143	763	26
2010	13,188	4,223	276	347	144	332	239	1,057	1,496	78	77	184	699	736	220	106	497	511	2,854	187
Canada																				
1995	8,468	4,500	57	126	59	111	95	774	585	51	50	42	339	267	112	22	149	215	898	62
2010	18,772	9,374	344	505	167	410	331	2,009	2,088	197	115	250	1,195	1,054	306	123	905	653	2,775	300
New Zealand																				
1995	908	318	9	15	6	16	7	33	84	5	2	1	16	34	11	3	8	28	182	12
2010	2,831	974	61	96	20	73	55	215	265	20	22	60	160	136	45	24	94	82	659	47

Appendix table 5-41

Internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Iran	Israel	Argentina	Brazil	Chile	Mexico	South Africa	Australia	Canada	New Zealand
World																			
1995	4,873	473	2,914	1,583	7,554	359	1,283	1,013	5,509	109	2,639	733	1,893	519	1,044	682	3,940	8,468	908
2010	11,290	2,221	24,164	6,033	15,144	3,424	8,064	4,032	6,791	1,874	4,193	2,444	5,629	1,958	2,917	2,587	13,188	18,772	2,831
United States																			
1995	1,509	138	1,112	606	3,603	106	821	742	1,309	52	1,550	243	773	229	465	231	1,448	4,500	318
2010	3,509	901	10,917	2,021	5,587	1,062	4,342	2,063	1,840	429	2,259	856	2,235	761	1,294	945	4,223	9,374	974
Austria																			
1995	180	2	50	12	56	2	20	2	84	1	21	9	37	1	5	17	47	57	9
2010	669	76	222	110	284	26	81	67	195	29	103	50	108	34	49	65	276	344	61
Belgium																			
1995	220	13	43	20	88	2	6	2	148	1	42	15	76	20	12	24	61	126	15
2010	599	109	334	136	306	45	96	33	244	48	157	74	173	90	89	126	347	505	96
Czech Republic																			
1995	95	2	5	7	45	0	3	1	140	1	14	5	38	0	17	7	20	59	6
2010	245	61	194	155	219	15	128	59	269	23	76	65	124	17	94	45	144	167	20
Denmark																			
1995	163	10	45	25	83	2	21	2	138	0	31	10	39	3	4	12	69	111	16
2010	366	54	227	75	199	46	59	21	110	34	94	34	92	48	33	85	332	410	73
Finland																			
1995	115	1	28	20	86	5	16	14	182	0	19	10	37	6	6	9	21	95	7
2010	279	60	208	77	234	41	83	82	324	23	66	26	90	21	41	40	239	331	55
France																			
1995	908	24	189	148	430	11	75	28	715	4	246	99	279	53	131	40	223	774	33
2010	2,070	231	1,312	615	1,329	145	418	232	1,156	130	470	337	841	348	352	301	1,057	2,009	215
Germany																			
1995	1,271	74	317	198	719	14	104	34	1,221	9	380	86	180	67	57	92	381	585	84
2010	3,679	323	2,020	866	1,747	207	615	305	1,997	182	804	323	694	378	317	328	1,496	2,088	265
Greece																			
1995	104	4	30	5	28	1	16	2	66	0	10	6	35	3	3	9	7	51	5
2010	211	85	115	94	144	20	85	59	147	19	65	26	60	26	51	25	78	197	20
Hungary																			
1995	98	1	28	24	58	3	17	11	61	1	17	4	9	6	4	3	12	50	2
2010	145	48	100	62	131	8	44	21	132	13	71	28	58	10	30	50	77	115	22
Ireland																			
1995	31	1	6	1	20	0	0	0	24	0	4	3	5	2	4	3	13	42	1
2010	145	18	161	68	94	31	53	15	106	9	32	48	63	19	47	33	184	250	60
Italy																			
1995	672	27	149	100	295	1	79	45	454	2	175	41	167	27	43	28	119	339	16
2010	1,618	232	576	367	804	87	246	139	678	103	407	212	464	204	224	154	699	1,195	160
Netherlands																			
1995	317	20	74	47	216	4	45	12	257	5	77	16	70	16	17	25	131	267	34
2010	945	165	601	251	487	84	182	64	383	87	266	114	264	123	137	183	736	1,054	136
Poland																			
1995	166	2	17	13	133	0	25	2	274	0	48	3	56	12	25	12	30	112	11
2010	371	67	212	199	291	32	153	78	440	27	102	53	117	73	73	75	220	306	45
Portugal																			
1995	66	0	3	4	13	1	1	2	44	0	10	2	62	3	2	4	8	22	3
2010	175	44	100	67	79	9	37	22	109	18	45	47	285	51	60	45	106	123	24
Spain																			
1995	210	9	67	46	83	2	54	14	168	3	56	120	108	59	104	31	53	149	8
2010	928	142	411	277	551	67	185	125	492	80	292	521	534	377	594	140	497	905	94

Appendix table 5-41
Internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Iran	Israel	Argentina	Brazil	Chile	Mexico	South Africa	Australia	Canada	New Zealand
Sweden																			
1995	204	5	113	30	180	6	15	16	286	0	35	34	51	15	13	9	143	215	28
2010	578	80	641	198	442	71	140	69	370	62	140	95	178	73	90	150	511	653	82
United Kingdom																			
1995	702	91	353	212	718	65	83	38	444	17	241	36	264	49	80	158	763	898	182
2010	2,034	318	2,277	724	1,610	388	576	338	895	262	524	260	732	297	337	670	2,854	2,775	659
Norway																			
1995	93	3	17	7	55	2	4	3	106	1	23	5	40	2	2	9	26	62	12
2010	224	39	172	73	138	24	40	25	178	18	77	20	68	21	24	88	187	300	47
Switzerland																			
1995	na	18	72	53	217	16	40	13	254	2	124	14	73	12	28	21	87	206	23
2010	na	134	456	204	553	76	232	139	400	61	184	85	205	71	99	155	561	825	123
Turkey																			
1995	18	na	4	0	18	0	2	1	17	2	17	2	1	0	0	3	3	16	0
2010	134	na	93	59	89	18	52	30	72	53	69	20	34	12	32	35	65	129	18
China																			
1995	72	4	na	47	415	42	67	72	68	1	14	4	26	3	9	6	161	234	12
2010	456	93	na	362	2,493	1,179	1,081	789	406	67	140	92	222	51	140	127	1,815	1,811	174
India																			
1995	53	0	47	na	109	15	32	19	65	0	7	3	31	2	20	8	48	111	12
2010	204	59	362	na	559	119	557	225	252	69	109	78	196	44	132	91	330	398	35
Japan																			
1995	217	18	415	109	na	34	305	98	285	8	117	12	64	5	18	21	225	516	48
2010	553	89	2,493	559	na	191	1,276	598	543	84	165	70	196	93	104	117	694	865	134
Singapore																			
1995	16	0	42	15	34	na	4	15	2	1	4	1	3	1	1	4	36	21	7
2010	76	18	1,179	119	191	na	157	107	29	22	33	9	33	8	13	11	404	187	62
South Korea																			
1995	40	2	67	32	305	4	na	23	102	2	21	1	17	1	15	2	21	49	2
2010	232	52	1,081	557	1,276	157	na	255	291	55	86	51	137	45	98	26	270	470	52
Taiwan																			
1995	13	1	72	19	98	15	23	na	25	2	6	2	4	0	2	5	15	52	0
2010	139	30	789	225	598	107	255	na	178	11	51	14	52	14	36	23	194	214	27
Russia																			
1995	254	17	68	65	285	2	102	25	na	2	135	3	77	6	65	20	85	205	10
2010	400	72	406	252	543	29	291	178	na	24	198	70	197	40	127	64	203	374	30
Iran																			
1995	2	2	1	0	8	1	2	2	2	na	0	0	0	0	0	0	6	7	0
2010	61	53	67	69	84	22	55	11	24	na	10	16	30	11	21	18	151	253	23
Israel																			
1995	124	17	14	7	117	4	21	6	135	0	na	10	35	7	16	27	73	180	18
2010	184	69	140	109	165	33	86	51	198	10	na	25	74	41	37	44	182	360	35
Argentina																			
1995	14	2	4	3	12	1	1	2	3	0	10	na	69	40	24	8	20	29	3
2010	85	20	92	78	70	9	51	14	70	16	25	na	380	162	133	46	95	199	23
Brazil																			
1995	73	1	26	31	64	3	17	4	77	0	35	69	na	29	47	13	25	125	8
2010	205	34	222	196	196	33	137	52	197	30	74	380	na	144	179	83	226	411	49
Chile																			
1995	12	0	3	2	5	1	1	0	6	0	7	40	29	na	22	7	13	28	3
2010	71	12	51	44	93	8	45	14	40	11	41	162	144	na	81	45	119	172	32

Appendix table 5-41

Internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Iran	Israel	Argentina	Brazil	Chile	Mexico	South Africa	Australia	Canada	New Zealand
Mexico																			
1995	28	0	9	20	18	1	15	2	65	0	16	24	47	22	na	6	16	54	7
2010	99	32	140	132	104	13	98	36	127	21	37	133	179	81	na	49	104	241	31
South Africa																			
1995	21	3	6	8	21	4	2	5	20	0	27	8	13	7	6	na	63	39	16
2010	155	35	127	91	117	11	26	23	64	18	44	46	83	45	49	na	277	191	56
Australia																			
1995	87	3	161	48	225	36	21	15	85	6	73	20	25	13	16	63	na	320	203
2010	561	65	1,815	330	694	404	270	194	203	151	182	95	226	119	104	277	na	1,184	789
Canada																			
1995	206	16	234	111	516	21	49	52	205	7	180	29	125	28	54	39	320	na	75
2010	825	129	1,811	398	865	187	470	214	374	253	360	199	411	172	241	191	1,184	na	272
New Zealand																			
1995	23	0	12	12	48	7	2	0	10	0	18	3	8	3	7	16	203	75	na
2010	123	18	174	35	134	62	52	27	30	23	35	23	49	32	31	56	789	272	na

na = not applicable

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year they entered database, rather than year of publication, and assigned to country/economy on basis of institutional address(es) listed on article. Articles on whole-count basis, i.e., each collaborating country/economy credited one count. Detail adds to more than world total because of articles with three or more country coauthors. Countries/economies with ≤1% of internationally coauthored articles in 2010 omitted.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

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Appendix table 5-42

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway
United States																			
1995	na	0.54	0.51	0.47	0.64	0.74	0.59	0.66	0.66	0.73	0.50	0.74	0.66	0.58	0.52	0.57	0.66	0.68	0.64
2010	na	0.60	0.57	0.55	0.72	0.67	0.64	0.71	0.82	0.64	0.68	0.78	0.72	0.64	0.46	0.65	0.68	0.75	0.67
Austria																			
1995	0.54	na	0.90	2.82	1.18	1.33	0.58	1.97	2.19	2.19	0.40	0.88	0.98	1.57	2.47	0.96	0.79	0.58	1.07
2010	0.60	na	1.38	2.40	1.14	1.33	1.02	2.19	1.37	2.58	0.99	1.45	1.24	1.76	0.99	1.19	1.38	0.87	1.18
Belgium																			
1995	0.51	0.90	na	1.59	1.08	1.02	1.65	0.77	1.92	0.93	1.19	0.99	2.41	1.24	2.33	1.12	1.06	0.79	0.99
2010	0.57	1.38	na	1.56	1.31	1.18	1.79	1.05	1.73	1.75	1.06	1.38	2.85	1.66	1.23	1.38	1.19	1.06	1.01
Czech Republic																			
1995	0.47	2.82	1.59	na	1.28	1.62	1.10	1.23	2.45	0.97	0.50	1.17	1.13	1.96	3.11	1.15	1.20	0.67	1.77
2010	0.55	2.40	1.56	na	1.16	1.74	1.31	1.40	1.97	2.95	1.79	1.29	1.14	3.93	1.52	1.14	1.60	0.93	1.35
Denmark																			
1995	0.64	1.18	1.08	1.28	na	2.73	0.63	0.87	2.49	0.35	0.93	0.87	1.35	1.15	2.48	1.24	3.29	1.02	4.84
2010	0.72	1.14	1.31	1.16	na	3.02	0.98	1.16	1.54	1.37	1.20	1.15	1.61	1.32	1.12	1.17	3.54	1.15	4.35
Finland																			
1995	0.74	1.33	1.02	1.62	2.73	na	0.67	0.80	2.27	2.15	1.01	0.77	1.31	1.29	2.93	1.17	3.45	0.68	3.46
2010	0.67	1.33	1.18	1.74	3.02	na	0.96	1.12	1.78	2.64	1.48	1.28	1.56	1.76	1.12	1.23	3.97	1.14	3.57
France																			
1995	0.59	0.58	1.65	1.10	0.63	0.67	na	0.74	1.39	0.77	0.72	1.04	0.82	1.11	1.60	1.30	0.58	0.71	0.70
2010	0.64	1.02	1.79	1.31	0.98	0.96	na	0.98	1.41	1.19	0.97	1.46	1.12	1.44	1.18	1.39	0.95	0.93	0.97
Germany																			
1995	0.66	1.97	0.77	1.23	0.87	0.80	0.74	na	1.12	1.22	0.59	0.75	0.97	1.18	1.02	0.75	0.73	0.64	0.63
2010	0.71	2.19	1.05	1.40	1.16	1.12	0.98	na	1.23	1.42	0.95	1.10	1.37	1.41	0.82	0.97	1.08	0.93	0.92
Greece																			
1995	0.66	2.19	1.92	2.45	2.49	2.27	1.39	1.12	na	0.88	1.16	1.31	1.12	1.52	4.97	1.76	1.16	1.29	2.50
2010	0.82	1.37	1.73	1.97	1.54	1.78	1.41	1.23	na	1.80	1.26	1.82	1.48	2.09	1.55	1.82	1.52	1.41	1.47
Hungary																			
1995	0.73	2.19	0.93	0.97	0.35	2.15	0.77	1.22	0.88	na	0.70	0.83	0.95	0.62	1.04	0.48	0.71	0.66	0.49
2010	0.64	2.58	1.75	2.95	1.37	2.64	1.19	1.42	1.80	na	1.16	1.48	1.14	3.14	1.42	1.34	1.67	1.05	1.36
Ireland																			
1995	0.50	0.40	1.19	0.50	0.93	1.01	0.72	0.59	1.16	0.70	na	0.73	1.22	0.27	2.32	0.90	0.49	2.13	0.54
2010	0.68	0.99	1.06	1.79	1.20	1.48	0.97	0.95	1.26	1.16	na	0.96	1.46	1.37	1.12	1.29	1.89	1.93	1.07
Italy																			
1995	0.74	0.88	0.99	1.17	0.87	0.77	1.04	0.75	1.31	0.83	0.73	na	0.94	1.09	1.57	1.27	0.70	0.85	0.71
2010	0.78	1.45	1.38	1.29	1.15	1.28	1.46	1.10	1.82	1.48	0.96	na	1.37	1.37	1.22	1.83	1.20	1.13	1.00
Netherlands																			
1995	0.66	0.98	2.41	1.13	1.35	1.31	0.82	0.97	1.12	0.95	1.22	0.94	na	0.89	1.85	1.06	0.87	1.06	1.29
2010	0.72	1.24	2.85	1.14	1.61	1.56	1.12	1.37	1.48	1.14	1.46	1.37	na	1.25	1.16	1.28	1.42	1.34	1.62
Poland																			
1995	0.58	1.57	1.24	1.96	1.15	1.29	1.11	1.18	1.52	0.62	0.27	1.09	0.89	na	1.72	0.95	1.23	0.58	1.19
2010	0.64	1.76	1.66	3.93	1.32	1.76	1.44	1.41	2.09	3.14	1.37	1.37	1.25	na	1.44	1.36	1.47	0.97	1.23
Portugal																			
1995	0.52	2.47	2.33	3.11	2.48	2.93	1.60	1.02	4.97	1.04	2.32	1.57	1.85	1.72	na	2.94	1.80	1.52	3.34
2010	0.46	0.99	1.23	1.52	1.12	1.12	1.18	0.82	1.55	1.42	1.12	1.22	1.16	1.44	na	3.13	1.10	1.02	1.17
Spain																			
1995	0.57	0.96	1.12	1.15	1.24	1.17	1.30	0.75	1.76	0.48	0.90	1.27	1.06	0.95	2.94	na	0.66	0.97	0.90
2010	0.65	1.19	1.38	1.14	1.17	1.23	1.39	0.97	1.82	1.34	1.29	1.83	1.28	1.36	3.13	na	1.20	1.07	1.11
Sweden																			
1995	0.66	0.79	1.06	1.20	3.29	3.45	0.58	0.73	1.16	0.71	0.49	0.70	0.87	1.23	1.80	0.66	na	0.63	4.30
2010	0.68	1.38	1.19	1.60	3.54	3.97	0.95	1.08	1.52	1.67	1.89	1.20	1.42	1.47	1.10	1.20	na	1.18	4.16

Appendix table 5-42

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway
United Kingdom																			
1995	0.68	0.58	0.79	0.67	1.02	0.68	0.71	0.64	1.29	0.66	2.13	0.85	1.06	0.58	1.52	0.97	0.63	na	0.84
2010	0.75	0.87	1.06	0.93	1.15	1.14	0.93	0.93	1.41	1.05	1.93	1.13	1.34	0.97	1.02	1.07	1.18	na	1.18
Norway																			
1995	0.64	1.07	0.99	1.77	4.84	3.46	0.70	0.63	2.50	0.49	0.54	0.71	1.29	1.19	3.34	0.90	4.30	0.84	na
2010	0.67	1.18	1.01	1.35	4.35	3.57	0.97	0.92	1.47	1.36	1.07	1.00	1.62	1.23	1.17	1.11	4.16	1.18	na
Switzerland																			
1995	0.67	1.54	1.12	1.21	1.07	1.06	1.22	1.40	1.70	1.25	0.81	1.48	0.99	0.97	1.63	0.83	0.75	0.78	1.08
2010	0.72	2.02	1.23	1.22	1.14	1.11	1.33	1.73	1.14	1.10	0.90	1.53	1.21	1.24	0.82	1.02	1.06	0.96	0.94
Turkey																			
1995	0.63	0.18	0.68	0.26	0.68	0.09	0.33	0.84	0.68	0.13	0.27	0.61	0.64	0.12	0.00	0.37	0.19	1.04	0.36
2010	0.94	1.16	1.14	1.54	0.85	1.22	0.76	0.77	2.34	1.85	0.57	1.11	1.08	1.14	1.05	0.79	0.74	0.77	0.83
China																			
1995	0.83	0.72	0.37	0.11	0.49	0.43	0.42	0.59	0.82	0.60	0.26	0.55	0.39	0.17	0.12	0.44	0.70	0.66	0.33
2010	1.05	0.31	0.32	0.45	0.33	0.39	0.39	0.44	0.29	0.35	0.46	0.25	0.36	0.33	0.22	0.21	0.55	0.50	0.34
India																			
1995	0.83	0.32	0.31	0.27	0.51	0.57	0.61	0.67	0.25	0.94	0.08	0.68	0.45	0.23	0.30	0.56	0.34	0.73	0.25
2010	0.78	0.62	0.52	1.44	0.44	0.58	0.74	0.76	0.95	0.88	0.79	0.65	0.60	1.25	0.59	0.57	0.68	0.64	0.57
Japan																			
1995	1.04	0.31	0.29	0.37	0.35	0.51	0.37	0.51	0.30	0.48	0.34	0.42	0.43	0.50	0.21	0.21	0.43	0.52	0.41
2010	0.86	0.64	0.47	0.81	0.46	0.70	0.64	0.61	0.58	0.74	0.43	0.57	0.47	0.73	0.28	0.45	0.60	0.57	0.43
Singapore																			
1995	0.64	0.23	0.14	0.00	0.18	0.63	0.20	0.21	0.22	0.52	0.00	0.03	0.17	0.00	0.33	0.11	0.30	0.98	0.31
2010	0.72	0.26	0.31	0.25	0.47	0.54	0.31	0.32	0.36	0.20	0.63	0.27	0.36	0.35	0.14	0.24	0.43	0.61	0.33
South Korea																			
1995	1.39	0.65	0.12	0.15	0.52	0.56	0.38	0.44	1.00	0.82	0.00	0.66	0.53	0.55	0.09	0.81	0.21	0.35	0.18
2010	1.25	0.34	0.28	0.89	0.26	0.46	0.38	0.41	0.64	0.47	0.46	0.32	0.33	0.72	0.24	0.28	0.36	0.38	0.24
Taiwan																			
1995	1.59	0.08	0.05	0.06	0.06	0.62	0.18	0.18	0.16	0.67	0.00	0.48	0.18	0.06	0.24	0.27	0.28	0.20	0.17
2010	1.19	0.57	0.19	0.82	0.18	0.92	0.42	0.40	0.89	0.45	0.26	0.37	0.23	0.73	0.29	0.38	0.35	0.45	0.29
Russia																			
1995	0.52	0.64	0.66	1.58	0.80	1.48	0.85	1.19	0.96	0.69	0.56	0.89	0.71	1.41	0.96	0.59	0.94	0.44	1.09
2010	0.63	0.98	0.84	2.22	0.57	2.15	1.24	1.56	1.32	1.66	1.09	1.06	0.82	2.45	0.85	0.90	1.12	0.70	1.25
Iran																			
1995	1.04	0.38	0.23	0.57	0.00	0.00	0.24	0.44	0.00	0.57	0.00	0.20	0.70	0.00	0.00	0.53	0.00	0.85	0.52
2010	0.53	0.53	0.60	0.69	0.64	0.55	0.50	0.52	0.62	0.59	0.33	0.58	0.67	0.54	0.51	0.53	0.68	0.75	0.46
Israel																			
1995	1.28	0.33	0.39	0.33	0.38	0.32	0.61	0.78	0.30	0.40	0.19	0.71	0.44	0.52	0.45	0.41	0.24	0.50	0.49
2010	1.25	0.84	0.87	1.02	0.78	0.71	0.82	1.02	0.95	1.45	0.53	1.03	0.92	0.92	0.57	0.86	0.69	0.67	0.87
Argentina																			
1995	0.72	0.51	0.51	0.42	0.44	0.61	0.88	0.63	0.65	0.34	0.52	0.60	0.33	0.12	0.33	3.14	0.84	0.27	0.38
2010	0.82	0.70	0.70	1.49	0.49	0.48	1.00	0.70	0.65	0.98	1.37	0.92	0.68	0.82	1.02	2.64	0.80	0.57	0.39
Brazil																			
1995	0.89	0.82	0.99	1.25	0.66	0.88	0.96	0.51	1.48	0.29	0.34	0.95	0.56	0.84	3.93	1.10	0.49	0.76	1.19
2010	0.92	0.65	0.72	1.23	0.57	0.72	1.09	0.66	0.65	0.88	0.78	0.88	0.68	0.79	2.68	1.17	0.65	0.70	0.57
Chile																			
1995	0.96	0.08	0.95	0.00	0.19	0.52	0.67	0.70	0.46	0.72	0.49	0.56	0.47	0.66	0.69	2.18	0.52	0.51	0.22
2010	0.90	0.59	1.07	0.49	0.86	0.48	1.29	1.03	0.81	0.44	0.68	1.11	0.91	1.41	1.38	2.38	0.77	0.81	0.51
Mexico																			
1995	0.97	0.20	0.28	1.01	0.12	0.26	0.82	0.29	0.23	0.24	0.49	0.44	0.25	0.68	0.23	1.91	0.22	0.42	0.11
2010	1.03	0.57	0.71	1.81	0.40	0.63	0.88	0.58	1.07	0.88	1.12	0.82	0.68	0.95	1.09	2.52	0.64	0.62	0.39

Appendix table 5-42

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway
South Africa																			
1995	0.74	1.04	0.87	0.64	0.56	0.59	0.38	0.73	1.05	0.27	0.56	0.44	0.56	0.50	0.70	0.87	0.24	1.26	0.74
2010	0.85	0.85	1.13	0.97	1.15	0.70	0.85	0.67	0.59	1.65	0.89	0.63	1.03	1.10	0.92	0.67	1.20	1.38	1.62
Australia																			
1995	0.80	0.50	0.38	0.32	0.56	0.24	0.37	0.52	0.14	0.19	0.42	0.32	0.51	0.22	0.24	0.26	0.65	1.05	0.37
2010	0.75	0.71	0.61	0.61	0.88	0.82	0.58	0.60	0.36	0.50	0.97	0.56	0.81	0.63	0.43	0.47	0.80	1.16	0.67
Canada																			
1995	1.16	0.28	0.37	0.43	0.42	0.50	0.60	0.37	0.48	0.37	0.63	0.43	0.48	0.37	0.31	0.34	0.46	0.57	0.41
2010	1.16	0.62	0.63	0.50	0.76	0.79	0.78	0.59	0.64	0.52	0.93	0.68	0.81	0.62	0.35	0.60	0.72	0.79	0.76
New Zealand																			
1995	0.76	0.41	0.41	0.41	0.56	0.35	0.24	0.50	0.44	0.14	0.14	0.19	0.57	0.34	0.40	0.17	0.56	1.09	0.75
2010	0.80	0.73	0.79	0.40	0.90	0.88	0.55	0.50	0.43	0.66	1.48	0.60	0.70	0.60	0.45	0.41	0.60	1.24	0.79

Appendix table 5-42

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Iran	Israel	Argentina	Brazil	Chile	Mexico	South Africa	Australia	Canada	New Zealand
United States																			
1995	0.67	0.63	0.83	0.83	1.04	0.64	1.39	1.59	0.52	1.04	1.28	0.72	0.89	0.96	0.97	0.74	0.80	1.16	0.76
2010	0.72	0.94	1.05	0.78	0.86	0.72	1.25	1.19	0.63	0.53	1.25	0.82	0.92	0.90	1.03	0.85	0.75	1.16	0.80
Austria																			
1995	1.54	0.18	0.72	0.32	0.31	0.23	0.65	0.08	0.64	0.38	0.33	0.51	0.82	0.08	0.20	1.04	0.50	0.28	0.41
2010	2.02	1.16	0.31	0.62	0.64	0.26	0.34	0.57	0.98	0.53	0.84	0.70	0.65	0.59	0.57	0.85	0.71	0.62	0.73
Belgium																			
1995	1.12	0.68	0.37	0.31	0.29	0.14	0.12	0.05	0.66	0.23	0.39	0.51	0.99	0.95	0.28	0.87	0.38	0.37	0.41
2010	1.23	1.14	0.32	0.52	0.47	0.31	0.28	0.19	0.84	0.60	0.87	0.70	0.72	1.07	0.71	1.13	0.61	0.63	0.79
Czech Republic																			
1995	1.21	0.26	0.11	0.27	0.37	0.00	0.15	0.06	1.58	0.57	0.33	0.42	1.25	0.00	1.01	0.64	0.32	0.43	0.41
2010	1.22	1.54	0.45	1.44	0.81	0.25	0.89	0.82	2.22	0.69	1.02	1.49	1.23	0.49	1.81	0.97	0.61	0.50	0.40
Denmark																			
1995	1.07	0.68	0.49	0.51	0.35	0.18	0.52	0.06	0.80	0.00	0.38	0.44	0.66	0.19	0.12	0.56	0.56	0.42	0.56
2010	1.14	0.85	0.33	0.44	0.46	0.47	0.26	0.18	0.57	0.64	0.78	0.49	0.57	0.86	0.40	1.15	0.88	0.76	0.90
Finland																			
1995	1.06	0.09	0.43	0.57	0.51	0.63	0.56	0.62	1.48	0.00	0.32	0.61	0.88	0.52	0.26	0.59	0.24	0.50	0.35
2010	1.11	1.22	0.39	0.58	0.70	0.54	0.46	0.92	2.15	0.55	0.71	0.48	0.72	0.48	0.63	0.70	0.82	0.79	0.88
France																			
1995	1.22	0.33	0.42	0.61	0.37	0.20	0.38	0.18	0.85	0.24	0.61	0.88	0.96	0.67	0.82	0.38	0.37	0.60	0.24
2010	1.33	0.76	0.39	0.74	0.64	0.31	0.38	0.42	1.24	0.50	0.82	1.00	1.09	1.29	0.88	0.85	0.58	0.78	0.55
Germany																			
1995	1.40	0.84	0.59	0.67	0.51	0.21	0.44	0.18	1.19	0.44	0.78	0.63	0.51	0.70	0.29	0.73	0.52	0.37	0.50
2010	1.73	0.77	0.44	0.76	0.61	0.32	0.41	0.40	1.56	0.52	1.02	0.70	0.66	1.03	0.58	0.67	0.60	0.59	0.50
Greece																			
1995	1.70	0.68	0.82	0.25	0.30	0.22	1.00	0.16	0.96	0.00	0.30	0.65	1.48	0.46	0.23	1.05	0.14	0.48	0.44
2010	1.14	2.34	0.29	0.95	0.58	0.36	0.64	0.89	1.32	0.62	0.95	0.65	0.65	0.81	1.07	0.59	0.36	0.64	0.43
Hungary																			
1995	1.25	0.13	0.60	0.94	0.48	0.52	0.82	0.67	0.69	0.57	0.40	0.34	0.29	0.72	0.24	0.27	0.19	0.37	0.14
2010	1.10	1.85	0.35	0.88	0.74	0.20	0.47	0.45	1.66	0.59	1.45	0.98	0.88	0.44	0.88	1.65	0.50	0.52	0.66
Ireland																			
1995	0.81	0.27	0.26	0.08	0.34	0.00	0.00	0.00	0.56	0.00	0.19	0.52	0.34	0.49	0.49	0.56	0.42	0.63	0.14
2010	0.90	0.57	0.46	0.79	0.43	0.63	0.46	0.26	1.09	0.33	0.53	1.37	0.78	0.68	1.12	0.89	0.97	0.93	1.48
Italy																			
1995	1.48	0.61	0.55	0.68	0.42	0.03	0.66	0.48	0.89	0.20	0.71	0.60	0.95	0.56	0.44	0.44	0.32	0.43	0.19
2010	1.53	1.11	0.25	0.65	0.57	0.27	0.32	0.37	1.06	0.58	1.03	0.92	0.88	1.11	0.82	0.63	0.56	0.68	0.60
Netherlands																			
1995	0.99	0.64	0.39	0.45	0.43	0.17	0.53	0.18	0.71	0.70	0.44	0.33	0.56	0.47	0.25	0.56	0.51	0.48	0.57
2010	1.21	1.08	0.36	0.60	0.47	0.36	0.33	0.23	0.82	0.67	0.92	0.68	0.68	0.91	0.68	1.03	0.81	0.81	0.70
Poland																			
1995	0.97	0.12	0.17	0.23	0.50	0.00	0.55	0.06	1.41	0.00	0.52	0.12	0.84	0.66	0.68	0.50	0.22	0.37	0.34
2010	1.24	1.14	0.33	1.25	0.73	0.35	0.72	0.73	2.45	0.54	0.92	0.82	0.79	1.41	0.95	1.10	0.63	0.62	0.60
Portugal																			
1995	1.63	0.00	0.12	0.30	0.21	0.33	0.09	0.24	0.96	0.00	0.45	0.33	3.93	0.69	0.23	0.70	0.24	0.31	0.40
2010	0.82	1.05	0.22	0.59	0.28	0.14	0.24	0.29	0.85	0.51	0.57	1.02	2.68	1.38	1.09	0.92	0.43	0.35	0.45
Spain																			
1995	0.83	0.37	0.44	0.56	0.21	0.11	0.81	0.27	0.59	0.53	0.41	3.14	1.10	2.18	1.91	0.87	0.26	0.34	0.17
2010	1.02	0.79	0.21	0.57	0.45	0.24	0.28	0.38	0.90	0.53	0.86	2.64	1.17	2.38	2.52	0.67	0.47	0.60	0.41
Sweden																			
1995	0.75	0.19	0.70	0.34	0.43	0.30	0.21	0.28	0.94	0.00	0.24	0.84	0.49	0.52	0.22	0.24	0.65	0.46	0.56
2010	1.06	0.74	0.55	0.68	0.60	0.43	0.36	0.35	1.12	0.68	0.69	0.80	0.65	0.77	0.64	1.20	0.80	0.72	0.60

Appendix table 5-42

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Iran	Israel	Argentina	Brazil	Chile	Mexico	South Africa	Australia	Canada	New Zealand
United Kingdom																			
1995	0.78	1.04	0.66	0.73	0.52	0.98	0.35	0.20	0.44	0.85	0.50	0.27	0.76	0.51	0.42	1.26	1.05	0.57	1.09
2010	0.96	0.77	0.50	0.64	0.57	0.61	0.38	0.45	0.70	0.75	0.67	0.57	0.70	0.81	0.62	1.38	1.16	0.79	1.24
Norway																			
1995	1.08	0.36	0.33	0.25	0.41	0.31	0.18	0.17	1.09	0.52	0.49	0.38	1.19	0.22	0.11	0.74	0.37	0.41	0.75
2010	0.94	0.83	0.34	0.57	0.43	0.33	0.24	0.29	1.25	0.46	0.87	0.39	0.57	0.51	0.39	1.62	0.67	0.76	0.79
Switzerland																			
1995	na	0.62	0.40	0.54	0.47	0.72	0.51	0.21	0.75	0.30	0.76	0.31	0.63	0.38	0.44	0.50	0.36	0.40	0.41
2010	na	0.99	0.31	0.55	0.60	0.36	0.47	0.57	0.97	0.53	0.72	0.57	0.60	0.60	0.56	0.98	0.70	0.72	0.71
Turkey																			
1995	0.62	na	0.23	0.00	0.40	0.00	0.26	0.17	0.52	3.07	1.08	0.46	0.09	0.00	0.00	0.74	0.13	0.32	0.00
2010	0.99	na	0.32	0.82	0.49	0.44	0.54	0.62	0.88	2.36	1.37	0.68	0.50	0.51	0.92	1.13	0.41	0.57	0.53
China																			
1995	0.40	0.23	na	0.81	1.49	3.18	1.42	1.93	0.34	0.25	0.14	0.15	0.37	0.16	0.23	0.24	1.11	0.75	0.36
2010	0.31	0.32	na	0.46	1.26	2.64	1.03	1.50	0.46	0.27	0.26	0.29	0.30	0.20	0.37	0.38	1.06	0.74	0.47
India																			
1995	0.54	0.00	0.81	na	0.72	2.09	1.25	0.94	0.59	0.00	0.13	0.20	0.82	0.19	0.96	0.59	0.61	0.66	0.66
2010	0.55	0.82	0.46	na	1.13	1.07	2.12	1.71	1.14	1.13	0.80	0.98	1.07	0.69	1.39	1.08	0.77	0.65	0.38
Japan																			
1995	0.47	0.40	1.49	0.72	na	0.99	2.49	1.01	0.54	0.77	0.46	0.17	0.35	0.10	0.18	0.32	0.60	0.64	0.55
2010	0.60	0.49	1.26	1.13	na	0.68	1.94	1.81	0.98	0.55	0.48	0.35	0.43	0.58	0.44	0.55	0.64	0.56	0.58
Singapore																			
1995	0.72	0.00	3.18	2.09	0.99	na	0.69	3.26	0.08	2.02	0.33	0.30	0.35	0.42	0.21	1.29	2.01	0.55	1.70
2010	0.36	0.44	2.64	1.07	0.68	na	1.05	1.44	0.23	0.64	0.43	0.20	0.32	0.22	0.24	0.23	1.66	0.54	1.19
South Korea																			
1995	0.51	0.26	1.42	1.25	2.49	0.69	na	1.40	1.14	1.13	0.49	0.08	0.55	0.12	0.89	0.18	0.33	0.36	0.14
2010	0.47	0.54	1.03	2.12	1.94	1.05	na	1.45	0.98	0.67	0.47	0.48	0.56	0.53	0.77	0.23	0.47	0.58	0.42
Taiwan																			
1995	0.21	0.17	1.93	0.94	1.01	3.26	1.40	na	0.35	1.43	0.18	0.21	0.17	0.00	0.15	0.57	0.30	0.48	0.00
2010	0.57	0.62	1.50	1.71	1.81	1.44	1.45	na	1.20	0.27	0.56	0.26	0.42	0.33	0.57	0.41	0.68	0.52	0.44
Russia																			
1995	0.75	0.52	0.34	0.59	0.54	0.08	1.14	0.35	na	0.26	0.73	0.06	0.58	0.17	0.89	0.42	0.31	0.35	0.16
2010	0.97	0.88	0.46	1.14	0.98	0.23	0.98	1.20	na	0.35	1.29	0.78	0.95	0.56	1.19	0.68	0.42	0.54	0.29
Iran																			
1995	0.30	3.07	0.25	0.00	0.77	2.02	1.13	1.43	0.26	na	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.60	0.00
2010	0.53	2.36	0.27	1.13	0.55	0.64	0.67	0.27	0.35	na	0.24	0.65	0.53	0.56	0.71	0.69	1.13	1.33	0.80
Israel																			
1995	0.76	1.08	0.14	0.13	0.46	0.33	0.49	0.18	0.73	0.00	na	0.41	0.55	0.40	0.46	1.19	0.56	0.64	0.59
2010	0.72	1.37	0.26	0.80	0.48	0.43	0.47	0.56	1.29	0.24	na	0.45	0.58	0.93	0.56	0.75	0.61	0.85	0.55
Argentina																			
1995	0.31	0.46	0.15	0.20	0.17	0.30	0.08	0.21	0.06	0.00	0.41	na	3.93	8.32	2.48	1.27	0.55	0.37	0.36
2010	0.57	0.68	0.29	0.98	0.35	0.20	0.48	0.26	0.78	0.65	0.45	na	5.12	6.27	3.46	1.35	0.55	0.80	0.62
Brazil																			
1995	0.63	0.09	0.37	0.82	0.35	0.35	0.55	0.17	0.58	0.00	0.55	3.93	na	2.34	1.88	0.80	0.27	0.62	0.37
2010	0.60	0.50	0.30	1.07	0.43	0.32	0.56	0.42	0.95	0.53	0.58	5.12	na	2.42	2.02	1.06	0.56	0.72	0.57
Chile																			
1995	0.38	0.00	0.16	0.19	0.10	0.42	0.12	0.00	0.17	0.00	0.40	8.32	2.34	na	3.21	1.56	0.50	0.50	0.50
2010	0.60	0.51	0.20	0.69	0.58	0.22	0.53	0.33	0.56	0.56	0.93	6.27	2.42	na	2.63	1.65	0.85	0.87	1.07
Mexico																			
1995	0.44	0.00	0.23	0.96	0.18	0.21	0.89	0.15	0.89	0.00	0.46	2.48	1.88	3.21	na	0.67	0.31	0.48	0.58
2010	0.56	0.92	0.37	1.39	0.44	0.24	0.77	0.57	1.19	0.71	0.56	3.46	2.02	2.63	na	1.20	0.50	0.82	0.70

Appendix table 5-42

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1995 and 2010

Country/economy and year	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Iran	Israel	Argentina	Brazil	Chile	Mexico	South Africa	Australia	Canada	New Zealand
South Africa																			
1995	0.50	0.74	0.24	0.59	0.32	1.29	0.18	0.57	0.42	0.00	1.19	1.27	0.80	1.56	0.67	na	1.86	0.53	2.04
2010	0.98	1.13	0.38	1.08	0.55	0.23	0.23	0.41	0.68	0.69	0.75	1.35	1.06	1.65	1.20	na	1.50	0.73	1.42
Australia																			
1995	0.36	0.13	1.11	0.61	0.60	2.01	0.33	0.30	0.31	1.11	0.56	0.55	0.27	0.50	0.31	1.86	na	0.76	4.49
2010	0.70	0.41	1.06	0.77	0.64	1.66	0.47	0.68	0.42	1.13	0.61	0.55	0.56	0.85	0.50	1.50	na	0.89	3.92
Canada																			
1995	0.40	0.32	0.75	0.66	0.64	0.55	0.36	0.48	0.35	0.60	0.64	0.37	0.62	0.50	0.48	0.53	0.76	na	0.77
2010	0.72	0.57	0.74	0.65	0.56	0.54	0.58	0.52	0.54	1.33	0.85	0.80	0.72	0.87	0.82	0.73	0.89	na	0.95
New Zealand																			
1995	0.41	0.00	0.36	0.66	0.55	1.70	0.14	0.00	0.16	0.00	0.59	0.36	0.37	0.50	0.58	2.04	4.49	0.77	na
2010	0.71	0.53	0.47	0.38	0.58	1.19	0.42	0.44	0.29	0.80	0.55	0.62	0.57	1.07	0.70	1.42	3.92	0.95	na

na = not applicable

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year they entered database, rather than year of publication, and assigned to country/economy on basis of institutional address(es) listed on article. Articles on whole-count basis, i.e., each collaborating country/economy credited one count. Countries/economies with ≤1% of internationally coauthored articles in 2010 omitted.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-43
U.S. S&E articles, by field and sector: 1995–2010

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All fields	194,255	192,790	189,477	189,813	190,390	188,125	193,066	187,400	202,475	192,913	214,557	207,874	204,307	221,913	214,350	203,053
Federal government	15,295	14,745	14,090	13,938	13,722	13,566	13,816	13,250	13,987	13,157	14,243	13,624	13,143	14,111	13,071	12,363
Industry	15,790	14,941	14,116	13,993	14,178	13,758	13,970	13,391	14,310	13,096	13,631	13,190	12,523	13,503	12,790	11,813
Academic	139,039	139,239	137,571	138,132	138,391	137,030	140,799	137,330	148,703	142,491	160,112	156,085	154,085	167,795	162,999	154,607
FFRDCs	5,498	5,217	5,221	5,104	5,229	5,051	5,264	4,879	5,727	5,359	6,007	5,654	5,389	5,694	5,346	4,953
Private nonprofit	15,599	15,427	15,291	15,220	15,674	15,935	16,356	15,623	16,755	16,192	17,608	17,004	16,887	18,509	17,975	17,380
State/local government	1,892	1,823	1,808	1,847	1,814	1,763	1,881	1,816	1,836	1,774	1,984	1,930	1,871	1,936	1,887	1,748
Joint sectors	4	1	1	2	5	13	18	16	15	29	36	23	17	8	2	1
Unknown sector	1,138	1,397	1,380	1,576	1,378	1,008	964	1,095	1,141	814	938	364	393	357	280	188
Engineering	12,636	11,702	11,760	11,815	12,312	11,637	12,560	12,475	13,467	12,671	14,455	14,347	14,048	15,140	15,299	13,823
Federal government	1,024	845	908	859	893	814	886	844	885	827	952	869	772	868	878	695
Industry	2,669	2,407	2,342	2,359	2,411	2,316	2,287	2,227	2,384	1,916	2,091	2,052	1,903	1,973	2,015	1,653
Academic	7,857	7,434	7,292	7,448	7,817	7,420	8,203	8,261	8,925	8,783	10,119	10,294	10,129	11,130	11,139	10,489
FFRDCs	750	712	889	807	782	760	913	733	892	820	936	838	980	834	986	711
Private nonprofit	222	165	181	183	189	211	161	156	176	203	194	185	177	221	197	199
State/local government	45	33	37	35	96	33	33	163	93	60	87	84	57	92	68	65
Joint sectors	0	0	0	0	0	1	1	1	1	3	2	1	0 *	0	0	0
Unknown sector	69	106	111	124	124	82	76	90	111	59	76	25	29	20	15	11
Astronomy	2,483	2,651	2,557	1,932	2,829	2,566	2,697	2,996	2,719	2,874	2,853	2,885	2,805	2,981	3,421	2,876
Federal government	256	270	295	207	306	264	252	229	191	220	208	201	184	241	243	207
Industry	63	48	51	54	58	57	54	68	55	38	46	42	52	79	78	50
Academic	1,613	1,701	1,656	1,256	1,811	1,602	1,747	1,947	1,810	1,877	1,854	1,914	1,895	1,954	2,317	1,946
FFRDCs	246	287	235	183	264	271	274	282	270	303	308	310	311	313	327	281
Private nonprofit	289	331	307	221	369	346	348	439	364	404	409	394	341	375	435	377
State/local government	0	1	0	0 *	0 *	0 *	0	0	0	0 *	0	0	0 *	0	0	0 *
Joint sectors	0	0	0	0	0	0	1	0	0	1	2	1	1	0	0	0
Unknown sector	16	13	13	9	21	26	21	30	29	29	27	23	21	19	22	15
Chemistry	14,915	15,219	14,375	14,414	14,491	14,560	14,342	14,043	15,763	15,110	17,138	16,266	15,268	16,684	17,064	16,977
Federal government	766	764	698	650	607	614	655	647	673	669	702	632	599	629	624	597
Industry	2,438	2,357	2,031	1,849	1,955	1,818	1,760	1,830	2,126	2,102	1,947	1,944	1,793	1,861	1,754	1,675
Academic	10,732	11,031	10,668	10,914	10,848	10,998	10,855	10,566	11,823	11,181	13,134	2,521	11,761	12,838	13,313	13,365
FFRDCs	651	694	647	636	676	715	705	639	749	773	986	811	782	906	918	952
Private nonprofit	277	299	271	290	331	348	312	306	320	320	310	318	293	404	415	364
State/local government	26	27	29	27	27	35	26	21	26	24	22	25	17	23	26	17
Joint sectors	0	0	0	0	0	1	1	0	1	0 *	1	1	1	0	0	0
Unknown sector	26	45	32	49	46	31	28	35	46	41	36	14	21	22	16	7
Physics	19,692	18,890	18,037	17,951	18,061	16,888	17,376	17,288	18,643	17,642	20,540	19,787	18,209	20,696	18,551	17,632
Federal government	1,195	1,023	991	992	1,071	884	942	903	978	941	913	925	845	922	762	728
Industry	2,237	2,182	1,815	1,884	1,807	1,679	1,814	1,652	1,773	1,585	1,568	1,556	1,316	1,398	1,284	1,117
Academic	13,606	13,309	12,903	12,719	12,728	12,095	12,307	12,411	13,228	12,753	15,417	14,714	13,778	15,892	14,387	13,714
FFRDCs	2,380	2,078	2,042	2,093	2,174	1,994	2,077	2,053	2,392	2,127	2,370	2,335	2,030	2,210	1,877	1,845
Private nonprofit	210	229	202	161	197	194	187	210	215	187	225	223	210	247	222	211
State/local government	5	6	7	5	4	2	6	2	2	7	4	7	5	5	5	6
Joint sectors	0 *	0	0	1	1	1	0 *	0	2	1	3	3	2	0 *	0	0
Unknown sector	58	63	78	96	79	38	44	58	54	41	40	24	22	21	14	10
Geosciences	9,841	9,918	9,237	9,835	9,891	9,787	10,081	9,227	11,499	10,447	11,120	11,361	11,223	12,472	11,993	11,311
Federal government	1,516	1,478	1,294	1,415	1,405	1,401	1,402	1,357	1,625	1,426	1,504	1,482	1,484	1,682	1,594	1,440
Industry	684	611	638	617	639	555	660	561	577	560	564	592	602	639	599	588
Academic	6,410	6,607	6,183	6,526	6,563	6,590	6,714	6,174	7,839	7,194	7,773	8,026	7,859	8,700	8,536	8,063
FFRDCs	504	510	480	508	517	495	498	411	631	498	497	506	475	605	492	459
Private nonprofit	461	437	399	467	478	471	502	450	506	503	497	507	519	574	543	535
State/local government	208	191	174	209	208	217	255	218	257	224	224	228	263	251	214	215
Joint sectors	1	0 *	0	0	1	2	3	3	0 *	2	8	2	1	3	1	0 *

Appendix table 5-43
U.S. S&E articles, by field and sector: 1995–2010

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Unknown sector	57	83	69	92	80	55	47	52	63	40	52	18	20	18	13	10
Mathematics	3,207	3,288	3,062	3,497	3,573	3,767	3,666	3,568	3,774	3,574	3,933	3,940	3,813	4,482	4,275	3,841
Federal government	55	51	45	55	68	59	48	54	46	51	55	47	52	55	48	58
Industry	105	103	89	126	130	120	127	111	107	89	86	81	84	91	87	79
Academic	2,967	3,043	2,841	3,223	3,277	3,459	3,402	3,318	3,539	3,340	3,685	3,719	3,594	4,234	4,052	3,619
FFRDCs	33	47	41	41	41	70	39	39	42	55	63	57	48	65	52	45
Private nonprofit	39	36	37	43	46	52	46	39	29	34	37	34	27	31	32	35
State/local government	1	4	3	2	4	2	1	1	1	1	1	1	1	2	1	2
Joint sectors	0	0	0	0	0	0	0	0	0 *	0 *	0	0	0	0	0	0
Unknown sector	6	5	6	6	6	5	4	6	10	4	6	1	6	4	4	4
Computer sciences	1,914	1,923	1,929	1,952	2,008	2,075	2,083	1,999	2,254	2,173	2,390	2,521	2,329	2,337	2,282	2,160
Federal government	41	44	50	49	61	41	42	41	35	34	42	40	56	35	32	36
Industry	398	390	434	445	448	481	461	443	409	343	366	376	321	352	286	260
Academic	1,399	1,412	1,352	1,364	1,397	1,475	1,482	1,454	1,736	1,729	1,912	2,024	1,875	1,886	1,888	1,812
FFRDCs	27	27	42	48	52	31	44	31	36	38	41	44	39	32	34	29
Private nonprofit	33	26	32	23	27	35	36	19	23	18	20	28	31	26	35	20
State/local government	1	1	1	1	1	1	1	0 *	2	0 *	1	2	1	1	2	1
Joint sectors	0	0	0	0	0	0	1	0	1	0 *	2	1	1	0	0	0
Unknown sector	15	22	19	23	22	12	16	11	12	10	6	5	5	5	5	3
Agricultural sciences	3,648	3,346	3,605	3,464	2,804	3,640	3,203	3,924	3,903	3,526	3,561	3,964	3,624	3,859	3,490	3,371
Federal government	635	531	610	586	463	656	548	629	669	628	649	758	674	761	610	595
Industry	289	229	241	235	201	250	262	263	232	220	220	227	221	242	217	212
Academic	2,599	2,454	2,615	2,532	2,043	2,639	2,260	2,928	2,888	2,585	2,595	2,876	2,641	2,757	2,563	2,471
FFRDCs	19	17	16	12	8	12	8	9	21	11	17	18	21	12	14	15
Private nonprofit	55	49	52	38	40	45	48	46	53	48	50	55	42	55	56	48
State/local government	30	28	33	24	19	18	50	27	19	22	17	25	21	25	25	25
Joint sectors	0	0	0	0	0	0 *	0	0 *	0	2	0	1	0	0 *	0 *	0
Unknown sector	22	38	38	37	29	20	27	22	21	11	13	4	4	6	5	5
Biological sciences	54,056	53,287	51,694	52,061	51,425	50,989	52,680	50,085	52,968	51,491	55,494	51,775	51,849	53,394	51,037	47,933
Federal government	5,089	4,872	4,633	4,574	4,501	4,469	4,516	4,262	4,412	4,256	4,546	4,202	4,125	4,241	3,908	3,692
Industry	4,276	3,932	3,690	3,650	3,628	3,599	3,554	3,299	3,501	3,153	3,322	2,941	2,886	3,046	2,920	2,692
Academic	38,673	38,536	37,484	38,004	37,582	37,179	38,661	36,887	39,152	38,271	41,463	38,999	39,191	40,309	38,680	36,245
FFRDCs	656	626	624	567	551	544	551	540	538	584	622	589	536	547	504	480
Private nonprofit	4,652	4,611	4,561	4,513	4,472	4,531	4,718	4,426	4,655	4,560	4,808	4,484	4,513	4,682	4,507	4,353
State/local government	544	536	508	518	488	515	532	505	512	536	561	495	528	508	470	440
Joint sectors	1	0 *	0	0 *	0 *	3	4	4	3	7	5	3	4	1	0 *	0
Unknown sector	167	174	194	235	204	150	145	162	194	124	167	62	67	60	48	31
Medical sciences	51,943	51,404	52,146	52,402	52,550	51,886	53,437	51,384	56,128	53,541	60,130	57,052	57,535	62,017	59,898	57,174
Federal government	3,892	4,035	3,796	3,860	3,637	3,625	3,782	3,541	3,764	3,506	3,836	3,646	3,556	3,767	3,556	3,410
Industry	2,127	2,133	2,189	2,267	2,373	2,381	2,490	2,491	2,699	2,671	2,906	2,877	2,882	3,192	2,981	2,923
Academic	36,510	35,981	36,890	36,793	36,930	36,234	37,190	35,933	39,298	37,503	42,321	40,307	40,830	43,928	42,483	40,461
FFRDCs	195	191	176	182	146	138	127	126	137	127	144	114	130	138	125	108
Private nonprofit	7,983	7,796	7,842	7,966	8,188	8,380	8,682	8,178	9,055	8,663	9,663	9,122	9,186	10,058	9,790	9,428
State/local government	820	753	778	792	782	756	808	711	768	741	913	850	809	821	880	792
Joint sectors	2	0 *	1	1	2	4	7	6	4	10	11	8	5	1	0 *	0 *
Unknown sector	413	514	474	541	491	367	351	398	404	320	335	127	137	113	83	52
Other life sciences	2,338	2,811	3,009	3,009	2,876	2,942	3,146	2,958	2,964	2,699	3,670	4,456	3,947	4,706	4,714	4,394
Federal government	121	129	141	123	116	135	170	144	135	109	230	213	179	207	225	221
Industry	112	106	154	153	156	147	149	157	149	142	193	235	195	251	230	220
Academic	1,605	2,037	2,181	2,181	2,081	2,147	2,336	2,121	2,207	2,025	2,695	3,248	2,944	3,473	3,496	3,192
FFRDCs	2	0	1	0	0	1	1	1	2	0 *	1	0 *	0 *	0 *	0	0
Private nonprofit	376	373	376	368	387	386	371	408	365	348	446	649	552	677	667	679
State/local government	44	77	48	74	52	56	59	58	50	43	50	90	64	81	79	68

Appendix table 5-43
U.S. S&E articles, by field and sector: 1995–2010

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Joint sectors	0	0	0	0	0 *	0	1	0 *	1	0 *	1	1	0	1	0 *	0
Unknown sector	77	89	108	110	83	70	59	69	55	31	54	19	12	17	16	13
Psychology	7,830	8,258	8,130	7,736	7,806	7,499	7,809	7,691	7,892	7,410	8,482	8,821	8,665	10,210	10,181	9,519
Federal government	224	280	248	225	240	237	221	218	218	183	216	231	211	288	227	258
Industry	170	192	170	144	170	165	182	150	141	133	173	140	125	184	171	154
Academic	6,859	7,117	7,053	6,755	6,850	6,575	6,868	6,794	7,058	6,637	7,599	7,904	7,821	9,169	9,235	8,580
FFRDCs	4	0 *	2	3	2	1	0	2	1	0 *	1	2	1	2	2	2
Private nonprofit	332	410	399	354	354	359	389	369	348	337	365	443	414	469	461	447
State/local government	110	115	116	106	85	70	69	66	59	72	63	82	66	78	74	71
Joint sectors	0	0	0 *	1	0 *	0	0 *	3	1	1	1	2	2	0 *	0	0 *
Unknown sector	133	144	143	149	106	93	81	88	65	46	64	17	23	20	12	6
Social sciences	9,751	10,094	9,935	9,745	9,763	9,888	9,985	9,763	10,501	9,754	10,790	10,700	10,993	12,935	12,144	12,042
Federal government	481	422	382	343	354	368	353	381	357	307	390	378	404	414	363	425
Industry	223	251	271	209	203	190	170	140	156	143	150	125	141	195	170	192
Academic	8,208	8,576	8,456	8,416	8,463	8,616	8,772	8,536	9,200	8,612	9,546	9,538	9,767	11,525	10,910	10,650
FFRDCs	32	29	26	25	16	20	27	14	16	23	19	28	36	30	15	25
Private nonprofit	670	665	632	592	595	578	555	577	645	567	584	563	581	689	615	684
State/local government	58	52	74	55	47	57	42	44	48	45	41	42	38	48	43	46
Joint sectors	0	0	0	0	0	0	0	0	0	0 *	0	1	1	2	0 *	0
Unknown sector	80	100	93	106	85	59	66	72	79	57	61	25	25	32	26	21

* = rounds to zero

FFRDC = federally funded research and development center

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year they entered database, rather than year of publication, and assigned to sector on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple sectors, each sector receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-44
S&E articles, by field, citation percentile, and region/country/economy of institutional author: 2000 and 2010

Field/percentile	Citations (*n*)	Articles (*n*)	United States	EU	Asia-8	China	Japan
			1996–98 articles cited by 2000 articles (% of world)				
All fields	na	1,767,041	32.4	35.4	4.1	2.0	8.8
99th	≥20	17,418	59.9	25.9	0.4	0.2	5.0
95th	9–19	64,946	50.8	31.6	0.8	0.4	6.0
90th	6–8	81,981	44.6	34.8	1.4	0.7	6.9
75th	3–5	255,995	38.5	36.7	2.3	1.2	8.1
50th	2	206,180	33.9	37.1	3.3	1.5	8.9
<50th	0–1	1,140,521	28.4	35.2	5.0	2.5	9.3
Engineering	na	130,082	27.1	30.8	8.9	3.9	12.6
99th	≥8	1,028	45.3	29.5	2.8	1.4	11.1
95th	4–7	4,973	36.2	33.5	5.2	2.2	11.4
90th	3	5,039	33.6	32.8	6.9	3.0	11.2
75th	2	10,871	29.6	33.9	8.2	2.9	12.0
50th	1	27,082	28.0	32.0	9.0	3.8	12.3
<50th	0	81,089	25.3	29.8	9.4	4.2	13.0
Astronomy	na	20,959	34.1	40.3	2.2	1.6	4.7
99th	≥23	200	53.2	35.2	0.0	0.1	4.5
95th	11–22	758	51.0	34.4	0.4	0.3	4.0
90th	8–10	734	48.9	35.2	0.4	0.6	3.9
75th	4–7	3,148	43.3	38.2	1.1	0.9	4.5
50th	2–3	4,443	37.1	42.3	1.6	1.0	4.0
<50th	0–1	11,676	28.1	40.9	3.0	2.2	5.1
Chemistry	na	216,747	20.3	38.7	7.0	3.7	11.2
99th	≥15	1,841	48.6	30.2	1.5	0.6	9.3
95th	8–14	6,481	38.2	36.2	2.5	1.5	10.5
90th	5–7	13,054	31.0	39.3	3.8	2.4	11.9
75th	3–4	25,733	25.4	41.6	5.2	3.0	12.0
50th	2	26,815	22.4	41.0	6.1	3.4	12.4
<50th	0–1	142,823	16.8	38.0	8.0	4.2	10.9
Physics	na	251,798	21.8	35.8	5.8	4.2	12.0
99th	≥15	2,241	43.6	35.5	1.2	0.9	9.3
95th	7–14	9,299	36.4	39.5	2.1	1.2	9.1
90th	5–6	9,728	31.8	40.7	2.7	1.8	10.2
75th	3–4	24,039	28.6	39.9	3.7	2.7	11.1
50th	1–2	78,662	22.9	37.6	5.5	3.8	12.2
<50th	0	127,829	17.6	33.3	6.9	5.3	12.4
Geosciences	na	86,122	33.7	33.7	3.2	1.6	5.1
99th	≥12	819	56.6	26.2	0.9	0.3	2.1
95th	7–11	2,831	50.0	30.0	0.6	0.5	2.4
90th	5–6	4,170	44.4	32.8	1.2	0.5	2.6
75th	3–4	10,628	40.8	33.7	1.5	1.0	3.4
50th	2	11,565	35.7	35.4	2.4	1.1	4.1
<50th	0–1	56,109	29.9	33.7	4.1	2.0	6.0
Mathematics	na	31,231	31.5	38.8	3.6	4.1	4.2
99th	≥7	220	57.6	28.6	0.2	1.8	0.5
95th	4–6	748	44.4	35.5	2.4	3.5	2.9
90th	3	987	38.6	39.7	2.4	2.8	2.6
75th	2	2,376	37.6	38.9	3.5	3.2	3.4
50th	1	6,332	32.2	40.9	3.2	3.8	3.8
<50th	0	20,568	29.5	38.4	3.9	4.5	4.6
Computer sciences	na	13,342	43.5	27.4	8.5	3.1	4.0
99th	≥6	111	58.5	27.9	1.1	1.4	1.1
95th	4–5	217	61.6	22.0	3.8	1.2	2.3
90th	3	357	47.7	33.6	3.5	2.0	1.7
75th	2	858	48.9	28.8	6.2	1.8	2.4
50th	1	2,586	43.1	28.2	7.8	3.3	4.3
<50th	0	9,213	42.3	27.0	9.3	3.2	4.3
Agricultural sciences	na	36,002	28.9	32.9	3.5	0.6	8.1
99th	≥9	310	38.7	38.0	1.2	0.2	3.5
95th	5–8	1,327	37.6	38.0	1.5	0.1	5.0
90th	4	1,175	34.2	39.5	2.2	0.0 *	5.7
75th	3	2,123	34.4	38.1	2.2	0.3	6.4
50th	1–2	12,607	30.4	34.1	3.1	0.6	8.0
<50th	0	18,460	26.2	30.6	4.3	0.7	8.8
Biological sciences	na	429,691	36.5	34.5	2.9	1.0	8.5
99th	≥32	4,132	63.3	22.7	0.3	0.1	5.1

Appendix table 5-44
S&E articles, by field, citation percentile, and region/country/economy of institutional author: 2000 and 2010

Field/percentile	Citations (*n*)	Articles (*n*)	United States	EU	Asia-8	China	Japan
95th	14–31	15,148	59.1	26.5	0.4	0.1	5.2
90th	9–13	20,254	52.6	30.6	0.6	0.1	5.5
75th	5–8	49,254	46.4	33.8	1.1	0.3	6.6
50th	2–4	118,027	38.6	36.1	2.1	0.6	8.3
<50th	0–1	222,876	29.8	35.0	4.1	1.4	9.6
Medical sciences	na	432,954	36.0	38.3	2.3	0.8	8.3
99th	≥21	3,926	60.6	26.5	0.2	0.3	3.4
95th	10–20	15,430	52.1	32.4	0.5	0.3	5.1
90th	7–9	17,902	47.8	34.4	0.8	0.4	5.9
75th	4–6	47,987	43.2	36.5	1.2	0.5	7.0
50th	2–3	88,374	38.2	38.0	1.8	0.6	8.3
<50th	0–1	259,335	31.8	39.6	2.8	1.0	8.9
Other life sciences	na	14,577	60.6	22.8	0.6	0.6	0.5
99th	≥7	139	76.4	17.8	0.1	0.0	0.0
95th	4–6	548	61.7	23.7	0.1	0.1	0.1
90th	3	647	59.0	26.7	0.4	0.6	0.1
75th	2	1,444	58.2	24.9	0.8	0.7	0.1
50th	1	3,117	57.2	25.6	0.5	0.7	0.4
<50th	0	8,682	62.0	21.2	0.6	0.6	0.6
Psychology	na	43,264	55.8	25.0	0.5	0.6	2.1
99th	≥12	429	70.2	17.8	0.0	0.1	0.1
95th	7–11	1,167	67.0	19.2	0.2	0.3	0.4
90th	5–6	1,662	64.8	22.1	0.1	0.3	0.6
75th	3–4	4,427	60.9	24.0	0.3	0.3	0.9
50th	2	4,932	58.7	24.0	0.3	0.5	1.3
<50th	0–1	30,647	53.4	25.8	0.7	0.7	2.5
Social sciences	na	60,272	49.4	29.1	1.9	0.9	1.2
99th	≥8	484	69.7	22.5	1.1	0.1	0.2
95th	4–7	2,042	63.9	24.9	1.0	0.6	0.4
90th	3	2,002	60.3	26.3	0.8	0.6	0.4
75th	2	4,199	56.7	27.4	1.1	0.8	0.9
50th	1	11,522	52.2	28.7	1.5	0.8	0.8
<50th	0	40,023	46.3	29.8	2.2	1.0	1.5
			2006–08 articles cited by 2010 articles (% of world)				
All fields	na	2,281,266	27.8	32.4	7.4	7.5	7.0
99th	≥20	21,905	48.9	30.4	2.7	3.6	4.3
95th	10–19	70,921	41.9	32.1	3.9	5.4	5.0
90th	7–9	90,576	37.6	33.3	4.9	5.9	5.4
75th	4–6	263,580	33.6	33.9	5.8	6.4	5.9
50th	2–3	495,097	29.2	33.7	6.9	7.1	6.7
<50th	0–1	1,339,187	24.4	31.6	8.4	8.1	7.6
Engineering	na	220,904	19.7	27.8	15.1	12.5	8.4
99th	≥15	1,995	38.5	26.4	8.5	12.3	4.7
95th	7–14	7,307	28.5	26.8	12.8	14.0	5.3
90th	5–6	8,005	23.8	28.3	14.2	14.0	5.7
75th	3–4	21,931	21.3	28.4	14.4	14.3	6.8
50th	2	25,507	19.8	28.5	15.1	13.5	7.2
<50th	0–1	156,159	18.6	27.6	15.4	12.0	9.2
Astronomy	na	27,562	31.5	39.1	3.4	4.5	4.6
99th	≥28	259	52.6	35.3	0.4	0.4	4.1
95th	14–27	968	47.9	35.9	0.7	1.3	3.0
90th	9–13	1,519	42.1	40.0	0.8	1.3	3.3
75th	5–8	3,748	38.6	41.5	1.6	1.6	3.5
50th	3–4	4,533	35.0	40.5	2.6	3.3	4.5
<50th	0–2	16,535	26.6	38.4	4.5	6.0	5.0
Chemistry	na	286,241	16.8	30.7	10.6	14.6	8.7
99th	≥22	2,858	34.2	33.2	6.0	10.6	6.7
95th	11–21	9,979	27.7	31.7	7.7	14.9	7.7
90th	8–10	11,108	25.1	31.5	9.2	15.0	7.8
75th	4–7	46,361	21.2	33.1	10.0	14.2	8.3
50th	2–3	66,415	17.3	33.4	10.8	13.9	9.0
<50th	0–1	149,520	13.6	28.7	11.2	15.0	8.8
Physics	na	319,034	18.4	31.2	10.0	12.7	9.8
99th	≥17	2,921	37.3	35.2	4.3	6.4	6.5
95th	8–16	11,262	30.0	35.7	6.2	8.4	8.0
90th	6–7	10,115	26.2	36.3	7.0	10.2	7.7

Appendix table 5-44
S&E articles, by field, citation percentile, and region/country/economy of institutional author: 2000 and 2010

Field/percentile	Citations (*n*)	Articles (*n*)	United States	EU	Asia-8	China	Japan
75th	3–5	45,535	23.3	34.8	8.3	10.9	8.5
50th	2	38,506	20.0	33.3	9.4	12.2	9.2
<50th	0–1	210,695	15.8	29.5	10.8	13.7	10.4
Geosciences	na	124,627	28.1	31.9	5.5	6.0	5.2
99th	≥15	1,151	44.5	29.1	2.6	4.7	2.1
95th	8–14	5,039	38.2	31.8	3.4	6.1	2.8
90th	6–7	5,397	34.3	34.2	3.9	6.4	3.4
75th	4–5	12,348	32.7	33.6	4.3	5.8	3.8
50th	2–3	30,643	29.1	34.3	4.9	5.7	4.6
<50th	0–1	70,049	25.4	30.4	6.4	6.1	6.2
Mathematics	na	51,733	23.7	38.1	4.9	10.6	4.2
99th	≥7	504	40.7	33.1	3.4	8.7	2.1
95th	4–6	1,552	31.7	40.4	3.3	10.1	2.0
90th	3	1,802	27.2	41.6	3.6	11.3	2.7
75th	2	4,237	26.2	40.2	4.1	10.5	2.9
50th	1	11,024	23.9	39.6	4.7	11.2	4.0
<50th	0	32,614	22.4	37.0	5.2	10.5	4.6
Computer sciences	na	22,737	31.6	30.7	10.2	9.8	2.4
99th	≥9	181	44.3	25.9	3.7	9.7	0.5
95th	5–8	604	38.8	24.1	8.1	11.9	1.3
90th	3–4	1,449	32.5	27.2	9.8	13.1	1.6
75th	2	2,051	30.3	28.7	11.3	12.8	2.1
50th	1	4,935	30.6	30.6	10.4	10.3	2.0
<50th	0	13,517	31.6	31.7	10.2	8.7	2.7
Agricultural sciences	na	52,232	21.9	33.4	7.3	5.8	6.9
99th	≥11	439	29.4	37.3	4.6	3.8	3.9
95th	7–10	1,315	23.3	38.9	6.3	6.2	4.9
90th	5–6	2,489	23.1	39.3	6.8	6.1	4.1
75th	3–4	7,365	22.0	38.0	7.0	6.3	5.4
50th	2	7,899	21.6	36.1	6.9	5.7	6.0
<50th	0–1	32,725	21.7	31.0	7.6	5.7	7.8
Biological sciences	na	476,316	33.0	31.9	5.8	5.0	7.2
99th	≥28	4,514	56.8	27.6	1.3	0.8	4.0
95th	12–27	18,335	49.9	30.5	2.0	1.7	4.7
90th	8–11	23,700	45.2	32.1	2.9	2.4	5.0
75th	5–7	50,460	40.2	33.3	3.7	3.2	5.8
50th	3–4	80,894	35.7	33.2	5.0	4.2	6.6
<50th	0–2	298,413	28.6	31.4	6.9	5.9	7.9
Medical sciences	na	524,878	33.6	35.5	4.9	2.8	6.4
99th	≥20	4,930	54.2	31.0	1.1	0.9	2.3
95th	10–19	17,806	48.0	34.0	1.8	1.4	3.4
90th	7–9	23,093	43.9	34.8	2.6	1.9	4.4
75th	4–6	66,849	39.7	35.3	3.4	2.3	5.0
50th	2–3	119,954	35.2	35.5	4.5	2.9	6.2
<50th	0–1	292,246	29.6	35.7	5.8	3.0	7.2
Other life sciences	na	26,078	50.3	23.3	3.1	1.3	0.9
99th	≥9	210	69.5	14.8	0.0	0.5	0.0
95th	5–8	923	56.5	23.9	1.7	1.0	0.2
90th	4	804	55.5	23.2	1.6	0.7	0.4
75th	3	1,554	48.9	29.0	2.3	1.1	0.4
50th	1–2	9,370	50.0	24.4	2.9	1.5	0.6
<50th	0	13,217	49.6	22.0	3.5	1.2	1.3
Psychology	na	59,907	46.2	31.8	1.6	0.9	1.7
99th	≥16	535	64.9	24.5	0.0 *	0.1	0.1
95th	8–15	2,417	58.5	27.7	0.2	0.2	0.4
90th	6–7	2,480	54.5	29.2	0.6	0.5	0.4
75th	4–5	5,457	52.3	30.7	0.7	0.6	0.6
50th	2–3	13,703	48.2	31.6	1.2	0.9	1.2
<50th	0–1	35,315	42.8	32.5	2.1	1.1	2.2
Social sciences	na	89,017	38.9	35.4	3.2	1.6	1.6
99th	≥9	871	58.5	26.2	1.4	0.6	0.0
95th	5–8	3,002	51.6	31.4	1.7	1.6	0.5
90th	4	2,348	47.6	34.3	1.2	1.6	0.7

Appendix table 5-44
S&E articles, by field, citation percentile, and region/country/economy of institutional author: 2000 and 2010

Field/percentile	Citations (*n*)	Articles (*n*)	United States	EU	Asia-8	China	Japan
75th	2–3	12,532	43.8	35.3	2.0	1.7	1.0
50th	1	18,662	40.3	35.3	2.9	1.4	1.4
<50th	0	51,602	35.7	35.9	3.9	1.7	1.9

* = rounds to zero; na = not applicable

EU = European Union

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year they entered database, rather than year of publication, and assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Citation data based on 3-year period with 2-year lag, e.g., citations for 2000 are references made in articles in 2000 data tape to articles in 1996–98 data tapes. See appendix table 5-25 for countries/economies included in EU and Asia-8. Percentiles approximate because of method of counting citations and always higher than stated. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-45

Share of all S&E articles and top 1% of cited articles and index of highly cited articles, by field and selected region/country/economy: 2000 and 2010

(Percent)

	Share of all articles[a]					Share of top 1% cited articles					Index of highly cited articles				
Field/citation period	United States	EU	Asia-8	China	Japan	United States	EU	Asia-8	China	Japan	United States	EU	Asia-8	China	Japan
All fields															
2000	32.4	35.4	4.1	2.0	8.8	59.9	25.9	0.4	0.2	5.0	1.8	0.7	0.1	0.1	0.6
2010	27.8	32.4	7.4	7.5	7.0	48.9	30.4	2.7	3.6	4.3	1.8	0.9	0.4	0.5	0.6
Engineering															
2000	27.1	30.8	8.9	3.9	12.6	45.3	29.5	2.8	1.4	11.1	1.7	1.0	0.3	0.4	0.9
2010	19.7	27.8	15.1	12.5	8.4	38.5	26.4	8.5	12.3	4.7	2.0	1.0	0.6	1.0	0.6
Astronomy															
2000	34.1	40.3	2.2	1.6	4.7	53.2	35.2	0.0	0.1	4.5	1.6	0.9	0.0	0.1	1.0
2010	31.5	39.1	3.4	4.5	4.6	52.6	35.3	0.4	0.4	4.1	1.7	0.9	0.1	0.1	0.9
Chemistry															
2000	20.3	38.7	7.0	3.7	11.2	48.6	30.2	1.5	0.6	9.3	2.4	0.8	0.2	0.2	0.8
2010	16.8	30.7	10.6	14.6	8.7	34.2	33.2	6.0	10.6	6.7	2.0	1.1	0.6	0.7	0.8
Physics															
2000	21.8	35.8	5.8	4.2	12.0	43.6	35.5	1.2	0.9	9.3	2.0	1.0	0.2	0.2	0.8
2010	18.4	31.2	10.0	12.7	9.8	37.3	35.2	4.3	6.4	6.5	2.0	1.1	0.4	0.5	0.7
Geosciences															
2000	33.7	33.7	3.2	1.6	5.1	56.6	26.2	0.9	0.3	2.1	1.7	0.8	0.3	0.2	0.4
2010	28.1	31.9	5.5	6.0	5.2	44.5	29.1	2.6	4.7	2.1	1.6	0.9	0.5	0.8	0.4
Mathematics															
2000	31.5	38.8	3.6	4.1	4.2	57.6	28.6	0.2	1.8	0.5	1.8	0.7	0.1	0.4	0.1
2010	23.7	38.1	4.9	10.6	4.2	40.7	33.1	3.4	8.7	2.1	1.7	0.9	0.7	0.8	0.5
Computer sciences															
2000	43.5	27.4	8.5	3.1	4.0	58.5	27.9	1.1	1.4	1.1	1.3	1.0	0.1	0.4	0.3
2010	31.6	30.7	10.2	9.8	2.4	44.3	25.9	3.7	9.7	0.5	1.4	0.8	0.4	1.0	0.2
Agricultural sciences															
2000	28.9	32.9	3.5	0.6	8.1	38.7	38.0	1.2	0.2	3.5	1.3	1.2	0.3	0.3	0.4
2010	21.9	33.4	7.3	5.8	6.9	29.4	37.3	4.6	3.8	3.9	1.3	1.1	0.6	0.7	0.6
Biological sciences															
2000	36.5	34.5	2.9	1.0	8.5	63.3	22.7	0.3	0.1	5.1	1.7	0.7	0.1	0.1	0.6
2010	33.0	31.9	5.8	5.0	7.2	56.8	27.6	1.3	0.8	4.0	1.7	0.9	0.2	0.2	0.6
Medical sciences															
2000	36.0	38.3	2.3	0.8	8.3	60.6	26.5	0.2	0.3	3.4	1.7	0.7	0.1	0.4	0.4
2010	33.6	35.5	4.9	2.8	6.4	54.2	31.0	1.1	0.9	2.3	1.6	0.9	0.2	0.3	0.4
Other life sciences															
2000	60.6	22.8	0.6	0.6	0.5	76.4	17.8	0.1	0.0	0.0	1.3	0.8	0.2	0.0	0.0
2010	50.3	23.3	3.1	1.3	0.9	69.5	14.8	0.0	0.5	0.0	1.4	0.6	0.0	0.4	0.0
Psychology															
2000	55.8	25.0	0.5	0.6	2.1	70.2	17.8	0.0	0.1	0.1	1.3	0.7	0.0	0.1	0.0 *
2010	46.2	31.8	1.6	0.9	1.7	64.9	24.5	0.0 *	0.1	0.1	1.4	0.8	0.0	0.1	0.1
Social sciences															
2000	49.4	29.1	1.9	0.9	1.2	69.7	22.5	1.1	0.1	0.2	1.4	0.8	0.6	0.1	0.2
2010	38.9	35.4	3.2	1.6	1.6	58.5	26.2	1.4	0.6	0.0 *	1.5	0.7	0.4	0.3	0.0 *

* = rounds to zero

EU = European Union

[a]Article data refer to articles in the 3-year cited window, i.e., 2000 data are articles in 1996–98; 2010 data are articles in 2006–08.

NOTES: Article counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles classified by year they entered database and assigned to country/economy on basis of institutional address(es) listed on article. Articles/citations on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. See appendix table 5-25 for countries/economies included in EU and Asia-8. Citation data based on year article entered database. Citation data based on 3-year period with 2-year lag, e.g., citations for 2000 are references made in articles in 2000 data tape to articles in 1996–98 data tapes. Index of highly cited articles is share of world's top 1% cited articles divided by share of world articles in cited year window.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-46
U.S. utility patent awards, by selected characteristics of patent owner: 1998–2010

Characteristic	1998–2010	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Patents granted	2,144,774	147,509	153,481	157,489	166,033	167,327	169,020	164,290	143,805	173,771	157,282	157,772	167,350	219,645
Patents granted to U.S. owners	1,143,627	83,842	87,501	88,427	91,038	89,677	90,223	86,475	76,620	92,029	81,568	80,049	84,860	111,318
Patents granted to U.S. nongovernment owners	975,813	67,223	70,671	72,229	75,787	75,361	76,545	74,173	66,183	80,141	71,628	70,877	75,859	99,136
Patents granted to U.S. universities	44,873	3,435	3,655	3,424	3,555	3,556	3,510	3,269	2,925	3,534	3,195	3,000	3,268	4,547
Top 200 R&D institutions in 2009	43,544	3,372	3,548	3,335	3,472	3,436	3,386	3,142	2,843	3,435	3,089	2,935	3,171	4,380
University of California	5,329	421	470	462	443	467	466	449	410	443	371	256	275	396
Massachusetts Institute of Technology	1,895	148	155	121	142	152	135	139	146	143	145	138	141	190
California Institute of Technology	1,521	95	103	108	128	117	144	136	112	123	117	106	94	138
University of Texas	1,434	115	116	101	101	109	110	115	101	118	100	90	117	141
Stanford University	1,385	83	92	111	91	112	87	84	96	106	95	131	123	174
University of Wisconsin	1,209	85	89	70	76	82	89	74	79	106	99	92	123	145
Johns Hopkins University	1,117	86	110	89	87	97	81	101	80	99	69	71	62	85
University of Michigan	925	55	58	75	59	57	75	76	86	81	68	80	69	86
Cornell University	785	73	70	53	72	40	64	45	46	65	55	57	61	84
Columbia University	771	59	59	59	63	47	65	53	60	57	58	56	50	85
University of Florida	768	60	55	68	59	47	64	45	71	83	63	47	57	49
University of Pennsylvania	659	80	64	38	55	49	32	35	47	49	43	48	40	79
University of Washington	648	60	54	63	52	44	36	33	33	44	43	47	55	84
State University of New York	629	54	59	65	42	55	38	39	32	46	29	45	58	67
Georgia Institute of Technology	613	28	38	42	40	49	47	37	45	55	55	48	47	82
University of Illinois	610	20	34	29	36	34	44	63	37	51	47	51	70	94
Harvard University	602	64	49	44	42	52	45	45	31	43	47	52	38	50
Michigan State University	569	61	54	44	41	53	51	30	27	36	38	48	43	43
University of Minnesota	562	48	55	48	42	42	43	46	42	39	40	36	39	42
University of Chicago	550	57	53	61	63	55	47	53	30	49	29	16	19	18
Pennsylvania State University	547	27	45	40	63	58	56	45	34	34	31	34	33	47
University of North Carolina System	545	38	61	46	51	35	41	40	45	40	41	32	28	47
Duke University	545	38	42	47	59	43	47	29	27	52	35	36	38	52
University of Maryland System	528	30	41	29	43	34	48	38	32	47	41	43	41	61
Scripps Research Institute	522	62	46	38	60	36	32	23	31	42	35	46	36	35
New York University	485	30	32	29	39	29	31	28	22	42	55	32	39	77
University of Southern California	475	20	16	21	33	36	32	38	36	41	40	42	52	68
North Carolina State University	455	28	25	28	32	39	49	44	41	35	34	36	28	36
University of Utah	421	41	37	25	46	30	24	26	20	23	33	29	33	54
Princeton University	421	29	30	30	47	38	32	24	35	28	31	34	29	34
University of Pittsburgh	413	35	41	40	45	22	30	29	19	28	24	33	28	39
University of Massachusetts	390	29	59	28	24	18	21	21	13	21	21	28	45	62
Northwestern University	385	39	26	20	35	30	21	20	18	20	24	30	39	63
Washington University	385	45	60	40	42	32	26	22	20	22	20	16	17	23
University of Central Florida	384	12	15	11	21	16	26	30	24	32	34	41	57	65
University of South Florida	375	19	20	20	16	19	12	30	18	32	28	34	38	89
Iowa State University	374	54	46	35	29	21	29	25	14	24	28	12	32	25
University of Alabama	368	36	44	28	34	30	47	43	20	20	20	11	20	15
Yale University	367	38	32	32	34	30	31	21	31	21	21	10	28	38
Purdue University	366	22	23	13	18	24	25	26	27	29	34	22	47	56
University of Iowa	360	27	34	20	41	25	31	20	19	33	27	24	25	34
Rutgers University	356	28	35	33	22	43	28	22	18	34	24	26	20	23
Texas A&M University	340	26	25	21	27	37	22	30	25	28	30	20	19	30
Ohio State University	337	24	25	26	21	21	23	33	31	31	22	17	27	36
University of Kentucky	326	23	32	28	23	35	29	17	22	25	16	20	23	33
Rockefeller University	310	37	36	43	28	34	15	20	11	24	7	22	19	14
University of Colorado	302	31	29	20	23	21	25	17	14	27	18	24	22	31
Emory University	291	36	28	25	21	31	23	18	17	20	15	17	15	25

Appendix table 5-46
U.S. utility patent awards, by selected characteristics of patent owner: 1998–2010

Characteristic	1998–2010	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
University of Arkansas	286	10	31	20	30	19	29	17	19	27	22	18	18	26
Louisiana State University System	284	35	17	22	36	27	25	16	18	20	18	22	14	14
Virginia Polytechnic Institute	280	23	27	21	13	19	17	20	13	26	30	16	28	27
Carnegie-Mellon University	275	26	27	33	13	19	25	25	9	30	16	14	11	27
Vanderbilt University	267	17	20	23	27	22	23	22	16	22	17	17	20	21
University of Nebraska	257	26	25	28	18	25	20	20	14	20	16	18	8	19
University of Rochester	250	19	7	15	16	20	19	15	18	28	20	22	28	23
Thomas Jefferson University	241	30	30	27	39	30	22	13	10	6	9	4	7	14
Baylor College of Medicine	239	31	23	28	17	18	17	19	9	19	16	18	8	16
University of Connecticut	237	11	19	14	9	14	17	11	19	32	23	23	19	26
Case Western Reserve University	221	15	29	20	21	26	15	12	11	14	7	10	19	22
University of Virginia	221	20	16	16	20	12	24	8	9	11	16	22	14	33
University of Tennessee	219	10	15	21	24	35	10	9	8	16	15	12	15	29
University of Missouri	218	13	17	6	16	14	19	21	9	22	19	13	19	30
University of New Mexico	215	16	17	23	17	21	18	16	15	10	11	15	16	20
Rice University	212	2	2	2	6	11	6	22	20	32	24	26	24	35
Florida State University	207	14	9	14	7	21	18	15	17	17	17	8	14	36
University of Georgia	205	23	12	20	22	23	16	9	15	6	9	10	18	22
University of Oklahoma	205	10	16	19	20	9	13	4	6	22	23	12	19	32
Boston University	203	19	20	21	20	15	16	10	10	10	15	14	12	21
Oregon Health Sciences University	186	20	17	23	16	15	9	13	8	10	12	17	15	11
Rensselear Polytechnic Institute	178	4	5	9	8	6	15	15	14	19	27	13	18	25
Brown University	175	17	20	15	22	9	16	13	14	10	11	10	9	9
Yeshiva University	175	14	10	17	18	15	13	19	10	16	7	10	7	19
Indiana University	172	23	12	17	20	18	20	8	14	9	9	6	2	14
Tufts University	157	12	8	10	14	14	11	14	13	17	9	7	14	14
Clemson University	154	8	2	4	7	21	17	11	13	13	10	8	7	33
University of Medicine and Dentistry of New Jersey	154	17	11	7	15	7	15	11	5	20	12	9	10	15
Dartmouth College	151	12	10	11	8	9	10	11	7	18	16	10	11	18
Wayne State University	148	14	18	14	15	12	8	10	11	13	9	6	11	7
Auburn University	144	6	10	9	9	8	7	11	14	10	17	10	16	17
Mount Sinai School of Medicine	142	17	14	8	10	8	24	5	9	7	4	13	11	12
University of Cincinnati	138	6	8	17	17	14	9	9	10	11	8	8	5	16
Georgetown University	128	11	8	14	8	10	13	12	3	11	10	9	9	10
Wake Forest University	122	9	9	12	12	8	9	13	3	10	10	6	5	16
University of Kansas	121	7	16	5	9	21	9	11	5	3	5	5	15	10
Virginia Commonwealth University	118	6	18	21	11	10	12	4	2	6	8	5	5	10
University of Delaware	117	6	2	5	5	9	7	10	7	5	10	14	17	20
Washington State University	117	8	12	15	15	8	8	8	8	6	4	11	4	10
Drexel University	113	6	5	4	7	12	5	7	4	5	8	10	15	25
University of Hawaii	106	8	9	14	8	7	8	9	6	10	7	9	6	5
NJIT/New Jersey Institute of Technology	105	6	8	9	4	6	5	7	0	8	7	11	14	20
University of Houston	102	5	4	11	10	6	13	3	7	3	6	8	12	14
Oregon State University	101	10	5	4	8	9	9	11	7	9	9	7	6	7
Northeastern University	96	12	9	15	9	5	3	10	9	5	4	3	3	9
Colorado State University	93	11	7	12	6	14	7	5	4	3	5	6	4	9
City University of New York	92	8	7	5	6	9	8	6	4	5	9	8	4	13
Kansas State University	90	7	12	8	10	10	7	9	2	3	4	3	4	11
Loma Linda University	87	6	6	4	5	5	8	7	3	13	8	9	5	8
Temple University	85	6	5	5	7	9	12	10	6	8	5	3	7	2
University of Vermont	79	2	8	2	5	10	6	3	5	5	7	8	7	11
Tulane University	78	9	6	7	9	8	7	2	0	4	6	9	4	7
Mississippi State University	75	3	6	5	5	9	5	6	7	8	7	6	3	5

Appendix table 5-46
U.S. utility patent awards, by selected characteristics of patent owner: 1998–2010

Characteristic	1998–2010	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
George Mason University	74	1	2	0	0	4	4	3	3	5	8	6	8	30
University of Miami	70	5	4	4	4	7	10	4	4	3	8	4	5	8
St. Louis University	70	4	12	4	7	8	4	4	6	4	2	1	5	9
University of Dayton	67	7	7	5	5	6	2	4	1	5	7	3	4	11
Utah State University	65	5	5	4	2	2	4	1	5	2	5	7	12	11
Ohio University	63	8	5	7	3	3	7	4	3	4	6	2	4	7
Brandeis University	62	9	6	6	1	3	9	4	1	7	3	2	7	4
Texas Tech University	60	2	3	3	8	14	4	4	7	5	3	3	2	2
University of South Carolina	59	1	4	1	6	4	8	7	3	8	4	4	4	5
University of Toledo	59	6	6	8	6	4	3	5	3	4	2	4	2	6
University of Nevada	58	0	4	3	4	3	7	6	1	5	5	5	9	6
University of Southern Mississippi	57	2	7	8	7	2	3	4	8	2	2	4	2	6
Oklahoma State University	56	2	5	3	2	5	3	8	7	3	6	4	4	4
University of Idaho	56	5	2	7	6	4	4	2	2	9	1	3	5	6
Michigan Technological University	54	1	2	3	3	4	2	5	8	5	8	4	4	5
University of Mississippi	52	1	3	6	3	5	3	3	5	3	4	11	1	4
Medical College of Wisconsin	52	8	2	4	5	6	5	4	0	1	3	4	5	5
Medical University of South Carolina	50	5	6	8	2	5	3	4	7	2	1	3	0	4
West Virginia University	49	0	1	0	6	4	12	4	0	2	2	3	7	8
Georgia State University	49	5	4	6	3	3	3	2	2	2	6	4	5	4
University of Notre Dame	47	4	0	1	3	4	1	2	6	1	7	4	6	8
University of Wyoming	47	5	4	0	2	4	3	3	3	4	9	1	4	5
University of Louisville	44	0	2	0	0	1	3	4	3	5	7	6	6	7
George Washington University	43	5	2	7	3	7	3	0	1	2	2	1	7	3
Syracuse University	41	9	4	3	0	2	1	1	1	3	1	4	4	8
North Dakota State University	40	2	5	5	4	2	3	2	3	3	1	1	3	6
Florida Atlantic University	40	3	1	3	3	1	1	6	3	6	4	4	2	3
Montana State University	39	1	5	1	1	1	3	0	1	4	7	8	5	2
University of Maine	38	0	1	2	2	1	2	5	1	5	2	5	2	10
Boston College	36	1	0	0	0	0	0	1	7	4	5	7	5	6
Medical College of Georgia	36	1	0	2	0	13	1	2	2	3	4	2	2	4
Southern Illinois University	34	0	4	2	7	2	4	6	1	2	1	1	2	2
Colorado School of Mines	28	0	3	1	5	4	0	2	0	2	4	1	2	4
University of Oregon	27	2	2	2	2	1	0	2	1	2	1	3	7	2
University of New Hampshire	25	0	0	1	3	3	1	2	3	2	2	2	3	3
University of Montana	24	2	3	1	3	0	2	0	4	2	0	3	0	4
New Mexico State University	23	2	5	3	2	2	5	3	1	0	0	0	0	0
Eastern Virginia Medical School	23	6	2	1	3	0	1	0	0	3	1	1	3	2
San Diego State University	22	1	1	2	2	3	3	2	4	0	0	1	2	1
Old Dominion University	19	1	1	3	2	2	2	1	1	0	1	2	1	2
New Mexico Institute of Mining & Technology	17	0	1	0	3	3	3	0	2	0	2	2	0	1
College of William and Mary	15	0	0	1	0	1	1	2	1	0	4	1	2	2
Wright State University	15	1	1	0	0	0	3	0	2	2	0	1	2	3
University of North Dakota	15	1	0	0	0	2	0	2	0	1	0	2	5	2
Rush University	15	0	0	0	0	0	1	0	0	3	0	1	7	3
Woods Hole Oceanographic Institution	15	3	0	1	1	0	1	1	0	2	0	1	3	2
Desert Research Institute	14	0	0	0	0	0	2	2	1	0	3	0	2	4
Uniformed Services University of The Health Sciences	12	0	0	0	2	3	2	0	0	0	0	3	0	2
Florida International University	10	0	0	2	2	1	1	1	0	0	0	0	1	2
South Dakota State University	7	1	0	1	1	1	0	0	1	0	1	1	0	0
University of Alaska	6	0	0	1	0	2	0	1	0	0	0	0	0	2
University of Louisiana	5	0	0	0	0	0	1	0	1	1	0	0	2	0
Wichita State University	4	0	0	0	0	2	0	0	0	0	0	0	0	2

Appendix table 5-46
U.S. utility patent awards, by selected characteristics of patent owner: 1998–2010

Characteristic	1998–2010	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Jackson State University	4	0	0	0	0	0	1	1	1	0	0	1	0	0
University of Memphis	3	0	1	0	0	0	0	0	0	0	0	0	0	2
San Jose State University	2	0	1	0	0	0	0	0	1	0	0	0	0	0
University of Rhode Island	2	0	0	0	0	0	0	0	0	2	0	0	0	0
San Jose State University	2	0	1	0	0	0	0	0	1	0	0	0	0	0

NOTES: Data include institutions affiliated with academic institutions, such as university and alumni organizations, foundations, and university associations. Fewer than 200 institutions shown because data for certain institutions are for entire university system and incorporate data from various campuses. Patents assigned to Naval Postgraduate School and Air Force Academy not shown here. Top 200 R&D institutions ranked by sum of their patents from 1998 through 2010. Unlike some previous versions of this table, data include all assignees on patent, not just first; therefore, patent counts in this table are slightly higher than reported in some previous years. Patents on whole-count basis, that is, each assignee on patent credited one count.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from U.S. Patent and Trademark Office (USPTO), Patent Grant Bibliographic Data.

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Appendix table 5-47
U.S. university patents awarded, by technology area: 1990–2010

Technology area	1990-2010	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All university patents	59,608	1,205	1,382	1,598	1,694	1,874	2,006	2,322	2,654	3,435	3,655	3,424	3,555	3,556	3,510	3,269	2,925	3,534	3,195	3,000	3,268	4,547
Biotechnology	16,546	181	230	258	336	313	384	551	863	1,174	1,197	1,048	1,187	1,060	916	896	728	1,025	965	897	973	1,364
Pharmaceuticals	7,147	208	192	199	230	255	246	382	374	452	536	526	459	475	455	345	296	336	266	245	273	397
Measurement techniques and instrumentation	4,650	125	134	139	147	176	178	189	174	211	226	230	244	233	287	317	267	279	262	254	245	333
Materials	2,886	72	94	118	119	117	135	144	113	138	143	147	152	169	169	158	139	181	132	123	136	187
Medical equipment	2,859	95	105	115	97	130	116	128	145	196	215	174	162	163	192	150	127	114	87	90	107	151
Semiconductors	2,539	63	71	88	71	107	112	76	76	97	95	120	121	131	165	120	136	169	163	148	168	242
Optics	2,447	56	66	68	65	61	69	60	85	105	115	128	112	141	139	153	142	184	181	183	166	168
Chemicals	2,257	59	53	79	79	77	98	90	100	125	117	138	159	181	179	123	145	100	81	69	78	127
Medical electronics	2,183	65	54	78	65	101	91	91	76	92	111	100	121	112	135	114	97	123	109	126	127	195
Agriculture	2,090	39	42	64	49	69	63	71	127	124	140	115	144	112	124	81	112	118	117	114	126	139
Information processing	2,067	24	33	33	38	46	43	69	77	125	92	84	102	92	99	113	109	162	153	157	169	247
Materials manufacturing	1,799	29	44	47	59	72	71	54	58	91	91	105	84	114	104	111	102	98	119	79	109	158
Chemical engineering and environmental processes	1,529	32	53	78	78	69	70	72	67	71	100	95	74	86	81	84	71	74	63	58	72	81
Electronic components and devices	1,165	20	20	20	21	24	34	35	38	50	57	56	47	51	82	76	79	94	76	81	82	122
Telecommunications	1,140	8	17	21	26	38	32	37	23	51	37	36	47	59	57	65	61	103	84	104	108	126
Power generation and distribution	681	5	17	16	24	20	30	29	32	27	35	21	35	30	34	43	38	51	39	40	37	78
Food and tobacco	644	15	30	31	26	28	36	49	42	40	58	44	43	47	37	25	21	16	9	11	20	16
Industrial machinery and tools	598	13	15	21	22	21	22	31	28	36	38	25	39	29	41	35	28	39	30	18	30	37
Computer systems	597	9	8	14	16	15	28	21	20	28	35	39	24	32	30	32	33	36	40	38	43	56
Automation and control	460	11	18	8	16	12	17	16	25	24	18	16	25	18	19	21	20	32	39	28	31	46
Personal care and household goods	368	8	12	15	24	18	15	17	14	22	20	17	17	49	23	22	23	9	8	14	9	12
Electrical components and equipment	363	6	7	5	9	21	15	9	14	14	22	11	18	19	19	21	16	31	23	9	21	53
Audio-visual electronics	360	7	12	11	9	9	16	10	11	22	20	17	23	18	16	19	16	33	25	11	30	25
Motor vehicles and parts	333	8	6	10	8	5	18	12	11	14	19	27	19	20	22	25	19	19	19	18	16	18
Networking	332	6	4	6	6	6	11	10	6	6	10	12	14	19	13	21	23	35	29	27	21	47
Aerospace and defense	244	2	5	7	9	4	4	8	5	13	20	14	13	22	15	17	16	12	12	11	14	21
Industrial manufacturing	217	10	16	15	7	18	7	10	4	11	11	10	6	17	5	12	11	10	8	10	6	13
Oil and gas, mining	195	8	3	11	9	10	11	15	8	11	10	7	12	13	1	10	7	7	7	7	10	18
Construction and building components	186	4	2	6	3	5	4	8	8	15	15	10	9	6	13	11	8	13	10	6	12	18
Civil engineering	169	3	6	5	3	5	8	7	8	7	18	19	13	11	9	10	10	2	6	7	6	6
Household appliances and lighting	115	1	3	2	3	4	8	4	3	13	9	8	3	4	4	2	8	8	8	4	5	11
Recreation and sports equipment	82	5	1	3	5	4	2	3	5	5	2	4	7	3	5	6	1	3	4	2	3	9
Office equipment	63	3	2	1	2	2	4	3	2	5	5	4	3	6	1	5	3	2	5	1	2	2
Other transport	57	0	2	1	2	1	2	2	1	3	2	4	3	6	3	8	2	6	1	0	3	5
Other	240	5	5	5	11	11	6	9	11	17	16	13	14	8	16	18	11	10	15	10	10	19

NOTES: Data include institutions affiliated with academic institutions, such as university and alumni organizations, foundations, and university associations. Universities vary in how patents are assigned, e.g., to boards of regents, individual campuses, or entities with or without affiliation with university. The Patent Board™ technology areas constitute an application-oriented classification system that maps the thousands of International Patent Classes (IPCs) at main group level into 1 of 35 technology areas. If patent has more than one IPC, only primary IPC is considered in mapping. Data in table not comparable to previous versions due to changes in classification system.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from U.S. Patent and Trademark Office (USPTO), Patent Grant Bibliographic Data.

Science and Engineering Indicators 2012

Appendix table 5-48
Academic patenting and licensing activities: 1999–2009

Activity indicator	1999 (139)	2000 (142)	2001 (139)	2002 (156)	2003 (165)	2004 (164)	2005 (158)	2006 (161)	2007 (161)	2008 (159)	2009 (153)
						$millions					
Net royalties[a]	583.0	1,012.0	753.9	868.9	866.8	924.8	1,588.1	1,322.2	1,898.8	2,127.2	1,474.6
Gross royalties[a]	675.5	1,108.9	868.3	997.8	1,033.6	1,088.4	1,775.0	1,511.6	2,098.8	2,397.2	1,782.1
Royalties paid to others	34.5	32.7	41.0	38.8	65.5	54.4	67.8	67.9	63.7	114.8	153.2
Unreimbursed legal fees expended	58.0	64.2	73.4	90.1	101.3	109.2	119.1	121.5	136.3	155.3	154.3
						Number					
Invention disclosures received	10,052	10,802	11,259	12,638	13,718	15,002	15,371	16,855	17,677	17,694	18,163
New U.S. patent applications filed	4,871	5,623	5,784	6,509	7,203	9,462	9,306	10,748	10,899	11,197	11,260
U.S. patents granted	3,079	3,272	3,179	3,109	3,450	3,268	2,944	2,895	3,291	2,933	3,088
Startup companies formed	275	368	402	364	348	425	418	500	510	549	555
Operational startups	1,478	1,798	1,904	2,070	2,090	2,451	2,652	2,960	3,148	3,076	3,175
Active licenses	15,203	17,465	18,845	20,927	22,091	23,269	23,896	26,070	26,094	26,816	28,763
Revenue-generating licenses/options	6,663	7,562	7,715	8,490	8,976	9,543	10,251	10,733	12,467	13,231	13,927
New licenses/options executed[b]	3,295	3,569	3,300	3,660	3,855	4,087	4,201	4,192	4,419	4,416	4,624
Equity licenses/options	181	296	328	373	316	318	278	357	377	382	354

[a]One-year spikes in royalty data reflect extraordinary one-time payments.
[b]Data prior to 2004 may not be comparable with data for 2004 and beyond due to change in survey wording.

NOTES: Number of institutions reporting given in parentheses. Data from nonuniversity hospitals and medical institutes not included. Responding institutions may report for any 12-month period ending in the identified year.

SOURCE: Association of University Technology Managers (AUTM), AUTM Licensing Survey (various years).

Science and Engineering Indicators 2012

Appendix table 5-49

U.S. utility patents citing S&E literature, by patent assignee sector, article author sector, and patent issue year: 1998–2010

Patent assignee sector and article sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	USPTO utility patents												
All utility patents	147,484	153,458	157,471	166,023	167,317	169,009	164,285	143,802	173,780	157,282	157,772	167,350	219,645
Patents citing S&E literature, all assignee sectors	15,553	15,651	15,305	16,640	16,855	16,970	16,038	14,638	19,325	17,858	17,888	19,852	26,053
Foreign	4,434	4,495	4,409	4,987	5,135	5,236	5,156	4,693	6,333	5,807	6,046	6,802	9,264
United States	11,118	11,156	10,896	11,653	11,721	11,734	10,882	9,945	12,992	12,051	11,842	13,050	16,789
Government	280	254	165	169	178	169	190	158	187	175	199	220	305
Private	8,825	8,772	8,758	9,428	9,533	9,615	8,845	8,164	10,759	10,013	9,831	10,810	13,719
Academic	2,013	2,129	1,974	2,056	2,009	1,950	1,847	1,623	2,047	1,864	1,812	2,020	2,765
	S&E articles												
All S&E articles, all article author sectors	3,010,245	3,107,740	3,187,776	3,272,865	3,350,634	3,431,200	3,504,394	3,577,978	3,642,688	3,699,309	3,772,557	3,858,791	3,958,843
All cited S&E articles, all article author sectors	52,264	54,252	54,411	59,713	60,248	62,399	55,509	52,375	65,791	59,960	61,686	68,063	84,212
Foreign	22,455	23,891	24,189	27,063	28,355	29,959	27,115	25,638	33,309	30,400	31,447	35,228	44,297
United States	29,809	30,361	30,222	32,650	31,893	32,440	28,394	26,737	32,482	29,560	30,239	32,835	39,915
Federal government	2,541	2,505	2,241	2,440	2,240	2,260	1,817	1,697	1,998	1,863	1,837	2,060	2,434
Industry	5,350	5,341	5,430	5,658	5,758	5,837	5,313	4,987	5,853	5,286	5,199	5,308	6,226
Academic	18,280	18,844	18,888	20,521	20,045	20,258	17,832	16,856	20,698	18,835	19,599	21,435	26,322
FFRDCs	527	591	597	641	647	722	681	578	784	662	696	766	872
Nonprofit	2,846	2,829	2,831	3,112	2,959	3,107	2,545	2,429	2,889	2,674	2,687	3,026	3,775
State/local government	158	142	129	155	140	145	107	108	158	131	121	137	171
Joint/unknown sectors	107	109	107	124	104	111	100	82	103	109	99	103	114
	Citations from USPTO utility patents to S&E articles												
All citations, all article author sectors	93,830	94,130	91,859	100,517	101,001	103,254	89,101	83,110	111,346	111,903	113,332	121,498	160,503
Foreign	36,331	38,068	37,737	42,114	44,283	46,142	41,101	38,891	52,818	53,443	55,632	58,527	78,981
United States	57,499	56,061	54,121	58,403	56,718	57,112	48,000	44,219	58,528	58,460	57,700	62,971	81,522
Federal government	4,884	4,646	3,829	4,129	3,739	3,738	2,918	2,527	3,331	3,502	3,337	3,669	4,623
Industry	11,412	11,165	11,162	11,760	11,724	11,779	10,127	9,129	11,980	11,290	10,587	11,963	14,541
Academic	33,605	33,047	32,284	34,944	33,606	34,055	28,919	27,246	36,232	36,621	36,633	39,704	52,081
FFRDCs	893	981	1,010	1,201	1,360	1,480	1,368	1,085	1,462	1,362	1,395	1,437	1,717
Nonprofit	6,209	5,804	5,410	5,933	5,904	5,689	4,351	3,921	5,066	5,282	5,378	5,825	8,085
State/local government	287	226	212	227	220	191	147	155	243	198	191	205	280
Joint/unknown sectors	210	193	214	210	166	179	170	157	213	205	180	168	195

FFRDC = federally funded research and development center; USPTO = U.S. Patent and Trademark Office

NOTES: Article/citation counts from set of journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles assigned to sector on basis of institutional address(es) listed on article. Articles/citations on fractional-count basis, i.e., for articles with collaborating institutions from multiple sectors, each sector receives fractional credit on basis of proportion of its participating institutions. Citation counts based on a 6-year window with a 5-year lag, e.g., citations for 2008 are references in U.S. patents issued in 2008 to articles published in 1998–2003. Article counts are a sum of articles in the cited year window. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from U.S. Patent and Trademark Office (USPTO), Patent Grant Bibliographic Data, and Thomson Reuters, SCI and SSCI, http://www.thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 5-50
Citation of S&E articles in USPTO patents, by cited field and cited country/sector: 1998–2010

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All fields, all sectors	93,830	94,130	91,859	100,517	101,001	103,254	89,101	83,110	111,346	111,903	113,332	121,498	160,503
Foreign	36,331	38,068	37,737	42,114	44,283	46,142	41,101	38,891	52,818	53,443	55,632	58,527	78,981
United States	57,499	56,061	54,121	58,403	56,718	57,112	48,000	44,219	58,528	58,460	57,700	62,971	81,522
Federal government	4,884	4,646	3,829	4,129	3,739	3,738	2,918	2,527	3,331	3,502	3,337	3,669	4,623
Industry	11,412	11,165	11,162	11,760	11,724	11,779	10,127	9,129	11,980	11,290	10,587	11,963	14,541
Academic	33,605	33,047	32,284	34,944	33,606	34,055	28,919	27,246	36,232	36,621	36,633	39,704	52,081
FFRDCs	893	981	1,010	1,201	1,360	1,480	1,368	1,085	1,462	1,362	1,395	1,437	1,717
Nonprofit	6,209	5,804	5,410	5,933	5,904	5,689	4,351	3,921	5,066	5,282	5,378	5,825	8,085
State/local government	287	226	212	227	220	191	147	155	243	198	191	205	280
Joint/unknown sectors	210	193	214	210	166	179	170	157	213	205	180	168	195
Engineering	4,142	4,133	4,734	5,237	5,599	6,204	6,944	6,959	9,089	8,695	8,664	10,028	12,585
Foreign	2,109	2,189	2,508	2,941	3,126	3,481	3,818	3,736	4,848	4,480	4,467	5,373	6,859
United States	2,033	1,944	2,226	2,296	2,474	2,723	3,126	3,223	4,241	4,215	4,197	4,655	5,726
Federal government	84	65	76	83	106	116	143	123	154	148	137	140	180
Industry	851	771	881	871	903	1,018	1,155	1,053	1,373	1,329	1,288	1,333	1,541
Academic	936	951	1,102	1,167	1,273	1,365	1,597	1,772	2,414	2,421	2,460	2,814	3,584
FFRDCs	74	83	101	105	122	139	161	149	151	147	138	172	216
Nonprofit	67	56	53	51	57	68	55	109	122	153	153	180	191
State/local government	1	0 *	0	2	1	3	1	0 *	1	0	2	2	6
Joint/unknown sectors	21	18	13	16	12	14	14	17	25	18	20	14	10
Astronomy	2	1	2	0	4	2	4	1	7	6	1	13	8
Foreign	2	1	0	0	1	1	2	1	1	4	1	7	7
United States	0	0	2	0	3	1	3	0	6	2	0	6	1
Federal government	0	0	0	0	0	0	1	0	0 *	0 *	0	0	0
Industry	0	0	0	0	0	1	1	0	1	0	0	1	0
Academic	0	0	2	0	3	0	1	0	4	2	0	3	0
FFRDCs	0	0	0	0	0	0	1	0	0 *	0	0	2	0
Nonprofit	0	0	0	0	0	0	0	0	0	0	0	1	1
State/local government	0	0	0	0	0	0	0	0	0	0	0	0	0
Joint/unknown sectors	0	0	0	0	0	0	0	0	0	0	0	0	0
Chemistry	7,693	7,874	9,230	10,896	12,364	13,000	11,826	11,140	14,639	12,843	12,607	16,026	21,641
Foreign	3,974	4,135	4,648	5,408	6,495	6,755	6,140	5,893	7,688	6,663	6,775	8,584	11,730
United States	3,719	3,739	4,582	5,488	5,869	6,245	5,686	5,247	6,951	6,180	5,832	7,442	9,911
Federal government	155	176	167	139	135	164	125	123	183	209	150	237	258
Industry	983	1,091	1,179	1,560	1,700	1,644	1,336	1,153	1,523	1,367	1,205	1,453	1,941
Academic	2,334	2,183	2,895	3,265	3,373	3,744	3,555	3,413	4,560	3,972	3,933	5,040	6,712
FFRDCs	105	160	207	289	391	386	408	262	328	273	283	301	415
Nonprofit	128	113	120	221	253	295	243	273	304	329	246	374	560
State/local government	5	7	2	4	12	6	5	11	34	15	6	21	12
Joint/unknown sectors	9	11	12	10	6	6	14	12	18	15	10	16	13
Physics	4,483	4,736	5,407	5,831	7,065	9,669	9,775	10,506	13,066	11,726	11,912	12,806	14,594
Foreign	1,874	2,082	2,327	2,837	3,752	5,301	5,419	5,758	7,171	6,312	6,423	6,817	7,678
United States	2,609	2,654	3,080	2,994	3,313	4,368	4,356	4,748	5,895	5,414	5,489	5,989	6,916
Federal government	113	112	122	137	157	208	186	220	272	216	213	247	312
Industry	1,147	1,117	1,289	1,103	1,201	1,410	1,342	1,259	1,392	1,319	1,204	1,310	1,446
Academic	1,119	1,182	1,418	1,479	1,681	2,338	2,489	2,969	3,772	3,478	3,552	3,945	4,584
FFRDCs	170	180	205	229	232	364	285	266	402	340	416	405	405
Nonprofit	50	57	34	38	33	40	37	19	47	48	95	71	148
State/local government	0	0	0	0	0	0	0	0	0	0 *	0	0	1
Joint/unknown sectors	11	7	12	8	9	9	17	14	10	12	9	11	20
Geosciences	256	298	303	263	355	371	436	332	398	288	388	488	619
Foreign	105	123	121	112	167	144	180	157	167	162	205	217	326

Appendix table 5-50
Citation of S&E articles in USPTO patents, by cited field and cited country/sector: 1998–2010

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
United States	151	175	181	151	188	227	256	175	231	126	183	271	293
Federal government	18	14	15	16	15	25	31	15	28	16	22	30	38
Industry	31	24	35	19	35	40	47	30	32	16	28	39	50
Academic	85	119	118	105	125	143	159	116	156	79	118	180	181
FFRDCs	8	6	7	4	5	7	12	8	8	8	5	14	19
Nonprofit	4	5	4	3	3	6	2	4	3	4	6	5	5
State/local government	2	5	0 *	2	5	3	5	2	4	2	3	2	1
Joint/unknown sectors	3	2	2	3	1	2	0 *	1	0 *	1	0 *	2	0 *
Mathematics	28	18	27	28	53	54	42	52	62	57	56	97	85
Foreign	10	4	9	8	19	17	22	15	24	19	17	36	42
United States	18	14	18	20	34	37	20	37	38	38	39	61	43
Federal government	0	0 *	0	1	0 *	1	1	1	1	0	3	0	0
Industry	4	2	3	4	1	9	1	3	4	6	3	4	3
Academic	13	10	11	12	30	26	18	32	27	31	28	56	37
FFRDCs	1	1	3	1	2	1	0	2	6	1	5	1	3
Nonprofit	1	0	0	2	1	0	0	0	1	0	0	1	0
State/local government	0	0	0	0	0	0	0	0	0	0	0	0 *	0
Joint/unknown sectors	0	0 *	1	0	0	0	0	0	0	0	0	0	0
Computer sciences	1,070	981	979	966	959	885	1,087	1,258	2,072	1,780	2,195	2,623	2,888
Foreign	238	213	225	252	293	272	382	395	657	561	690	849	1,049
United States	832	768	754	714	666	613	705	863	1,415	1,219	1,505	1,774	1,839
Federal government	8	11	11	9	6	5	8	8	16	7	9	15	17
Industry	323	289	279	254	239	246	291	355	535	475	641	687	643
Academic	471	439	409	430	402	336	387	483	825	705	827	1,021	1,123
FFRDCs	12	12	17	9	9	13	12	8	15	6	9	21	13
Nonprofit	4	7	9	3	7	7	5	3	13	15	14	21	31
State/local government	0	0	3	0	0	3	0	0	0	0	0	0	0
Joint/unknown sectors	13	10	25	9	4	2	3	6	10	10	6	8	12
Agricultural sciences	561	774	751	878	844	722	566	467	719	862	706	913	1,465
Foreign	283	353	389	443	439	362	287	263	376	414	366	455	703
United States	278	421	362	435	405	360	279	204	343	448	340	458	762
Federal government	41	50	50	110	93	90	68	59	90	92	60	105	162
Industry	37	69	61	72	55	38	55	34	85	65	62	69	107
Academic	189	292	244	244	245	227	150	107	161	276	207	275	483
FFRDCs	1	1	0	1	1	0	0	0	2	2	3	1	2
Nonprofit	6	6	4	7	10	4	3	2	3	9	3	3	4
State/local government	2	1	1	1	1	0	2	0	0	1	0 *	2	0
Joint/unknown sectors	2	2	1	1	0 *	2	1	2	3	3	5	5	3
Biological sciences	58,136	58,257	53,261	57,068	54,902	52,742	42,252	38,278	52,120	51,922	50,500	53,689	70,203
Foreign	20,672	21,819	20,446	21,981	21,621	21,027	17,401	16,111	22,493	22,470	22,756	23,845	32,387
United States	37,464	36,438	32,815	35,087	33,282	31,715	24,851	22,167	29,627	29,452	27,744	29,844	37,816
Federal government	3,539	3,286	2,581	2,725	2,359	2,311	1,804	1,423	1,916	2,020	1,927	2,093	2,468
Industry	7,003	6,756	6,306	6,698	6,487	6,254	5,042	4,429	5,903	5,495	4,927	5,638	6,769
Academic	21,749	21,595	19,549	20,952	19,779	18,741	14,728	13,480	18,020	18,207	17,307	18,271	23,565
FFRDCs	431	439	396	478	519	481	425	354	486	490	407	448	556
Nonprofit	4,488	4,152	3,790	4,027	3,953	3,727	2,688	2,327	3,086	3,058	3,011	3,244	4,271
State/local government	180	128	127	129	116	119	86	90	124	102	96	99	131
Joint/unknown sectors	75	81	66	79	69	82	78	65	92	81	69	52	55
Medical sciences	17,354	16,979	17,004	19,216	18,690	19,450	16,042	13,976	18,983	23,579	26,123	24,598	36,088
Foreign	7,027	7,116	7,014	8,083	8,311	8,742	7,391	6,521	9,315	12,299	13,866	12,278	18,082
United States	10,328	9,863	9,991	11,133	10,379	10,708	8,651	7,455	9,668	11,280	12,257	12,320	18,006
Federal government	922	930	806	905	865	817	548	554	667	790	807	791	1,178
Industry	1,024	1,037	1,114	1,171	1,087	1,091	841	784	1,117	1,208	1,219	1,423	2,030

Appendix table 5-50
Citation of S&E articles in USPTO patents, by cited field and cited country/sector: 1998–2010

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Academic	6,663	6,244	6,463	7,230	6,628	7,059	5,790	4,812	6,220	7,388	8,118	7,983	11,638
FFRDCs	92	99	75	84	79	88	64	37	64	95	130	72	87
Nonprofit	1,456	1,407	1,382	1,575	1,579	1,536	1,316	1,178	1,472	1,659	1,841	1,915	2,863
State/local government	97	85	76	88	82	57	48	52	76	77	83	75	129
Joint/unknown sectors	75	61	75	81	60	59	44	39	52	64	59	61	82
Other life sciences	29	25	34	23	45	46	32	44	56	33	48	55	71
Foreign	14	12	13	11	16	13	17	13	31	16	22	17	28
United States	15	13	21	12	29	33	14	31	25	17	26	38	43
Federal government	1	1	1	2	1	0	0	1	1	1	4	5	5
Industry	5	3	7	3	7	6	10	18	6	4	3	1	3
Academic	8	8	9	4	14	25	3	10	11	8	17	27	28
FFRDCs	0	0	0	0	1	1	1	0	1	0	0	0 *	1
Nonprofit	0	1	3	2	5	0	0	1	5	3	2	5	6
State/local government	0	0	0	0	0 *	0	0	0	1	0	1	0	0 *
Joint/unknown sectors	0	0	1	1	1	1	0	0	1	1	0 *	0 *	0 *
Psychology	64	44	104	97	106	98	86	85	107	90	97	124	171
Foreign	21	17	27	33	36	27	38	27	39	36	37	46	76
United States	43	27	77	64	70	71	48	58	68	54	60	78	95
Federal government	3	2	1	3	2	1	3	1	3	1	2	1	4
Industry	5	3	5	7	8	20	6	8	9	5	6	6	6
Academic	33	21	54	49	48	44	36	43	43	43	44	63	81
FFRDCs	0	0	0	1	0	0	0	0	0	0	0	0	0
Nonprofit	2	0 *	11	3	5	5	2	5	9	3	6	4	4
State/local government	0 *	0 *	2	2	2	0	0	0 *	3	1	1	3	0
Joint/unknown sectors	0	0	4	0 *	5	1	0 *	1	1	1	2	0	0
Social sciences	11	9	22	13	14	11	9	12	28	22	35	38	85
Foreign	2	3	8	5	6	3	5	2	8	7	6	5	14
United States	9	6	14	8	7	8	4	10	20	14	29	33	71
Federal government	1	0	0 *	0	0	0	0	0	1	1	5	4	1
Industry	1	1	2	0 *	1	2	0	3	0	0	0	0	3
Academic	5	4	11	7	5	5	4	7	19	11	23	27	65
FFRDCs	0	1	0	0	0	0	0	0	0	0	0	0	0
Nonprofit	1	0 *	1	0	0	1	0	0	0	2	0 *	1	1
State/local government	0	0	0	0	1	0	0	0	0 *	1	0	0	0 *
Joint/unknown sectors	1	0	0	1	0	0	0	0	0	0	0	0	0 *

* = rounds to zero

FFRDC = federally funded research and development center; USPTO = United States Patent and Trademark Office

NOTES: Citations are references to country/sector S&E articles in journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Citations on fractional-count basis, i.e., for cited articles with collaborating institutions from more than one country/sector, each receives fractional credit on basis of proportion of its participating institutions. Citation counts based on a 6-year window with 5-year lag, e.g., citations for 2002 are references in USPTO patents issued in 2002 to articles published in 1992–97. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2011) from USPTO, Patent Grant Bibliographic Data, and Thomson Reuters, SCI and SSCI, http://www.thomsonreuters.com/products_services/science/.

Science and Engineering Indicators 2012

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	5,351,921	5,738,140	6,320,451	6,601,181	6,995,799	7,747,584	8,037,387	8,136,542	8,285,417	8,769,343
United States	1,878,982	1,997,410	2,137,652	2,249,345	2,364,571	2,504,290	2,680,620	2,886,537	3,102,811	3,315,248
EU	1,811,133	1,902,775	2,099,407	1,977,340	2,080,290	2,389,881	2,480,235	2,370,823	2,467,003	2,534,127
Belgium	54,043	56,942	63,875	62,911	68,762	82,056	81,248	73,701	76,632	78,667
Czech Republic	5,821	4,974	5,454	7,094	8,347	10,011	11,679	10,540	11,985	11,659
Denmark	35,076	35,650	39,433	38,192	42,073	48,430	49,143	46,253	47,925	48,248
Finland	30,461	28,831	26,307	21,030	24,620	31,237	31,350	29,856	32,703	33,917
France	356,868	358,844	401,082	387,008	404,089	467,685	472,761	432,035	446,616	452,364
Germany	442,225	468,434	542,326	543,081	572,387	675,635	671,454	602,590	608,281	618,306
Ireland	12,134	12,758	14,715	14,218	15,650	20,611	22,030	23,500	25,524	29,583
Italy	258,741	275,504	290,614	237,803	235,856	249,368	286,795	275,515	280,250	285,446
Netherlands	78,225	82,300	92,642	92,041	99,338	120,595	122,248	113,201	119,555	124,634
Poland	8,135	10,863	14,318	13,385	17,199	22,192	26,303	28,560	32,393	32,003
Spain	107,549	118,317	133,162	113,727	112,500	130,291	135,831	125,512	132,559	135,839
Sweden	58,925	61,655	63,801	57,349	60,891	69,045	79,552	75,719	76,961	81,325
United Kingdom	277,470	298,464	311,306	288,041	311,071	335,684	362,011	413,117	447,656	471,924
All others	85,459	89,239	100,373	101,459	107,506	127,044	127,831	120,726	127,965	130,213
Japan	717,322	819,721	905,905	1,065,030	1,189,827	1,344,289	1,215,556	1,129,855	1,041,566	1,206,722
China	79,758	86,510	104,347	131,037	126,009	153,042	176,589	202,401	208,641	221,818
Asia-8	180,694	202,811	241,424	258,925	304,855	353,853	396,978	401,493	323,228	378,889
India	43,718	41,524	40,998	42,905	48,000	56,193	59,140	65,460	68,169	76,379
Indonesia	13,989	16,336	18,095	20,490	24,020	26,559	29,499	30,859	12,125	16,849
Malaysia	7,894	9,482	12,198	15,518	17,723	21,320	26,211	26,556	19,733	22,154
Philippines	5,359	5,850	6,839	7,271	8,597	10,417	13,047	13,762	12,472	14,944
Singapore	13,444	16,339	19,202	23,002	27,759	33,159	39,671	41,725	33,621	34,418
South Korea	53,069	60,904	68,512	77,068	93,720	120,087	132,067	124,251	89,877	116,588
Taiwan	31,928	35,375	43,449	47,285	54,203	60,491	66,163	73,222	69,750	80,196
Thailand	11,292	17,000	32,132	25,387	30,833	25,627	31,180	25,659	17,480	17,360
All others	684,032	728,914	831,715	919,504	930,247	1,002,230	1,087,410	1,145,432	1,142,168	1,112,539
Central Asia and Europe	30,565	31,338	42,788	68,720	73,692	93,659	110,158	120,403	109,141	98,032
Russia	4,177	2,575	10,218	29,051	44,812	55,692	66,479	73,710	47,179	30,059
Turkey	25,820	28,393	29,236	33,380	22,529	32,040	36,464	38,578	55,485	63,656
Ukraine	569	371	3,333	6,288	6,352	5,927	7,215	8,116	6,476	4,317
Middle East and North Africa	60,212	58,769	66,700	69,595	76,264	97,475	107,207	113,300	122,882	126,841
Egypt	10,554	6,199	8,137	10,534	12,989	15,799	19,059	20,479	22,410	23,996
Iran	4,941	5,267	6,591	6,256	6,679	6,890	7,189	7,729	9,198	7,876
Israel	14,972	16,371	17,704	17,275	19,219	34,173	38,311	38,961	41,379	42,375
Morocco	3,793	4,025	4,631	4,509	4,848	5,770	5,597	5,285	7,154	7,488
Saudi Arabia	16,314	17,010	17,666	18,266	18,255	19,105	19,804	20,627	20,701	21,762
All others	9,638	9,897	11,970	12,754	14,273	15,739	17,246	20,219	22,040	23,343

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	9,156,162	9,278,443	9,771,661	10,950,726	12,133,230	13,067,345	14,081,028	15,652,047	16,913,782	16,846,958	18,185,317
United States	3,611,164	3,822,086	3,979,042	4,172,857	4,418,508	4,753,529	5,108,730	5,364,512	5,539,105	5,629,646	5,910,136
EU	2,367,538	2,418,004	2,691,676	3,315,029	3,816,247	4,001,237	4,257,439	4,909,461	5,286,522	5,030,348	5,057,030
Belgium	72,760	74,400	81,669	100,987	117,221	122,592	130,106	150,247	167,676	164,091	166,894
Czech Republic	10,942	12,493	16,199	20,033	23,135	26,501	30,049	37,425	47,647	43,451	42,157
Denmark	44,599	46,247	50,241	63,216	72,634	75,986	80,493	91,476	102,850	103,038	105,870
Finland	33,288	33,424	37,409	44,279	50,970	52,623	56,891	68,840	74,921	66,701	67,583
France	419,522	422,667	468,349	581,100	660,512	688,323	734,319	834,213	922,737	914,870	901,440
Germany	540,956	541,358	593,025	734,063	833,951	850,226	877,944	986,418	1,069,176	1,035,854	1,040,583
Ireland	31,286	33,790	39,303	51,972	60,501	71,685	80,488	93,120	99,692	88,047	81,969
Italy	266,528	276,671	303,556	381,319	429,425	447,182	463,110	529,308	579,800	552,901	545,133
Netherlands	117,029	123,365	137,153	173,878	197,325	208,704	217,036	247,829	277,006	276,077	276,230
Poland	34,291	39,673	41,737	45,396	52,027	62,938	69,988	87,773	110,018	90,649	97,913
Spain	128,667	138,332	156,640	201,753	235,755	254,320	279,710	341,098	392,490	396,730	390,874
Sweden	77,151	72,091	80,147	101,349	120,092	123,905	131,468	150,700	160,621	138,464	156,330
United Kingdom	468,088	476,209	539,729	631,700	746,395	781,863	851,330	988,354	936,527	835,204	862,328
All others	122,430	127,284	146,518	183,985	216,305	234,389	254,507	302,660	345,361	324,273	321,727
Japan	1,327,614	1,179,569	1,149,177	1,260,763	1,357,300	1,367,046	1,319,970	1,313,230	1,440,759	1,480,979	1,614,634
China	251,014	273,045	297,752	334,108	388,499	448,713	543,111	698,897	879,227	1,011,235	1,242,323
Asia-8	420,303	405,978	457,154	512,764	576,271	650,728	739,481	844,160	889,390	868,461	1,066,661
India	78,519	84,835	91,513	106,979	120,692	139,562	156,914	196,976	243,454	260,057	331,904
Indonesia	22,478	20,922	27,150	33,879	36,961	40,681	51,094	59,450	67,236	71,571	95,031
Malaysia	22,926	22,533	24,147	26,259	28,304	27,813	31,226	35,357	37,823	35,483	43,791
Philippines	15,186	13,855	15,152	14,976	16,791	19,222	23,112	28,453	32,209	31,686	36,269
Singapore	39,170	35,713	37,916	39,365	46,780	48,214	56,116	63,048	69,567	68,208	83,019
South Korea	133,494	129,657	154,231	175,163	198,892	236,089	270,254	300,534	271,279	245,969	293,286
Taiwan	91,462	82,417	88,130	95,035	103,728	112,280	120,134	123,593	127,868	115,933	137,136
Thailand	17,068	16,046	18,916	21,108	24,124	26,867	30,631	36,750	39,954	39,555	46,225
All others	1,178,530	1,179,761	1,196,860	1,355,205	1,576,405	1,846,092	2,112,297	2,521,787	2,878,779	2,826,288	3,294,533
Central Asia and Europe	105,725	109,792	125,016	151,710	202,205	254,158	318,234	414,855	511,572	449,082	513,165
Russia	39,301	53,095	66,537	79,496	108,345	139,526	184,750	240,304	305,843	265,002	298,842
Turkey	62,018	50,420	51,001	62,731	80,239	98,093	112,471	144,147	164,836	153,708	179,857
Ukraine	4,406	6,278	7,478	9,483	13,620	16,538	21,013	30,405	40,893	30,372	34,465
Middle East and North Africa	138,285	142,622	149,128	155,810	176,673	205,760	234,594	275,950	326,986	330,548	372,228
Egypt	24,640	23,991	21,216	18,197	19,671	22,473	24,798	23,971	28,673	32,378	34,087
Iran	10,161	13,059	19,504	21,183	26,069	30,281	37,455	47,582	60,023	53,123	60,849
Israel	48,262	47,428	45,609	45,503	50,330	54,839	58,646	69,827	84,894	81,672	90,446
Morocco	7,405	7,628	8,198	9,977	11,461	12,894	14,037	17,434	19,718	20,779	21,625
Saudi Arabia	22,602	23,551	24,599	25,789	27,502	29,586	31,854	34,110	36,900	39,972	45,135
All others	25,215	26,965	30,002	35,161	41,640	55,686	67,804	83,027	96,777	102,626	120,086

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	227,855	254,456	328,680	392,333	368,978	357,207	387,232	423,999	433,708	388,707
Argentina	31,413	46,246	59,147	52,369	56,891	59,604	60,704	63,935	66,709	67,713
Brazil	125,697	121,641	161,194	208,684	160,585	158,564	183,260	189,591	184,312	127,933
Chile	6,870	7,620	9,745	10,989	12,984	16,231	17,931	19,931	20,000	18,764
Colombia	9,044	9,800	11,643	13,995	19,467	23,927	27,179	31,215	28,641	24,074
Costa Rica	958	1,410	1,644	1,944	2,179	2,372	2,454	2,657	2,852	3,119
Mexico	39,572	49,978	65,276	82,409	90,179	65,159	64,838	75,946	85,241	101,723
Peru	4,151	5,881	6,241	5,066	6,294	7,959	8,567	9,346	9,281	8,529
Venezuela	3,980	4,984	5,609	6,028	7,813	9,744	6,894	13,960	18,366	19,868
All others	6,171	6,897	8,182	10,849	12,587	13,648	15,404	17,418	18,307	16,983
Sub-Saharan Africa	24,402	26,595	29,123	27,637	28,170	34,003	34,507	37,057	36,081	32,681
Kenya	1,818	1,776	1,657	1,096	1,347	1,997	1,879	2,187	2,375	2,138
Nigeria	2,276	2,290	1,669	1,292	1,714	3,328	4,310	4,436	5,536	1,603
South Africa	16,054	18,642	21,970	21,631	22,514	25,749	24,957	26,948	25,024	25,797
All others	4,256	3,886	3,826	3,617	2,596	2,928	3,361	3,485	3,146	3,143
Other developed	331,500	347,030	352,438	348,019	368,434	402,328	429,670	431,261	419,948	445,118
Australia	87,573	89,653	91,028	89,143	100,882	110,424	124,701	127,272	115,029	127,857
Canada	148,566	159,465	157,764	153,740	151,460	156,406	163,637	170,121	167,580	179,354
New Zealand	10,314	10,176	9,530	10,251	12,234	14,666	16,711	16,968	14,484	15,209
Norway	26,175	26,585	29,514	27,138	28,511	33,285	34,835	34,906	35,709	37,244
Switzerland	58,872	61,150	64,603	67,747	75,347	87,547	89,785	81,994	87,146	85,455
Other developing	9,497	10,726	11,985	13,200	14,709	17,558	18,638	19,413	20,408	21,159
Bangladesh	2,894	3,263	3,386	3,695	4,030	4,423	4,781	4,908	5,087	5,375
Pakistan	5,548	6,184	7,013	7,521	8,236	9,325	9,557	9,849	10,117	10,319
Sri Lanka	620	741	839	918	1,090	1,251	1,372	1,539	2,013	2,115
Vietnam	436	537	747	1,065	1,353	2,559	2,927	3,117	3,192	3,350

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	426,018	425,621	378,797	380,428	417,782	517,784	606,371	729,871	852,782	827,161	986,634
Argentina	68,478	69,394	22,523	23,969	27,715	34,300	42,505	53,477	68,532	70,261	82,582
Brazil	146,117	125,809	116,762	121,237	135,408	185,814	230,963	296,164	353,988	355,980	460,242
Chile	19,001	17,489	17,251	18,358	22,326	26,492	30,306	34,566	38,663	39,537	48,403
Colombia	20,269	20,369	20,433	19,447	23,579	29,712	32,882	42,576	50,020	49,500	60,128
Costa Rica	3,446	3,766	4,055	4,277	4,490	4,829	5,465	6,433	7,690	7,625	9,380
Mexico	120,435	135,900	152,253	149,201	156,493	182,107	199,497	220,738	232,265	197,667	220,542
Peru	8,848	9,049	9,647	10,424	11,281	12,580	14,058	16,285	19,454	19,992	23,537
Venezuela	22,394	25,209	18,526	15,699	17,057	19,566	25,839	31,754	43,778	47,009	36,355
All others	17,030	18,637	17,348	17,817	19,433	22,383	24,857	27,877	38,391	39,590	45,466
Sub-Saharan Africa	32,966	30,563	30,937	43,925	55,552	63,643	71,337	79,767	79,310	82,531	101,800
Kenya	2,041	2,337	2,561	3,098	3,147	3,581	4,279	5,286	5,671	5,813	6,344
Nigeria	1,733	1,922	2,204	2,475	3,432	4,986	7,959	8,564	10,303	9,534	12,102
South Africa	25,903	23,460	22,184	34,076	44,912	51,027	54,502	60,835	57,838	61,797	77,418
All others	3,289	2,844	3,988	4,276	4,061	4,049	4,598	5,083	5,498	5,387	5,937
Other developed	452,809	448,573	488,009	595,433	693,454	769,990	842,599	976,293	1,057,607	1,080,085	1,258,209
Australia	125,544	118,666	133,608	171,348	208,094	232,282	251,438	301,019	325,141	370,249	460,161
Canada	196,762	197,768	203,699	241,442	276,237	312,376	352,559	394,131	417,790	406,717	463,948
New Zealand	13,581	13,730	16,479	22,300	27,490	31,801	31,141	38,041	38,295	34,013	41,531
Norway	35,547	37,629	44,909	55,087	62,764	70,718	75,588	93,030	104,463	98,754	111,100
Switzerland	81,374	80,780	89,313	105,256	118,870	122,813	131,873	150,071	171,919	170,353	181,469
Other developing	22,727	22,590	24,972	27,900	30,739	34,757	39,162	45,050	50,521	56,881	62,496
Bangladesh	5,561	5,588	5,843	6,347	6,787	7,039	7,348	8,401	9,601	11,021	12,430
Pakistan	11,485	11,146	12,669	14,269	15,736	18,251	20,968	24,088	25,389	28,863	31,651
Sri Lanka	2,107	2,093	2,398	2,614	2,838	3,333	3,893	4,539	5,829	6,363	7,493
Vietnam	3,574	3,763	4,062	4,670	5,378	6,133	6,953	8,021	9,702	10,634	10,923

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Knowledge- and technology-intensive industries include knowledge-intensive services and high-technology manufacturing industries classified by Organisation for Economic Co-operation and Development. Knowledge-intensive services include education, health, and business, financial, and communications services. High-technology manufacturing industries include aerospace, communications and semiconductors, computers and office machinery, pharmaceuticals, and scientific instruments and measuring equipment. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-2

Nominal GDP, by region/country/economy: 1995–2010

(Billions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	29,209	29,917	29,799	29,544	30,620	31,557	31,355	32,627	36,628	41,173	44,425	48,044	54,080	59,135	56,112	60,946
United States	7,415	7,838	8,332	8,793	9,354	9,951	10,286	10,642	11,142	11,868	12,638	13,399	14,062	14,369	14,119	14,660
EU	9,105	9,298	8,762	9,057	9,066	8,407	8,516	9,297	11,326	13,036	13,587	14,508	16,744	17,970	16,144	16,008
Belgium	284	275	249	255	254	232	233	253	312	361	377	400	459	503	471	466
Czech Republic	55	62	57	62	60	57	62	75	91	109	124	143	174	216	190	192
Denmark	182	184	170	174	174	160	161	174	213	245	258	274	311	342	309	310
Finland	131	128	123	130	130	122	125	135	164	189	195	208	246	270	238	239
France	1,573	1,573	1,422	1,469	1,456	1,327	1,342	1,457	1,797	2,055	2,133	2,259	2,583	2,824	2,627	2,555
Germany	2,522	2,441	2,164	2,182	2,140	1,899	1,897	2,025	2,450	2,739	2,781	2,920	3,334	3,623	3,330	3,298
Ireland	67	74	81	88	96	97	105	123	158	186	202	224	260	263	223	206
Italy	1,127	1,259	1,193	1,216	1,200	1,097	1,119	1,222	1,511	1,728	1,777	1,866	2,116	2,292	2,112	2,047
Netherlands	420	418	387	403	412	385	402	439	540	610	638	679	783	869	795	778
Poland	139	157	157	173	168	171	190	198	217	253	304	342	425	529	431	469
Spain	597	622	573	601	618	580	610	688	885	1,045	1,129	1,235	1,442	1,591	1,465	1,406
Sweden	254	276	253	255	259	247	227	251	315	362	370	399	462	486	404	459
United Kingdom	1,156	1,221	1,361	1,455	1,503	1,478	1,473	1,617	1,866	2,204	2,279	2,447	2,810	2,648	2,178	2,245
All others	599	606	571	595	595	553	571	639	806	950	1,020	1,112	1,338	1,515	1,370	1,338
Japan	5,265	4,646	4,265	3,855	4,373	4,671	4,097	3,920	4,231	4,607	4,554	4,364	4,377	4,880	5,032	5,460
China	872	1,015	1,129	1,186	1,247	1,368	1,491	1,618	1,800	2,098	2,435	2,903	3,702	4,734	5,200	6,102
Asia-8	1,802	1,947	1,906	1,489	1,720	1,879	1,810	1,974	2,209	2,520	2,875	3,265	3,825	3,977	3,905	4,843
India	368	389	421	424	453	468	483	505	591	715	840	946	1,197	1,283	1,353	1,722
Indonesia	202	227	216	95	140	165	160	196	235	257	286	365	432	510	539	707
Malaysia	89	101	100	72	79	94	93	101	110	125	138	156	186	223	193	238
Philippines	74	83	82	65	76	76	72	78	80	87	99	118	144	167	161	189
Singapore	87	95	99	85	85	94	88	91	96	113	125	145	177	189	183	223
South Korea	539	581	538	360	464	533	505	576	644	722	845	952	1,049	931	834	1,014
Taiwan	275	288	299	275	299	326	294	301	311	341	365	376	392	400	378	431
Thailand	168	182	151	112	123	123	116	127	143	161	176	207	247	273	264	319
All others	4,750	5,173	5,405	5,162	4,862	5,282	5,154	5,176	5,919	7,045	8,336	9,605	11,370	13,206	11,712	13,873
Central Europe/Asia	578	681	710	582	473	557	539	619	784	1,047	1,332	1,627	2,089	2,566	1,951	2,349
Russia	313	392	405	271	194	259	306	345	431	591	764	990	1,300	1,659	1,221	1,479
Turkey	228	244	255	269	248	267	195	232	303	391	482	529	646	727	612	732
Ukraine	37	45	50	42	32	31	38	42	50	65	86	108	143	180	117	138
Middle East/North Africa	515	575	605	591	626	715	712	766	836	976	1,169	1,368	1,598	1,990	1,750	1,967
Egypt	60	68	76	85	90	96	89	82	71	78	93	108	132	165	187	193
Iran	46	55	63	63	60	71	85	134	139	171	204	243	311	395	338	386
Israel	96	105	109	110	111	125	123	113	119	128	134	146	168	202	195	218
Morocco	37	41	37	40	40	37	38	40	50	57	60	66	75	89	91	94
Saudi Arabia	142	158	165	146	161	188	183	189	215	250	315	356	385	476	373	435
All others	133	149	155	148	165	198	195	209	243	292	363	449	528	664	565	643
South and Central America	1,753	1,900	2,076	2,069	1,852	2,039	1,973	1,721	1,792	2,078	2,524	2,975	3,524	4,112	3,811	4,587
Argentina	258	272	293	299	284	284	269	102	128	152	182	213	260	326	307	369

Appendix table 6-2

Nominal GDP, by region/country/economy: 1995–2010

(Billions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Brazil	769	840	871	844	587	644	552	506	552	664	882	1,089	1,367	1,653	1,593	2,089
Chile	72	76	83	79	73	75	69	67	74	96	118	147	164	171	161	203
Colombia	110	116	127	117	103	100	98	98	95	117	147	163	207	245	236	288
Costa Rica	12	12	13	14	16	16	16	17	18	19	20	23	26	30	29	36
Mexico	335	387	468	487	566	672	710	705	700	760	849	951	1,036	1,094	880	1,035
Peru	54	56	59	57	52	53	54	57	61	70	79	92	107	127	127	154
Venezuela	77	71	86	91	98	117	123	93	85	113	146	184	228	312	327	241
All others	66	71	76	80	73	77	81	76	79	88	100	113	128	153	151	172
Sub-Saharan Africa	275	307	317	298	203	212	196	205	276	352	409	462	516	560	524	656
Kenya	12	12	13	14	13	13	13	13	15	16	19	23	27	30	29	32
Nigeria	92	128	133	129	36	46	44	59	68	88	112	145	166	214	171	221
South Africa	151	144	149	134	133	133	119	111	168	219	247	261	286	276	284	364
All others	21	23	23	21	21	20	20	22	26	29	31	33	37	40	40	39
Other developed	1,498	1,573	1,554	1,477	1,559	1,594	1,572	1,691	2,037	2,372	2,657	2,898	3,328	3,621	3,293	3,886
Australia	382	428	427	382	414	399	379	426	540	658	738	784	952	1,041	974	1,233
Canada	590	614	638	617	661	725	715	734	866	992	1,134	1,279	1,424	1,503	1,339	1,577
New Zealand	60	67	67	55	57	52	51	60	80	100	112	108	131	129	116	140
Norway	149	160	158	151	159	168	171	192	225	259	302	337	387	445	370	413
Switzerland	316	305	265	273	268	250	255	279	326	363	372	391	434	503	493	524
Other developing	131	137	142	145	149	164	162	174	194	219	244	276	315	356	383	427
Bangladesh	38	40	41	43	45	45	45	47	52	56	58	60	69	80	89	99
Pakistan	59	59	59	59	59	71	68	75	84	97	109	126	143	145	156	172
Sri Lanka	13	14	15	16	16	16	16	17	19	21	24	28	32	41	42	50
Vietnam	21	25	27	27	29	31	33	35	39	45	53	61	71	91	96	106

EU = European Union; GDP = gross domestic product

NOTES: GDP data by region/country/economy from IHS Global Insight. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. Detail may not add to total because of rounding. China includes Hong Kong. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of Global Economy and World Industry databases.

Science and Engineering Indicators 2012

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	3,000,572	3,189,987	3,566,791	3,801,075	4,014,410	4,423,899	4,624,855	4,733,747	4,870,773	5,173,395
United States	1,080,550	1,131,575	1,222,995	1,297,776	1,368,885	1,461,355	1,588,650	1,739,040	1,901,510	2,051,862
EU	976,100	1,020,094	1,121,863	1,069,997	1,120,781	1,285,872	1,344,486	1,294,934	1,356,940	1,411,288
Belgium	28,614	30,324	34,710	33,649	37,033	44,529	44,495	40,825	43,388	44,253
Czech Republic	2,980	3,097	3,295	4,396	4,987	5,620	6,509	5,782	7,046	6,638
Denmark	15,178	15,404	16,949	16,597	18,683	20,972	21,171	20,417	20,867	20,712
Finland	12,377	10,913	9,765	8,195	9,494	12,371	12,239	11,676	12,886	13,275
France	199,113	198,447	219,418	208,147	217,475	248,033	253,084	230,459	240,547	247,987
Germany	254,502	266,142	307,438	316,509	330,368	388,059	384,476	345,564	347,731	358,696
Ireland	5,805	6,122	7,124	6,782	7,166	9,272	9,931	10,913	12,460	13,318
Italy	130,297	139,611	147,464	122,777	120,305	131,598	151,243	143,868	148,305	155,059
Netherlands	40,966	43,837	49,582	49,458	54,960	68,806	72,162	67,745	72,195	76,120
Poland	2,415	3,821	6,450	6,325	8,946	11,160	13,675	15,906	18,319	18,469
Spain	58,252	63,741	69,727	59,358	58,265	67,622	69,738	66,261	70,904	72,227
Sweden	29,287	29,932	29,348	25,293	26,874	29,428	34,831	34,358	34,445	37,488
United Kingdom	152,408	162,367	168,704	159,158	170,171	182,439	203,579	236,663	258,975	275,725
All others	43,909	46,337	51,889	53,352	56,053	65,963	67,354	64,498	68,874	71,322
Japan	393,376	450,357	506,992	597,094	675,895	766,967	687,914	642,568	590,486	681,671
China	49,734	53,495	66,021	82,738	81,653	98,765	114,211	129,126	129,006	133,526
Asia-8	103,035	114,077	129,245	145,968	170,579	200,906	225,158	228,673	179,431	205,949
India	25,540	25,029	24,061	26,358	29,626	35,239	35,864	40,197	41,329	46,965
Indonesia	10,183	12,193	13,500	15,425	18,126	19,862	21,408	20,682	7,854	10,365
Malaysia	5,661	6,435	8,209	10,632	11,641	13,837	16,944	17,356	12,702	13,359
Philippines	3,717	3,966	4,157	4,371	5,169	6,092	7,140	7,427	6,255	7,306
Singapore	7,055	8,113	9,563	11,480	13,864	16,132	19,569	21,522	19,104	18,971
South Korea	26,486	32,033	36,547	40,314	47,919	61,232	70,301	67,077	46,006	59,079
Taiwan	18,033	19,212	24,367	26,383	31,080	32,999	35,063	39,560	36,769	41,544
Thailand	6,360	7,096	8,840	11,006	13,155	15,511	18,869	14,852	9,411	8,359
All others	397,776	420,390	519,676	607,501	596,617	610,034	664,437	699,406	713,399	689,099
Central Asia and Europe	20,014	21,784	31,354	51,633	54,081	58,919	66,806	72,955	73,096	72,154
Russia	1,999	1,682	9,059	23,937	34,783	33,667	37,360	40,873	26,473	19,174
Turkey	17,816	19,964	20,802	23,663	15,594	23,053	26,985	29,052	44,074	51,184
Ukraine	199	139	1,493	4,033	3,704	2,198	2,462	3,031	2,549	1,795
Middle East and North Africa	41,590	42,750	49,148	50,974	55,554	64,313	71,091	72,589	81,038	84,449
Egypt	3,471	2,160	3,440	5,245	7,150	8,997	11,358	12,304	13,876	15,477
Iran	4,067	4,342	5,589	5,305	4,625	4,720	5,110	5,620	5,894	5,271
Israel	11,361	12,553	14,025	12,971	14,535	19,675	21,936	20,481	22,720	22,994
Morocco	1,519	1,626	1,878	1,828	1,892	2,335	2,173	2,056	4,873	5,009
Saudi Arabia	13,425	14,061	14,627	15,135	15,646	15,676	16,291	16,966	16,995	17,962
All others	7,746	8,007	9,590	10,490	11,707	12,910	14,223	15,163	16,679	17,735

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	5,426,740	5,570,352	5,829,542	6,488,601	7,161,741	7,762,799	8,396,454	9,383,125	10,096,664	10,106,473	10,900,546
United States	2,260,400	2,424,674	2,492,144	2,591,795	2,734,997	2,971,658	3,204,819	3,353,720	3,424,069	3,421,374	3,606,766
EU	1,321,703	1,357,507	1,514,692	1,869,450	2,160,732	2,261,584	2,418,374	2,816,462	3,025,171	2,891,205	2,890,291
Belgium	41,414	42,343	46,421	57,156	67,440	70,460	75,242	87,334	96,795	94,216	95,746
Czech Republic	6,109	7,147	9,453	11,594	13,388	15,125	17,151	22,240	28,473	25,685	24,470
Denmark	19,552	20,405	22,281	28,148	32,818	34,731	37,174	43,163	48,169	47,920	49,327
Finland	13,624	14,076	15,335	17,020	20,450	20,642	22,918	28,671	31,776	29,522	30,234
France	234,702	235,062	260,968	323,759	369,965	385,148	415,798	475,144	526,960	531,107	522,201
Germany	306,060	308,403	335,695	418,872	477,209	481,728	497,822	555,485	601,550	585,171	585,098
Ireland	15,285	17,344	19,871	28,385	33,249	41,682	47,202	54,834	57,535	47,105	42,578
Italy	146,690	152,963	168,731	215,458	241,943	251,176	256,096	300,031	328,967	312,848	308,456
Netherlands	71,216	75,641	82,277	103,772	117,776	126,149	131,118	149,503	165,671	164,142	163,636
Poland	20,631	23,289	23,972	25,440	30,041	36,413	40,639	52,315	65,286	54,790	58,921
Spain	69,523	76,716	87,631	111,929	130,344	140,677	156,596	195,345	221,987	225,515	217,147
Sweden	36,510	34,459	36,471	45,391	54,555	56,870	60,642	71,160	75,751	64,483	73,772
United Kingdom	272,740	279,348	324,329	383,472	453,727	473,381	519,962	611,976	584,216	529,661	542,107
All others	67,645	70,312	81,258	99,052	117,829	127,401	140,014	169,264	192,036	179,042	176,598
Japan	752,727	685,939	673,598	729,847	776,111	790,009	765,509	761,894	829,687	869,860	915,944
China	148,214	156,738	166,206	178,471	199,814	226,662	281,095	381,463	485,571	576,797	714,275
Asia-8	219,706	221,351	247,764	274,812	300,074	340,371	383,959	447,596	490,825	485,091	598,847
India	48,319	53,463	57,974	68,296	76,704	87,988	99,761	124,777	161,728	174,727	225,068
Indonesia	14,317	13,846	17,615	21,789	23,584	26,107	32,876	37,421	42,591	45,844	60,953
Malaysia	13,142	14,106	15,384	16,211	17,095	18,417	20,888	24,753	27,415	27,401	33,858
Philippines	7,053	6,841	7,394	7,762	8,485	10,405	12,050	14,893	17,038	17,501	20,205
Singapore	19,593	19,315	19,416	20,144	22,763	22,258	26,413	33,926	40,127	40,139	47,051
South Korea	64,221	64,762	80,311	89,680	95,778	114,993	129,832	145,126	130,892	113,895	138,083
Taiwan	45,275	41,697	41,477	41,565	44,922	48,409	48,686	50,867	53,236	47,490	52,120
Thailand	7,786	7,320	8,193	9,365	10,744	11,795	13,453	15,834	17,797	18,094	21,508
All others	723,990	724,144	735,138	844,225	990,012	1,172,515	1,342,698	1,621,989	1,841,341	1,862,146	2,174,422
Central Asia and Europe	77,548	79,652	83,835	105,154	138,148	175,056	218,263	290,465	358,181	320,352	365,862
Russia	26,303	35,974	41,465	53,379	69,651	92,245	121,491	162,374	207,306	183,628	205,044
Turkey	49,311	40,595	38,764	47,165	60,687	74,089	85,629	110,296	126,060	117,681	139,718
Ukraine	1,934	3,083	3,606	4,610	7,810	8,723	11,143	17,795	24,814	19,043	21,100
Middle East and North Africa	91,889	95,447	100,749	106,287	122,943	145,956	168,415	204,450	240,431	246,868	278,943
Egypt	16,159	15,446	12,792	10,978	12,876	13,799	14,915	17,009	20,759	23,520	24,891
Iran	6,941	8,838	13,307	15,007	18,181	20,750	26,068	34,881	43,882	39,282	44,888
Israel	25,702	25,772	25,780	25,073	28,444	32,164	34,281	41,523	49,482	48,599	53,881
Morocco	4,924	4,962	5,408	6,417	7,463	8,375	9,370	11,916	13,350	14,229	14,690
Saudi Arabia	18,656	19,449	20,308	21,313	22,779	24,605	26,497	28,476	30,951	33,707	38,004
All others	19,508	20,981	23,155	27,499	33,201	46,264	57,283	70,644	82,007	87,531	102,591

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	127,502	138,753	216,919	281,743	247,474	219,827	239,024	257,878	267,258	226,409
Argentina	13,133	18,070	23,687	32,305	35,923	38,228	39,129	41,141	43,356	43,398
Brazil	74,567	72,681	131,697	173,878	122,168	96,329	114,173	120,736	121,911	78,118
Chile	4,123	4,382	5,456	6,085	7,189	8,780	11,313	12,533	12,383	11,240
Colombia	4,479	4,648	7,151	8,589	12,064	14,712	16,353	18,410	16,605	12,560
Costa Rica	700	831	949	1,101	1,218	1,327	1,368	1,483	1,547	1,672
Mexico	20,259	25,925	34,688	44,823	49,891	37,776	34,949	38,374	43,069	52,109
Peru	2,720	3,382	3,175	2,595	3,802	5,204	5,739	6,284	6,178	5,558
Venezuela	3,031	3,873	4,237	4,564	6,363	7,777	5,338	7,117	9,718	10,042
All others	4,490	4,962	5,880	7,804	8,857	9,694	10,662	11,801	12,491	11,712
Sub-Saharan Africa	19,011	20,839	22,852	22,241	23,144	27,444	27,580	29,564	28,778	26,331
Kenya	1,598	1,564	1,143	753	992	1,450	805	934	958	806
Nigeria	1,935	1,783	1,211	1,125	1,517	2,524	3,403	3,402	4,428	1,314
South Africa	13,521	15,739	18,669	18,617	19,259	21,971	21,371	23,178	21,387	22,131
All others	1,956	1,754	1,830	1,746	1,376	1,498	2,001	2,050	2,005	2,080
Other developed	183,964	189,989	192,366	193,220	207,732	229,008	248,897	254,802	250,915	267,024
Australia	53,721	54,248	55,386	54,549	62,313	69,089	78,246	81,632	73,895	83,476
Canada	73,451	77,599	75,497	74,397	75,011	78,831	84,798	90,864	91,684	97,921
New Zealand	6,519	6,304	5,799	6,294	7,697	9,288	10,709	10,901	9,232	9,741
Norway	12,026	11,917	13,146	12,195	12,800	14,615	14,942	15,417	16,043	16,626
Switzerland	38,246	39,921	42,538	45,785	49,910	57,185	60,203	55,988	60,062	59,260
Other developing	5,695	6,273	7,036	7,691	8,632	10,524	11,039	11,617	12,314	12,732
Bangladesh	1,874	1,927	1,992	2,154	2,367	2,609	2,884	3,007	3,047	3,232
Pakistan	3,175	3,567	4,119	4,462	4,926	5,530	5,500	5,698	5,798	5,920
Sri Lanka	507	593	669	717	867	998	1,110	1,265	1,800	1,831
Vietnam	139	187	257	358	472	1,387	1,545	1,647	1,669	1,748

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	240,955	239,546	216,206	219,741	242,056	308,787	358,511	434,029	500,855	491,063	591,198
Argentina	43,347	44,400	14,745	15,243	17,885	21,811	26,491	32,914	41,908	43,119	51,050
Brazil	83,622	72,965	68,879	72,211	78,139	112,876	137,065	176,402	210,594	216,429	281,353
Chile	11,123	10,188	9,944	11,895	14,453	17,424	19,938	22,763	25,172	25,562	31,600
Colombia	11,276	11,249	12,200	11,673	14,147	17,717	19,295	25,174	29,929	30,195	37,152
Costa Rica	1,876	2,036	2,202	2,342	2,471	2,700	3,108	3,704	4,390	4,406	5,432
Mexico	61,589	68,633	81,374	80,571	87,124	104,614	115,036	129,247	136,596	115,032	128,343
Peru	5,789	5,827	6,252	6,684	7,245	8,154	9,190	10,863	13,183	13,690	16,415
Venezuela	10,499	11,556	8,876	7,370	7,955	8,923	12,306	14,975	20,976	23,358	17,543
All others	11,834	12,691	11,733	11,752	12,636	14,569	16,083	17,987	18,105	19,273	22,312
Sub-Saharan Africa	26,257	24,564	24,255	35,343	44,802	51,652	58,256	65,254	65,108	68,099	84,450
Kenya	983	1,184	1,209	1,450	1,392	1,632	2,063	2,699	2,928	3,191	3,480
Nigeria	1,432	1,579	1,855	2,101	2,994	4,479	7,394	7,916	9,495	8,867	11,254
South Africa	21,984	20,016	18,761	28,639	37,788	42,908	45,836	51,421	49,182	52,566	65,884
All others	1,859	1,785	2,430	3,153	2,629	2,633	2,964	3,218	3,502	3,475	3,833
Other developed	274,070	271,601	295,448	361,471	424,240	470,793	516,128	601,172	646,523	701,660	816,222
Australia	82,851	78,374	87,988	112,944	137,165	152,563	166,868	200,860	217,433	273,005	338,633
Canada	109,224	112,109	115,801	137,128	158,647	180,454	203,176	226,190	236,225	240,754	273,149
New Zealand	8,610	8,838	10,728	14,455	17,702	20,560	20,114	24,768	25,291	22,462	27,429
Norway	16,134	16,953	19,931	24,992	29,515	33,644	35,623	45,484	50,559	46,853	51,983
Switzerland	57,251	55,326	61,001	71,952	81,211	83,573	90,348	103,871	117,015	118,587	125,027
Other developing	13,270	13,333	14,646	16,229	17,823	20,270	23,125	26,619	30,244	34,104	37,746
Bangladesh	3,286	3,309	3,461	3,730	3,965	4,109	4,272	4,823	5,446	6,291	7,037
Pakistan	6,219	6,137	6,861	7,673	8,427	9,885	11,558	13,262	13,899	15,820	17,269
Sri Lanka	1,905	1,901	2,194	2,461	2,690	3,162	3,761	4,406	5,649	6,183	7,284
Vietnam	1,859	1,987	2,129	2,365	2,741	3,114	3,533	4,128	5,250	5,810	6,156

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Knowledge-intensive services classified by Organisation for Economic Co-operation and Development and include education, health, and business, financial, and communications services. Commercial knowledge-intensive services exclude education and health. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-4

Value added of education services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	854,086	925,588	1,011,034	1,036,107	1,095,490	1,209,926	1,241,865	1,237,420	1,252,757	1,314,352
United States	284,774	307,120	324,611	339,077	355,055	369,337	384,144	401,587	425,500	453,800
EU	308,153	328,534	369,906	343,244	359,995	412,313	421,850	396,813	409,601	412,937
Belgium	11,871	12,381	13,911	13,636	14,594	17,084	16,577	14,761	15,086	14,828
Czech Republic	1,416	884	946	1,269	1,601	2,026	2,359	2,054	2,094	2,156
Denmark	6,309	6,530	7,205	6,972	7,519	8,705	8,891	7,982	8,337	8,381
Finland	6,043	6,117	5,556	4,317	4,977	5,984	5,936	5,395	5,547	5,471
France	55,065	57,308	65,824	64,755	67,816	79,470	78,822	72,030	74,495	74,482
Germany	61,920	66,352	78,363	78,490	82,498	98,806	97,273	86,758	87,873	86,777
Ireland	2,107	2,184	2,624	2,551	2,759	3,178	3,369	3,341	3,243	3,188
Italy	55,997	58,702	62,686	49,763	49,400	50,207	58,810	55,266	55,134	54,418
Netherlands	12,774	12,912	14,603	14,236	14,929	17,464	16,809	15,073	15,736	16,151
Poland	2,523	3,481	3,989	3,386	4,131	5,490	6,386	6,225	6,796	6,650
Spain	20,429	22,661	26,830	23,338	23,520	27,235	28,473	25,689	26,882	27,742
Sweden	8,661	9,160	10,063	9,533	9,937	11,419	12,687	11,718	11,779	12,230
United Kingdom	43,742	49,655	54,336	48,349	52,351	57,023	57,722	64,041	69,049	72,689
All others	19,296	20,207	22,969	22,648	23,965	28,222	27,737	26,480	27,550	27,774
Japan	104,437	119,650	135,235	165,688	178,289	192,062	172,982	158,514	150,454	174,018
China	10,355	11,601	13,898	18,048	17,064	21,040	24,280	28,852	33,414	36,684
Asia-8	28,613	31,166	39,159	42,938	49,087	52,272	59,053	58,815	48,284	56,370
India	6,876	6,161	6,327	6,142	6,694	7,668	8,602	9,345	9,905	10,790
Indonesia	1,430	1,495	1,627	1,827	1,996	2,197	2,470	2,865	1,447	2,146
Malaysia	89	101	125	140	156	173	199	201	154	163
Philippines	480	515	831	967	1,229	1,492	1,787	1,938	1,754	2,260
Singapore	896	1,055	1,219	1,367	1,691	1,954	2,720	2,836	2,560	2,557
South Korea	11,394	13,102	14,712	16,443	19,329	23,715	26,536	24,858	17,239	21,391
Taiwan	4,820	5,796	7,172	7,832	8,744	9,907	10,851	11,560	10,831	12,128
Thailand	2,628	2,942	7,147	8,221	9,248	5,166	5,888	5,212	4,393	4,936
All others	117,755	127,518	128,225	127,112	135,999	162,903	179,555	192,839	185,503	180,543
Central Asia and Europe	6,057	5,174	5,923	7,184	8,331	17,084	21,735	23,556	18,019	12,890
Russia	1,203	421	272	713	3,211	10,052	13,774	15,334	10,085	5,050
Turkey	4,680	4,646	4,760	5,341	3,879	5,155	5,609	5,753	5,921	6,508
Ukraine	174	107	891	1,131	1,242	1,876	2,352	2,470	2,013	1,332
Middle East and North Africa	10,839	8,153	9,377	10,205	11,297	17,686	19,493	21,609	22,687	22,369
Egypt	6,575	3,802	4,441	4,976	5,482	6,378	7,173	7,537	7,752	7,626
Iran	111	113	121	142	529	596	591	667	1,841	1,249
Israel	1,092	1,102	1,227	1,542	1,733	6,490	7,394	7,650	7,556	7,657
Morocco	936	991	1,118	1,095	1,202	1,400	1,392	1,315	908	992
Saudi Arabia	1,245	1,269	1,307	1,347	1,117	1,474	1,507	1,569	1,590	1,629
All others	880	876	1,163	1,103	1,233	1,348	1,436	2,872	3,041	3,216

Appendix table 6-4

Value added of education services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,329,891	1,355,534	1,436,964	1,612,579	1,769,938	1,882,812	2,002,401	2,228,503	2,435,431	2,420,234	2,552,808
United States	483,300	511,500	545,000	581,000	609,800	637,900	674,900	717,000	757,900	782,700	805,682
EU	379,202	387,623	430,238	527,370	600,211	627,638	654,685	750,278	807,813	773,926	763,106
Belgium	13,200	13,547	14,939	18,563	20,907	21,911	23,073	26,335	29,994	29,499	29,455
Czech Republic	2,037	2,248	2,783	3,530	4,056	4,803	5,450	6,504	8,033	7,519	7,249
Denmark	7,590	7,690	8,496	10,513	12,040	12,284	12,863	14,124	16,032	16,280	16,289
Finland	4,912	5,044	5,601	7,008	8,054	8,390	8,688	9,924	11,168	10,993	10,877
France	66,453	67,412	74,048	91,548	101,161	104,664	108,055	122,064	133,076	130,516	125,103
Germany	76,820	76,475	83,627	100,011	113,582	115,238	114,767	128,923	140,895	139,462	135,016
Ireland	3,032	3,392	4,170	5,651	6,645	7,385	8,396	10,042	11,743	11,834	10,979
Italy	48,133	49,279	54,556	68,729	73,802	77,481	80,751	91,562	96,444	94,465	90,950
Netherlands	14,935	15,702	17,864	22,652	25,711	26,457	27,346	31,492	35,410	35,633	34,940
Poland	6,721	7,911	8,298	9,371	11,447	13,690	14,803	17,879	21,885	17,662	18,653
Spain	25,727	27,209	30,557	38,887	45,552	48,368	51,907	61,128	70,405	70,793	71,495
Sweden	11,291	10,788	12,155	15,858	17,926	18,211	19,178	21,670	23,218	20,381	22,317
United Kingdom	72,845	74,477	82,849	95,491	113,488	119,484	127,101	146,989	138,280	119,952	122,020
All others	25,506	26,448	30,295	39,559	45,841	49,273	52,307	61,643	71,229	68,937	67,763
Japan	169,921	150,044	145,679	153,667	163,115	157,982	149,095	145,266	162,298	167,656	177,192
China	40,799	47,004	51,988	56,882	65,716	75,532	84,108	102,539	128,342	144,609	171,602
Asia-8	62,032	62,295	68,843	78,811	88,357	101,484	116,534	134,054	137,498	133,950	157,416
India	11,355	11,716	12,422	14,362	16,305	19,009	21,189	26,850	30,503	32,167	40,163
Indonesia	2,503	2,399	3,091	3,963	4,528	5,083	6,431	7,377	8,080	8,819	11,626
Malaysia	429	481	520	559	601	630	711	880	1,059	1,030	1,222
Philippines	2,370	2,408	2,697	2,982	3,445	3,615	4,632	5,776	6,458	6,362	7,149
Singapore	2,820	2,965	3,166	3,276	3,588	3,759	4,184	4,728	5,489	5,592	6,176
South Korea	24,335	24,239	27,906	32,901	37,745	45,368	53,417	59,779	55,440	49,803	57,967
Taiwan	13,318	13,533	14,122	15,436	15,958	17,034	17,606	18,223	19,130	18,747	20,233
Thailand	4,900	4,553	4,918	5,332	6,187	6,986	8,364	10,442	11,339	11,432	12,882
All others	194,637	197,069	195,216	214,849	242,740	282,275	323,079	379,367	441,579	417,393	477,809
Central Asia and Europe	14,195	14,989	17,219	21,329	27,559	34,813	42,840	55,488	68,958	59,785	65,950
Russia	6,372	8,445	8,943	10,378	13,910	17,471	22,821	30,095	38,976	32,968	36,289
Turkey	6,471	4,887	6,251	8,380	10,599	13,209	14,810	18,856	21,677	20,657	22,705
Ukraine	1,352	1,657	2,025	2,571	3,050	4,133	5,210	6,538	8,305	6,160	6,956
Middle East and North Africa	22,900	23,931	24,594	24,123	25,847	29,005	32,279	32,539	38,597	38,474	42,487
Egypt	7,578	7,525	7,192	6,189	5,659	7,272	8,303	5,242	5,751	6,535	6,793
Iran	1,144	1,660	2,736	2,355	3,248	3,820	4,639	4,876	6,197	5,313	6,054
Israel	8,224	8,531	7,834	7,972	8,607	8,828	9,395	10,986	13,285	12,723	13,982
Morocco	975	1,054	1,096	1,404	1,585	1,748	1,830	2,132	2,465	2,568	2,691
Saudi Arabia	1,690	1,758	1,838	1,914	2,018	2,123	2,226	2,334	2,462	2,606	2,930
All others	3,290	3,403	3,897	4,288	4,730	5,215	5,886	6,969	8,437	8,729	10,038

Appendix table 6-4

Value added of education services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	44,662	53,798	50,693	49,384	55,712	64,190	70,619	80,794	80,968	79,485
Argentina	9,304	14,555	18,440	10,034	10,833	11,203	11,254	11,716	12,182	12,958
Brazil	21,647	21,719	10,565	12,574	14,377	27,551	31,456	31,215	28,285	22,337
Chile	1,236	1,454	1,912	2,198	2,627	3,387	3,044	3,357	3,463	3,552
Colombia	2,226	2,522	2,133	2,614	3,522	4,516	5,836	7,192	6,643	6,402
Costa Rica	120	298	355	424	486	538	568	616	698	775
Mexico	8,440	10,707	14,114	18,433	20,520	13,174	14,159	17,403	19,145	22,517
Peru	849	1,588	2,003	1,584	1,580	1,748	1,787	1,893	1,965	1,838
Venezuela	102	122	169	181	180	269	223	4,647	5,698	6,473
All others	737	834	1,003	1,342	1,585	1,806	2,293	2,754	2,889	2,633
Sub-Saharan Africa	2,401	2,378	2,672	2,628	2,260	2,764	3,063	3,364	3,285	3,012
Kenya	140	135	362	242	246	384	765	911	1,049	964
Nigeria	69	67	99	115	137	165	173	219	266	73
South Africa	594	682	800	930	1,029	1,215	1,151	1,214	1,160	1,213
All others	1,598	1,495	1,412	1,342	848	1,000	974	1,020	810	762
Other developed	52,234	56,162	57,469	55,367	55,778	58,109	61,346	60,050	56,942	59,044
Australia	13,779	14,458	14,784	14,424	15,785	16,453	18,710	18,727	16,971	17,948
Canada	29,864	33,019	33,383	32,170	30,754	30,755	31,330	30,560	29,319	30,221
New Zealand	1,687	1,683	1,631	1,709	1,951	2,332	2,583	2,588	2,249	2,371
Norway	5,186	5,272	5,832	5,240	5,480	6,384	6,675	6,411	6,608	6,796
Switzerland	1,719	1,730	1,838	1,825	1,809	2,184	2,048	1,764	1,795	1,709
Other developing	1,561	1,851	2,089	2,343	2,621	3,069	3,298	3,465	3,602	3,742
Bangladesh	405	557	588	650	702	763	791	822	882	961
Pakistan	916	1,005	1,114	1,154	1,258	1,458	1,509	1,578	1,654	1,695
Sri Lanka	46	60	70	81	88	97	102	100	71	81
Vietnam	195	229	318	459	572	751	896	965	995	1,004

Appendix table 6-4

Value added of education services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	91,225	92,777	82,022	83,519	90,086	107,805	127,169	152,196	184,264	178,239	206,723
Argentina	13,615	13,542	4,287	4,780	5,451	7,162	9,513	12,348	16,466	16,866	19,384
Brazil	28,479	23,063	21,851	23,158	25,529	32,779	42,203	54,716	65,048	64,429	82,428
Chile	3,731	3,482	3,514	3,630	4,358	5,028	5,698	6,471	7,530	7,825	9,220
Colombia	5,262	5,362	4,764	4,541	5,490	6,951	7,742	9,734	11,271	10,909	12,900
Costa Rica	856	949	1,005	1,050	1,082	1,129	1,220	1,393	1,664	1,627	1,974
Mexico	26,963	32,029	34,781	34,830	35,386	40,098	43,532	47,074	50,136	43,773	49,170
Peru	1,916	2,040	2,122	2,336	2,560	2,793	3,033	3,395	3,884	3,923	4,414
Venezuela	7,934	9,233	6,551	5,617	6,092	7,128	8,865	11,007	14,935	15,607	12,307
All others	2,470	3,076	3,146	3,578	4,137	4,737	5,363	6,058	13,330	13,281	14,925
Sub-Saharan Africa	3,263	2,901	3,411	4,029	4,980	5,388	5,957	6,679	6,632	6,573	7,630
Kenya	748	802	958	1,191	1,266	1,382	1,567	1,838	1,915	1,749	1,882
Nigeria	131	152	147	151	168	194	225	259	326	295	376
South Africa	1,308	1,150	1,121	1,817	2,409	2,756	2,934	3,158	2,872	3,077	3,790
All others	1,076	797	1,185	870	1,138	1,056	1,231	1,425	1,519	1,452	1,582
Other developed	58,814	58,252	63,303	76,607	88,580	98,911	107,662	124,197	134,111	124,122	144,235
Australia	17,255	16,186	18,263	22,976	28,217	31,348	33,162	39,144	41,846	37,794	46,621
Canada	31,501	31,633	32,855	38,590	43,597	49,216	55,612	62,914	68,105	63,541	72,238
New Zealand	2,127	2,022	2,390	3,264	4,038	4,524	4,467	5,508	5,400	4,684	5,564
Norway	6,401	6,848	8,090	9,886	10,780	11,867	12,442	14,442	16,238	15,570	17,182
Switzerland	1,530	1,563	1,704	1,892	1,948	1,956	1,979	2,189	2,522	2,533	2,630
Other developing	4,240	4,219	4,668	5,242	5,687	6,352	7,172	8,266	9,016	10,199	10,783
Bangladesh	1,033	1,049	1,097	1,215	1,323	1,366	1,441	1,710	1,973	2,258	2,563
Pakistan	2,096	2,001	2,318	2,599	2,840	3,238	3,791	4,376	4,653	5,342	5,783
Sri Lanka	64	66	70	48	42	48	20	17	28	30	35
Vietnam	1,048	1,103	1,183	1,380	1,482	1,699	1,921	2,163	2,362	2,569	2,403

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-5

Value added of health and social services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	942,842	1,026,134	1,135,151	1,158,272	1,242,362	1,394,706	1,436,026	1,422,402	1,441,587	1,506,775
United States	335,449	367,987	403,985	424,712	444,651	465,081	482,905	504,526	528,259	559,018
EU	368,168	391,402	442,724	419,102	446,857	519,635	537,850	502,937	518,008	519,022
Belgium	10,370	11,048	11,858	12,186	13,393	15,728	15,453	13,718	14,085	14,820
Czech Republic	1,103	629	810	1,100	1,388	1,757	1,932	1,835	1,948	1,894
Denmark	11,651	11,709	12,961	12,634	13,377	15,823	16,146	14,841	15,550	15,624
Finland	9,916	10,340	9,397	6,994	7,984	9,725	9,807	8,891	9,046	8,971
France	79,195	79,649	90,916	89,964	94,889	110,924	112,351	100,453	102,303	100,696
Germany	81,662	87,506	106,693	106,349	117,196	142,941	144,116	127,632	129,754	128,048
Ireland	2,180	2,357	2,690	2,698	2,911	3,642	4,177	4,280	4,195	4,481
Italy	47,701	52,883	56,563	46,478	47,064	48,838	55,659	56,330	56,241	55,310
Netherlands	19,638	20,632	23,288	23,143	24,220	28,352	27,688	25,269	26,441	26,835
Poland	1,906	2,603	3,047	2,846	3,004	3,992	4,528	4,654	5,337	4,691
Spain	20,413	23,066	27,829	23,416	23,570	27,577	28,993	26,069	27,369	28,521
Sweden	15,969	16,890	18,555	17,477	18,257	20,809	23,601	21,281	21,340	21,901
United Kingdom	50,804	55,656	59,006	54,680	58,806	64,483	68,378	75,287	80,575	83,473
All others	15,659	16,434	19,111	19,137	20,797	25,045	25,020	22,397	23,824	23,757
Japan	89,178	101,508	116,585	142,280	165,132	191,934	179,021	168,024	158,864	185,815
China	7,261	8,131	9,576	12,256	12,171	14,859	17,088	20,042	22,728	24,641
Asia-8	21,558	22,650	26,980	28,852	32,419	35,435	40,391	42,307	37,123	43,675
India	9,422	8,442	8,670	8,417	9,173	10,507	11,787	12,806	13,572	14,785
Indonesia	1,834	1,917	2,087	2,342	2,560	2,817	3,168	3,673	1,856	2,752
Malaysia	85	96	118	133	148	164	189	191	146	155
Philippines	419	449	778	857	987	1,159	1,288	1,298	1,114	1,360
Singapore	1,149	1,352	1,563	1,753	2,169	2,506	3,488	3,637	3,283	3,280
South Korea	4,912	5,748	6,398	7,196	8,294	10,174	11,482	11,554	8,594	11,511
Taiwan	2,523	3,287	4,064	4,355	4,815	5,721	6,273	6,712	6,548	7,428
Thailand	1,214	1,360	3,303	3,799	4,274	2,388	2,717	2,436	2,011	2,405
All others	121,227	134,456	135,302	131,069	141,132	167,762	178,772	184,566	176,605	174,605
Central Asia and Europe	2,261	1,804	2,404	3,012	4,658	10,975	14,682	16,542	12,626	8,479
Russia	618	218	193	433	2,344	7,677	10,713	12,434	7,850	4,103
Turkey	1,516	1,501	1,515	1,697	1,229	1,737	1,899	1,922	3,233	3,507
Ukraine	126	85	696	882	1,084	1,562	2,069	2,187	1,543	869
Middle East and North Africa	5,306	5,357	5,906	6,053	6,892	11,225	11,717	13,452	13,030	13,296
Egypt	142	82	96	107	118	137	155	190	235	284
Iran	565	573	617	564	1,253	1,294	1,223	1,141	1,214	1,084
Israel	817	824	918	1,154	1,296	4,701	5,120	6,360	6,238	6,354
Morocco	1,282	1,358	1,532	1,500	1,647	1,919	1,908	1,802	1,244	1,359
Saudi Arabia	1,597	1,628	1,676	1,727	1,433	1,890	1,932	2,012	2,039	2,089
All others	903	892	1,067	1,001	1,145	1,284	1,379	1,947	2,061	2,125

Appendix table 6-5

Value added of health and social services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,553,570	1,614,708	1,743,496	1,996,210	2,226,159	2,370,327	2,527,756	2,796,122	3,076,743	3,089,109	3,334,927
United States	592,144	640,500	690,943	741,200	790,375	833,337	886,516	940,990	1,001,909	1,057,948	1,111,747
EU	482,222	496,548	562,532	701,464	812,377	854,110	908,428	1,030,500	1,135,932	1,099,681	1,130,741
Belgium	13,483	13,881	15,367	19,309	22,308	23,294	24,536	28,276	32,557	33,147	34,367
Czech Republic	1,806	2,099	2,805	3,383	3,997	4,555	5,099	5,874	7,752	7,224	7,220
Denmark	14,098	14,529	16,015	20,073	22,993	23,531	24,935	28,235	31,468	31,888	33,045
Finland	8,151	8,537	9,500	11,983	13,875	14,755	15,590	17,997	20,755	20,351	20,908
France	89,533	91,861	104,317	131,913	154,938	162,036	171,923	196,469	220,455	216,214	216,511
Germany	114,241	115,550	129,784	158,917	177,041	182,392	190,441	211,068	235,225	238,865	244,022
Ireland	4,639	5,358	6,372	8,843	11,063	12,051	13,589	14,995	17,418	16,528	15,866
Italy	52,639	54,410	59,127	73,074	86,478	91,706	97,361	105,443	121,206	116,728	116,714
Netherlands	25,075	27,156	32,673	42,208	48,118	49,686	52,241	60,029	68,663	70,206	71,541
Poland	4,973	6,336	7,406	8,385	8,124	9,766	11,115	13,654	17,401	14,043	15,278
Spain	26,690	27,477	31,720	42,584	50,909	55,801	60,764	72,654	86,248	88,182	90,425
Sweden	21,334	20,639	23,899	30,431	34,444	35,201	37,191	43,008	46,696	41,064	46,463
United Kingdom	83,702	85,825	96,974	115,569	137,712	145,340	156,065	176,382	165,932	143,939	156,210
All others	21,858	22,889	26,574	34,792	40,377	43,995	47,577	56,417	64,157	61,302	62,170
Japan	219,825	207,670	206,381	231,199	254,066	260,394	252,423	255,836	295,032	304,774	343,563
China	27,006	30,392	33,134	35,692	40,713	44,725	49,315	59,272	70,794	77,777	93,432
Asia-8	47,965	50,756	54,847	62,055	69,956	81,708	94,113	110,934	116,624	118,493	146,796
India	15,560	16,055	17,022	19,680	22,343	26,048	29,035	36,792	41,797	44,077	55,073
Indonesia	3,210	3,077	3,964	5,083	5,806	6,518	8,247	9,460	10,362	11,038	14,895
Malaysia	391	459	508	587	662	727	826	1,009	1,166	1,133	1,387
Philippines	1,397	1,400	1,583	1,784	2,042	2,239	2,906	3,646	4,225	4,162	4,804
Singapore	3,617	3,803	4,060	4,200	4,601	4,820	5,365	6,062	7,039	7,165	8,181
South Korea	13,075	15,397	16,714	19,456	22,341	27,862	33,092	38,147	34,982	33,825	43,328
Taiwan	8,305	8,207	8,491	8,689	9,261	10,131	10,680	11,068	11,970	11,968	13,083
Thailand	2,410	2,359	2,506	2,575	2,901	3,362	3,960	4,749	5,084	5,125	6,044
All others	184,408	188,843	195,658	224,600	258,672	296,055	336,962	398,591	456,452	430,437	508,649
Central Asia and Europe	9,483	10,393	15,006	18,555	24,201	30,487	40,156	52,480	65,996	57,091	66,459
Russia	5,184	6,718	10,280	12,273	16,446	20,023	28,228	37,156	47,954	41,135	48,184
Turkey	3,501	2,556	3,348	4,578	5,700	7,685	8,409	10,845	12,468	11,881	13,539
Ukraine	797	1,119	1,378	1,705	2,055	2,779	3,518	4,479	5,574	4,075	4,736
Middle East and North Africa	14,570	15,860	16,772	18,112	20,003	22,258	24,418	27,561	32,727	31,495	36,171
Egypt	299	303	304	252	230	296	338	213	234	266	285
Iran	1,731	2,175	2,865	3,170	3,841	4,927	5,823	6,706	8,523	7,308	8,533
Israel	6,897	7,412	7,117	7,315	7,892	8,214	8,802	9,988	11,945	11,440	13,052
Morocco	1,336	1,445	1,502	1,924	2,172	2,395	2,507	2,922	3,378	3,519	3,802
Saudi Arabia	2,167	2,254	2,358	2,454	2,588	2,722	2,854	2,993	3,157	3,330	3,861
All others	2,139	2,270	2,626	2,998	3,279	3,704	4,094	4,738	5,490	5,633	6,638

Appendix table 6-5

Value added of health and social services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	36,232	43,715	41,288	38,998	42,998	50,720	53,717	58,306	58,117	56,059
Argentina	7,558	11,825	14,981	8,166	8,815	9,071	9,205	9,661	9,931	10,238
Brazil	16,539	16,594	8,072	9,607	10,985	21,050	24,034	23,850	21,611	17,067
Chile	1,355	1,594	2,096	2,410	2,881	3,713	3,242	3,759	3,826	3,703
Colombia	1,980	2,243	1,852	2,305	3,234	3,864	4,122	4,647	4,494	4,375
Costa Rica	96	238	284	339	388	430	454	493	544	612
Mexico	7,136	9,110	11,412	13,235	13,409	8,692	8,726	10,509	11,553	13,766
Peru	341	651	765	652	675	762	821	923	911	936
Venezuela	491	586	768	867	911	1,290	991	1,874	2,530	2,954
All others	736	872	1,058	1,416	1,700	1,849	2,121	2,592	2,717	2,408
Sub-Saharan Africa	1,536	1,591	1,791	1,892	1,872	2,235	2,262	2,418	2,300	2,283
Kenya	47	45	121	81	82	129	275	304	329	318
Nigeria	18	18	26	30	36	43	45	57	70	19
South Africa	814	934	1,096	1,274	1,410	1,665	1,578	1,663	1,589	1,662
All others	657	594	548	506	344	398	363	393	312	284
Other developed	74,095	79,864	81,575	78,596	81,958	89,435	93,086	90,414	87,006	90,830
Australia	17,434	18,184	17,967	17,336	19,505	21,386	23,796	23,160	20,980	23,040
Canada	35,403	39,361	39,445	38,007	36,505	36,578	36,970	37,125	35,722	37,475
New Zealand	1,931	2,010	1,930	2,058	2,350	2,784	3,131	3,212	2,797	2,887
Norway	8,096	8,602	9,636	8,840	9,296	11,107	11,826	11,860	11,942	12,446
Switzerland	11,232	11,706	12,597	12,356	14,302	17,580	17,362	15,057	15,565	14,981
Other developing	1,798	2,125	2,337	2,519	2,754	3,172	3,309	3,434	3,525	3,659
Bangladesh	480	660	683	739	784	839	871	898	932	986
Pakistan	1,175	1,288	1,428	1,480	1,614	1,870	1,936	2,023	2,121	2,174
Sri Lanka	63	83	95	111	121	133	139	137	97	112
Vietnam	80	94	131	189	235	330	363	375	375	387

Appendix table 6-5

Value added of health and social services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	62,346	63,120	54,242	53,594	59,332	70,778	84,958	103,402	122,433	118,504	142,156
Argentina	10,464	10,522	3,165	3,487	3,809	4,649	5,754	7,340	9,153	9,375	11,111
Brazil	21,186	18,216	16,585	17,299	20,429	26,228	34,218	44,619	53,045	52,540	68,300
Chile	3,848	3,565	3,572	2,610	3,216	3,697	4,306	4,936	5,571	5,790	7,151
Colombia	3,054	3,038	2,763	2,593	3,114	4,174	4,856	6,422	7,436	7,197	8,676
Costa Rica	651	710	775	809	852	912	1,038	1,223	1,512	1,478	1,840
Mexico	16,313	19,482	21,292	20,899	21,562	23,861	26,012	28,578	30,295	26,267	29,017
Peru	956	1,009	1,074	1,201	1,304	1,431	1,565	1,700	1,995	2,015	2,337
Venezuela	3,466	3,921	2,757	2,398	2,589	3,001	4,056	5,036	6,833	7,140	5,873
All others	2,408	2,657	2,258	2,297	2,458	2,826	3,154	3,549	6,593	6,703	7,850
Sub-Saharan Africa	2,433	2,171	2,279	3,163	4,039	4,657	5,031	5,485	5,216	5,522	6,853
Kenya	267	305	345	397	419	490	570	674	747	797	903
Nigeria	34	40	38	40	44	51	59	68	82	75	98
South Africa	1,792	1,576	1,536	2,490	3,301	3,776	4,021	4,327	3,936	4,216	5,356
All others	340	250	360	236	274	339	382	416	451	434	496
Other developed	91,346	93,181	102,780	126,071	145,500	161,614	175,320	201,529	221,212	207,684	245,740
Australia	22,520	21,549	24,382	31,720	38,400	43,335	46,035	54,628	58,803	53,109	67,238
Canada	40,561	41,777	43,393	52,053	59,007	66,198	74,912	84,353	91,087	84,983	99,785
New Zealand	2,647	2,662	3,126	4,278	5,385	6,315	6,196	7,325	7,181	6,497	8,114
Norway	11,764	12,627	15,479	18,603	20,658	23,146	25,025	30,261	34,635	33,459	38,584
Switzerland	13,854	14,566	16,400	19,417	22,050	22,620	23,152	24,962	29,506	29,637	32,019
Other developing	4,230	4,118	4,581	5,105	5,598	6,261	7,078	8,135	8,869	10,141	11,271
Bangladesh	1,031	1,025	1,050	1,135	1,209	1,260	1,309	1,496	1,723	1,957	2,253
Pakistan	2,688	2,566	2,973	3,333	3,642	4,153	4,861	5,612	5,967	6,909	7,748
Sri Lanka	88	91	96	65	58	66	27	23	39	41	49
Vietnam	423	436	462	572	689	783	881	1,003	1,140	1,234	1,221

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-6

Value added of business services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	1,501,256	1,589,751	1,789,703	1,857,371	2,000,268	2,244,384	2,386,887	2,468,183	2,602,060	2,771,687
United States	590,366	596,592	643,959	683,763	729,449	783,132	863,572	956,484	1,053,443	1,144,732
EU	527,317	555,126	628,467	590,157	623,180	735,737	775,699	756,737	811,829	848,941
Belgium	14,340	15,374	17,908	17,741	19,618	23,600	24,227	23,052	25,216	26,132
Czech Republic	1,667	1,459	1,646	2,288	2,734	3,199	3,752	3,228	3,712	3,576
Denmark	7,741	7,896	8,359	8,419	9,381	10,351	10,380	10,555	10,653	11,117
Finland	5,545	4,964	4,229	3,385	4,342	5,648	6,111	6,196	6,813	7,210
France	122,520	123,192	136,446	127,218	133,795	157,903	160,995	147,234	157,261	163,593
Germany	156,381	163,734	192,872	195,888	202,719	241,638	239,752	215,980	223,251	225,841
Ireland	2,922	2,852	3,133	2,823	3,287	3,294	4,242	5,296	6,242	6,144
Italy	66,223	71,087	78,783	63,546	62,184	71,151	84,395	84,917	84,434	89,567
Netherlands	23,694	25,451	28,845	28,708	31,481	39,262	42,525	40,743	44,309	47,074
Poland	1,217	2,175	4,030	3,538	4,966	6,533	7,727	8,514	10,689	10,224
Spain	24,077	26,571	29,477	26,096	26,622	31,220	33,485	31,777	33,969	36,381
Sweden	11,393	13,145	15,265	11,575	13,231	15,979	18,877	18,029	19,784	22,150
United Kingdom	73,145	79,050	85,710	77,040	85,561	97,966	109,506	131,940	153,608	166,708
All others	16,452	18,177	21,765	21,891	23,258	27,992	29,727	29,275	31,886	33,223
Japan	172,105	211,097	247,958	291,067	317,589	358,572	329,212	307,874	298,856	341,667
China	20,401	22,321	27,912	35,473	35,642	41,643	47,240	52,853	52,280	52,238
Asia-8	33,009	36,238	40,414	45,086	52,334	62,002	70,500	72,215	56,572	64,502
India	11,746	10,736	10,556	11,424	12,140	13,119	13,343	14,612	15,170	17,127
Indonesia	2,274	2,729	3,019	3,433	4,079	4,488	4,796	4,773	1,783	2,316
Malaysia	1,030	1,164	1,506	1,977	2,144	2,540	3,117	3,199	2,308	2,437
Philippines	1,789	1,878	1,922	2,055	2,448	2,882	3,227	3,280	2,676	3,098
Singapore	2,344	2,767	3,252	3,601	4,476	5,572	6,353	6,605	5,570	5,496
South Korea	10,224	12,759	14,464	16,414	20,000	25,294	29,702	29,885	20,175	23,872
Taiwan	2,773	3,292	4,106	4,476	5,184	5,908	6,431	6,976	6,753	7,760
Thailand	828	914	1,589	1,706	1,864	2,199	3,531	2,886	2,138	2,396
All others	158,059	168,377	200,994	211,825	242,075	263,298	300,663	322,020	329,080	319,607
Central Asia and Europe	4,531	5,025	6,896	12,779	14,829	19,417	22,580	25,061	26,999	25,541
Russia	558	749	2,117	7,584	10,860	14,318	17,373	19,597	14,465	10,578
Turkey	3,850	4,220	4,479	4,624	3,211	4,295	4,321	4,386	11,593	14,156
Ukraine	123	56	300	570	758	804	887	1,077	941	808
Middle East and North Africa	17,576	18,617	21,584	21,271	22,873	26,652	28,856	29,048	31,745	32,160
Egypt	138	77	350	622	888	1,157	1,429	1,525	1,657	1,882
Iran	3,349	3,543	4,634	4,300	4,041	3,969	4,340	4,822	4,937	4,318
Israel	5,400	6,008	6,776	6,163	6,957	9,678	10,762	9,882	11,111	11,319
Morocco	399	458	541	520	542	711	619	583	1,946	2,088
Saudi Arabia	4,887	5,179	5,404	5,593	5,817	5,875	6,375	6,522	6,267	6,492
All others	3,403	3,351	3,877	4,073	4,628	5,262	5,333	5,715	5,827	6,060

Appendix table 6-6

Value added of business services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	2,930,993	3,003,335	3,119,666	3,471,567	3,848,316	4,161,345	4,523,090	5,066,099	5,506,066	5,354,407	5,704,298
United States	1,252,037	1,330,243	1,373,904	1,434,641	1,533,430	1,651,224	1,802,379	1,919,079	1,990,410	1,920,735	2,040,217
EU	819,737	853,022	929,181	1,134,917	1,303,436	1,383,708	1,492,855	1,748,831	1,909,566	1,784,680	1,789,298
Belgium	24,793	26,396	27,996	35,044	41,017	43,559	47,485	56,591	64,751	61,242	62,403
Czech Republic	3,484	3,953	5,588	6,486	7,614	9,160	10,293	12,894	17,060	15,380	14,828
Denmark	10,693	11,433	12,250	14,929	17,888	19,063	20,751	23,839	26,394	25,983	26,711
Finland	6,702	7,615	8,143	10,230	12,442	13,483	14,775	18,401	21,581	19,731	20,163
France	155,505	161,551	175,884	216,261	247,723	259,730	284,225	329,460	370,210	366,414	359,047
Germany	208,242	212,589	226,005	277,361	307,215	323,933	338,929	395,885	439,557	417,660	416,569
Ireland	7,421	8,941	9,660	12,567	14,476	20,514	24,156	27,284	29,980	24,135	23,007
Italy	85,441	87,032	98,467	125,987	141,083	145,566	148,405	169,457	188,387	180,729	176,940
Netherlands	44,237	47,242	48,789	58,150	65,873	70,502	78,471	95,189	107,881	98,941	98,194
Poland	10,705	12,227	12,610	13,184	15,173	18,925	21,307	26,329	32,972	27,976	30,092
Spain	35,118	39,115	44,766	58,521	68,370	75,359	85,383	104,839	120,867	113,333	107,473
Sweden	23,014	22,382	23,875	29,409	35,131	36,641	41,290	49,761	53,240	43,712	49,997
United Kingdom	172,676	178,607	195,195	228,524	272,769	285,224	308,673	354,250	339,292	297,685	312,927
All others	31,703	33,938	39,952	48,265	56,661	62,048	68,713	84,653	97,394	91,760	90,944
Japan	390,185	350,716	335,731	360,165	387,102	397,790	393,817	404,039	463,922	490,600	504,980
China	54,137	56,063	58,209	59,379	68,193	77,431	89,831	109,433	135,126	160,140	195,267
Asia-8	72,959	71,235	79,323	90,309	101,305	118,754	136,981	160,639	187,116	188,405	234,798
India	19,124	20,511	22,049	25,928	30,188	35,558	39,626	49,187	73,978	81,892	106,095
Indonesia	3,502	3,355	4,491	5,666	6,318	7,121	9,093	10,370	11,765	12,877	16,917
Malaysia	2,376	2,435	2,582	2,721	2,859	3,227	3,723	4,792	5,086	5,193	6,407
Philippines	2,922	2,730	2,901	3,027	3,267	3,980	4,573	5,643	6,564	6,856	8,000
Singapore	5,842	5,522	5,629	5,766	6,188	7,015	8,322	10,648	13,690	13,663	15,839
South Korea	28,088	26,062	30,786	35,698	40,022	48,398	56,658	63,522	58,266	50,263	61,473
Taiwan	8,779	8,493	8,579	9,032	9,765	10,610	11,808	12,880	14,007	13,780	15,423
Thailand	2,326	2,126	2,305	2,472	2,699	2,846	3,178	3,597	3,760	3,880	4,642
All others	341,939	342,057	343,319	392,156	454,849	532,439	607,226	724,078	819,926	809,848	939,737
Central Asia and Europe	32,518	33,278	35,781	45,176	56,988	74,641	94,579	130,937	163,472	151,209	173,485
Russia	14,394	18,894	18,927	23,658	28,444	37,677	49,010	69,940	93,188	82,452	90,987
Turkey	17,300	13,025	15,238	19,702	25,999	33,513	41,122	53,700	61,141	61,150	74,007
Ukraine	824	1,360	1,616	1,816	2,546	3,450	4,447	7,298	9,143	7,606	8,492
Middle East and North Africa	35,263	37,199	41,580	43,010	48,784	56,161	66,721	80,946	96,519	97,742	110,264
Egypt	1,845	1,810	1,665	1,363	1,279	1,792	2,221	2,360	2,835	3,400	3,617
Iran	5,271	6,884	9,935	10,564	12,578	14,771	18,789	25,003	31,582	28,290	32,250
Israel	12,783	12,875	12,987	12,520	14,268	16,306	17,585	21,320	25,449	25,520	28,283
Morocco	2,087	2,059	2,327	2,945	3,444	3,853	4,323	5,420	6,022	6,573	6,816
Saudi Arabia	6,620	6,756	6,918	7,070	7,373	7,690	8,030	8,422	9,174	10,335	11,589
All others	6,657	6,815	7,748	8,548	9,842	11,749	15,774	18,421	21,458	23,624	27,709

Appendix table 6-6

Value added of business services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	42,577	49,268	75,615	82,618	97,203	95,704	117,510	134,021	135,888	118,297
Argentina	8,119	11,229	14,904	19,702	23,000	23,918	24,539	25,710	26,078	25,678
Brazil	16,059	15,653	31,462	27,799	32,422	33,711	50,342	56,612	55,399	35,077
Chile	2,177	2,255	2,792	3,100	3,659	4,508	5,883	6,527	6,378	5,734
Colombia	2,258	2,330	3,780	4,522	6,169	7,073	7,611	8,485	7,778	5,998
Costa Rica	283	358	383	410	445	467	481	518	544	580
Mexico	8,328	11,004	15,175	19,553	22,742	15,320	17,761	23,178	25,596	31,472
Peru	1,925	2,333	2,219	1,753	2,498	3,049	3,336	3,549	3,495	3,242
Venezuela	1,529	2,005	2,512	2,564	2,466	3,320	2,726	3,557	4,444	4,823
All others	1,899	2,100	2,388	3,214	3,802	4,337	4,831	5,885	6,176	5,692
Sub-Saharan Africa	5,994	6,711	7,277	7,355	7,902	9,403	9,926	10,621	10,999	9,445
Kenya	439	434	274	186	245	193	231	261	274	248
Nigeria	277	276	197	245	747	1,308	1,741	1,736	2,701	863
South Africa	4,591	5,367	6,158	6,344	6,546	7,468	7,222	7,905	7,284	7,586
All others	687	636	648	580	365	434	733	719	740	748
Other developed	84,743	85,955	86,621	84,577	95,644	107,579	116,919	118,177	118,131	128,675
Australia	30,312	29,664	30,419	28,777	35,186	39,039	44,526	45,696	42,721	47,715
Canada	28,996	30,045	28,541	28,046	28,296	30,491	32,746	35,755	37,656	41,828
New Zealand	2,639	2,611	2,569	2,977	3,628	4,516	5,491	5,585	4,700	5,093
Norway	4,694	4,830	5,374	5,189	5,686	6,914	7,557	8,034	8,748	9,610
Switzerland	18,102	18,805	19,718	19,588	22,847	26,619	26,598	23,107	24,305	24,429
Other developing	2,637	2,802	3,002	3,224	3,623	4,544	4,871	5,092	5,317	5,490
Bangladesh	1,391	1,418	1,463	1,582	1,720	1,875	2,084	2,141	2,167	2,301
Pakistan	1,067	1,166	1,278	1,321	1,487	1,690	1,727	1,791	1,733	1,783
Sri Lanka	147	171	202	230	284	333	354	403	649	651
Vietnam	32	46	59	92	133	647	706	758	768	755

Appendix table 6-6

Value added of business services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	127,567	125,280	107,037	110,013	120,492	142,677	160,413	185,595	209,436	201,529	238,177
Argentina	25,673	24,632	7,545	8,288	9,034	10,615	12,498	15,483	19,419	20,408	24,318
Brazil	35,365	28,387	25,010	25,783	28,910	37,543	44,124	53,943	64,339	66,687	87,989
Chile	5,730	5,272	5,122	6,074	7,394	8,952	10,183	11,597	12,894	13,005	16,004
Colombia	5,904	5,595	6,711	6,322	7,558	9,298	10,378	13,285	15,120	15,355	18,795
Costa Rica	649	741	773	786	827	864	1,021	1,228	1,459	1,458	1,790
Mexico	40,317	45,709	48,828	50,228	53,038	60,155	65,087	70,242	74,247	60,665	64,840
Peru	3,400	3,601	3,740	3,937	4,252	4,668	5,106	5,826	6,871	7,273	8,718
Venezuela	5,082	5,625	4,028	3,142	3,414	3,717	4,396	5,398	7,525	8,369	6,094
All others	5,447	5,718	5,279	5,454	6,066	6,865	7,619	8,593	7,563	8,308	9,627
Sub-Saharan Africa	9,349	8,863	9,096	14,239	18,150	21,959	24,037	27,632	27,756	29,032	35,870
Kenya	404	431	455	511	529	603	705	825	897	914	999
Nigeria	975	1,007	1,092	1,346	2,030	3,152	3,650	4,273	5,182	4,834	6,117
South Africa	7,284	6,714	6,725	10,886	14,424	16,989	18,339	21,025	19,985	21,611	27,001
All others	686	712	825	1,495	1,167	1,215	1,344	1,509	1,693	1,673	1,754
Other developed	131,557	131,986	143,813	173,212	203,399	229,160	252,278	288,411	310,736	316,940	367,095
Australia	47,649	43,895	49,911	63,880	76,979	85,884	95,778	112,920	124,273	116,421	144,112
Canada	47,343	49,121	51,249	60,835	69,587	79,951	89,200	95,115	94,997	111,949	125,612
New Zealand	4,395	4,580	5,535	7,522	9,377	10,897	10,616	13,080	13,314	12,292	15,002
Norway	9,638	10,212	11,952	13,827	16,058	19,174	21,512	28,014	30,987	28,356	31,420
Switzerland	22,531	24,177	25,166	27,147	31,399	33,253	35,172	39,281	47,166	47,923	50,948
Other developing	5,686	5,450	6,012	6,506	7,035	7,842	9,197	10,557	12,006	13,397	14,847
Bangladesh	2,338	2,311	2,390	2,546	2,674	2,666	2,690	2,924	3,189	3,636	4,007
Pakistan	1,887	1,625	1,877	2,022	2,229	2,814	3,798	4,485	4,907	5,336	5,898
Sri Lanka	680	670	822	924	985	1,140	1,382	1,590	2,003	2,281	2,704
Vietnam	780	845	923	1,014	1,146	1,223	1,327	1,558	1,907	2,144	2,237

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Business activities consist of computer programming and related services, R&D services, legal, accounting, bookkeeping, auditing, tax, market research, public opinion polling, business and management, consulting, architectural, engineering, and advertising. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-7

Value added of computer programming and related services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	164,307	181,809	208,332	215,111	234,406	269,335	298,824	325,088	368,687	406,200
United States	48,080	50,547	55,958	61,839	69,695	77,028	88,891	105,302	122,855	130,864
EU	67,153	70,494	78,652	73,499	78,925	93,613	102,732	107,060	127,763	140,364
Belgium	1,056	1,133	1,319	1,307	1,445	1,739	1,787	1,885	2,393	2,766
Czech Republic	155	136	154	213	255	298	463	585	632	618
Denmark	1,336	1,327	1,407	1,351	1,526	1,515	1,359	1,792	1,828	2,011
Finland	991	945	861	694	858	1,070	1,133	1,183	1,596	1,761
France	19,248	19,358	21,713	20,142	21,278	25,666	26,157	25,202	29,364	32,307
Germany	15,049	15,757	17,722	18,253	19,139	22,764	23,590	22,637	26,298	26,384
Ireland	319	311	342	308	359	360	643	950	1,344	1,397
Italy	10,241	10,993	12,183	10,117	10,194	10,980	13,974	13,418	14,590	15,953
Netherlands	2,007	2,112	2,362	2,367	2,576	3,415	4,255	4,930	6,010	6,978
Poland	119	213	395	347	487	641	758	836	1,049	1,004
Spain	3,122	3,445	3,822	3,384	3,452	4,048	4,528	4,460	5,085	6,062
Sweden	1,980	2,285	2,653	2,012	2,413	3,184	4,061	4,187	4,842	5,707
United Kingdom	10,053	10,865	11,780	11,048	12,788	15,314	17,167	22,058	29,211	33,457
All others	1,476	1,613	1,937	1,954	2,156	2,620	2,857	2,938	3,523	3,959
Japan	21,983	31,815	39,661	43,103	43,766	51,510	52,398	53,744	59,643	75,730
China	1,740	1,949	2,400	2,902	3,048	3,376	3,905	4,554	4,676	4,698
Asia-8	4,274	4,643	5,146	5,746	6,636	7,787	9,708	10,669	8,877	11,204
India	1,629	1,489	1,464	1,584	1,683	1,819	1,850	2,026	2,103	2,375
Indonesia	315	378	419	476	566	622	665	662	247	321
Malaysia	143	161	209	274	297	352	432	444	320	338
Philippines	248	260	266	285	339	400	448	455	371	430
Singapore	325	384	451	499	621	773	881	916	772	762
South Korea	1,167	1,414	1,575	1,800	2,183	2,743	4,112	4,657	3,494	4,944
Taiwan	332	430	541	591	688	773	831	1,110	1,273	1,703
Thailand	115	127	220	237	258	305	490	400	296	332
All others	21,076	22,363	26,516	28,022	32,337	36,021	41,190	43,759	44,873	43,340
Central Asia and Europe	628	697	956	1,772	2,056	2,692	3,131	3,475	3,744	3,541
Russia	77	104	294	1,052	1,506	1,985	2,409	2,717	2,006	1,467
Turkey	534	585	621	641	445	596	599	608	1,607	1,963
Ukraine	17	8	42	79	105	111	123	149	130	112
Middle East and North Africa	2,415	2,558	2,962	2,921	3,145	3,670	3,973	3,996	4,369	4,431
Egypt	19	11	49	86	123	160	198	211	230	261
Iran	442	468	612	568	534	524	573	637	652	570
Israel	749	833	940	855	965	1,342	1,492	1,370	1,541	1,570
Morocco	55	64	75	72	75	99	86	81	270	290
Saudi Arabia	678	718	749	776	807	815	884	904	869	900
All others	472	465	538	565	642	730	739	792	808	840

Appendix table 6-7

Value added of computer programming and related services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	432,045	455,963	488,235	538,250	606,594	639,559	692,450	768,182	849,060	828,204	887,803
United States	137,568	152,460	168,228	173,484	195,774	202,911	226,415	232,558	247,632	245,640	268,812
EU	138,676	151,315	166,239	197,555	229,013	240,396	258,845	304,360	335,737	311,399	312,415
Belgium	2,620	3,328	3,475	4,164	4,661	4,914	5,335	6,597	7,736	7,317	7,413
Czech Republic	630	747	1,106	1,142	1,238	1,686	2,152	2,750	3,859	3,556	3,605
Denmark	1,989	2,316	2,635	3,201	3,691	3,472	4,134	5,012	6,407	6,307	6,515
Finland	1,673	2,105	2,165	2,625	3,338	3,593	3,900	4,738	5,434	5,060	5,219
France	30,304	31,372	33,507	40,136	46,018	46,765	51,621	59,715	68,633	67,117	66,129
Germany	25,616	28,704	29,423	32,975	37,732	39,162	40,774	49,092	56,887	54,053	54,008
Ireland	2,675	2,899	3,088	3,384	3,772	6,868	8,088	9,135	10,037	8,080	7,791
Italy	14,975	16,317	20,113	24,115	25,684	26,157	26,800	31,302	34,215	32,298	31,316
Netherlands	6,774	7,361	7,333	8,794	10,018	10,967	12,312	15,268	17,387	15,926	15,813
Poland	1,051	1,507	1,754	2,062	2,574	2,691	3,029	3,743	4,688	4,004	4,333
Spain	5,979	7,210	8,699	11,077	12,688	13,355	14,583	17,238	19,892	18,746	17,208
Sweden	5,684	6,077	6,137	7,497	9,470	9,921	10,173	11,821	13,402	11,004	12,575
United Kingdom	34,768	36,935	40,923	49,448	59,710	61,384	65,388	75,168	72,417	63,608	66,314
All others	3,940	4,438	5,880	6,935	8,416	9,462	10,556	12,782	14,741	14,322	14,177
Japan	91,143	87,897	87,590	92,443	95,325	94,985	91,293	93,293	107,120	113,280	117,604
China	5,148	5,649	6,164	6,771	7,772	8,782	9,969	11,709	14,063	14,665	18,070
Asia-8	13,642	13,455	15,052	16,547	18,386	21,685	25,205	29,142	32,163	32,134	39,586
India	2,652	2,844	3,057	3,595	4,186	4,930	5,494	6,820	10,340	11,539	14,973
Indonesia	486	465	623	786	876	987	1,261	1,438	1,702	1,953	2,628
Malaysia	329	338	358	377	396	447	516	665	703	720	892
Philippines	405	379	402	420	453	552	634	782	917	936	1,074
Singapore	810	766	781	799	858	973	1,154	1,476	1,921	1,887	2,155
South Korea	6,433	6,071	7,232	7,842	8,681	10,688	12,693	13,962	12,050	10,531	12,713
Taiwan	2,205	2,298	2,279	2,386	2,562	2,713	3,012	3,499	4,002	4,031	4,513
Thailand	322	295	320	343	374	395	441	499	528	537	639
All others	45,869	45,187	44,964	51,449	60,324	70,800	80,723	97,120	112,345	111,086	131,317
Central Asia and Europe	4,509	4,614	4,961	6,264	7,902	10,350	13,114	18,155	23,463	21,606	26,709
Russia	1,996	2,620	2,624	3,280	3,944	5,224	6,796	9,698	13,320	11,725	14,980
Turkey	2,399	1,806	2,113	2,732	3,605	4,647	5,702	7,446	8,821	8,761	10,466
Ukraine	114	189	224	252	353	478	617	1,012	1,321	1,120	1,263
Middle East and North Africa	4,855	5,113	5,700	5,895	6,682	7,691	9,129	11,060	13,361	13,337	15,022
Egypt	256	251	231	189	177	248	308	327	412	493	524
Iran	696	910	1,313	1,396	1,662	1,951	2,482	3,303	4,206	3,640	4,118
Israel	1,772	1,785	1,801	1,736	1,978	2,261	2,438	2,956	3,546	3,509	3,858
Morocco	289	286	323	408	478	534	599	752	843	915	953
Saudi Arabia	918	937	959	980	1,022	1,066	1,113	1,168	1,310	1,472	1,662
All others	923	945	1,074	1,185	1,365	1,629	2,187	2,554	3,044	3,308	3,907

Appendix table 6-7

Value added of computer programming and related services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	5,146	5,959	9,260	10,204	12,352	12,848	15,761	17,685	17,721	14,898
Argentina	1,126	1,557	2,067	2,732	3,189	3,316	3,403	3,565	3,616	3,560
Brazil	2,227	2,170	4,362	3,855	4,496	4,674	6,980	7,850	7,682	4,864
Chile	302	313	387	430	507	625	816	905	884	795
Colombia	313	323	524	627	855	981	1,055	1,177	1,078	832
Costa Rica	39	50	53	57	62	65	67	72	75	80
Mexico	407	666	896	1,477	2,043	1,724	1,948	2,339	2,457	2,890
Peru	267	324	308	243	346	423	463	492	485	450
Venezuela	202	265	332	339	326	439	360	470	587	637
All others	263	291	331	446	527	601	670	816	856	789
Sub-Saharan Africa	830	929	1,008	1,019	1,095	1,303	1,374	1,470	1,522	1,307
Kenya	61	60	38	26	34	27	32	36	38	34
Nigeria	38	38	27	34	104	181	241	241	375	120
South Africa	637	744	854	880	908	1,035	1,001	1,096	1,010	1,052
All others	94	87	89	79	50	60	99	97	100	101
Other developed	11,692	11,833	11,915	11,660	13,188	14,880	16,278	16,429	16,783	18,406
Australia	4,203	4,113	4,218	3,990	4,879	5,413	6,174	6,336	5,924	6,616
Canada	3,932	4,072	3,878	3,860	3,893	4,198	4,521	4,841	5,094	5,622
New Zealand	358	355	349	409	503	624	763	792	665	713
Norway	690	685	736	685	745	953	1,132	1,257	1,731	2,068
Switzerland	2,510	2,608	2,734	2,716	3,168	3,691	3,688	3,204	3,370	3,387
Other developing	365	387	415	446	501	628	673	703	733	757
Bangladesh	193	197	203	219	239	260	289	297	300	319
Pakistan	148	162	177	183	206	234	240	248	240	247
Sri Lanka	19	23	27	30	38	44	47	53	86	86
Vietnam	4	6	8	13	18	90	98	105	107	105

Appendix table 6-7

Value added of computer programming and related services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	15,565	14,675	11,669	11,769	12,940	15,472	17,453	20,693	23,890	23,794	29,056
Argentina	3,560	3,415	1,046	1,149	1,253	1,472	1,733	2,147	2,721	2,842	3,389
Brazil	4,904	3,936	3,468	3,575	4,009	5,206	6,118	7,480	9,173	9,371	12,434
Chile	794	731	710	842	1,025	1,241	1,412	1,608	1,847	1,864	2,321
Colombia	819	776	931	877	1,048	1,289	1,439	1,842	2,125	2,107	2,616
Costa Rica	90	103	107	109	115	120	142	170	200	201	250
Mexico	3,500	3,679	3,624	3,500	3,609	4,054	4,264	4,733	4,739	4,041	4,552
Peru	471	499	519	546	590	647	708	808	950	1,009	1,216
Venezuela	671	743	532	415	451	491	581	713	1,066	1,193	915
All others	755	793	732	756	841	952	1,057	1,191	1,067	1,166	1,364
Sub-Saharan Africa	1,294	1,227	1,259	1,970	2,513	3,041	3,329	3,827	3,921	4,046	5,059
Kenya	56	60	63	71	73	84	98	114	126	127	139
Nigeria	135	140	151	187	281	437	506	593	730	672	886
South Africa	1,010	931	932	1,509	2,000	2,356	2,543	2,915	2,833	3,025	3,801
All others	93	96	112	203	158	164	182	204	232	224	233
Other developed	18,862	18,807	20,545	24,656	29,318	33,167	36,432	41,931	46,040	46,433	53,383
Australia	6,607	6,086	6,921	8,858	10,674	11,909	13,280	15,657	17,559	16,200	19,809
Canada	6,383	6,552	6,851	8,173	9,382	10,810	12,451	13,310	13,680	15,985	17,912
New Zealand	606	631	751	1,015	1,251	1,446	1,405	1,710	1,742	1,620	1,993
Norway	2,142	2,185	2,533	2,846	3,658	4,392	4,419	5,807	6,423	5,878	6,525
Switzerland	3,124	3,352	3,489	3,764	4,354	4,611	4,877	5,447	6,636	6,750	7,144
Other developing	784	751	828	896	969	1,080	1,266	1,453	1,670	1,869	2,088
Bangladesh	324	320	331	353	371	370	373	405	449	522	588
Pakistan	262	225	260	280	309	390	527	622	682	729	803
Sri Lanka	90	88	109	122	130	151	183	210	270	311	370
Vietnam	108	117	128	141	159	170	184	216	269	308	327

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Computer programming and related services consists of hardware, software and related services, data processing, database activities, maintenance and repair of computers and related equipment, and other computer-related activities. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-8

Value added of R&D services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	98,281	103,945	117,792	121,417	134,151	151,081	163,356	167,214	170,144	176,021
United States	25,184	25,465	27,476	29,001	30,706	32,918	36,086	39,770	43,520	48,056
EU	29,421	31,156	34,570	32,170	34,412	39,357	41,669	38,881	40,760	41,808
Belgium	252	270	315	312	345	414	398	428	392	482
Czech Republic	87	76	86	119	143	167	203	160	176	167
Denmark	437	458	424	351	427	404	469	403	438	466
Finland	485	516	466	340	399	483	520	518	545	550
France	13,219	13,866	15,275	14,628	14,650	16,734	17,293	14,735	14,532	14,425
Germany	3,940	4,125	4,897	5,134	5,375	6,401	6,447	5,967	6,524	6,484
Ireland	13	13	14	13	15	15	27	24	36	102
Italy	2,465	2,646	2,932	2,454	3,592	3,944	4,535	4,639	5,087	5,552
Netherlands	1,370	1,359	1,446	1,361	1,372	1,699	1,694	1,460	1,476	1,565
Poland	73	130	241	211	296	390	461	508	638	610
Spain	142	157	174	154	157	184	198	188	189	191
Sweden	1,747	2,016	2,341	1,775	2,031	2,440	2,864	2,723	2,995	3,324
United Kingdom	4,370	4,723	5,121	4,457	4,698	5,007	5,345	5,806	6,194	6,386
All others	821	802	839	860	913	1,075	1,214	1,322	1,536	1,504
Japan	7,591	9,209	10,850	12,891	14,814	18,005	16,295	15,551	14,769	17,908
China	1,188	1,328	1,638	1,963	2,469	2,305	2,609	3,059	2,644	2,125
Asia-8	5,213	5,481	6,131	6,826	7,742	9,016	10,090	10,155	7,891	8,798
India	2,367	2,164	2,127	2,302	2,447	2,644	2,689	2,945	3,057	3,452
Indonesia	458	550	609	692	822	905	967	962	359	467
Malaysia	208	235	304	398	432	512	628	645	465	491
Philippines	361	379	387	414	493	581	650	661	539	624
Singapore	472	558	655	726	902	1,123	1,280	1,331	1,123	1,108
South Korea	946	1,202	1,475	1,683	1,977	2,452	2,746	2,621	1,562	1,831
Taiwan	234	210	253	266	293	357	418	409	354	342
Thailand	167	184	320	344	376	443	712	582	431	483
All others	29,684	31,306	37,126	38,566	44,008	49,479	56,607	59,799	60,560	57,326
Central Asia and Europe	913	1,013	1,390	2,576	2,989	3,913	4,551	5,051	5,442	5,148
Russia	112	151	427	1,529	2,189	2,886	3,501	3,950	2,915	2,132
Turkey	776	850	903	932	647	866	871	884	2,337	2,853
Ukraine	25	11	60	115	153	162	179	217	190	163
Middle East and North Africa	3,601	3,814	4,431	4,362	4,681	5,441	5,892	5,939	6,484	6,557
Egypt	28	16	71	125	179	233	288	307	334	379
Iran	733	776	1,015	942	885	869	950	1,056	1,081	946
Israel	1,088	1,211	1,366	1,242	1,402	1,951	2,169	1,992	2,239	2,281
Morocco	80	92	109	105	109	143	125	117	392	421
Saudi Arabia	985	1,044	1,089	1,127	1,172	1,184	1,285	1,315	1,263	1,308
All others	686	675	781	821	933	1,060	1,075	1,152	1,174	1,221

Appendix table 6-8

Value added of R&D services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	184,294	186,531	197,928	222,461	247,480	269,795	299,076	341,798	383,239	391,362	431,483
United States	54,835	62,474	70,588	74,145	77,513	83,493	91,969	99,090	108,142	112,916	119,234
EU	39,588	38,190	41,935	51,636	58,543	60,279	64,815	75,173	80,966	76,815	78,067
Belgium	420	441	508	707	857	920	965	1,070	1,243	1,176	1,210
Czech Republic	163	184	224	255	299	387	417	497	619	659	630
Denmark	462	437	483	686	672	699	684	676	393	387	399
Finland	503	494	565	821	879	923	929	914	1,146	1,172	1,208
France	12,196	11,663	12,863	15,444	17,301	17,311	18,314	20,706	21,569	21,839	21,510
Germany	6,851	6,006	6,632	8,425	9,408	9,020	9,274	11,442	13,056	12,405	12,465
Ireland	145	104	109	226	213	193	227	257	282	227	220
Italy	5,640	5,555	6,274	7,900	8,925	9,242	10,208	11,301	12,291	11,602	11,444
Netherlands	1,417	1,517	1,568	2,028	2,412	2,466	2,619	2,872	3,213	3,288	3,286
Poland	639	798	778	800	881	1,296	1,459	1,803	2,258	1,966	2,126
Spain	197	238	325	494	582	650	747	964	1,113	840	809
Sweden	3,508	3,385	3,612	4,422	5,081	5,313	5,942	7,311	7,762	6,373	7,313
United Kingdom	6,000	5,794	6,132	7,018	8,108	8,463	9,226	10,411	10,065	9,150	9,712
All others	1,449	1,575	1,863	2,410	2,927	3,396	3,805	4,949	5,957	5,731	5,735
Japan	17,970	15,278	14,487	15,027	15,957	14,347	13,722	13,332	15,308	16,189	17,168
China	2,051	1,923	1,838	1,805	2,024	2,219	2,364	2,719	2,303	2,480	2,835
Asia-8	9,711	9,719	10,631	12,080	13,685	16,059	18,404	22,072	28,188	30,184	38,070
India	3,854	4,134	4,444	5,226	6,084	7,167	7,987	9,914	14,946	17,003	22,015
Indonesia	706	676	905	1,142	1,273	1,435	1,833	2,090	2,392	2,654	3,471
Malaysia	479	491	520	548	576	650	750	966	1,030	1,077	1,328
Philippines	589	550	585	610	658	802	922	1,137	1,334	1,429	1,670
Singapore	1,177	1,113	1,135	1,162	1,247	1,414	1,677	2,146	2,845	2,880	3,378
South Korea	2,077	1,975	2,229	2,530	2,921	3,604	4,149	4,628	4,354	3,796	4,640
Taiwan	360	351	349	363	381	413	446	467	520	530	592
Thailand	469	429	465	498	544	574	641	725	767	815	977
All others	60,139	58,947	58,450	67,767	79,757	93,397	107,802	129,411	148,331	152,778	176,110
Central Asia and Europe	6,554	6,707	7,212	9,105	11,486	15,044	19,062	26,390	33,120	31,632	33,682
Russia	2,901	3,808	3,815	4,768	5,733	7,594	9,878	14,096	18,591	16,985	16,064
Turkey	3,487	2,625	3,071	3,971	5,240	6,755	8,288	10,823	12,680	13,050	15,827
Ukraine	166	274	326	366	513	695	896	1,471	1,849	1,598	1,791
Middle East and North Africa	7,199	7,617	8,554	8,853	10,052	11,577	13,775	16,751	20,041	20,665	23,364
Egypt	372	365	336	275	258	361	448	476	577	707	754
Iran	1,154	1,508	2,176	2,313	2,754	3,235	4,115	5,475	6,905	6,387	7,306
Israel	2,576	2,595	2,618	2,523	2,876	3,286	3,544	4,297	5,182	5,345	5,935
Morocco	421	415	469	594	694	777	871	1,092	1,222	1,380	1,435
Saudi Arabia	1,334	1,362	1,394	1,425	1,486	1,550	1,618	1,698	1,853	2,134	2,397
All others	1,342	1,373	1,562	1,723	1,984	2,368	3,179	3,713	4,302	4,710	5,537

Appendix table 6-8

Value added of R&D services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	7,091	7,959	12,522	13,135	15,488	16,547	20,486	22,844	22,796	18,190
Argentina	1,636	2,263	3,004	3,971	4,636	4,821	4,946	5,182	5,256	5,175
Brazil	3,237	3,155	6,341	5,603	6,535	6,794	10,146	11,410	11,166	7,070
Chile	439	455	563	625	738	909	1,186	1,316	1,286	1,156
Colombia	455	470	762	911	1,243	1,425	1,534	1,710	1,568	1,209
Costa Rica	57	72	77	83	90	94	97	104	110	117
Mexico	161	212	296	379	437	288	334	442	490	606
Peru	388	470	447	353	503	614	672	715	704	653
Venezuela	335	439	550	562	540	727	597	779	973	1,056
All others	383	423	481	648	766	874	974	1,186	1,245	1,147
Sub-Saharan Africa	1,212	1,356	1,470	1,485	1,594	1,897	2,007	2,147	2,224	1,910
Kenya	88	87	55	38	49	39	46	53	55	50
Nigeria	56	56	40	49	150	264	351	350	544	174
South Africa	925	1,082	1,241	1,279	1,319	1,505	1,456	1,593	1,468	1,529
All others	143	132	134	120	75	89	154	151	156	158
Other developed	16,334	16,596	16,705	16,355	18,522	20,760	22,683	22,785	22,530	24,403
Australia	6,109	5,979	6,131	5,800	7,092	7,868	8,974	9,210	8,610	9,617
Canada	5,715	5,919	5,637	5,611	5,659	6,102	6,571	7,036	7,404	8,172
New Zealand	520	516	507	594	731	908	1,109	1,151	966	1,036
Norway	341	393	456	402	435	517	668	731	652	654
Switzerland	3,648	3,790	3,974	3,948	4,605	5,365	5,361	4,657	4,899	4,924
Other developing	534	568	608	654	735	922	988	1,033	1,083	1,118
Bangladesh	280	286	295	319	347	378	420	431	437	464
Pakistan	215	235	258	266	300	341	348	361	349	359
Sri Lanka	32	37	44	50	62	73	78	88	142	143
Vietnam	6	9	12	18	27	130	142	153	155	152

Appendix table 6-8

Value added of R&D services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	18,455	17,029	12,764	13,100	14,860	18,047	20,637	24,783	28,891	30,829	37,617
Argentina	5,174	4,965	1,521	1,670	1,821	2,139	2,519	3,121	3,901	4,220	5,026
Brazil	7,128	5,721	5,041	5,196	5,827	7,567	8,893	10,872	13,020	13,947	18,385
Chile	1,155	1,063	1,032	1,224	1,490	1,804	2,052	2,337	2,602	2,704	3,319
Colombia	1,190	1,128	1,353	1,274	1,523	1,874	2,092	2,678	3,022	3,203	3,917
Costa Rica	131	149	156	158	167	174	206	248	296	303	373
Mexico	781	893	962	995	1,206	1,350	1,347	1,440	1,473	1,351	1,444
Peru	685	726	754	793	857	941	1,029	1,174	1,399	1,516	1,813
Venezuela	1,113	1,232	882	688	748	814	963	1,182	1,643	1,875	1,362
All others	1,098	1,152	1,064	1,099	1,223	1,384	1,536	1,732	1,536	1,711	1,979
Sub-Saharan Africa	1,890	1,793	1,839	2,881	3,668	4,436	4,856	5,582	5,656	6,056	7,504
Kenya	81	87	92	103	107	122	142	166	182	190	207
Nigeria	196	203	220	271	409	635	736	861	1,048	1,003	1,262
South Africa	1,468	1,353	1,355	2,194	2,907	3,424	3,696	4,238	4,067	4,505	5,657
All others	144	150	172	312	245	255	282	317	358	359	378
Other developed	24,883	24,691	26,855	32,501	38,256	42,693	47,594	53,750	58,149	60,769	70,802
Australia	9,604	8,847	10,059	12,875	15,515	17,310	19,304	22,759	25,049	24,096	29,959
Canada	9,279	9,524	9,959	11,879	13,638	15,713	18,098	19,348	19,598	23,020	25,822
New Zealand	880	917	1,092	1,476	1,818	2,103	2,043	2,485	2,544	2,408	2,950
Norway	579	531	673	800	956	866	1,060	1,241	1,373	1,257	1,402
Switzerland	4,541	4,873	5,072	5,471	6,328	6,702	7,089	7,917	9,586	9,989	10,668
Other developing	1,158	1,110	1,226	1,327	1,435	1,600	1,878	2,155	2,474	2,827	3,141
Bangladesh	471	466	482	513	539	537	542	589	647	755	830
Pakistan	380	327	378	408	449	567	765	904	999	1,113	1,236
Sri Lanka	149	147	180	202	216	250	303	348	441	516	613
Vietnam	157	170	186	204	231	246	267	314	387	442	462

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-9

Value added of financial services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	1,135,069	1,210,224	1,351,851	1,496,650	1,531,024	1,648,628	1,680,078	1,701,494	1,692,861	1,799,788
United States	346,519	382,033	414,295	441,339	456,317	489,579	527,114	582,413	634,698	681,747
EU	343,109	353,051	370,335	363,180	375,683	411,920	428,937	402,684	399,085	414,606
Belgium	11,273	11,875	13,485	12,638	13,830	16,524	15,783	13,568	13,664	13,459
Czech Republic	888	1,325	1,337	1,527	1,586	1,605	1,775	1,518	2,114	1,923
Denmark	5,515	5,635	6,413	6,147	7,084	8,150	7,914	7,248	7,526	6,808
Finland	4,934	4,123	3,872	3,554	3,748	5,029	4,344	3,783	4,109	3,768
France	60,300	58,289	64,464	62,597	63,999	67,983	69,986	62,560	62,072	62,513
Germany	70,126	73,423	80,981	86,984	92,344	105,084	107,346	96,412	90,196	102,176
Ireland	2,065	2,470	3,115	3,134	2,937	4,842	4,830	4,718	5,280	6,019
Italy	51,318	54,567	52,989	45,123	45,821	47,702	51,626	44,137	47,863	48,359
Netherlands	13,392	14,415	16,139	16,229	18,639	23,860	23,837	21,431	21,709	22,744
Poland	365	654	1,386	1,737	2,701	3,162	4,218	5,349	5,223	5,916
Spain	27,417	29,400	31,198	25,216	23,197	26,683	25,771	24,121	25,775	24,625
Sweden	14,781	13,498	10,443	10,837	10,686	9,983	12,032	12,553	10,728	11,355
United Kingdom	59,759	61,752	61,643	63,453	64,456	63,151	72,086	80,231	76,759	78,567
All others	20,975	21,626	22,869	24,005	24,653	28,163	27,389	25,056	26,068	26,373
Japan	184,621	198,480	215,636	253,666	297,106	335,984	288,571	265,142	226,216	265,312
China	26,171	27,251	33,240	40,540	38,665	46,977	54,266	60,715	60,072	63,120
Asia-8	54,505	60,098	68,840	78,445	91,991	108,242	120,378	122,432	94,793	108,684
India	11,551	12,111	11,037	12,303	14,222	18,336	18,344	20,752	20,986	24,541
Indonesia	4,958	5,951	6,584	7,486	8,895	9,787	10,459	10,407	3,888	5,050
Malaysia	3,893	4,399	5,690	7,470	8,100	9,596	11,778	12,086	8,721	9,207
Philippines	1,601	1,665	1,753	1,813	2,148	2,553	3,084	3,252	2,660	2,984
Singapore	2,691	2,929	3,717	4,910	5,846	6,354	8,743	10,321	9,388	8,937
South Korea	12,756	15,276	17,962	19,352	22,555	29,205	32,762	29,885	20,427	27,902
Taiwan	12,244	12,464	15,925	17,100	20,524	21,124	22,259	25,871	23,032	25,926
Thailand	4,810	5,303	6,172	8,013	9,701	11,288	12,950	9,858	5,693	4,137
All others	180,145	189,311	249,505	319,481	271,261	255,925	260,811	268,108	277,998	266,319
Central Asia and Europe	6,771	8,670	13,968	24,331	21,648	15,891	15,397	17,085	22,433	27,543
Russia	344	396	4,690	11,075	13,966	5,242	2,026	2,898	1,065	1,774
Turkey	6,395	8,211	8,196	9,934	5,007	9,645	12,390	13,191	20,510	25,287
Ukraine	32	63	1,082	3,322	2,674	1,004	981	996	858	482
Middle East and North Africa	14,885	15,613	18,736	20,392	22,604	26,576	29,810	30,461	35,627	37,889
Egypt	712	400	1,810	3,212	4,586	5,979	7,383	7,900	9,367	10,487
Iran	524	554	725	728	305	509	522	525	703	744
Israel	3,998	4,449	5,017	4,563	5,151	7,166	7,968	7,317	8,227	8,381
Morocco	373	428	506	486	507	665	578	545	1,932	1,881
Saudi Arabia	6,466	6,641	6,873	7,079	7,278	7,205	7,273	7,671	7,844	8,427
All others	2,812	3,141	3,805	4,323	4,777	5,054	6,087	6,502	7,554	7,968

Appendix table 6-9

Value added of financial services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,852,423	1,911,026	2,025,086	2,263,259	2,468,012	2,699,600	2,928,662	3,259,733	3,423,973	3,574,000	3,906,754
United States	762,012	838,678	863,537	903,148	929,247	1,028,515	1,105,548	1,110,433	1,100,398	1,171,612	1,235,184
EU	365,892	363,430	423,141	538,454	632,071	653,567	696,776	814,185	848,175	856,412	852,984
Belgium	12,482	11,727	13,684	16,211	19,412	19,785	20,496	22,829	23,494	25,322	25,712
Czech Republic	1,457	1,820	2,103	2,969	3,448	3,402	3,943	5,905	7,180	6,640	6,228
Denmark	6,477	6,542	7,431	9,806	11,171	11,772	12,484	15,013	17,376	17,902	18,454
Finland	4,718	3,986	4,293	3,489	4,314	4,212	5,271	6,961	6,610	6,556	6,746
France	61,167	54,798	62,584	80,095	90,341	93,531	99,406	109,477	116,915	120,525	119,498
Germany	71,599	69,733	79,703	104,184	126,408	118,965	117,829	118,481	116,362	126,517	127,833
Ireland	6,259	7,197	8,331	12,987	16,011	18,013	20,253	24,315	24,198	19,806	16,652
Italy	45,857	48,254	50,050	65,197	72,975	76,849	79,225	99,544	108,432	102,448	103,001
Netherlands	20,876	21,821	25,380	34,925	40,040	43,596	40,674	41,072	44,349	53,132	53,489
Poland	7,503	7,699	7,287	7,986	9,397	11,660	13,544	19,577	24,324	19,630	21,036
Spain	24,197	27,045	30,798	38,151	44,243	46,839	51,917	68,490	77,201	89,668	88,988
Sweden	9,670	8,595	8,733	11,245	14,434	15,309	14,268	15,821	16,644	15,768	18,131
United Kingdom	68,119	69,471	95,282	117,105	137,644	144,593	167,256	207,342	198,576	191,198	187,403
All others	25,510	24,741	27,483	34,104	42,232	45,040	50,209	59,361	66,513	61,299	59,814
Japan	282,506	262,619	267,195	294,482	311,006	317,183	302,604	291,392	288,763	292,313	315,028
China	68,507	70,595	73,879	79,271	84,790	96,177	130,668	200,892	244,417	289,530	358,197
Asia-8	109,533	111,027	126,950	137,673	146,943	165,815	184,872	216,279	230,185	221,271	271,824
India	23,523	26,493	29,788	34,773	37,035	40,934	46,937	58,376	69,022	72,788	93,405
Indonesia	7,637	7,375	8,798	10,469	10,792	11,404	13,593	15,382	17,535	17,649	22,969
Malaysia	8,586	9,195	10,213	10,521	10,971	11,654	13,261	15,512	17,366	16,877	20,910
Philippines	2,743	2,523	2,623	2,614	2,797	3,597	4,283	5,437	6,247	6,153	7,202
Singapore	8,783	9,030	9,149	9,078	10,283	11,516	14,026	18,544	21,197	21,073	25,276
South Korea	27,531	28,838	38,349	41,856	43,489	52,092	57,811	65,761	59,254	52,042	63,298
Taiwan	27,094	24,166	24,073	23,486	25,766	28,032	27,407	28,317	29,049	24,087	26,116
Thailand	3,636	3,407	3,958	4,875	5,811	6,586	7,556	8,949	10,515	10,600	12,648
All others	263,973	264,677	270,383	310,231	363,955	438,343	508,194	626,553	712,035	742,862	873,536
Central Asia and Europe	22,399	24,579	20,872	25,063	34,771	44,304	58,901	78,339	99,155	86,450	96,532
Russia	3,239	6,779	9,505	12,956	17,747	26,833	38,620	49,012	61,958	54,276	59,555
Turkey	18,632	16,819	10,207	10,359	13,036	13,596	15,241	20,905	24,032	22,902	26,848
Ukraine	528	980	1,160	1,748	3,988	3,874	5,040	8,423	13,165	9,272	10,130
Middle East and North Africa	41,445	42,101	42,554	45,754	54,355	66,843	75,854	92,294	106,661	108,752	123,400
Egypt	11,327	10,581	8,184	6,878	8,636	7,964	8,621	9,163	10,984	12,481	13,260
Iran	1,148	1,303	2,461	3,416	4,385	4,375	5,277	7,389	9,391	8,052	9,349
Israel	9,465	9,533	9,616	9,270	10,564	12,074	13,020	15,786	18,794	17,998	20,072
Morocco	1,905	1,889	1,966	2,348	2,670	3,030	3,437	4,449	5,049	5,259	5,391
Saudi Arabia	8,839	9,317	9,889	10,630	11,538	12,739	14,020	15,110	16,039	16,912	19,142
All others	8,761	9,478	10,438	13,212	16,561	26,661	31,478	40,397	46,404	48,049	56,186

Appendix table 6-9

Value added of financial services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	74,071	76,735	126,196	180,428	129,344	106,588	100,583	99,584	102,186	79,496
Argentina	3,391	4,690	6,225	9,080	8,760	9,872	9,835	10,121	11,129	11,524
Brazil	54,123	52,754	95,819	140,527	83,993	59,070	58,172	57,795	57,808	36,468
Chile	1,612	1,670	2,067	2,296	2,710	3,338	4,356	4,833	4,723	4,246
Colombia	1,707	1,761	2,755	3,372	4,903	6,382	7,207	8,050	6,828	4,935
Costa Rica	211	266	320	401	452	498	509	549	568	641
Mexico	9,244	11,108	14,498	19,250	20,469	18,348	12,779	10,154	11,636	13,412
Peru	500	692	504	461	822	1,349	1,481	1,746	1,745	1,410
Venezuela	1,333	1,618	1,302	1,466	3,361	3,673	1,843	2,053	3,327	2,776
All others	1,949	2,176	2,708	3,575	3,875	4,059	4,403	4,283	4,422	4,082
Sub-Saharan Africa	9,110	9,864	10,191	10,066	10,343	12,369	12,161	13,219	12,431	11,556
Kenya	830	820	518	352	463	884	412	496	520	434
Nigeria	1,609	1,463	983	849	737	1,178	1,617	1,614	1,668	435
South Africa	5,965	6,972	8,000	8,242	8,505	9,702	9,383	10,271	9,463	9,856
All others	706	609	691	623	638	605	750	837	779	831
Other developed	74,070	77,091	78,956	82,701	85,541	92,157	100,380	105,177	102,578	106,948
Australia	16,765	17,101	17,817	18,347	19,450	21,333	23,768	25,479	21,732	25,891
Canada	32,480	34,774	34,322	34,524	35,056	36,192	39,110	42,314	41,415	42,682
New Zealand	2,802	2,584	2,219	2,294	2,885	3,255	3,521	3,534	3,059	3,225
Norway	5,387	5,219	5,685	5,137	5,187	5,608	5,180	5,057	5,000	4,600
Switzerland	16,637	17,413	18,913	22,399	22,963	25,770	28,801	28,792	31,372	30,550
Other developing	1,238	1,339	1,457	1,563	1,782	2,344	2,479	2,583	2,743	2,887
Bangladesh	399	407	421	456	499	558	602	629	638	683
Pakistan	709	775	849	878	988	1,123	1,148	1,190	1,152	1,185
Sri Lanka	109	127	149	170	210	246	262	298	480	482
Vietnam	20	30	38	59	85	417	467	466	473	537

Appendix table 6-9

Value added of financial services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	73,823	75,443	76,149	75,162	80,225	113,077	135,500	171,812	202,566	196,169	239,888
Argentina	11,523	13,768	5,399	4,661	5,846	7,351	9,122	11,671	15,381	15,755	18,540
Brazil	32,371	31,400	31,632	32,872	32,137	51,841	65,410	87,567	104,103	103,112	132,168
Chile	4,242	3,903	3,792	4,498	5,475	6,628	7,618	8,715	9,678	9,471	11,752
Colombia	3,838	3,868	3,698	3,660	4,580	5,942	6,162	8,338	10,968	10,616	13,130
Costa Rica	725	774	859	939	981	1,116	1,265	1,518	1,814	1,774	2,168
Mexico	12,552	12,693	22,262	20,340	22,686	30,500	33,940	39,950	42,968	37,158	43,758
Peru	1,457	1,340	1,628	1,811	1,947	2,355	2,695	3,215	4,101	4,142	4,995
Venezuela	2,763	3,058	2,594	2,241	2,309	2,346	3,765	4,675	6,343	6,628	4,693
All others	4,350	4,638	4,285	4,139	4,264	4,998	5,524	6,162	7,210	7,513	8,684
Sub-Saharan Africa	11,458	10,499	10,186	14,073	17,679	19,404	22,389	25,849	25,430	26,036	32,378
Kenya	449	536	472	644	560	660	889	1,308	1,414	1,679	1,822
Nigeria	441	502	675	642	782	1,003	2,323	2,730	3,328	3,020	3,767
South Africa	9,898	8,991	8,089	11,680	15,495	16,987	18,337	21,023	19,923	20,550	25,778
All others	670	469	950	1,106	841	755	840	789	765	787	1,012
Other developed	111,816	109,184	117,400	146,640	173,031	190,129	209,931	251,688	270,623	317,213	372,218
Australia	26,010	26,069	28,766	37,546	46,484	52,718	56,894	70,918	75,457	132,721	165,766
Canada	47,516	48,418	49,577	58,685	68,955	77,768	88,689	103,011	111,499	102,219	117,903
New Zealand	2,931	2,999	3,714	5,023	6,067	7,105	7,089	8,729	8,885	7,434	9,154
Norway	4,500	4,531	5,212	7,877	9,896	10,614	10,220	13,257	15,235	15,028	16,717
Switzerland	30,859	27,167	30,132	37,510	41,630	41,924	47,039	55,773	59,547	59,811	62,679
Other developing	3,033	2,871	3,222	3,539	3,893	4,587	5,618	6,571	7,600	8,241	9,120
Bangladesh	700	701	727	811	873	923	970	1,124	1,305	1,473	1,669
Pakistan	1,254	1,080	1,247	1,344	1,481	1,870	2,524	2,981	3,163	3,355	3,655
Sri Lanka	504	496	609	684	730	844	1,023	1,178	1,462	1,560	1,829
Vietnam	575	595	639	700	809	950	1,101	1,289	1,669	1,853	1,967

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-10

Value added of communications services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	364,247	390,012	425,237	447,054	483,118	530,887	557,890	564,069	575,852	601,920
United States	143,666	152,950	164,741	172,674	183,119	188,645	197,964	200,143	213,369	225,383
EU	105,674	111,918	123,061	116,660	121,918	138,215	139,849	135,513	146,027	147,740
Belgium	3,000	3,076	3,317	3,270	3,585	4,404	4,485	4,205	4,507	4,661
Czech Republic	425	314	311	582	667	816	982	1,036	1,220	1,140
Denmark	1,922	1,873	2,177	2,032	2,218	2,471	2,877	2,614	2,689	2,787
Finland	1,898	1,826	1,665	1,256	1,404	1,695	1,785	1,698	1,964	2,297
France	16,292	16,966	18,509	18,332	19,682	22,147	22,102	20,666	21,215	21,881
Germany	27,995	28,986	33,585	33,637	35,305	41,338	37,377	33,171	34,283	30,678
Ireland	817	800	876	824	942	1,135	860	899	938	1,154
Italy	12,757	13,956	15,692	14,108	12,299	12,745	15,223	14,814	16,008	17,133
Netherlands	3,881	3,971	4,597	4,521	4,840	5,684	5,800	5,571	6,177	6,302
Poland	832	991	1,034	1,050	1,279	1,465	1,730	2,043	2,407	2,328
Spain	6,758	7,769	9,052	8,046	8,445	9,720	10,482	10,363	11,160	11,221
Sweden	3,113	3,289	3,640	2,880	2,957	3,466	3,922	3,775	3,932	3,983
United Kingdom	19,503	21,566	21,351	18,665	20,153	21,322	21,987	24,492	28,608	30,449
All others	6,481	6,534	7,255	7,456	8,142	9,808	10,238	10,168	10,919	11,726
Japan	36,651	40,780	43,397	52,362	61,200	72,410	70,130	69,552	65,415	74,692
China	3,163	3,923	4,870	6,725	7,346	10,144	12,704	15,558	16,654	18,169
Asia-8	15,521	17,741	19,990	22,437	26,254	30,661	34,280	34,025	28,066	32,763
India	2,243	2,182	2,467	2,632	3,265	3,784	4,177	4,833	5,174	5,297
Indonesia	2,951	3,513	3,897	4,506	5,152	5,588	6,153	5,502	2,184	2,999
Malaysia	738	872	1,014	1,185	1,397	1,702	2,049	2,070	1,673	1,715
Philippines	327	423	482	503	573	657	828	895	919	1,225
Singapore	2,020	2,417	2,594	2,969	3,541	4,206	4,473	4,596	4,146	4,539
South Korea	3,506	3,998	4,121	4,549	5,364	6,733	7,838	7,308	5,404	7,305
Taiwan	3,015	3,456	4,336	4,807	5,373	5,967	6,372	6,713	6,985	7,858
Thailand	722	879	1,079	1,286	1,590	2,024	2,389	2,108	1,580	1,826
All others	59,572	62,702	69,177	76,196	83,281	90,811	102,963	109,278	106,321	103,172
Central Asia and Europe	8,712	8,090	10,489	14,523	17,604	23,611	28,829	30,810	23,663	19,070
Russia	1,097	536	2,251	5,277	9,956	14,107	17,962	18,378	10,942	6,823
Turkey	7,571	7,533	8,127	9,105	7,376	9,113	10,274	11,475	11,971	11,741
Ukraine	44	20	111	142	272	390	594	957	750	506
Middle East and North Africa	9,129	8,520	8,828	9,311	10,078	11,085	12,425	13,081	13,666	14,401
Egypt	2,621	1,682	1,279	1,411	1,676	1,861	2,547	2,879	2,852	3,108
Iran	195	245	230	278	278	242	249	273	254	209
Israel	1,962	2,096	2,231	2,244	2,426	2,832	3,206	3,282	3,382	3,294
Morocco	748	740	831	822	844	959	976	928	995	1,040
Saudi Arabia	2,073	2,241	2,349	2,463	2,552	2,597	2,644	2,773	2,885	3,043
All others	1,531	1,515	1,908	2,094	2,302	2,594	2,803	2,946	3,298	3,706

Appendix table 6-10

Value added of communications services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	643,324	655,991	684,790	753,776	845,412	901,854	944,702	1,057,293	1,166,626	1,178,065	1,289,494
United States	246,351	255,753	254,703	254,006	272,320	291,919	296,892	324,208	333,261	329,027	331,365
EU	136,074	141,055	162,371	196,079	225,225	224,309	228,743	253,447	267,430	250,113	248,009
Belgium	4,138	4,219	4,741	5,901	7,010	7,116	7,261	7,914	8,549	7,652	7,632
Czech Republic	1,168	1,373	1,762	2,139	2,325	2,563	2,916	3,441	4,232	3,664	3,414
Denmark	2,382	2,430	2,599	3,413	3,758	3,895	3,939	4,312	4,399	4,035	4,161
Finland	2,204	2,475	2,899	3,302	3,694	2,947	2,873	3,309	3,585	3,235	3,324
France	18,030	18,713	22,500	27,403	31,901	31,887	32,167	36,207	39,835	44,168	43,656
Germany	26,218	26,080	29,988	37,328	43,586	38,830	41,064	41,119	45,630	40,994	40,696
Ireland	1,605	1,206	1,880	2,831	2,762	3,155	2,792	3,234	3,357	3,164	2,919
Italy	15,392	17,677	20,214	24,273	27,886	28,761	28,466	31,030	32,148	29,670	28,515
Netherlands	6,103	6,579	8,108	10,697	11,863	12,051	11,972	13,241	13,441	12,069	11,952
Poland	2,424	3,363	4,076	4,270	5,471	5,828	5,789	6,409	7,990	7,184	7,792
Spain	10,208	10,556	12,066	15,257	17,730	18,479	19,296	22,017	23,920	22,513	20,687
Sweden	3,826	3,481	3,863	4,737	4,990	4,920	5,084	5,579	5,867	5,003	5,645
United Kingdom	31,944	31,270	33,852	37,844	43,313	43,563	44,032	50,384	46,349	40,778	41,776
All others	10,432	11,632	13,823	16,683	18,936	20,313	21,092	25,250	28,128	25,983	25,840
Japan	80,036	72,604	70,672	75,200	78,003	75,037	69,088	66,463	77,003	86,946	95,936
China	25,571	30,080	34,118	39,822	46,831	53,054	60,596	71,139	106,028	127,127	160,810
Asia-8	37,214	39,089	41,490	46,830	51,826	55,802	62,105	70,678	73,524	75,416	92,225
India	5,672	6,459	6,136	7,595	9,481	11,496	13,198	17,213	18,728	20,047	25,568
Indonesia	3,179	3,117	4,326	5,654	6,474	7,582	10,190	11,669	13,291	15,317	21,066
Malaysia	2,180	2,477	2,588	2,969	3,265	3,537	3,904	4,448	4,963	5,331	6,541
Philippines	1,388	1,588	1,870	2,122	2,421	2,828	3,195	3,813	4,228	4,492	5,003
Singapore	4,968	4,762	4,638	5,301	6,292	3,727	4,065	4,734	5,241	5,402	5,936
South Korea	8,601	9,862	11,176	12,125	12,267	14,502	15,363	15,843	13,372	11,590	13,312
Taiwan	9,402	9,038	8,826	9,047	9,390	9,767	9,472	9,670	10,180	9,623	10,581
Thailand	1,824	1,787	1,930	2,017	2,235	2,363	2,719	3,287	3,522	3,614	4,218
All others	118,078	117,410	121,436	141,838	171,209	201,732	227,279	271,359	309,380	309,437	361,149
Central Asia and Europe	22,632	21,795	27,181	34,915	46,388	56,112	64,783	81,189	95,554	82,693	95,844
Russia	8,670	10,301	13,034	16,765	23,460	27,734	33,861	43,423	52,160	46,900	54,502
Turkey	13,379	10,751	13,318	17,104	21,651	26,979	29,266	35,692	40,887	33,629	38,863
Ukraine	583	743	830	1,046	1,277	1,398	1,656	2,074	2,506	2,165	2,479
Middle East and North Africa	15,181	16,148	16,615	17,522	19,804	22,953	25,840	31,210	37,251	40,374	45,280
Egypt	2,986	3,055	2,942	2,737	2,961	4,042	4,073	5,486	6,940	7,638	8,013
Iran	522	651	911	1,026	1,217	1,604	2,002	2,489	2,909	2,940	3,289
Israel	3,455	3,363	3,176	3,283	3,611	3,784	3,676	4,418	5,240	5,080	5,526
Morocco	932	1,013	1,114	1,124	1,349	1,493	1,611	2,047	2,278	2,397	2,483
Saudi Arabia	3,196	3,376	3,501	3,613	3,868	4,176	4,447	4,944	5,738	6,460	7,272
All others	4,090	4,689	4,970	5,739	6,797	7,854	10,032	11,827	14,145	15,858	18,697

Appendix table 6-10

Value added of communications services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	10,854	12,750	15,108	18,697	20,926	17,535	20,930	24,273	29,184	28,617
Argentina	1,623	2,151	2,559	3,523	4,163	4,438	4,755	5,309	6,149	6,196
Brazil	4,385	4,274	4,416	5,551	5,753	3,547	5,659	6,329	8,704	6,573
Chile	334	457	597	689	820	933	1,074	1,173	1,282	1,260
Colombia	513	557	616	695	992	1,258	1,535	1,875	1,998	1,627
Costa Rica	206	206	246	290	321	361	378	416	436	451
Mexico	2,687	3,812	5,015	6,020	6,680	4,108	4,409	5,042	5,837	7,225
Peru	295	357	452	380	482	807	922	990	938	905
Venezuela	169	250	423	534	535	785	769	1,507	1,947	2,443
All others	642	687	784	1,014	1,180	1,298	1,428	1,633	1,893	1,938
Sub-Saharan Africa	3,907	4,264	5,384	4,820	4,899	5,672	5,493	5,724	5,348	5,329
Kenya	330	311	351	215	285	373	163	177	164	123
Nigeria	48	44	31	30	33	38	45	52	59	16
South Africa	2,965	3,400	4,511	4,032	4,208	4,801	4,767	5,002	4,639	4,689
All others	563	509	491	543	374	458	518	494	486	501
Other developed	25,151	26,944	26,790	25,941	26,547	29,273	31,598	31,448	30,206	31,401
Australia	6,644	7,484	7,149	7,425	7,677	8,717	9,952	10,457	9,443	9,869
Canada	11,975	12,780	12,635	11,826	11,659	12,148	12,941	12,795	12,612	13,411
New Zealand	1,079	1,109	1,011	1,023	1,184	1,517	1,696	1,781	1,472	1,424
Norway	1,946	1,868	2,087	1,869	1,928	2,094	2,205	2,326	2,295	2,417
Switzerland	3,508	3,703	3,907	3,798	4,100	4,797	4,803	4,089	4,384	4,280
Other developing	1,820	2,133	2,578	2,904	3,226	3,636	3,688	3,942	4,254	4,355
Bangladesh	83	102	108	116	148	177	198	238	243	249
Pakistan	1,399	1,626	1,992	2,263	2,451	2,717	2,625	2,717	2,913	2,952
Sri Lanka	251	295	318	317	373	419	493	564	671	698
Vietnam	87	110	160	207	254	323	372	423	428	456

Appendix table 6-10

Value added of communications services, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	39,566	38,823	33,020	34,566	41,339	53,033	62,598	76,622	88,852	93,365	113,134
Argentina	6,151	5,999	1,802	2,293	3,005	3,845	4,871	5,760	7,108	6,956	8,191
Brazil	15,885	13,179	12,237	13,556	17,092	23,492	27,531	34,891	42,152	46,630	61,195
Chile	1,151	1,013	1,031	1,324	1,585	1,844	2,137	2,451	2,601	3,085	3,843
Colombia	1,535	1,787	1,791	1,690	2,010	2,477	2,754	3,550	3,841	4,224	5,227
Costa Rica	503	521	570	617	663	720	822	958	1,117	1,174	1,474
Mexico	8,720	10,230	10,284	10,003	11,400	13,958	16,009	19,056	19,382	17,209	19,745
Peru	932	886	884	937	1,047	1,131	1,389	1,822	2,211	2,275	2,702
Venezuela	2,654	2,873	2,254	1,987	2,232	2,860	4,145	4,902	7,108	8,360	6,755
All others	2,037	2,335	2,168	2,159	2,306	2,707	2,940	3,232	3,332	3,452	4,000
Sub-Saharan Africa	5,450	5,202	4,972	7,032	8,973	10,290	11,830	11,773	11,922	13,030	16,202
Kenya	130	218	281	294	302	369	468	567	617	597	658
Nigeria	16	70	88	113	181	324	1,421	912	985	1,013	1,371
South Africa	4,802	4,311	3,948	6,073	7,869	8,933	9,161	9,374	9,274	10,405	13,105
All others	502	604	655	552	621	664	781	920	1,045	1,016	1,067
Other developed	30,697	30,431	34,235	41,619	47,810	51,504	53,919	61,074	65,164	67,507	76,909
Australia	9,192	8,410	9,311	11,518	13,702	13,960	14,195	17,022	17,703	23,863	28,756
Canada	14,365	14,570	14,975	17,608	20,105	22,735	25,287	28,064	29,729	26,586	29,634
New Zealand	1,283	1,259	1,478	1,911	2,258	2,558	2,409	2,959	3,092	2,736	3,274
Norway	1,996	2,210	2,767	3,287	3,562	3,856	3,891	4,212	4,336	3,469	3,846
Switzerland	3,861	3,982	5,703	7,295	8,183	8,395	8,137	8,817	10,302	10,854	11,400
Other developing	4,552	5,012	5,412	6,184	6,895	7,841	8,309	9,491	10,638	12,466	13,780
Bangladesh	249	297	344	372	418	520	613	775	951	1,182	1,360
Pakistan	3,078	3,432	3,737	4,307	4,717	5,201	5,236	5,796	5,829	7,129	7,716
Sri Lanka	721	735	764	854	975	1,178	1,356	1,638	2,184	2,341	2,751
Vietnam	504	547	568	650	785	941	1,105	1,281	1,674	1,814	1,952

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-11

Value added of high-technology manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	554,422	596,431	607,475	605,727	643,538	719,053	734,641	742,973	720,300	774,821
United States	178,209	190,728	186,061	187,780	195,980	208,517	224,921	241,384	247,542	250,568
EU	158,712	162,745	164,914	144,997	152,657	172,061	176,049	176,139	182,454	190,881
Belgium	3,187	3,188	3,394	3,441	3,742	4,714	4,723	4,397	4,073	4,766
Czech Republic	322	364	403	328	371	608	879	869	897	971
Denmark	1,939	2,008	2,318	1,989	2,495	2,930	2,934	3,013	3,172	3,530
Finland	2,126	1,462	1,588	1,525	2,165	3,156	3,368	3,894	5,224	6,199
France	23,495	23,440	24,924	24,142	23,908	29,257	28,503	29,093	29,271	29,199
Germany	44,142	48,433	49,832	41,733	42,326	45,828	45,589	42,636	42,923	44,786
Ireland	2,042	2,096	2,277	2,187	2,813	4,520	4,553	4,966	5,626	8,596
Italy	24,745	24,307	23,901	18,786	19,088	18,725	21,083	20,051	20,569	20,658
Netherlands	4,847	4,919	5,170	5,203	5,229	5,973	5,589	5,114	5,183	5,528
Poland	1,292	958	832	828	1,118	1,550	1,714	1,775	1,941	2,194
Spain	8,455	8,848	8,776	7,615	7,146	7,857	8,627	7,493	7,404	7,349
Sweden	5,008	5,673	5,835	5,045	5,822	7,389	8,434	8,362	9,396	9,706
United Kingdom	30,516	30,786	29,262	25,854	29,744	31,739	32,332	37,126	39,057	40,037
All others	6,596	6,261	6,403	6,322	6,690	7,814	7,720	7,350	7,717	7,360
Japan	130,332	148,207	147,094	159,967	170,510	193,326	175,638	160,749	141,761	165,218
China	12,407	13,284	14,852	17,995	15,121	18,378	21,010	24,382	23,493	26,967
Asia-8	27,488	34,918	46,041	41,167	52,771	65,240	72,376	71,698	58,389	72,895
India	1,879	1,892	1,941	1,988	2,507	2,779	2,888	3,112	3,362	3,841
Indonesia	542	731	881	896	1,338	1,683	2,452	3,639	968	1,586
Malaysia	2,059	2,851	3,745	4,614	5,779	7,146	8,880	8,809	6,732	8,478
Philippines	743	920	1,073	1,076	1,213	1,673	2,832	3,099	3,350	4,018
Singapore	4,345	5,819	6,857	8,402	10,036	12,566	13,894	13,729	8,673	9,610
South Korea	10,277	10,021	10,856	13,114	18,178	24,967	23,749	20,761	18,038	24,606
Taiwan	6,553	7,080	7,846	8,715	9,564	11,864	13,976	15,391	15,602	19,096
Thailand	1,090	5,603	12,842	2,361	4,157	2,562	3,707	3,159	1,665	1,660
All others	47,274	46,550	48,513	53,822	56,499	61,531	64,647	68,621	66,661	68,293
Central Asia and Europe	2,234	2,575	3,106	6,891	6,622	6,681	6,935	7,349	5,399	4,510
Russia	357	254	695	3,969	4,474	4,296	4,631	5,069	2,771	1,731
Turkey	1,807	2,281	2,158	2,679	1,826	2,094	1,971	1,851	2,258	2,457
Ukraine	69	40	253	242	323	290	333	428	370	321
Middle East and North Africa	2,477	2,509	2,269	2,363	2,521	4,251	4,905	5,649	6,126	6,726
Egypt	366	156	161	207	239	286	373	448	547	609
Iran	198	240	264	246	273	280	265	301	249	272
Israel	1,702	1,891	1,534	1,608	1,655	3,306	3,860	4,471	4,866	5,370
Morocco	55	50	104	86	106	117	124	113	129	127
Saudi Arabia	47	52	56	56	59	64	74	80	76	82
All others	109	121	150	160	188	197	208	237	260	267

Appendix table 6-11

Value added of high-technology manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	845,961	737,849	761,659	853,336	975,392	1,051,407	1,154,416	1,244,297	1,304,945	1,231,142	1,397,037
United States	275,320	245,412	250,955	258,862	283,336	310,634	342,495	352,802	355,227	367,624	385,941
EU	184,411	176,327	184,213	216,744	242,927	257,905	275,951	312,220	317,606	265,536	272,892
Belgium	4,663	4,629	4,943	5,960	6,566	6,926	7,256	8,302	8,330	7,230	7,326
Czech Republic	990	999	1,158	1,526	1,694	2,019	2,348	2,807	3,390	3,023	3,217
Denmark	3,358	3,622	3,449	4,482	4,783	5,440	5,521	5,954	7,181	6,949	7,210
Finland	6,601	5,767	6,973	8,268	8,592	8,835	9,694	12,248	11,222	5,836	5,564
France	28,833	28,333	29,016	33,879	34,447	36,475	38,543	40,537	42,247	37,033	37,625
Germany	43,836	40,931	43,919	56,262	66,120	70,868	74,914	90,942	91,506	72,356	76,446
Ireland	8,331	7,696	8,890	9,092	9,544	10,567	11,302	13,250	12,996	12,580	12,545
Italy	19,065	20,019	21,141	24,058	27,202	26,818	28,901	32,272	33,184	28,859	29,013
Netherlands	5,803	4,867	4,338	5,246	5,720	6,411	6,331	6,806	7,263	6,095	6,113
Poland	1,966	2,137	2,061	2,201	2,414	3,069	3,431	3,926	5,446	4,155	5,061
Spain	6,727	6,929	6,733	8,352	8,950	9,474	10,443	11,971	13,850	12,240	11,806
Sweden	8,016	6,206	7,623	9,669	13,167	13,624	14,457	14,862	14,956	12,536	13,776
United Kingdom	38,801	36,559	35,577	37,167	41,469	43,658	48,202	53,007	48,098	41,652	41,992
All others	7,421	7,634	8,392	10,582	12,258	13,720	14,608	15,337	17,939	14,992	15,197
Japan	185,141	135,917	123,520	146,050	164,009	158,661	152,943	150,235	153,742	138,689	177,935
China	34,995	38,912	46,424	63,062	82,255	101,794	128,593	155,624	194,519	212,053	263,015
Asia-8	90,600	71,575	85,700	97,087	117,884	127,165	144,875	151,576	144,443	130,928	163,603
India	3,285	3,601	4,095	4,640	5,340	6,517	6,929	8,557	9,427	9,087	11,600
Indonesia	2,447	1,600	2,480	3,043	3,043	2,972	3,540	5,192	6,203	5,870	7,557
Malaysia	8,964	7,487	7,735	8,902	9,945	8,039	8,801	8,715	8,183	5,919	7,325
Philippines	4,366	3,206	3,478	2,449	2,820	2,963	3,523	4,138	4,487	3,661	4,111
Singapore	13,140	9,630	11,273	11,745	15,829	17,377	20,154	18,332	16,912	15,313	21,611
South Korea	31,863	25,259	29,300	33,125	43,029	47,868	53,913	57,482	49,965	48,446	53,908
Taiwan	24,564	18,980	24,039	29,346	33,588	36,706	43,161	43,436	43,532	37,728	51,700
Thailand	1,972	1,814	3,299	3,836	4,291	4,724	4,854	5,725	5,734	4,904	5,791
All others	75,494	69,705	70,847	71,531	84,981	95,248	109,559	121,840	139,408	116,312	133,653
Central Asia and Europe	4,499	4,759	8,956	6,671	12,298	13,801	16,975	16,422	18,437	11,854	14,894
Russia	1,442	1,958	5,849	3,466	8,338	9,787	12,211	10,679	11,606	7,271	9,325
Turkey	2,735	2,382	2,638	2,608	3,254	3,110	3,623	4,150	4,631	3,489	3,896
Ukraine	322	419	470	597	705	903	1,142	1,594	2,200	1,093	1,674
Middle East and North Africa	8,926	7,384	7,013	7,288	7,880	8,540	9,483	11,400	15,231	13,712	14,627
Egypt	605	717	928	779	905	1,107	1,242	1,507	1,930	2,057	2,118
Iran	346	386	596	651	800	784	925	1,119	1,422	1,219	1,374
Israel	7,438	5,713	4,878	5,144	5,387	5,634	6,167	7,329	10,181	8,911	9,532
Morocco	170	167	192	232	241	375	330	464	525	463	443
Saudi Arabia	89	91	95	107	117	136	278	306	331	328	340
All others	278	310	323	376	431	504	541	676	843	733	818

Appendix table 6-11

Value added of high-technology manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	19,458	18,190	19,780	22,208	22,795	22,470	23,871	27,021	27,365	26,753
Argentina	1,418	1,796	2,039	1,865	1,319	1,103	1,116	1,417	1,240	1,119
Brazil	12,943	10,647	10,859	12,625	13,055	13,635	13,597	13,791	12,505	10,411
Chile	155	189	282	295	287	351	332	282	328	269
Colombia	359	387	507	487	647	835	867	967	900	737
Costa Rica	42	44	56	79	87	78	64	65	62	59
Mexico	3,737	4,236	5,062	5,918	6,359	5,517	7,003	9,660	11,474	13,332
Peru	241	260	298	235	237	245	220	246	227	197
Venezuela	355	402	435	416	359	408	343	322	420	399
All others	209	229	242	287	445	299	329	271	209	230
Sub-Saharan Africa	1,455	1,786	1,807	876	893	1,560	1,601	1,710	1,719	1,056
Kenya	32	32	32	19	27	34	33	38	39	50
Nigeria	254	423	333	23	24	596	689	757	772	197
South Africa	1,124	1,287	1,405	811	815	899	857	893	888	790
All others	45	44	37	23	28	31	22	22	20	18
Other developed	21,207	21,014	21,028	20,836	22,966	25,776	26,341	25,995	25,085	28,220
Australia	2,638	2,763	2,891	2,835	3,278	3,496	3,949	3,752	3,183	3,393
Canada	9,849	9,486	9,438	9,167	9,190	10,243	10,539	11,572	10,855	13,737
New Zealand	178	179	170	190	237	262	288	268	206	209
Norway	866	793	899	863	935	1,178	1,393	1,218	1,117	1,375
Switzerland	7,675	7,793	7,631	7,782	9,325	10,598	10,173	9,186	9,724	9,505
Other developing	443	476	522	647	702	793	993	897	968	1,027
Bangladesh	135	119	124	152	176	212	236	180	226	195
Pakistan	283	324	352	425	438	467	612	550	545	531
Sri Lanka	3	5	5	10	14	23	22	37	45	91
Vietnam	22	27	41	60	74	91	123	130	152	210

Appendix table 6-11

Value added of high-technology manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	31,492	30,179	26,328	23,573	26,308	30,415	35,732	40,244	45,231	39,354	46,557
Argentina	1,052	931	326	459	570	679	748	875	1,005	901	1,037
Brazil	12,830	11,564	9,447	8,568	11,311	13,931	17,477	20,427	25,301	22,582	28,162
Chile	300	253	221	223	298	344	363	397	390	360	432
Colombia	676	719	705	641	828	871	989	1,246	1,384	1,199	1,400
Costa Rica	63	71	73	76	84	88	99	113	124	114	134
Mexico	15,570	15,756	14,806	12,900	12,421	13,534	14,917	15,839	15,237	12,596	14,011
Peru	187	173	199	202	172	203	270	327	392	365	370
Venezuela	495	498	341	315	421	513	612	737	1,034	905	632
All others	318	213	211	190	202	252	256	283	363	333	380
Sub-Saharan Africa	1,012	926	992	1,390	1,731	1,946	2,093	2,349	2,355	2,337	2,867
Kenya	43	45	49	60	70	77	81	74	81	76	79
Nigeria	135	151	164	183	226	262	281	321	400	297	373
South Africa	820	717	766	1,130	1,414	1,586	1,711	1,929	1,848	1,939	2,387
All others	15	12	13	17	20	21	21	24	26	25	27
Other developed	28,578	25,538	26,478	31,284	35,134	38,671	43,489	49,394	55,761	46,619	52,012
Australia	2,918	2,557	2,974	3,709	4,312	5,036	5,373	6,387	7,059	6,342	7,669
Canada	15,476	12,248	11,651	13,671	14,986	16,508	18,859	20,674	22,372	17,438	18,776
New Zealand	197	208	235	303	364	402	364	441	423	371	423
Norway	1,248	1,201	1,410	1,607	1,811	2,061	2,499	2,843	3,031	2,872	3,350
Switzerland	8,739	9,324	10,208	11,994	13,661	14,664	16,395	19,049	22,876	19,596	21,793
Other developing	987	919	1,078	1,324	1,630	1,875	1,787	2,031	2,393	2,436	2,696
Bangladesh	210	205	235	267	289	304	325	372	460	515	577
Pakistan	482	442	516	663	827	975	757	839	870	792	851
Sri Lanka	50	35	38	40	48	58	85	93	113	108	125
Vietnam	244	236	288	354	466	537	618	727	950	1,021	1,143

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. High-technology manufacturing industries classified by Organisation for Economic Co-operation and Development and include aerospace, communications and semiconductors, computers and office machinery, pharmaceuticals, and scientific instruments and measuring equipment. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-12

Value added of all manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	4,346,915	4,470,981	4,729,026	4,763,844	5,063,576	5,614,296	5,638,175	5,582,548	5,417,668	5,577,460
United States	1,017,643	1,027,468	1,071,136	1,116,092	1,190,310	1,244,632	1,282,413	1,359,401	1,422,155	1,496,076
EU	1,508,530	1,483,898	1,559,118	1,363,287	1,448,750	1,678,998	1,679,134	1,585,301	1,630,286	1,585,827
Belgium	41,248	39,177	42,308	39,061	42,715	51,914	49,529	45,259	45,587	43,541
Czech Republic	6,621	6,327	7,449	7,721	9,408	12,124	14,697	14,137	14,416	14,420
Denmark	20,364	20,181	22,419	20,433	22,434	26,925	26,142	24,787	24,894	24,437
Finland	27,352	21,576	19,935	17,236	21,951	28,964	27,251	26,302	29,148	28,842
France	203,719	200,733	214,980	195,228	200,922	234,727	227,839	209,014	215,117	209,252
Germany	450,470	451,910	484,734	427,762	447,054	516,507	489,447	438,818	449,215	431,634
Ireland	11,429	11,572	13,395	12,341	13,963	18,075	19,395	22,241	26,226	29,588
Italy	240,479	241,309	248,441	198,722	207,462	225,477	247,570	232,347	236,214	226,208
Netherlands	50,337	49,682	53,697	51,642	54,911	66,000	63,052	56,188	58,312	57,409
Poland	17,862	14,892	14,423	13,596	18,999	25,885	27,406	27,491	29,673	28,097
Spain	104,228	107,584	111,979	89,878	89,589	105,614	109,390	101,797	105,285	105,064
Sweden	43,229	40,942	40,581	32,311	37,912	49,408	51,954	47,944	48,915	49,301
United Kingdom	205,306	198,659	201,646	179,083	197,714	218,294	224,933	246,307	251,656	244,632
All others	85,883	79,355	83,131	78,272	83,716	99,085	100,529	92,670	95,630	93,403
Japan	810,654	922,707	971,257	1,052,193	1,103,579	1,218,059	1,077,349	983,285	868,623	966,906
China	139,819	145,059	172,282	219,863	198,962	255,506	297,178	326,155	333,477	350,400
Asia-8	246,386	267,981	292,002	314,351	360,398	423,916	464,843	447,071	334,441	393,405
India	51,488	42,803	43,306	42,312	50,934	61,446	64,031	65,680	62,854	63,686
Indonesia	28,949	33,512	37,408	43,153	50,570	59,729	71,317	70,779	29,212	44,561
Malaysia	10,484	12,340	15,015	17,048	19,505	23,034	27,602	27,945	20,421	24,069
Philippines	11,003	11,498	12,811	12,891	14,907	17,043	18,896	18,334	14,254	16,475
Singapore	9,523	11,495	12,628	14,688	17,124	20,736	21,789	21,573	18,839	18,797
South Korea	65,639	77,472	80,351	89,226	105,523	130,676	135,429	123,103	86,751	113,886
Taiwan	50,931	56,562	62,774	63,474	65,817	68,909	71,702	74,138	67,576	71,890
Thailand	18,370	22,299	27,710	31,559	36,016	42,344	54,076	45,519	34,534	40,039
All others	623,883	623,867	663,231	698,059	761,577	793,185	837,259	881,335	828,687	784,846
Central Asia and Europe	62,599	60,679	81,735	101,328	106,638	123,319	139,468	145,936	118,738	94,923
Russia	6,095	4,034	15,371	30,626	47,905	50,191	65,517	67,469	45,276	33,410
Turkey	54,850	55,519	57,069	62,242	47,788	63,344	63,602	67,886	64,402	54,280
Ukraine	1,654	1,126	9,294	8,460	10,944	9,784	10,349	10,581	9,060	7,233
Middle East and North Africa	52,757	49,199	53,587	54,100	61,022	67,024	76,015	81,665	78,281	80,701
Egypt	13,097	7,952	7,591	8,518	10,031	11,393	14,909	16,992	16,059	16,183
Iran	5,440	6,488	6,837	6,296	7,535	7,450	8,594	8,631	7,518	7,104
Israel	10,182	10,884	12,241	12,358	13,402	14,596	15,824	16,799	17,028	17,219
Morocco	4,958	5,000	5,381	5,030	5,393	6,315	6,521	6,154	6,342	6,469
Saudi Arabia	10,036	11,236	12,284	12,020	12,625	13,696	15,457	16,627	15,492	16,747
All others	9,044	7,640	9,253	9,878	12,037	13,574	14,709	16,462	15,842	16,979

Appendix table 6-12

Value added of all manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	5,685,998	5,370,104	5,511,154	6,127,550	6,919,982	7,415,703	7,980,178	8,978,407	9,685,086	8,853,799	10,288,724
United States	1,515,885	1,444,003	1,477,307	1,501,991	1,623,521	1,719,239	1,785,381	1,850,143	1,803,033	1,732,562	1,874,092
EU	1,462,754	1,441,875	1,523,165	1,800,490	2,046,159	2,097,133	2,222,224	2,559,706	2,683,758	2,138,561	2,283,267
Belgium	39,876	38,585	41,166	48,641	56,294	57,498	59,256	66,646	69,293	59,088	66,402
Czech Republic	13,773	14,802	17,346	20,466	26,376	29,421	33,869	41,562	47,971	40,251	43,572
Denmark	22,226	21,895	23,552	27,476	30,257	30,934	32,885	37,176	41,363	34,728	35,304
Finland	28,050	28,445	29,760	34,825	39,077	39,737	43,455	52,047	52,820	37,591	39,642
France	190,290	185,639	192,620	228,195	251,756	254,917	255,539	286,356	305,201	241,682	246,398
Germany	392,241	389,589	408,465	493,136	561,932	569,902	614,733	709,530	737,182	568,414	627,086
Ireland	28,211	29,722	35,587	39,912	42,178	41,330	42,871	49,692	50,986	48,754	48,575
Italy	205,390	205,002	218,370	259,244	292,700	294,894	310,098	359,583	373,548	306,741	324,277
Netherlands	53,469	52,630	55,821	68,033	77,783	80,951	83,711	97,952	106,136	89,099	94,391
Poland	28,225	28,478	28,850	33,789	42,911	49,565	56,370	70,396	86,523	66,348	78,454
Spain	97,724	100,262	108,057	133,935	152,868	159,970	170,481	193,378	210,881	172,592	173,019
Sweden	47,758	41,254	45,035	55,283	63,372	64,618	69,090	79,545	75,384	54,583	64,706
United Kingdom	227,121	215,063	219,992	237,129	266,963	269,201	280,132	309,910	293,452	221,429	236,523
All others	88,400	90,508	98,543	120,426	141,691	154,195	169,734	205,932	233,019	197,261	204,919
Japan	1,034,066	856,453	808,166	886,321	974,305	979,298	926,258	926,295	996,154	905,376	1,125,964
China	393,619	426,768	463,317	544,730	630,930	739,511	899,016	1,154,735	1,492,606	1,696,422	2,002,413
Asia-8	442,250	406,948	450,369	505,587	589,190	664,208	759,094	872,040	896,355	841,868	1,111,544
India	68,628	69,336	72,158	84,731	102,178	121,950	143,757	181,305	191,817	192,355	261,856
Indonesia	45,786	46,615	56,190	66,330	72,083	78,349	100,394	116,908	142,357	142,533	186,408
Malaysia	28,947	27,219	29,494	32,982	37,897	40,838	46,000	51,986	58,187	48,999	64,904
Philippines	16,878	16,308	17,735	18,523	20,037	22,958	26,845	31,618	37,374	34,400	44,928
Singapore	23,867	19,604	21,311	22,162	28,392	30,753	35,587	38,766	35,935	32,544	44,070
South Korea	136,209	120,693	135,365	149,356	181,379	210,758	234,105	259,802	235,935	211,264	273,128
Taiwan	80,710	68,554	75,376	81,808	91,644	97,406	99,859	103,756	99,604	89,848	121,668
Thailand	41,226	38,619	42,739	49,695	55,580	61,196	72,547	87,899	95,146	89,926	114,582
All others	837,425	794,057	788,830	888,431	1,055,876	1,216,314	1,388,206	1,615,489	1,813,180	1,539,010	1,891,444
Central Asia and Europe	104,148	90,795	102,696	127,391	173,366	224,782	269,771	333,771	397,326	272,666	358,353
Russia	44,928	46,966	53,938	64,392	93,274	124,486	157,140	196,540	248,355	161,960	218,210
Turkey	53,545	37,206	41,200	53,727	68,059	83,279	90,911	108,735	117,533	92,401	115,622
Ukraine	5,675	6,623	7,559	9,272	12,033	17,017	21,721	28,496	31,438	18,304	24,522
Middle East and North Africa	87,661	85,791	90,224	97,928	114,692	130,476	152,621	176,248	214,756	208,952	245,100
Egypt	15,904	14,684	13,641	11,543	13,671	15,597	17,284	20,276	25,536	29,614	32,580
Iran	9,534	11,413	15,215	15,638	19,263	23,513	28,146	34,814	41,782	40,951	48,319
Israel	19,361	16,940	14,941	15,845	16,890	18,118	20,028	23,301	32,177	28,202	31,935
Morocco	6,029	5,606	6,014	7,732	8,974	8,872	9,379	10,121	11,349	12,243	12,244
Saudi Arabia	18,211	18,455	19,460	23,005	25,554	29,522	33,043	36,402	39,433	39,113	48,329
All others	18,623	18,693	20,954	24,166	30,341	34,855	44,739	51,334	64,479	58,830	71,692

Appendix table 6-12

Value added of all manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	261,360	267,854	281,865	299,401	326,970	302,381	317,774	348,606	340,270	309,038
Argentina	37,787	46,199	49,976	38,948	41,637	44,513	47,740	53,409	53,353	48,114
Brazil	120,860	103,860	99,146	124,672	141,491	124,975	124,136	128,442	117,275	82,411
Chile	5,694	6,705	8,067	8,694	9,937	12,801	13,264	14,427	13,540	12,674
Colombia	9,187	9,632	9,781	10,642	13,304	15,154	15,535	16,324	15,362	13,268
Costa Rica	1,489	1,507	1,832	1,979	2,125	2,355	2,395	2,638	2,997	4,228
Mexico	61,852	73,259	83,297	87,337	89,815	67,486	80,511	96,166	101,471	114,476
Peru	4,857	5,564	6,528	5,637	7,158	8,116	8,346	8,788	8,093	7,204
Venezuela	12,798	13,443	14,504	13,571	12,828	16,961	16,069	18,136	17,380	17,329
All others	6,835	7,684	8,735	7,921	8,675	10,019	9,779	10,277	10,798	9,334
Sub-Saharan Africa	32,233	33,496	34,135	32,418	33,211	39,123	37,993	38,785	35,118	28,799
Kenya	1,442	1,420	1,279	820	1,080	1,267	1,400	1,487	1,515	1,284
Nigeria	1,829	1,953	1,561	1,767	2,859	4,809	6,073	6,584	6,465	1,635
South Africa	24,040	25,136	26,337	25,298	25,937	29,275	26,563	27,045	23,663	22,417
All others	4,922	4,987	4,958	4,533	3,335	3,773	3,958	3,670	3,475	3,465
Other developed	202,191	198,821	196,392	194,434	215,547	240,505	244,038	243,062	231,974	246,902
Australia	42,498	43,174	43,625	43,400	49,277	51,313	55,486	56,357	48,389	50,415
Canada	91,733	87,647	82,725	83,097	89,707	100,480	102,238	108,463	107,027	121,073
New Zealand	7,622	7,409	7,075	7,665	9,265	10,532	11,118	10,881	8,649	8,928
Norway	12,802	12,633	13,583	12,792	13,685	17,018	17,053	16,800	16,863	16,977
Switzerland	47,536	47,958	49,383	47,479	53,613	61,162	58,143	50,562	51,047	49,509
Other developing	12,743	13,818	15,518	16,377	18,189	20,833	21,970	23,281	24,306	24,483
Bangladesh	3,630	3,870	4,124	4,548	4,969	5,575	5,894	6,165	6,666	6,679
Pakistan	7,123	7,608	8,416	8,252	8,987	10,073	10,031	10,050	10,199	9,998
Sri Lanka	1,196	1,338	1,459	1,578	1,805	2,076	2,302	2,641	2,775	2,731
Vietnam	793	1,001	1,519	1,999	2,428	3,109	3,743	4,425	4,666	5,075

Appendix table 6-12

Value added of all manufacturing industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	343,988	328,942	291,971	304,294	356,801	416,758	480,774	559,524	616,150	556,002	686,061
Argentina	46,901	43,264	20,865	28,796	34,026	39,187	43,810	50,972	63,607	60,109	74,865
Brazil	96,131	81,290	73,417	86,110	109,435	136,864	162,786	199,967	217,691	209,163	282,538
Chile	13,250	12,641	12,348	12,148	15,197	17,598	19,823	21,542	21,460	19,664	23,228
Colombia	13,621	13,929	13,696	13,872	17,726	22,617	25,814	33,573	36,455	32,655	40,870
Costa Rica	3,705	3,269	3,305	3,384	3,692	3,954	4,454	5,114	5,611	5,115	6,377
Mexico	132,610	136,615	136,783	128,729	139,619	154,015	175,756	188,635	194,672	151,397	184,055
Peru	7,701	7,910	8,233	8,726	10,365	11,856	13,514	15,608	18,691	18,643	23,523
Venezuela	21,711	20,879	15,228	14,314	18,507	21,941	25,517	33,860	45,765	46,924	35,990
All others	8,358	9,145	8,096	8,215	8,233	8,727	9,300	10,250	12,199	12,332	14,615
Sub-Saharan Africa	28,918	26,754	26,013	36,690	46,648	50,444	51,265	54,820	54,540	51,175	65,353
Kenya	1,292	1,270	1,292	1,447	1,610	1,974	2,313	2,829	2,940	2,792	3,074
Nigeria	1,652	1,790	1,964	2,227	2,629	3,144	3,720	4,140	4,940	4,114	5,199
South Africa	22,942	20,563	19,419	29,600	37,825	40,727	40,564	43,064	41,058	39,014	51,392
All others	3,032	3,131	3,338	3,415	4,585	4,599	4,669	4,787	5,602	5,255	5,688
Other developed	247,586	235,808	249,688	290,217	327,325	350,225	382,955	432,749	462,991	380,228	459,495
Australia	46,089	41,963	48,223	61,890	71,023	75,572	80,961	96,718	107,034	91,700	119,314
Canada	132,945	123,142	123,591	137,438	153,574	164,588	183,909	200,590	205,985	151,631	186,048
New Zealand	8,258	7,962	9,269	11,826	14,445	16,168	15,212	18,475	17,869	16,076	18,263
Norway	15,707	16,069	18,045	21,042	23,575	26,319	29,908	34,974	36,615	32,583	36,988
Switzerland	44,588	46,672	50,560	58,020	64,708	67,577	72,966	81,992	95,488	88,238	98,881
Other developing	25,122	25,968	28,237	31,911	37,045	43,628	50,819	58,378	67,417	69,987	77,082
Bangladesh	6,681	6,851	7,222	7,878	8,658	9,140	9,998	11,786	13,688	15,338	16,973
Pakistan	9,745	9,820	10,764	12,561	15,491	19,098	22,744	25,804	27,694	26,989	28,837
Sri Lanka	2,910	2,831	3,033	3,381	3,657	4,473	5,133	5,690	6,905	7,509	8,598
Vietnam	5,786	6,466	7,218	8,090	9,239	10,916	12,944	15,097	19,129	20,151	22,674

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-13

Value added of ICT industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	800,349	864,084	934,386	961,442	1,053,095	1,190,976	1,249,820	1,290,286	1,318,114	1,414,784
United States	257,503	269,496	289,990	305,880	337,422	364,784	391,029	423,852	452,684	470,357
EU	234,548	245,094	261,723	242,107	256,877	295,742	306,722	307,901	341,409	358,365
Belgium	5,374	5,478	5,916	5,903	6,450	7,801	7,877	7,707	8,266	8,892
Czech Republic	674	575	586	889	1,023	1,279	1,816	1,954	2,216	2,166
Denmark	3,884	3,789	4,233	3,882	4,369	4,720	5,073	5,178	5,290	5,690
Finland	4,163	3,394	3,361	2,837	3,595	4,890	5,227	5,747	7,692	9,125
France	42,848	43,419	47,791	45,383	47,849	56,299	56,752	53,717	58,879	62,332
Germany	61,300	65,638	70,431	66,855	69,751	79,836	75,044	69,895	74,530	71,299
Ireland	2,182	2,157	2,147	1,970	2,384	3,882	3,777	4,484	4,980	7,261
Italy	32,003	33,939	37,036	31,309	29,430	30,826	36,417	35,425	37,489	39,508
Netherlands	8,550	8,638	9,479	9,260	10,075	11,829	12,391	12,520	14,322	15,546
Poland	1,502	1,601	1,728	1,707	2,153	2,654	3,066	3,478	4,153	4,146
Spain	13,707	15,114	15,825	14,417	14,869	16,819	18,488	17,602	19,034	19,857
Sweden	6,956	7,559	8,120	6,425	7,230	9,174	11,328	11,564	12,608	13,460
United Kingdom	40,125	42,551	42,759	38,789	44,167	49,592	52,581	61,942	73,569	79,503
All others	11,281	11,244	12,312	12,481	13,533	16,141	16,885	16,688	18,383	19,579
Japan	152,446	179,675	186,845	206,686	225,213	261,892	248,712	238,860	225,866	266,211
China	13,172	14,488	16,441	20,281	19,565	25,505	30,005	36,253	36,047	40,238
Asia-8	40,732	49,332	62,643	59,856	74,446	91,157	102,058	102,319	84,074	104,133
India	4,729	4,443	4,742	4,926	6,010	6,726	7,016	7,955	8,425	8,666
Indonesia	3,541	4,235	4,956	5,506	6,469	7,397	8,671	9,218	3,149	4,366
Malaysia	2,794	3,667	4,738	5,815	7,156	8,803	11,016	10,925	8,390	10,244
Philippines	979	1,213	1,276	1,328	1,590	2,086	3,245	3,595	3,927	4,714
Singapore	5,835	7,428	8,502	10,297	12,554	15,676	17,006	16,830	11,183	12,570
South Korea	12,118	12,052	13,066	15,207	20,506	28,407	29,275	26,766	22,866	32,426
Taiwan	8,911	9,882	11,475	12,953	14,392	17,464	19,952	21,936	22,742	27,500
Thailand	1,826	6,411	13,887	3,825	5,769	4,596	5,877	5,093	3,392	3,647
All others	101,948	105,999	116,744	126,632	139,572	151,896	171,294	181,101	178,035	175,480
Central Asia and Europe	10,370	9,971	12,878	19,000	22,111	29,133	34,479	36,942	29,015	24,091
Russia	1,308	731	2,738	7,606	12,965	17,929	21,890	22,969	13,699	8,767
Turkey	8,976	9,195	9,867	11,070	8,635	10,581	11,760	12,733	14,330	14,627
Ukraine	86	45	273	324	511	622	830	1,240	986	698
Middle East and North Africa	13,009	12,732	13,241	13,648	14,698	16,480	18,504	19,534	20,714	21,740
Egypt	2,699	1,735	1,377	1,546	1,862	2,106	2,830	3,173	3,187	3,465
Iran	704	841	970	956	888	830	921	1,041	1,003	892
Israel	3,942	4,304	4,322	4,238	4,589	5,599	6,464	6,730	7,222	7,377
Morocco	835	830	930	912	939	1,081	1,086	1,035	1,292	1,360
Saudi Arabia	2,773	2,985	3,126	3,266	3,387	3,443	3,564	3,716	3,791	3,983
All others	2,056	2,038	2,515	2,730	3,032	3,421	3,640	3,839	4,220	4,663

Appendix table 6-13

Value added of ICT industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,547,561	1,463,267	1,532,098	1,694,206	1,931,555	2,054,536	2,197,051	2,412,509	2,615,866	2,541,602	2,815,964
United States	517,907	501,471	516,848	521,639	575,392	616,673	654,997	680,410	708,939	693,230	729,169
EU	343,945	348,897	385,391	458,551	531,261	542,043	567,931	649,847	689,126	623,581	624,549
Belgium	8,284	8,738	9,407	11,460	13,098	13,440	14,080	16,065	17,760	16,242	16,255
Czech Republic	2,269	2,562	3,382	3,999	4,291	5,163	6,158	7,446	9,619	8,572	8,521
Denmark	5,026	5,363	5,943	7,330	8,093	8,051	8,754	10,175	11,757	11,444	11,759
Finland	9,460	9,236	10,951	12,886	14,267	13,792	14,721	18,294	18,068	12,262	12,268
France	56,693	57,193	63,629	75,467	86,508	86,294	91,055	103,882	116,337	117,009	114,892
Germany	66,548	65,541	71,598	86,621	101,676	97,064	101,842	116,927	125,675	110,970	111,193
Ireland	8,822	7,638	8,193	9,037	10,142	14,331	16,060	16,838	17,935	15,312	14,462
Italy	36,788	40,907	46,625	56,690	63,044	64,346	64,636	72,919	77,069	70,128	69,009
Netherlands	15,657	15,639	16,582	20,782	23,354	24,565	25,584	29,913	32,088	29,131	28,962
Poland	4,133	5,598	6,459	6,958	8,663	9,334	9,687	11,074	13,933	12,115	13,500
Spain	18,401	19,915	22,525	28,282	32,332	33,852	35,805	41,592	46,360	43,212	39,666
Sweden	12,358	11,090	11,948	13,863	19,222	19,388	20,148	22,468	24,446	20,151	22,730
United Kingdom	81,250	79,313	84,340	96,460	113,168	116,031	120,746	138,231	127,963	111,220	115,595
All others	18,255	20,164	23,809	28,717	33,406	36,394	38,654	44,023	50,116	45,813	45,736
Japan	306,438	250,589	238,403	265,654	284,777	277,542	264,664	267,444	290,467	291,097	336,409
China	54,129	61,398	71,269	88,905	111,880	131,896	159,474	186,737	245,867	272,828	340,203
Asia-8	127,063	110,369	125,783	142,156	165,822	179,204	202,062	219,621	217,816	207,782	256,471
India	9,385	10,371	10,513	12,646	15,076	18,236	20,618	26,359	31,523	33,812	43,354
Indonesia	5,428	4,460	6,478	8,277	9,350	10,234	13,550	16,208	18,666	20,747	28,190
Malaysia	11,022	9,829	10,211	11,765	13,052	11,461	12,380	12,855	12,768	10,753	13,478
Philippines	5,127	4,617	5,161	4,550	5,167	5,654	6,486	7,715	8,328	7,977	8,983
Singapore	15,771	12,011	12,228	12,803	15,735	14,625	15,927	17,090	16,551	15,822	20,085
South Korea	41,408	36,116	41,964	46,934	56,818	64,217	71,733	75,673	64,908	60,419	67,549
Taiwan	34,986	29,206	33,919	39,261	44,034	47,637	53,836	54,815	55,921	49,760	64,902
Thailand	3,937	3,759	5,311	5,919	6,591	7,141	7,530	8,905	9,150	8,490	9,932
All others	198,079	190,543	194,404	217,301	262,422	307,178	347,923	408,450	463,652	453,085	529,163
Central Asia and Europe	28,855	28,360	38,394	43,983	61,320	74,315	87,651	106,039	125,909	108,406	127,504
Russia	11,388	13,644	20,570	21,491	32,735	39,157	48,467	57,847	70,476	61,665	73,141
Turkey	16,690	13,635	16,625	21,016	26,729	33,034	36,608	44,710	51,107	43,239	50,338
Ukraine	778	1,081	1,200	1,476	1,855	2,124	2,577	3,481	4,327	3,502	4,024
Middle East and North Africa	24,577	24,148	24,700	25,927	29,204	33,660	38,346	46,254	55,943	58,494	65,118
Egypt	3,327	3,380	3,280	3,015	3,243	4,418	4,524	5,987	7,575	8,369	8,775
Iran	1,361	1,693	2,424	2,591	3,132	3,762	4,728	6,088	7,491	6,903	7,764
Israel	9,324	7,612	6,817	6,983	7,622	8,352	8,710	10,451	12,999	12,363	13,101
Morocco	1,275	1,331	1,471	1,575	1,881	2,088	2,266	2,849	3,169	3,356	3,478
Saudi Arabia	4,157	4,358	4,508	4,646	4,948	5,309	5,622	6,180	7,121	8,006	9,008
All others	5,133	5,774	6,200	7,116	8,378	9,730	12,495	14,700	17,588	19,498	22,992

Appendix table 6-13

Value added of ICT industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	24,695	26,740	32,567	37,736	43,064	39,687	47,839	55,128	59,834	56,515
Argentina	3,208	4,335	5,382	6,758	7,996	8,178	8,594	9,317	10,105	10,057
Brazil	12,669	11,449	13,384	14,708	15,873	14,005	19,097	20,503	21,391	15,649
Chile	643	776	992	1,129	1,336	1,570	1,900	2,091	2,180	2,064
Colombia	859	912	1,175	1,354	1,886	2,286	2,638	3,101	3,119	2,488
Costa Rica	264	269	320	366	405	448	467	515	531	546
Mexico	5,033	6,644	8,490	10,304	12,071	8,747	10,405	13,600	15,666	18,423
Peru	619	738	808	653	853	1,234	1,391	1,488	1,429	1,359
Venezuela	466	613	868	972	912	1,290	1,225	2,050	2,652	3,192
All others	934	1,004	1,147	1,492	1,732	1,928	2,122	2,465	2,761	2,736
Sub-Saharan Africa	5,080	5,944	7,083	6,140	6,314	7,330	7,132	7,463	7,154	6,878
Kenya	409	391	410	253	337	425	220	237	226	189
Nigeria	96	341	216	83	157	239	291	297	438	136
South Africa	3,909	4,607	5,872	5,177	5,393	6,145	6,000	6,333	5,902	5,948
All others	666	605	584	627	426	522	621	595	589	604
Other developed	46,500	47,980	47,880	46,611	49,481	54,788	58,601	57,006	55,906	60,645
Australia	11,513	12,296	12,108	12,150	13,439	15,065	17,221	17,787	16,177	17,358
Canada	20,363	21,239	20,828	19,922	19,870	21,057	22,195	23,146	23,166	26,359
New Zealand	1,511	1,546	1,441	1,523	1,801	2,268	2,604	2,708	2,241	2,246
Norway	2,949	2,831	3,096	2,805	2,964	3,411	3,745	4,003	4,409	5,026
Switzerland	10,164	10,069	10,407	10,212	11,406	12,986	12,837	9,361	9,913	9,656
Other developing	2,294	2,632	3,096	3,497	3,904	4,478	4,738	5,028	5,413	5,611
Bangladesh	296	305	319	344	396	448	498	558	585	597
Pakistan	1,619	1,872	2,236	2,540	2,767	3,081	3,133	3,206	3,392	3,431
Sri Lanka	272	322	349	355	422	482	556	649	795	870
Vietnam	107	134	192	257	319	468	552	616	641	714

Appendix table 6-13

Value added of ICT industries, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	71,436	68,861	56,521	55,919	64,691	80,391	94,321	112,818	127,848	128,954	156,015
Argentina	10,033	9,594	2,906	3,528	4,388	5,479	6,784	8,103	10,043	9,982	11,787
Brazil	27,011	22,816	19,660	20,230	25,604	33,991	40,472	50,018	59,255	62,033	81,099
Chile	1,954	1,748	1,746	2,172	2,616	3,093	3,552	4,062	4,451	4,952	6,167
Colombia	2,382	2,590	2,752	2,594	3,091	3,786	4,217	5,422	5,999	6,359	7,875
Costa Rica	605	638	691	740	795	859	985	1,153	1,344	1,400	1,752
Mexico	21,776	23,187	21,566	19,753	20,598	24,227	27,293	31,152	30,689	26,482	30,171
Peru	1,407	1,394	1,411	1,489	1,643	1,786	2,109	2,644	3,178	3,299	3,935
Venezuela	3,464	3,756	2,882	2,491	2,802	3,495	4,898	5,823	8,464	9,808	7,842
All others	2,802	3,137	2,907	2,922	3,154	3,673	4,013	4,442	4,423	4,638	5,387
Sub-Saharan Africa	6,995	6,625	6,442	9,309	11,871	13,755	15,614	16,099	16,318	17,541	21,759
Kenya	208	300	369	395	412	496	608	714	780	758	832
Nigeria	152	210	240	301	464	762	1,928	1,507	1,717	1,686	2,258
South Africa	6,038	5,413	5,065	7,857	10,214	11,666	12,113	12,751	12,542	13,856	17,366
All others	597	702	769	757	781	830	965	1,127	1,279	1,241	1,302
Other developed	60,505	56,451	61,710	74,588	86,866	95,408	101,899	115,697	124,607	124,600	142,061
Australia	16,539	15,125	17,122	21,392	25,669	27,357	29,050	34,583	37,348	41,782	50,567
Canada	28,601	25,314	25,534	30,403	34,827	39,504	44,244	48,233	50,151	47,560	53,248
New Zealand	1,991	1,998	2,345	3,081	3,698	4,214	4,004	4,874	5,033	4,502	5,425
Norway	4,628	4,796	5,670	6,547	7,651	8,772	8,869	10,750	11,538	10,083	11,120
Switzerland	8,745	9,219	11,039	13,165	15,021	15,562	15,732	17,257	20,536	20,674	21,700
Other developing	5,711	6,097	6,637	7,575	8,470	9,648	10,091	11,542	13,027	15,090	16,706
Bangladesh	605	648	705	757	823	929	1,029	1,228	1,456	1,767	2,016
Pakistan	3,488	3,794	4,157	4,793	5,282	5,894	5,825	6,487	6,583	7,924	8,584
Sri Lanka	857	855	906	1,011	1,146	1,378	1,562	1,874	2,483	2,681	3,155
Vietnam	760	800	869	1,015	1,219	1,447	1,675	1,953	2,505	2,719	2,951

EU = European Union; ICT = information and communications technology

NOTES: ICT industries classified by Organisation for Economic Co-operation and Development and include communications services, computer and related services, communications goods and semiconductors, and computers and office machinery. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-14

Real GDP per employed person, by region/country/economy: 1990–2009

(2009 U.S. PPP dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
United States	72,106	72,515	74,512	75,547	76,857	77,631	79,389	81,065	83,313	85,940	88,240	89,127	90,986	92,500	94,780	96,015	96,762	97,567	98,005	99,113
EU	57,767	58,571	60,209	61,288	63,388	65,158	66,064	67,561	68,721	70,435	72,083	72,923	74,010	74,865	76,356	77,146	78,290	79,014	78,899	77,111
Austria	66,263	67,098	67,978	68,549	70,045	72,149	73,464	74,484	76,390	77,765	79,851	79,692	81,082	81,787	82,717	83,522	85,328	86,941	86,970	84,765
Belgium	74,743	75,857	77,118	76,875	79,688	80,428	81,329	83,811	83,944	85,732	87,136	86,640	87,951	88,621	90,637	90,961	92,372	93,593	92,758	90,307
Bulgaria	17,366	18,286	18,464	18,484	18,704	19,001	16,757	16,324	17,154	18,341	19,801	20,763	21,648	22,079	22,950	23,742	24,428	25,222	25,891	25,329
Cyprus	42,979	42,795	46,568	45,664	47,657	51,729	52,381	53,263	55,067	56,683	58,545	59,614	59,621	58,559	58,806	58,990	60,368	61,469	61,939	61,326
Czech Republic	38,531	35,314	34,660	34,749	35,137	36,954	38,095	37,746	38,047	39,921	41,452	42,277	42,840	44,990	46,846	49,294	51,650	53,394	53,942	52,287
Denmark	58,322	59,440	61,291	62,144	64,520	65,991	67,246	68,466	68,944	70,117	72,223	72,079	72,389	73,458	75,611	76,676	77,651	76,712	74,605	73,339
Estonia	21,734	20,132	18,390	18,278	18,601	20,380	22,055	24,640	26,799	27,956	31,207	33,273	35,454	37,587	40,318	43,266	45,394	48,172	45,654	43,634
Finland	54,436	54,219	56,296	59,394	62,410	63,762	65,124	66,880	68,962	69,915	72,167	72,838	73,469	74,895	77,667	78,853	80,841	83,340	83,050	78,544
France	70,313	70,950	72,340	72,615	74,115	75,018	75,566	76,920	78,422	79,407	80,356	80,417	80,740	81,515	83,440	84,552	85,586	86,250	86,011	84,919
Germany	61,997	63,110	65,468	65,814	67,633	68,756	69,630	70,953	71,538	72,002	72,947	73,528	73,942	74,486	75,087	75,740	77,657	78,272	78,170	74,323
Greece	50,960	53,481	53,090	51,811	51,878	52,495	53,939	56,180	56,405	58,140	60,456	62,914	63,643	66,638	68,228	69,113	70,798	72,973	74,348	73,729
Hungary	28,483	26,773	28,642	30,690	32,642	33,438	33,741	35,229	36,410	36,945	38,376	40,139	41,988	43,748	46,543	48,303	49,911	50,546	51,390	49,763
Ireland	62,158	63,563	65,459	66,225	67,925	71,327	74,430	78,597	78,574	81,661	85,533	87,733	91,963	94,239	95,349	96,488	97,434	99,457	97,503	98,343
Italy	67,541	67,317	68,333	69,595	72,283	74,475	74,863	76,027	76,338	76,625	77,943	77,789	76,829	75,682	76,504	76,565	76,621	76,698	75,461	72,734
Latvia	24,128	21,267	15,585	14,831	16,864	18,926	19,989	20,749	21,808	22,927	25,322	27,033	27,967	29,406	31,575	34,386	36,775	39,043	37,045	35,172
Lithuania	29,300	26,983	21,733	18,994	18,195	21,593	22,509	24,045	26,088	26,399	28,383	31,493	32,479	35,028	37,611	39,566	41,904	44,781	46,320	42,365
Luxembourg	105,641	110,372	109,361	111,950	113,185	111,929	110,800	113,876	116,070	119,848	123,119	119,599	120,609	120,299	122,862	125,874	128,221	130,743	124,898	119,451
Malta	40,328	41,893	44,720	46,083	47,946	49,689	50,896	53,450	54,948	57,292	55,514	53,664	54,776	54,066	54,881	56,261	57,552	57,846	57,813	56,899
Netherlands	68,436	68,785	68,988	69,563	71,130	71,732	72,555	73,385	74,325	75,859	77,113	77,014	76,689	77,325	79,746	80,980	82,328	83,430	83,786	81,438
Poland	23,072	22,789	23,585	24,939	26,422	28,018	29,414	31,056	32,227	35,066	37,146	38,446	40,215	42,262	43,980	44,596	45,888	46,921	47,422	48,085
Portugal	38,027	38,610	39,677	39,680	40,484	42,307	43,132	43,873	44,830	46,027	46,853	46,923	46,982	46,822	47,588	48,107	48,552	49,732	49,528	49,460
Romania	14,928	13,067	12,291	12,966	13,540	15,293	16,082	15,698	15,301	15,822	16,329	17,442	20,401	21,480	23,697	25,062	26,852	28,444	30,607	28,943
Slovakia	28,435	26,381	27,974	28,522	30,834	32,571	34,121	35,984	37,729	38,721	40,033	41,192	43,042	44,615	46,969	49,420	52,420	56,493	58,267	56,825
Slovenia	38,216	36,828	36,443	37,013	38,710	39,892	42,172	45,088	46,781	48,624	50,107	51,296	52,531	54,232	56,379	59,019	61,544	63,853	64,460	60,549
Spain	62,971	63,808	65,312	66,526	68,434	69,018	69,524	69,701	69,701	69,806	69,782	70,110	70,315	70,303	70,120	69,798	69,866	70,236	71,121	73,358
Sweden	55,417	55,641	57,534	59,099	62,059	63,475	65,020	67,650	69,325	71,067	72,447	71,853	73,604	75,761	79,526	81,821	83,909	84,587	83,295	80,515
United Kingdom	56,880	57,759	64,027	66,047	68,331	69,563	70,905	71,961	73,802	75,317	77,366	78,621	79,660	81,124	82,638	83,580	85,218	86,810	86,650	83,596
Japan	57,434	58,161	57,983	57,862	58,296	59,313	60,624	61,146	60,608	61,367	63,516	64,119	65,310	66,450	68,126	69,181	70,284	71,678	71,088	68,398
China	3,523	3,697	4,004	4,339	4,715	5,340	5,396	5,608	5,537	5,824	6,283	6,844	7,574	8,600	9,371	10,238	11,319	12,668	13,760	14,864
Asia-8																				
India	3,785	3,750	3,859	3,984	4,168	4,406	4,689	4,819	5,066	5,314	5,427	5,603	5,675	6,009	6,303	6,735	7,210	7,685	8,002	8,431
Indonesia	5,914	6,394	6,673	7,095	7,366	8,163	8,227	8,481	7,315	7,278	7,549	7,754	8,015	8,292	8,625	9,093	9,443	9,792	9,883	10,141
Malaysia	20,772	22,078	23,345	24,614	26,150	28,563	28,599	30,084	27,770	28,681	29,770	29,642	30,631	31,331	33,089	34,625	35,830	37,200	38,508	37,023
Philippines	8,401	8,096	7,855	7,796	7,927	8,090	8,087	8,772	8,634	8,571	9,040	8,661	8,774	9,034	9,313	9,496	9,875	10,386	10,603	10,419
Singapore	63,396	59,234	60,922	66,161	69,744	79,192	71,562	75,591	72,111	79,120	87,741	78,837	82,815	85,485	90,025	95,467	93,785	96,881	90,819	88,164
South Korea	29,636	31,575	32,758	34,422	36,274	38,414	40,303	41,897	42,043	45,740	47,734	48,664	50,745	52,249	53,653	55,045	57,146	59,330	60,324	60,616
Taiwan	39,993	42,348	44,530	46,914	49,380	51,914	54,649	56,963	58,220	61,066	63,884	63,552	66,395	67,976	70,612	72,773	75,448	78,540	78,285	77,717
Thailand	8,907	9,913	10,167	11,222	12,245	13,094	13,794	13,370	12,528	12,847	13,186	13,131	13,429	14,057	14,566	15,009	15,603	16,117	16,190	15,537
Central Europe/Asia																				
Albania	8,176	6,039	5,690	6,221	6,753	7,806	10,907	9,804	10,904	12,609	13,412	14,545	17,517	18,408	19,354	20,453	21,495	22,786	24,358	25,145

Appendix table 6-14

Real GDP per employed person, by region/country/economy: 1990–2009

(2009 U.S. PPP dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Armenia	8,082	7,286	4,624	4,383	4,793	5,162	5,620	6,075	6,691	7,117	7,658	8,474	11,146	12,698	14,363	16,114	18,331	20,679	21,797	18,444
Belarus	17,113	17,307	15,767	14,946	13,640	13,022	13,521	15,048	16,146	16,607	17,572	18,501	19,590	21,161	23,704	25,743	27,981	29,686	32,093	31,951
Bosnia & Herzegovina	13,086	12,274	9,531	7,096	7,663	8,012	11,626	15,460	17,396	18,485	19,095	19,276	20,978	22,120	23,791	24,606	26,022	26,026	26,427	24,529
Croatia	46,971	40,232	39,983	32,624	34,778	37,659	36,707	37,988	39,978	40,726	40,362	44,313	44,857	46,805	47,981	49,619	52,280	53,296	53,973	52,141
Georgia	15,824	12,583	8,800	6,883	6,320	6,562	7,111	7,843	8,630	8,872	8,510	8,735	9,407	10,590	11,406	12,778	13,955	16,073	17,495	17,881
Kazakhstan	23,397	17,488	16,862	16,663	15,407	14,209	14,349	14,706	14,653	15,689	16,977	17,836	19,552	20,526	21,879	23,740	25,787	27,231	27,349	25,782
Kyrgyz Republic	9,603	8,819	7,255	6,699	5,471	5,186	5,520	5,931	6,000	6,011	6,324	6,589	6,515	6,527	6,775	6,483	6,618	6,991	7,415	7,602
Macedonia	37,651	34,960	32,638	30,244	29,753	29,393	29,639	30,062	30,055	31,551	32,886	31,931	32,386	33,949	36,117	36,831	37,103	37,758	37,305	35,389
Moldova	16,510	13,670	9,759	9,702	6,763	6,742	6,436	6,656	6,338	6,256	6,302	6,759	7,257	8,586	9,502	10,193	11,203	11,632	12,506	11,658
Russia	31,435	30,461	26,686	24,784	22,384	22,137	21,487	22,207	21,310	22,610	24,668	25,739	26,716	28,478	30,318	32,068	34,333	36,640	38,435	36,180
Serbia & Montenegro	30,072	27,886	20,073	13,785	13,997	14,683	15,541	17,248	17,361	14,541	15,718	16,560	17,483	18,098	19,506	20,424	22,215	23,495	23,332	23,785
Tajikistan	14,566	13,152	9,222	7,946	6,252	5,887	4,884	4,801	5,042	5,405	5,827	6,091	6,650	7,278	7,246	7,645	8,056	8,617	9,222	10,006
Turkey	25,468	24,730	25,984	29,492	25,835	26,931	28,010	30,104	30,235	28,869	31,476	29,760	31,840	33,837	35,936	38,514	40,657	41,924	41,313	39,071
Ukraine	22,687	20,963	19,257	16,906	13,537	11,541	10,603	10,575	10,485	10,720	11,647	12,876	13,322	14,552	16,319	16,452	17,618	18,859	19,230	16,938
Middle East/North Africa																				
Bahrain	48,740	47,951	49,491	54,047	52,157	52,461	52,856	52,779	53,521	54,028	55,017	55,913	57,023	59,384	60,928	64,796	68,145	72,508	75,936	77,110
Egypt	12,497	12,444	12,164	12,216	12,419	12,662	12,961	13,402	14,038	14,499	14,890	15,008	15,069	15,139	15,335	15,658	16,290	17,163	18,011	18,461
Iran	26,978	29,663	30,138	28,802	27,780	27,478	28,305	27,998	27,469	26,735	26,971	26,858	27,749	28,725	29,164	29,493	30,739	32,675	33,327	33,843
Iraq	26,891	9,695	12,159	11,767	10,823	9,562	10,397	9,660	10,738	11,238	12,089	12,800	13,301	10,102	14,984	14,127	14,591	14,408	15,376	15,630
Israel	57,402	55,992	57,258	56,742	58,181	62,052	63,605	63,733	64,323	64,176	67,644	65,944	64,352	63,747	65,241	67,088	68,873	70,041	69,123	66,062
Jordan	18,564	16,013	16,771	15,946	15,496	15,542	15,084	14,988	14,876	15,100	15,309	15,661	16,202	16,387	17,263	18,045	18,803	19,448	19,908	19,432
Kuwait	70,226	70,824	70,011	84,161	82,146	74,835	69,357	66,606	67,092	66,106	71,560	71,301	67,549	73,726	74,334	75,871	77,653	77,602	80,333	76,165
Morocco	9,630	10,077	9,331	8,949	9,713	8,721	9,596	9,060	9,510	9,257	9,338	10,160	10,351	10,570	10,751	10,936	11,579	11,624	12,049	12,444
Oman	57,942	57,706	58,613	58,186	56,967	57,027	56,439	58,316	58,551	56,705	58,299	60,447	60,366	59,273	60,053	61,509	63,676	66,923	73,266	73,840
Qatar	76,812	72,363	76,294	73,973	73,848	75,349	80,316	103,244	110,633	112,277	117,344	114,724	107,695	102,463	106,988	101,953	101,839	100,460	102,573	98,603
Saudi Arabia	73,086	78,294	80,305	77,899	75,874	73,604	73,702	72,913	72,328	68,969	69,871	67,538	64,926	67,523	68,709	70,002	69,881	69,306	70,592	69,017
Syria	14,734	15,496	16,654	16,936	16,960	16,945	16,927	16,252	16,653	15,624	15,529	15,641	16,027	15,172	15,432	15,330	15,486	15,504	15,708	15,738
Tunisia	15,511	15,604	16,290	16,122	16,094	16,007	16,660	17,081	17,492	18,161	18,596	19,103	19,009	19,737	20,531	20,936	21,540	22,448	23,039	23,261
Yemen	10,088	10,077	10,268	9,984	9,999	10,107	10,135	10,291	10,579	10,601	10,854	10,824	10,799	10,726	10,701	10,847	10,726	10,627	10,566	10,528
South and Central America																				
Argentina	23,275	25,373	27,667	29,332	31,153	29,483	30,966	33,746	35,136	33,783	33,093	31,113	31,163	31,935	32,679	33,301	34,675	37,411	39,308	39,311
Bolivia	9,963	10,479	10,494	10,689	11,112	11,330	11,588	11,613	11,780	11,437	11,354	11,389	11,697	11,074	11,238	11,445	11,678	11,855	12,252	12,347
Brazil	16,525	16,568	16,417	17,116	17,884	18,389	19,244	19,775	19,573	19,354	19,090	19,201	18,976	18,872	18,997	19,025	19,309	20,088	20,751	21,130
Chile	21,516	22,448	24,441	25,658	26,642	29,110	30,597	32,067	32,519	31,677	32,587	32,179	32,293	32,593	33,878	34,529	33,264	33,998	34,167	32,684
Colombia	19,561	18,476	19,273	19,258	19,044	21,067	20,711	21,795	21,671	20,210	20,140	19,714	20,262	19,974	20,530	20,883	22,967	24,128	24,220	23,806
Ecuador	19,073	19,396	19,036	18,458	18,462	18,141	18,651	18,685	19,059	18,144	17,968	17,703	17,650	18,074	17,864	18,774	18,827	19,291	20,394	20,161
Mexico	33,352	33,623	34,041	34,180	34,708	33,210	33,568	33,890	34,681	35,589	37,173	37,140	36,587	36,829	37,062	38,059	38,568	39,172	38,890	36,694
Peru	13,127	13,001	12,923	14,165	17,045	18,668	18,779	19,057	18,423	18,095	18,944	19,105	19,898	20,652	21,237	21,789	21,512	21,660	23,310	23,037
Senegal	3,946	3,929	3,863	3,801	3,690	3,780	3,738	3,741	3,845	3,972	3,973	4,031	3,927	4,065	4,176	4,275	4,243	4,314	4,272	4,199
Uruguay	22,252	23,199	24,646	25,091	26,204	25,428	27,560	29,010	32,214	31,922	31,889	30,563	28,184	28,973	31,018	31,987	26,986	27,688	28,756	27,754
Venezuela	28,280	30,065	30,902	30,093	28,351	28,542	27,584	28,703	28,002	25,532	25,678	25,882	23,722	21,715	25,485	28,734	30,666	32,739	33,471	31,906

Appendix table 6-14

Real GDP per employed person, by region/country/economy: 1990–2009

(2009 U.S. PPP dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sub-Saharan Africa																				
Angola	7,089	6,948	6,311	4,607	4,518	5,044	5,887	6,049	5,886	5,907	5,905	5,892	6,543	6,534	7,029	8,227	9,470	11,062	12,149	11,741
Burkina Faso	1,856	1,969	1,916	1,927	1,896	1,950	2,106	2,176	2,267	2,338	2,322	2,390	2,400	2,489	2,507	2,627	2,682	2,689	2,746	2,750
Cameroon	6,572	6,116	5,735	5,371	5,065	5,075	5,160	5,259	5,359	5,421	5,475	5,561	5,616	5,676	5,729	5,689	5,710	5,735	5,740	5,694
Côte d'Ivoire	4,806	4,618	4,423	4,800	4,623	4,701	4,903	5,015	5,071	4,997	4,620	4,509	4,335	4,176	4,155	4,141	4,066	4,028	4,015	4,057
Congo (Democratic Republic)	1,971	1,736	1,490	1,235	1,143	1,116	1,074	989	949	886	801	760	763	781	807	842	861	886	909	905
Ethiopia	1,188	1,097	1,008	1,113	1,140	1,173	1,289	1,304	1,224	1,255	1,255	1,302	1,271	1,182	1,240	1,335	1,430	1,541	1,639	1,742
Kenya	3,906	3,799	3,605	3,451	3,399	3,411	3,421	3,312	3,311	3,283	3,191	3,234	3,137	3,124	3,171	3,263	3,372	3,514	3,473	3,452
Madagascar	2,507	2,272	2,227	2,203	2,132	2,105	2,085	2,101	2,121	2,160	2,189	2,253	1,906	2,032	2,073	2,101	2,138	2,200	2,281	2,098
Malawi	1,481	1,564	1,420	1,538	1,361	1,521	1,633	1,692	1,658	1,668	1,634	1,523	1,507	1,557	1,602	1,610	1,783	1,756	1,869	1,964
Mali	3,081	3,305	3,157	3,224	3,281	3,306	3,492	3,624	3,861	3,898	3,688	4,047	4,099	4,273	4,199	4,338	4,476	4,537	4,642	4,729
Niger	2,613	2,575	2,312	2,251	2,246	2,008	2,017	1,937	2,087	2,016	1,880	1,951	1,989	2,064	1,978	2,082	2,137	2,145	2,277	2,193
Nigeria	4,761	4,610	4,501	4,466	4,372	4,236	4,322	4,310	4,296	4,189	4,282	4,498	5,295	5,698	6,147	6,310	6,529	6,805	7,016	7,210
South Africa	30,415	28,999	27,248	26,470	26,279	26,073	26,224	25,956	25,106	24,723	24,811	24,680	25,045	25,182	25,879	26,692	27,605	28,499	28,347	26,708
Sudan	40	43	41	43	42	42	43	46	47	47	49	51	52	55	56	58	62	67	69	70
Tanzania	1,899	1,870	1,814	1,770	1,736	1,740	1,765	1,778	1,795	1,809	1,850	1,911	1,995	2,075	2,180	2,277	2,366	2,466	2,578	2,646
Uganda	1,508	1,488	1,483	1,562	1,617	1,752	1,860	1,910	1,929	2,032	2,079	2,123	2,235	2,306	2,382	2,451	2,627	2,750	2,890	2,990
Zambia	4,313	4,143	4,086	3,966	3,319	3,127	3,253	3,265	3,108	3,096	3,136	3,224	3,270	3,383	3,508	3,625	3,778	3,927	4,057	4,217
Other developed																				
Australia	65,414	66,747	69,375	70,693	71,044	71,944	74,164	76,332	78,743	80,059	79,991	81,943	82,372	84,462	84,558	84,538	85,316	86,248	87,152	88,183
Canada	66,173	65,941	67,185	68,432	70,277	70,988	71,495	72,992	74,156	76,308	78,381	78,831	79,207	78,835	79,898	81,163	81,858	82,006	81,097	80,210
Iceland	54,360	54,239	52,409	53,214	54,694	53,100	55,626	58,360	59,579	59,834	61,183	62,542	63,548	64,997	70,318	73,187	72,807	73,831	73,949	73,428
New Zealand	65,071	63,528	66,079	69,587	69,659	69,897	69,885	70,981	69,582	71,005	72,848	73,473	74,816	75,924	76,224	75,391	74,370	75,760	73,581	74,026
Norway	80,608	83,967	87,096	88,868	92,099	94,008	96,838	99,172	99,203	100,291	102,929	104,617	105,779	107,960	111,649	113,293	111,835	110,404	108,870	107,693
Switzerland	66,173	64,335	65,368	65,801	67,022	67,233	67,651	69,018	69,870	70,223	71,986	71,652	71,652	71,630	73,241	74,859	75,854	76,370	76,290	74,535
Othe developing																				
Bangladesh	3,044	3,072	3,188	3,293	3,386	3,509	3,627	3,776	3,925	4,066	4,256	4,292	4,294	4,330	4,501	4,665	4,866	5,065	5,264	5,448
Cambodia	1,786	1,862	1,931	1,948	2,126	1,811	2,111	2,244	2,125	2,128	2,414	2,196	2,292	2,291	2,343	2,600	2,812	3,021	3,181	3,076
Pakistan	6,599	7,232	7,471	7,429	7,566	7,917	8,242	7,898	7,775	7,922	8,342	8,359	8,520	8,523	8,693	9,296	8,976	9,441	9,512	9,308
Sri Lanka	8,426	8,888	9,378	9,563	9,952	10,353	10,395	10,923	10,607	11,001	11,237	11,216	11,155	10,987	10,983	12,264	13,073	14,088	14,359	14,904
Vietnam	2,547	2,633	2,788	2,946	3,137	3,360	3,594	3,805	3,940	4,042	4,130	4,312	4,500	4,700	4,944	5,214	5,489	5,791	5,991	6,140

EU = European Union; GDP = gross domestic product; PPP = purchasing power parity

NOTE: GDP per capita in 2009 US$ converted to 2009 price levels with updated 2005 purchasing power parity price indexes.

SOURCE: The Conference Board, Total Economy Database (October 2010), http://www.conference-board.org/economics, accessed 23 October 2010.

Science and Engineering Indicators 2012

Appendix table 6-15

Real GDP per capita, by region/country/economy: 1990–2009

(2009 U.S. PPP dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
United States	34,920	34,366	35,047	35,581	36,594	37,082	38,041	39,262	40,496	41,965	43,217	43,238	43,606	44,304	45,461	46,421	47,208	47,651	47,213	45,576
EU	22,587	22,744	22,879	22,777	23,383	23,995	24,416	25,047	25,757	26,504	27,474	27,952	28,230	28,543	29,199	29,675	30,535	31,318	31,480	30,123
Austria	30,525	31,159	31,360	31,187	31,723	32,448	33,116	33,782	34,959	36,057	37,285	37,395	37,933	38,170	39,083	39,996	41,394	42,901	43,640	42,124
Belgium	28,827	29,252	29,579	29,178	30,008	30,626	30,985	32,079	32,643	33,738	34,884	35,063	35,472	35,686	36,778	37,370	38,350	39,428	39,710	38,475
Bulgaria	8,576	7,964	7,484	7,563	7,781	8,098	7,422	7,091	7,462	7,710	8,204	8,626	9,104	9,652	10,390	11,139	11,947	12,792	13,674	13,090
Cyprus	17,352	16,991	18,113	17,760	18,367	19,753	19,716	19,813	20,482	21,160	21,913	22,479	22,606	22,616	23,033	23,377	23,862	24,659	25,122	24,277
Czech Republic	19,367	17,125	17,020	17,013	17,385	18,428	19,193	19,073	18,946	19,220	19,941	20,446	20,846	21,608	22,588	24,026	25,676	27,268	27,910	26,759
Denmark	30,007	30,318	30,815	30,686	32,275	33,092	33,840	34,780	35,403	36,191	37,347	37,481	37,523	37,531	38,257	39,055	40,246	40,796	40,317	38,186
Estonia	11,506	10,420	9,132	8,564	8,561	8,928	9,560	10,791	11,619	11,677	12,934	14,007	15,228	16,493	17,805	19,612	21,824	23,483	22,436	19,440
Finland	27,079	25,312	24,297	23,989	24,753	25,640	26,478	28,044	29,379	30,460	32,022	32,680	33,193	33,783	35,105	36,067	37,600	39,552	39,988	36,712
France	27,636	27,752	27,967	27,566	28,046	28,511	28,699	29,208	30,091	30,936	31,982	32,393	32,540	32,713	33,327	33,755	34,296	34,848	34,754	33,694
Germany	29,120	30,376	30,816	30,367	31,066	31,561	31,782	32,308	32,959	33,601	34,632	35,022	34,992	34,895	35,306	35,569	36,698	37,613	38,101	36,238
Greece	20,147	20,526	20,521	20,080	20,390	20,763	21,208	21,932	22,631	23,368	24,363	25,331	26,147	27,644	28,863	29,452	30,727	32,047	32,636	31,945
Hungary	14,629	12,856	12,480	12,472	12,881	13,093	13,254	13,866	14,624	15,286	16,074	16,768	17,537	18,323	19,250	19,959	20,775	21,001	21,107	19,886
Ireland	20,826	21,092	21,632	22,086	23,246	25,356	27,238	29,998	32,119	35,100	37,940	39,595	41,512	42,585	43,573	45,073	46,277	47,746	45,276	41,371
Italy	26,912	27,323	27,488	27,155	27,666	28,401	28,665	29,145	29,517	29,922	30,964	31,459	31,557	31,513	31,963	32,147	32,785	33,223	32,783	31,081
Latvia	12,761	11,204	7,711	6,965	7,237	7,380	7,733	8,462	8,951	9,318	10,036	10,926	11,723	12,659	13,856	15,433	17,439	19,306	18,605	15,360
Lithuania	14,692	13,831	10,896	9,156	8,283	8,699	9,163	9,858	10,620	10,514	10,868	11,627	12,468	13,795	14,859	16,069	17,381	19,147	19,733	16,863
Luxembourg	51,887	55,763	55,997	57,538	58,897	58,873	58,924	61,616	64,771	69,244	74,021	74,860	76,895	77,063	79,422	82,685	86,217	90,689	89,638	85,524
Malta	14,672	15,386	16,483	16,944	17,546	18,594	19,171	19,954	20,483	21,142	20,842	20,404	20,852	20,700	20,799	21,543	22,232	22,958	23,453	22,863
Netherlands	30,648	31,156	31,462	31,648	32,358	33,200	34,179	35,466	36,635	38,102	39,340	39,823	39,593	39,480	40,128	40,726	41,894	43,329	43,946	42,047
Poland	9,760	9,043	9,242	9,564	10,049	10,733	11,394	12,194	12,796	13,376	13,950	14,122	14,333	14,896	15,701	16,279	17,302	18,485	19,396	19,760
Portugal	17,753	18,536	18,721	18,265	18,331	19,044	19,674	20,422	21,310	22,052	22,802	23,136	23,196	22,878	23,137	23,220	23,466	23,942	23,876	23,161
Romania	9,123	7,960	7,269	7,388	7,687	8,250	8,596	8,095	7,722	7,641	7,836	8,292	8,733	9,215	10,023	10,463	11,311	12,050	12,962	12,064
Slovakia	14,243	12,120	11,299	11,469	12,131	12,801	13,660	14,231	14,831	14,820	15,011	15,521	16,217	16,973	17,803	18,962	20,544	22,577	23,894	22,722
Slovenia	18,460	16,747	15,834	16,279	17,137	18,287	18,897	19,783	20,496	21,609	22,547	23,182	24,099	24,781	25,845	27,008	28,599	30,582	31,750	29,198
Spain	22,085	22,583	22,741	22,458	22,952	23,552	24,087	24,964	25,990	27,084	28,215	28,918	29,277	29,698	30,184	30,771	31,483	32,046	31,828	30,393
Sweden	29,456	28,906	28,392	27,646	28,552	29,522	29,949	30,742	32,016	33,481	34,918	35,294	36,113	36,890	38,384	39,529	41,160	42,456	42,123	39,835
United Kingdom	26,949	26,498	26,463	26,995	28,077	28,844	29,596	30,497	31,497	32,463	33,603	34,294	34,880	35,726	36,595	37,167	38,002	38,718	38,681	36,520
Japan	29,833	30,723	30,879	30,848	31,028	31,530	32,283	32,707	31,963	31,855	32,706	32,703	32,734	33,152	34,029	34,672	35,385	36,244	35,861	34,003
China	1,989	2,090	2,261	2,446	2,654	3,001	3,034	3,161	3,129	3,299	3,567	3,901	4,337	4,941	5,404	5,925	6,566	7,367	8,011	8,668
Asia-8																				
India	1,403	1,398	1,447	1,502	1,570	1,653	1,753	1,795	1,881	1,967	2,018	2,097	2,140	2,283	2,437	2,598	2,804	3,013	3,165	3,352
Indonesia	2,502	2,681	2,827	2,982	3,154	3,357	3,559	3,667	3,137	3,114	3,220	3,295	3,389	3,502	3,631	3,789	3,948	4,145	4,345	4,490
Malaysia	7,933	8,457	8,971	9,615	10,238	10,966	11,763	12,300	11,099	11,480	12,174	11,935	12,296	12,695	13,240	13,681	14,227	14,888	15,325	14,814
South Korea	12,502	13,568	14,187	14,925	16,085	17,371	18,471	19,391	18,147	19,950	21,541	22,236	23,696	24,248	25,263	26,180	27,468	28,795	29,378	29,357
Philippines	2,867	2,787	2,738	2,738	2,797	2,861	2,958	3,041	2,958	2,993	3,055	3,039	3,105	3,190	3,322	3,417	3,528	3,702	3,763	3,728
Singapore	31,978	30,987	31,858	34,214	36,646	38,046	38,514	41,267	39,408	42,460	45,532	43,383	43,860	44,136	46,277	48,895	52,315	56,003	56,328	55,007
Taiwan	16,422	17,532	18,679	19,746	21,037	22,171	23,216	24,283	24,899	26,178	27,477	26,838	28,106	29,018	30,706	32,039	33,661	35,555	35,718	34,955
Thailand	4,834	5,178	5,522	5,900	6,347	6,845	7,160	6,981	6,179	6,391	6,639	6,725	7,024	7,464	7,875	8,173	8,536	8,890	9,055	8,791
Central Europe/Asia																				
Albania	3,041	2,234	2,146	2,357	2,516	2,808	3,793	3,359	3,676	4,205	4,527	4,934	5,192	5,543	5,906	6,291	6,674	7,109	7,686	7,905

Appendix table 6-15

Real GDP per capita, by region/country/economy: 1990–2009

(2009 U.S. PPP dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Armenia	4,274	3,708	2,196	2,093	2,281	2,483	2,634	2,725	2,935	3,032	3,216	3,540	4,092	4,685	5,194	5,931	6,728	7,665	8,206	7,049
Belarus	8,641	8,517	7,679	7,083	6,263	5,627	5,802	6,492	7,066	7,330	7,777	8,173	8,620	9,270	10,381	11,415	12,612	13,752	15,222	15,318
Bosnia & Herzegovina	3,554	3,123	2,354	1,752	1,880	2,034	3,224	4,407	4,856	5,129	5,304	5,311	5,498	5,601	5,812	5,924	6,191	6,496	6,810	6,547
Croatia	16,332	12,795	11,415	10,520	11,079	11,870	12,655	13,573	13,938	13,765	14,175	14,624	15,276	15,974	16,656	17,360	18,188	19,189	19,650	18,516
Georgia	7,686	6,068	3,384	2,442	2,243	2,350	2,657	2,967	3,081	3,192	3,277	3,456	3,659	4,079	4,333	4,766	5,231	5,896	6,052	5,833
Kazakhstan	9,246	8,176	7,725	7,053	6,267	5,863	5,961	6,145	6,122	6,355	7,002	7,937	8,700	9,490	10,376	11,351	12,527	13,595	13,980	13,226
Kyrgyz Republic	3,830	3,477	2,963	2,508	2,006	1,878	1,982	2,148	2,163	2,211	2,305	2,403	2,374	2,511	2,654	2,616	2,660	2,848	3,023	3,100
Macedonia	9,506	8,889	8,210	7,485	7,287	7,136	7,158	7,211	7,415	7,700	8,012	7,614	7,654	7,852	8,153	8,465	8,778	9,293	9,728	9,519
Moldova	6,245	5,121	3,622	3,574	2,470	2,441	2,303	2,344	2,193	2,123	2,174	2,314	2,501	2,674	2,876	3,097	3,250	3,352	3,618	3,386
Russia	16,002	15,169	12,960	11,834	10,327	9,900	9,555	9,703	9,200	9,815	10,848	11,457	12,068	13,020	14,029	15,002	16,234	17,628	18,705	17,308
Serbia & Montenegro	11,810	10,474	7,560	5,226	5,349	5,670	5,983	6,430	6,599	5,417	5,743	6,109	6,354	6,522	7,080	7,502	7,925	8,510	9,024	8,808
Tajikistan	5,357	4,794	3,201	2,657	2,070	1,921	1,467	1,466	1,513	1,537	1,632	1,758	1,914	2,089	2,262	2,369	2,479	2,618	2,772	2,814
Turkey	8,572	8,488	8,831	9,370	8,704	9,168	9,643	10,194	10,335	9,825	10,323	9,582	10,015	10,382	11,186	11,949	12,590	12,994	12,902	12,089
Ukraine	11,109	10,122	9,091	7,795	6,036	5,343	4,848	4,744	4,692	4,727	5,055	5,578	5,926	6,548	7,399	7,657	8,280	8,999	9,267	7,909
Middle East/North Africa																				
Bahrain	21,782	21,528	22,345	24,547	23,849	24,172	24,585	24,828	25,503	26,099	26,961	27,711	28,662	30,233	31,438	33,394	35,089	37,387	39,129	39,731
Egypt	3,712	3,725	3,686	3,743	3,848	3,967	4,104	4,253	4,476	4,648	4,794	4,857	4,905	4,954	5,047	5,161	5,399	5,661	5,942	6,094
Iran	7,398	8,000	8,097	7,870	7,798	7,910	8,355	8,517	8,631	8,688	9,024	9,234	9,817	10,443	10,877	11,252	11,763	12,528	12,653	12,724
Iraq	6,400	2,465	3,115	3,023	2,787	2,459	2,686	2,506	2,798	2,948	3,180	3,369	3,504	2,664	3,947	3,726	3,853	3,809	4,064	4,133
Israel	21,671	21,835	22,558	22,587	23,344	24,839	25,469	25,525	25,935	26,110	27,792	27,172	26,491	26,384	27,176	28,032	28,980	29,951	30,613	30,315
Jordan	4,259	3,889	4,177	4,237	4,342	4,510	4,490	4,530	4,562	4,614	4,704	4,843	5,009	5,102	5,415	5,725	5,772	5,888	6,205	6,236
Kuwait	28,022	37,112	37,621	48,099	49,966	48,485	46,702	45,893	45,747	43,296	43,755	42,379	42,214	47,904	51,070	54,604	55,446	54,859	56,315	52,892
Morocco	3,053	3,205	3,023	2,942	3,192	2,933	3,240	3,121	3,312	3,284	3,292	3,495	3,566	3,745	3,877	3,946	4,204	4,268	4,456	4,636
Oman	18,643	19,009	19,842	20,277	20,425	20,795	20,801	21,498	21,521	20,871	21,336	22,025	22,007	21,632	21,935	22,570	23,477	24,822	27,344	27,719
Qatar	46,545	43,883	45,996	44,367	43,876	44,165	46,209	57,754	60,796	61,291	64,757	65,516	64,399	65,317	73,478	77,525	87,298	97,752	111,851	120,713
Saudi Arabia	22,959	24,673	24,672	23,873	23,285	22,644	22,757	22,729	22,786	22,077	22,622	22,240	21,791	22,976	23,710	24,559	24,881	24,942	25,584	25,205
Syria	3,858	4,129	4,543	4,746	4,875	5,002	5,013	4,828	4,964	4,686	4,674	4,727	4,886	4,669	4,867	4,969	5,017	4,934	4,985	5,080
Tunisia	4,587	4,676	4,947	4,964	5,034	5,072	5,355	5,569	5,762	6,041	6,253	6,498	6,540	6,831	7,169	7,388	7,706	8,115	8,408	8,571
Yemen	2,152	2,205	2,299	2,302	2,370	2,425	2,461	2,509	2,577	2,590	2,663	2,678	2,697	2,712	2,734	2,800	2,804	2,813	2,833	2,861
South and Central America																				
Argentina	8,650	9,431	10,196	10,642	11,121	10,673	11,134	11,897	12,215	11,672	11,452	10,843	9,584	10,339	11,155	12,042	12,919	13,890	14,676	14,652
Bolivia	3,469	3,566	3,540	3,606	3,691	3,780	3,861	3,968	4,080	4,013	4,028	4,012	4,027	4,052	4,138	4,236	4,355	4,468	4,656	4,734
Brazil	7,762	7,719	7,557	7,805	8,133	8,345	8,394	8,546	8,421	8,318	8,550	8,539	8,643	8,621	8,990	9,151	9,392	9,798	10,171	10,079
Chile	7,253	7,699	8,504	8,956	9,324	10,166	10,769	11,327	11,542	11,313	11,681	11,936	12,062	12,400	13,013	13,600	14,087	14,608	14,932	14,533
Colombia	6,575	6,595	6,745	6,991	7,212	7,453	7,490	7,640	7,580	7,180	7,324	7,407	7,496	7,735	7,983	8,325	8,784	9,325	9,431	9,344
Ecuador	6,026	6,271	6,291	6,192	6,331	6,297	6,303	6,410	6,405	5,895	5,974	6,202	6,365	6,468	6,832	7,086	7,227	7,293	7,649	7,504
Mexico	11,837	12,113	12,321	12,332	12,653	11,675	12,079	12,696	13,139	13,454	14,153	13,963	13,902	13,927	14,322	14,618	15,147	15,462	15,515	14,298
Peru	4,914	4,947	4,825	4,951	5,472	5,826	5,860	6,150	6,006	5,964	6,046	5,968	6,175	6,331	6,553	6,904	7,338	7,884	8,543	8,505
Uruguay	8,130	8,359	8,959	9,135	9,731	9,525	9,985	10,410	10,810	10,440	10,228	9,823	8,688	8,826	9,814	10,407	11,077	11,856	12,848	12,940
Venezuela	9,025	9,670	10,025	9,836	9,408	9,588	9,389	9,808	9,669	8,943	9,129	9,300	8,354	7,596	8,855	9,628	10,425	11,109	11,468	11,037
Sub-Saharan Africa																				
Angola	3,913	3,859	3,532	2,618	2,593	2,904	3,401	3,513	3,449	3,500	3,549	3,604	4,043	4,065	4,387	5,148	5,958	7,008	7,762	7,568

Appendix table 6-15

Real GDP per capita, by region/country/economy: 1990–2009

(2009 U.S. PPP dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Burkina Faso	864	911	883	884	865	883	950	979	1,019	1,049	1,046	1,073	1,071	1,112	1,126	1,187	1,214	1,218	1,242	1,243
Cameroon	2,407	2,251	2,123	2,001	1,900	1,914	1,961	2,011	2,062	2,103	2,139	2,184	2,217	2,251	2,281	2,281	2,302	2,324	2,338	2,332
Congo (Democratic Republic)	678	601	521	437	406	393	381	356	343	318	287	273	273	281	290	304	311	320	329	327
Côte d'Ivoire	1,800	1,725	1,672	1,829	1,766	1,806	1,897	1,954	1,995	1,981	1,841	1,796	1,730	1,665	1,652	1,646	1,623	1,614	1,616	1,641
Ethiopia	523	483	445	493	507	520	569	575	540	553	557	583	573	536	565	612	655	704	749	795
Kenya	1,647	1,616	1,541	1,492	1,493	1,518	1,541	1,508	1,523	1,524	1,498	1,529	1,493	1,493	1,519	1,565	1,619	1,684	1,663	1,652
Madagascar	1,156	1,051	1,031	1,022	991	977	968	974	982	998	1,011	1,040	884	941	961	975	994	1,025	1,065	981
Malawi	609	636	568	612	558	639	685	709	696	701	687	640	634	652	670	674	745	734	781	821
Mali	951	1,014	955	969	979	985	1,037	1,063	1,122	1,123	1,059	1,154	1,171	1,222	1,205	1,247	1,290	1,310	1,339	1,363
Niger	770	765	694	682	686	620	629	611	665	649	609	635	644	664	635	663	676	673	709	677
Nigeria	1,447	1,402	1,373	1,367	1,345	1,309	1,341	1,346	1,351	1,326	1,365	1,443	1,710	1,845	1,997	2,060	2,143	2,246	2,332	2,415
Senegal	1,499	1,495	1,474	1,455	1,418	1,456	1,448	1,457	1,504	1,562	1,575	1,606	1,575	1,636	1,686	1,734	1,730	1,765	1,759	1,740
South Africa	8,227	7,972	7,648	7,582	7,691	7,825	8,054	8,160	8,089	8,175	8,413	8,546	8,763	8,926	9,240	9,636	10,082	10,538	10,832	10,580
Sudan	12	13	12	13	12	12	13	14	14	14	15	16	16	17	17	18	19	21	22	22
Tanzania	923	915	893	873	853	855	875	886	894	901	920	951	996	1,040	1,098	1,154	1,207	1,266	1,332	1,377
Uganda	685	673	667	697	715	775	823	844	851	891	911	930	980	1,010	1,043	1,071	1,145	1,198	1,257	1,304
Zambia	1,615	1,558	1,545	1,502	1,268	1,201	1,251	1,257	1,200	1,194	1,202	1,225	1,234	1,267	1,305	1,342	1,390	1,437	1,476	1,525
Other developed																				
Australia	29,944	29,580	30,273	31,137	32,194	33,176	34,053	35,138	36,543	37,564	37,860	38,819	39,552	40,707	41,384	42,155	43,195	44,244	44,667	44,729
Canada	31,349	30,336	30,143	30,413	31,464	31,956	32,110	33,158	34,239	35,818	37,354	37,685	38,463	38,881	39,788	40,671	41,473	42,149	41,971	40,508
Iceland	29,213	28,908	27,697	27,819	28,302	28,181	29,368	30,562	32,160	33,080	34,048	34,915	34,573	35,037	37,364	39,783	41,244	43,331	43,392	40,174
New Zealand	22,617	22,056	22,058	23,178	24,066	24,702	25,167	25,311	25,266	26,461	26,952	27,640	28,539	29,299	30,008	30,649	30,597	31,173	30,701	30,260
Norway	39,126	40,154	41,330	42,229	44,110	45,720	47,808	50,107	51,138	51,815	53,155	53,940	54,504	54,817	56,696	58,015	59,109	60,499	61,368	60,218
Switzerland	38,720	37,889	37,521	37,118	37,263	37,171	37,280	37,986	38,912	39,286	40,503	40,721	40,621	40,286	41,070	41,938	43,261	44,611	45,237	44,440
Other developing																				
Bangladesh	907	923	955	982	1,006	1,039	1,070	1,109	1,147	1,182	1,231	1,273	1,306	1,351	1,411	1,470	1,542	1,615	1,688	1,757
Cambodia	685	712	729	724	766	797	821	850	876	968	1,033	1,096	1,155	1,235	1,343	1,499	1,636	1,774	1,861	1,792
Pakistan	1,768	1,814	1,901	1,901	1,935	1,981	2,055	2,038	2,059	2,095	2,119	2,101	2,119	2,180	2,300	2,461	2,557	2,683	2,735	2,723
Sri Lanka	2,449	2,539	2,621	2,764	2,880	3,002	3,081	3,247	3,367	3,477	3,648	3,560	3,660	3,834	4,000	4,208	4,484	4,741	4,975	5,103
Vietnam	1,113	1,154	1,230	1,305	1,396	1,504	1,619	1,725	1,799	1,860	1,961	2,069	2,187	2,318	2,467	2,641	2,823	3,025	3,178	3,308

EU = European Union; GDP = gross domestic product; PPP = purchasing power parity

NOTE: GDP per capita in 2009 US$ converted to 2009 price levels with updated 2005 purchasing power parity price indexes.

SOURCE: The Conference Board, Total Economy Database (October 2010), http://www.conference-board.org/economics, accessed 23 October 2010.

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Appendix table 6-16

Value added of pharmaceuticals, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	100,866	110,452	122,481	127,386	136,137	148,492	150,698	147,160	146,549	162,978
United States	24,908	28,854	32,033	33,490	38,012	38,300	41,484	43,007	46,124	51,044
EU	34,590	36,897	40,429	36,668	39,337	45,673	46,622	44,440	45,183	49,208
Belgium	1,179	1,266	1,443	1,409	1,548	2,241	2,250	2,025	1,938	2,474
Czech Republic	58	92	108	86	111	174	182	186	162	161
Denmark	724	805	967	788	1,060	1,286	1,152	1,380	1,462	1,677
Finland	329	343	313	220	288	320	301	280	304	298
France	5,214	5,492	5,991	6,187	6,422	7,924	7,609	7,389	7,545	7,669
Germany	7,438	7,705	8,437	7,869	8,490	10,225	10,396	9,136	8,701	9,332
Ireland	410	422	586	604	1,006	1,273	1,156	1,218	1,686	2,373
Italy	6,907	6,815	7,034	5,601	5,923	5,466	6,789	6,097	6,256	7,217
Netherlands	671	778	915	1,216	1,178	1,620	1,547	1,486	1,374	1,540
Poland	205	183	211	200	335	493	489	501	492	470
Spain	2,919	3,304	3,906	2,874	2,576	3,073	3,257	2,839	2,689	2,724
Sweden	1,272	1,688	1,878	1,790	2,084	2,466	2,508	2,468	2,755	3,263
United Kingdom	5,696	6,265	6,821	6,007	6,387	6,632	6,701	7,256	7,693	8,124
All others	1,569	1,740	1,820	1,819	1,929	2,482	2,285	2,181	2,125	1,888
Japan	20,284	22,454	25,036	29,558	31,167	34,567	30,711	27,458	23,841	30,819
China	2,373	2,723	3,292	3,825	3,248	3,683	4,438	4,875	5,285	6,286
Asia-8	4,013	4,921	5,226	6,055	6,798	7,472	8,585	8,441	7,001	7,585
India	848	943	960	1,083	1,225	1,349	1,608	1,783	1,851	2,264
Indonesia	251	368	202	344	525	408	466	493	191	408
Malaysia	42	47	59	65	77	104	86	95	82	68
Philippines	324	374	524	493	495	602	672	653	547	615
Singapore	446	683	696	748	729	797	1,059	1,071	1,299	1,071
South Korea	1,766	2,105	2,251	2,821	3,148	3,632	3,976	3,641	2,521	2,598
Taiwan	293	334	433	474	497	452	486	518	463	506
Thailand	43	68	102	27	102	128	233	187	49	56
All others	14,699	14,603	16,466	17,790	17,576	18,797	18,858	18,938	19,115	18,035
Central Asia and Europe	929	1,153	1,292	1,514	1,474	1,645	1,651	1,803	1,940	1,770
Russia	90	57	329	257	483	474	531	680	517	314
Turkey	833	1,091	937	1,228	929	1,109	1,001	984	1,280	1,320
Ukraine	6	5	26	29	62	62	119	139	143	136
Middle East and North Africa	649	462	566	634	708	769	833	929	1,035	1,111
Egypt	259	90	102	146	152	199	267	339	426	503
Iran	115	88	100	101	158	172	121	127	112	122
Israel	195	196	200	224	208	199	229	234	244	235
Morocco	14	14	71	60	76	84	88	74	90	83
Saudi Arabia	21	23	25	25	27	29	33	36	34	37
All others	45	51	68	77	86	85	95	120	129	131

Appendix table 6-16

Value added of pharmaceuticals, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	165,835	176,166	190,619	216,576	232,590	243,382	269,361	292,039	309,854	320,449	345,994
United States	53,327	61,976	68,119	72,766	73,500	69,279	80,604	85,305	79,392	91,013	91,903
EU	46,228	49,642	53,971	66,277	72,468	78,412	85,697	96,408	101,351	91,127	90,418
Belgium	2,331	2,614	2,991	3,641	4,011	4,326	4,573	5,363	5,384	4,760	4,969
Czech Republic	169	178	225	272	332	404	460	523	608	501	558
Denmark	1,649	1,797	1,678	2,347	2,589	3,083	2,947	2,989	3,710	2,957	3,157
Finland	247	296	268	321	368	446	547	608	670	637	637
France	7,565	8,151	8,441	10,621	10,631	11,627	12,592	12,398	12,817	11,518	11,324
Germany	8,509	9,089	9,617	13,107	15,730	18,006	19,275	22,841	24,151	20,490	19,546
Ireland	2,005	2,097	3,047	3,055	2,997	2,661	2,699	4,410	4,039	4,592	5,035
Italy	6,163	6,322	7,002	8,356	8,986	8,093	8,798	9,935	10,000	9,670	9,379
Netherlands	1,428	1,459	1,467	1,639	1,817	2,193	2,303	2,444	2,649	1,993	1,958
Poland	474	537	598	709	845	1,085	1,196	1,321	1,845	1,461	1,627
Spain	2,554	2,935	2,946	3,764	4,245	4,502	5,086	5,690	6,355	6,056	6,152
Sweden	3,042	3,201	4,027	4,940	5,060	5,443	5,863	5,676	5,808	5,171	5,687
United Kingdom	7,989	8,988	9,284	10,363	11,385	12,487	14,992	16,998	17,078	15,882	14,744
All others	2,101	1,978	2,381	3,143	3,473	4,056	4,365	5,211	6,238	5,440	5,645
Japan	31,076	28,648	28,201	31,758	33,342	32,457	28,401	23,101	23,794	28,525	30,015
China	7,736	8,796	10,136	12,422	14,541	18,709	22,715	30,097	40,852	51,006	63,316
Asia-8	8,617	8,245	10,517	11,763	14,858	16,801	19,766	19,770	20,454	19,307	25,044
India	1,853	2,091	2,353	2,631	3,260	3,935	4,177	5,235	5,924	5,889	7,531
Indonesia	489	661	915	1,145	979	1,190	1,147	1,682	1,994	1,859	2,356
Malaysia	100	83	104	117	139	120	141	145	189	153	152
Philippines	663	398	423	253	309	333	436	497	639	559	555
Singapore	1,739	1,561	2,732	3,298	5,343	5,213	6,872	4,578	4,613	4,015	6,510
South Korea	3,185	2,966	3,477	3,710	4,189	5,294	6,030	6,633	6,073	5,802	6,813
Taiwan	528	463	484	576	602	677	779	777	763	787	851
Thailand	59	21	29	33	37	41	184	222	259	242	276
All others	18,852	18,860	19,674	21,590	23,882	27,724	32,177	37,358	44,012	39,471	45,299
Central Asia and Europe	1,997	1,705	1,480	1,903	2,283	2,488	2,998	3,889	4,718	3,803	4,309
Russia	389	492	142	562	662	867	1,105	1,427	1,653	1,466	1,784
Turkey	1,473	1,062	1,176	1,162	1,451	1,387	1,615	2,106	2,582	2,143	2,282
Ukraine	136	151	162	178	170	235	278	357	483	194	242
Middle East and North Africa	1,205	1,406	1,707	1,733	1,956	2,396	2,657	3,226	4,272	3,981	4,211
Egypt	506	627	757	635	738	902	1,012	1,228	1,573	1,677	1,728
Iran	161	188	292	363	389	422	498	602	765	656	740
Israel	251	272	322	353	415	493	620	677	1,064	864	949
Morocco	109	130	152	181	176	295	239	337	404	352	335
Saudi Arabia	40	41	43	48	53	61	60	65	71	70	73
All others	138	148	141	153	185	222	229	316	394	361	385

Appendix table 6-16

Value added of pharmaceuticals, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	8,465	8,008	9,437	10,767	10,362	10,330	9,961	10,670	10,878	10,053
Argentina	843	1,027	1,156	1,156	532	528	546	771	677	631
Brazil	5,328	4,360	5,034	5,907	5,891	6,212	5,468	5,597	5,520	4,218
Chile	121	153	228	238	233	282	265	197	247	203
Colombia	228	258	368	369	514	645	686	730	702	593
Costa Rica	16	25	29	46	43	35	28	33	37	40
Mexico	1,390	1,595	1,940	2,360	2,385	1,891	2,283	2,698	3,093	3,776
Peru	164	186	231	190	177	223	200	225	208	185
Venezuela	223	239	265	272	196	267	204	183	213	202
All others	151	164	186	229	392	247	280	235	181	205
Sub-Saharan Africa	686	774	796	381	371	981	1,132	1,244	1,248	682
Kenya	10	9	9	5	6	7	5	11	12	13
Nigeria	244	165	175	4	3	577	685	752	767	196
South Africa	400	569	585	357	339	372	425	465	453	458
All others	32	32	27	16	23	24	16	16	16	14
Other developed	3,657	3,869	3,983	4,027	4,170	4,530	4,698	3,807	3,505	3,925
Australia	877	911	905	883	1,001	1,082	1,128	1,128	957	1,001
Canada	1,892	1,967	1,923	1,949	1,756	1,760	1,767	1,499	1,234	1,531
New Zealand	43	43	42	48	64	59	64	62	43	42
Norway	187	168	250	247	237	337	431	259	291	304
Switzerland	658	779	863	898	1,113	1,291	1,308	861	981	1,048
Other developing	314	337	393	467	490	541	583	485	509	495
Bangladesh	115	112	116	144	166	200	225	156	184	166
Pakistan	192	216	262	303	300	309	321	290	286	280
Sri Lanka	1	1	1	1	2	3	4	4	5	5
Vietnam	5	8	14	19	23	29	33	34	34	45

Appendix table 6-16

Value added of pharmaceuticals, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	10,483	10,115	10,032	10,127	11,174	13,552	15,689	17,877	20,926	18,435	21,341
Argentina	555	604	211	286	332	385	428	501	598	548	635
Brazil	4,006	3,134	2,998	3,282	3,869	5,524	6,935	8,114	10,535	9,543	11,683
Chile	217	184	180	172	234	282	312	341	335	308	370
Colombia	584	633	615	560	733	771	876	1,104	1,226	1,062	1,240
Costa Rica	45	52	54	58	64	65	73	83	91	84	99
Mexico	4,353	4,906	5,420	5,240	5,381	5,847	6,269	6,799	6,920	5,785	6,303
Peru	180	159	189	196	165	195	259	312	374	350	353
Venezuela	251	253	173	160	214	260	311	374	524	459	323
All others	292	190	192	174	183	223	226	249	321	296	337
Sub-Saharan Africa	643	617	614	837	1,055	1,197	1,267	1,433	1,509	1,455	1,864
Kenya	12	15	15	20	22	22	26	28	31	29	30
Nigeria	134	151	163	182	225	261	279	319	398	296	371
South Africa	485	442	425	621	791	896	944	1,064	1,057	1,109	1,439
All others	12	10	12	14	18	18	18	21	23	23	23
Other developed	3,976	4,496	5,229	6,251	6,505	7,066	8,505	9,736	11,207	10,421	12,057
Australia	892	876	854	1,016	1,170	1,408	1,521	1,725	1,951	2,140	2,597
Canada	1,765	2,202	2,671	3,264	3,165	3,293	4,140	4,549	5,336	3,705	4,215
New Zealand	40	41	49	56	65	73	69	81	74	135	154
Norway	327	325	407	463	545	578	775	787	788	753	1,071
Switzerland	952	1,052	1,248	1,452	1,560	1,714	2,001	2,594	3,058	3,688	4,020
Other developing	548	521	612	740	909	1,024	1,061	1,197	1,381	1,376	1,516
Bangladesh	178	174	205	235	255	265	282	323	403	451	508
Pakistan	295	270	316	407	508	600	553	612	635	578	626
Sri Lanka	4	4	4	5	6	8	52	58	72	68	78
Vietnam	72	73	87	93	141	152	174	203	271	279	303

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

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Appendix table 6-17

Value added of semiconductors, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	113,130	122,538	125,941	130,549	147,903	174,061	172,223	175,459	161,887	183,236
United States	26,549	27,507	29,578	31,146	37,176	43,641	44,444	50,550	47,592	48,794
EU	25,707	26,254	26,922	23,883	25,630	28,765	29,538	29,925	31,039	33,033
Belgium	747	720	726	752	805	940	919	904	798	848
Czech Republic	53	75	67	49	52	85	134	146	176	190
Denmark	297	293	313	258	314	404	421	410	416	461
Finland	596	353	428	481	735	1,161	1,264	1,551	2,232	2,691
France	3,759	3,617	3,896	3,699	3,726	4,577	4,687	4,389	4,577	4,649
Germany	6,541	7,792	8,071	6,828	7,265	7,261	6,745	6,292	6,501	7,052
Ireland	137	143	132	154	174	246	353	752	756	1,403
Italy	4,392	4,430	4,560	3,597	3,552	3,505	3,911	3,836	3,588	3,274
Netherlands	1,225	1,170	1,191	1,063	1,089	1,188	953	846	830	962
Poland	286	206	155	162	203	285	303	316	357	382
Spain	1,446	1,340	1,266	1,100	1,074	1,127	1,237	1,081	1,073	1,032
Sweden	822	836	818	728	898	1,264	1,693	1,827	1,911	1,887
United Kingdom	3,745	3,662	3,627	3,362	4,021	4,741	4,951	5,829	5,952	6,318
All others	1,659	1,618	1,672	1,651	1,724	1,982	1,967	1,745	1,871	1,883
Japan	40,537	46,271	44,531	48,811	54,161	61,839	55,780	52,117	44,798	52,545
China	3,712	3,966	4,055	4,705	4,379	5,787	6,292	7,884	6,341	7,427
Asia-8	9,451	11,308	13,520	14,352	18,456	25,674	27,439	26,612	23,831	31,755
India	250	186	190	165	226	297	241	274	289	257
Indonesia	74	89	166	142	199	318	496	781	180	425
Malaysia	1,203	1,633	2,226	2,743	3,482	4,266	5,352	5,225	4,126	5,307
Philippines	215	282	280	281	348	494	957	1,042	1,211	1,310
Singapore	992	1,511	1,696	1,835	2,680	3,925	3,755	3,624	2,392	2,971
South Korea	3,364	3,149	3,440	4,186	6,092	8,974	8,321	6,739	6,367	9,288
Taiwan	3,073	3,315	3,551	4,529	4,881	6,667	7,396	8,239	8,755	11,664
Thailand	280	1,141	1,971	471	547	733	920	688	510	533
All others	7,173	7,233	7,334	7,653	8,101	8,354	8,731	8,372	8,287	9,681
Central Asia and Europe	44	36	68	475	486	579	513	510	309	191
Russia	38	31	50	445	455	545	484	473	264	159
Turkey	2	3	3	17	15	19	15	21	31	22
Ukraine	3	2	15	12	16	15	15	16	13	10
Middle East and North Africa	513	564	498	489	512	617	762	800	842	1,007
Egypt	2	1	2	3	5	4	3	3	4	4
Iran	5	11	10	9	5	3	3	4	3	2
Israel	427	473	395	391	403	502	639	668	706	857
Morocco	29	24	22	16	19	21	21	23	24	30
Saudi Arabia	21	24	26	26	27	29	34	37	35	37
All others	28	31	42	44	53	59	61	65	71	76

Appendix table 6-17

Value added of semiconductors, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	219,213	161,735	166,193	186,954	224,884	237,856	265,493	277,233	285,130	244,527	311,986
United States	58,340	41,531	41,134	42,538	48,284	54,240	59,560	57,099	57,416	52,139	60,142
EU	33,247	27,487	27,774	31,899	38,113	37,477	40,167	46,007	44,887	33,994	36,082
Belgium	863	713	710	832	851	847	892	909	885	764	727
Czech Republic	197	207	269	343	393	475	599	665	777	578	631
Denmark	373	357	440	415	390	396	425	569	626	725	717
Finland	2,975	2,513	3,118	3,686	3,856	3,923	4,303	5,510	5,026	2,330	2,213
France	4,904	4,105	4,265	4,358	4,982	4,603	4,467	4,891	4,853	3,667	3,571
Germany	7,221	5,489	6,147	8,126	10,049	9,554	10,457	13,115	12,234	10,426	10,693
Ireland	1,309	1,252	996	989	1,178	1,097	1,587	1,384	1,406	1,260	1,163
Italy	3,266	3,360	3,360	4,448	5,075	5,128	5,160	5,899	5,956	4,134	5,299
Netherlands	1,247	694	455	528	594	640	510	589	537	492	524
Poland	286	360	309	320	325	394	473	508	717	480	720
Spain	954	945	784	898	957	984	1,117	1,384	1,507	1,119	1,190
Sweden	1,478	799	1,013	840	2,423	2,342	2,546	2,667	2,733	2,198	2,431
United Kingdom	6,199	4,601	3,785	3,517	3,974	3,801	3,977	4,609	3,604	2,723	2,957
All others	1,976	2,093	2,123	2,600	3,066	3,294	3,652	3,308	4,025	3,098	3,248
Japan	62,721	40,801	38,585	48,069	54,259	52,340	53,310	54,573	54,867	43,059	69,045
China	9,864	10,440	9,505	9,961	14,173	18,725	25,685	31,231	42,258	41,784	51,391
Asia-8	43,019	31,975	38,081	45,103	57,269	60,805	69,968	72,487	68,563	60,738	80,908
India	351	378	398	425	420	558	593	717	757	686	851
Indonesia	1,205	508	1,032	1,045	1,178	893	1,193	1,782	2,109	1,994	2,534
Malaysia	4,962	4,279	3,903	4,563	4,426	3,596	4,249	4,349	4,011	2,821	3,612
Philippines	1,455	1,105	1,331	825	968	880	1,026	1,040	1,129	882	1,152
Singapore	5,868	3,494	3,468	4,053	5,353	5,492	6,978	7,458	6,502	5,652	9,463
South Korea	12,086	9,283	11,137	13,053	18,795	20,454	22,992	24,332	21,395	20,740	22,605
Taiwan	16,424	12,304	15,671	19,812	24,645	27,299	32,289	32,022	31,795	27,225	39,665
Thailand	667	625	1,141	1,327	1,484	1,634	648	788	866	738	1,026
All others	12,023	9,501	11,114	9,383	12,786	14,269	16,803	15,836	17,140	12,813	14,417
Central Asia and Europe	366	428	3,363	1,010	3,675	4,274	5,391	3,141	3,428	2,107	2,471
Russia	320	376	3,307	959	3,596	4,192	5,291	3,028	3,282	2,042	2,382
Turkey	24	17	19	19	24	23	26	17	24	12	20
Ukraine	21	35	37	32	56	60	73	95	122	53	69
Middle East and North Africa	2,431	1,617	1,109	1,324	1,212	1,326	1,566	1,706	2,165	2,316	2,375
Egypt	3	3	29	25	29	35	39	48	61	65	67
Iran	3	4	10	16	13	11	13	16	21	18	20
Israel	2,254	1,440	885	1,052	910	992	1,218	1,316	1,701	1,904	1,910
Morocco	52	32	31	42	51	54	51	45	43	40	37
Saudi Arabia	41	42	44	49	54	62	56	61	66	66	66
All others	79	97	110	140	155	171	189	219	273	224	275

Appendix table 6-17

Value added of semiconductors, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	2,153	2,068	2,293	2,474	2,554	2,136	2,441	2,801	2,955	3,199
Argentina	20	28	34	21	27	23	20	22	16	16
Brazil	1,130	940	980	1,108	1,045	1,010	1,108	1,009	760	560
Chile	4	3	4	4	3	3	3	4	4	3
Colombia	1	1	1	1	2	2	2	2	2	2
Costa Rica	9	10	15	12	14	14	14	17	13	11
Mexico	911	1,002	1,162	1,242	1,410	1,008	1,189	1,669	2,043	2,495
Peru	0	0	0	0	0	0	0	0	0	0
Venezuela	61	69	79	67	42	61	90	69	111	105
All others	16	14	18	17	12	14	15	10	7	6
Sub-Saharan Africa	27	279	180	21	36	30	34	34	35	34
Kenya	11	12	13	8	12	15	16	15	15	19
Nigeria	9	257	156	8	18	8	3	3	3	1
South Africa	6	10	11	5	6	6	15	16	17	14
All others	0	1	0	0	0	0	0	0	0	0
Other developed	4,419	4,272	4,280	4,172	4,487	4,960	4,941	4,178	4,082	5,187
Australia	186	194	196	199	231	245	283	259	212	225
Canada	2,256	2,256	2,257	2,119	2,152	2,450	2,517	2,726	2,657	3,705
New Zealand	38	42	41	47	58	64	74	69	53	56
Norway	136	153	152	142	155	200	219	221	215	269
Switzerland	1,803	1,627	1,634	1,665	1,890	2,001	1,848	902	944	931
Other developing	17	14	16	23	26	31	40	48	64	64
Bangladesh	8	3	4	4	4	5	5	10	19	13
Pakistan	3	5	4	5	6	7	10	9	9	8
Sri Lanka	1	1	2	4	4	5	4	4	7	10
Vietnam	4	5	6	10	13	15	22	26	29	33

Appendix table 6-17

Value added of semiconductors, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	3,845	3,799	3,216	2,963	3,119	3,373	4,175	4,712	4,906	3,801	4,234
Argentina	18	7	4	6	8	11	12	13	14	12	13
Brazil	658	526	495	380	523	504	936	1,140	1,239	911	1,103
Chile	3	1	2	2	2	2	0	1	1	0	1
Colombia	2	2	2	2	2	2	3	3	4	3	4
Costa Rica	10	11	10	11	13	14	15	18	19	18	20
Mexico	3,018	3,114	2,609	2,476	2,455	2,700	3,041	3,337	3,349	2,611	2,923
Peru	0	0	0	0	1	1	1	1	2	1	2
Venezuela	130	131	90	83	111	135	161	194	272	238	161
All others	6	6	4	4	5	5	5	6	7	6	6
Sub-Saharan Africa	30	26	28	38	47	54	55	54	54	52	54
Kenya	14	14	15	18	22	26	26	20	22	21	22
Nigeria	1	1	1	1	1	1	1	1	2	1	1
South Africa	15	12	12	19	23	26	28	31	29	29	30
All others	0	0	0	0	0	0	1	1	1	1	1
Other developed	5,314	3,591	3,356	3,999	4,672	5,167	5,553	6,151	6,500	4,443	5,179
Australia	191	162	215	251	336	384	409	495	543	529	632
Canada	3,975	2,284	1,953	2,374	2,785	3,179	3,454	3,737	3,774	2,077	2,591
New Zealand	52	55	59	79	96	106	96	92	89	77	85
Norway	263	217	217	234	257	309	341	439	469	445	456
Switzerland	833	872	911	1,060	1,198	1,188	1,253	1,387	1,624	1,315	1,415
Other developing	37	39	43	50	61	74	63	72	87	95	105
Bangladesh	14	14	13	14	15	17	19	21	25	28	30
Pakistan	5	5	6	7	9	11	2	2	2	2	2
Sri Lanka	8	8	9	10	12	15	3	3	4	4	4
Vietnam	10	13	15	19	25	31	39	46	57	61	68

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-18

Value added of medical, precision, and optical equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	100,050	105,471	107,484	106,059	107,111	115,617	118,455	117,596	116,978	114,925
United States	34,723	36,468	36,266	37,028	36,134	35,966	36,961	37,353	37,320	32,638
EU	40,374	41,303	44,138	39,124	40,001	45,248	47,386	44,947	46,272	46,879
Belgium	387	373	376	390	417	487	490	430	409	360
Czech Republic	38	49	59	122	131	213	292	317	325	332
Denmark	578	604	690	702	794	898	935	848	932	954
Finland	409	371	348	307	404	557	599	606	638	680
France	7,426	7,311	7,711	7,168	7,010	8,470	8,252	7,651	7,654	7,646
Germany	14,275	14,967	17,446	15,142	15,186	16,554	16,910	15,035	15,249	15,314
Ireland	432	483	575	621	613	703	917	895	1,020	1,286
Italy	5,947	5,921	5,310	4,165	4,242	4,590	5,436	5,077	5,264	5,283
Netherlands	1,047	1,058	1,187	1,119	1,072	1,433	1,503	1,303	1,360	1,411
Poland	350	259	222	227	270	391	521	539	627	792
Spain	1,093	1,145	1,295	991	921	1,050	1,136	1,097	1,106	1,211
Sweden	1,119	1,171	1,171	1,149	1,405	1,778	2,026	1,894	2,079	2,017
United Kingdom	5,865	6,460	6,549	5,861	6,301	6,761	6,973	7,954	8,222	8,311
All others	1,409	1,131	1,200	1,162	1,234	1,363	1,395	1,303	1,384	1,282
Japan	14,629	16,834	16,057	16,418	16,248	17,601	15,854	15,016	13,858	15,169
China	1,518	1,577	1,870	2,933	2,199	2,125	2,556	2,624	2,651	2,747
Asia-8	2,090	2,409	2,642	2,711	3,469	4,007	4,534	4,347	3,190	3,851
India	165	165	154	182	205	283	270	206	349	391
Indonesia	10	12	30	19	53	73	109	81	52	130
Malaysia	97	163	162	185	235	286	250	283	250	209
Philippines	11	13	18	39	37	38	188	197	165	341
Singapore	200	248	305	362	400	495	543	566	527	629
South Korea	1,004	1,080	1,163	1,336	1,808	2,128	2,140	2,053	1,257	1,545
Taiwan	544	600	664	557	600	540	563	578	491	494
Thailand	58	126	146	31	132	164	470	383	98	111
All others	6,716	6,880	6,510	7,844	9,061	10,669	11,164	13,309	13,687	13,640
Central Asia and Europe	177	155	213	877	984	706	890	738	517	437
Russia	58	46	76	722	846	567	782	597	363	271
Turkey	87	94	80	107	78	93	57	77	108	128
Ukraine	33	15	57	48	60	46	51	63	46	39
Middle East and North Africa	206	220	123	208	239	1,373	1,519	1,746	1,866	2,121
Egypt	48	23	9	11	24	2	22	25	16	10
Iran	14	22	35	33	35	41	44	43	39	38
Israel	125	156	60	147	161	1,308	1,430	1,651	1,784	2,044
Morocco	9	10	9	8	9	10	12	14	12	13
Saudi Arabia	3	3	3	3	4	4	4	5	5	5
All others	6	6	7	6	6	8	7	9	10	11

Appendix table 6-18

Value added of medical, precision, and optical equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	121,701	116,671	122,524	143,004	167,838	185,614	207,171	234,055	252,272	241,312	275,465
United States	38,077	34,981	38,656	42,799	52,337	61,431	68,333	72,738	76,007	87,865	95,644
EU	45,581	45,806	48,425	58,361	65,960	69,508	75,084	87,952	90,401	76,447	83,775
Belgium	354	340	368	476	579	622	686	782	829	716	712
Czech Republic	279	291	345	455	541	595	688	855	1,020	936	926
Denmark	1,043	1,195	1,049	1,408	1,535	1,653	1,871	2,094	2,485	2,879	2,960
Finland	661	708	695	865	856	994	1,062	1,213	1,325	1,092	1,089
France	7,452	7,382	7,559	8,720	10,407	9,843	10,320	11,794	11,457	9,964	11,610
Germany	15,580	15,356	15,961	20,434	23,166	24,911	27,672	32,231	33,758	27,003	32,125
Ireland	1,528	1,835	2,375	2,932	2,637	3,267	3,078	3,962	4,025	3,606	3,469
Italy	4,724	5,097	6,113	5,807	6,754	7,300	8,295	9,688	9,665	8,503	8,299
Netherlands	1,366	1,438	1,446	1,904	2,040	2,220	2,251	2,529	2,773	2,476	2,461
Poland	670	711	674	710	781	958	1,064	1,340	1,852	1,427	1,720
Spain	1,151	1,215	1,114	1,415	1,552	1,639	1,834	2,357	2,757	2,260	2,177
Sweden	1,463	787	1,001	2,292	2,463	2,626	2,797	3,055	2,834	2,157	2,479
United Kingdom	8,115	8,107	8,130	8,914	10,260	10,269	10,705	12,427	11,853	9,970	10,367
All others	1,194	1,346	1,596	2,029	2,387	2,610	2,761	3,627	3,768	3,459	3,382
Japan	15,960	13,932	11,884	12,827	15,394	14,975	15,725	15,524	17,866	15,136	20,329
China	3,299	3,556	3,909	6,328	8,180	10,382	14,131	17,915	23,055	24,414	30,922
Asia-8	4,396	4,003	4,378	5,001	5,586	6,615	7,865	9,070	8,686	8,442	10,400
India	357	420	387	504	599	707	753	909	960	870	1,124
Indonesia	138	43	11	18	31	72	234	348	449	442	581
Malaysia	334	365	326	323	377	362	506	602	599	836	847
Philippines	368	156	165	186	217	354	428	519	662	551	648
Singapore	734	744	809	866	795	957	1,085	1,222	1,184	1,134	1,259
South Korea	1,854	1,656	1,892	2,088	2,560	3,166	3,674	4,261	3,649	3,633	4,671
Taiwan	497	512	589	785	750	712	901	844	829	668	849
Thailand	116	109	199	231	258	284	284	365	354	308	421
All others	14,387	14,392	15,271	17,688	20,381	22,703	26,034	30,856	36,256	29,008	34,395
Central Asia and Europe	467	746	791	1,405	2,086	2,388	2,943	4,006	4,475	2,644	3,812
Russia	196	596	622	1,223	1,855	2,154	2,662	3,637	3,982	2,301	3,357
Turkey	236	106	117	116	145	138	161	206	279	247	328
Ukraine	36	44	51	66	86	95	120	163	214	96	127
Middle East and North Africa	2,521	2,423	2,315	2,391	2,445	2,519	3,099	3,703	5,016	4,388	4,977
Egypt	14	16	64	54	63	77	86	104	134	143	152
Iran	42	65	79	97	127	121	143	173	220	188	216
Israel	2,440	2,319	2,142	2,205	2,220	2,269	2,653	3,190	4,406	3,811	4,353
Morocco	7	4	7	9	10	19	35	34	34	31	30
Saudi Arabia	5	5	6	6	7	8	157	172	186	185	193
All others	13	14	17	20	18	25	25	29	36	30	33

Appendix table 6-18

Value added of medical, precision, and optical equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	1,945	1,831	1,727	2,153	2,159	2,031	2,158	2,372	2,627	2,249
Argentina	112	138	121	202	138	141	114	181	202	171
Brazil	1,343	1,098	1,021	1,175	1,247	1,282	1,356	1,330	1,309	965
Chile	9	12	15	19	25	29	28	33	25	16
Colombia	70	71	67	62	64	79	84	115	112	90
Costa Rica	6	4	5	13	20	20	12	4	3	3
Mexico	321	390	399	595	490	366	483	608	857	896
Peru	19	16	18	16	35	17	14	14	13	8
Venezuela	37	64	57	44	112	74	43	66	89	84
All others	28	38	23	25	29	24	25	21	17	16
Sub-Saharan Africa	165	118	154	110	117	124	118	116	85	90
Kenya	2	1	1	0	0	0	0	1	1	2
Nigeria	1	0	0	0	0	0	0	0	0	0
South Africa	160	115	151	108	115	121	116	113	83	87
All others	2	2	2	2	2	3	2	2	1	1
Other developed	4,210	4,544	4,279	4,479	5,544	6,414	6,456	8,317	8,569	8,720
Australia	685	718	761	755	907	961	1,125	1,021	832	896
Canada	990	870	817	789	847	903	1,003	1,120	1,181	1,295
New Zealand	16	17	17	20	24	27	31	29	22	23
Norway	178	200	232	234	263	336	345	366	408	481
Switzerland	2,341	2,739	2,453	2,682	3,502	4,188	3,953	5,782	6,125	6,025
Other developing	13	13	14	18	19	21	23	21	24	23
Bangladesh	1	1	0	0	1	1	0	1	0	0
Pakistan	11	11	11	14	14	15	15	13	13	13
Sri Lanka	0	0	0	0	0	1	1	1	1	1
Vietnam	1	1	2	3	4	5	7	6	9	10

Appendix table 6-18

Value added of medical, precision, and optical equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	2,901	2,497	2,471	2,247	2,587	3,098	3,598	4,344	5,079	4,518	5,803
Argentina	161	130	53	83	103	124	133	170	185	161	189
Brazil	1,202	973	908	898	1,182	1,669	2,013	2,612	3,242	2,807	3,936
Chile	18	28	26	29	33	37	35	38	37	34	41
Colombia	29	34	35	35	42	49	56	70	78	67	80
Costa Rica	4	3	3	2	2	2	2	3	3	3	3
Mexico	1,363	1,206	1,360	1,124	1,124	1,094	1,216	1,281	1,297	1,237	1,398
Peru	3	5	2	0	0	0	0	0	0	0	0
Venezuela	105	105	72	66	89	108	129	156	218	191	137
All others	16	14	11	9	12	14	13	15	19	17	19
Sub-Saharan Africa	86	75	107	156	187	209	253	286	249	273	335
Kenya	5	5	6	7	7	7	6	8	9	8	9
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	80	69	100	149	180	202	246	278	240	264	326
All others	1	1	0	1	1	1	1	1	1	1	1
Other developed	8,358	8,598	9,528	11,412	12,977	14,382	16,006	18,364	21,233	16,960	19,211
Australia	760	646	684	935	1,011	1,224	1,303	1,577	1,729	1,451	1,784
Canada	1,564	1,574	1,636	1,951	2,263	2,545	2,773	2,997	3,024	2,349	2,354
New Zealand	22	23	25	34	42	46	42	64	62	39	44
Norway	381	379	522	599	655	789	920	1,109	1,184	1,122	1,246
Switzerland	5,632	5,977	6,661	7,892	9,006	9,777	10,969	12,616	15,233	11,998	13,783
Other developing	54	53	59	77	100	108	135	152	205	225	257
Bangladesh	0	0	0	1	1	1	1	1	1	1	1
Pakistan	30	28	33	42	52	62	71	79	82	75	82
Sri Lanka	1	0	0	0	0	1	9	10	12	11	13
Vietnam	23	24	25	34	47	45	53	62	111	138	161

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-19

Value added of medical and measuring equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	64,563	67,466	69,363	68,409	69,599	75,642	78,196	78,968	80,843	79,142
United States	26,487	27,845	28,076	28,382	27,624	27,969	30,509	31,318	31,746	28,136
EU	25,313	25,673	27,885	24,951	26,032	29,309	28,934	27,945	29,619	30,011
Belgium	178	171	173	179	192	224	201	173	235	209
Czech Republic	15	20	24	49	53	85	117	127	130	133
Denmark	491	521	604	610	690	780	813	737	810	829
Finland	400	361	337	297	396	545	588	597	631	672
France	5,316	5,260	5,609	5,190	4,938	5,660	4,426	3,939	4,137	4,007
Germany	7,342	7,837	9,472	8,116	8,676	9,497	9,209	8,455	9,168	9,247
Ireland	304	340	405	437	432	495	645	630	718	905
Italy	3,599	3,363	3,091	2,533	2,696	2,940	3,370	3,352	3,462	3,438
Netherlands	683	730	856	785	751	1,005	1,055	915	955	991
Poland	135	100	86	87	104	150	199	216	256	294
Spain	577	561	669	569	474	474	458	541	547	671
Sweden	1,022	1,066	1,090	1,049	1,286	1,629	1,855	1,735	1,904	1,847
United Kingdom	4,492	4,835	4,988	4,571	4,777	5,190	5,385	5,993	6,052	6,249
All others	759	508	483	480	567	634	612	535	615	521
Japan	6,908	8,121	7,615	7,644	7,877	8,909	8,507	8,136	7,979	8,876
China	488	506	628	1,162	758	730	938	972	1,001	1,067
Asia-8	833	715	846	897	1,161	1,583	1,763	1,828	1,560	2,037
India	37	19	37	52	51	64	50	108	183	279
Indonesia	7	10	16	7	21	16	30	21	14	24
Malaysia	51	70	79	85	95	117	106	95	85	98
Philippines	4	6	9	15	11	10	50	53	44	91
Singapore	131	177	216	273	310	394	437	458	439	528
South Korea	461	269	309	327	495	802	868	878	642	862
Taiwan	131	139	150	133	151	147	161	165	140	141
Thailand	12	26	30	6	27	33	62	51	13	15
All others	4,535	4,606	4,313	5,372	6,147	7,142	7,544	8,769	8,938	9,016
Central Asia and Europe	124	94	178	755	871	594	790	616	476	375
Russia	50	40	66	630	756	478	702	503	337	249
Turkey	49	43	69	90	68	80	49	66	106	100
Ukraine	25	12	43	36	46	36	39	47	34	27
Middle East and North Africa	156	177	100	176	206	1,199	1,318	1,513	1,604	1,880
Egypt	23	11	5	6	21	2	19	22	14	9
Iran	11	17	30	29	31	39	42	41	38	36
Israel	110	136	52	128	141	1,143	1,241	1,431	1,535	1,812
Morocco	5	6	5	5	5	5	7	8	6	9
Saudi Arabia	3	3	3	3	4	4	4	5	5	5
All others	4	4	5	4	4	5	5	6	6	9

Appendix table 6-19

Value added of medical and measuring equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	85,729	82,506	86,708	100,583	118,715	129,813	145,611	165,276	179,722	172,074	196,521
United States	32,980	30,216	32,895	35,418	42,911	47,677	54,207	57,702	61,009	67,615	75,374
EU	29,584	29,482	31,460	38,825	43,817	46,844	50,367	59,572	61,540	51,731	54,210
Belgium	222	227	269	342	416	492	602	732	780	674	671
Czech Republic	112	117	138	182	217	238	275	346	419	388	388
Denmark	907	1,038	912	1,224	1,334	1,437	1,626	1,825	2,168	2,512	2,587
Finland	655	703	691	859	850	988	1,056	1,206	1,318	1,086	1,084
France	3,790	3,753	3,871	4,474	5,132	5,014	5,458	6,568	6,760	5,238	5,823
Germany	9,923	9,870	10,366	13,633	15,767	17,282	19,010	22,434	23,659	19,292	20,522
Ireland	1,075	1,291	1,671	2,064	1,856	2,299	2,166	2,806	2,851	2,554	2,465
Italy	3,051	3,089	3,937	3,777	4,236	4,444	4,865	5,578	5,583	4,893	4,891
Netherlands	959	1,009	1,015	1,337	1,432	1,558	1,580	1,785	1,960	1,738	1,728
Poland	268	281	271	296	328	399	434	553	779	634	770
Spain	750	829	713	929	1,041	1,101	1,245	1,598	1,870	1,530	1,476
Sweden	1,340	720	916	2,099	2,256	2,405	2,562	2,803	2,607	1,987	2,287
United Kingdom	6,068	6,094	6,037	6,773	7,829	7,911	8,137	9,552	8,917	7,576	7,926
All others	463	460	654	836	1,124	1,275	1,351	1,784	1,870	1,627	1,594
Japan	9,723	9,218	7,994	8,924	11,178	11,270	11,454	11,495	13,237	11,235	15,311
China	1,212	1,366	1,489	2,747	3,620	4,887	7,008	9,581	13,415	15,543	20,057
Asia-8	2,377	2,411	2,553	2,850	3,120	3,650	4,293	5,045	4,807	4,889	6,020
India	232	300	302	411	443	507	540	652	688	624	807
Indonesia	30	35	5	11	27	30	124	185	238	234	307
Malaysia	161	221	189	192	223	213	277	325	325	607	605
Philippines	98	42	44	50	58	95	114	139	177	147	174
Singapore	611	637	699	742	654	799	903	1,059	1,038	994	1,102
South Korea	1,087	1,014	1,120	1,189	1,466	1,765	2,048	2,405	2,066	2,057	2,737
Taiwan	142	146	168	224	215	204	258	241	237	191	246
Thailand	15	14	26	31	34	38	29	39	38	34	42
All others	9,853	9,814	10,316	11,820	14,069	15,485	18,282	21,881	25,713	21,061	25,550
Central Asia and Europe	411	648	701	1,195	1,843	2,085	2,604	3,574	4,080	2,456	3,531
Russia	168	512	548	1,029	1,634	1,873	2,349	3,247	3,639	2,141	3,115
Turkey	215	97	107	106	132	126	147	181	249	229	302
Ukraine	27	39	46	60	77	86	108	147	193	87	114
Middle East and North Africa	2,178	2,146	2,014	2,088	2,208	2,223	2,816	3,358	4,502	3,952	4,507
Egypt	12	14	20	17	19	24	27	32	41	44	47
Iran	40	62	73	90	108	105	123	149	190	163	186
Israel	2,107	2,051	1,895	1,950	2,048	2,048	2,456	2,949	4,023	3,506	4,024
Morocco	4	2	6	8	10	19	34	34	34	31	30
Saudi Arabia	5	5	6	6	7	8	157	172	186	185	193
All others	10	11	14	16	16	20	20	22	28	24	26

Appendix table 6-19

Value added of medical and measuring equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	1,475	1,403	1,307	1,624	1,617	1,539	1,627	1,814	1,947	1,682
Argentina	89	109	96	160	109	112	90	143	160	136
Brazil	1,000	818	761	876	929	955	1,010	978	972	722
Chile	6	9	11	15	20	22	22	27	18	12
Colombia	61	63	54	51	51	63	66	91	92	72
Costa Rica	0	0	0	1	1	1	1	0	0	0
Mexico	252	307	305	454	358	292	381	502	618	662
Peru	13	13	14	10	19	9	9	9	8	5
Venezuela	34	58	50	42	109	69	32	50	67	64
All others	18	26	16	16	19	15	16	13	10	10
Sub-Saharan Africa	140	100	131	93	100	105	96	94	69	73
Kenya	2	1	1	0	0	0	0	1	1	2
Nigeria	0	0	0	0	0	0	0	0	0	0
South Africa	137	98	129	92	98	103	94	92	68	71
All others	1	1	1	1	1	1	1	1	1	1
Other developed	2,628	2,819	2,584	2,708	3,338	3,687	3,694	4,714	4,823	4,987
Australia	228	259	238	236	284	300	351	319	260	280
Canada	844	747	700	677	727	580	652	658	742	757
New Zealand	10	11	11	12	15	17	19	18	14	15
Norway	121	137	157	171	197	252	260	273	304	359
Switzerland	1,424	1,665	1,478	1,611	2,116	2,538	2,411	3,446	3,503	3,576
Other developing	12	12	13	16	17	18	19	17	19	19
Bangladesh	0	0	0	0	0	0	0	0	0	0
Pakistan	11	11	11	14	14	15	14	13	13	12
Sri Lanka	0	0	0	0	0	0	0	0	0	0
Vietnam	1	1	2	2	3	3	4	4	6	6

Appendix table 6-19

Value added of medical and measuring equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	2,079	1,816	1,817	1,651	1,961	2,404	2,802	3,402	4,011	3,561	4,682
Argentina	128	103	42	66	81	98	106	134	146	128	150
Brazil	921	725	709	690	955	1,381	1,665	2,149	2,681	2,325	3,332
Chile	13	20	17	20	23	24	25	27	27	25	30
Colombia	23	27	28	30	37	41	46	58	65	56	67
Costa Rica	0	0	0	0	0	0	0	0	0	0	0
Mexico	903	849	957	791	791	770	856	907	917	874	989
Peru	2	3	2	0	0	0	0	0	0	0	0
Venezuela	79	79	54	50	67	82	98	118	165	144	104
All others	10	8	6	5	6	8	7	8	10	9	11
Sub-Saharan Africa	70	61	88	128	153	171	207	234	207	223	276
Kenya	4	4	6	6	6	6	6	7	8	7	8
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	65	57	82	121	147	165	201	227	199	215	267
All others	0	0	0	0	0	0	0	0	0	0	0
Other developed	5,070	5,099	5,648	6,693	7,820	8,510	9,745	11,191	12,757	10,700	12,363
Australia	237	202	214	292	319	386	411	498	546	902	1,112
Canada	998	968	1,105	1,275	1,517	1,644	2,026	2,160	2,241	1,789	1,740
New Zealand	14	15	16	16	28	30	28	43	41	26	29
Norway	284	283	390	343	495	596	695	840	897	851	945
Switzerland	3,536	3,632	3,924	4,766	5,461	5,853	6,585	7,650	9,032	7,133	8,537
Other developing	45	44	50	65	84	92	108	121	157	168	191
Bangladesh	0	0	0	0	0	0	0	1	1	1	1
Pakistan	30	27	32	41	52	61	71	78	81	74	81
Sri Lanka	0	0	0	0	0	0	0	0	0	0	0
Vietnam	15	16	17	23	32	30	36	42	75	94	109

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-20

Value added of communications equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	86,249	93,274	94,936	98,121	109,592	128,578	129,092	133,720	123,279	138,546
United States	17,933	19,114	20,725	21,621	26,911	33,109	34,911	40,659	38,839	39,807
EU	15,394	15,608	15,305	13,895	15,105	16,790	17,054	18,346	18,979	21,061
Belgium	442	426	429	445	476	556	525	580	447	521
Czech Republic	25	35	31	23	25	40	69	83	104	104
Denmark	189	169	179	142	177	230	250	262	248	294
Finland	315	147	200	265	465	782	862	1,150	1,796	2,307
France	1,561	1,532	1,623	1,646	1,598	2,084	2,166	2,019	2,257	2,248
Germany	2,666	3,675	3,539	2,873	3,161	3,016	2,678	2,776	2,625	3,208
Ireland	81	84	66	93	101	149	210	588	563	1,254
Italy	3,359	3,332	3,305	2,751	2,651	2,328	2,336	2,453	2,239	2,014
Netherlands	1,106	1,039	1,059	952	974	1,058	836	747	734	854
Poland	186	134	101	106	132	182	183	207	240	288
Spain	1,282	1,060	794	789	801	744	829	704	642	596
Sweden	593	609	578	521	675	967	1,340	1,508	1,576	1,569
United Kingdom	2,148	2,033	2,066	1,981	2,461	3,046	3,199	3,911	4,070	4,352
All others	1,441	1,335	1,334	1,310	1,410	1,608	1,570	1,356	1,436	1,453
Japan	31,307	35,486	33,549	36,826	39,745	45,327	40,962	38,050	32,818	39,493
China	4,094	4,209	4,616	5,501	4,326	5,289	5,843	6,826	6,463	7,726
Asia-8	7,151	8,578	10,631	9,826	12,718	16,771	17,996	17,694	14,968	18,458
India	504	490	522	459	730	679	605	698	775	617
Indonesia	197	247	468	376	545	860	1,343	2,265	535	612
Malaysia	495	671	912	1,119	1,424	1,745	2,204	2,145	1,700	2,193
Philippines	186	244	243	243	301	430	833	906	1,002	1,123
Singapore	639	976	1,107	1,374	1,413	1,542	1,195	1,101	670	826
South Korea	2,934	2,569	2,764	3,465	5,213	7,734	6,795	5,458	5,437	7,819
Taiwan	1,854	1,993	2,169	2,203	2,506	3,032	4,049	4,440	4,335	4,748
Thailand	341	1,389	2,446	588	585	750	973	681	514	519
All others	10,369	10,279	10,111	10,453	10,787	11,293	12,325	12,146	11,212	12,000
Central Asia and Europe	912	1,106	1,240	1,706	1,223	1,342	1,282	1,026	937	1,043
Russia	29	23	37	333	326	407	327	322	180	113
Turkey	865	1,071	1,110	1,296	798	840	864	607	674	871
Ukraine	18	12	92	77	99	95	91	98	83	59
Middle East and North Africa	907	1,060	924	895	906	990	1,207	1,524	1,705	1,773
Egypt	40	31	38	36	42	57	55	54	52	48
Iran	51	112	113	97	53	53	85	111	83	100
Israel	791	888	745	735	776	842	1,030	1,323	1,527	1,587
Morocco	3	2	2	2	2	2	2	2	2	1
Saudi Arabia	0	0	0	0	0	0	0	0	0	0
All others	24	26	26	26	33	36	34	34	41	38

Appendix table 6-20

Value added of communications equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	164,168	117,195	122,085	136,272	162,596	170,833	185,684	192,566	194,189	183,050	199,848
United States	48,937	32,012	30,168	31,094	35,536	40,067	41,684	38,374	38,101	38,725	39,073
EU	22,027	17,024	17,122	19,274	23,144	22,626	23,757	27,934	25,287	18,421	17,594
Belgium	577	405	410	478	469	462	485	486	386	333	306
Czech Republic	113	116	186	221	230	293	379	396	468	320	307
Denmark	173	149	162	173	137	159	127	163	200	232	219
Finland	2,603	2,122	2,756	3,253	3,354	3,303	3,611	4,697	3,986	1,607	1,483
France	2,770	2,091	2,355	2,187	2,454	2,174	2,091	2,192	2,164	1,697	1,242
Germany	3,690	2,319	2,786	4,031	5,213	4,760	4,891	7,660	5,427	3,701	3,849
Ireland	1,086	917	736	579	667	846	1,374	1,139	1,157	1,036	907
Italy	2,118	2,331	2,204	3,066	3,280	3,238	3,025	3,390	3,459	3,215	3,103
Netherlands	1,118	607	375	438	492	534	401	449	387	358	365
Poland	191	252	216	183	170	192	226	211	300	236	328
Spain	544	515	332	340	333	362	360	470	509	386	239
Sweden	1,121	599	765	471	1,951	1,893	2,054	2,091	2,142	1,723	1,833
United Kingdom	4,359	2,911	2,152	1,838	2,109	1,913	1,975	2,440	2,043	1,644	1,485
All others	1,564	1,690	1,686	2,017	2,283	2,497	2,756	2,150	2,660	1,933	1,930
Japan	48,781	30,409	29,217	36,843	40,984	38,344	39,293	40,446	39,641	37,697	42,354
China	9,793	10,912	14,457	16,805	21,047	24,772	30,330	33,440	39,486	42,812	50,908
Asia-8	20,904	16,016	20,188	22,301	28,109	29,673	33,369	34,721	32,375	29,943	32,934
India	502	454	629	616	659	820	873	1,054	1,113	1,009	1,265
Indonesia	556	368	496	786	815	705	812	1,212	1,434	1,356	1,790
Malaysia	2,062	1,283	1,763	1,888	2,344	1,618	1,359	1,108	1,133	866	1,515
Philippines	1,248	959	1,156	671	784	703	880	1,231	1,734	1,487	1,560
Singapore	624	532	434	222	576	1,250	1,058	413	231	138	160
South Korea	10,038	7,630	9,249	10,830	15,920	17,126	19,043	19,822	16,906	16,552	17,619
Taiwan	5,258	4,213	5,407	6,063	5,640	5,943	6,859	7,276	7,577	6,973	7,562
Thailand	616	577	1,053	1,225	1,370	1,508	2,485	2,605	2,247	1,562	1,463
All others	13,727	10,822	10,932	9,955	13,777	15,351	17,252	17,652	19,300	15,452	16,985
Central Asia and Europe	1,003	1,264	2,583	1,627	3,018	3,215	3,923	2,997	2,984	1,782	2,210
Russia	133	156	1,373	398	1,493	1,740	2,197	1,257	1,363	848	1,081
Turkey	825	1,011	1,119	1,106	1,381	1,320	1,537	1,494	1,305	798	955
Ukraine	45	97	90	123	144	155	189	246	316	136	174
Middle East and North Africa	1,981	1,145	1,189	1,105	1,407	1,580	1,684	2,127	2,969	2,294	2,246
Egypt	45	39	73	61	71	87	97	118	151	161	160
Iran	124	112	164	134	204	154	182	220	279	239	262
Israel	1,771	952	905	860	1,074	1,267	1,322	1,694	2,420	1,790	1,718
Morocco	1	1	3	0	0	1	0	1	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0
All others	39	41	44	50	58	71	83	94	118	102	107

Appendix table 6-20

Value added of communications equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	5,109	4,570	4,355	4,617	5,179	4,978	5,533	5,708	4,806	4,361
Argentina	405	556	680	417	541	367	378	410	314	266
Brazil	4,194	3,489	3,068	3,551	3,899	4,072	4,562	4,441	3,412	2,772
Chile	2	2	4	5	4	7	7	8	8	4
Colombia	31	29	32	29	35	44	43	44	37	26
Costa Rica	10	3	5	7	8	7	7	9	7	3
Mexico	369	400	475	540	650	459	516	780	1,011	1,277
Peru	54	52	48	29	22	5	6	6	6	4
Venezuela	32	26	30	26	9	5	6	4	7	7
All others	12	12	13	14	12	12	8	5	3	3
Sub-Saharan Africa	310	463	502	249	254	292	221	225	239	203
Kenya	7	8	8	5	7	10	10	9	9	12
Nigeria	0	1	2	11	3	11	1	2	2	0
South Africa	295	445	487	230	243	269	206	210	226	189
All others	8	9	5	4	2	3	4	3	2	2
Other developed	3,053	2,999	3,021	2,887	3,103	3,544	3,768	3,366	3,211	4,305
Australia	374	393	427	418	511	541	637	576	469	508
Canada	1,610	1,663	1,702	1,561	1,596	1,872	1,910	2,110	2,022	3,030
New Zealand	21	23	22	25	32	35	40	38	29	30
Norway	57	72	66	69	80	110	126	116	105	181
Switzerland	992	848	804	814	883	986	1,056	528	586	556
Other developing	78	81	68	98	122	147	313	298	313	315
Bangladesh	11	4	4	5	5	6	6	13	23	16
Pakistan	56	64	48	70	84	103	251	225	223	217
Sri Lanka	1	3	2	1	4	4	4	5	7	13
Vietnam	9	11	14	22	28	33	51	55	59	68

Appendix table 6-20

Value added of communications equipment, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	5,955	5,351	4,015	3,255	4,535	5,103	6,054	6,302	6,699	5,078	5,922
Argentina	284	157	52	78	119	149	165	180	197	170	189
Brazil	4,023	3,517	2,634	1,908	3,210	3,646	4,436	4,550	4,944	3,634	4,358
Chile	5	2	2	2	3	4	1	1	1	1	1
Colombia	25	23	26	23	29	13	15	19	21	19	20
Costa Rica	3	4	4	4	4	5	6	7	7	7	8
Mexico	1,601	1,634	1,285	1,231	1,157	1,269	1,411	1,520	1,496	1,220	1,323
Peru	4	3	3	2	4	4	7	10	11	9	11
Venezuela	8	8	6	5	7	9	10	12	17	15	10
All others	3	3	3	1	2	3	3	3	3	3	3
Sub-Saharan Africa	217	167	179	264	331	363	392	437	414	404	435
Kenya	9	9	9	11	14	17	16	13	14	13	13
Nigeria	0	0	0	0	0	1	1	1	1	1	1
South Africa	207	157	168	251	316	345	374	422	398	389	419
All others	2	1	1	1	2	1	1	1	1	1	2
Other developed	4,307	2,635	2,655	3,309	4,001	4,528	4,849	5,385	5,747	5,375	5,601
Australia	431	366	513	587	803	936	996	1,206	1,322	1,002	1,134
Canada	3,118	1,497	1,302	1,732	1,991	2,275	2,443	2,614	2,564	2,686	2,807
New Zealand	28	30	32	43	52	58	52	50	49	42	45
Norway	203	155	141	151	152	188	201	270	288	273	273
Switzerland	527	587	666	796	1,004	1,072	1,156	1,245	1,525	1,372	1,343
Other developing	263	260	313	393	484	562	349	404	487	519	570
Bangladesh	18	17	16	18	19	22	24	27	31	35	37
Pakistan	137	125	147	189	235	278	46	51	53	48	47
Sri Lanka	8	7	8	9	11	14	1	1	1	1	2
Vietnam	100	110	142	178	219	248	278	325	401	434	484

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-21

Value added of aircraft and spacecraft, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	81,710	88,246	76,693	73,005	64,719	64,191	72,381	77,087	83,198	90,254
United States	52,821	59,407	48,471	45,895	37,226	35,140	42,302	42,617	47,638	52,776
EU	22,029	21,862	20,337	17,256	17,286	17,225	17,900	21,423	23,380	24,532
Belgium	304	280	295	316	358	328	378	326	360	468
Czech Republic	133	99	114	26	28	56	34	34	46	70
Denmark	11	10	13	1	16	11	11	14	5	8
Finland	114	126	93	112	139	155	158	141	150	154
France	3,547	3,542	3,652	3,878	3,586	4,377	4,149	6,204	5,772	5,741
Germany	4,173	4,866	4,825	3,757	3,343	3,314	4,206	4,378	5,024	5,903
Ireland	155	146	186	125	111	156	206	217	222	227
Italy	2,886	2,582	2,396	1,936	1,987	1,569	1,637	1,685	2,157	1,737
Netherlands	466	528	549	496	321	190	203	305	314	311
Poland	187	120	101	91	126	120	126	135	126	118
Spain	618	500	625	764	678	683	756	777	819	840
Sweden	754	828	960	574	473	621	555	397	728	655
United Kingdom	8,387	7,941	6,264	4,909	5,830	5,389	5,231	6,524	7,392	8,005
All others	294	293	264	271	290	257	251	284	267	297
Japan	1,606	1,838	2,215	2,771	2,849	3,186	2,890	2,711	3,253	3,441
China	246	367	519	582	504	585	619	741	840	562
Asia-8	449	640	666	728	947	1,053	1,187	1,285	1,068	1,293
India	9	12	16	13	14	25	20	27	15	192
Indonesia	7	8	9	10	7	14	24	11	6	3
Malaysia	8	8	8	8	6	7	9	20	4	10
Philippines	4	3	3	5	4	3	2	3	2	1
Singapore	208	261	399	464	516	577	640	774	582	640
South Korea	62	196	72	99	264	275	308	266	292	285
Taiwan	152	149	152	128	135	148	178	182	164	156
Thailand	0	3	6	2	2	2	5	3	3	5
All others	4,559	4,132	4,486	5,773	5,908	7,001	7,483	8,310	7,018	7,650
Central Asia and Europe	98	83	169	1,794	1,713	1,500	1,874	2,150	1,334	823
Russia	75	60	97	1,712	1,642	1,419	1,800	1,919	1,141	670
Turkey	17	20	23	20	5	20	25	140	118	87
Ukraine	6	4	49	62	67	61	50	92	76	66
Middle East and North Africa	157	174	130	105	99	384	447	517	546	586
Egypt	0	0	0	0	0	0	0	0	0	0
Iran	2	2	1	1	4	3	2	0	0	0
Israel	150	165	123	98	88	374	437	509	538	577
Morocco	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0
All others	5	6	6	6	7	8	8	8	8	8

Appendix table 6-21

Value added of aircraft and spacecraft, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	86,233	93,699	89,444	91,575	95,415	109,287	117,986	131,169	142,638	134,048	136,910
United States	49,928	55,197	50,263	49,148	50,201	58,081	61,868	71,115	71,782	70,183	69,401
EU	23,407	24,352	25,035	27,189	27,476	32,646	34,829	35,821	39,895	35,893	34,574
Belgium	452	484	392	448	549	568	513	603	642	480	435
Czech Republic	71	88	76	82	94	106	110	174	235	235	231
Denmark	11	13	13	11	15	20	21	20	35	11	9
Finland	110	106	123	122	133	144	138	181	178	140	113
France	5,457	5,691	5,395	6,610	4,820	7,363	8,363	8,385	10,104	9,827	9,585
Germany	5,033	5,730	6,154	6,404	6,866	8,879	7,963	9,155	10,439	8,941	8,287
Ireland	255	231	244	283	302	332	345	408	392	315	289
Italy	1,757	1,688	1,728	1,593	1,989	1,997	2,439	2,062	2,812	2,527	2,156
Netherlands	229	271	284	413	390	451	477	430	580	490	497
Poland	162	160	161	156	170	210	301	343	493	341	339
Spain	807	630	914	1,225	1,239	1,316	1,597	1,586	2,189	1,973	1,706
Sweden	663	687	646	809	883	1,007	906	1,063	1,138	1,064	1,099
United Kingdom	8,159	8,356	8,597	8,722	9,681	9,818	11,179	10,903	9,970	8,966	9,377
All others	243	217	309	311	344	434	476	508	688	584	451
Japan	2,846	3,250	3,293	3,455	3,823	3,710	4,533	3,922	5,738	4,158	4,722
China	550	891	1,391	2,000	2,257	2,643	2,838	3,722	4,837	5,596	7,454
Asia-8	1,380	1,502	1,563	1,545	1,830	2,032	2,492	2,934	3,174	2,947	3,498
India	14	23	36	49	72	66	74	88	88	101	132
Indonesia	57	17	24	44	34	47	59	59	87	92	125
Malaysia	17	25	40	44	39	80	193	224	293	228	281
Philippines	1	1	1	1	1	2	2	2	2	2	2
Singapore	675	843	923	878	1,106	1,281	1,489	1,653	1,726	1,631	1,848
South Korea	449	454	375	361	409	381	531	719	757	713	899
Taiwan	161	135	153	156	154	161	129	169	201	165	192
Thailand	6	6	11	13	14	15	15	19	19	15	19
All others	8,122	8,507	7,898	8,239	9,828	10,175	11,426	13,655	17,212	15,271	17,262
Central Asia and Europe	320	357	434	559	900	1,071	1,280	1,833	2,352	1,300	1,823
Russia	137	147	173	237	490	567	633	888	976	464	524
Turkey	114	136	151	149	186	178	207	266	373	250	277
Ukraine	70	74	111	174	225	326	440	679	1,003	586	1,023
Middle East and North Africa	659	667	607	655	760	608	349	487	612	560	622
Egypt	0	0	0	0	0	0	0	0	0	0	0
Iran	0	0	25	23	30	34	40	48	61	52	62
Israel	651	659	574	622	719	564	299	385	498	462	512
Morocco	0	0	0	0	0	0	0	43	38	35	36
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0
All others	7	8	9	10	11	11	10	12	15	11	12

Appendix table 6-21

Value added of aircraft and spacecraft, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	353	321	416	455	489	806	605	809	932	1,451
Argentina	4	4	5	4	6	10	20	22	21	16
Brazil	214	185	199	241	293	357	316	539	670	1,016
Chile	19	18	30	28	20	28	28	38	43	40
Colombia	28	27	38	24	31	63	50	72	43	25
Costa Rica	1	1	2	1	2	2	2	2	2	2
Mexico	87	86	143	156	137	345	189	136	152	352
Peru	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0
Sub-Saharan Africa	261	143	167	83	85	100	87	83	102	43
Kenya	2	2	2	1	1	2	2	2	2	5
Nigeria	0	0	0	0	0	0	0	0	0	0
South Africa	256	140	163	81	83	98	85	81	100	38
All others	2	1	2	1	1	1	0	0	0	0
Other developed	3,683	3,398	3,591	3,320	3,506	4,196	4,461	4,742	4,095	4,737
Australia	410	435	484	462	487	517	602	610	584	623
Canada	2,510	2,262	2,383	2,193	2,270	2,868	3,037	3,444	2,980	3,585
New Zealand	45	37	31	30	34	50	49	41	37	35
Norway	188	147	144	132	144	140	207	172	36	49
Switzerland	530	517	549	503	571	621	566	474	458	444
Other developing	7	14	13	15	15	15	9	9	9	9
Bangladesh	0	0	0	0	0	0	0	0	0	0
Pakistan	7	13	12	14	14	14	8	7	7	7
Sri Lanka	0	0	0	0	0	0	0	0	0	0
Vietnam	0	0	1	1	1	2	2	1	2	2

Appendix table 6-21

Value added of aircraft and spacecraft, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	1,802	2,204	1,993	1,616	2,136	1,879	2,175	2,518	4,121	4,607	5,588
Argentina	13	18	3	5	6	7	7	8	8	7	7
Brazil	1,399	1,756	1,586	1,288	1,757	1,444	1,705	2,053	3,594	4,200	5,073
Chile	56	38	9	16	25	17	14	15	15	14	17
Colombia	35	24	25	19	19	30	34	43	48	41	50
Costa Rica	2	2	2	1	2	2	2	3	3	3	3
Mexico	298	366	368	286	328	378	412	395	452	341	436
Peru	0	0	0	0	0	0	0	0	0	1	1
Venezuela	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	1	1	1
Sub-Saharan Africa	33	38	61	90	104	116	117	130	121	145	169
Kenya	4	3	4	4	6	5	6	5	6	5	6
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	29	34	57	85	98	111	111	125	115	140	163
All others	0	0	0	0	0	0	0	0	0	0	0
Other developed	5,299	5,230	4,791	5,307	5,914	6,486	7,429	8,602	9,919	8,579	8,974
Australia	526	407	546	741	838	916	975	1,181	1,294	1,032	1,284
Canada	4,294	4,281	3,637	3,833	4,219	4,710	5,439	6,270	7,270	6,396	6,505
New Zealand	33	36	45	58	68	73	63	90	87	52	66
Norway	50	97	110	131	179	169	246	216	280	260	285
Switzerland	396	410	453	545	610	617	706	846	988	840	834
Other developing	10	11	11	12	14	15	75	84	88	81	85
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Pakistan	8	8	8	9	11	12	71	79	82	74	77
Sri Lanka	0	0	0	0	0	0	0	0	0	0	0
Vietnam	2	3	2	3	4	4	4	5	6	7	8

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-22

Value added of computers and office machinery, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World	72,417	76,450	79,939	70,607	78,076	88,115	91,791	91,949	88,409	84,884
United States	21,275	19,378	18,988	18,600	20,521	22,361	24,819	27,198	30,029	25,509
EU	20,619	20,821	17,783	14,171	15,299	18,359	17,549	17,058	17,601	16,167
Belgium	129	124	125	129	139	162	162	132	120	96
Czech Republic	15	15	23	23	25	40	169	105	84	114
Denmark	140	128	156	99	135	102	166	99	109	137
Finland	364	122	207	140	133	182	184	166	105	69
France	1,988	1,947	2,051	1,564	1,566	1,826	1,640	1,441	1,467	1,247
Germany	9,048	9,428	7,514	5,264	4,881	5,459	4,653	5,019	4,824	3,978
Ireland	827	818	732	590	808	1,992	1,711	1,295	1,378	2,053
Italy	1,254	1,228	1,296	736	733	1,268	973	904	1,064	1,134
Netherlands	332	345	268	357	596	485	546	426	571	450
Poland	78	56	43	42	52	80	92	76	99	144
Spain	1,099	1,499	890	1,098	1,097	1,180	1,413	994	1,075	946
Sweden	448	541	430	284	287	293	312	267	346	314
United Kingdom	4,676	4,425	3,934	3,734	4,745	5,169	5,277	5,653	5,727	4,928
All others	223	145	113	109	102	123	252	481	633	558
Japan	21,968	25,323	25,705	25,584	26,340	30,806	29,441	25,397	23,192	23,751
China	463	442	501	448	465	908	1,261	1,432	1,913	2,218
Asia-8	4,335	7,062	13,356	7,495	10,383	10,263	12,635	13,318	8,332	9,953
India	103	96	99	87	106	147	143	125	83	121
Indonesia	4	7	6	6	8	9	13	8	3	8
Malaysia	216	330	378	495	555	739	979	1,041	570	691
Philippines	2	3	5	15	28	106	179	297	423	627
Singapore	1,859	2,140	2,654	3,620	4,299	5,231	6,702	6,593	3,203	3,471
South Korea	1,147	922	1,166	1,207	1,654	2,224	2,210	2,605	2,164	3,070
Taiwan	637	688	877	823	945	1,025	1,304	1,433	1,394	1,528
Thailand	367	2,876	8,171	1,243	2,788	784	1,106	1,217	492	437
All others	3,757	3,423	3,606	4,308	5,067	5,417	6,086	7,545	7,342	7,286
Central Asia and Europe	74	43	125	524	742	909	725	1,121	362	246
Russia	67	37	106	499	722	885	709	1,079	307	205
Turkey	3	3	5	10	1	13	8	22	47	29
Ukraine	4	2	14	14	19	11	8	20	9	12
Middle East and North Africa	45	31	28	32	58	118	138	133	132	129
Egypt	16	10	8	10	17	24	26	26	49	45
Iran	11	5	5	5	18	8	10	16	11	9
Israel	14	13	12	14	19	82	97	85	67	69
Morocco	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	2	2	2	2	2	2	3	3	3	3
All others	1	1	1	1	2	2	2	3	2	2

Appendix table 6-22

Value added of computers and office machinery, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	88,811	72,382	70,795	78,955	92,068	104,434	108,722	117,235	120,861	107,756	126,832
United States	26,711	19,715	22,615	20,517	23,478	27,536	30,446	28,171	32,529	27,699	29,776
EU	13,920	12,016	11,886	13,744	15,767	17,236	16,419	18,100	15,786	9,654	10,449
Belgium	86	72	70	87	106	102	106	159	204	176	178
Czech Republic	161	120	58	153	103	145	112	194	283	453	565
Denmark	110	111	108	128	117	128	129	119	125	145	148
Finland	5	22	13	20	25	25	34	40	37	29	29
France	686	912	1,001	1,383	1,153	866	709	877	852	359	293
Germany	3,803	2,949	3,255	4,161	5,096	4,759	4,656	5,940	5,497	1,796	1,947
Ireland	2,147	1,364	1,492	1,254	1,762	2,365	2,219	1,946	1,977	1,771	1,683
Italy	1,037	1,222	734	788	1,119	1,062	1,184	1,298	1,291	811	776
Netherlands	414	398	311	323	386	373	389	367	336	286	309
Poland	182	117	104	123	123	230	170	203	239	211	328
Spain	716	689	643	710	624	672	449	483	532	448	342
Sweden	249	134	170	318	387	313	290	310	302	223	248
United Kingdom	3,979	3,596	3,630	3,813	4,061	5,369	5,374	5,629	3,549	2,467	3,063
All others	343	310	296	482	704	828	598	533	562	477	542
Japan	23,758	18,876	12,338	13,099	16,207	16,836	11,681	12,668	11,836	10,114	11,469
China	3,753	4,317	7,026	15,545	22,058	26,563	32,895	39,219	44,032	46,441	59,023
Asia-8	12,286	9,834	10,972	11,374	10,232	11,238	11,415	12,594	11,191	9,551	10,819
India	209	236	292	414	331	432	459	555	586	531	697
Indonesia	2	2	2	7	6	66	94	108	130	128	171
Malaysia	1,488	1,453	1,598	1,968	2,620	2,264	2,353	2,285	1,959	1,016	918
Philippines	631	587	400	513	541	690	751	849	321	181	193
Singapore	3,501	2,457	2,907	2,428	2,656	3,184	2,672	3,009	2,656	2,742	2,371
South Korea	4,251	3,270	3,170	3,083	1,154	1,447	1,643	1,714	1,185	1,006	1,300
Taiwan	1,697	1,353	1,736	1,953	1,796	1,914	2,205	2,348	2,367	1,908	2,582
Thailand	507	475	867	1,008	1,127	1,241	1,238	1,726	1,988	2,039	2,586
All others	8,383	7,623	5,958	4,676	4,326	5,025	5,867	6,483	5,487	4,297	5,295
Central Asia and Europe	346	259	306	166	337	365	441	556	480	218	270
Russia	268	191	232	88	242	267	323	441	351	150	196
Turkey	63	50	55	55	68	65	76	62	69	39	34
Ukraine	15	17	19	24	26	33	42	53	61	28	40
Middle East and North Africa	130	126	87	82	100	111	127	151	197	173	195
Egypt	37	32	5	4	5	6	6	8	10	11	11
Iran	16	18	27	18	37	42	49	60	76	65	76
Israel	72	71	50	53	48	48	56	67	92	80	90
Morocco	0	0	0	0	3	7	5	5	5	4	4
Saudi Arabia	3	3	3	4	4	5	6	7	7	7	8
All others	2	2	2	3	3	4	5	6	7	5	6

Appendix table 6-22

Value added of computers and office machinery, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South and Central America	1,433	1,393	1,551	1,744	2,052	2,189	3,173	4,661	5,166	5,440
Argentina	34	43	43	65	76	34	38	11	10	18
Brazil	734	575	558	642	681	700	787	875	833	881
Chile	1	1	1	1	1	2	1	2	1	1
Colombia	1	1	2	2	2	3	2	2	2	2
Costa Rica	0	0	0	0	0	0	0	0	0	0
Mexico	658	764	942	1,025	1,288	1,449	2,343	3,769	4,317	4,536
Peru	3	5	1	1	3	0	0	0	0	0
Venezuela	3	3	4	7	0	0	0	0	0	0
All others	1	1	1	1	1	2	1	1	1	1
Sub-Saharan Africa	6	8	8	31	29	33	10	9	9	4
Kenya	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0
South Africa	6	8	8	31	29	33	10	9	9	4
All others	0	0	0	0	0	0	0	0	0	0
Other developed	2,184	1,932	1,874	1,951	2,156	2,132	2,017	1,584	1,623	1,346
Australia	106	112	118	117	141	149	175	159	129	139
Canada	590	468	356	555	570	389	306	674	781	592
New Zealand	16	17	17	20	24	27	31	29	22	23
Norway	120	52	56	40	56	55	64	84	62	91
Switzerland	1,352	1,283	1,328	1,219	1,365	1,512	1,442	639	629	501
Other developing	15	17	19	27	29	37	24	37	49	121
Bangladesh	0	0	0	0	0	0	0	0	0	0
Pakistan	13	15	16	19	20	21	7	6	6	6
Sri Lanka	0	0	0	3	3	10	9	24	24	63
Vietnam	2	2	3	5	5	7	8	7	18	51

Appendix table 6-22

Value added of computers and office machinery, by region/country/economy: 1990–2010

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
South and Central America	6,505	6,213	4,601	3,365	2,758	3,409	4,041	4,490	3,502	2,916	3,669
Argentina	20	15	2	3	3	3	3	4	4	3	3
Brazil	1,543	1,658	826	811	771	1,143	1,452	1,957	1,747	1,487	2,010
Chile	1	1	2	2	2	2	2	2	2	2	2
Colombia	2	2	2	2	3	5	5	6	7	6	7
Costa Rica	0	0	0	0	0	0	0	0	0	0	1
Mexico	4,937	4,530	3,764	2,543	1,976	2,246	2,567	2,506	1,723	1,402	1,628
Peru	0	5	4	3	3	3	3	4	4	4	4
Venezuela	1	1	0	0	0	1	1	1	1	1	1
All others	1	1	1	1	1	7	8	9	13	11	14
Sub-Saharan Africa	4	3	4	5	7	7	8	9	8	8	10
Kenya	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	4	3	4	5	7	7	8	9	8	8	10
All others	0	0	0	0	0	0	0	0	0	0	0
Other developed	1,324	988	920	1,005	1,064	1,042	1,147	1,155	1,155	842	988
Australia	118	100	162	179	154	168	169	203	221	189	237
Canada	759	411	452	516	564	505	609	506	404	225	305
New Zealand	22	23	25	33	41	45	41	63	61	26	29
Norway	24	29	12	28	22	28	17	22	21	19	20
Switzerland	401	425	268	249	283	296	310	361	448	384	398
Other developing	75	35	41	52	61	91	103	121	145	141	163
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Pakistan	7	6	7	9	11	13	14	16	16	15	16
Sri Lanka	30	16	17	16	18	20	19	21	24	24	28
Vietnam	38	13	16	27	32	57	69	85	104	103	119

EU = European Union

NOTES: Value added is amount contributed by country, firm, or other entity to value of good or service and excludes purchases of domestic and imported materials and inputs. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-23 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Industry Service database.

Science and Engineering Indicators 2012

Appendix table 6-23

Regions and countries/economies in world industry data

United States	All others	All others (continued)
EU	Central Asia and Europe	Sub-Saharan Africa
Belgium	Russia	Kenya
Czech Republic	Turkey	Nigeria
Denmark	Ukraine	South Africa
Finland	Middle East and North Africa	All others
France	Egypt	Cameroon
Germany	Iran	Senegal
Ireland	Israel	Zimbabwe
Italy	Morocco	Other developed
Netherlands	Saudi Arabia	Australia
Poland	All others	Canada
Spain	Bahrain	New Zealand
Sweden	Jordan	Norway
United Kingdom	Kuwait	Switzerland
All others	Qatar	Other developing
Austria	Tunisia	Bangladesh
Bulgaria	United Arab Emirates	Pakistan
Greece	South and Central America	Sri Lanka
Hungary	Argentina	Vietnam
Portugal	Brazil	
Romania	Chile	
Slovakia	Colombia	
Japan	Costa Rica	
China	Mexico	
Asia-8	Peru	
India	Venezuela	
Indonesia	All others	
Malaysia	Bolivia	
Philippines	Ecuador	
Singapore	Honduras	
South Korea	Jamaica	
Taiwan	Panama	
Thailand	Uruguay	

EU = European Union

NOTES: Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (15 November 2010).

Science and Engineering Indicators 2012

Appendix table 6-24

Exports and imports of high-technology goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	903,693	1,055,110	1,207,761	1,308,214	1,554,792	1,898,178	2,145,946	2,469,023	2,542,892	2,684,383	2,429,494	2,798,201
World excluding intra-EU and intra-China	712,928	832,794	937,696	993,407	1,161,721	1,418,757	1,598,199	1,813,878	1,920,640	2,023,150	1,823,277	2,137,419
United States	135,686	177,523	197,261	195,678	176,179	190,828	229,320	265,085	283,308	298,657	271,213	325,146
EU	287,679	334,078	394,102	433,524	523,095	631,132	706,559	815,639	789,435	841,531	755,615	809,581
EU ROW	123,410	143,545	158,918	168,469	205,008	248,199	276,586	300,152	318,852	343,720	310,382	335,185
Intra-EU	164,269	190,533	235,184	265,054	318,087	382,933	429,972	515,487	470,583	497,811	445,232	474,396
France	49,110	55,714	63,102	69,171	74,795	86,202	91,170	109,698	109,167	121,076	113,497	120,046
France ROW	25,114	27,532	28,113	33,117	36,907	43,599	44,514	52,894	55,901	63,876	60,624	64,904
France intra-EU	23,996	28,182	34,990	36,054	37,888	42,604	46,656	56,804	53,266	57,201	52,873	55,142
Germany	68,012	71,145	86,889	98,704	122,525	156,798	171,999	193,438	206,552	217,098	190,855	208,551
Germany ROW	26,047	28,824	33,165	38,737	48,382	61,876	65,762	75,474	81,936	86,517	76,764	83,637
Germany intra-EU	41,966	42,321	53,724	59,967	74,143	94,922	106,237	117,964	124,616	130,580	114,091	124,914
United Kingdom	60,920	73,418	75,716	76,681	72,408	78,079	94,738	129,714	80,508	84,544	77,455	79,366
United Kingdom ROW	28,783	37,132	33,751	27,870	28,847	32,179	42,093	38,694	36,884	39,036	36,300	36,596
United Kingdom intra-EU	32,137	36,286	41,965	48,811	43,561	45,900	52,645	91,020	43,624	45,508	41,155	42,770
Japan	136,991	124,809	124,844	116,275	129,351	151,097	148,334	150,186	142,059	143,737	115,429	139,575
China	69,236	86,386	103,556	142,501	239,922	334,186	413,216	498,455	540,454	592,395	551,265	662,289
China ROW	42,740	54,603	68,676	92,749	164,938	237,698	295,442	358,796	388,785	428,974	390,281	475,902
Intra-China	26,497	31,783	34,880	49,753	74,984	96,488	117,774	139,658	151,669	163,421	160,984	186,387
Asia-8	194,801	233,285	261,359	283,483	345,459	423,474	464,387	528,225	543,855	540,689	479,542	576,325
India	1,142	1,720	1,576	2,629	3,588	4,351	5,106	6,470	9,464	12,208	14,497	18,231
Indonesia	3,092	5,052	6,130	8,362	8,246	9,313	9,650	9,227	9,791	10,258	9,633	11,658
Malaysia	37,829	44,948	50,716	56,109	62,954	71,007	78,627	85,644	83,938	74,797	74,074	83,454
Philippines	7,531	17,872	24,928	26,208	30,304	32,650	33,594	32,983	33,494	30,534	22,739	28,472
Singapore	52,731	58,173	53,402	52,299	59,667	71,586	80,010	94,283	89,069	92,037	70,691	85,846
South Korea	38,739	39,966	50,957	52,642	72,471	95,000	103,330	114,633	122,698	122,750	113,025	135,576
Taiwan	37,476	45,633	53,900	64,061	81,431	105,593	115,381	140,269	147,228	145,482	126,852	157,972
Thailand	16,261	19,920	19,752	21,171	26,798	33,973	38,689	44,716	48,172	52,621	48,030	55,115
All others	67,234	85,235	105,732	128,534	134,415	161,607	178,548	202,381	233,888	258,362	246,969	275,317
Central Asia/Europe	3,416	6,692	4,215	6,182	8,984	11,249	9,148	10,564	12,496	14,109	13,861	15,002
Russia	479	1,126	1,606	2,956	4,341	4,447	1,966	2,591	2,778	3,995	3,287	3,865
Turkey	396	763	1,365	1,678	2,562	3,797	4,207	4,514	4,289	3,984	3,689	3,861
All others	2,540	4,803	1,243	1,548	2,081	3,006	2,975	3,459	5,429	6,131	6,885	7,277
Middle East/North Africa	5,352	7,929	10,714	14,210	13,554	17,360	21,412	20,892	25,807	30,318	27,355	29,731
Israel	3,963	5,971	7,991	10,741	9,232	11,239	11,443	13,439	14,495	16,509	17,815	19,037
All others	1,390	1,958	2,723	3,470	4,322	6,121	9,969	7,453	11,312	13,809	9,540	10,694
South and Central America	16,186	24,322	37,968	49,475	48,847	58,708	63,806	74,004	83,555	87,787	85,655	100,792
Brazil	1,053	2,222	3,761	5,822	4,955	7,276	8,049	8,730	9,464	10,332	9,445	10,907
Mexico	13,527	20,004	29,357	39,657	36,452	42,734	45,576	54,136	60,810	63,125	59,354	70,077
All others	1,606	2,097	4,850	3,995	7,440	8,698	10,181	11,138	13,280	14,330	16,856	19,808

Appendix table 6-24

Exports and imports of high-technology goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	641	940	1,281	1,115	1,458	2,006	2,570	2,954	3,065	3,465	3,465	3,755
Southern Africa	411	595	782	807	980	1,257	1,715	1,792	2,089	2,124	2,215	2,433
All others	230	345	499	308	478	749	854	1,162	976	1,341	1,251	1,322
Other developed	41,429	44,900	51,106	56,832	60,486	71,029	79,835	91,354	105,312	117,513	110,983	119,934
Australia	3,336	3,745	3,742	4,290	4,242	5,069	5,857	6,588	7,576	8,075	7,739	8,488
Canada	15,400	18,415	21,292	24,575	21,468	23,237	27,203	30,271	32,756	32,420	30,586	30,559
All others	22,693	22,740	26,072	27,967	34,776	42,723	46,775	54,495	64,979	77,019	72,659	80,888
Other developing	211	451	448	721	1,085	1,256	1,777	2,612	3,654	5,170	5,648	6,103
Imports												
World	903,693	1,055,110	1,207,761	1,308,214	1,554,792	1,898,178	2,145,946	2,469,023	2,542,892	2,684,383	2,429,494	2,798,201
World excluding intra-EU and intra-China	712,928	832,794	937,696	993,407	1,161,721	1,418,757	1,598,199	1,813,878	1,920,640	2,023,150	1,823,277	2,137,419
United States	171,506	193,649	233,477	245,037	264,242	310,012	331,565	363,379	385,060	390,189	356,372	419,472
EU	305,331	354,185	430,837	456,879	539,363	664,741	742,676	871,498	845,726	898,681	796,450	862,174
EU ROW	141,062	163,651	195,652	191,825	221,277	281,808	312,703	356,011	375,143	400,870	351,217	387,779
Intra-EU	164,269	190,533	235,184	265,054	318,087	382,933	429,972	515,487	470,583	497,811	445,232	474,396
France	44,446	46,955	57,991	60,983	67,810	81,418	89,481	114,256	100,845	110,571	104,615	111,018
France ROW	19,729	20,467	24,889	23,594	26,793	34,442	37,199	41,501	43,710	50,330	47,363	51,432
France intra-EU	24,717	26,488	33,102	37,389	41,017	46,976	52,281	72,754	57,135	60,241	57,251	59,587
Germany	64,593	63,934	78,745	93,512	107,623	130,193	147,857	175,012	169,525	181,613	165,954	183,510
Germany ROW	35,259	34,824	41,728	46,304	53,140	67,936	75,331	90,177	91,205	96,112	85,869	97,416
Germany intra-EU	29,334	29,110	37,017	47,209	54,483	62,257	72,526	84,835	78,320	85,501	80,085	86,094
United Kingdom	54,815	72,721	82,286	73,063	76,497	91,536	98,560	115,758	102,455	102,825	88,627	94,355
United Kingdom ROW	32,504	47,079	49,061	38,294	33,708	40,508	43,940	49,502	47,755	49,990	42,325	45,885
United Kingdom intra-EU	22,311	25,642	33,225	34,769	42,789	51,028	54,621	66,255	54,700	52,835	46,302	48,470
Japan	50,030	56,782	61,895	70,884	77,620	90,443	97,919	104,096	100,750	104,533	92,986	107,984
China	75,516	89,131	96,272	134,424	209,832	270,059	327,993	389,760	432,470	450,177	431,142	505,575
China ROW	49,020	57,347	61,391	84,671	134,847	173,571	210,218	250,102	280,802	286,756	270,158	319,188
Intra-China	26,497	31,783	34,880	49,753	74,984	96,488	117,774	139,658	151,669	163,421	160,984	186,387
Asia-8	142,210	169,999	172,862	185,644	218,933	260,976	285,561	327,391	330,854	327,584	289,281	350,456
India	3,537	4,193	4,694	6,166	9,732	12,988	15,878	23,603	29,632	29,828	31,610	37,568
Indonesia	3,298	5,391	2,495	3,365	3,913	4,746	4,754	5,183	7,553	13,265	12,575	15,235
Malaysia	22,947	26,156	25,475	27,844	33,958	37,904	39,951	46,278	48,011	42,233	37,360	43,973
Philippines	7,378	14,910	15,246	16,468	18,405	20,062	19,633	22,810	22,821	21,523	16,093	19,618
Singapore	44,219	47,649	45,460	47,149	51,767	65,384	73,902	85,824	80,685	81,465	68,639	83,386
South Korea	22,462	26,166	30,330	33,896	42,642	49,891	54,972	61,372	62,240	63,620	55,072	65,548
Taiwan	24,448	30,152	36,192	34,417	40,725	49,182	52,187	55,161	52,079	48,211	42,788	55,228
Thailand	13,921	15,381	12,971	16,339	17,790	20,819	24,284	27,161	27,833	27,439	25,144	29,899
All others	133,076	161,898	181,483	196,592	219,651	272,055	327,401	379,211	405,050	463,492	417,952	502,677
Central Asia/Europe	11,404	16,276	15,211	17,439	26,645	37,978	45,972	56,859	65,565	76,014	58,130	66,749
Russia	5,811	7,326	4,480	7,444	11,779	16,203	20,258	25,235	30,150	36,737	25,376	29,610
Turkey	3,522	5,287	7,224	5,862	8,426	12,478	14,830	17,770	18,662	20,242	17,549	20,643
All others	2,071	3,663	3,506	4,133	6,441	9,297	10,884	13,854	16,753	19,035	15,205	16,496

Appendix table 6-24

Exports and imports of high-technology goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	22,832	26,305	32,855	35,579	43,655	50,765	68,412	73,370	76,512	83,987	85,113	91,804
Israel	3,719	3,928	6,442	6,000	5,320	7,158	7,959	8,433	8,858	9,210	8,047	8,712
All others	19,112	22,377	26,413	29,579	38,335	43,607	60,454	64,937	67,654	74,777	77,066	83,092
South and Central America	37,059	48,314	52,186	60,513	56,336	72,211	87,396	112,315	118,051	147,007	129,851	166,934
Brazil	8,013	11,929	10,927	12,829	9,374	13,230	17,092	22,662	22,828	36,199	30,185	35,552
Mexico	10,983	16,960	20,955	27,527	28,232	35,080	37,934	47,506	47,646	56,487	50,207	77,723
All others	18,064	19,425	20,303	20,156	18,730	23,901	32,370	42,146	47,577	54,322	49,460	53,659
Sub-Saharan Africa	8,440	9,029	9,983	11,385	13,719	17,480	21,125	25,004	27,026	35,022	29,927	33,270
Southern Africa	4,533	4,683	4,921	5,293	6,335	8,368	9,891	10,686	10,812	11,039	9,556	10,319
All others	3,907	4,346	5,063	6,093	7,384	9,112	11,234	14,319	16,214	23,983	20,371	22,951
Other developed	58,903	67,794	77,695	79,277	87,275	102,202	116,024	125,278	131,852	142,452	130,105	160,276
Australia	10,925	12,350	13,815	13,118	18,292	22,322	24,390	26,400	27,564	31,183	29,577	33,545
Canada	28,680	34,819	39,038	40,671	37,030	42,738	47,986	52,409	54,690	59,501	52,329	74,450
All others	19,299	20,624	24,842	25,487	31,953	37,142	43,647	46,469	49,599	51,769	48,199	52,281
Other developing	2,878	3,209	3,537	3,785	5,740	8,899	9,597	11,390	13,070	14,031	14,752	16,914
Balance												
United States	-35,820	-16,126	-36,216	-49,359	-88,063	-119,184	-102,245	-98,294	-101,752	-91,532	-85,159	-94,326
EU	-17,651	-20,107	-36,735	-23,356	-16,269	-33,609	-36,117	-55,859	-56,292	-57,150	-40,835	-52,594
EU ROW	-17,651	-20,107	-36,735	-23,356	-16,269	-33,609	-36,117	-55,859	-56,292	-57,150	-40,835	-52,594
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	4,663	8,759	5,111	8,188	6,985	4,784	1,689	-4,558	8,322	10,505	8,882	9,027
France ROW	5,384	7,065	3,224	9,523	10,115	9,157	7,315	11,393	12,191	13,545	13,260	13,473
France intra-EU	-721	1,695	1,888	-1,334	-3,129	-4,372	-5,626	-15,950	-3,869	-3,040	-4,378	-4,445
Germany	3,419	7,211	8,144	5,191	14,902	26,605	24,142	18,426	37,027	35,485	24,901	25,041
Germany ROW	-9,212	-6,000	-8,563	-7,567	-4,758	-6,060	-9,569	-14,703	-9,269	-9,595	-9,105	-13,780
Germany intra-EU	12,631	13,211	16,707	12,758	19,660	32,665	33,711	33,129	46,296	45,080	34,007	38,820
United Kingdom	6,105	697	-6,571	3,618	-4,089	-13,457	-3,822	13,956	-21,947	-18,282	-11,173	-14,989
United Kingdom ROW	-3,722	-9,947	-15,310	-10,424	-4,861	-8,329	-1,847	-10,809	-10,871	-10,954	-6,026	-9,289
United Kingdom intra-EU	9,826	10,644	8,740	14,042	772	-5,128	-1,975	24,765	-11,076	-7,328	-5,147	-5,700
Japan	86,960	68,027	62,949	45,391	51,732	60,654	50,416	46,089	41,309	39,204	22,443	31,591
China	-6,280	-2,744	7,285	8,077	30,090	64,127	85,224	108,694	107,983	142,218	120,123	156,714
China ROW	-6,280	-2,744	7,285	8,077	30,090	64,127	85,224	108,694	107,983	142,218	120,123	156,714
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	52,591	63,286	88,497	97,839	126,526	162,497	178,826	200,834	213,001	213,105	190,261	225,868
India	-2,394	-2,473	-3,118	-3,536	-6,144	-8,637	-10,772	-17,133	-20,168	-17,620	-17,113	-19,337
Indonesia	-206	-339	3,635	4,997	4,332	4,568	4,896	4,044	2,238	-3,007	-2,942	-3,577
Malaysia	14,882	18,792	25,241	28,266	28,996	33,104	38,676	39,366	35,927	32,564	36,714	39,481
Philippines	153	2,962	9,681	9,740	11,899	12,589	13,961	10,174	10,673	9,011	6,645	8,854
Singapore	8,512	10,524	7,942	5,150	7,899	6,201	6,108	8,458	8,385	10,571	2,052	2,460
South Korea	16,277	13,800	20,627	18,746	29,829	45,109	48,358	53,262	60,459	59,131	57,954	70,028
Taiwan	13,028	15,481	17,708	29,644	40,706	56,411	63,195	85,108	95,148	97,271	84,065	102,743
Thailand	2,339	4,539	6,780	4,832	9,008	13,154	14,405	17,555	20,338	25,182	22,886	25,216

Appendix table 6-24

Exports and imports of high-technology goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-65,842	-76,663	-75,752	-68,057	-85,237	-110,448	-148,854	-176,831	-171,161	-205,130	-170,983	-227,359
Central Asia/Europe	-7,988	-9,584	-10,996	-11,257	-17,662	-26,728	-36,825	-46,294	-53,069	-61,905	-44,269	-51,746
Russia	-5,332	-6,200	-2,874	-4,488	-7,438	-11,756	-18,292	-22,644	-27,371	-32,742	-22,089	-25,746
Turkey	-3,125	-4,523	-5,859	-4,184	-5,864	-8,682	-10,622	-13,256	-14,374	-16,259	-13,860	-16,782
All others	469	1,140	-2,263	-2,585	-4,361	-6,291	-7,910	-10,394	-11,324	-12,904	-8,320	-9,219
Middle East/North Africa	-17,479	-18,376	-22,141	-21,368	-30,101	-33,406	-47,000	-52,478	-50,705	-53,669	-57,758	-62,073
Israel	243	2,043	1,549	4,741	3,913	4,081	3,485	5,006	5,637	7,299	9,768	10,325
All others	-17,723	-20,419	-23,690	-26,109	-34,013	-37,486	-50,485	-57,484	-56,341	-60,969	-67,526	-72,398
South and Central America	-20,873	-23,992	-14,217	-11,038	-7,489	-13,503	-23,590	-38,311	-34,496	-59,221	-44,196	-66,142
Brazil	-6,960	-9,708	-7,166	-7,007	-4,420	-5,955	-9,043	-13,932	-13,364	-25,867	-20,740	-24,645
Mexico	2,544	3,044	8,402	12,130	8,220	7,654	7,641	6,630	13,163	6,638	9,148	-7,646
All others	-16,457	-17,328	-15,453	-16,161	-11,290	-15,202	-22,189	-31,008	-34,296	-39,992	-32,604	-33,851
Sub-Saharan Africa	-7,799	-8,089	-8,702	-10,270	-12,261	-15,474	-18,555	-22,050	-23,961	-31,557	-26,461	-29,515
Southern Africa	-4,122	-4,088	-4,139	-4,485	-5,355	-7,111	-8,175	-8,894	-8,723	-8,915	-7,341	-7,886
All others	-3,677	-4,001	-4,564	-5,785	-6,906	-8,364	-10,380	-13,157	-15,238	-22,642	-19,120	-21,629
Other developed	-17,475	-22,893	-26,589	-22,445	-26,789	-31,173	-36,188	-33,923	-26,541	-24,939	-19,122	-40,342
Australia	-7,589	-8,605	-10,073	-8,829	-14,050	-17,252	-18,533	-19,812	-19,988	-23,107	-21,839	-25,057
Canada	-13,281	-16,404	-17,745	-16,096	-15,562	-19,502	-20,784	-22,138	-21,934	-27,081	-21,743	-43,892
All others	3,395	2,116	1,229	2,480	2,823	5,582	3,128	8,026	15,381	25,250	24,459	28,607
Other developing	-2,667	-2,758	-3,089	-3,064	-4,654	-7,644	-7,820	-8,778	-9,416	-8,861	-9,104	-10,811

EU = European Union; ROW = rest of the world

NOTES: High-technology export goods include aerospace, communications and semiconductors, computers and office machinery, scientific instruments and measuring equipment, and pharmaceuticals. ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

Science and Engineering Indicators 2012

Appendix table 6-25

Exports and imports of all manufactured goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	4,372,188	4,791,946	4,984,141	5,416,514	6,616,816	8,032,684	9,085,243	10,629,804	13,111,690	15,037,997	11,914,564	14,165,890
World excluding intra-EU and intra-China	3,074,440	3,429,081	3,528,761	3,895,642	4,653,823	5,690,042	6,568,698	7,740,886	9,809,573	11,504,468	9,188,017	11,072,040
United States	490,110	585,225	590,433	609,994	589,658	663,394	785,496	903,156	1,006,599	1,091,389	888,241	1,140,479
EU	1,856,049	1,952,586	2,039,120	2,156,203	2,750,866	3,283,491	3,572,310	4,054,851	4,936,099	5,462,659	4,185,678	4,723,708
EU ROW	682,903	730,264	716,777	789,641	981,156	1,170,313	1,318,873	1,466,743	1,960,324	2,272,463	1,767,537	1,996,867
Intra-EU	1,173,146	1,222,321	1,322,343	1,366,562	1,769,710	2,113,178	2,253,437	2,588,108	2,975,775	3,190,196	2,418,141	2,726,841
France	243,920	250,453	266,260	272,837	331,158	384,318	400,434	450,019	523,295	573,183	446,182	491,677
France ROW	90,788	93,125	94,039	103,142	117,540	137,471	145,421	164,991	202,851	235,834	191,805	210,918
France intra-EU	153,132	157,327	172,220	169,695	213,618	246,847	255,014	285,028	320,444	337,349	254,378	280,760
Germany	493,470	483,425	517,145	545,055	712,094	867,278	934,664	1,062,801	1,288,275	1,406,893	1,089,502	1,266,595
Germany ROW	188,747	189,855	190,762	211,395	267,745	327,799	357,686	412,978	510,086	575,842	459,365	539,902
Germany intra-EU	304,722	293,570	326,383	333,660	444,348	539,480	576,978	649,823	778,189	831,051	630,137	726,693
United Kingdom	217,721	258,076	254,954	254,747	280,271	319,448	354,136	410,344	420,546	445,976	341,085	369,571
United Kingdom ROW	99,364	124,188	115,725	107,722	118,714	136,437	157,013	162,061	201,212	227,515	175,146	189,443
United Kingdom intra-EU	118,357	133,888	139,229	147,026	161,557	183,011	197,123	248,284	219,334	218,461	165,939	180,128
Japan	450,486	430,631	426,871	416,080	481,447	577,121	609,841	660,394	744,571	823,597	615,015	789,370
China	330,052	389,326	417,041	515,345	735,797	955,594	1,161,792	1,400,123	1,692,742	1,934,323	1,654,279	2,000,585
China ROW	205,450	248,782	284,005	361,036	542,515	726,130	898,684	1,099,313	1,366,400	1,590,990	1,345,874	1,633,576
Intra-China	124,602	140,544	133,036	154,309	193,282	229,464	263,108	300,809	326,342	343,333	308,406	367,009
Asia-8	523,716	590,836	613,375	675,030	829,174	1,026,076	1,160,688	1,382,427	1,628,891	1,854,388	1,540,922	1,960,992
India	27,357	32,607	33,055	42,688	64,099	77,571	95,605	119,947	173,135	214,134	192,604	249,243
Indonesia	32,050	41,323	41,298	46,635	51,623	61,459	66,566	77,156	95,805	113,674	99,584	126,970
Malaysia	70,324	78,944	82,624	89,405	104,300	122,039	139,079	158,056	171,289	193,014	156,686	187,536
Philippines	17,205	27,633	35,320	37,347	43,122	47,584	49,809	51,997	56,445	54,098	40,240	52,405
Singapore	96,261	102,405	94,676	97,552	118,237	146,478	173,879	239,058	279,268	328,357	253,210	334,476
South Korea	120,836	131,909	142,466	155,462	197,683	259,953	289,884	336,137	403,722	468,620	398,231	502,057
Taiwan	116,628	126,177	131,434	146,987	176,719	219,189	239,358	275,665	298,868	306,700	249,490	328,462
Thailand	43,055	49,837	52,502	58,953	73,390	91,803	106,507	124,412	150,358	175,790	150,877	179,843
All others	663,071	769,637	829,874	978,686	1,123,434	1,414,553	1,628,475	1,927,293	2,317,923	2,842,024	2,227,831	2,660,546
Central Asia/Europe	78,819	106,738	102,135	151,608	190,198	261,107	325,600	421,270	516,518	672,790	475,920	578,260
Russia	35,983	52,782	48,437	72,970	87,574	120,827	149,310	178,130	250,747	339,181	237,687	309,006
Turkey	18,868	22,739	24,907	29,772	46,367	61,765	70,842	91,111	110,245	136,937	104,241	112,241
All others	23,969	31,217	28,791	48,866	56,257	78,515	105,448	152,029	155,526	196,673	133,992	157,013
Middle East/North Africa	72,068	80,234	102,457	133,528	175,665	241,201	252,852	314,505	415,882	581,155	468,152	567,920
Israel	17,526	21,935	26,266	31,621	32,811	38,972	44,357	48,372	56,189	63,450	51,973	61,193
All others	54,542	58,299	76,191	101,907	142,854	202,229	208,495	266,133	359,693	517,705	416,180	506,727
South and Central America	154,036	196,898	217,110	260,680	278,125	334,587	394,862	459,768	532,275	626,691	512,077	613,217
Brazil	33,251	36,284	33,587	40,546	50,261	67,656	81,272	91,447	109,603	121,714	88,805	114,533
Mexico	65,274	90,384	116,392	141,754	141,390	159,291	173,991	199,893	227,701	240,589	202,371	250,265
All others	55,511	70,230	67,131	78,380	86,474	107,640	139,599	168,427	194,971	264,388	220,901	248,419

Appendix table 6-25

Exports and imports of all manufactured goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	40,353	44,562	39,113	51,323	56,346	75,404	85,844	100,263	117,518	135,942	106,611	129,947
Southern Africa	24,922	28,263	23,915	32,513	36,121	49,510	56,084	62,176	75,805	89,363	65,152	80,586
All others	15,431	16,299	15,198	18,810	20,224	25,894	29,760	38,087	41,713	46,580	41,460	49,362
Other developed	301,531	320,734	347,291	352,917	385,753	456,507	518,337	569,907	661,221	735,132	577,616	674,341
Australia	33,837	38,870	35,436	39,414	45,769	57,918	69,753	79,872	97,207	121,232	101,780	117,866
Canada	157,338	173,288	200,477	201,806	206,737	236,848	274,447	290,239	312,052	315,039	228,401	277,955
All others	110,356	108,576	111,377	111,697	133,248	161,741	174,137	199,795	251,963	298,860	247,436	278,520
Other developing	16,263	20,471	21,769	28,631	37,347	45,748	50,981	61,580	74,508	90,315	87,455	96,860
Imports												
World	4,372,188	4,791,946	4,984,141	5,416,514	6,616,816	8,032,684	9,085,243	10,629,804	13,111,690	15,037,997	11,914,564	14,165,890
World excluding intra-EU and intra-China	3,074,440	3,429,081	3,528,761	3,895,642	4,653,823	5,690,042	6,568,698	7,740,886	9,809,573	11,504,468	9,188,017	11,072,040
United States	659,691	766,997	923,026	1,001,289	1,082,523	1,246,140	1,386,936	1,519,588	1,597,629	1,622,608	1,270,292	1,544,904
EU	1,705,459	1,799,100	1,962,454	2,047,289	2,588,708	3,119,016	3,439,299	3,997,218	4,794,120	5,255,683	3,984,279	4,522,684
EU ROW	532,313	576,778	640,110	680,727	818,997	1,005,838	1,185,861	1,409,110	1,818,345	2,065,487	1,566,139	1,795,843
Intra-EU	1,173,146	1,222,321	1,322,343	1,366,562	1,769,710	2,113,178	2,253,437	2,588,108	2,975,775	3,190,196	2,418,141	2,726,841
France	232,774	226,967	254,447	257,363	316,454	378,703	412,169	468,691	549,065	604,546	481,702	534,691
France ROW	65,861	68,408	77,336	78,267	90,489	113,051	128,306	143,951	194,729	219,594	180,373	203,139
France intra-EU	166,914	158,559	177,111	179,096	225,965	265,653	283,863	324,740	354,336	384,952	301,328	331,552
Germany	384,447	368,838	398,676	408,408	501,960	594,673	637,728	752,643	898,478	1,000,760	793,196	935,589
Germany ROW	134,805	128,842	139,348	146,173	172,336	209,177	237,026	284,112	354,465	401,363	324,937	390,315
Germany intra-EU	249,641	239,996	259,328	262,235	329,624	385,495	400,702	468,530	544,012	599,397	468,259	545,274
United Kingdom	230,358	272,174	291,690	297,510	347,199	407,336	448,797	534,118	565,581	563,364	441,336	493,364
United Kingdom ROW	100,880	126,342	137,619	137,452	146,112	169,720	203,123	262,993	267,862	275,071	220,749	249,419
United Kingdom intra-EU	129,477	145,833	154,071	160,058	201,088	237,616	245,674	271,124	297,719	288,293	220,588	243,945
Japan	217,454	219,378	205,884	231,479	255,451	305,834	336,995	368,737	412,700	468,965	365,791	445,417
China	334,405	366,898	341,857	418,425	598,144	740,631	853,084	982,521	1,165,317	1,272,818	1,168,209	1,442,755
China ROW	209,804	226,354	208,821	264,116	404,862	511,167	589,976	681,712	838,975	929,485	859,803	1,075,746
Intra-China	124,602	140,544	133,036	154,309	193,282	229,464	263,108	300,809	326,342	343,333	308,406	367,009
Asia-8	508,070	533,082	468,514	499,025	603,238	789,390	870,357	1,016,590	1,236,242	1,481,903	1,199,823	1,522,632
India	32,937	34,294	34,900	36,430	55,128	74,012	96,966	117,126	179,155	230,625	204,940	250,259
Indonesia	35,132	39,701	20,951	27,873	31,964	49,429	51,806	52,931	78,968	127,351	93,773	119,036
Malaysia	61,539	66,361	54,044	59,798	69,582	83,729	97,381	113,071	124,990	137,042	106,932	133,542
Philippines	25,248	35,865	32,397	34,121	37,549	42,125	42,702	47,945	55,133	59,493	48,199	60,928
Singapore	104,328	111,007	97,509	100,115	112,909	141,840	164,908	219,212	254,190	304,797	242,763	303,825
South Korea	103,175	103,323	88,762	101,691	134,284	169,706	187,589	216,918	267,668	312,866	246,149	317,001
Taiwan	83,672	88,761	98,569	90,641	102,919	154,060	142,270	153,802	162,722	177,684	155,650	209,129
Thailand	62,040	53,770	41,383	48,356	58,902	74,488	86,735	95,585	113,416	132,046	101,416	128,912
All others	781,066	944,203	931,006	1,034,312	1,224,393	1,512,383	1,812,079	2,224,068	2,713,156	3,287,053	2,672,576	3,201,236
Central Asia/Europe	72,583	128,161	86,304	111,145	174,491	244,278	296,539	389,613	523,358	662,935	435,387	523,441
Russia	27,300	58,694	26,478	42,061	62,565	85,372	108,152	141,288	200,619	256,507	153,492	186,790
Turkey	27,543	39,326	33,146	34,219	58,745	85,052	100,984	132,389	158,737	188,384	139,294	168,980
All others	17,740	30,141	26,680	34,865	53,181	73,854	87,403	115,935	164,002	218,044	142,601	167,671

Appendix table 6-25

Exports and imports of all manufactured goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	148,810	160,364	173,550	204,869	273,062	334,192	412,610	532,482	612,192	760,305	726,997	819,864
Israel	22,620	22,861	26,706	28,265	27,849	34,930	41,659	44,546	55,718	61,019	43,697	50,627
All others	126,189	137,503	146,844	176,605	245,214	299,262	370,951	487,936	556,474	699,286	683,300	769,238
South and Central America	217,955	277,089	270,418	304,517	290,603	363,466	442,468	548,215	690,276	852,986	667,564	833,646
Brazil	41,752	52,751	42,676	49,726	40,088	52,679	64,085	80,787	108,263	162,124	122,732	155,464
Mexico	56,920	85,904	105,067	123,503	124,722	150,113	170,608	200,986	235,773	264,707	207,690	285,897
All others	119,283	138,435	122,675	131,288	125,793	160,674	207,776	266,442	346,240	426,155	337,142	392,285
Sub-Saharan Africa	60,731	62,434	58,045	70,578	89,899	113,078	137,063	172,680	220,341	277,402	237,351	278,156
Southern Africa	22,480	25,087	20,076	23,170	29,765	40,568	49,093	61,324	73,425	79,869	60,403	68,880
All others	38,250	37,346	37,969	47,408	60,134	72,509	87,970	111,356	146,916	197,533	176,948	209,276
Other developed	314,690	350,357	373,577	378,345	432,796	504,366	580,743	652,683	753,443	850,216	698,873	851,814
Australia	49,282	53,686	56,340	53,844	74,400	91,633	104,095	116,049	142,092	180,712	150,715	178,737
Canada	151,861	180,522	199,042	201,718	212,612	242,284	282,919	314,684	339,758	357,606	284,909	376,986
All others	113,547	116,149	118,195	122,782	145,784	170,449	193,729	221,951	271,594	311,898	263,249	296,090
Other developing	27,029	28,232	27,157	35,435	53,440	66,080	79,719	101,075	133,886	160,610	143,754	172,471
Balance												
United States	-169,581	-181,772	-332,593	-391,295	-492,865	-582,746	-601,440	-616,432	-591,030	-531,219	-382,051	-404,425
EU	150,589	153,486	76,667	108,914	162,159	164,475	133,012	57,633	141,978	206,976	201,398	201,024
EU ROW	150,589	153,486	76,667	108,914	162,159	164,475	133,012	57,633	141,978	206,976	201,398	201,024
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	11,145	23,485	11,813	15,474	14,704	5,615	-11,735	-18,672	-25,769	-31,363	-35,519	-43,013
France ROW	24,927	24,717	16,703	24,875	27,051	24,421	17,115	21,040	8,123	16,240	11,431	7,779
France intra-EU	-13,782	-1,232	-4,890	-9,401	-12,347	-18,806	-28,849	-39,712	-33,892	-47,603	-46,951	-50,792
Germany	109,023	114,588	118,468	136,647	210,134	272,606	296,936	310,158	389,798	406,133	296,306	331,007
Germany ROW	53,942	61,013	51,414	65,222	95,409	118,621	120,660	128,866	155,621	174,480	134,428	149,587
Germany intra-EU	55,081	53,575	67,055	71,425	114,724	153,984	176,276	181,292	234,177	231,653	161,878	181,419
United Kingdom	-12,636	-14,098	-36,735	-42,762	-66,929	-87,888	-94,660	-123,773	-145,034	-117,388	-100,251	-123,793
United Kingdom ROW	-1,516	-2,154	-21,893	-29,730	-27,398	-33,283	-46,110	-100,933	-66,650	-47,556	-45,603	-59,976
United Kingdom intra-EU	-11,120	-11,944	-14,842	-13,032	-39,531	-54,605	-48,551	-22,841	-78,384	-69,832	-54,648	-63,817
Japan	233,032	211,253	220,987	184,601	225,996	271,287	272,846	291,657	331,871	354,633	249,224	343,954
China	-4,353	22,428	75,184	96,920	137,654	214,963	308,708	417,601	527,425	661,505	486,071	557,830
China ROW	-4,353	22,428	75,184	96,920	137,654	214,963	308,708	417,601	527,425	661,505	486,071	557,830
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	15,646	57,754	144,861	176,005	225,936	236,686	290,331	365,837	392,649	372,484	341,099	438,360
India	-5,580	-1,687	-1,845	6,259	8,970	3,559	-1,361	2,821	-6,019	-16,492	-12,336	-1,016
Indonesia	-3,082	1,622	20,347	18,762	19,658	12,030	14,760	24,225	16,837	-13,677	5,811	7,934
Malaysia	8,786	12,583	28,581	29,606	34,718	38,310	41,699	44,985	46,298	55,972	49,754	53,994
Philippines	-8,043	-8,231	2,923	3,226	5,573	5,459	7,107	4,052	1,313	-5,395	-7,959	-8,523
Singapore	-8,067	-8,601	-2,833	-2,563	5,328	4,638	8,971	19,846	25,079	23,561	10,447	30,651
South Korea	17,661	28,586	53,705	53,771	63,400	90,247	102,295	119,219	136,054	155,755	152,082	185,056
Taiwan	32,956	37,416	32,865	56,347	73,800	65,128	97,088	121,863	136,146	129,016	93,840	119,334
Thailand	-18,984	-3,933	11,119	10,597	14,489	17,315	19,772	28,827	36,942	43,744	49,460	50,931

Appendix table 6-25

Exports and imports of all manufactured goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-117,996	-174,566	-101,132	-55,626	-100,959	-97,830	-183,604	-296,775	-395,234	-445,028	-444,745	-540,690
Central Asia/Europe	6,236	-21,423	15,831	40,463	15,707	16,828	29,061	31,658	-6,840	9,855	40,533	54,819
Russia	8,683	-5,912	21,958	30,908	25,009	35,455	41,158	36,842	50,129	82,674	84,195	122,216
Turkey	-8,675	-16,588	-8,239	-4,447	-12,378	-23,288	-30,143	-41,278	-48,492	-51,447	-35,053	-56,739
All others	6,228	1,076	2,111	14,001	3,076	4,661	18,045	36,094	-8,477	-21,371	-8,609	-10,658
Middle East/North Africa	-76,742	-80,130	-71,093	-71,342	-97,398	-92,991	-159,758	-217,977	-196,310	-179,151	-258,845	-251,944
Israel	-5,094	-926	-440	3,356	4,962	4,042	2,698	3,826	471	2,431	8,276	10,567
All others	-71,647	-79,203	-70,652	-74,698	-102,360	-97,033	-162,456	-221,803	-196,781	-181,581	-267,121	-262,511
South and Central America	-63,919	-80,191	-53,308	-43,837	-12,477	-28,880	-47,606	-88,447	-158,001	-226,295	-155,488	-220,429
Brazil	-8,501	-16,467	-9,089	-9,180	10,173	14,977	17,188	10,660	1,340	-40,410	-33,927	-40,930
Mexico	8,354	4,481	11,325	18,251	16,668	9,178	3,383	-1,093	-8,072	-24,118	-5,319	-35,632
All others	-63,772	-68,205	-55,544	-52,908	-39,319	-53,034	-68,177	-98,014	-151,269	-161,767	-116,242	-143,866
Sub-Saharan Africa	-20,377	-17,872	-18,932	-19,255	-33,553	-37,674	-51,219	-72,417	-102,823	-141,460	-130,739	-148,209
Southern Africa	2,442	3,175	3,839	9,343	6,356	8,942	6,991	852	2,380	9,493	4,749	11,705
All others	-22,819	-21,047	-22,771	-28,598	-39,909	-46,615	-58,210	-73,269	-105,203	-150,953	-135,488	-159,914
Other developed	-13,159	-29,623	-26,286	-25,428	-47,043	-47,858	-62,406	-82,777	-92,222	-115,084	-121,257	-177,473
Australia	-15,446	-14,816	-20,903	-14,430	-28,632	-33,715	-34,342	-36,177	-44,885	-59,480	-48,936	-60,871
Canada	5,477	-7,234	1,435	87	-5,875	-5,436	-8,472	-24,444	-27,706	-42,567	-56,508	-99,032
All others	-3,190	-7,573	-6,818	-11,085	-12,536	-8,707	-19,592	-22,156	-19,631	-13,037	-15,813	-17,570
Other developing	-10,766	-7,761	-5,388	-6,804	-16,094	-20,332	-28,738	-39,495	-59,378	-70,296	-56,299	-75,611

EU = European Union; ROW = rest of the world

NOTES: High-technology export goods include aerospace, communications and semiconductors, computers and office machinery, scientific instruments and measuring equipment, and pharmaceuticals. ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

Science and Engineering Indicators 2012

Appendix table 6-26

Exports and imports of communications goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	193,705	214,589	242,451	291,732	343,089	442,819	536,160	642,512	610,537	634,189	543,744	655,191
World excluding intra-EU and intra-China	150,453	162,705	174,512	210,602	248,906	326,620	394,885	443,990	464,837	484,143	415,136	506,943
United States	20,147	25,333	25,768	26,094	19,000	22,291	27,957	30,813	34,254	35,897	31,175	46,366
EU	54,626	68,745	85,191	98,000	104,376	127,273	160,970	209,926	146,808	148,519	117,928	133,061
EU ROW	24,243	30,103	30,556	33,736	36,547	46,239	60,888	58,363	54,194	53,307	40,214	46,490
Intra-EU	30,383	38,642	54,635	64,264	67,829	81,034	100,083	151,563	92,614	95,213	77,713	86,572
France	6,478	8,268	10,582	11,176	10,563	12,350	12,935	15,882	9,615	8,822	7,454	8,321
France ROW	2,890	3,588	4,240	5,117	4,942	5,507	5,422	5,458	4,346	4,378	3,811	4,303
France intra-EU	3,588	4,681	6,342	6,059	5,622	6,844	7,513	10,424	5,269	4,443	3,643	4,018
Germany	12,628	13,788	15,947	18,363	22,896	28,687	33,367	35,057	30,936	25,191	19,040	22,092
Germany ROW	5,518	6,268	5,511	6,932	8,860	11,687	13,407	13,902	13,064	10,750	8,002	9,311
Germany intra-EU	7,110	7,520	10,437	11,430	14,036	17,000	19,960	21,155	17,872	14,441	11,039	12,781
United Kingdom	10,129	13,465	14,885	18,547	14,929	13,629	27,045	55,518	9,822	9,549	8,800	9,549
United Kingdom ROW	5,237	6,887	4,946	5,361	3,852	5,151	13,198	8,404	4,204	4,126	4,017	4,424
United Kingdom intra-EU	4,892	6,578	9,939	13,185	11,077	8,478	13,847	47,114	5,618	5,423	4,783	5,126
Japan	29,620	24,101	25,865	25,741	32,091	37,644	37,360	36,885	36,288	36,927	26,965	33,451
China	28,205	31,147	34,466	49,546	82,288	119,183	152,256	188,668	210,186	226,192	209,956	256,709
China ROW	15,337	17,905	21,162	32,681	55,934	84,018	111,065	141,709	157,101	171,359	159,061	195,032
Intra-China	12,869	13,242	13,304	16,865	26,355	35,165	41,192	46,959	53,085	54,834	50,895	61,676
Asia-8	43,834	40,239	41,120	55,126	71,459	93,401	104,992	114,834	116,026	119,898	98,316	120,534
India	157	182	183	239	409	505	627	936	1,381	2,247	4,281	5,580
Indonesia	1,854	2,547	2,720	3,858	3,832	4,175	4,250	4,008	4,436	4,721	4,665	5,721
Malaysia	13,854	11,680	10,803	14,044	14,630	16,868	21,562	23,029	19,275	19,050	14,139	17,332
Philippines	1,249	1,700	1,320	1,737	2,129	2,641	2,603	2,441	2,483	2,471	1,712	2,429
Singapore	9,685	7,619	5,614	5,747	5,501	7,872	8,748	10,833	9,381	8,268	4,463	5,752
South Korea	8,829	7,906	11,049	17,694	28,506	38,864	41,449	43,692	45,892	49,804	41,064	48,060
Taiwan	4,932	4,790	5,459	7,417	10,210	13,431	15,244	18,668	21,918	21,161	17,557	22,955
Thailand	3,274	3,816	3,973	4,391	6,242	9,044	10,509	11,228	11,260	12,175	10,434	12,705
All others	15,845	23,195	28,420	35,754	33,035	42,137	51,667	58,317	64,208	65,493	58,093	63,622
Central Asia/Europe	1,317	3,011	1,233	1,690	2,623	3,978	4,406	4,717	4,508	4,067	4,169	4,540
Russia	42	331	205	192	215	306	272	484	440	574	659	831
Turkey	271	505	829	1,159	2,006	2,968	3,387	3,421	2,801	2,436	2,013	2,104
All others	1,004	2,176	199	339	401	703	748	812	1,267	1,057	1,497	1,605
Middle East/North Africa	1,827	2,630	3,613	4,719	4,388	5,348	8,143	5,757	6,735	7,064	5,555	6,536
Israel	1,569	2,274	2,981	3,633	2,800	3,275	3,143	3,476	2,530	3,470	2,679	3,118
All others	259	356	631	1,086	1,588	2,073	5,000	2,281	4,205	3,594	2,875	3,418
South and Central America	7,348	10,208	14,443	20,538	18,572	23,462	27,871	35,776	41,637	42,800	37,829	41,362
Brazil	148	621	734	1,802	1,653	1,611	3,170	3,560	2,431	2,629	1,823	2,161
Mexico	6,903	9,180	13,456	18,438	16,647	21,375	23,817	31,377	37,951	39,495	35,433	38,644
All others	298	407	253	298	272	476	884	839	1,256	676	572	557

Appendix table 6-26

Exports and imports of communications goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	133	180	248	297	398	547	715	849	771	726	736	852
Southern Africa	106	153	207	251	341	433	371	418	512	474	538	630
All others	26	27	42	46	57	113	343	431	259	252	198	221
Other developed	5,191	7,061	8,786	8,363	6,808	8,476	10,093	10,569	9,392	9,014	7,326	7,653
Australia	509	790	649	765	519	705	700	686	606	626	606	691
Canada	3,177	4,622	6,367	5,736	4,503	5,417	6,753	7,407	6,512	5,740	4,667	4,598
All others	1,506	1,649	1,771	1,862	1,786	2,354	2,640	2,476	2,274	2,648	2,053	2,363
Other developing	28	105	96	146	246	327	439	649	1,164	1,823	2,479	2,680
Imports												
World	193,705	214,589	242,451	291,732	343,089	442,819	536,160	642,512	610,537	634,189	543,744	655,191
World excluding intra-EU and intra-China	150,453	162,705	174,512	210,602	248,906	326,620	394,885	443,990	464,837	484,143	415,136	506,943
United States	35,627	37,962	52,402	64,640	73,443	90,279	107,238	118,835	133,282	136,962	122,547	140,888
EU	56,116	65,755	85,728	101,835	116,788	153,158	187,532	252,657	194,974	193,754	158,640	183,850
EU ROW	25,733	27,113	31,093	37,570	48,959	72,124	87,449	101,093	102,360	98,541	80,926	97,279
Intra-EU	30,383	38,642	54,635	64,264	67,829	81,034	100,083	151,563	92,614	95,213	77,713	86,572
France	7,172	7,891	9,873	11,853	12,792	16,069	20,465	35,934	19,092	19,781	17,404	20,874
France ROW	3,381	3,611	4,535	4,526	6,307	8,545	10,464	11,651	11,441	12,184	10,897	13,578
France intra-EU	3,791	4,280	5,339	7,327	6,485	7,524	10,001	24,283	7,651	7,597	6,507	7,296
Germany	12,234	11,358	13,914	19,916	21,640	28,487	33,361	41,513	33,290	31,380	27,600	32,415
Germany ROW	6,284	5,403	6,736	8,695	11,705	17,459	20,037	25,382	21,731	20,141	17,160	20,756
Germany intra-EU	5,950	5,956	7,177	11,220	9,936	11,029	13,324	16,131	11,559	11,238	10,440	11,659
United Kingdom	9,551	12,370	14,330	15,053	18,000	23,956	28,481	42,093	26,695	25,385	21,140	24,440
United Kingdom ROW	6,813	8,201	6,554	7,092	8,588	11,416	12,252	15,754	13,430	12,653	10,764	12,952
United Kingdom intra-EU	2,738	4,169	7,776	7,961	9,412	12,540	16,230	26,339	13,265	12,732	10,376	11,488
Japan	9,485	9,911	10,369	13,803	13,820	17,212	19,684	19,211	20,107	22,228	21,427	25,833
China	28,711	28,426	25,904	33,871	49,632	62,035	70,578	79,681	89,121	92,887	84,049	101,915
China ROW	15,842	15,184	12,599	17,005	23,278	26,870	29,386	32,723	36,036	38,053	33,154	40,239
Intra-China	12,869	13,242	13,304	16,865	26,355	35,165	41,192	46,959	53,085	54,834	50,895	61,676
Asia-8	22,915	24,017	18,219	23,990	29,240	37,808	40,731	48,870	48,149	52,278	44,902	56,974
India	765	928	931	1,403	3,646	4,990	5,440	7,897	8,934	10,603	10,436	13,532
Indonesia	1,325	2,060	627	1,089	1,364	1,627	1,593	2,036	2,721	5,531	4,697	5,778
Malaysia	3,434	3,034	2,218	3,146	3,199	3,921	4,145	4,583	4,579	4,800	4,065	5,050
Philippines	1,329	1,894	1,129	1,708	1,459	1,776	1,760	2,046	2,019	1,973	1,974	2,767
Singapore	8,467	7,351	5,475	6,105	7,151	10,205	11,468	14,314	13,679	11,554	8,358	10,377
South Korea	2,812	3,162	3,140	4,310	5,753	7,362	7,721	8,902	8,161	9,131	7,696	9,771
Taiwan	1,981	2,955	3,160	3,460	3,832	4,393	4,618	4,614	4,348	4,622	3,957	5,083
Thailand	2,803	2,633	1,538	2,770	2,837	3,535	3,986	4,479	3,708	4,064	3,720	4,616
All others	36,686	44,169	46,479	51,527	58,492	80,171	108,049	120,779	120,552	133,514	110,036	143,233
Central Asia/Europe	4,166	5,693	4,265	4,834	8,021	12,322	15,693	17,764	20,559	22,385	13,529	15,952
Russia	2,710	3,009	1,126	2,321	4,076	6,294	8,248	8,701	10,874	12,499	6,390	7,469
Turkey	830	1,432	2,233	1,334	1,997	3,115	3,679	4,168	4,739	4,428	3,827	4,651
All others	625	1,252	906	1,179	1,948	2,913	3,765	4,895	4,946	5,459	3,313	3,832

Appendix table 6-26

Exports and imports of communications goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	6,811	6,965	7,790	10,127	13,742	17,428	26,869	24,246	22,723	23,785	21,351	25,299
Israel	1,019	993	1,369	1,320	1,116	1,466	1,630	1,643	1,691	1,827	1,696	1,944
All others	5,792	5,972	6,421	8,806	12,625	15,962	25,240	22,603	21,032	21,959	19,655	23,355
South and Central America	11,248	15,211	14,950	16,157	13,580	19,979	27,288	36,655	35,442	43,822	35,838	49,745
Brazil	2,444	3,861	2,952	2,964	1,831	2,894	3,856	4,982	3,574	7,768	5,330	7,057
Mexico	3,075	4,458	5,399	7,056	6,549	9,135	11,431	16,424	15,744	17,978	16,812	26,586
All others	5,729	6,892	6,599	6,137	5,199	7,951	12,002	15,249	16,125	18,076	13,696	16,102
Sub-Saharan Africa	2,319	2,751	3,130	3,253	4,061	5,585	6,995	8,824	8,464	9,390	7,932	9,566
Southern Africa	1,312	1,593	1,654	1,485	1,643	2,517	3,072	3,652	3,363	3,064	2,628	3,084
All others	1,007	1,158	1,477	1,768	2,418	3,068	3,923	5,171	5,101	6,326	5,304	6,482
Other developed	11,199	12,626	15,425	16,163	17,642	22,431	27,495	28,836	28,726	29,440	26,749	37,247
Australia	2,742	2,852	3,501	3,448	4,587	6,180	6,844	7,856	7,974	8,049	7,966	10,011
Canada	5,050	6,263	7,647	8,633	8,409	10,078	11,227	12,889	13,258	14,070	12,014	19,405
All others	3,407	3,511	4,277	4,082	4,646	6,174	9,424	8,092	7,494	7,321	6,769	7,830
Other developing	944	923	919	993	1,446	2,425	3,708	4,454	4,638	4,692	4,638	5,425
Balance												
United States	-15,480	-12,629	-26,634	-38,546	-54,443	-67,988	-79,281	-88,022	-99,027	-101,066	-91,372	-94,522
EU	-1,489	2,990	-537	-3,834	-12,412	-25,885	-26,561	-42,730	-48,166	-45,234	-40,712	-50,789
EU ROW	-1,489	2,990	-537	-3,834	-12,412	-25,885	-26,561	-42,730	-48,166	-45,234	-40,712	-50,789
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	-694	377	709	-677	-2,229	-3,719	-7,531	-20,052	-9,477	-10,960	-9,950	-12,553
France ROW	-491	-24	-295	591	-1,366	-3,039	-5,043	-6,193	-7,095	-7,806	-7,086	-9,275
France intra-EU	-203	400	1,003	-1,268	-863	-680	-2,488	-13,859	-2,382	-3,154	-2,864	-3,278
Germany	394	2,430	2,034	-1,553	1,255	200	6	-6,456	-2,355	-6,189	-8,560	-10,322
Germany ROW	-766	865	-1,225	-1,763	-2,845	-5,772	-6,630	-11,480	-8,667	-9,391	-9,158	-11,444
Germany intra-EU	1,160	1,564	3,259	210	4,101	5,972	6,636	5,024	6,313	3,202	599	1,122
United Kingdom	577	1,096	555	3,494	-3,071	-10,327	-1,437	13,424	-16,873	-15,836	-12,341	-14,891
United Kingdom ROW	-1,577	-1,314	-1,607	-1,731	-4,736	-6,265	946	-7,351	-9,226	-8,527	-6,748	-8,529
United Kingdom intra-EU	2,154	2,409	2,163	5,224	1,664	-4,062	-2,383	20,775	-7,647	-7,309	-5,593	-6,362
Japan	20,135	14,190	15,496	11,938	18,271	20,432	17,676	17,674	16,182	14,699	5,538	7,617
China	-506	2,721	8,562	15,676	32,656	57,148	81,678	108,987	121,065	133,306	125,906	154,793
China ROW	-506	2,721	8,562	15,676	32,656	57,148	81,678	108,987	121,065	133,306	125,906	154,793
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	20,920	16,222	22,902	31,136	42,218	55,593	64,261	65,964	67,877	67,620	53,414	63,560
India	-608	-746	-748	-1,164	-3,238	-4,485	-4,813	-6,961	-7,552	-8,356	-6,155	-7,953
Indonesia	529	487	2,093	2,769	2,468	2,549	2,657	1,972	1,715	-810	-32	-57
Malaysia	10,420	8,646	8,585	10,897	11,431	12,947	17,417	18,445	14,696	14,251	10,074	12,281
Philippines	-80	-195	191	29	670	865	843	396	464	498	-261	-337
Singapore	1,219	268	139	-357	-1,650	-2,332	-2,720	-3,480	-4,298	-3,286	-3,895	-4,625
South Korea	6,017	4,744	7,908	13,384	22,753	31,502	33,727	34,790	37,731	40,673	33,368	38,290
Taiwan	2,951	1,835	2,299	3,957	6,379	9,038	10,627	14,053	17,570	16,538	13,599	17,872
Thailand	471	1,183	2,434	1,620	3,405	5,509	6,523	6,750	7,551	8,111	6,714	8,089

Appendix table 6-26

Exports and imports of communications goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-20,841	-20,974	-18,059	-15,773	-25,457	-38,034	-56,382	-62,462	-56,344	-68,021	-51,943	-79,611
Central Asia/Europe	-2,849	-2,682	-3,032	-3,144	-5,398	-8,344	-11,287	-13,047	-16,051	-18,319	-9,361	-11,412
Russia	-2,668	-2,679	-921	-2,129	-3,861	-5,988	-7,977	-8,217	-10,434	-11,925	-5,731	-6,638
Turkey	-559	-927	-1,405	-175	9	-146	-293	-747	-1,938	-1,992	-1,814	-2,547
All others	378	924	-706	-840	-1,547	-2,210	-3,018	-4,083	-3,679	-4,402	-1,816	-2,228
Middle East/North Africa	-4,983	-4,335	-4,177	-5,408	-9,354	-12,081	-18,726	-18,489	-15,988	-16,721	-15,796	-18,763
Israel	550	1,281	1,612	2,313	1,684	1,808	1,513	1,833	839	1,643	983	1,175
All others	-5,534	-5,616	-5,789	-7,720	-11,037	-13,889	-20,240	-20,322	-16,827	-18,364	-16,780	-19,938
South and Central America	-3,899	-5,003	-506	4,381	4,992	3,482	583	-879	6,195	-1,022	1,991	-8,383
Brazil	-2,297	-3,240	-2,219	-1,162	-179	-1,283	-686	-1,421	-1,143	-5,140	-3,506	-4,896
Mexico	3,828	4,723	8,058	11,382	10,098	12,241	12,386	14,953	22,207	21,517	18,621	12,058
All others	-5,431	-6,486	-6,345	-5,839	-4,927	-7,475	-11,117	-14,410	-14,869	-17,400	-13,124	-15,545
Sub-Saharan Africa	-2,186	-2,571	-2,882	-2,956	-3,663	-5,038	-6,280	-7,975	-7,693	-8,664	-7,196	-8,714
Southern Africa	-1,206	-1,440	-1,447	-1,234	-1,302	-2,084	-2,701	-3,235	-2,851	-2,589	-2,090	-2,454
All others	-980	-1,131	-1,435	-1,722	-2,361	-2,954	-3,579	-4,740	-4,842	-6,074	-5,106	-6,260
Other developed	-6,007	-5,566	-6,639	-7,800	-10,834	-13,955	-17,402	-18,267	-19,333	-20,425	-19,423	-29,594
Australia	-2,234	-2,062	-2,852	-2,683	-4,068	-5,475	-6,144	-7,170	-7,368	-7,422	-7,360	-9,319
Canada	-1,873	-1,641	-1,280	-2,897	-3,906	-4,661	-4,474	-5,482	-6,746	-8,330	-7,347	-14,807
All others	-1,901	-1,862	-2,506	-2,220	-2,860	-3,819	-6,784	-5,615	-5,220	-4,673	-4,716	-5,467
Other developing	-915	-818	-822	-847	-1,200	-2,098	-3,269	-3,805	-3,474	-2,869	-2,158	-2,744

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-27

Exports and imports of semiconductor goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	183,378	199,994	231,445	236,361	289,680	355,185	386,644	442,628	476,817	477,257	430,964	510,351
World excluding intra-EU and intra-China	163,463	174,581	207,219	202,657	249,398	302,497	327,872	375,313	398,985	393,018	349,210	421,814
United States	24,859	31,296	39,206	35,882	37,216	36,493	43,224	47,935	46,233	46,527	33,366	47,259
EU	32,895	35,555	38,512	40,695	42,468	52,799	52,136	54,429	57,040	58,401	41,442	42,526
EU ROW	15,071	13,710	19,199	16,550	19,187	23,791	22,935	25,089	26,632	27,047	17,749	18,636
Intra-EU	17,824	21,845	19,313	24,145	23,281	29,008	29,200	29,339	30,408	31,354	23,693	23,891
France	5,530	6,291	6,709	6,249	5,700	6,625	7,155	7,708	7,632	7,340	5,701	5,744
France ROW	2,530	3,335	3,679	3,462	3,608	3,962	4,605	4,806	4,954	4,685	3,398	3,517
France intra-EU	3,001	2,956	3,030	2,787	2,093	2,663	2,550	2,902	2,678	2,655	2,303	2,226
Germany	8,335	8,072	9,248	11,229	13,744	16,322	16,021	16,935	19,638	22,008	14,991	15,820
Germany ROW	3,185	3,363	3,834	5,218	6,773	8,022	7,556	8,110	9,306	9,277	6,514	7,141
Germany intra-EU	5,151	4,709	5,414	6,012	6,971	8,301	8,466	8,824	10,332	12,731	8,477	8,680
United Kingdom	7,852	6,199	6,841	9,377	5,366	6,742	7,169	7,000	5,171	4,959	3,791	3,784
United Kingdom ROW	2,223	2,049	2,155	1,671	1,480	1,991	2,450	2,434	1,902	1,771	1,252	1,275
United Kingdom intra-EU	5,628	4,150	4,686	7,706	3,886	4,752	4,719	4,567	3,269	3,188	2,538	2,508
Japan	43,328	35,852	34,681	31,830	36,374	42,062	41,324	43,242	46,150	46,041	37,641	45,086
China	8,281	10,888	13,488	18,345	30,668	43,905	53,088	68,007	81,945	94,422	93,917	107,647
China ROW	6,190	7,320	8,574	8,786	13,666	20,224	23,516	30,031	34,522	41,537	35,855	43,000
Intra-China	2,091	3,568	4,914	9,559	17,001	23,680	29,571	37,976	47,424	52,885	58,062	64,647
Asia-8	65,271	78,339	92,161	97,314	128,841	163,891	182,423	213,275	229,378	215,140	205,719	247,650
India	73	113	120	157	207	397	350	386	438	794	740	911
Indonesia	258	504	598	777	969	1,130	1,121	1,096	1,221	1,247	1,007	1,222
Malaysia	13,617	16,865	17,919	19,183	23,298	25,404	24,536	24,822	27,237	19,686	30,937	36,374
Philippines	4,086	9,053	13,671	13,929	17,454	19,507	20,262	20,484	21,753	19,302	14,971	18,435
Singapore	13,165	14,651	15,749	17,484	23,519	30,290	34,622	43,602	47,543	47,447	35,599	43,392
South Korea	20,461	19,832	22,622	17,585	21,364	27,958	32,083	34,648	36,324	33,057	32,609	38,881
Taiwan	10,297	13,353	17,086	23,279	34,834	50,647	60,665	77,798	82,874	82,139	78,370	95,622
Thailand	3,314	3,968	4,397	4,920	7,196	8,558	8,784	10,439	11,988	11,469	11,486	12,814
All others	4,434	6,247	6,928	8,342	10,632	13,275	12,152	12,567	12,889	13,883	16,402	17,608
Central Asia/Europe	86	117	210	195	261	382	446	442	483	546	561	585
Russia	64	81	153	98	114	189	143	158	184	208	188	217
Turkey	3	6	12	10	31	27	34	45	46	46	42	42
All others	20	31	45	86	117	165	269	240	253	292	330	326
Middle East/North Africa	640	1,190	1,303	2,201	2,096	2,676	2,298	2,649	3,001	2,888	4,722	3,065
Israel	280	738	663	1,581	1,239	1,544	954	1,132	1,247	1,286	3,624	1,881
All others	360	452	640	619	857	1,131	1,344	1,517	1,754	1,602	1,098	1,184
South and Central America	1,221	1,646	2,281	2,936	5,679	7,055	5,564	5,589	5,678	6,156	7,191	9,978
Brazil	92	94	149	155	184	166	144	142	54	106	108	124
Mexico	1,117	1,521	1,896	1,939	1,758	1,995	1,847	1,778	1,357	1,479	1,758	1,974
All others	12	31	235	842	3,737	4,894	3,572	3,670	4,267	4,571	5,324	7,880

Appendix table 6-27

Exports and imports of semiconductor goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	29	20	123	96	100	144	143	167	189	241	244	259
Southern Africa	21	13	103	46	82	124	125	150	172	217	182	192
All others	8	7	20	50	18	21	18	17	18	23	62	67
Other developed	2,444	3,234	2,978	2,838	2,423	2,928	3,569	3,572	3,397	3,935	3,473	3,503
Australia	59	100	99	109	172	209	232	231	281	299	128	134
Canada	2,013	2,693	2,338	2,085	1,534	1,798	2,278	1,818	1,794	2,007	1,895	1,885
All others	372	442	541	644	717	921	1,059	1,523	1,323	1,629	1,450	1,484
Other developing	14	40	33	76	73	91	131	148	140	117	213	218
Imports												
World	183,378	199,994	231,445	236,361	289,680	355,185	386,644	442,628	476,817	477,257	430,964	510,351
World excluding intra-EU and intra-China	163,463	174,581	207,219	202,657	249,398	302,497	327,872	375,313	398,985	393,018	349,210	421,814
United States	40,596	38,017	38,564	31,405	25,417	28,635	26,545	27,947	26,485	25,605	21,370	29,596
EU	37,484	41,505	43,395	47,884	52,466	63,896	63,098	64,049	67,502	73,352	56,275	60,596
EU ROW	19,660	19,660	24,082	23,739	29,186	34,888	33,898	34,710	37,094	41,998	32,582	36,705
Intra-EU	17,824	21,845	19,313	24,145	23,281	29,008	29,200	29,339	30,408	31,354	23,693	23,891
France	5,241	5,377	6,735	6,253	5,644	6,742	6,954	7,354	6,970	7,074	6,102	6,516
France ROW	2,820	2,884	3,584	3,030	3,286	3,980	3,794	4,018	3,912	4,044	3,418	3,815
France intra-EU	2,421	2,493	3,151	3,223	2,358	2,762	3,159	3,336	3,058	3,030	2,684	2,701
Germany	9,347	8,151	9,801	11,439	12,775	15,954	16,400	18,696	20,225	22,147	19,010	21,466
Germany ROW	5,518	5,048	6,112	6,987	8,622	11,095	11,192	12,800	14,068	16,141	14,118	16,388
Germany intra-EU	3,829	3,103	3,689	4,452	4,152	4,859	5,208	5,896	6,156	6,006	4,892	5,078
United Kingdom	7,294	8,019	7,599	7,610	6,157	7,816	6,692	5,611	5,393	4,868	3,584	3,696
United Kingdom ROW	4,292	5,178	5,190	5,226	3,893	4,869	4,190	3,154	2,934	2,784	1,931	2,063
United Kingdom intra-EU	3,002	2,842	2,409	2,384	2,264	2,947	2,501	2,456	2,458	2,084	1,652	1,633
Japan	8,803	9,322	11,599	13,793	15,174	18,240	18,847	21,669	21,450	21,147	16,476	19,427
China	15,172	20,871	26,493	38,666	71,713	98,091	121,855	152,284	182,326	184,092	186,895	216,283
China ROW	13,081	17,303	21,579	29,107	54,711	74,411	92,284	114,308	134,902	131,207	128,834	151,636
Intra-China	2,091	3,568	4,914	9,559	17,001	23,680	29,571	37,976	47,424	52,885	58,062	64,647
Asia-8	63,402	72,888	85,484	83,645	104,234	120,152	128,386	147,498	155,462	142,662	123,916	148,059
India	533	458	503	637	889	1,288	1,450	1,836	2,306	2,615	3,103	4,214
Indonesia	571	780	756	809	897	1,229	911	767	949	1,799	1,507	1,756
Malaysia	13,665	15,325	17,320	17,164	21,126	21,409	22,447	26,176	27,377	21,351	18,654	21,463
Philippines	3,971	8,028	10,468	10,472	12,037	12,781	12,507	14,925	14,858	13,078	9,008	10,818
Singapore	18,720	17,989	19,525	18,673	22,422	29,092	33,550	41,226	43,165	38,659	33,894	41,405
South Korea	8,388	11,043	15,173	14,524	19,683	22,246	23,155	24,519	27,400	28,746	25,043	28,389
Taiwan	12,851	14,119	16,213	15,057	20,529	23,629	25,742	28,408	28,678	27,028	24,157	29,974
Thailand	4,703	5,146	5,526	6,310	6,651	8,478	8,625	9,641	10,728	9,386	8,550	10,040
All others	14,818	17,281	20,954	20,873	20,245	25,999	27,676	29,000	23,384	30,077	25,761	36,100
Central Asia/Europe	366	860	883	1,100	2,277	3,325	2,789	2,471	2,355	2,566	1,837	2,079
Russia	39	164	145	224	600	875	816	633	654	775	532	644
Turkey	274	590	643	703	1,418	2,047	1,566	1,428	1,144	1,156	724	809
All others	53	106	94	173	259	403	407	409	557	635	581	625

Appendix table 6-27

Exports and imports of semiconductor goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	1,556	1,406	2,075	2,328	2,577	3,470	3,230	3,782	3,641	3,863	3,249	3,525
Israel	289	245	407	701	525	978	904	891	792	933	846	972
All others	1,267	1,161	1,668	1,627	2,051	2,492	2,327	2,891	2,849	2,930	2,403	2,553
South and Central America	4,776	6,889	8,992	10,719	10,209	12,447	14,153	15,212	9,770	15,314	13,200	20,241
Brazil	906	1,271	1,245	1,676	1,714	2,588	3,640	4,214	1,540	4,902	4,119	5,210
Mexico	3,567	5,159	6,584	8,147	6,873	8,189	8,320	8,149	5,539	7,632	6,687	12,776
All others	303	459	1,163	895	1,623	1,669	2,193	2,848	2,691	2,779	2,393	2,256
Sub-Saharan Africa	258	221	270	303	405	549	563	623	802	842	811	898
Southern Africa	226	181	216	216	251	359	334	373	417	424	378	394
All others	32	40	54	87	154	190	229	250	385	418	433	503
Other developed	7,785	7,661	8,447	6,061	4,480	5,806	6,433	6,235	5,867	6,530	5,661	8,085
Australia	602	652	662	561	740	886	820	784	867	899	950	1,113
Canada	6,352	6,276	6,899	4,424	2,777	3,672	4,267	3,887	3,469	3,825	3,287	5,427
All others	831	732	886	1,075	963	1,248	1,346	1,564	1,531	1,806	1,424	1,546
Other developing	78	243	287	363	297	403	508	677	948	961	1,003	1,272
Balance												
United States	-15,737	-6,722	642	4,477	11,799	7,859	16,679	19,988	19,748	20,921	11,996	17,663
EU	-4,589	-5,950	-4,882	-7,189	-9,999	-11,098	-10,963	-9,620	-10,462	-14,951	-14,833	-18,070
EU ROW	-4,589	-5,950	-4,882	-7,189	-9,999	-11,098	-10,963	-9,620	-10,462	-14,951	-14,833	-18,070
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	289	914	-26	-4	56	-117	201	355	662	266	-401	-772
France ROW	-291	451	95	431	321	-17	811	788	1,042	641	-20	-297
France intra-EU	579	462	-121	-435	-265	-99	-609	-434	-380	-375	-381	-474
Germany	-1,012	-79	-553	-210	970	368	-378	-1,762	-587	-139	-4,019	-5,646
Germany ROW	-2,333	-1,685	-2,278	-1,769	-1,849	-3,074	-3,636	-4,690	-4,762	-6,864	-7,605	-9,247
Germany intra-EU	1,321	1,606	1,725	1,559	2,819	3,442	3,257	2,928	4,175	6,725	3,586	3,601
United Kingdom	557	-1,820	-758	1,767	-791	-1,074	478	1,390	-222	91	207	88
United Kingdom ROW	-2,069	-3,129	-3,035	-3,555	-2,413	-2,878	-1,740	-721	-1,033	-1,013	-679	-788
United Kingdom intra-EU	2,626	1,309	2,277	5,322	1,622	1,804	2,218	2,110	811	1,104	886	875
Japan	34,526	26,530	23,082	18,037	21,200	23,822	22,478	21,573	24,700	24,895	21,165	25,660
China	-6,891	-9,983	-13,005	-20,321	-41,045	-54,187	-68,767	-84,277	-100,380	-89,670	-92,979	-108,636
China ROW	-6,891	-9,983	-13,005	-20,321	-41,045	-54,187	-68,767	-84,277	-100,380	-89,670	-92,979	-108,636
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	1,870	5,451	6,676	13,670	24,606	43,739	54,037	65,777	73,917	72,478	81,803	99,591
India	-460	-345	-383	-480	-682	-890	-1,100	-1,450	-1,869	-1,821	-2,363	-3,302
Indonesia	-313	-275	-158	-32	72	-99	209	329	272	-553	-500	-534
Malaysia	-48	1,540	600	2,019	2,172	3,995	2,089	-1,354	-139	-1,664	12,282	14,911
Philippines	115	1,025	3,203	3,457	5,417	6,727	7,756	5,559	6,895	6,224	5,963	7,617
Singapore	-5,555	-3,338	-3,777	-1,189	1,097	1,198	1,073	2,377	4,378	8,788	1,705	1,987
South Korea	12,073	8,788	7,449	3,062	1,681	5,712	8,928	10,129	8,924	4,310	7,566	10,491
Taiwan	-2,554	-766	873	8,223	14,305	27,018	34,922	49,390	54,196	55,111	54,213	65,648
Thailand	-1,389	-1,177	-1,130	-1,390	545	79	159	797	1,259	2,083	2,936	2,774

Appendix table 6-27

Exports and imports of semiconductor goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-10,384	-11,034	-14,026	-12,531	-9,613	-12,723	-15,525	-16,433	-10,495	-16,194	-9,358	-18,492
Central Asia/Europe	-280	-743	-673	-905	-2,015	-2,943	-2,343	-2,029	-1,873	-2,020	-1,276	-1,494
Russia	25	-84	8	-126	-486	-685	-672	-476	-471	-567	-344	-427
Turkey	-272	-585	-631	-693	-1,387	-2,019	-1,533	-1,383	-1,099	-1,110	-682	-767
All others	-33	-75	-49	-87	-143	-238	-138	-170	-303	-344	-250	-300
Middle East/North Africa	-916	-216	-772	-127	-480	-794	-932	-1,133	-640	-975	1,472	-460
Israel	-9	492	256	881	714	566	50	241	455	353	2,778	909
All others	-907	-709	-1,028	-1,008	-1,194	-1,360	-982	-1,374	-1,094	-1,328	-1,305	-1,369
South and Central America	-3,555	-5,243	-6,712	-7,782	-4,530	-5,392	-8,589	-9,623	-4,092	-9,158	-6,009	-10,263
Brazil	-814	-1,177	-1,096	-1,521	-1,529	-2,422	-3,495	-4,072	-1,486	-4,796	-4,012	-5,086
Mexico	-2,450	-3,638	-4,688	-6,208	-5,115	-6,194	-6,473	-6,372	-4,182	-6,153	-4,929	-10,802
All others	-291	-429	-928	-53	2,114	3,224	1,379	821	1,576	1,791	2,931	5,624
Sub-Saharan Africa	-229	-201	-146	-207	-305	-404	-420	-456	-612	-602	-567	-638
Southern Africa	-205	-168	-112	-170	-169	-235	-209	-223	-245	-207	-196	-202
All others	-24	-33	-34	-37	-136	-169	-211	-233	-368	-395	-371	-436
Other developed	-5,341	-4,426	-5,468	-3,223	-2,057	-2,878	-2,863	-2,663	-2,470	-2,595	-2,188	-4,583
Australia	-543	-553	-563	-452	-568	-677	-588	-553	-587	-599	-823	-979
Canada	-4,339	-3,583	-4,561	-2,339	-1,243	-1,875	-1,989	-2,069	-1,675	-1,819	-1,391	-3,541
All others	-459	-290	-345	-432	-246	-327	-286	-41	-209	-177	26	-62
Other developing	-64	-203	-254	-287	-225	-312	-377	-529	-808	-844	-790	-1,054

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-28

Exports and imports of computer and office machinery goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	241,181	296,104	338,805	346,877	386,982	453,914	509,925	558,893	490,530	493,367	419,477	492,782
World excluding intra-EU and intra-China	185,730	231,693	259,596	264,715	291,814	341,535	380,772	413,990	367,880	373,836	317,995	385,106
United States	35,741	42,953	40,065	38,836	28,532	27,764	36,886	39,034	34,931	33,618	26,500	38,569
EU	67,043	76,790	93,730	92,863	98,759	114,639	127,990	138,437	119,403	112,351	89,780	91,172
EU ROW	16,858	20,353	23,853	24,703	25,545	29,176	33,632	34,563	31,709	31,000	24,784	25,452
Intra-EU	50,185	56,437	69,877	68,161	73,214	85,463	94,358	103,874	87,694	81,351	64,996	65,720
France	8,111	9,145	9,307	7,777	6,617	7,437	7,003	7,865	7,724	7,639	5,105	5,230
France ROW	1,932	2,188	2,174	2,230	2,016	2,375	2,236	2,432	2,550	2,584	2,011	2,120
France intra-EU	6,179	6,958	7,133	5,546	4,601	5,062	4,767	5,433	5,174	5,055	3,094	3,110
Germany	13,338	12,505	14,513	16,072	20,076	26,833	28,497	30,903	26,290	23,738	18,393	19,512
Germany ROW	3,184	2,817	3,516	3,769	4,879	6,727	7,146	7,899	6,709	6,969	4,847	5,351
Germany intra-EU	10,153	9,688	10,996	12,303	15,197	20,106	21,351	23,005	19,580	16,769	13,546	14,161
United Kingdom	17,665	21,074	21,229	18,854	15,479	15,815	17,209	20,380	12,519	10,904	8,339	8,208
United Kingdom ROW	5,195	6,249	5,166	5,253	4,548	4,554	5,268	4,639	3,136	3,177	2,697	2,729
United Kingdom intra-EU	12,471	14,826	16,063	13,601	10,931	11,262	11,940	15,740	9,383	7,726	5,641	5,479
Japan	37,295	37,326	36,376	29,116	26,279	27,646	26,488	27,239	12,838	11,665	8,383	9,389
China	16,043	24,588	34,110	49,687	96,105	134,110	166,131	193,464	182,237	195,954	179,818	216,935
China ROW	10,777	16,614	24,778	35,685	74,150	107,194	131,336	152,436	147,281	157,775	143,331	174,980
Intra-China	5,266	7,974	9,332	14,002	21,954	26,916	34,795	41,028	34,956	38,180	36,487	41,956
Asia-8	72,598	98,996	112,148	113,347	118,925	130,325	129,965	136,668	116,692	114,478	89,661	104,601
India	282	388	146	530	236	308	274	375	418	618	604	727
Indonesia	614	1,365	2,193	3,060	2,689	3,258	3,409	2,955	2,772	2,808	2,433	2,889
Malaysia	8,639	14,508	20,166	20,845	22,722	25,725	29,182	33,687	31,072	29,569	22,257	23,130
Philippines	1,513	6,319	9,112	9,572	9,342	8,962	9,196	8,547	7,375	6,800	4,295	5,374
Singapore	26,895	32,391	28,536	24,818	25,708	27,913	28,765	29,135	17,812	21,430	15,294	18,782
South Korea	7,503	9,294	13,546	14,645	18,941	21,977	19,014	19,165	18,654	13,627	10,708	13,864
Taiwan	19,363	24,601	28,503	29,877	28,351	28,637	23,765	23,228	18,391	15,666	12,418	15,453
Thailand	7,789	10,130	9,946	10,000	10,937	13,546	16,359	19,576	20,199	23,960	21,651	24,382
All others	11,482	14,538	20,565	22,137	18,004	18,934	22,012	23,383	23,746	24,659	24,609	31,346
Central Asia/Europe	77	176	218	319	250	439	496	591	798	883	815	861
Russia	48	64	107	50	67	96	94	133	164	221	196	237
Turkey	13	28	58	52	47	67	84	109	134	153	104	106
All others	15	84	54	217	137	275	318	349	499	509	514	519
Middle East/North Africa	674	964	1,403	1,508	1,494	1,909	2,472	2,101	3,017	3,063	2,399	2,802
Israel	539	686	1,020	978	856	1,036	1,145	1,139	1,297	1,298	1,055	1,194
All others	135	278	383	530	638	874	1,327	962	1,720	1,765	1,344	1,608
South and Central America	3,217	6,437	12,155	14,148	11,374	11,470	13,200	14,131	12,960	13,170	15,391	21,399
Brazil	232	326	429	332	237	296	458	489	285	349	337	396
Mexico	2,850	6,007	9,236	13,231	10,261	10,469	10,237	10,562	9,260	9,097	9,777	15,362
All others	135	103	2,491	586	876	704	2,505	3,080	3,414	3,724	5,277	5,641

Appendix table 6-28

Exports and imports of computer and office machinery goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	95	136	188	144	188	193	215	365	324	300	307	334
Southern Africa	64	101	144	111	141	143	164	259	239	238	231	253
All others	32	35	44	33	47	50	51	106	85	62	76	81
Other developed	7,389	6,709	6,516	5,896	4,321	4,593	5,003	5,091	5,448	5,332	4,135	4,285
Australia	1,099	1,005	757	670	734	772	828	830	851	903	719	778
Canada	5,049	4,351	3,881	3,726	2,390	2,659	2,817	2,966	3,182	3,042	2,178	2,230
All others	1,241	1,352	1,878	1,500	1,197	1,162	1,358	1,295	1,416	1,387	1,238	1,278
Other developing	28	117	84	122	377	330	625	1,104	1,199	1,911	1,563	1,665
Imports												
World	241,181	296,104	338,805	346,877	386,982	453,914	509,925	558,893	490,530	493,367	419,477	492,782
World excluding intra-EU and intra-China	185,730	231,693	259,596	264,715	291,814	341,535	380,772	413,990	367,880	373,836	317,995	385,106
United States	59,392	71,585	82,178	74,794	78,037	90,710	95,332	103,297	81,369	76,521	73,037	94,238
EU	97,645	113,529	135,150	130,341	142,660	169,737	188,061	209,122	183,718	176,419	138,836	148,586
EU ROW	47,460	57,092	65,273	62,180	69,446	84,274	93,703	105,247	96,025	95,068	73,841	82,866
Intra-EU	50,185	56,437	69,877	68,161	73,214	85,463	94,358	103,874	87,694	81,351	64,996	65,720
France	12,360	13,202	13,663	13,241	14,347	17,881	18,939	21,090	18,397	17,669	13,831	14,542
France ROW	7,086	7,354	6,863	6,436	7,329	8,999	9,391	10,628	10,078	10,450	8,192	9,003
France intra-EU	5,273	5,848	6,799	6,804	7,019	8,881	9,548	10,461	8,319	7,219	5,639	5,539
Germany	20,635	19,914	25,177	25,493	28,963	33,199	37,824	41,445	33,504	31,763	25,332	27,884
Germany ROW	13,341	13,370	15,098	15,510	18,038	22,428	25,012	28,141	23,914	22,530	17,264	19,605
Germany intra-EU	7,294	6,543	10,079	9,983	10,925	10,771	12,812	13,304	9,590	9,234	8,068	8,280
United Kingdom	18,877	22,805	27,001	23,706	23,060	26,540	27,371	29,111	26,382	23,715	17,986	18,637
United Kingdom ROW	9,422	12,988	14,934	11,794	9,709	11,060	11,845	13,080	11,254	10,217	7,791	8,583
United Kingdom intra-EU	9,456	9,817	12,067	11,913	13,351	15,480	15,526	16,031	15,128	13,498	10,195	10,054
Japan	15,310	18,199	19,451	22,663	23,509	26,131	27,162	26,191	22,221	22,929	18,641	21,385
China	12,131	18,380	22,590	33,125	50,424	59,511	73,383	83,895	72,376	76,167	68,756	79,733
China ROW	6,865	10,406	13,258	19,123	28,470	32,595	38,588	42,866	37,420	37,987	32,270	37,778
Intra-China	5,266	7,974	9,332	14,002	21,954	26,916	34,795	41,028	34,956	38,180	36,487	41,956
Asia-8	25,045	35,343	37,069	40,850	43,887	48,675	55,634	58,284	50,464	56,205	46,131	55,301
India	607	959	1,193	1,642	1,856	2,595	3,563	4,574	4,501	5,765	4,910	6,315
Indonesia	207	426	385	543	598	731	792	788	1,079	2,725	2,194	2,457
Malaysia	2,529	4,284	3,558	4,441	6,713	8,605	9,528	9,864	10,277	8,865	7,488	8,645
Philippines	829	2,152	2,253	2,707	2,937	2,923	2,898	2,685	2,649	2,888	2,132	2,533
Singapore	11,494	15,097	14,188	14,011	13,718	15,720	18,001	17,418	11,062	15,612	12,082	14,212
South Korea	3,176	3,674	4,869	5,893	6,105	6,540	8,224	8,891	8,709	8,325	7,021	8,482
Taiwan	3,555	5,199	7,287	7,518	7,316	6,829	6,496	7,154	5,556	5,047	4,443	5,880
Thailand	2,649	3,552	3,335	4,095	4,646	4,731	6,131	6,910	6,632	6,979	5,860	6,778
All others	31,114	37,828	40,959	43,750	47,448	57,870	68,942	76,695	78,680	83,457	72,796	92,044
Central Asia/Europe	2,209	2,542	2,750	3,212	4,888	6,475	9,103	10,451	12,251	11,702	8,413	9,828
Russia	1,274	1,184	1,029	1,676	2,590	3,131	4,127	4,804	5,468	5,458	3,510	4,260
Turkey	530	876	1,199	737	1,280	2,027	3,256	3,619	4,014	3,746	3,479	3,984
All others	406	482	522	799	1,017	1,317	1,720	2,027	2,769	2,499	1,423	1,584

Appendix table 6-28

Exports and imports of computer and office machinery goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	2,403	2,941	4,224	5,156	5,704	6,858	9,024	10,117	10,966	12,024	11,693	13,151
Israel	772	886	1,210	1,286	1,131	1,267	1,549	1,658	1,588	1,379	1,279	1,413
All others	1,631	2,055	3,013	3,870	4,573	5,591	7,475	8,458	9,378	10,645	10,413	11,738
South and Central America	6,517	10,491	10,344	12,180	12,471	15,214	18,402	22,264	23,010	26,059	23,698	32,760
Brazil	1,573	2,502	1,861	2,199	1,345	1,600	2,853	3,833	3,943	4,938	4,547	5,440
Mexico	1,984	3,860	4,439	6,214	7,900	9,540	9,309	10,393	10,411	11,327	10,310	17,581
All others	2,960	4,129	4,044	3,767	3,225	4,074	6,241	8,038	8,656	9,794	8,841	9,739
Sub-Saharan Africa	1,861	1,769	2,088	2,099	2,581	3,201	3,772	4,282	4,350	4,672	4,191	4,571
Southern Africa	1,288	1,156	1,331	1,231	1,528	1,875	2,235	2,486	2,116	2,026	1,788	1,874
All others	573	614	757	867	1,053	1,327	1,537	1,795	2,234	2,646	2,403	2,698
Other developed	17,780	19,657	21,016	20,360	20,832	24,462	27,032	27,825	26,415	26,689	22,562	29,046
Australia	3,824	4,303	4,397	3,854	4,571	5,621	6,323	6,759	7,029	7,224	6,262	7,247
Canada	8,798	10,258	10,522	10,605	9,576	10,820	12,097	12,808	11,959	11,794	9,362	14,433
All others	5,158	5,096	6,098	5,900	6,684	8,020	8,612	8,259	7,426	7,671	6,938	7,366
Other developing	344	428	537	744	972	1,660	1,609	1,757	1,688	2,311	2,239	2,688
Balance												
United States	-23,650	-28,632	-42,113	-35,958	-49,505	-62,946	-58,447	-64,263	-46,438	-42,903	-46,537	-55,669
EU	-30,602	-36,739	-41,420	-37,478	-43,901	-55,098	-60,071	-70,684	-64,316	-64,068	-49,056	-57,414
EU ROW	-30,602	-36,739	-41,420	-37,478	-43,901	-55,098	-60,071	-70,684	-64,316	-64,068	-49,056	-57,414
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	-4,249	-4,057	-4,355	-5,464	-7,730	-10,443	-11,936	-13,225	-10,673	-10,030	-8,726	-9,313
France ROW	-5,155	-5,166	-4,689	-4,206	-5,313	-6,624	-7,155	-8,197	-7,528	-7,866	-6,181	-6,883
France intra-EU	906	1,109	334	-1,258	-2,417	-3,819	-4,781	-5,029	-3,145	-2,165	-2,545	-2,430
Germany	-7,297	-7,408	-10,664	-9,421	-8,887	-6,366	-9,327	-10,542	-7,214	-8,026	-6,938	-8,373
Germany ROW	-10,157	-10,553	-11,581	-11,741	-13,160	-15,701	-17,865	-20,243	-17,205	-15,561	-12,417	-14,253
Germany intra-EU	2,860	3,145	917	2,320	4,272	9,335	8,538	9,701	9,991	7,536	5,478	5,881
United Kingdom	-1,212	-1,731	-5,772	-4,852	-7,581	-10,725	-10,162	-8,731	-13,863	-12,812	-9,647	-10,429
United Kingdom ROW	-4,227	-6,739	-9,768	-6,541	-5,161	-6,507	-6,576	-8,440	-8,118	-7,040	-5,093	-5,854
United Kingdom intra-EU	3,015	5,008	3,996	1,689	-2,420	-4,218	-3,586	-291	-5,745	-5,772	-4,554	-4,575
Japan	21,985	19,127	16,925	6,453	2,770	1,515	-674	1,049	-9,383	-11,265	-10,259	-11,997
China	3,912	6,208	11,520	16,562	45,681	74,599	92,748	109,569	109,861	119,788	111,061	137,202
China ROW	3,912	6,208	11,520	16,562	45,681	74,599	92,748	109,569	109,861	119,788	111,061	137,202
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	47,553	63,653	75,080	72,496	75,038	81,650	74,331	78,384	66,228	58,273	43,530	49,300
India	-325	-571	-1,047	-1,112	-1,620	-2,288	-3,289	-4,199	-4,083	-5,147	-4,306	-5,588
Indonesia	407	939	1,809	2,516	2,091	2,527	2,617	2,167	1,693	83	239	432
Malaysia	6,110	10,224	16,608	16,404	16,010	17,120	19,654	23,824	20,795	20,705	14,769	14,485
Philippines	684	4,168	6,859	6,865	6,406	6,039	6,299	5,861	4,726	3,912	2,163	2,841
Singapore	15,401	17,294	14,348	10,807	11,990	12,193	10,764	11,717	6,749	5,818	3,212	4,570
South Korea	4,327	5,621	8,677	8,752	12,836	15,437	10,790	10,274	9,945	5,302	3,687	5,382
Taiwan	15,808	19,401	21,216	22,358	21,035	21,807	17,269	16,074	12,835	10,619	7,975	9,574
Thailand	5,140	6,578	6,611	5,905	6,291	8,815	10,227	12,667	13,567	16,981	15,791	17,604

Appendix table 6-28

Exports and imports of computer and office machinery goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-19,632	-23,291	-20,395	-21,613	-29,443	-38,936	-46,931	-53,312	-54,934	-58,798	-48,186	-60,698
Central Asia/Europe	-2,132	-2,366	-2,532	-2,893	-4,637	-6,036	-8,606	-9,860	-11,454	-10,819	-7,598	-8,966
Russia	-1,225	-1,121	-923	-1,626	-2,524	-3,034	-4,033	-4,671	-5,304	-5,237	-3,314	-4,023
Turkey	-516	-848	-1,141	-686	-1,233	-1,959	-3,172	-3,511	-3,880	-3,593	-3,375	-3,878
All others	-390	-397	-468	-582	-881	-1,042	-1,401	-1,678	-2,269	-1,990	-909	-1,065
Middle East/North Africa	-1,729	-1,978	-2,821	-3,649	-4,210	-4,948	-6,552	-8,015	-7,949	-8,961	-9,293	-10,349
Israel	-233	-200	-190	-308	-275	-231	-404	-519	-291	-81	-224	-219
All others	-1,496	-1,778	-2,630	-3,340	-3,935	-4,717	-6,148	-7,496	-7,658	-8,880	-9,069	-10,129
South and Central America	-3,299	-4,054	1,811	1,968	-1,097	-3,745	-5,203	-8,133	-10,050	-12,889	-8,307	-11,361
Brazil	-1,341	-2,176	-1,432	-1,867	-1,108	-1,303	-2,395	-3,344	-3,658	-4,589	-4,210	-5,044
Mexico	867	2,147	4,796	7,017	2,361	929	928	169	-1,151	-2,229	-533	-2,218
All others	-2,825	-4,026	-1,553	-3,182	-2,349	-3,370	-3,736	-4,957	-5,242	-6,070	-3,564	-4,099
Sub-Saharan Africa	-1,766	-1,633	-1,900	-1,954	-2,392	-3,009	-3,557	-3,917	-4,025	-4,372	-3,884	-4,237
Southern Africa	-1,224	-1,054	-1,187	-1,120	-1,387	-1,732	-2,071	-2,227	-1,877	-1,788	-1,556	-1,621
All others	-542	-579	-713	-835	-1,006	-1,277	-1,486	-1,689	-2,149	-2,584	-2,328	-2,617
Other developed	-10,390	-12,949	-14,500	-14,463	-16,511	-19,869	-22,029	-22,735	-20,967	-21,357	-18,427	-24,761
Australia	-2,725	-3,298	-3,639	-3,184	-3,837	-4,850	-5,495	-5,929	-6,179	-6,320	-5,543	-6,469
Canada	-3,748	-5,907	-6,641	-6,879	-7,187	-8,161	-9,280	-9,842	-8,777	-8,752	-7,184	-12,204
All others	-3,917	-3,744	-4,220	-4,400	-5,487	-6,858	-7,254	-6,964	-6,011	-6,285	-5,700	-6,088
Other developing	-316	-311	-452	-622	-596	-1,330	-984	-653	-489	-400	-677	-1,024

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

Science and Engineering Indicators 2012

Appendix table 6-29

Exports and imports of scientific instruments and measuring equipment goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	136,364	154,640	165,439	183,292	217,419	268,367	297,672	338,451	396,753	432,996	376,988	439,444
World excluding intra-EU and intra-China	106,787	121,533	129,757	143,747	169,076	212,284	235,991	269,730	318,971	348,940	304,933	361,439
United States	23,891	30,306	32,704	36,939	34,592	40,334	46,422	52,381	59,481	61,318	55,529	69,174
EU	45,488	51,932	55,012	60,618	76,490	92,767	100,640	112,990	122,976	134,221	115,411	124,909
EU ROW	21,337	24,953	25,934	29,757	37,187	46,789	50,525	57,254	60,459	66,589	57,822	63,779
Intra-EU	24,151	26,979	29,079	30,861	39,303	45,978	50,115	55,735	62,517	67,632	57,589	61,131
France	5,544	6,012	6,028	6,705	8,302	9,603	9,842	11,427	13,261	14,601	12,120	12,931
France ROW	2,952	2,951	2,853	3,266	3,670	4,390	4,571	5,450	6,271	7,090	5,999	6,500
France intra-EU	2,592	3,061	3,175	3,439	4,632	5,213	5,272	5,977	6,990	7,511	6,121	6,432
Germany	16,000	16,366	18,740	20,545	25,477	31,332	35,074	40,104	45,697	48,636	40,584	45,690
Germany ROW	7,360	7,804	8,846	10,203	12,797	15,937	17,775	20,815	23,789	26,088	22,061	25,421
Germany intra-EU	8,641	8,562	9,894	10,342	12,679	15,395	17,299	19,289	21,908	22,548	18,523	20,269
United Kingdom	7,591	9,814	9,281	9,728	10,443	11,665	12,205	12,553	13,415	13,936	12,332	12,954
United Kingdom ROW	4,080	5,686	5,062	5,377	5,816	6,337	7,004	7,225	7,960	8,222	7,457	7,921
United Kingdom intra-EU	3,511	4,128	4,219	4,352	4,627	5,328	5,202	5,329	5,455	5,714	4,875	5,033
Japan	24,227	23,957	23,476	24,657	29,167	37,770	36,896	36,548	39,547	41,714	34,013	41,927
China	14,083	17,004	18,608	21,792	26,940	32,574	36,681	42,300	58,140	64,950	56,024	67,230
China ROW	8,657	10,876	12,004	13,107	17,901	22,469	25,115	29,314	42,875	48,526	41,558	50,355
Intra-China	5,426	6,128	6,604	8,684	9,039	10,105	11,566	12,986	15,265	16,423	14,467	16,875
Asia-8	10,097	11,563	12,355	13,207	20,295	29,510	37,870	50,532	64,380	72,391	65,587	79,555
India	146	179	209	315	476	610	693	863	1,046	1,153	1,160	1,407
Indonesia	310	538	469	534	529	543	640	789	1,006	1,104	1,049	1,256
Malaysia	1,257	1,322	1,270	1,799	2,057	2,662	2,932	3,611	5,548	5,721	5,779	5,545
Philippines	660	736	783	905	1,199	1,300	1,369	1,363	1,751	1,832	1,620	2,058
Singapore	2,212	2,550	2,438	2,683	3,324	3,842	4,166	4,561	6,863	7,503	7,265	8,724
South Korea	1,494	2,136	3,156	1,927	2,805	5,425	9,934	16,048	20,464	24,671	26,821	32,674
Taiwan	2,785	2,756	2,715	3,327	7,816	12,633	15,395	20,203	23,642	26,067	18,059	23,375
Thailand	1,235	1,346	1,314	1,716	2,089	2,496	2,741	3,094	4,061	4,339	3,834	4,517
All others	17,783	18,997	22,592	25,693	29,454	34,957	38,603	43,018	51,360	57,346	49,419	55,605
Central Asia/Europe	301	551	742	1,018	1,275	1,620	1,440	1,680	2,129	2,706	2,449	2,758
Russia	113	275	441	618	548	660	647	804	900	1,217	988	1,185
Turkey	44	61	81	92	119	171	208	252	326	393	387	415
All others	144	215	220	308	609	789	585	624	902	1,096	1,074	1,157
Middle East/North Africa	1,113	1,588	2,163	2,379	2,097	3,014	3,165	3,542	4,346	4,356	3,912	4,427
Israel	690	1,026	1,516	1,879	1,480	2,178	2,191	2,601	3,075	3,017	2,546	2,935
All others	423	562	648	499	616	836	974	941	1,271	1,338	1,366	1,492
South and Central America	2,930	3,573	4,969	6,418	8,257	8,907	10,300	11,303	13,299	13,944	13,005	14,852
Brazil	231	257	297	321	287	346	413	562	613	723	639	763
Mexico	2,153	2,733	4,002	5,106	6,676	7,235	8,407	9,100	10,710	10,995	10,162	11,766
All others	546	583	670	990	1,295	1,326	1,480	1,640	1,976	2,226	2,204	2,322

Appendix table 6-29

Exports and imports of scientific instruments and measuring equipment goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	197	220	257	240	326	455	390	395	535	667	711	766
Southern Africa	84	117	118	138	202	238	247	269	343	423	507	547
All others	113	102	138	103	123	217	143	125	192	244	204	218
Other developed	13,141	12,946	14,289	15,396	17,231	20,630	22,954	25,623	30,212	34,681	28,311	31,649
Australia	542	653	857	1,052	959	1,101	1,286	1,522	1,814	2,079	1,876	2,081
Canada	1,552	2,045	2,522	2,892	2,685	3,235	3,799	4,273	4,567	4,940	4,149	4,757
All others	11,047	10,248	10,910	11,452	13,586	16,294	17,870	19,828	23,831	27,662	22,286	24,811
Other developing	101	120	172	242	269	331	353	476	839	993	1,031	1,155
Imports												
World	136,364	154,640	165,439	183,292	217,419	268,367	297,672	338,451	396,753	432,996	376,988	439,444
World excluding intra-EU and intra-China	106,787	121,533	129,757	143,747	169,076	212,284	235,991	269,730	318,971	348,940	304,933	361,439
United States	24,013	27,577	31,810	34,483	38,839	44,754	46,945	49,899	69,646	71,079	61,264	70,579
EU	47,500	52,231	57,664	61,227	70,920	83,117	92,840	106,399	120,427	132,404	114,228	124,216
EU ROW	23,349	25,252	28,586	30,367	31,617	37,140	42,725	50,664	57,910	64,772	56,639	63,086
Intra-EU	24,151	26,979	29,079	30,861	39,303	45,978	50,115	55,735	62,517	67,632	57,589	61,131
France	6,842	6,737	7,816	8,094	9,645	11,411	12,256	13,484	14,701	16,021	14,131	15,150
France ROW	3,392	3,484	3,937	4,074	4,369	5,068	5,605	6,418	7,304	7,765	6,861	7,500
France intra-EU	3,450	3,253	3,879	4,020	5,275	6,343	6,651	7,066	7,397	8,256	7,270	7,649
Germany	10,662	10,832	11,936	13,343	14,397	16,691	18,689	21,864	24,668	27,255	23,809	27,172
Germany ROW	6,852	6,885	7,755	8,769	8,787	10,130	11,414	13,454	15,997	17,382	15,001	17,423
Germany intra-EU	3,810	3,947	4,181	4,574	5,610	6,561	7,275	8,411	8,672	9,873	8,807	9,749
United Kingdom	7,085	8,534	8,654	9,242	9,758	11,534	12,284	13,000	13,959	14,613	12,191	12,617
United Kingdom ROW	4,465	5,161	5,121	5,225	5,000	5,820	6,766	7,123	7,325	7,714	6,236	6,460
United Kingdom intra-EU	2,620	3,373	3,533	4,017	4,758	5,713	5,518	5,877	6,634	6,899	5,955	6,157
Japan	8,640	10,856	11,203	12,830	14,186	16,741	19,174	22,142	20,542	21,163	17,115	19,982
China	13,473	14,348	14,740	19,682	29,874	41,648	49,360	56,598	68,040	76,850	69,652	84,831
China ROW	8,047	8,221	8,136	10,998	20,835	31,544	37,793	43,612	52,775	60,427	55,185	67,956
Intra-China	5,426	6,128	6,604	8,684	9,039	10,105	11,566	12,986	15,265	16,423	14,467	16,875
Asia-8	17,215	19,779	19,462	20,671	25,350	36,166	37,661	42,251	41,148	43,095	37,991	48,381
India	881	922	1,020	1,245	1,558	2,024	2,618	3,181	3,931	4,679	4,828	5,707
Indonesia	616	695	364	489	505	626	794	823	1,040	1,589	1,404	1,672
Malaysia	1,685	1,703	1,541	1,967	2,018	2,477	2,424	3,155	3,395	4,246	3,842	4,859
Philippines	636	930	952	1,071	1,255	1,672	1,561	1,664	1,776	1,661	1,358	1,684
Singapore	3,372	4,088	3,622	3,799	4,180	6,073	5,622	6,736	6,991	7,601	6,409	7,934
South Korea	5,005	5,091	4,343	5,128	7,538	9,954	11,525	12,294	11,193	11,087	9,109	11,556
Taiwan	3,345	4,819	6,513	5,611	6,518	11,048	10,470	11,178	9,268	8,001	7,020	9,964
Thailand	1,676	1,532	1,106	1,360	1,778	2,292	2,646	3,221	3,554	4,230	4,021	5,005
All others	24,477	28,764	29,793	33,517	37,310	44,758	50,271	59,754	74,999	86,456	74,955	89,464
Central Asia/Europe	2,164	2,757	2,226	2,867	4,069	5,430	6,429	8,312	11,154	12,939	9,285	10,617
Russia	1,009	1,147	724	1,293	1,730	2,138	2,466	3,556	5,076	6,258	3,978	4,643
Turkey	710	1,060	992	838	1,248	1,797	2,309	2,654	3,277	3,299	2,726	3,102
All others	445	550	510	736	1,091	1,495	1,654	2,101	2,802	3,382	2,580	2,871

Appendix table 6-29

Exports and imports of scientific instruments and measuring equipment goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	4,121	5,101	5,139	5,932	7,170	8,498	9,065	10,237	12,411	14,624	14,064	15,129
Israel	651	688	1,090	955	992	1,194	1,337	1,561	1,646	1,660	1,403	1,524
All others	3,470	4,413	4,049	4,978	6,178	7,304	7,728	8,677	10,764	12,965	12,661	13,606
South and Central America	5,841	7,437	7,476	8,796	8,403	10,166	12,112	15,830	22,359	27,253	22,661	28,312
Brazil	1,420	1,854	1,562	1,831	1,467	1,898	2,425	3,011	4,468	5,921	4,857	6,053
Mexico	1,692	2,476	3,066	3,927	4,152	4,742	5,056	7,183	10,334	12,741	10,156	13,612
All others	2,729	3,107	2,847	3,038	2,784	3,525	4,632	5,636	7,557	8,591	7,648	8,646
Sub-Saharan Africa	1,330	1,363	1,336	1,471	1,851	2,340	2,682	3,152	3,967	4,307	4,120	4,580
Southern Africa	712	726	710	761	943	1,178	1,340	1,558	1,782	1,912	1,617	1,723
All others	617	637	627	710	907	1,162	1,342	1,594	2,185	2,395	2,502	2,857
Other developed	10,544	11,635	13,153	13,861	14,950	17,279	18,752	20,750	23,327	25,206	22,564	28,307
Australia	1,716	1,933	1,897	1,892	2,333	2,831	3,238	3,557	4,060	4,622	4,344	4,834
Canada	4,750	5,599	6,856	7,461	7,088	7,987	8,457	9,079	9,920	10,233	9,095	13,514
All others	4,078	4,104	4,400	4,508	5,528	6,461	7,057	8,114	9,347	10,351	9,125	9,959
Other developing	478	470	463	591	867	1,045	1,231	1,473	1,781	2,127	2,261	2,519
Balance												
United States	-122	2,730	894	2,455	-4,247	-4,420	-523	2,482	-10,165	-9,762	-5,735	-1,405
EU	-2,012	-300	-2,652	-610	5,570	9,649	7,800	6,591	2,549	1,817	1,183	693
EU ROW	-2,012	-300	-2,652	-610	5,570	9,649	7,800	6,591	2,549	1,817	1,183	693
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	-1,299	-725	-1,788	-1,388	-1,342	-1,808	-2,413	-2,057	-1,440	-1,420	-2,011	-2,218
France ROW	-440	-533	-1,084	-808	-699	-678	-1,034	-968	-1,033	-675	-861	-1,000
France intra-EU	-859	-192	-704	-581	-643	-1,130	-1,379	-1,089	-408	-745	-1,150	-1,218
Germany	5,338	5,533	6,803	7,203	11,079	14,642	16,385	18,240	21,029	21,381	16,775	18,519
Germany ROW	507	919	1,091	1,434	4,010	5,807	6,360	7,361	7,792	8,707	7,059	7,998
Germany intra-EU	4,831	4,614	5,713	5,769	7,069	8,834	10,025	10,879	13,237	12,675	9,716	10,520
United Kingdom	506	1,280	627	487	685	132	-78	-447	-543	-677	140	337
United Kingdom ROW	-385	525	-59	152	816	517	238	102	635	508	1,221	1,461
United Kingdom intra-EU	891	756	686	335	-132	-385	-316	-548	-1,178	-1,186	-1,080	-1,124
Japan	15,588	13,102	12,273	11,827	14,981	21,029	17,722	14,406	19,005	20,550	16,898	21,945
China	610	2,656	3,868	2,109	-2,934	-9,075	-12,678	-14,298	-9,900	-11,900	-13,628	-17,601
China ROW	610	2,656	3,868	2,109	-2,934	-9,075	-12,678	-14,298	-9,900	-11,900	-13,628	-17,601
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	-7,117	-8,216	-7,107	-7,464	-5,055	-6,656	209	8,281	23,232	29,296	27,596	31,174
India	-736	-743	-811	-930	-1,082	-1,414	-1,925	-2,318	-2,885	-3,527	-3,668	-4,300
Indonesia	-306	-157	105	45	23	-83	-154	-34	-34	-485	-355	-416
Malaysia	-428	-381	-271	-167	38	185	508	456	2,152	1,476	1,937	686
Philippines	24	-194	-170	-166	-55	-372	-192	-300	-25	172	262	374
Singapore	-1,160	-1,538	-1,184	-1,116	-855	-2,231	-1,457	-2,174	-128	-98	856	790
South Korea	-3,511	-2,955	-1,186	-3,201	-4,733	-4,529	-1,591	3,755	9,271	13,583	17,713	21,118
Taiwan	-560	-2,063	-3,798	-2,284	1,298	1,585	4,925	9,025	14,373	18,066	11,039	13,411
Thailand	-441	-186	208	356	311	204	95	-128	507	108	-187	-489

Appendix table 6-29

Exports and imports of scientific instruments and measuring equipment goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-6,694	-9,766	-7,201	-7,824	-7,855	-9,801	-11,668	-16,736	-23,639	-29,111	-25,536	-33,858
Central Asia/Europe	-1,862	-2,205	-1,484	-1,848	-2,794	-3,810	-4,988	-6,631	-9,026	-10,233	-6,835	-7,859
Russia	-896	-872	-283	-675	-1,182	-1,478	-1,819	-2,752	-4,175	-5,041	-2,990	-3,458
Turkey	-666	-999	-912	-746	-1,130	-1,626	-2,102	-2,402	-2,951	-2,906	-2,339	-2,687
All others	-301	-335	-290	-427	-482	-706	-1,068	-1,477	-1,899	-2,286	-1,506	-1,714
Middle East/North Africa	-3,008	-3,513	-2,976	-3,553	-5,073	-5,484	-5,899	-6,695	-8,065	-10,269	-10,152	-10,702
Israel	39	338	426	925	489	984	854	1,041	1,428	1,358	1,142	1,411
All others	-3,047	-3,851	-3,402	-4,478	-5,562	-6,468	-6,753	-7,736	-9,493	-11,626	-11,295	-12,113
South and Central America	-2,911	-3,864	-2,506	-2,378	-146	-1,259	-1,812	-4,528	-9,060	-13,309	-9,657	-13,460
Brazil	-1,188	-1,598	-1,265	-1,509	-1,180	-1,553	-2,012	-2,450	-3,855	-5,198	-4,218	-5,290
Mexico	461	257	936	1,179	2,524	2,492	3,351	1,917	376	-1,746	6	-1,846
All others	-2,183	-2,524	-2,177	-2,048	-1,490	-2,199	-3,151	-3,995	-5,580	-6,365	-5,444	-6,324
Sub-Saharan Africa	-1,132	-1,144	-1,080	-1,230	-1,525	-1,885	-2,292	-2,757	-3,431	-3,640	-3,409	-3,815
Southern Africa	-628	-609	-592	-623	-741	-940	-1,093	-1,288	-1,439	-1,489	-1,111	-1,175
All others	-504	-535	-488	-608	-784	-945	-1,199	-1,469	-1,992	-2,152	-2,298	-2,639
Other developed	2,597	1,310	1,136	1,535	2,282	3,351	4,202	4,873	6,885	9,474	5,747	3,342
Australia	-1,174	-1,279	-1,040	-840	-1,373	-1,730	-1,953	-2,035	-2,246	-2,543	-2,468	-2,754
Canada	-3,198	-3,554	-4,334	-4,569	-4,403	-4,752	-4,658	-4,806	-5,353	-5,293	-4,947	-8,757
All others	6,968	6,144	6,509	6,943	8,058	9,833	10,812	11,714	14,484	17,310	13,161	14,853
Other developing	-377	-350	-290	-349	-599	-714	-878	-997	-943	-1,134	-1,230	-1,364

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

Science and Engineering Indicators 2012

Appendix table 6-30

Exports and imports of pharmaceutical goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	71,827	83,403	103,304	131,075	202,735	247,927	277,852	310,619	368,978	418,004	429,212	469,651
World excluding intra-EU and intra-China	44,142	52,988	65,540	81,644	116,771	139,502	156,760	179,210	217,136	247,058	260,895	285,639
United States	6,436	8,041	11,075	15,144	18,756	23,341	25,662	28,669	32,962	37,814	42,840	44,557
EU	47,877	55,424	68,404	88,130	147,036	179,612	199,356	217,728	255,111	285,271	283,932	308,664
EU ROW	21,001	25,829	31,317	39,279	61,634	71,697	78,814	86,922	104,024	115,363	116,614	125,804
Intra-EU	26,876	29,595	37,086	48,852	85,402	107,915	120,542	130,806	151,087	169,908	167,318	182,860
France	6,993	8,008	10,010	12,761	18,994	21,959	24,506	26,533	29,765	34,934	35,442	38,396
France ROW	3,301	3,475	4,003	5,717	8,623	10,647	11,672	12,996	14,513	17,435	17,900	19,289
France intra-EU	3,692	4,533	6,007	7,043	10,371	11,313	12,834	13,537	15,252	17,499	17,542	19,107
Germany	10,366	11,728	14,938	17,092	24,322	35,109	39,793	46,716	58,275	68,081	64,855	72,286
Germany ROW	5,219	6,443	8,400	8,278	10,743	13,293	14,088	17,272	21,286	24,427	23,790	25,134
Germany intra-EU	5,147	5,285	6,537	8,814	13,579	21,816	25,705	29,445	36,989	43,654	41,065	47,152
United Kingdom	7,329	9,055	10,566	13,743	20,058	23,169	22,780	25,721	29,696	32,817	32,301	32,908
United Kingdom ROW	3,274	4,441	5,260	6,800	10,239	10,856	10,113	12,130	14,684	15,525	15,452	14,681
United Kingdom intra-EU	4,054	4,614	5,306	6,944	9,819	12,312	12,667	13,592	15,012	17,292	16,848	18,226
Japan	1,911	2,192	2,749	3,141	4,299	4,570	4,587	4,055	4,429	4,616	5,550	6,645
China	2,355	2,388	2,464	2,611	3,511	3,903	4,478	5,293	6,992	9,607	10,208	12,271
China ROW	1,546	1,568	1,787	2,032	2,949	3,394	3,928	4,689	6,237	8,569	9,209	11,119
Intra-China	809	820	678	579	562	510	550	604	754	1,038	999	1,151
Asia-8	1,550	1,990	2,302	2,942	3,948	4,559	6,988	9,878	13,344	14,093	15,339	18,220
India	469	763	894	1,296	2,191	2,464	3,085	3,782	5,778	6,710	7,007	8,807
Indonesia	48	59	92	98	138	143	124	164	224	274	272	336
Malaysia	77	74	75	82	111	130	145	151	192	187	275	296
Philippines	18	29	23	28	22	32	31	34	42	40	49	64
Singapore	488	517	745	901	829	1,028	2,689	4,656	5,763	5,222	5,905	6,584
South Korea	263	341	284	328	418	464	535	629	824	1,038	1,202	1,360
Taiwan	91	102	87	88	96	140	186	237	243	289	312	407
Thailand	96	105	103	120	144	158	193	224	278	332	317	365
All others	11,038	13,026	15,646	18,597	24,640	31,366	36,012	44,035	54,593	64,258	68,229	75,980
Central Asia/Europe	271	523	586	663	1,010	1,319	1,354	1,402	1,878	2,064	2,845	3,088
Russia	40	111	124	143	228	207	215	260	309	341	426	487
Turkey	56	86	90	124	201	263	346	396	449	607	665	699
All others	176	327	372	397	581	849	794	746	1,120	1,115	1,753	1,901
Middle East/North Africa	295	604	827	1,464	1,733	2,165	3,035	4,060	4,814	6,259	6,401	8,226
Israel	165	435	593	1,175	1,378	1,718	2,459	3,408	3,805	5,333	5,470	7,224
All others	130	169	234	288	355	447	576	652	1,009	926	930	1,002
South and Central America	1,095	1,603	1,854	2,237	2,390	3,193	3,187	3,427	3,846	4,663	5,387	5,743
Brazil	183	238	297	302	355	437	553	704	872	1,140	1,339	1,633
Mexico	357	515	667	870	1,027	1,603	1,216	1,222	1,273	1,488	1,627	1,670
All others	555	849	889	1,064	1,008	1,153	1,418	1,500	1,702	2,036	2,421	2,440

Appendix table 6-30

Exports and imports of pharmaceutical goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	81	148	121	158	187	222	237	261	365	416	495	550
Southern Africa	52	73	80	106	127	155	161	167	239	273	325	367
All others	29	75	41	52	60	66	75	94	125	143	170	183
Other developed	9,265	10,108	12,202	14,002	19,239	24,356	28,032	34,716	43,480	50,630	52,831	58,081
Australia	642	823	1,037	1,337	1,488	1,955	2,430	2,949	3,603	3,646	3,766	4,148
Canada	599	938	1,112	1,389	2,352	2,904	3,409	4,655	6,207	6,306	6,613	6,185
All others	8,024	8,347	10,052	11,276	15,398	19,497	22,193	27,112	33,669	40,679	42,451	47,748
Other developing	30	39	56	73	81	112	167	168	210	225	272	292
Imports												
World	71,827	83,403	103,304	131,075	202,735	247,927	277,852	310,619	368,978	418,004	429,212	469,651
World excluding intra-EU and intra-China	44,142	52,988	65,540	81,644	116,771	139,502	156,760	179,210	217,136	247,058	260,895	285,639
United States	5,544	8,737	13,542	18,624	31,516	35,359	39,032	45,833	52,456	58,519	59,825	65,239
EU	37,071	41,116	51,943	67,607	110,157	140,608	156,762	171,972	202,466	230,540	234,162	253,540
EU ROW	10,195	11,521	14,857	18,755	24,754	32,693	36,220	41,166	51,379	60,631	66,844	70,680
Intra-EU	26,876	29,595	37,086	48,852	85,402	107,915	120,542	130,806	151,087	169,908	167,318	182,860
France	5,242	5,425	7,111	8,492	11,592	13,927	15,303	16,271	18,455	20,688	22,647	24,724
France ROW	1,589	1,513	2,218	2,743	3,245	3,966	4,414	4,112	5,538	6,236	7,182	8,135
France intra-EU	3,653	3,912	4,893	5,749	8,347	9,961	10,888	12,158	12,918	14,452	15,465	16,589
Germany	6,220	6,511	7,707	9,861	18,732	23,508	26,589	30,574	37,642	43,290	43,601	47,525
Germany ROW	2,065	2,231	2,457	2,948	3,529	5,008	5,566	6,832	11,148	13,281	15,248	16,058
Germany intra-EU	4,155	4,280	5,250	6,913	15,203	18,500	21,023	23,742	26,494	30,009	28,352	31,466
United Kingdom	4,264	5,039	6,684	9,043	12,870	14,764	15,905	17,443	20,547	20,680	21,164	22,517
United Kingdom ROW	1,130	1,373	1,821	3,196	2,895	3,793	4,844	5,919	6,535	7,199	7,288	7,651
United Kingdom intra-EU	3,134	3,666	4,862	5,847	9,976	10,971	11,061	11,524	14,012	13,480	13,876	14,865
Japan	4,217	3,791	4,344	4,716	5,599	6,540	7,311	7,917	8,472	9,742	12,968	15,156
China	2,408	2,461	2,082	2,064	2,440	2,603	3,065	3,573	4,939	6,686	7,453	8,372
China ROW	1,599	1,640	1,404	1,485	1,878	2,094	2,515	2,969	4,184	5,648	6,454	7,221
Intra-China	809	820	678	579	562	510	550	604	754	1,038	999	1,151
Asia-8	3,225	3,740	3,679	4,614	6,025	6,963	8,182	9,854	11,592	12,992	13,760	15,902
India	383	417	443	531	796	955	1,107	1,503	1,858	2,264	2,451	2,811
Indonesia	210	244	156	209	321	293	295	371	467	517	596	681
Malaysia	277	334	289	361	500	601	634	743	875	965	1,069	1,223
Philippines	281	338	352	392	494	535	553	614	722	834	864	967
Singapore	380	544	546	686	842	910	1,427	1,517	1,763	1,736	1,723	1,965
South Korea	606	664	629	972	1,342	1,549	1,885	2,472	2,982	3,343	3,417	3,924
Taiwan	629	678	813	911	1,083	1,377	1,371	1,532	1,705	1,854	2,010	2,475
Thailand	460	521	452	553	648	744	910	1,102	1,218	1,477	1,631	1,856
All others	19,056	23,736	28,827	35,322	48,230	57,258	64,776	77,364	91,609	102,494	104,172	116,485
Central Asia/Europe	1,535	3,128	2,523	3,928	5,671	7,382	9,252	12,226	14,456	18,717	17,347	19,426
Russia	558	1,644	844	1,796	2,198	2,779	3,988	5,913	6,401	8,711	7,770	9,196
Turkey	479	705	996	1,192	2,036	2,716	2,873	3,171	3,830	4,891	4,633	4,952
All others	499	779	682	939	1,437	1,888	2,391	3,143	4,225	5,115	4,944	5,278

Appendix table 6-30

Exports and imports of pharmaceutical goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	3,584	3,779	4,413	5,039	6,613	7,685	8,240	9,189	11,522	13,686	14,733	15,680
Israel	360	445	545	612	754	845	889	1,036	1,170	1,334	1,367	1,516
All others	3,224	3,333	3,868	4,427	5,859	6,841	7,351	8,153	10,353	12,352	13,366	14,164
South and Central America	3,755	4,801	5,852	7,008	7,436	8,829	9,731	11,772	14,919	16,849	17,293	19,601
Brazil	854	1,328	1,611	1,659	1,755	2,047	2,188	2,792	3,534	4,480	4,662	5,430
Mexico	526	737	1,067	1,449	1,892	2,212	2,486	3,093	3,434	3,954	3,868	4,519
All others	2,375	2,736	3,174	3,900	3,789	4,571	5,057	5,886	7,951	8,415	8,764	9,652
Sub-Saharan Africa	1,673	1,717	1,889	2,186	2,772	3,281	3,841	4,806	6,116	6,360	6,506	7,073
Southern Africa	481	569	646	720	819	1,012	1,304	1,738	2,209	2,139	1,818	1,929
All others	1,193	1,149	1,243	1,466	1,953	2,269	2,537	3,068	3,906	4,221	4,688	5,144
Other developed	6,682	8,075	10,982	12,940	19,866	23,464	26,195	30,400	34,909	35,946	36,624	40,629
Australia	1,132	1,472	1,903	2,127	3,300	4,155	4,820	4,906	5,534	5,866	6,482	6,971
Canada	1,826	2,236	3,169	4,221	5,872	6,618	7,518	8,971	9,686	10,937	11,669	14,077
All others	3,725	4,367	5,910	6,592	10,693	12,691	13,858	16,523	19,689	19,143	18,473	19,582
Other developing	744	796	733	878	1,105	1,234	1,460	1,576	1,913	2,193	2,614	2,864
Balance												
United States	892	-696	-2,467	-3,480	-12,760	-12,018	-13,370	-17,164	-19,495	-20,706	-16,985	-20,682
EU	10,806	14,308	16,460	20,523	36,879	39,004	42,594	45,756	52,645	54,732	49,770	55,124
EU ROW	10,806	14,308	16,460	20,523	36,879	39,004	42,594	45,756	52,645	54,732	49,770	55,124
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	1,752	2,582	2,898	4,269	7,402	8,032	9,203	10,262	11,310	14,247	12,795	13,672
France ROW	1,712	1,962	1,784	2,974	5,377	6,681	7,258	8,884	8,975	11,199	10,718	11,154
France intra-EU	40	621	1,114	1,295	2,024	1,351	1,946	1,379	2,335	3,048	2,077	2,519
Germany	4,146	5,217	7,231	7,231	5,590	11,601	13,204	16,143	20,633	24,791	21,254	24,762
Germany ROW	3,154	4,212	5,943	5,330	7,213	8,285	8,522	10,440	10,138	11,146	8,542	9,076
Germany intra-EU	992	1,005	1,288	1,901	-1,623	3,316	4,682	5,703	10,495	13,645	12,713	15,686
United Kingdom	3,065	4,016	3,882	4,700	7,188	8,404	6,875	8,278	9,149	12,138	11,137	10,391
United Kingdom ROW	2,145	3,068	3,439	3,604	7,344	7,063	5,270	6,211	8,149	8,326	8,165	7,030
United Kingdom intra-EU	920	948	444	1,097	-156	1,341	1,605	2,068	1,000	3,812	2,973	3,361
Japan	-2,306	-1,599	-1,595	-1,575	-1,300	-1,970	-2,724	-3,862	-4,043	-5,125	-7,418	-8,512
China	-53	-73	382	547	1,071	1,300	1,413	1,719	2,053	2,921	2,755	3,899
China ROW	-53	-73	382	547	1,071	1,300	1,413	1,719	2,053	2,921	2,755	3,899
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	-1,675	-1,750	-1,377	-1,672	-2,076	-2,404	-1,194	24	1,752	1,101	1,579	2,318
India	86	346	451	765	1,395	1,509	1,978	2,279	3,920	4,446	4,555	5,996
Indonesia	-162	-185	-64	-111	-183	-150	-170	-206	-244	-243	-324	-345
Malaysia	-200	-260	-214	-279	-389	-471	-489	-592	-683	-778	-793	-927
Philippines	-263	-309	-329	-363	-472	-502	-522	-580	-680	-794	-816	-902
Singapore	109	-27	199	216	-13	118	1,261	3,139	3,999	3,486	4,182	4,619
South Korea	-342	-323	-345	-644	-924	-1,085	-1,350	-1,843	-2,158	-2,305	-2,215	-2,564
Taiwan	-538	-576	-726	-823	-986	-1,237	-1,186	-1,296	-1,463	-1,566	-1,697	-2,067
Thailand	-364	-416	-350	-433	-504	-585	-717	-878	-940	-1,145	-1,313	-1,491

Appendix table 6-30

Exports and imports of pharmaceutical goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-8,018	-10,710	-13,181	-16,725	-23,590	-25,892	-28,765	-33,330	-37,016	-38,236	-35,943	-40,506
Central Asia/Europe	-1,264	-2,605	-1,937	-3,264	-4,661	-6,063	-7,897	-10,824	-12,578	-16,653	-14,502	-16,338
Russia	-518	-1,533	-720	-1,653	-1,969	-2,571	-3,773	-5,653	-6,092	-8,369	-7,343	-8,708
Turkey	-423	-620	-906	-1,069	-1,835	-2,453	-2,528	-2,775	-3,381	-4,284	-3,968	-4,252
All others	-323	-452	-310	-542	-856	-1,039	-1,597	-2,396	-3,105	-3,999	-3,191	-3,377
Middle East/North Africa	-3,289	-3,174	-3,586	-3,575	-4,880	-5,520	-5,205	-5,128	-6,708	-7,427	-8,332	-7,453
Israel	-195	-10	48	563	624	874	1,569	2,373	2,636	3,999	4,104	5,708
All others	-3,094	-3,164	-3,635	-4,138	-5,504	-6,394	-6,775	-7,501	-9,344	-11,426	-12,436	-13,162
South and Central America	-2,660	-3,198	-3,998	-4,771	-5,046	-5,636	-6,544	-8,345	-11,073	-12,185	-11,907	-13,858
Brazil	-671	-1,090	-1,314	-1,357	-1,400	-1,610	-1,635	-2,088	-2,662	-3,340	-3,323	-3,797
Mexico	-168	-222	-400	-579	-865	-608	-1,271	-1,871	-2,161	-2,466	-2,241	-2,849
All others	-1,820	-1,887	-2,284	-2,836	-2,781	-3,417	-3,639	-4,386	-6,250	-6,379	-6,343	-7,212
Sub-Saharan Africa	-1,592	-1,569	-1,767	-2,028	-2,585	-3,059	-3,604	-4,545	-5,751	-5,943	-6,011	-6,523
Southern Africa	-429	-496	-565	-614	-693	-856	-1,143	-1,571	-1,970	-1,865	-1,493	-1,562
All others	-1,164	-1,073	-1,202	-1,414	-1,893	-2,203	-2,462	-2,974	-3,781	-4,078	-4,518	-4,961
Other developed	2,583	2,033	1,220	1,062	-627	892	1,837	4,316	8,571	14,684	16,207	17,451
Australia	-490	-649	-866	-791	-1,812	-2,199	-2,390	-1,957	-1,930	-2,220	-2,716	-2,823
Canada	-1,227	-1,297	-2,057	-2,832	-3,520	-3,714	-4,108	-4,316	-3,479	-4,631	-5,055	-7,892
All others	4,300	3,980	4,143	4,685	4,705	6,805	8,335	10,589	13,980	21,535	23,978	28,165
Other developing	-715	-757	-677	-806	-1,024	-1,122	-1,294	-1,408	-1,703	-1,968	-2,342	-2,573

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

Science and Engineering Indicators 2012

Appendix table 6-31

Exports and imports of aerospace goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Exports												
World	77,238	106,381	126,316	118,876	114,886	129,967	137,693	175,919	199,278	228,570	229,109	230,783
World excluding intra-EU and intra-China	62,353	89,294	101,073	90,042	85,755	96,319	101,919	131,645	152,830	176,155	175,110	176,478
United States	24,612	39,594	48,443	42,783	38,083	40,604	49,169	66,252	75,446	83,484	81,804	79,222
EU	39,749	45,632	53,253	53,217	53,966	64,043	65,466	82,129	88,097	102,768	107,122	109,248
EU ROW	24,900	28,597	28,059	24,445	24,908	30,508	29,792	37,960	41,833	50,415	53,198	55,025
Intra-EU	14,849	17,035	25,194	28,772	29,058	33,535	35,674	44,169	46,263	52,353	53,923	54,222
France	16,453	17,990	20,466	24,503	24,618	28,227	29,729	40,284	41,171	47,741	47,675	49,424
France ROW	11,509	11,996	11,165	13,324	14,049	16,718	16,009	21,752	23,268	27,703	27,504	29,175
France intra-EU	4,944	5,995	9,302	11,179	10,569	11,509	13,720	18,532	17,903	20,038	20,171	20,249
Germany	7,344	8,686	13,504	15,402	16,010	18,514	19,247	23,723	25,717	29,443	32,992	33,149
Germany ROW	1,580	2,128	3,058	4,337	4,330	6,210	5,791	7,477	7,782	9,006	11,551	11,278
Germany intra-EU	5,764	6,558	10,446	11,065	11,679	12,304	13,457	16,246	17,935	20,438	21,441	21,871
United Kingdom	10,354	13,810	12,913	6,431	6,133	7,059	8,331	8,541	9,885	12,379	11,893	11,963
United Kingdom ROW	8,773	11,820	11,162	3,408	2,912	3,291	4,060	3,863	4,998	6,214	5,424	5,566
United Kingdom intra-EU	1,581	1,990	1,751	3,023	3,221	3,768	4,271	4,678	4,887	6,165	6,469	6,397
Japan	609	1,380	1,698	1,790	1,142	1,404	1,680	2,216	2,806	2,774	2,878	3,078
China	270	372	421	520	410	511	581	723	954	1,270	1,343	1,497
China ROW	233	320	372	457	337	398	481	618	769	1,208	1,268	1,415
Intra-China	36	52	49	63	73	113	100	105	185	62	75	82
Asia-8	1,449	2,158	1,273	1,547	1,991	1,788	2,150	3,037	4,034	4,689	4,921	5,764
India	16	95	25	94	70	68	76	128	403	686	705	799
Indonesia	8	39	59	35	89	65	106	214	132	104	207	235
Malaysia	385	500	483	157	137	218	270	344	615	583	687	776
Philippines	5	36	18	37	158	208	132	114	89	88	92	112
Singapore	285	445	320	666	786	640	1,020	1,495	1,707	2,166	2,165	2,612
South Korea	188	457	300	463	438	313	316	452	541	554	621	738
Taiwan	9	31	50	73	123	106	126	135	160	161	137	160
Thailand	553	555	20	24	190	171	104	155	386	346	307	332
All others	6,652	9,231	11,582	18,011	18,649	20,938	18,103	21,061	27,093	32,723	30,215	31,156
Central Asia/Europe	1,363	2,314	1,226	2,295	3,564	3,512	1,004	1,732	2,701	3,844	3,023	3,170
Russia	172	265	576	1,854	3,170	2,988	594	753	782	1,433	829	907
Turkey	10	78	296	242	158	300	150	291	533	349	478	494
All others	1,182	1,970	354	200	236	225	260	688	1,386	2,062	1,716	1,769
Middle East/North Africa	802	953	1,405	1,941	1,746	2,248	2,299	2,783	3,893	6,689	4,367	4,675
Israel	720	812	1,218	1,494	1,479	1,487	1,552	1,683	2,541	2,105	2,440	2,685
All others	83	141	188	447	268	760	747	1,100	1,352	4,584	1,926	1,990
South and Central America	374	857	2,266	3,197	2,575	4,622	3,684	3,779	6,134	7,054	6,854	7,458
Brazil	167	686	1,855	2,910	2,239	4,420	3,311	3,273	5,210	5,386	5,199	5,829
Mexico	146	47	100	72	83	56	52	98	259	571	597	661
All others	61	124	311	215	252	145	321	408	665	1,098	1,058	968

Appendix table 6-31

Exports and imports of aerospace goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Sub-Saharan Africa	106	236	343	179	260	445	871	917	881	1,115	973	994
Southern Africa	84	138	129	155	88	163	647	528	584	498	431	443
All others	22	98	214	24	172	281	224	389	297	617	542	551
Other developed	3,998	4,843	6,335	10,337	10,465	10,047	10,184	11,784	13,381	13,921	14,908	14,765
Australia	485	374	342	357	370	328	382	369	421	521	644	656
Canada	3,009	3,766	5,072	8,747	8,004	7,224	8,146	9,153	10,494	10,385	11,083	10,904
All others	504	703	920	1,233	2,091	2,495	1,655	2,262	2,467	3,015	3,181	3,204
Other developing	10	30	6	62	40	65	62	66	102	100	91	93
Imports												
World	77,238	106,381	126,316	118,876	114,886	129,967	137,693	175,919	199,278	228,570	229,109	230,783
World excluding intra-EU and intra-China	62,353	89,294	101,073	90,042	85,755	96,319	101,919	131,645	152,830	176,155	175,110	176,478
United States	6,336	9,770	14,982	21,091	16,990	20,275	16,472	17,568	21,821	21,502	18,330	18,933
EU	29,514	40,049	56,956	47,985	46,373	54,224	54,383	67,299	76,638	92,213	94,309	91,386
EU ROW	14,666	23,014	31,762	19,214	17,315	20,689	18,709	23,131	30,375	39,859	40,386	37,164
Intra-EU	14,849	17,035	25,194	28,772	29,058	33,535	35,674	44,169	46,263	52,353	53,923	54,222
France	7,589	8,321	12,792	13,050	13,789	15,388	15,564	20,124	23,230	29,338	30,500	29,213
France ROW	1,460	1,621	3,752	2,784	2,256	3,884	3,530	4,673	5,438	9,652	10,814	9,401
France intra-EU	6,129	6,701	9,041	10,267	11,533	11,504	12,034	15,450	17,793	19,687	19,686	19,813
Germany	5,494	7,168	10,211	13,461	11,115	12,353	14,994	20,919	20,196	25,778	26,603	27,049
Germany ROW	1,198	1,887	3,570	3,395	2,458	1,815	2,111	3,568	4,347	6,637	7,078	7,187
Germany intra-EU	4,296	5,281	6,640	10,067	8,657	10,538	12,883	17,351	15,849	19,141	19,525	19,862
United Kingdom	7,744	15,954	18,019	8,409	6,651	6,926	7,828	8,500	9,480	13,565	12,562	12,447
United Kingdom ROW	6,382	14,178	15,442	5,761	3,624	3,549	4,044	4,472	6,277	9,423	8,315	8,175
United Kingdom intra-EU	1,361	1,775	2,577	2,648	3,027	3,377	3,784	4,028	3,202	4,142	4,248	4,273
Japan	3,576	4,703	4,929	3,079	5,331	5,577	5,741	6,967	7,959	7,325	6,358	6,200
China	3,622	4,645	4,463	7,017	5,749	6,171	9,752	13,729	15,669	13,496	14,336	14,440
China ROW	3,586	4,593	4,415	6,954	5,676	6,058	9,652	13,624	15,485	13,435	14,260	14,358
Intra-China	36	52	49	63	73	113	100	105	185	62	75	82
Asia-8	10,408	14,233	8,949	11,874	10,196	11,213	14,967	20,634	24,039	20,352	22,581	25,839
India	369	509	604	708	987	1,137	1,701	4,613	8,102	3,901	5,881	4,989
Indonesia	369	1,187	207	226	228	240	369	398	1,298	1,103	2,177	2,892
Malaysia	1,357	1,477	549	765	402	890	773	1,756	1,509	2,008	2,241	2,732
Philippines	332	1,568	92	119	224	376	354	876	796	1,090	758	851
Singapore	1,787	2,580	2,103	3,875	3,455	3,384	3,832	4,615	4,023	6,303	6,173	7,493
South Korea	2,476	2,532	2,176	3,069	2,223	2,241	2,462	4,294	3,795	2,988	2,787	3,427
Taiwan	2,088	2,382	2,206	1,860	1,448	1,906	3,490	2,274	2,524	1,658	1,201	1,854
Thailand	1,630	1,998	1,013	1,250	1,229	1,039	1,986	1,808	1,992	1,302	1,363	1,603
All others	16,447	20,588	26,890	26,331	26,414	28,864	34,868	48,017	50,626	71,260	69,213	69,833
Central Asia/Europe	965	1,296	2,563	1,498	1,720	3,044	2,707	5,636	4,789	7,705	7,719	8,847
Russia	222	178	611	133	585	986	614	1,628	1,676	3,037	3,196	3,399
Turkey	699	623	1,160	1,058	446	777	1,146	2,729	1,658	2,723	2,159	3,144
All others	44	496	793	307	688	1,280	948	1,279	1,455	1,945	2,364	2,304

Appendix table 6-31

Exports and imports of aerospace goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
Middle East/North Africa	4,357	6,112	9,214	6,997	7,850	6,827	11,984	15,799	15,248	16,005	20,023	19,021
Israel	629	669	1,821	1,126	802	1,408	1,650	1,644	1,970	2,078	1,456	1,345
All others	3,728	5,442	7,393	5,871	7,049	5,419	10,333	14,155	13,278	13,927	18,567	17,676
South and Central America	4,923	3,485	4,572	5,652	4,236	5,575	5,709	10,583	12,550	17,712	17,162	16,276
Brazil	815	1,114	1,695	2,500	1,262	2,203	2,131	3,830	5,770	8,189	6,670	6,362
Mexico	140	271	399	733	866	1,262	1,332	2,264	2,184	2,856	2,373	2,649
All others	3,968	2,101	2,477	2,419	2,109	2,111	2,246	4,489	4,597	6,667	8,118	7,264
Sub-Saharan Africa	999	1,207	1,270	2,074	2,050	2,525	3,272	3,317	3,329	9,450	6,367	6,582
Southern Africa	514	458	364	880	1,151	1,428	1,605	878	926	1,474	1,327	1,315
All others	485	749	906	1,194	899	1,097	1,667	2,439	2,403	7,976	5,041	5,267
Other developed	4,913	8,139	8,671	9,893	9,506	8,761	10,117	11,231	12,608	18,641	15,945	16,962
Australia	909	1,138	1,455	1,236	2,760	2,649	2,345	2,538	2,099	4,524	3,573	3,370
Canada	1,905	4,187	3,945	5,327	3,307	3,563	4,421	4,775	6,398	8,642	6,901	7,594
All others	2,100	2,814	3,271	3,330	3,438	2,548	3,351	3,918	4,111	5,476	5,470	5,998
Other developing	290	349	599	217	1,051	2,132	1,080	1,452	2,101	1,747	1,997	2,146
Balance												
United States	18,277	29,823	33,461	21,692	21,093	20,329	32,697	48,684	53,625	61,982	63,474	60,289
EU	10,235	5,583	-3,703	5,232	7,593	9,819	11,083	14,830	11,458	10,555	12,813	17,862
EU ROW	10,235	5,583	-3,703	5,232	7,593	9,819	11,083	14,830	11,458	10,555	12,813	17,862
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0
France	8,864	9,669	7,674	11,453	10,829	12,840	14,165	20,160	17,940	18,403	17,175	20,210
France ROW	10,049	10,375	7,413	10,540	11,793	12,834	12,479	17,079	17,830	18,052	16,690	19,774
France intra-EU	-1,185	-706	261	913	-965	5	1,686	3,081	110	351	485	436
Germany	1,850	1,519	3,293	1,941	4,895	6,161	4,253	2,804	5,521	3,666	6,389	6,101
Germany ROW	382	241	-512	942	1,873	4,395	3,680	3,909	3,435	2,369	4,473	4,091
Germany intra-EU	1,468	1,277	3,805	999	3,022	1,766	574	-1,105	2,086	1,297	1,915	2,010
United Kingdom	2,611	-2,144	-5,106	-1,978	-518	132	503	41	405	-1,186	-669	-485
United Kingdom ROW	2,391	-2,358	-4,280	-2,354	-712	-259	17	-609	-1,279	-3,209	-2,891	-2,609
United Kingdom intra-EU	220	214	-826	376	194	391	486	650	1,684	2,023	2,221	2,124
Japan	-2,967	-3,323	-3,231	-1,290	-4,189	-4,173	-4,062	-4,751	-5,153	-4,551	-3,480	-3,123
China	-3,353	-4,273	-4,043	-6,497	-5,339	-5,660	-9,171	-13,007	-14,716	-12,227	-12,993	-12,943
China ROW	-3,353	-4,273	-4,043	-6,497	-5,339	-5,660	-9,171	-13,007	-14,716	-12,227	-12,993	-12,943
Intra-China	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	-8,959	-12,075	-7,676	-10,327	-8,205	-9,424	-12,817	-17,597	-20,005	-15,663	-17,661	-20,075
India	-352	-414	-579	-615	-917	-1,069	-1,625	-4,485	-7,699	-3,215	-5,176	-4,190
Indonesia	-362	-1,148	-148	-191	-139	-175	-263	-184	-1,165	-998	-1,970	-2,657
Malaysia	-972	-977	-65	-609	-265	-672	-503	-1,412	-895	-1,425	-1,554	-1,955
Philippines	-327	-1,532	-74	-83	-67	-168	-222	-762	-707	-1,001	-667	-739
Singapore	-1,502	-2,135	-1,784	-3,210	-2,669	-2,744	-2,812	-3,119	-2,316	-4,137	-4,008	-4,881
South Korea	-2,288	-2,075	-1,877	-2,607	-1,784	-1,928	-2,147	-3,842	-3,254	-2,433	-2,165	-2,689
Taiwan	-2,079	-2,351	-2,156	-1,787	-1,325	-1,801	-3,363	-2,140	-2,364	-1,498	-1,065	-1,694
Thailand	-1,077	-1,443	-993	-1,227	-1,039	-868	-1,882	-1,653	-1,606	-956	-1,055	-1,271

Appendix table 6-31

Exports and imports of aerospace goods, by region/country/economy: Selected years, 1995–2010

(Millions of current dollars)

Region/country/economy	1995	1997	1999	2001	2003	2004	2005	2006	2007	2008	2009	2010
All others	-9,794	-11,357	-15,308	-8,319	-7,764	-7,926	-16,765	-26,957	-23,533	-38,537	-38,998	-38,677
Central Asia/Europe	399	1,017	-1,338	797	1,844	468	-1,703	-3,903	-2,088	-3,861	-4,696	-5,677
Russia	-50	88	-35	1,720	2,585	2,001	-19	-875	-895	-1,604	-2,367	-2,492
Turkey	-690	-545	-864	-816	-288	-478	-996	-2,438	-1,125	-2,374	-1,681	-2,650
All others	1,138	1,475	-439	-107	-452	-1,056	-688	-591	-69	117	-648	-535
Middle East/North Africa	-3,555	-5,159	-7,809	-5,056	-6,104	-4,579	-9,685	-13,016	-11,355	-9,316	-15,656	-14,346
Israel	91	143	-603	368	677	79	-99	39	571	27	985	1,341
All others	-3,645	-5,301	-7,206	-5,424	-6,781	-4,658	-9,587	-13,055	-11,926	-9,344	-16,641	-15,687
South and Central America	-4,549	-2,628	-2,306	-2,455	-1,662	-954	-2,026	-6,804	-6,416	-10,657	-10,308	-8,817
Brazil	-648	-428	160	410	978	2,217	1,180	-557	-560	-2,804	-1,471	-533
Mexico	7	-224	-300	-661	-783	-1,205	-1,280	-2,166	-1,925	-2,285	-1,776	-1,989
All others	-3,908	-1,977	-2,166	-2,204	-1,857	-1,966	-1,926	-4,081	-3,931	-5,569	-7,061	-6,296
Sub-Saharan Africa	-893	-971	-927	-1,895	-1,790	-2,080	-2,402	-2,400	-2,448	-8,335	-5,394	-5,588
Southern Africa	-430	-321	-235	-725	-1,063	-1,264	-958	-350	-342	-976	-895	-871
All others	-463	-651	-692	-1,170	-727	-816	-1,444	-2,050	-2,106	-7,359	-4,499	-4,716
Other developed	-916	-3,297	-2,336	444	959	1,286	67	553	773	-4,720	-1,037	-2,197
Australia	-424	-764	-1,112	-879	-2,390	-2,322	-1,963	-2,169	-1,678	-4,003	-2,929	-2,713
Canada	1,104	-421	1,127	3,420	4,696	3,661	3,726	4,378	4,096	1,743	4,181	3,310
All others	-1,596	-2,111	-2,351	-2,097	-1,347	-53	-1,696	-1,656	-1,644	-2,461	-2,289	-2,793
Other developing	-280	-319	-593	-155	-1,012	-2,068	-1,017	-1,386	-1,999	-1,647	-1,906	-2,053

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-32

Regions and countries/economies in world trade data

- United States
- EU
  - Austria
  - Belgium
  - Bulgaria
  - Czech Republic
  - Denmark
  - Estonia
  - Finland
  - France
  - Germany
  - Greece
  - Hungary
  - Ireland
  - Italy
  - Latvia
  - Lithuania
  - Netherlands
  - Poland
  - Portugal
  - Romania
  - Slovakia
  - Slovenia
  - Spain
  - Sweden
  - United Kingdom
- Japan
- China
  - China
  - Hong Kong
- Asia-8
  - India
  - Indonesia
  - Malaysia
  - Philippines
  - Singapore
  - South Korea
  - Taiwan
  - Thailand
- All others
  - Central Asia and Europe
    - Russia
    - Turkey
    - All others
      - Belarus
      - Moldova
      - Ukraine
      - Other CIS Southeast
  - Central Asia and Europe
    - All others (continued)
      - Croatia
      - Other Europe
  - Middle East and North Africa
    - Israel
    - All others
      - Algeria
      - Egypt
      - Libya
      - Morocco
      - Tunisia
      - Saudi Arabia
      - United Arab Emirates
      - Other Arabian Gulf
  - South and Central America
    - Brazil
    - Mexico
    - All others
      - Argentina
      - Venezuela
      - Other East Coast of South America
      - Bolivia
      - Chile
      - Colombia
      - Ecuador
      - Peru
      - Carribean Basin
      - Central America
  - Sub-Saharan Africa
    - South Africa
    - All others
      - Kenya
      - Other East Africa
      - Other Southern Africa
      - Western Africa
  - Other developed
    - Australia
    - Canada
    - All others
      - New Zealand
      - Norway
      - Switzerland
  - Other developing
    - Pakistan
    - Other Indian Subcontinent
    - Vietnam

CIS = Commonwealth of Independent States; EU = European Union

NOTE: Data are not available for EU members Cyprus, Luxembourg, and Malta.

SOURCE: IHS Global Insight, World Trade Service database, special tabulations (15 January 2011).

Science and Engineering Indicators 2012

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010
United States	World	55,888	75,551	64,843	84,935
	EU	18,017	22,928	19,062	14,538
	Japan	6,460	7,551	4,741	3,208
	China	3,034	4,143	5,701	7,517
	Asia-8	7,533	9,440	8,772	8,051
	India	265	481	932	1,026
	Indonesia	268	84	105	124
	Malaysia	742	887	1,245	1,068
	Philippines	366	354	257	475
	Singapore	2,192	2,249	2,446	2,139
	South Korea	1,982	3,315	1,617	1,647
	Taiwan	1,002	1,551	1,138	785
	Thailand	715	519	1,031	786
	Brazil	1,914	2,975	2,129	3,602
	Mexico	2,887	7,707	4,961	17,893
	Russia	236	149	242	217
EU	World	121,670	198,707	288,961	224,234
	Intra-EU	80,568	133,749	194,441	152,292
	EU ROW	41,102	64,958	94,520	71,942
	United States	7,340	12,312	12,291	9,401
	Japan	3,004	4,039	2,387	2,009
	China	3,716	6,306	6,401	6,603
	Asia-8	4,496	7,121	7,742	7,533
	India	344	547	1,226	2,258
	Indonesia	424	282	661	531
	Malaysia	785	933	750	816
	Philippines	204	667	301	274
	Singapore	1,226	1,604	2,192	1,448
	South Korea	416	938	1,251	1,122
	Taiwan	407	1,582	881	578
	Thailand	691	568	481	506
	Brazil	558	1,056	918	894
	Mexico	302	1,516	1,118	757
	Russia	1,807	2,013	9,246	6,411

Import region/ country/economy	Origin	1995	2000	2005	2010
United States	World	95,018	162,544	202,570	235,126
	EU	7,340	12,312	12,291	9,401
	Japan	25,107	27,101	18,075	7,844
	China	7,709	21,138	75,709	115,122
	Asia-8	39,041	59,321	61,065	48,773
	India	93	58	185	606
	Indonesia	889	1,743	1,636	1,237
	Malaysia	7,758	13,410	23,086	11,163
	Philippines	885	3,092	1,514	1,035
	Singapore	12,271	10,883	7,225	3,504
	South Korea	5,724	12,525	11,382	13,006
	Taiwan	8,539	13,552	8,975	10,968
	Thailand	2,881	4,058	7,063	7,253
	Brazil	118	695	826	97
	Mexico	8,486	25,303	26,169	44,356
	Russia	2	5	6	6
EU	World	153,761	241,380	375,593	332,436
	Intra-EU	80,568	133,749	194,441	152,292
	EU ROW	73,193	107,632	181,152	180,144
	United States	18,017	22,928	19,062	14,538
	Japan	17,998	18,927	18,750	12,295
	China	6,635	16,507	71,480	91,915
	Asia-8	23,774	39,656	54,726	46,715
	India	114	74	219	1,240
	Indonesia	410	1,297	1,885	2,158
	Malaysia	3,606	5,952	7,554	6,252
	Philippines	416	2,755	2,970	1,370
	Singapore	7,821	7,762	8,339	3,747
	South Korea	3,200	7,331	17,864	15,392
	Taiwan	6,407	11,492	11,662	10,443
	Thailand	1,800	2,994	4,232	6,113
	Brazil	63	91	499	173
	Mexico	249	1,139	1,602	1,944
	Russia	21	74	87	133

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Japan	World	66,916	69,316	63,847	42,839	Japan	World	24,795	40,135	46,846	47,219
	United States	25,107	27,101	18,075	7,844		United States	6,460	7,551	4,741	3,208
	EU	17,998	18,927	18,750	12,295		EU	3,004	4,039	2,387	2,009
	China	6,550	5,988	11,386	11,443		China	2,426	6,114	23,416	27,901
	Asia-8	10,424	11,451	8,451	5,978		Asia-8	12,487	21,663	15,329	12,796
	India	107	64	126	296		India	4	25	48	56
	Indonesia	334	438	275	204		Indonesia	140	647	606	702
	Malaysia	1,356	953	672	495		Malaysia	2,401	4,520	2,726	2,938
	Philippines	633	1,260	1,064	543		Philippines	722	2,273	1,819	1,181
	Singapore	3,720	2,875	2,176	985		Singapore	3,279	2,459	1,714	1,096
	South Korea	1,494	1,906	1,898	1,668		South Korea	1,461	3,562	3,181	2,965
	Taiwan	1,854	3,115	1,294	720		Taiwan	2,766	6,113	2,474	1,817
	Thailand	928	839	946	1,067		Thailand	1,714	2,064	2,761	2,041
	Brazil	274	256	139	145		Brazil	8	62	7	2
	Mexico	430	695	1,526	1,201		Mexico	88	284	412	331
	Russia	324	71	264	198		Russia	0	0	2	1
China	World	44,248	91,761	318,388	473,644	China	World	40,842	63,690	143,961	181,649
	Intra-China	18,135	29,721	75,987	103,632		Intra-China	18,135	29,721	75,987	103,632
	China ROW	26,113	62,040	242,401	370,012		China ROW	22,707	33,969	67,974	78,017
	United States	7,709	21,138	75,709	115,122		United States	3,034	4,143	5,701	7,517
	EU	6,635	16,507	71,480	91,915		EU	3,716	6,306	6,401	6,603
	Japan	2,426	6,114	23,416	27,901		Japan	6,550	5,988	11,386	11,443
	Asia-8	5,338	11,244	36,106	55,381		Asia-8	8,438	16,417	42,797	49,426
	India	124	332	2,252	9,966		India	6	32	56	326
	Indonesia	109	243	635	4,421		Indonesia	49	227	364	718
	Malaysia	653	1,276	5,744	7,158		Malaysia	1,119	2,790	4,316	5,512
	Philippines	339	432	1,456	1,919		Philippines	145	788	3,089	2,322
	Singapore	2,365	4,325	10,478	10,948		Singapore	3,642	3,869	7,207	3,800
	South Korea	641	2,413	8,280	10,679		South Korea	1,093	3,434	13,798	16,103
	Taiwan	744	1,375	4,377	6,310		Taiwan	2,119	4,116	8,150	7,570
	Thailand	363	847	2,883	3,979		Thailand	266	1,162	5,818	13,075
	Brazil	227	331	1,846	4,849		Brazil	2	2	29	97
	Mexico	279	875	7,539	17,606		Mexico	6	284	331	526
	Russia	117	115	1,293	2,602		Russia	5	33	12	14

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010
Asia-8	World	116,432	187,720	234,956	225,136
	United States	39,041	59,321	61,065	48,773
	EU	23,774	39,656	54,726	46,715
	Japan	12,487	21,663	15,329	12,796
	China	8,438	16,417	42,797	49,426
	Asia-8	18,901	32,829	32,771	31,060
	India	472	1,482	3,877	4,795
	Indonesia	366	455	666	2,824
	Malaysia	2,324	3,393	5,051	3,735
	Philippines	532	1,563	1,505	1,899
	Singapore	10,069	12,105	11,545	8,340
	South Korea	1,190	4,205	2,506	2,571
	Taiwan	1,408	6,498	3,138	2,248
	Thailand	2,541	3,127	4,482	4,648
	Brazil	695	719	1,401	2,467
	Mexico	947	1,757	5,180	6,158
	Russia	1,426	223	923	1,819
India	World	439	636	901	6,307
	United States	93	58	185	606
	EU	114	74	219	1,240
	Japan	4	25	48	56
	China	6	32	56	326
	Asia-8	171	364	105	1,446
	Indonesia	1	1	1	543
	Malaysia	33	155	11	178
	Philippines	1	7	4	59
	Singapore	133	195	70	396
	South Korea	0	1	11	12
	Taiwan	1	2	5	12
	Thailand	2	2	3	245
	Brazil	0	3	12	35
	Mexico	0	2	15	43
	Russia	6	4	15	81

Import region/ country/economy	Origin	1995	2000	2005	2010
Asia-8	World	47,959	73,755	96,365	112,275
	United States	7,533	9,440	8,772	8,051
	EU	4,496	7,121	7,742	7,533
	Japan	10,424	11,451	8,451	5,978
	China	5,338	11,244	36,106	55,381
	Asia-8	18,901	32,829	32,771	31,060
	India	171	364	105	1,446
	Indonesia	767	2,443	2,312	2,395
	Malaysia	5,332	8,547	8,172	7,685
	Philippines	491	2,778	1,683	1,100
	Singapore	4,902	6,864	7,228	7,534
	South Korea	1,371	4,637	5,643	4,496
	Taiwan	2,000	2,900	3,226	2,473
	Thailand	3,868	4,296	4,400	3,931
	Brazil	10	7	54	34
	Mexico	51	228	432	500
	Russia	2	24	133	546
India	World	1,372	3,077	9,003	19,848
	United States	265	481	932	1,026
	EU	344	547	1,226	2,258
	Japan	107	64	126	296
	China	124	332	2,252	9,966
	Asia-8	472	1,482	3,877	4,795
	Indonesia	3	23	47	103
	Malaysia	12	366	406	757
	Philippines	0	2	6	21
	Singapore	369	750	1,693	1,953
	South Korea	39	133	1,331	1,298
	Taiwan	42	106	212	314
	Thailand	8	100	183	349
	Brazil	0	1	2	20
	Mexico	0	4	26	125
	Russia	0	23	127	498

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Indonesia	World	2,468	6,942	7,659	8,609	Indonesia	World	1,532	1,578	2,385	8,235
	United States	889	1,743	1,636	1,237		United States	268	84	105	124
	EU	410	1,297	1,885	2,158		EU	424	282	661	531
	Japan	140	647	606	702		Japan	334	438	275	204
	China	49	227	364	718		China	109	243	635	4,421
	Asia-8	767	2,443	2,312	2,395		Asia-8	366	455	666	2,824
	India	3	23	47	103		India	1	1	1	543
	Malaysia	82	345	285	196		Malaysia	16	23	85	215
	Philippines	2	19	41	254		Philippines	4	0	12	53
	Singapore	611	1,856	1,655	1,383		Singapore	108	51	135	1,202
	South Korea	28	74	170	276		South Korea	179	344	395	656
	Taiwan	6	77	46	24		Taiwan	51	24	15	58
	Thailand	35	49	70	159		Thailand	6	10	23	97
	Brazil	3	25	49	49		Brazil	2	0	0	1
	Mexico	6	53	91	137		Mexico	1	1	2	53
	Russia	5	5	32	84		Russia	0	0	2	7
Malaysia	World	22,493	38,892	50,744	40,462	Malaysia	World	5,963	7,596	13,673	13,695
	United States	7,758	13,410	23,086	11,163		United States	742	887	1,245	1,068
	EU	3,606	5,952	7,554	6,252		EU	785	933	750	816
	Japan	2,401	4,520	2,726	2,938		Japan	1,356	953	672	495
	China	1,119	2,790	4,316	5,512		China	653	1,276	5,744	7,158
	Asia-8	5,332	8,547	8,172	7,685		Asia-8	2,324	3,393	5,051	3,735
	India	12	366	406	757		India	33	155	11	178
	Indonesia	16	23	85	215		Indonesia	82	345	285	196
	Philippines	27	181	168	103		Philippines	133	145	258	101
	Singapore	4,374	5,241	4,939	3,561		Singapore	1,244	1,251	1,399	1,239
	South Korea	155	1,115	678	583		South Korea	109	415	1,072	651
	Taiwan	186	741	356	515		Taiwan	312	488	899	432
	Thailand	562	880	1,542	1,952		Thailand	411	594	1,128	938
	Brazil	117	144	150	256		Brazil	1	5	2	3
	Mexico	253	427	376	626		Mexico	2	11	21	25
	Russia	72	26	100	194		Russia	0	0	0	15

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Philippines	World	2,762	12,242	11,799	7,803	Philippines	World	2,158	4,428	4,657	5,300
	United States	885	3,092	1,514	1,035		United States	366	354	257	475
	EU	416	2,755	2,970	1,370		EU	204	667	301	274
	Japan	722	2,273	1,819	1,181		Japan	633	1,260	1,064	543
	China	145	788	3,089	2,322		China	339	432	1,456	1,919
	Asia-8	491	2,778	1,683	1,100		Asia-8	532	1,563	1,505	1,899
	India	0	2	6	21		India	1	7	4	59
	Indonesia	4	0	12	53		Indonesia	2	19	41	254
	Malaysia	133	145	258	101		Malaysia	27	181	168	103
	Singapore	210	613	620	237		Singapore	258	600	668	813
	South Korea	39	538	204	248		South Korea	141	288	393	211
	Taiwan	90	876	394	181		Taiwan	85	246	94	142
	Thailand	15	603	189	260		Thailand	18	222	138	318
	Brazil	0	38	26	146		Brazil	2	0	1	1
	Mexico	12	76	189	207		Mexico	0	7	11	12
	Russia	0	1	9	40		Russia	0	0	0	0
Singapore	World	36,581	35,615	37,513	24,534	Singapore	World	19,960	23,545	29,470	24,589
	United States	12,271	10,883	7,225	3,504		United States	2,192	2,249	2,446	2,139
	EU	7,821	7,762	8,339	3,747		EU	1,226	1,604	2,192	1,448
	Japan	3,279	2,459	1,714	1,096		Japan	3,720	2,875	2,176	985
	China	3,642	3,869	7,207	3,800		China	2,365	4,325	10,478	10,948
	Asia-8	4,902	6,864	7,228	7,534		Asia-8	10,069	12,105	11,545	8,340
	India	369	750	1,693	1,953		India	133	195	70	396
	Indonesia	108	51	135	1,202		Indonesia	611	1,856	1,655	1,383
	Malaysia	1,244	1,251	1,399	1,239		Malaysia	4,374	5,241	4,939	3,561
	Philippines	258	600	668	813		Philippines	210	613	620	237
	South Korea	594	1,199	464	456		South Korea	566	817	1,166	737
	Taiwan	897	1,782	1,181	620		Taiwan	908	937	975	633
	Thailand	1,433	1,229	1,688	1,251		Thailand	3,267	2,446	2,120	1,393
	Brazil	220	117	309	97		Brazil	2	0	26	5
	Mexico	161	200	1,131	618		Mexico	25	89	153	56
	Russia	761	51	208	76		Russia	1	0	0	1

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
South Korea	World	16,332	35,734	60,463	61,924	South Korea	World	5,987	13,136	15,945	18,252
	United States	5,724	12,525	11,382	13,006		United States	1,982	3,315	1,617	1,647
	EU	3,200	7,331	17,864	15,392		EU	416	938	1,251	1,122
	Japan	1,461	3,562	3,181	2,965		Japan	1,494	1,906	1,898	1,668
	China	1,093	3,434	13,798	16,103		China	641	2,413	8,280	10,679
	Asia-8	1,371	4,637	5,643	4,496		Asia-8	1,190	4,205	2,506	2,571
	India	39	133	1,331	1,298		India	0	1	11	12
	Indonesia	179	344	395	656		Indonesia	28	74	170	276
	Malaysia	109	415	1,072	651		Malaysia	155	1,115	678	583
	Philippines	141	288	393	211		Philippines	39	538	204	248
	Singapore	566	817	1,166	737		Singapore	594	1,199	464	456
	Taiwan	137	2,399	780	588		Taiwan	308	975	546	467
	Thailand	198	241	506	355		Thailand	66	302	433	528
	Brazil	225	216	543	1,201		Brazil	1	1	20	4
	Mexico	335	573	1,769	2,023		Mexico	9	65	88	184
	Russia	581	100	313	828		Russia	0	1	3	21
Taiwan	World	24,294	41,955	39,009	38,408	Taiwan	World	5,536	14,324	11,114	10,962
	United States	8,539	13,552	8,975	10,968		United States	1,002	1,551	1,138	785
	EU	6,407	11,492	11,662	10,443		EU	407	1,582	881	578
	Japan	2,766	6,113	2,474	1,817		Japan	1,854	3,115	1,294	720
	China	2,119	4,116	8,150	7,570		China	744	1,375	4,377	6,310
	Asia-8	2,000	2,900	3,226	2,473		Asia-8	1,408	6,498	3,138	2,248
	India	42	106	212	314		India	1	2	5	12
	Indonesia	51	24	15	58		Indonesia	6	77	46	24
	Malaysia	312	488	899	432		Malaysia	186	741	356	515
	Philippines	85	246	94	142		Philippines	90	876	394	181
	Singapore	908	937	975	633		Singapore	897	1,782	1,181	620
	South Korea	308	975	546	467		South Korea	137	2,399	780	588
	Thailand	295	123	484	427		Thailand	92	622	376	308
	Brazil	75	124	237	390		Brazil	1	0	2	1
	Mexico	153	293	877	1,554		Mexico	1	9	79	20
	Russia	0	22	160	309		Russia	0	0	0	4

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Thailand	World	11,063	15,702	26,867	37,088	Thailand	World	5,452	6,072	10,118	11,394
	United States	2,881	4,058	7,063	7,253		United States	715	519	1,031	786
	EU	1,800	2,994	4,232	6,113		EU	691	568	481	506
	Japan	1,714	2,064	2,761	2,041		Japan	928	839	946	1,067
	China	266	1,162	5,818	13,075		China	363	847	2,883	3,979
	Asia-8	3,868	4,296	4,400	3,931		Asia-8	2,541	3,127	4,482	4,648
	India	8	100	183	349		India	2	2	3	245
	Indonesia	6	10	23	97		Indonesia	35	49	70	159
	Malaysia	411	594	1,128	938		Malaysia	562	880	1,542	1,952
	Philippines	18	222	138	318		Philippines	15	603	189	260
	Singapore	3,267	2,446	2,120	1,393		Singapore	1,433	1,229	1,688	1,251
	South Korea	66	302	433	528		South Korea	198	241	506	355
	Taiwan	92	622	376	308		Taiwan	295	123	484	427
	Brazil	55	53	75	293		Brazil	1	0	1	0
	Mexico	25	133	733	950		Mexico	12	42	53	25
	Russia	0	16	87	207		Russia	0	0	0	0
Brazil	World	379	2,037	3,628	2,557	Brazil	World	4,017	5,622	6,709	12,497
	United States	118	695	826	97		United States	1,914	2,975	2,129	3,602
	EU	63	91	499	173		EU	558	1,056	918	894
	Japan	8	62	7	2		Japan	274	256	139	145
	China	2	2	29	97		China	227	331	1,846	4,849
	Asia-8	10	7	54	34		Asia-8	695	719	1,401	2,467
	India	0	1	2	20		India	0	3	12	35
	Indonesia	2	0	0	1		Indonesia	3	25	49	49
	Malaysia	1	5	2	3		Malaysia	117	144	150	256
	Philippines	2	0	1	1		Philippines	0	38	26	146
	Singapore	2	0	26	5		Singapore	220	117	309	97
	South Korea	1	1	20	4		South Korea	225	216	543	1,201
	Taiwan	1	0	2	1		Taiwan	75	124	237	390
	Thailand	1	0	1	0		Thailand	55	53	75	293
	Mexico	8	25	69	124		Mexico	109	89	130	282
	Russia	0	0	1	0		Russia	0	0	0	4

Appendix table 6-33

Trade in communications and computer and office machinery goods, by selected region/country/economy of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Mexico	World	9,754	30,037	34,054	54,006	Mexico	World	5,058	12,870	20,740	44,167
	United States	8,486	25,303	26,169	44,356		United States	2,887	7,707	4,961	17,893
	EU	249	1,139	1,602	1,944		EU	302	1,516	1,118	757
	Japan	88	284	412	331		Japan	430	695	1,526	1,201
	China	6	284	331	526		China	279	875	7,539	17,606
	Asia-8	51	228	432	500		Asia-8	947	1,757	5,180	6,158
	India	0	4	26	125		India	0	2	15	43
	Indonesia	1	1	2	53		Indonesia	6	53	91	137
	Malaysia	2	11	21	25		Malaysia	253	427	376	626
	Philippines	0	7	11	12		Philippines	12	76	189	207
	Singapore	25	89	153	56		Singapore	161	200	1,131	618
	South Korea	9	65	88	184		South Korea	335	573	1,769	2,023
	Taiwan	1	9	79	20		Taiwan	153	293	877	1,554
	Thailand	12	42	53	25		Thailand	25	133	733	950
	Brazil	109	89	130	282		Brazil	8	25	69	124
	Russia	0	1	8	26		Russia	0	0	2	1
Russia	World	90	258	366	1,068	Russia	World	3,984	2,796	12,375	11,729
	United States	2	5	6	6		United States	236	149	242	217
	EU	21	74	87	133		EU	1,807	2,013	9,246	6,411
	Japan	0	0	2	1		Japan	324	71	264	198
	China	5	33	12	14		China	117	115	1,293	2,602
	Asia-8	2	24	133	546		Asia-8	1,426	223	923	1,819
	India	0	23	127	498		India	6	4	15	81
	Indonesia	0	0	2	7		Indonesia	5	5	32	84
	Malaysia	0	0	0	15		Malaysia	72	26	100	194
	Philippines	0	0	0	0		Philippines	0	1	9	40
	Singapore	1	0	0	1		Singapore	761	51	208	76
	South Korea	0	1	3	21		South Korea	581	100	313	828
	Taiwan	0	0	0	4		Taiwan	0	22	160	309
	Thailand	0	0	0	0		Thailand	0	16	87	207
	Brazil	0	0	0	4		Brazil	0	0	1	0
	Mexico	0	0	2	1		Mexico	0	1	8	26

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Luxembourg, and Malta. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
United States	World	24,859	47,761	43,224	47,259	United States	World	40,596	49,210	26,545	29,596
	EU	3,316	5,224	4,589	4,019		EU	3,698	3,326	2,514	2,011
	Japan	2,133	3,376	1,913	1,356		Japan	11,418	8,797	3,070	3,563
	China	1,420	2,655	7,000	9,456		China	1,328	1,958	2,031	3,898
	Asia-8	12,291	24,362	22,003	19,300		Asia-8	21,172	29,712	15,020	15,173
	India	75	61	113	194		India	18	26	39	67
	Indonesia	71	79	35	64		Indonesia	131	281	184	167
	Malaysia	3,807	5,053	5,066	5,849		Malaysia	5,146	6,336	3,449	3,968
	Philippines	1,610	4,700	3,915	2,527		Philippines	2,008	5,531	2,391	1,706
	Singapore	2,383	3,000	2,831	3,101		Singapore	2,780	3,338	1,494	1,583
	South Korea	1,710	5,478	4,682	2,704		South Korea	7,108	7,608	3,072	3,007
	Taiwan	1,722	3,884	3,814	3,324		Taiwan	3,085	5,176	3,720	3,736
	Thailand	913	2,107	1,547	1,536		Thailand	897	1,416	671	938
	Brazil	259	710	739	1,329		Brazil	13	29	4	4
	Mexico	2,461	6,684	2,871	7,070		Mexico	957	1,829	1,166	1,099
	Russia	7	12	27	62		Russia	5	13	9	17
EU	World	32,895	50,719	52,136	42,526	EU	World	37,484	59,430	63,098	60,596
	Intra-EU	17,824	25,728	29,200	23,891		Intra-EU	17,824	25,728	29,200	23,891
	EU ROW	15,071	24,991	22,935	18,636		EU ROW	19,660	33,702	33,898	36,705
	United States	3,698	3,326	2,514	2,011		United States	3,316	5,224	4,589	4,019
	Japan	371	896	565	438		Japan	4,952	5,611	4,848	3,956
	China	629	1,796	3,826	3,824		China	593	1,511	2,745	10,034
	Asia-8	4,755	9,112	10,222	7,905		Asia-8	7,035	13,858	17,934	15,778
	India	65	74	131	409		India	13	34	142	561
	Indonesia	22	55	62	82		Indonesia	6	100	73	105
	Malaysia	1,420	2,189	3,581	2,983		Malaysia	1,964	3,083	4,485	3,916
	Philippines	439	1,198	1,203	788		Philippines	521	1,410	2,882	2,056
	Singapore	1,141	2,329	2,555	1,492		Singapore	1,413	3,082	3,723	2,230
	South Korea	609	1,395	780	581		South Korea	1,637	3,070	2,793	2,533
	Taiwan	862	1,580	1,483	1,137		Taiwan	1,148	2,363	3,040	3,575
	Thailand	198	291	427	434		Thailand	332	715	796	802
	Brazil	64	173	378	201		Brazil	39	74	27	11
	Mexico	58	135	175	106		Mexico	55	116	190	143
	Russia	21	109	517	348		Russia	6	21	37	37

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Japan	World	43,328	45,206	41,324	45,086	Japan	World	8,803	17,488	18,847	19,427
	United States	11,418	8,797	3,070	3,563		United States	2,133	3,376	1,913	1,356
	EU	4,952	5,611	4,848	3,956		EU	371	896	565	438
	China	3,951	7,416	13,006	16,154		China	406	882	1,851	2,507
	Asia-8	20,916	21,398	19,239	19,998		Asia-8	5,849	11,888	14,185	14,432
	India	70	43	60	298		India	1	4	2	8
	Indonesia	188	785	478	359		Indonesia	16	226	217	182
	Malaysia	3,842	3,582	2,332	2,348		Malaysia	438	2,052	1,573	1,099
	Philippines	1,284	2,423	1,789	1,199		Philippines	212	1,667	1,594	636
	Singapore	5,671	4,839	3,466	2,869		Singapore	762	1,332	1,078	1,723
	South Korea	3,305	4,270	4,406	3,057		South Korea	3,280	2,876	3,576	3,257
	Taiwan	5,023	3,501	4,426	7,381		Taiwan	934	3,313	5,364	6,870
	Thailand	1,533	1,955	2,283	2,488		Thailand	206	420	780	657
	Brazil	211	169	79	47		Brazil	1	1	1	1
	Mexico	654	546	406	295		Mexico	12	223	33	24
	Russia	0	0	2	3		Russia	1	0	1	2
China	World	8,281	19,054	53,088	107,647	China	World	15,172	39,059	121,855	216,283
	Intra-China	2,091	8,134	29,571	64,647		Intra-China	2,091	8,134	29,571	64,647
	China ROW	6,190	10,920	23,516	43,000		China ROW	13,081	30,925	92,284	151,636
	United States	1,328	1,958	2,031	3,898		United States	1,420	2,655	7,000	9,456
	EU	593	1,511	2,745	10,034		EU	629	1,796	3,826	3,824
	Japan	406	882	1,851	2,507		Japan	3,951	7,416	13,006	16,154
	Asia-8	3,397	5,776	14,548	22,507		Asia-8	6,883	18,752	66,260	116,762
	India	83	106	194	788		India	10	8	41	100
	Indonesia	26	29	100	205		Indonesia	9	41	77	192
	Malaysia	127	436	1,873	2,786		Malaysia	834	1,229	4,524	15,680
	Philippines	119	216	918	1,202		Philippines	281	997	4,182	4,639
	Singapore	903	1,131	3,516	4,743		Singapore	1,791	3,711	12,971	15,813
	South Korea	894	1,861	3,401	6,314		South Korea	1,624	3,901	11,526	17,660
	Taiwan	1,142	1,756	4,082	5,934		Taiwan	2,166	7,832	29,819	56,768
	Thailand	104	241	463	535		Thailand	169	1,033	3,119	5,911
	Brazil	22	127	345	1,082		Brazil	4	8	14	25
	Mexico	18	139	991	1,190		Mexico	21	6	3	365
	Russia	3	6	97	58		Russia	43	33	49	42

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010
Asia-8	World	65,271	126,085	182,423	247,650
	United States	21,172	29,712	15,020	15,173
	EU	7,035	13,858	17,934	15,778
	Japan	5,849	11,888	14,185	14,432
	China	6,883	18,752	66,260	116,762
	Asia-8	21,398	45,683	60,188	75,392
	India	202	341	884	2,397
	Indonesia	257	182	224	1,038
	Malaysia	4,449	8,908	9,310	6,870
	Philippines	510	3,792	4,513	4,978
	Singapore	8,377	14,254	20,129	28,172
	South Korea	1,686	5,641	9,541	15,051
	Taiwan	3,997	9,446	11,789	11,940
	Thailand	1,919	3,118	3,799	4,946
	Brazil	338	800	1,857	2,151
	Mexico	344	973	2,970	2,614
	Russia	5	9	146	123
India	World	73	141	350	911
	United States	18	26	39	67
	EU	13	34	142	561
	Japan	1	4	2	8
	China	10	8	41	100
	Asia-8	23	50	42	77
	Indonesia	7	0	1	4
	Malaysia	3	34	5	8
	Philippines	0	1	3	1
	Singapore	7	4	21	39
	South Korea	2	8	3	11
	Taiwan	2	0	3	10
	Thailand	0	2	4	4
	Brazil	0	1	2	1
	Mexico	0	0	4	6
	Russia	0	1	11	2

Import region/ country/economy	Origin	1995	2000	2005	2010
Asia-8	World	63,402	109,985	128,386	148,059
	United States	12,291	24,362	22,003	19,300
	EU	4,755	9,112	10,222	7,905
	Japan	20,916	21,398	19,239	19,998
	China	3,397	5,776	14,548	22,507
	Asia-8	21,398	45,683	60,188	75,392
	India	23	50	42	77
	Indonesia	92	364	491	471
	Malaysia	4,705	9,857	9,319	10,169
	Philippines	891	6,587	7,726	8,280
	Singapore	5,877	10,256	13,594	20,095
	South Korea	5,665	8,679	9,607	10,473
	Taiwan	2,536	7,510	16,564	21,967
	Thailand	1,609	2,380	2,845	3,861
	Brazil	2	30	11	10
	Mexico	26	204	152	183
	Russia	6	8	22	29
India	World	533	644	1,450	4,214
	United States	75	61	113	194
	EU	65	74	131	409
	Japan	70	43	60	298
	China	83	106	194	788
	Asia-8	202	341	884	2,397
	Indonesia	0	2	4	70
	Malaysia	9	41	356	203
	Philippines	1	11	7	31
	Singapore	129	219	344	1,489
	South Korea	33	30	107	113
	Taiwan	19	34	42	296
	Thailand	10	5	24	196
	Brazil	0	0	3	1
	Mexico	0	0	3	7
	Russia	0	1	1	9

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Indonesia	World	258	1,050	1,121	1,222	Indonesia	World	571	1,152	911	1,756
	United States	131	281	184	167		United States	71	79	35	64
	EU	6	100	73	105		EU	22	55	62	82
	Japan	16	226	217	182		Japan	188	785	478	359
	China	9	41	77	192		China	26	29	100	205
	Asia-8	92	364	491	471		Asia-8	257	182	224	1,038
	India	0	2	4	70		India	7	0	1	4
	Malaysia	3	61	89	20		Malaysia	77	19	24	102
	Philippines	2	39	14	8		Philippines	0	9	21	145
	Singapore	76	131	311	315		Singapore	76	15	16	557
	South Korea	2	46	30	24		South Korea	51	133	140	105
	Taiwan	4	37	16	9		Taiwan	29	2	5	102
	Thailand	5	48	26	24		Thailand	17	4	16	24
	Brazil	0	3	4	18		Brazil	0	0	0	0
	Mexico	1	6	3	20		Mexico	0	0	0	0
	Russia	0	1	4	0		Russia	0	0	0	0
Malaysia	World	13,617	23,806	24,536	36,374	Malaysia	World	13,665	22,012	22,447	21,463
	United States	5,146	6,336	3,449	3,968		United States	3,807	5,053	5,066	5,849
	EU	1,964	3,083	4,485	3,916		EU	1,420	2,189	3,581	2,983
	Japan	438	2,052	1,573	1,099		Japan	3,842	3,582	2,332	2,348
	China	834	1,229	4,524	15,680		China	127	436	1,873	2,786
	Asia-8	4,705	9,857	9,319	10,169		Asia-8	4,449	8,908	9,310	6,870
	India	9	41	356	203		India	3	34	5	8
	Indonesia	77	19	24	102		Indonesia	3	61	89	20
	Philippines	110	641	477	360		Philippines	171	1,564	2,431	626
	Singapore	3,085	5,770	5,404	5,878		Singapore	2,291	3,604	3,113	3,088
	South Korea	414	1,438	1,196	1,451		South Korea	1,177	1,619	867	609
	Taiwan	728	1,261	1,130	1,489		Taiwan	547	1,416	2,330	2,036
	Thailand	282	686	733	687		Thailand	257	611	476	484
	Brazil	58	198	243	528		Brazil	0	5	2	0
	Mexico	29	60	62	27		Mexico	2	45	24	12
	Russia	1	2	45	46		Russia	0	0	0	1

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Philippines	World	4,086	16,973	20,262	18,435	Philippines	World	3,971	12,838	12,507	10,818
	United States	2,008	5,531	2,391	1,706		United States	1,610	4,700	3,915	2,527
	EU	521	1,410	2,882	2,056		EU	439	1,198	1,203	788
	Japan	212	1,667	1,594	636		Japan	1,284	2,423	1,789	1,199
	China	281	997	4,182	4,639		China	119	216	918	1,202
	Asia-8	891	6,587	7,726	8,280		Asia-8	510	3,792	4,513	4,978
	India	1	11	7	31		India	0	1	3	1
	Indonesia	0	9	21	145		Indonesia	2	39	14	8
	Malaysia	171	1,564	2,431	626		Malaysia	110	641	477	360
	Singapore	533	2,284	3,084	5,237		Singapore	194	650	793	1,284
	South Korea	121	821	1,046	1,252		South Korea	179	1,434	1,128	1,322
	Taiwan	63	1,663	992	890		Taiwan	23	891	1,850	1,605
	Thailand	2	234	145	101		Thailand	3	136	247	398
	Brazil	0	62	214	164		Brazil	0	0	0	0
	Mexico	13	118	884	684		Mexico	0	3	1	4
	Russia	0	0	3	5		Russia	0	0	1	2
Singapore	World	13,165	22,964	34,622	43,392	Singapore	World	18,720	26,290	33,550	41,405
	United States	2,780	3,338	1,494	1,583		United States	2,383	3,000	2,831	3,101
	EU	1,413	3,082	3,723	2,230		EU	1,141	2,329	2,555	1,492
	Japan	762	1,332	1,078	1,723		Japan	5,671	4,839	3,466	2,869
	China	1,791	3,711	12,971	15,813		China	903	1,131	3,516	4,743
	Asia-8	5,877	10,256	13,594	20,095		Asia-8	8,377	14,254	20,129	28,172
	India	129	219	344	1,489		India	7	4	21	39
	Indonesia	76	15	16	557		Indonesia	76	131	311	315
	Malaysia	2,291	3,604	3,113	3,088		Malaysia	3,085	5,770	5,404	5,878
	Philippines	194	650	793	1,284		Philippines	533	2,284	3,084	5,237
	South Korea	486	972	3,058	5,831		South Korea	2,660	2,695	2,636	4,457
	Taiwan	1,648	3,604	4,601	5,449		Taiwan	1,003	2,724	7,735	10,452
	Thailand	1,054	1,193	1,669	2,397		Thailand	1,013	645	937	1,794
	Brazil	44	49	222	194		Brazil	1	21	3	1
	Mexico	35	94	608	441		Mexico	12	80	79	124
	Russia	3	2	7	35		Russia	4	1	2	4

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
South Korea	World	20,461	27,642	32,083	38,881	South Korea	World	8,388	18,927	23,155	28,389
	United States	7,108	7,608	3,072	3,007		United States	1,710	5,478	4,682	2,704
	EU	1,637	3,070	2,793	2,533		EU	609	1,395	780	581
	Japan	3,280	2,876	3,576	3,257		Japan	3,305	4,270	4,406	3,057
	China	1,624	3,901	11,526	17,660		China	894	1,861	3,401	6,314
	Asia-8	5,665	8,679	9,607	10,473		Asia-8	1,686	5,641	9,541	15,051
	India	33	30	107	113		India	2	8	3	11
	Indonesia	51	133	140	105		Indonesia	2	46	30	24
	Malaysia	1,177	1,619	867	609		Malaysia	414	1,438	1,196	1,451
	Philippines	179	1,434	1,128	1,322		Philippines	121	821	1,046	1,252
	Singapore	2,660	2,695	2,636	4,457		Singapore	486	972	3,058	5,831
	Taiwan	1,316	2,262	4,387	3,679		Taiwan	587	1,995	3,722	5,931
	Thailand	249	506	342	189		Thailand	73	361	486	551
	Brazil	143	299	703	548		Brazil	0	3	2	5
	Mexico	204	401	185	117		Mexico	9	38	30	31
	Russia	1	2	30	3		Russia	1	1	6	4
Taiwan	World	10,297	27,307	60,665	95,622	Taiwan	World	12,851	20,305	25,742	29,974
	United States	3,085	5,176	3,720	3,736		United States	1,722	3,884	3,814	3,324
	EU	1,148	2,363	3,040	3,575		EU	862	1,580	1,483	1,137
	Japan	934	3,313	5,364	6,870		Japan	5,023	3,501	4,426	7,381
	China	2,166	7,832	29,819	56,768		China	1,142	1,756	4,082	5,934
	Asia-8	2,536	7,510	16,564	21,967		Asia-8	3,997	9,446	11,789	11,940
	India	19	34	42	296		India	2	0	3	10
	Indonesia	29	2	5	102		Indonesia	4	37	16	9
	Malaysia	547	1,416	2,330	2,036		Malaysia	728	1,261	1,130	1,489
	Philippines	23	891	1,850	1,605		Philippines	63	1,663	992	890
	Singapore	1,003	2,724	7,735	10,452		Singapore	1,648	3,604	4,601	5,449
	South Korea	587	1,995	3,722	5,931		South Korea	1,316	2,262	4,387	3,679
	Thailand	328	449	879	1,545		Thailand	235	619	659	415
	Brazil	89	155	414	632		Brazil	1	0	0	0
	Mexico	54	251	965	1,033		Mexico	0	2	0	0
	Russia	0	1	24	22		Russia	0	5	12	9

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Thailand	World	3,314	6,202	8,784	12,814	Thailand	World	4,703	7,817	8,625	10,040
	United States	897	1,416	671	938		United States	913	2,107	1,547	1,536
	EU	332	715	796	802		EU	198	291	427	434
	Japan	206	420	780	657		Japan	1,533	1,955	2,283	2,488
	China	169	1,033	3,119	5,911		China	104	241	463	535
	Asia-8	1,609	2,380	2,845	3,861		Asia-8	1,919	3,118	3,799	4,946
	India	10	5	24	196		India	0	2	4	4
	Indonesia	17	4	16	24		Indonesia	5	48	26	24
	Malaysia	257	611	476	484		Malaysia	282	686	733	687
	Philippines	3	136	247	398		Philippines	2	234	145	101
	Singapore	1,013	645	937	1,794		Singapore	1,054	1,193	1,669	2,397
	South Korea	73	361	486	551		South Korea	249	506	342	189
	Taiwan	235	619	659	415		Taiwan	328	449	879	1,545
	Brazil	4	33	53	65		Brazil	0	0	0	0
	Mexico	8	42	260	285		Mexico	2	36	14	5
	Russia	0	0	22	10		Russia	0	0	0	0
Brazil	World	92	220	144	124	Brazil	World	906	2,030	3,640	5,210
	United States	13	29	4	4		United States	259	710	739	1,329
	EU	39	74	27	11		EU	64	173	378	201
	Japan	1	1	1	1		Japan	211	169	79	47
	China	4	8	14	25		China	22	127	345	1,082
	Asia-8	2	30	11	10		Asia-8	338	800	1,857	2,151
	India	0	0	3	1		India	0	1	2	1
	Indonesia	0	0	0	0		Indonesia	0	3	4	18
	Malaysia	0	5	2	0		Malaysia	58	198	243	528
	Philippines	0	0	0	0		Philippines	0	62	214	164
	Singapore	1	21	3	1		Singapore	44	49	222	194
	South Korea	0	3	2	5		South Korea	143	299	703	548
	Taiwan	1	0	0	0		Taiwan	89	155	414	632
	Thailand	0	0	0	0		Thailand	4	33	53	65
	Mexico	10	39	26	6		Mexico	5	16	120	25
	Russia	0	0	0	0		Russia	0	0	0	0

Appendix table 6-34

Trade in semiconductors, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Mexico	World	1,117	2,465	1,847	1,974	Mexico	World	3,567	8,624	8,320	12,776
	United States	957	1,829	1,166	1,099		United States	2,461	6,684	2,871	7,070
	EU	55	116	190	143		EU	58	135	175	106
	Japan	12	223	33	24		Japan	654	546	406	295
	China	21	6	3	365		China	18	139	991	1,190
	Asia-8	26	204	152	183		Asia-8	344	973	2,970	2,614
	India	0	0	3	7		India	0	0	4	6
	Indonesia	0	0	0	0		Indonesia	1	6	3	20
	Malaysia	2	45	24	12		Malaysia	29	60	62	27
	Philippines	0	3	1	4		Philippines	13	118	884	684
	Singapore	12	80	79	124		Singapore	35	94	608	441
	South Korea	9	38	30	31		South Korea	204	401	185	117
	Taiwan	0	2	0	0		Taiwan	54	251	965	1,033
	Thailand	2	36	14	5		Thailand	8	42	260	285
	Brazil	5	16	120	25		Brazil	10	39	26	6
	Russia	0	0	0	1		Russia	0	0	1	1
Russia	World	64	100	143	217	Russia	World	39	157	816	644
	United States	5	13	9	17		United States	7	12	27	62
	EU	6	21	37	37		EU	21	109	517	348
	Japan	1	0	1	2		Japan	0	0	2	3
	China	43	33	49	42		China	3	6	97	58
	Asia-8	6	8	22	29		Asia-8	5	9	146	123
	India	0	1	1	9		India	0	1	11	2
	Indonesia	0	0	0	0		Indonesia	0	1	4	0
	Malaysia	0	0	0	1		Malaysia	1	2	45	46
	Philippines	0	0	1	2		Philippines	0	0	3	5
	Singapore	4	1	2	4		Singapore	3	2	7	35
	South Korea	1	1	6	4		South Korea	1	2	30	3
	Taiwan	0	5	12	9		Taiwan	0	1	24	22
	Thailand	0	0	0	0		Thailand	0	0	22	10
	Brazil	0	0	0	0		Brazil	0	0	0	0
	Mexico	0	0	1	1		Mexico	0	0	0	1

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Luxembourg, and Malta. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010
United States	World	24,612	39,916	49,169	79,222
	EU	8,055	15,982	14,077	25,762
	Japan	2,847	3,360	5,244	5,108
	China	1,591	1,945	4,647	7,169
	Asia-8	6,170	5,408	8,412	12,024
	India	162	307	665	1,277
	Indonesia	85	39	221	1,727
	Malaysia	230	262	255	902
	Philippines	167	123	43	306
	Singapore	1,255	830	2,655	3,804
	South Korea	2,187	1,907	1,902	2,429
	Taiwan	1,711	1,408	2,337	1,298
	Thailand	373	532	333	281
	Brazil	414	677	1,037	4,412
	Mexico	93	271	801	1,473
	Russia	185	202	144	276
EU	World	39,749	49,122	65,466	109,248
	Intra-EU	14,849	26,420	35,674	54,222
	EU ROW	24,900	22,702	29,792	55,025
	United States	3,635	9,668	6,214	9,302
	Japan	659	535	272	452
	China	1,781	1,075	4,285	5,589
	Asia-8	3,324	1,439	4,730	10,199
	India	125	132	451	2,963
	Indonesia	228	90	103	907
	Malaysia	1,057	29	328	1,385
	Philippines	144	30	246	266
	Singapore	338	183	900	2,775
	South Korea	235	800	453	872
	Taiwan	296	34	1,046	158
	Thailand	902	140	1,201	874
	Brazil	378	923	937	1,504
	Mexico	46	95	522	835
	Russia	32	86	359	2,748

Import region/ country/economy	Origin	1995	2000	2005	2010
United States	World	6,336	18,160	16,472	18,933
	EU	3,635	9,668	6,214	9,302
	Japan	479	1,187	1,064	2,092
	China	24	36	87	278
	Asia-8	83	238	364	586
	India	0	1	7	28
	Indonesia	0	1	2	6
	Malaysia	0	1	21	41
	Philippines	1	16	16	7
	Singapore	41	59	81	104
	South Korea	40	134	186	338
	Taiwan	0	25	52	61
	Thailand	1	1	1	2
	Brazil	88	1,474	1,806	697
	Mexico	18	63	38	288
	Russia	4	37	14	95
EU	World	29,514	47,101	54,383	91,386
	Intra-EU	14,849	26,420	35,674	54,222
	EU ROW	14,666	20,681	18,709	37,164
	United States	8,055	15,982	14,077	25,762
	Japan	41	65	156	342
	China	74	47	78	493
	Asia-8	326	296	460	1,391
	India	7	17	32	347
	Indonesia	5	4	28	72
	Malaysia	216	104	91	147
	Philippines	1	3	85	54
	Singapore	34	72	95	473
	South Korea	55	79	80	129
	Taiwan	1	4	19	39
	Thailand	7	14	30	129
	Brazil	45	987	560	1,781
	Mexico	105	1	9	209
	Russia	8	84	47	188

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Japan	World	609	1,526	1,680	3,078	Japan	World	3,576	4,313	5,741	6,200
	United States	479	1,187	1,064	2,092		United States	2,847	3,360	5,244	5,108
	EU	41	65	156	342		EU	659	535	272	452
	China	10	15	4	8		China	1	1	10	10
	Asia-8	14	13	23	49		Asia-8	7	200	11	104
	India	3	1	0	2		India	0	0	0	47
	Indonesia	0	0	0	0		Indonesia	0	0	0	0
	Malaysia	1	1	1	1		Malaysia	0	0	0	3
	Philippines	1	0	0	0		Philippines	0	0	0	1
	Singapore	2	8	9	32		Singapore	3	9	7	10
	South Korea	6	1	7	8		South Korea	2	189	2	31
	Taiwan	1	1	4	2		Taiwan	1	1	1	9
	Thailand	0	1	2	3		Thailand	0	0	0	4
	Brazil	0	0	61	80		Brazil	0	161	0	216
	Mexico	0	1	0	0		Mexico	0	0	0	0
	Russia	0	0	0	0		Russia	0	0	0	0
China	World	270	404	581	1,497	China	World	3,622	3,429	9,752	14,440
	Intra-China	36	56	100	82		Intra-China	36	56	100	82
	China ROW	233	348	481	1,415		China ROW	3,586	3,373	9,652	14,358
	United States	24	36	87	278		United States	1,591	1,945	4,647	7,169
	EU	74	47	78	493		EU	1,781	1,075	4,285	5,589
	Japan	1	1	10	10		Japan	10	15	4	8
	Asia-8	23	169	110	298		Asia-8	45	79	272	713
	India	0	0	1	24		India	0	0	0	9
	Indonesia	1	0	1	19		Indonesia	0	0	1	1
	Malaysia	1	6	9	23		Malaysia	11	5	6	5
	Philippines	1	67	7	65		Philippines	0	0	10	2
	Singapore	14	16	56	102		Singapore	26	64	220	581
	South Korea	2	7	18	22		South Korea	5	7	20	86
	Taiwan	4	6	12	33		Taiwan	1	2	4	1
	Thailand	0	67	5	11		Thailand	2	1	10	27
	Brazil	0	0	2	0		Brazil	0	37	92	497
	Mexico	0	0	0	0		Mexico	0	0	1	0
	Russia	0	1	3	2		Russia	41	61	142	97

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Asia-8	World	1,449	1,258	2,150	5,764	Asia-8	World	10,408	8,135	14,967	25,839
	United States	83	238	364	586		United States	6,170	5,408	8,412	12,024
	EU	326	296	460	1,391		EU	3,324	1,439	4,730	10,199
	Japan	7	200	11	104		Japan	14	13	23	49
	China	45	79	272	713		China	23	169	110	298
	Asia-8	284	279	538	1,780		Asia-8	284	279	538	1,780
	India	70	27	88	230		India	6	11	11	124
	Indonesia	51	12	26	125		Indonesia	1	4	37	98
	Malaysia	9	53	113	219		Malaysia	109	74	123	480
	Philippines	10	16	50	154		Philippines	1	2	13	21
	Singapore	98	71	124	503		Singapore	91	162	314	899
	South Korea	6	5	7	5		South Korea	68	4	16	67
	Taiwan	16	46	61	288		Taiwan	5	8	17	11
	Thailand	25	50	70	256		Thailand	3	13	7	81
	Brazil	0	7	3	32		Brazil	0	1	185	148
	Mexico	0	0	0	18		Mexico	0	0	2	8
	Russia	0	4	11	82		Russia	32	158	80	87
India	World	16	35	76	799	India	World	369	637	1,701	4,989
	United States	0	1	7	28		United States	162	307	665	1,277
	EU	7	17	32	347		EU	125	132	451	2,963
	Japan	0	0	0	47		Japan	3	1	0	2
	China	0	0	0	9		China	0	0	1	24
	Asia-8	6	11	11	124		Asia-8	70	27	88	230
	Indonesia	0	0	0	28		Indonesia	0	0	0	0
	Malaysia	0	2	7	55		Malaysia	61	1	3	54
	Philippines	0	0	0	2		Philippines	0	0	3	0
	Singapore	6	5	4	38		Singapore	9	26	81	174
	South Korea	0	0	0	0		South Korea	0	0	0	0
	Taiwan	0	0	0	0		Taiwan	0	0	0	0
	Thailand	0	4	0	1		Thailand	0	0	1	1
	Brazil	NA	NA	NA	NA		Brazil	0	0	157	26
	Mexico	NA	NA	NA	NA		Mexico	0	0	0	0
	Russia	0	3	10	54		Russia	0	140	13	26

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Indonesia	World	8	15	106	235	Indonesia	World	369	147	369	2,892
	United States	0	1	2	6		United States	85	39	221	1,727
	EU	5	4	28	72		EU	228	90	103	907
	Japan	0	0	0	0		Japan	0	0	0	0
	China	0	0	1	1		China	1	0	1	19
	Asia-8	1	4	37	98		Asia-8	51	12	26	125
	India	0	0	0	0		India	0	0	0	28
	Malaysia	0	1	13	32		Malaysia	30	0	9	5
	Philippines	0	1	0	0		Philippines	0	0	1	14
	Singapore	1	2	12	53		Singapore	20	12	10	69
	South Korea	0	0	0	1		South Korea	0	0	6	6
	Taiwan	0	0	0	3		Taiwan	0	0	0	0
	Thailand	0	0	11	10		Thailand	0	0	0	2
	Brazil	NA	NA	NA	NA		Brazil	0	0	0	55
	Mexico	0	0	0	0		Mexico	0	0	0	0
	Russia	0	0	1	0		Russia	0	0	1	4
Malaysia	World	385	219	270	776	Malaysia	World	1,357	374	773	2,732
	United States	0	1	21	41		United States	230	262	255	902
	EU	216	104	91	147		EU	1,057	29	328	1,385
	Japan	0	0	0	3		Japan	1	1	1	1
	China	11	5	6	5		China	1	6	9	23
	Asia-8	109	74	123	480		Asia-8	9	53	113	219
	India	61	1	3	54		India	0	2	7	55
	Indonesia	30	0	9	5		Indonesia	0	1	13	32
	Philippines	0	3	1	2		Philippines	0	1	1	1
	Singapore	17	56	81	378		Singapore	9	33	83	101
	South Korea	0	2	0	0		South Korea	0	1	7	4
	Taiwan	0	9	14	15		Taiwan	0	5	1	1
	Thailand	0	4	14	26		Thailand	0	11	2	25
	Brazil	0	6	0	0		Brazil	0	0	0	0
	Mexico	0	0	0	0		Mexico	0	0	0	0
	Russia	0	1	0	0		Russia	10	2	10	2

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Philippines	World	5	24	132	112	Philippines	World	332	236	354	851
	United States	1	16	16	7		United States	167	123	43	306
	EU	1	3	85	54		EU	144	30	246	266
	Japan	0	0	0	1		Japan	1	0	0	0
	China	0	0	10	2		China	1	67	7	65
	Asia-8	1	2	13	21		Asia-8	10	16	50	154
	India	0	0	3	0		India	0	0	0	2
	Indonesia	0	0	1	14		Indonesia	0	1	0	0
	Malaysia	0	1	1	1		Malaysia	0	3	1	2
	Singapore	1	1	6	3		Singapore	10	11	47	105
	South Korea	0	0	1	0		South Korea	0	0	1	3
	Taiwan	0	0	1	2		Taiwan	0	0	0	0
	Thailand	0	0	1	0		Thailand	0	0	0	43
	Brazil	0	0	1	0		Brazil	0	0	0	0
	Mexico	0	0	0	0		Mexico	0	0	0	0
	Russia	0	0	0	21		Russia	0	0	0	0
Singapore	World	285	413	1,020	2,612	Singapore	World	1,787	1,139	3,832	7,493
	United States	41	59	81	104		United States	1,255	830	2,655	3,804
	EU	34	72	95	473		EU	338	183	900	2,775
	Japan	3	9	7	10		Japan	2	8	9	32
	China	26	64	220	581		China	14	16	56	102
	Asia-8	91	162	314	899		Asia-8	98	71	124	503
	India	9	26	81	174		India	6	5	4	38
	Indonesia	20	12	10	69		Indonesia	1	2	12	53
	Malaysia	9	33	83	101		Malaysia	17	56	81	378
	Philippines	10	11	47	105		Philippines	1	1	6	3
	South Korea	5	2	6	4		South Korea	66	3	1	14
	Taiwan	15	37	44	228		Taiwan	4	2	16	9
	Thailand	24	42	43	218		Thailand	3	1	3	8
	Brazil	0	1	2	15		Brazil	0	1	27	1
	Mexico	0	0	0	14		Mexico	0	0	1	8
	Russia	0	0	0	0		Russia	0	0	0	1

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
South Korea	World	188	477	316	738	South Korea	World	2,476	2,867	2,462	3,427
	United States	40	134	186	338		United States	2,187	1,907	1,902	2,429
	EU	55	79	80	129		EU	235	800	453	872
	Japan	2	189	2	31		Japan	6	1	7	8
	China	5	7	20	86		China	2	7	18	22
	Asia-8	68	4	16	67		Asia-8	6	5	7	5
	India	0	0	0	0		India	0	0	0	0
	Indonesia	0	0	6	6		Indonesia	0	0	0	1
	Malaysia	0	1	7	4		Malaysia	0	2	0	0
	Philippines	0	0	1	3		Philippines	0	0	1	0
	Singapore	66	3	1	14		Singapore	5	2	6	4
	Taiwan	1	0	1	40		Taiwan	1	1	0	0
	Thailand	0	0	0	0		Thailand	0	0	0	0
	Brazil	0	0	0	17		Brazil	0	0	0	0
	Mexico	0	0	0	2		Mexico	0	0	0	0
	Russia	0	0	0	7		Russia	22	16	55	54
Taiwan	World	9	43	126	160	Taiwan	World	2,088	1,498	3,490	1,854
	United States	0	25	52	61		United States	1,711	1,408	2,337	1,298
	EU	1	4	19	39		EU	296	34	1,046	158
	Japan	1	1	1	9		Japan	1	1	4	2
	China	1	2	4	1		China	4	6	12	33
	Asia-8	5	8	17	11		Asia-8	16	46	61	288
	India	0	0	0	0		India	0	0	0	0
	Indonesia	0	0	0	0		Indonesia	0	0	0	3
	Malaysia	0	5	1	1		Malaysia	0	9	14	15
	Philippines	0	0	0	0		Philippines	0	0	1	2
	Singapore	4	2	16	9		Singapore	15	37	44	228
	South Korea	1	1	0	0		South Korea	1	0	1	40
	Thailand	0	0	0	0		Thailand	0	0	1	1
	Brazil	0	0	0	0		Brazil	0	0	0	36
	Mexico	NA	NA	NA	NA		Mexico	0	0	0	0
	Russia	NA	NA	NA	NA		Russia	0	0	0	0

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Thailand	World	553	33	104	332	Thailand	World	1,630	1,237	1,986	1,603
	United States	1	1	1	2		United States	373	532	333	281
	EU	7	14	30	129		EU	902	140	1,201	874
	Japan	0	0	0	4		Japan	0	1	2	3
	China	2	1	10	27		China	0	67	5	11
	Asia-8	3	13	7	81		Asia-8	25	50	70	256
	India	0	0	1	1		India	0	4	0	1
	Indonesia	0	0	0	2		Indonesia	0	0	11	10
	Malaysia	0	11	2	25		Malaysia	0	4	14	26
	Philippines	0	0	0	43		Philippines	0	0	1	0
	Singapore	3	1	3	8		Singapore	24	42	43	218
	South Korea	0	0	0	0		South Korea	0	0	0	0
	Taiwan	0	0	1	1		Taiwan	0	0	0	0
	Brazil	0	0	0	0		Brazil	0	0	0	30
	Mexico	0	0	0	3		Mexico	NA	NA	NA	NA
	Russia	0	0	0	0		Russia	0	0	0	0
Brazil	World	167	2,931	3,311	5,829	Brazil	World	815	1,672	2,131	6,362
	United States	88	1,474	1,806	697		United States	414	677	1,037	4,412
	EU	45	987	560	1,781		EU	378	923	937	1,504
	Japan	0	161	0	216		Japan	0	0	61	80
	China	0	37	92	497		China	0	0	2	0
	Asia-8	0	1	185	148		Asia-8	0	7	3	32
	India	0	0	157	26		India	NA	NA	NA	NA
	Indonesia	0	0	0	55		Indonesia	NA	NA	NA	NA
	Malaysia	0	0	0	0		Malaysia	0	6	0	0
	Philippines	0	0	0	0		Philippines	0	0	1	0
	Singapore	0	1	27	1		Singapore	0	1	2	15
	South Korea	0	0	0	0		South Korea	0	0	0	17
	Taiwan	0	0	0	36		Taiwan	0	0	0	0
	Thailand	0	0	0	30		Thailand	0	0	0	0
	Mexico	0	3	0	87		Mexico	0	3	0	0
	Russia	0	0	0	24		Russia	0	0	3	20

Appendix table 6-35

Trade in aerospace goods, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Mexico	World	146	69	52	661	Mexico	World	140	409	1,332	2,649
	United States	18	63	38	288		United States	93	271	801	1,473
	EU	105	1	9	209		EU	46	95	522	835
	Japan	0	0	0	0		Japan	0	1	0	0
	China	0	0	1	0		China	0	0	0	0
	Asia-8	0	0	2	8		Asia-8	0	0	0	18
	India	0	0	0	0		India	NA	NA	NA	NA
	Indonesia	0	0	0	0		Indonesia	0	0	0	0
	Malaysia	0	0	0	0		Malaysia	0	0	0	0
	Philippines	0	0	0	0		Philippines	0	0	0	0
	Singapore	0	0	1	8		Singapore	0	0	0	14
	South Korea	0	0	0	0		South Korea	0	0	0	2
	Taiwan	0	0	0	0		Taiwan	NA	NA	NA	NA
	Thailand	NA	NA	NA	NA		Thailand	0	0	0	3
	Brazil	0	3	0	0		Brazil	0	3	0	87
	Russia	0	0	0	0		Russia	0	14	3	20
Russia	World	172	605	594	907	Russia	World	222	415	614	3,399
	United States	4	37	14	95		United States	185	202	144	276
	EU	8	84	47	188		EU	32	86	359	2,748
	Japan	0	0	0	0		Japan	0	0	0	0
	China	41	61	142	97		China	0	1	3	2
	Asia-8	32	158	80	87		Asia-8	0	4	11	82
	India	0	140	13	26		India	0	3	10	54
	Indonesia	0	0	1	4		Indonesia	0	0	1	0
	Malaysia	10	2	10	2		Malaysia	0	1	0	0
	Philippines	0	0	0	0		Philippines	0	0	0	21
	Singapore	0	0	0	1		Singapore	0	0	0	0
	South Korea	22	16	55	54		South Korea	0	0	0	7
	Taiwan	0	0	0	0		Taiwan	NA	NA	NA	NA
	Thailand	0	0	0	0		Thailand	0	0	0	0
	Brazil	0	0	3	20		Brazil	0	0	0	24
	Mexico	0	14	3	20		Mexico	0	0	0	0

NA = not available

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Luxembourg, and Malta. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
United States	World	6,436	12,881	25,662	44,557	United States	World	5,544	14,694	39,032	65,239
	EU	2,859	6,510	15,428	25,278		EU	3,505	10,176	28,102	40,259
	Japan	933	1,051	1,500	3,187		Japan	520	1,522	2,031	2,117
	China	102	142	290	919		China	183	400	662	1,760
	Asia-8	320	484	941	1,735		Asia-8	66	125	1,637	4,663
	India	28	39	80	196		India	11	57	367	2,523
	Indonesia	17	14	21	52		Indonesia	1	2	3	2
	Malaysia	12	22	35	53		Malaysia	0	1	2	44
	Philippines	21	34	42	62		Philippines	1	1	3	2
	Singapore	29	69	318	204		Singapore	35	37	1,198	1,987
	South Korea	94	120	224	694		South Korea	17	22	38	47
	Taiwan	85	140	148	362		Taiwan	1	3	17	40
	Thailand	35	46	74	113		Thailand	1	2	9	16
	Brazil	157	301	444	1,234		Brazil	7	17	78	166
	Mexico	154	412	674	1,431		Mexico	33	77	356	295
	Russia	15	14	37	101		Russia	0	0	0	0
EU	World	47,877	71,337	199,356	308,664	EU	World	37,071	53,647	156,762	253,540
	Intra-EU	26,876	38,433	120,542	182,860		Intra-EU	26,876	38,433	120,542	182,860
	EU ROW	21,001	32,904	78,814	125,804		EU ROW	10,195	15,213	36,220	70,680
	United States	3,505	10,176	28,102	40,259		United States	2,859	6,510	15,428	25,278
	Japan	838	682	1,218	3,997		Japan	429	519	1,087	3,338
	China	2,561	2,627	4,417	7,914		China	719	913	1,577	2,587
	Asia-8	1,238	1,619	3,484	6,108		Asia-8	213	360	1,308	4,673
	India	157	231	333	654		India	114	99	496	1,372
	Indonesia	94	82	123	235		Indonesia	8	18	14	21
	Malaysia	96	117	253	458		Malaysia	10	7	13	28
	Philippines	112	135	248	366		Philippines	1	1	1	1
	Singapore	141	239	695	1,089		Singapore	8	187	693	2,998
	South Korea	245	310	895	1,527		South Korea	63	38	69	149
	Taiwan	211	326	604	1,054		Taiwan	4	5	7	49
	Thailand	183	180	333	724		Thailand	5	5	15	53
	Brazil	431	759	1,011	2,540		Brazil	55	39	98	487
	Mexico	274	518	1,253	2,014		Mexico	63	70	128	276
	Russia	481	912	3,091	7,007		Russia	20	18	9	37

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Japan	World	1,911	3,041	4,587	6,645	Japan	World	4,217	4,394	7,311	15,156
	United States	520	1,522	2,031	2,117		United States	933	1,051	1,500	3,187
	EU	719	913	1,577	2,587		EU	2,561	2,627	4,417	7,914
	China	172	116	199	461		China	134	148	281	782
	Asia-8	274	268	352	672		Asia-8	103	135	203	576
	India	7	12	20	25		India	6	9	16	32
	Indonesia	10	8	10	31		Indonesia	5	11	10	34
	Malaysia	5	7	8	14		Malaysia	10	6	5	2
	Philippines	8	16	10	15		Philippines	1	2	1	2
	Singapore	29	23	20	22		Singapore	12	53	53	229
	South Korea	110	99	168	336		South Korea	50	31	80	206
	Taiwan	83	80	90	158		Taiwan	17	19	28	50
	Thailand	21	23	26	70		Thailand	2	3	10	22
	Brazil	16	7	5	37		Brazil	14	12	8	4
	Mexico	11	7	7	22		Mexico	16	14	9	10
	Russia	2	1	2	17		Russia	0	0	0	0
China	World	2,355	2,468	4,478	12,271	China	World	2,408	1,979	3,065	8,372
	Intra-China	809	583	550	1,151		Intra-China	809	583	550	1,151
	China ROW	1,546	1,885	3,928	11,119		China ROW	1,599	1,396	2,515	7,221
	United States	183	400	662	1,760		United States	102	142	290	919
	EU	429	519	1,087	3,338		EU	838	682	1,218	3,997
	Japan	134	148	281	782		Japan	172	116	199	461
	Asia-8	469	401	877	2,438		Asia-8	227	200	302	440
	India	114	100	391	1,273		India	60	50	94	108
	Indonesia	42	35	56	149		Indonesia	5	7	8	15
	Malaysia	47	37	67	176		Malaysia	6	8	11	18
	Philippines	29	46	38	72		Philippines	3	2	2	5
	Singapore	60	47	75	136		Singapore	82	73	92	54
	South Korea	68	57	137	354		South Korea	41	26	39	101
	Taiwan	58	45	60	109		Taiwan	21	25	36	109
	Thailand	51	35	53	169		Thailand	8	9	21	31
	Brazil	9	24	104	244		Brazil	1	4	3	11
	Mexico	10	30	70	197		Mexico	5	2	1	7
	Russia	2	12	24	86		Russia	0	7	7	11

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Asia-8	World	1,550	2,540	6,988	18,220	Asia-8	World	3,225	4,013	8,182	15,902
	United States	66	125	1,637	4,663		United States	320	484	941	1,735
	EU	213	360	1,308	4,673		EU	1,238	1,619	3,484	6,108
	Japan	103	135	203	576		Japan	274	268	352	672
	China	227	200	302	440		China	469	401	877	2,438
	Asia-8	429	523	704	1,482		Asia-8	429	523	704	1,482
	India	39	44	59	158		India	46	95	175	407
	Indonesia	28	25	42	108		Indonesia	12	24	55	148
	Malaysia	63	58	93	200		Malaysia	30	29	53	107
	Philippines	58	66	75	226		Philippines	7	5	9	18
	Singapore	50	56	105	154		Singapore	227	272	259	502
	South Korea	23	56	91	165		South Korea	43	49	87	158
	Taiwan	73	97	86	154		Taiwan	33	20	27	70
	Thailand	96	119	151	316		Thailand	33	30	39	73
	Brazil	3	59	140	256		Brazil	2	6	9	50
	Mexico	6	55	140	228		Mexico	3	25	39	23
	Russia	3	131	301	624		Russia	4	3	2	3
India	World	469	1,027	3,085	8,807	India	World	383	499	1,107	2,811
	United States	11	57	367	2,523		United States	28	39	80	196
	EU	114	99	496	1,372		EU	157	231	333	654
	Japan	6	9	16	32		Japan	7	12	20	25
	China	60	50	94	108		China	114	100	391	1,273
	Asia-8	46	95	175	407		Asia-8	39	44	59	158
	Indonesia	2	3	7	35		Indonesia	1	1	3	32
	Malaysia	8	10	23	76		Malaysia	0	2	6	9
	Philippines	3	9	15	46		Philippines	0	0	1	3
	Singapore	12	21	46	43		Singapore	7	26	32	55
	South Korea	9	22	39	67		South Korea	15	11	12	44
	Taiwan	6	9	10	19		Taiwan	15	2	2	11
	Thailand	7	22	35	122		Thailand	2	4	3	2
	Brazil	2	29	101	177		Brazil	0	1	1	4
	Mexico	4	21	55	105		Mexico	1	11	8	9
	Russia	0	127	298	616		Russia	0	2	1	1

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Indonesia	World	48	96	124	336	Indonesia	World	210	187	295	681
	United States	1	2	3	2		United States	17	14	21	52
	EU	8	18	14	21		EU	94	82	123	235
	Japan	5	11	10	34		Japan	10	8	10	31
	China	5	7	8	15		China	42	35	56	149
	Asia-8	12	24	55	148		Asia-8	28	25	42	108
	India	1	1	3	32		India	2	3	7	35
	Malaysia	3	6	5	8		Malaysia	1	1	6	14
	Philippines	3	4	7	44		Philippines	0	0	1	1
	Singapore	2	4	5	7		Singapore	6	9	11	27
	South Korea	0	3	19	33		South Korea	9	8	13	18
	Taiwan	1	1	0	1		Taiwan	2	1	2	6
	Thailand	2	5	15	22		Thailand	7	3	2	8
	Brazil	0	0	0	2		Brazil	0	0	0	6
	Mexico	0	0	1	1		Mexico	0	6	2	2
	Russia	1	1	0	0		Russia	0	0	0	0
Malaysia	World	77	79	145	296	Malaysia	World	277	314	634	1,223
	United States	0	1	2	44		United States	12	22	35	53
	EU	10	7	13	28		EU	96	117	253	458
	Japan	10	6	5	2		Japan	5	7	8	14
	China	6	8	11	18		China	47	37	67	176
	Asia-8	30	29	53	107		Asia-8	63	58	93	200
	India	0	2	6	9		India	8	10	23	76
	Indonesia	1	1	6	14		Indonesia	3	6	5	8
	Philippines	2	3	2	4		Philippines	3	2	2	4
	Singapore	21	18	24	60		Singapore	32	24	31	67
	South Korea	1	1	2	6		South Korea	3	6	13	10
	Taiwan	4	2	6	7		Taiwan	4	3	4	11
	Thailand	2	2	7	8		Thailand	9	8	15	26
	Brazil	0	0	0	1		Brazil	0	1	3	6
	Mexico	0	1	1	3		Mexico	0	0	1	2
	Russia	0	0	0	0		Russia	0	0	0	0

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Philippines	World	18	21	31	64	Philippines	World	281	365	553	967
	United States	1	1	3	2		United States	21	34	42	62
	EU	1	1	1	1		EU	112	135	248	366
	Japan	1	2	1	2		Japan	8	16	10	15
	China	3	2	2	5		China	29	46	38	72
	Asia-8	7	5	9	18		Asia-8	58	66	75	226
	India	0	0	1	3		India	3	9	15	46
	Indonesia	0	0	1	1		Indonesia	3	4	7	44
	Malaysia	3	2	2	4		Malaysia	2	3	2	4
	Singapore	1	2	2	4		Singapore	39	35	33	81
	South Korea	0	0	0	1		South Korea	3	5	8	21
	Taiwan	1	1	1	1		Taiwan	2	3	3	8
	Thailand	1	1	2	3		Thailand	8	7	8	21
	Brazil	NA	NA	NA	NA		Brazil	0	1	1	2
	Mexico	0	0	0	0		Mexico	0	1	1	2
	Russia	NA	NA	NA	NA		Russia	NA	NA	NA	NA
Singapore	World	488	805	2,689	6,584	Singapore	World	380	572	1,427	1,965
	United States	35	37	1,198	1,987		United States	29	69	318	204
	EU	8	187	693	2,998		EU	141	239	695	1,089
	Japan	12	53	53	229		Japan	29	23	20	22
	China	82	73	92	54		China	60	47	75	136
	Asia-8	227	272	259	502		Asia-8	50	56	105	154
	India	7	26	32	55		India	12	21	46	43
	Indonesia	6	9	11	27		Indonesia	2	4	5	7
	Malaysia	32	24	31	67		Malaysia	21	18	24	60
	Philippines	39	35	33	81		Philippines	1	2	2	4
	South Korea	9	24	26	43		South Korea	4	3	9	18
	Taiwan	54	76	50	106		Taiwan	3	3	9	14
	Thailand	81	78	77	122		Thailand	6	6	9	10
	Brazil	0	10	10	21		Brazil	0	0	0	3
	Mexico	1	16	68	93		Mexico	0	0	5	1
	Russia	0	0	0	3		Russia	0	0	0	1

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
South Korea	World	263	309	535	1,360	South Korea	World	606	733	1,885	3,924
	United States	17	22	38	47		United States	94	120	224	694
	EU	63	38	69	149		EU	245	310	895	1,527
	Japan	50	31	80	206		Japan	110	99	168	336
	China	41	26	39	101		China	68	57	137	354
	Asia-8	43	49	87	158		Asia-8	23	56	91	165
	India	15	11	12	44		India	9	22	39	67
	Indonesia	9	8	13	18		Indonesia	0	3	19	33
	Malaysia	3	6	13	10		Malaysia	1	1	2	6
	Philippines	3	5	8	21		Philippines	0	0	0	1
	Singapore	4	3	9	18		Singapore	9	24	26	43
	Taiwan	6	7	19	19		Taiwan	4	5	5	11
	Thailand	3	9	12	29		Thailand	0	1	1	4
	Brazil	1	19	28	54		Brazil	0	1	1	3
	Mexico	1	16	11	25		Mexico	1	6	20	4
	Russia	1	3	3	5		Russia	3	1	0	0
Taiwan	World	91	90	186	407	Taiwan	World	629	843	1,371	2,475
	United States	1	3	17	40		United States	85	140	148	362
	EU	4	5	7	49		EU	211	326	604	1,054
	Japan	17	19	28	50		Japan	83	80	90	158
	China	21	25	36	109		China	58	45	60	109
	Asia-8	33	20	27	70		Asia-8	73	97	86	154
	India	15	2	2	11		India	6	9	10	19
	Indonesia	2	1	2	6		Indonesia	1	1	0	1
	Malaysia	4	3	4	11		Malaysia	4	2	6	7
	Philippines	2	3	3	8		Philippines	1	1	1	1
	Singapore	3	3	9	14		Singapore	54	76	50	106
	South Korea	4	5	5	11		South Korea	6	7	19	19
	Thailand	2	2	2	10		Thailand	1	1	1	2
	Brazil	0	0	0	1		Brazil	0	2	0	2
	Mexico	0	1	2	1		Mexico	0	0	2	2
	Russia	0	0	0	0		Russia	0	0	1	1

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Thailand	World	96	112	193	365	Thailand	World	460	499	910	1,856
	United States	1	2	9	16		United States	35	46	74	113
	EU	5	5	15	53		EU	183	180	333	724
	Japan	2	3	10	22		Japan	21	23	26	70
	China	8	9	21	31		China	51	35	53	169
	Asia-8	33	30	39	73		Asia-8	96	119	151	316
	India	2	4	3	2		India	7	22	35	122
	Indonesia	7	3	2	8		Indonesia	2	5	15	22
	Malaysia	9	8	15	26		Malaysia	2	2	7	8
	Philippines	8	7	8	21		Philippines	1	1	2	3
	Singapore	6	6	9	10		Singapore	81	78	77	122
	South Korea	0	1	1	4		South Korea	3	9	12	29
	Taiwan	1	1	1	2		Taiwan	2	2	2	10
	Brazil	0	0	1	0		Brazil	1	1	2	23
	Mexico	0	0	1	1		Mexico	0	0	1	1
	Russia	1	0	0	0		Russia	0	0	0	0
Brazil	World	183	288	553	1,633	Brazil	World	854	1,578	2,188	5,430
	United States	7	17	78	166		United States	157	301	444	1,234
	EU	55	39	98	487		EU	431	759	1,011	2,540
	Japan	14	12	8	4		Japan	16	7	5	37
	China	1	4	3	11		China	9	24	104	244
	Asia-8	2	6	9	50		Asia-8	3	59	140	256
	India	0	1	1	4		India	2	29	101	177
	Indonesia	0	0	0	6		Indonesia	0	0	0	2
	Malaysia	0	1	3	6		Malaysia	0	0	0	1
	Philippines	0	1	1	2		Philippines	NA	NA	NA	NA
	Singapore	0	0	0	3		Singapore	0	10	10	21
	South Korea	0	1	1	3		South Korea	1	19	28	54
	Taiwan	0	2	0	2		Taiwan	0	0	0	1
	Thailand	1	1	2	23		Thailand	0	0	1	0
	Mexico	4	28	49	115		Mexico	33	55	50	63
	Russia	0	0	1	2		Russia	0	0	0	0

Appendix table 6-36

Trade in pharmaceuticals, by selected region/country of destination and origin: Selected years, 1995–2010

(Millions of current dollars)

Export region/ country/economy	Destination	1995	2000	2005	2010	Import region/ country/economy	Origin	1995	2000	2005	2010
Mexico	World	357	677	1,216	1,670	Mexico	World	526	1,265	2,486	4,519
	United States	33	77	356	295		United States	154	412	674	1,431
	EU	63	70	128	276		EU	274	518	1,253	2,014
	Japan	16	14	9	10		Japan	11	7	7	22
	China	5	2	1	7		China	10	30	70	197
	Asia-8	3	25	39	23		Asia-8	6	55	140	228
	India	1	11	8	9		India	4	21	55	105
	Indonesia	0	6	2	2		Indonesia	0	0	1	1
	Malaysia	0	0	1	2		Malaysia	0	1	1	3
	Philippines	0	1	1	2		Philippines	0	0	0	0
	Singapore	0	0	5	1		Singapore	1	16	68	93
	South Korea	1	6	20	4		South Korea	1	16	11	25
	Taiwan	0	0	2	2		Taiwan	0	1	2	1
	Thailand	0	0	1	1		Thailand	0	0	1	1
	Brazil	33	55	50	63		Brazil	4	28	49	115
	Russia	0	1	0	6		Russia	3	2	0	0
Russia	World	40	159	215	487	Russia	World	558	1,255	3,988	9,196
	United States	0	0	0	0		United States	15	14	37	101
	EU	20	18	9	37		EU	481	912	3,091	7,007
	Japan	0	0	0	0		Japan	2	1	2	17
	China	0	7	7	11		China	2	12	24	86
	Asia-8	4	3	2	3		Asia-8	3	131	301	624
	India	0	2	1	1		India	0	127	298	616
	Indonesia	0	0	0	0		Indonesia	1	1	0	0
	Malaysia	0	0	0	0		Malaysia	0	0	0	0
	Philippines	NA	NA	NA	NA		Philippines	NA	NA	NA	NA
	Singapore	0	0	0	1		Singapore	0	0	0	3
	South Korea	3	1	0	0		South Korea	1	3	3	5
	Taiwan	0	0	1	1		Taiwan	0	0	0	0
	Thailand	0	0	0	0		Thailand	1	0	0	0
	Brazil	0	0	0	0		Brazil	0	0	1	2
	Mexico	3	2	0	0		Mexico	0	1	0	6

NA = not available

EU = European Union; ROW = rest of the world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Data are not available for EU members Cyprus, Luxembourg, and Malta. China includes Hong Kong. Intra-China is trade between China and Hong Kong. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-32 for full list of countries in each region.

SOURCE: IHS Global Insight, special tabulations (2011) of World Trade Service database.

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Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	227,395	199,628	178,566	180,208	201,561	216,824	247,071	264,875	270,131	244,708	272,694
EU	60,472	54,352	49,732	50,611	56,090	58,255	63,676	73,495	75,240	70,023	66,180
Belgium	2,022	1,851	1,656	1,568	1,879	2,331	2,509	2,988	3,505	3,077	3,215
Czech Republic	327	276	334	268	345	450	483	535	493	342	507
France	8,644	8,153	8,512	6,654	9,096	9,287	9,543	11,285	10,864	11,514	10,621
Germany	11,625	11,380	9,347	9,293	9,518	10,914	13,056	16,535	17,212	16,867	16,602
Hungary	105	147	235	456	646	383	400	418	484	475	462
Ireland	3,593	3,237	2,823	3,278	3,143	3,709	3,326	3,208	3,162	3,477	2,798
Italy	2,798	2,448	3,120	3,090	2,969	2,628	2,814	2,666	2,939	2,567	2,718
Netherlands	8,453	6,798	7,253	8,397	9,136	9,702	10,131	10,748	11,907	9,379	9,413
Poland	247	201	179	189	228	335	828	1,552	1,261	782	876
Portugal	340	571	229	195	480	551	846	1,472	1,611	384	340
Spain	2,206	1,425	1,143	1,427	1,553	1,674	1,612	2,011	2,266	1,582	1,759
Sweden	2,105	1,300	1,212	1,205	1,035	1,129	1,474	1,520	1,561	1,887	1,506
United Kingdom	15,121	13,440	10,572	10,766	12,177	12,157	13,013	13,674	14,155	12,993	12,094
All others	2,887	3,126	3,115	3,824	3,883	3,005	3,642	4,882	3,818	4,699	3,268
Japan	19,745	16,394	16,853	16,923	17,465	16,988	18,420	18,540	17,475	14,208	15,566
China	9,529	11,006	13,068	13,421	15,669	18,315	23,062	25,966	24,850	25,374	29,649
Asia-8	48,887	39,499	42,285	43,622	46,967	47,857	55,791	56,356	51,345	39,722	52,530
India	981	1,070	1,255	1,311	1,688	2,090	2,958	5,468	3,660	4,023	3,166
Indonesia	205	197	198	208	250	395	306	620	780	1,209	1,990
Malaysia	6,757	5,474	7,235	7,803	7,556	7,082	8,432	7,094	7,992	6,203	8,459
Philippines	5,365	4,761	4,965	5,851	4,854	4,422	4,915	4,545	4,461	2,698	3,552
Singapore	7,810	8,231	8,138	8,398	10,104	9,872	11,557	11,398	11,567	8,176	10,893
South Korea	13,120	9,199	9,600	9,540	10,173	11,252	13,943	12,193	10,157	8,100	11,035
Taiwan	11,323	7,868	9,176	8,203	9,801	9,626	10,035	11,680	9,864	7,023	10,485
Thailand	3,327	2,698	1,717	2,309	2,541	3,119	3,644	3,358	2,864	2,290	2,949
All others	58,473	51,154	56,618	55,619	65,304	75,378	86,084	90,484	101,162	95,381	108,770
Central Asia and Europe	2,260	1,652	2,206	1,365	1,542	1,728	2,869	2,990	3,903	3,216	4,504
Kazakhstan	26	26	360	37	53	104	93	75	187	69	55
Russia	426	353	430	367	472	502	868	1,337	1,184	835	949
Turkey	1,570	984	1,247	602	565	872	1,592	1,197	1,931	1,663	3,049
Ukraine	21	30	29	33	38	66	85	105	150	219	175
All others	217	259	140	326	414	184	231	276	450	431	276
Middle East and North Africa	7,281	6,814	6,042	4,911	5,628	8,966	11,382	10,854	11,881	13,250	12,488
Algeria	372	491	245	36	217	399	246	138	146	103	281
Egypt	1,063	1,122	800	318	627	474	839	813	622	878	1,359
Iran	1	2	2	12	13	23	28	28	36	42	38
Iraq	0	6	1	17	174	259	329	503	471	468	325
Israel	2,476	2,408	2,025	1,846	2,825	2,715	3,006	3,277	3,371	2,408	2,229
Morocco	181	35	313	154	154	157	265	181	240	417	378
Saudi Arabia	2,106	1,698	590	680	509	693	767	779	1,374	1,807	1,612
Tunisia	135	63	19	16	21	40	24	32	39	49	30
United Arab Emirates	526	536	1,296	1,060	633	3,564	4,662	3,534	3,792	4,524	3,329
All others	421	453	751	772	455	642	1,216	1,569	1,790	2,554	2,907
South and Central America	22,189	19,628	22,422	22,776	28,379	30,652	36,217	38,070	44,175	43,814	52,193
Argentina	1,193	825	223	439	698	947	1,012	1,338	1,466	1,443	1,622
Brazil	4,985	4,935	3,942	3,205	4,626	5,221	6,799	8,823	10,846	9,671	10,948
Chile	801	681	599	578	637	991	1,590	1,524	1,613	2,318	1,713
Colombia	475	508	742	661	756	911	1,122	1,489	1,793	1,652	1,889
Costa Rica	415	458	1,064	1,287	1,144	1,240	1,535	1,458	1,855	1,421	1,272
Mexico	11,108	9,514	12,579	13,550	16,502	16,669	18,626	17,202	19,585	20,601	27,149
Peru	278	206	290	301	329	376	528	575	809	849	1,058
Venezuela	698	613	580	344	872	1,081	1,467	1,529	1,744	1,636	1,489
All others	2,235	1,888	2,404	2,410	2,816	3,216	3,537	4,132	4,464	4,222	5,051
Sub-Saharan Africa	1,119	1,656	1,005	1,249	1,367	1,956	2,017	1,860	2,253	1,944	2,109

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	20	17	32	58	37	63	573	219	440	126	117
Congo (Kinshasa)	20	8	3	5	4	8	10	11	14	9	11
Ethiopia	18	6	8	214	152	237	20	32	86	85	502
Kenya	24	442	134	75	187	405	156	260	151	230	111
Nigeria	45	69	124	107	145	250	207	251	194	310	234
South Africa	875	858	570	642	621	676	778	818	1,011	780	754
Tanzania	5	6	7	6	60	17	18	18	13	23	31
Uganda	6	8	6	7	7	9	9	20	34	75	45
All others	142	255	130	349	305	527	265	247	379	305	304
Other developed	25,274	20,826	24,461	24,155	26,837	30,879	31,991	35,241	37,137	31,513	35,569
Australia	3,284	2,636	4,708	4,032	3,094	3,295	4,073	4,057	4,404	4,329	4,163
Canada	18,790	15,242	17,450	18,108	21,310	24,592	24,546	27,720	28,830	23,992	27,538
New Zealand	779	947	589	541	618	915	1,206	882	598	461	845
Norway	566	526	456	407	387	524	623	853	951	951	1,145
Switzerland	1,754	1,381	1,142	1,027	1,311	1,380	1,487	1,548	2,217	1,694	1,787
All others	102	95	117	40	116	172	55	182	137	85	92
Other developing	350	578	482	1,163	1,551	1,197	1,608	1,469	1,813	1,644	1,907
Afghanistan	0	0	64	15	36	60	172	166	138	297	617
Bangladesh	18	25	24	16	27	52	37	43	46	35	49
Burma	3	1	1	1	3	1	2	2	2	9	11
Cambodia	1	2	1	1	1	3	3	6	4	6	8
Laos	0	1	1	2	3	6	3	1	5	4	2
Nepal	8	4	6	5	10	10	5	11	11	13	12
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	77	62	109	153	799	252	804	750	695	325	500
Sri Lanka	34	32	55	37	33	29	37	39	83	72	23
Vietnam	34	42	58	786	417	454	204	180	350	349	379
All others	175	409	163	147	222	330	341	271	479	534	306
Imports											
World	222,082	195,177	195,150	207,031	238,276	259,742	290,760	326,809	331,152	300,892	354,465
EU	44,143	47,019	47,812	49,420	51,122	53,680	58,699	65,695	68,762	60,457	65,804
Belgium	978	1,368	1,298	989	1,517	1,096	1,981	2,208	2,891	4,255	3,792
Czech Republic	105	164	220	288	340	404	423	410	448	318	334
France	9,624	10,434	9,645	9,182	8,659	8,468	9,778	12,262	12,073	10,376	10,638
Germany	9,130	9,537	8,089	8,010	9,580	11,034	11,428	11,861	11,584	10,414	10,116
Hungary	1,261	886	1,085	1,288	1,247	1,393	1,178	1,254	1,427	1,019	911
Ireland	6,805	8,924	12,624	14,497	13,431	14,058	14,216	16,146	17,605	14,443	17,505
Italy	1,938	1,674	1,843	1,734	1,974	2,200	2,165	2,410	2,862	2,635	2,949
Netherlands	1,680	1,515	1,767	2,028	2,120	2,235	2,832	3,572	3,143	2,505	3,102
Poland	49	38	42	46	74	94	312	301	291	293	533
Portugal	223	252	312	429	536	668	798	422	193	66	86
Spain	233	256	368	752	701	552	594	780	1,053	903	1,001
Sweden	1,244	1,127	1,510	1,343	1,466	1,891	1,267	1,383	1,539	1,194	2,033
United Kingdom	9,416	9,256	7,146	6,842	7,414	7,262	9,428	9,994	10,758	9,282	9,518
All others	1,460	1,587	1,864	1,994	2,056	2,323	2,295	2,692	2,897	2,753	3,286
Japan	37,352	27,880	23,688	22,388	23,877	24,576	25,853	28,093	26,713	19,879	23,273
China	14,203	14,424	21,292	30,404	46,823	60,289	73,521	88,802	92,170	90,289	116,452
Asia-8	79,444	62,110	62,720	62,706	69,729	69,773	75,094	74,499	71,819	60,532	69,453
India	146	200	199	253	319	456	693	709	1,062	1,000	1,440
Indonesia	1,318	1,399	1,259	1,076	1,123	1,104	917	1,125	1,343	1,360	1,448
Malaysia	16,252	14,052	15,151	16,382	18,231	22,618	25,098	22,311	20,099	14,900	15,248
Philippines	8,055	5,907	5,843	4,920	3,806	3,694	3,745	3,634	3,305	2,629	2,913
Singapore	13,658	10,081	10,062	10,385	10,878	9,253	9,804	9,654	8,194	6,565	7,700
South Korea	18,706	13,756	13,822	14,378	17,977	13,980	13,647	14,852	16,392	15,236	17,436
Taiwan	17,642	13,816	13,331	12,031	12,808	12,264	14,063	14,762	13,784	12,120	15,441
Thailand	3,666	2,899	3,062	3,291	4,599	6,412	7,209	7,735	8,054	6,723	7,828
All others	47,004	43,832	39,639	42,112	46,723	51,423	57,589	69,714	71,706	69,734	79,483

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	1,257	1,227	1,014	1,241	1,092	1,132	1,250	1,471	1,350	1,385	1,667
Kazakhstan	29	45	75	0	0	0	0	1	0	54	53
Russia	1,045	1,012	831	1,054	920	945	999	1,055	998	1,003	1,249
Turkey	99	109	83	83	107	136	160	205	232	277	306
Ukraine	76	53	12	37	45	7	68	74	45	9	12
All others	6	10	13	16	19	22	23	34	35	43	46
Middle East and North Africa	5,321	4,562	2,184	2,112	2,410	2,421	2,968	3,392	3,289	4,674	2,852
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	1	3	3	1	2	1	1	1	1
Iran	0	0	0	0	0	4	1	0	0	0	0
Iraq	2,585	2,230	0	0	2	1	1	0	0	0	1
Israel	2,584	2,229	2,077	2,009	2,284	2,297	2,818	3,272	3,167	4,603	2,732
Morocco	141	83	98	89	103	92	100	96	94	54	95
Saudi Arabia	6	5	3	1	4	6	2	1	6	1	2
Tunisia	0	0	0	1	1	2	4	4	8	6	8
United Arab Emirates	2	10	4	6	10	14	37	15	9	7	10
All others	3	5	1	3	3	4	3	3	4	2	3
South and Central America	18,383	20,488	20,465	22,365	26,559	28,375	34,332	42,463	44,790	44,542	56,163
Argentina	11	14	18	10	17	14	16	11	13	15	12
Brazil	1,935	2,927	2,948	2,704	2,792	2,599	1,730	2,034	2,570	920	795
Chile	2	3	4	4	6	4	8	11	13	4	12
Colombia	5	9	4	2	3	6	11	19	10	11	10
Costa Rica	1,224	726	919	1,207	1,104	1,129	1,175	1,257	1,389	3,431	6,045
Mexico	14,815	16,423	16,196	17,961	22,142	23,991	30,881	38,631	40,326	39,748	48,746
Peru	1	2	2	1	2	1	1	1	2	3	3
Venezuela	5	2	3	2	3	4	10	2	2	2	1
All others	385	383	371	474	491	629	500	497	465	409	539
Sub-Saharan Africa	48	36	42	41	42	38	39	46	64	48	52
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	1	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	7	5	4	6	3	2	4	2	6	4	3
Nigeria	0	0	0	0	0	1	0	0	3	1	0
South Africa	28	23	25	25	30	30	26	31	38	37	41
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	12	7	13	9	9	5	8	12	17	6	8
Other developed	24,536	19,714	15,868	16,277	16,550	19,352	18,784	21,712	21,312	18,541	18,085
Australia	398	428	384	380	418	532	609	859	817	805	870
Canada	22,405	17,302	13,704	13,700	13,827	15,652	14,873	17,767	16,625	14,232	12,846
New Zealand	53	69	72	92	116	129	143	160	164	152	180
Norway	259	333	313	280	372	349	444	507	653	518	615
Switzerland	1,409	1,566	1,376	1,799	1,784	2,652	2,663	2,375	3,007	2,794	3,528
All others	11	16	19	25	34	38	52	45	45	39	47
Other developing	39	34	58	66	59	74	132	346	487	544	663
Afghanistan	0	0	0	1	0	1	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	1	1
Burma	1	0	0	0	0	0	0	0	0	0	1
Cambodia	0	0	0	0	0	1	1	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	1	0	NA	NA	NA	NA	NA
Pakistan	25	23	28	26	31	32	33	43	56	54	51
Sri Lanka	6	4	11	8	6	5	7	7	5	3	2
Vietnam	0	0	8	10	12	30	83	283	414	479	600
All others	7	7	11	21	9	5	8	13	12	6	7

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	5,313	4,451	-16,584	-26,823	-36,715	-42,918	-43,689	-61,934	-61,021	-56,184	-81,771
EU	16,329	7,333	1,919	1,191	4,967	4,575	4,977	7,800	6,478	9,566	376
Belgium	1,044	483	358	579	362	1,235	528	780	614	-1,178	-577
Czech Republic	222	113	113	-20	6	45	60	125	46	24	173
France	-980	-2,281	-1,133	-2,528	438	818	-236	-977	-1,209	1,138	-17
Germany	2,495	1,843	1,259	1,283	-61	-120	1,628	4,674	5,629	6,453	6,486
Hungary	-1,155	-740	-849	-832	-601	-1,010	-779	-836	-943	-544	-449
Ireland	-3,211	-5,687	-9,800	-11,220	-10,289	-10,349	-10,890	-12,938	-14,442	-10,966	-14,707
Italy	860	774	1,277	1,356	995	428	650	255	77	-68	-231
Netherlands	6,773	5,284	5,485	6,369	7,016	7,467	7,299	7,177	8,764	6,874	6,311
Poland	198	163	138	143	154	241	516	1,251	971	489	343
Portugal	117	319	-83	-234	-55	-117	48	1,050	1,418	318	254
Spain	1,974	1,169	775	675	852	1,122	1,018	1,231	1,213	679	758
Sweden	861	173	-298	-138	-430	-762	207	137	22	693	-527
United Kingdom	5,705	4,183	3,426	3,924	4,763	4,895	3,585	3,680	3,397	3,711	2,576
All others	1,427	1,539	1,252	1,831	1,826	682	1,347	2,189	921	1,946	-18
Japan	-17,607	-11,486	-6,835	-5,465	-6,412	-7,588	-7,433	-9,553	-9,238	-5,671	-7,707
China	-4,673	-3,419	-8,224	-16,983	-31,154	-41,974	-50,459	-62,836	-67,320	-64,915	-86,803
Asia-8	-30,557	-22,611	-20,435	-19,084	-22,762	-21,916	-19,303	-18,142	-20,474	-20,810	-16,923
India	835	871	1,056	1,058	1,370	1,633	2,264	4,759	2,599	3,023	1,726
Indonesia	-1,113	-1,202	-1,061	-868	-873	-708	-611	-505	-563	-151	542
Malaysia	-9,496	-8,578	-7,917	-8,580	-10,675	-15,537	-16,666	-15,217	-12,107	-8,697	-6,789
Philippines	-2,690	-1,146	-877	932	1,048	727	1,170	912	1,156	69	639
Singapore	-5,848	-1,850	-1,923	-1,987	-775	619	1,754	1,743	3,373	1,611	3,193
South Korea	-5,586	-4,557	-4,222	-4,839	-7,805	-2,728	296	-2,659	-6,235	-7,136	-6,401
Taiwan	-6,319	-5,948	-4,155	-3,829	-3,007	-2,638	-4,027	-3,081	-3,920	-5,097	-4,956
Thailand	-339	-201	-1,345	-982	-2,058	-3,293	-3,565	-4,377	-5,190	-4,433	-4,879
All others	11,500	7,349	16,858	14,287	18,985	24,397	28,684	20,883	29,792	25,647	29,287
Central Asia and Europe	1,003	425	1,192	124	450	596	1,620	1,519	2,553	1,831	2,837
Kazakhstan	-4	-19	285	37	53	104	93	74	187	15	2
Russia	-620	-659	-401	-687	-448	-443	-130	281	186	-168	-300
Turkey	1,471	874	1,164	519	458	736	1,432	993	1,699	1,386	2,743
Ukraine	-55	-23	17	-3	-7	59	17	31	105	210	163
All others	210	249	127	309	395	162	207	243	416	388	230
Middle East and North Africa	4,535	4,465	3,680	2,792	3,208	6,534	8,402	7,392	8,580	8,576	9,636
Algeria	372	491	245	36	217	399	246	138	146	103	281
Egypt	1,063	1,121	799	315	625	473	837	812	622	877	1,358
Iran	1	2	2	12	12	19	27	28	36	42	38
Iraq	-2,585	-2,224	1	17	173	258	328	503	471	468	324
Israel	-107	179	-52	-163	540	418	188	5	205	-2,195	-503
Morocco	40	-48	215	65	51	65	164	84	146	363	283
Saudi Arabia	2,100	1,693	587	678	504	687	764	778	1,368	1,806	1,610
Tunisia	135	63	18	16	20	38	20	27	30	43	22
United Arab Emirates	524	526	1,292	1,054	623	3,550	4,625	3,518	3,784	4,517	3,319
All others	419	448	750	769	452	638	1,215	1,566	1,787	2,552	2,904
South and Central America	3,807	-860	1,958	411	1,820	2,277	1,885	-4,392	-614	-728	-3,970
Argentina	1,182	811	205	429	681	932	996	1,326	1,454	1,428	1,610
Brazil	3,051	2,007	994	501	1,835	2,623	5,069	6,790	8,275	8,751	10,153
Chile	799	678	595	574	631	987	1,581	1,513	1,601	2,314	1,701
Colombia	470	500	738	659	753	905	1,111	1,471	1,783	1,641	1,879
Costa Rica	-808	-268	145	80	40	111	360	201	466	-2,010	-4,773
Mexico	-3,707	-6,909	-3,618	-4,412	-5,640	-7,322	-12,255	-21,429	-20,741	-19,147	-21,597
Peru	278	204	287	300	327	375	527	574	807	846	1,055
Venezuela	693	611	577	342	869	1,077	1,458	1,527	1,742	1,634	1,488
All others	1,849	1,505	2,033	1,936	2,325	2,588	3,037	3,635	3,999	3,813	4,512
Sub-Saharan Africa	1,071	1,620	963	1,209	1,325	1,918	1,977	1,815	2,189	1,896	2,057

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	20	16	31	58	37	63	573	219	440	126	117
Congo (Kinshasa)	19	8	2	5	4	8	8	10	14	9	11
Ethiopia	18	6	8	214	152	237	20	31	86	85	502
Kenya	17	436	131	69	184	404	153	258	145	226	108
Nigeria	45	69	123	107	145	250	207	251	191	309	234
South Africa	847	836	545	617	591	645	751	788	973	743	713
Tanzania	5	6	7	5	60	17	18	18	13	23	31
Uganda	6	8	6	7	7	9	9	20	34	75	45
All others	130	247	117	340	296	522	257	235	362	299	296
Other developed	738	1,112	8,593	7,878	10,286	11,527	13,206	13,528	15,825	12,972	17,484
Australia	2,885	2,208	4,324	3,652	2,677	2,763	3,464	3,198	3,587	3,524	3,293
Canada	-3,615	-2,060	3,745	4,408	7,483	8,941	9,673	9,953	12,205	9,760	14,692
New Zealand	726	878	517	449	502	786	1,064	722	434	309	665
Norway	307	193	143	127	15	175	178	346	298	433	530
Switzerland	345	-184	-235	-773	-473	-1,271	-1,176	-827	-790	-1,100	-1,741
All others	90	78	99	15	82	134	3	136	91	46	45
Other developing	346	587	472	1,874	1,894	1,544	1,594	1,022	1,258	1,100	1,244
Afghanistan	0	0	64	14	36	60	172	166	137	297	617
Burma	2	1	1	1	3	1	2	2	2	9	10
Bangladesh	18	25	24	16	26	52	37	43	46	34	48
Cambodia	1	2	0	1	1	3	1	6	4	6	8
Laos	0	1	1	2	3	5	3	1	5	4	2
Nepal	8	4	6	5	10	10	5	11	11	13	12
North Korea	0	0	0	0	-1	0	NA	NA	NA	NA	NA
Pakistan	53	38	81	127	768	220	771	707	639	271	449
Sri Lanka	28	29	44	29	27	24	30	32	77	69	21
Vietnam	34	42	50	776	405	423	121	-103	-63	-130	-221
All others	168	402	152	126	212	324	331	259	466	528	299

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

Science and Engineering Indicators 2012

Appendix table 6-38

U.S. trade in information and communications products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	64,196	53,437	53,289	53,115	59,010	63,769	68,928	74,582	77,331	66,663	77,686
EU	20,513	17,296	14,967	14,693	15,181	15,901	16,291	17,285	16,488	12,164	12,728
Belgium	568	566	345	304	362	501	473	716	780	498	562
Czech Republic	89	94	128	114	102	181	249	172	178	116	150
France	1,694	1,404	1,372	1,275	1,241	1,213	1,238	1,358	1,392	967	1,039
Germany	3,465	3,207	2,531	2,534	2,455	2,583	2,824	3,204	2,616	2,016	1,925
Hungary	63	54	83	78	99	132	224	224	235	218	263
Ireland	1,937	1,619	1,326	1,262	1,114	1,184	1,183	1,139	1,104	821	514
Italy	730	696	459	510	576	531	530	569	546	436	503
Netherlands	4,887	3,815	3,721	3,451	3,710	4,372	4,133	4,637	4,783	3,506	3,918
Poland	164	114	110	102	101	156	140	155	171	127	202
Portugal	64	65	37	30	36	45	53	52	46	37	47
Spain	395	299	314	575	473	320	292	318	354	255	281
Sweden	295	242	233	271	204	230	281	318	326	243	240
United Kingdom	5,301	4,208	3,541	3,503	3,971	3,597	3,693	3,329	3,125	2,336	2,454
All others	859	913	770	686	739	857	977	1,093	834	588	630
Japan	6,488	5,248	4,371	4,002	4,149	3,787	4,107	3,945	3,306	2,611	2,514
China	3,625	3,894	3,583	3,493	3,795	4,646	5,531	5,838	6,269	6,169	7,074
Asia-8	8,707	6,346	6,968	6,687	7,055	8,083	8,030	8,282	8,433	6,846	7,450
India	483	426	628	650	824	911	994	1,119	1,034	953	931
Indonesia	40	64	64	93	84	142	86	114	118	184	98
Malaysia	771	710	960	780	819	1,132	1,062	1,005	1,031	884	1,077
Philippines	280	218	175	168	172	203	257	264	396	363	437
Singapore	2,100	1,607	1,711	1,972	1,946	2,178	2,039	2,057	2,266	1,896	2,082
South Korea	3,063	1,643	1,732	1,344	1,227	1,412	1,462	1,478	1,517	1,134	1,230
Taiwan	1,485	1,215	1,179	1,057	1,231	1,039	1,089	1,235	1,028	718	833
Thailand	484	464	519	623	754	1,066	1,042	1,010	1,043	715	762
All others	24,878	20,669	23,422	24,269	28,858	31,401	35,020	39,326	43,049	38,873	47,920
Central Asia and Europe	384	334	510	402	444	435	520	657	647	422	537
Kazakhstan	13	17	201	13	14	24	56	34	50	18	25
Russia	130	155	159	190	231	217	241	321	224	150	187
Turkey	173	96	88	78	103	121	154	196	228	154	234
Ukraine	16	20	14	11	15	13	19	30	26	15	17
All others	52	46	49	111	82	60	51	77	120	84	75
Middle East and North Africa	1,398	1,321	952	1,011	1,341	1,530	1,823	2,020	2,150	2,152	2,382
Algeria	0	220	15	8	164	180	184	99	89	26	21
Egypt	130	136	91	97	107	101	263	154	126	112	120
Iran	0	0	0	0	0	0	0	0	0	0	1
Iraq	0	0	1	9	97	105	77	122	163	240	75
Israel	770	602	464	441	495	532	493	540	551	472	557
Morocco	20	12	9	11	16	17	26	24	31	31	42
Saudi Arabia	148	122	132	118	129	156	221	205	255	308	257
Tunisia	8	7	5	5	7	5	9	8	11	17	5
United Arab Emirates	151	129	151	171	196	263	392	682	682	699	1,026
All others	79	98	89	152	137	173	162	191	246	247	279
South and Central America	11,154	9,656	10,894	11,314	14,377	15,228	17,932	19,585	22,579	22,006	28,029
Argentina	884	548	140	295	402	559	664	902	991	794	992
Brazil	2,206	1,739	1,390	1,115	1,290	1,800	2,246	2,798	3,304	3,009	3,580
Chile	517	389	431	376	427	534	643	809	897	871	1,106
Colombia	337	377	436	454	558	611	696	955	1,169	935	1,190
Costa Rica	120	161	148	191	195	200	282	296	314	384	352
Mexico	5,035	4,414	6,051	6,831	8,554	8,241	9,385	9,411	11,009	11,550	15,730
Peru	203	164	228	254	260	278	413	436	632	591	713
Venezuela	480	422	385	218	661	766	1,150	1,057	1,210	1,086	1,000
All others	1,372	1,442	1,686	1,580	2,030	2,239	2,451	2,922	3,053	2,786	3,367
Sub-Saharan Africa	304	299	288	351	401	443	535	572	618	454	454

Appendix table 6-38

U.S. trade in information and communications products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	7	8	10	16	21	7	21	16	23	13	19
Congo (Kinshasa)	2	1	2	4	2	7	3	7	7	4	4
Ethiopia	3	2	2	11	3	6	6	7	11	8	7
Kenya	8	7	12	9	13	13	21	39	29	21	21
Nigeria	24	39	62	79	67	88	108	90	96	62	59
South Africa	189	142	126	158	204	219	270	290	311	189	215
Tanzania	3	5	4	4	6	7	7	1	1	15	15
Uganda	6	0	4	5	4	4	5	12	15	18	17
All others	65	91	69	76	83	96	100	103	127	123	99
Other developed	11,481	8,895	10,495	10,955	12,000	13,404	13,799	15,933	16,229	13,343	15,893
Australia	1,501	1,036	982	965	1,069	1,243	1,489	1,731	1,414	1,241	1,254
Canada	9,187	7,248	9,084	9,580	10,502	11,632	11,726	13,654	14,209	11,716	14,217
New Zealand	263	131	136	129	127	152	134	154	155	122	95
Norway	100	85	81	84	95	120	150	153	199	98	119
Switzerland	414	383	203	181	193	238	289	224	206	153	199
All others	15	14	9	15	14	19	12	18	47	13	9
Other developing	157	163	283	236	296	362	411	558	825	496	624
Afghanistan	0	0	63	7	20	18	27	47	43	100	194
Bangladesh	7	15	9	5	12	28	17	14	13	8	9
Burma	0	0	0	0	0	0	0	2	0	0	1
Cambodia	1	1	0	1	1	2	1	1	3	4	3
Laos	0	0	1	2	2	4	3	0	2	1	1
Nepal	1	1	4	2	7	7	1	3	3	2	3
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	21	19	41	33	58	64	73	121	143	50	79
Sri Lanka	27	19	40	30	12	18	22	18	18	7	9
Vietnam	16	20	27	31	35	51	54	99	218	150	154
All others	67	65	71	92	113	120	158	154	164	174	171
Imports											
World	111,180	95,159	100,660	110,089	132,544	147,178	160,784	179,575	181,775	169,807	205,080
EU	9,184	7,760	8,265	7,788	7,491	8,193	7,270	7,067	7,724	6,216	6,955
Belgium	176	146	124	97	116	102	141	207	225	206	256
Czech Republic	38	74	125	154	168	208	169	100	61	49	60
France	900	618	793	587	385	429	322	371	330	330	371
Germany	876	863	968	1,163	1,093	1,077	1,230	1,430	1,544	1,169	1,284
Hungary	1,208	825	587	611	843	1,109	864	1,013	1,272	901	651
Ireland	1,644	1,499	1,938	1,270	1,055	1,268	1,474	1,194	1,147	1,140	573
Italy	468	458	481	406	405	311	266	285	317	300	407
Netherlands	198	141	131	146	140	137	147	208	222	150	175
Poland	21	8	9	9	8	12	16	19	35	57	104
Portugal	19	4	89	103	4	2	2	4	46	34	54
Spain	71	70	62	357	246	92	48	62	63	49	41
Sweden	760	666	1,092	900	895	1,310	675	525	779	504	1,247
United Kingdom	2,605	1,930	1,288	1,385	1,532	1,276	1,125	1,068	1,164	856	837
All others	200	414	578	600	369	481	358	501	520	471	895
Japan	18,891	13,791	12,932	12,073	12,076	11,816	11,691	13,022	12,559	9,170	9,374
China	9,960	10,707	17,166	26,881	42,168	54,230	64,971	78,479	80,991	79,551	102,967
Asia-8	46,502	40,920	43,196	43,661	48,641	50,293	52,975	53,120	51,887	44,579	48,103
India	41	35	32	43	43	127	239	192	365	358	557
Indonesia	891	1,060	979	865	79	53	28	33	31	1,179	1,208
Malaysia	9,593	9,188	10,564	12,510	14,260	207	21,403	18,957	16,605	12,337	10,467
Philippines	2,501	2,337	2,576	2,024	1,366	1,277	106	1,437	1,289	981	1,167
Singapore	9,604	7,636	7,537	7,332	7,527	6,737	6,599	6,464	5,366	4,142	4,507
South Korea	10,351	9,176	9,553	10,147	12,742	9,557	8,958	10,629	12,553	12,026	13,085
Taiwan	5,652	9,585	9,620	8,173	8,075	7,578	8,338	8,548	8,179	8,175	10,884
Thailand	71	1,904	2,336	2,573	3,759	5,380	5,469	409	455	5,382	6,230
All others	26,642	21,980	19,106	19,679	22,173	22,667	23,948	28,053	28,920	30,290	37,682

Appendix table 6-38

U.S. trade in information and communications products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	10	10	11	9	16	15	8	20	19	22	29
Kazakhstan	0	0	0	0	0	0	0	0	0	0	0
Russia	4	5	5	2	3	4	3	3	7	5	4
Turkey	5	0	4	5	9	8	3	7	8	13	19
Ukraine	0	1	1	2	1	1	0	8	3	2	5
All others	0	1	1	1	3	2	1	0	1	2	1
Middle East and North Africa	1,046	843	572	510	550	638	807	1,178	1,012	934	1,000
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	1	2	2	0	0	0	0	0	0
Iran	0	0	0	0	0	0	1	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0	0	1
Israel	1,042	836	567	501	540	623	769	1,161	999	927	987
Morocco	0	0	1	0	0	0	1	0	0	0	0
Saudi Arabia	1	0	1	0	0	0	0	0	0	1	1
Tunisia	0	0	0	0	0	0	1	0	4	2	3
United Arab Emirates	2	3	3	4	6	12	34	10	5	3	6
All others	1	2	0	2	1	1	1	2	2	0	2
South and Central America	12,601	14,266	13,732	14,986	16,899	16,518	17,431	20,573	21,364	24,445	31,978
Argentina	2	2	8	3	2	4	3	3	4	5	2
Brazil	405	944	1,080	1,002	384	760	546	285	211	182	103
Chile	0	1	4	3	4	3	6	5	5	2	9
Colombia	4	1	2	1	1	3	5	14	7	6	6
Costa Rica	843	111	114	112	135	282	354	432	444	2,612	2,839
Mexico	11,332	13,190	12,513	13,834	16,277	15,222	16,380	19,690	20,600	21,591	28,992
Peru	0	1	1	0	0	1	1	0	0	2	1
Venezuela	4	1	1	1	0	1	1	1	0	1	1
All others	11	14	10	29	93	242	134	143	92	45	26
Sub-Saharan Africa	9	15	9	19	17	9	15	20	27	13	12
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	1	4	1	5	2	1	3	1	4	3	2
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	4	5	3	7	8	5	7	8	10	5	6
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	3	5	4	6	7	3	5	11	13	4	4
Other developed	12,967	6,842	4,762	4,136	4,667	5,428	5,525	5,907	5,867	4,506	4,222
Australia	68	60	67	67	96	65	69	108	91	86	96
Canada	12,564	6,472	4,492	3,863	4,322	5,093	5,136	5,430	5,249	4,029	3,628
New Zealand	10	18	18	28	29	22	30	36	34	25	31
Norway	125	140	118	121	149	158	205	244	361	254	350
Switzerland	199	150	66	57	71	89	83	87	129	111	115
All others	1	2	1	0	0	1	3	2	3	2	2
Other developing	10	5	20	19	24	59	162	355	631	371	440
Afghanistan	0	0	0	0	0	1	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	1	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	1	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	1	0	0	0	0	0	1	0	1	0	0
Sri Lanka	5	4	6	8	6	5	6	6	5	3	2
Vietnam	0	0	6	1	7	25	75	171	309	363	433
All others	2	1	2	3	4	3	4	7	6	4	5

Appendix table 6-38

U.S. trade in information and communications products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	-46,984	-41,721	-47,370	-56,974	-73,534	-83,409	-91,857	-104,993	-104,444	-103,144	-127,394
EU	11,328	9,535	6,703	6,905	7,690	7,708	9,020	10,219	8,765	5,948	5,773
Belgium	391	420	220	207	246	398	333	509	555	292	306
Czech Republic	51	20	2	-40	-66	-27	81	72	117	67	90
France	795	787	579	687	856	784	915	988	1,063	637	668
Germany	2,589	2,344	1,563	1,371	1,362	1,506	1,594	1,774	1,072	847	641
Hungary	-1,144	-771	-504	-533	-744	-977	-640	-790	-1,037	-683	-388
Ireland	294	121	-612	-8	58	-84	-290	-55	-43	-319	-59
Italy	261	238	-22	105	171	219	264	285	229	136	96
Netherlands	4,690	3,674	3,590	3,305	3,570	4,235	3,986	4,429	4,560	3,356	3,743
Poland	143	106	100	93	93	144	124	136	136	70	98
Portugal	45	61	-52	-73	32	43	51	47	0	3	-7
Spain	324	229	253	217	227	227	244	256	291	206	240
Sweden	-465	-424	-859	-630	-691	-1,079	-395	-206	-453	-261	-1,007
United Kingdom	2,697	2,278	2,253	2,117	2,439	2,321	2,569	2,261	1,961	1,480	1,617
All others	658	498	192	86	370	376	618	592	313	117	-265
Japan	-12,403	-8,543	-8,561	-8,071	-7,926	-8,029	-7,584	-9,077	-9,253	-6,559	-6,860
China	-6,336	-6,814	-13,583	-23,389	-38,373	-49,584	-59,441	-72,641	-74,723	-73,382	-95,893
Asia-8	-37,795	-34,574	-36,228	-36,974	-41,586	-42,210	-44,945	-44,839	-43,454	-37,733	-40,653
India	442	391	596	607	781	784	754	926	669	595	374
Indonesia	-851	-996	-915	-772	5	89	58	81	87	-995	-1,110
Malaysia	-8,822	-8,478	-9,604	-11,730	-13,441	925	-20,340	-17,952	-15,574	-11,453	-9,390
Philippines	-2,221	-2,119	-2,401	-1,856	-1,194	-1,075	151	-1,172	-893	-618	-730
Singapore	-7,504	-6,029	-5,826	-5,361	-5,581	-4,559	-4,560	-4,407	-3,099	-2,246	-2,425
South Korea	-7,288	-7,533	-7,821	-8,803	-11,515	-8,144	-7,497	-9,152	-11,036	-10,892	-11,855
Taiwan	-4,166	-8,370	-8,441	-7,116	-6,845	-6,539	-7,249	-7,313	-7,150	-7,457	-10,051
Thailand	413	-1,440	-1,817	-1,950	-3,006	-4,314	-4,427	601	588	-4,667	-5,468
All others	-1,764	-1,311	4,317	4,591	6,686	8,734	11,072	11,273	14,129	8,583	10,238
Central Asia and Europe	374	325	500	393	429	420	511	637	629	400	508
Kazakhstan	13	17	201	13	14	24	56	34	50	18	25
Russia	127	150	154	188	228	213	237	318	218	145	183
Turkey	168	96	84	72	95	113	150	189	220	141	215
Ukraine	16	19	13	9	13	12	18	22	23	13	12
All others	51	45	48	110	79	59	50	76	118	82	74
Middle East and North Africa	352	477	380	502	791	892	1,017	843	1,138	1,218	1,382
Algeria	0	220	15	8	164	180	184	99	89	26	21
Egypt	130	136	90	96	105	101	263	154	126	112	120
Iran	0	0	0	0	0	0	-1	0	0	0	1
Iraq	0	0	1	9	97	105	77	122	163	240	74
Israel	-272	-235	-103	-60	-45	-92	-277	-621	-447	-455	-430
Morocco	20	12	8	11	16	17	25	24	31	31	42
Saudi Arabia	146	122	131	118	129	156	220	205	255	307	256
Tunisia	8	7	5	5	7	5	8	8	7	15	2
United Arab Emirates	149	126	148	167	190	252	358	671	677	696	1,020
All others	78	96	88	149	136	171	161	189	244	247	277
South and Central America	-1,447	-4,609	-2,838	-3,672	-2,522	-1,290	501	-988	1,215	-2,439	-3,949
Argentina	882	547	132	292	400	555	661	899	987	789	990
Brazil	1,801	794	310	113	906	1,039	1,701	2,513	3,093	2,827	3,477
Chile	517	388	427	373	423	532	637	804	892	869	1,097
Colombia	333	377	434	453	556	608	691	941	1,162	929	1,184
Costa Rica	-722	50	35	79	60	-82	-72	-136	-129	-2,228	-2,487
Mexico	-6,297	-8,776	-6,463	-7,003	-7,723	-6,982	-6,995	-10,279	-9,591	-10,041	-13,262
Peru	203	163	227	254	260	277	413	436	632	589	712
Venezuela	476	421	384	216	661	765	1,149	1,056	1,209	1,085	999
All others	1,362	1,428	1,676	1,551	1,937	1,997	2,316	2,780	2,961	2,741	3,341
Sub-Saharan Africa	295	284	279	332	384	433	520	551	591	441	442

Appendix table 6-38

U.S. trade in information and communications products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	7	8	10	16	21	7	21	16	23	13	19
Congo (Kinshasa)	1	1	2	4	2	7	3	7	7	4	4
Ethiopia	3	2	2	11	3	6	6	7	11	8	7
Kenya	6	2	10	3	12	12	18	37	26	18	19
Nigeria	24	39	62	78	67	88	108	90	96	62	59
South Africa	185	138	123	151	196	214	263	282	301	184	209
Tanzania	3	4	3	4	6	7	7	0	1	15	15
Uganda	6	0	4	5	4	4	5	12	15	18	17
All others	62	86	65	70	76	93	94	92	114	119	95
Other developed	-1,486	2,054	5,733	6,818	7,332	7,976	8,275	10,026	10,362	8,837	11,671
Australia	1,433	976	915	898	973	1,178	1,420	1,623	1,323	1,155	1,158
Canada	-3,376	776	4,592	5,718	6,180	6,538	6,591	8,224	8,960	7,687	10,589
New Zealand	253	112	118	101	98	130	104	118	120	97	64
Norway	-25	-54	-37	-37	-54	-38	-55	-91	-162	-156	-231
Switzerland	215	232	137	124	122	150	206	137	76	42	84
All others	14	12	8	14	14	18	9	16	44	11	7
Other developing	148	158	263	217	272	303	249	202	194	125	184
Afghanistan	0	0	63	7	20	17	27	47	43	100	194
Bangladesh	7	15	9	5	12	28	17	14	13	8	9
Burma	-1	0	0	0	0	0	0	2	0	0	1
Cambodia	1	1	0	1	1	2	0	1	3	4	3
Laos	0	0	1	2	2	4	3	0	2	1	1
Nepal	1	2	4	2	7	7	1	3	3	2	3
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	20	19	41	32	58	64	72	121	143	50	79
Sri Lanka	21	15	35	23	6	13	16	12	13	4	7
Vietnam	16	20	21	31	28	26	-20	-72	-92	-213	-279
All others	65	64	69	89	109	116	154	147	159	170	166

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

Science and Engineering Indicators 2012

Appendix table 6-39

U.S. trade in aerospace products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	51,030	54,295	53,228	49,831	54,737	64,141	75,964	84,108	84,633	83,951	80,703
EU	22,614	21,286	19,833	20,214	23,132	22,944	24,731	29,859	30,444	29,823	26,163
Belgium	607	567	378	231	266	363	490	518	803	663	757
Czech Republic	188	110	113	54	107	140	87	187	176	106	187
France	4,287	4,870	5,448	3,737	6,158	6,389	6,416	7,694	7,284	8,646	7,221
Germany	4,413	4,207	2,909	2,680	2,942	3,711	4,359	5,246	5,680	5,513	5,408
Hungary	11	54	29	298	459	124	34	42	55	67	34
Ireland	717	762	849	1,020	1,087	1,561	1,201	1,433	1,389	1,896	1,714
Italy	795	707	1,678	1,616	1,369	1,032	1,116	993	1,145	1,037	779
Netherlands	1,757	1,251	1,429	2,475	2,134	1,330	1,909	1,746	1,943	1,818	1,518
Poland	19	33	27	21	40	72	537	1,083	863	343	459
Portugal	104	99	139	106	391	444	557	505	735	210	190
Spain	1,340	641	448	439	669	842	700	911	969	572	615
Sweden	1,326	577	481	441	319	371	337	310	381	316	236
United Kingdom	6,092	6,143	4,424	4,748	4,932	5,345	5,482	6,627	7,176	6,096	5,975
All others	958	1,266	1,481	2,348	2,260	1,222	1,506	2,564	1,844	2,538	1,070
Japan	4,054	3,579	4,870	5,719	5,228	5,573	5,954	6,464	6,658	5,513	5,288
China	2,034	2,933	3,732	2,593	2,076	4,214	5,450	6,528	5,177	7,619	7,245
Asia-8	6,327	10,082	8,441	7,372	8,071	9,578	12,508	13,829	10,775	9,964	12,260
India	296	352	333	327	426	660	1,347	3,604	1,792	2,236	1,261
Indonesia	49	50	72	51	98	187	144	395	540	909	1,727
Malaysia	337	685	954	257	673	413	760	543	376	613	901
Philippines	112	52	67	66	128	66	63	76	156	262	304
Singapore	1,257	3,993	3,297	3,100	3,275	3,728	4,299	3,706	3,900	2,970	3,871
South Korea	2,105	2,784	2,449	1,684	1,826	2,114	3,561	3,356	2,583	1,937	2,567
Taiwan	1,603	1,593	1,095	1,265	1,447	2,175	1,450	1,516	1,177	808	1,343
Thailand	567	572	173	622	198	236	884	633	252	229	284
All others	16,001	16,411	16,186	14,648	16,563	22,177	27,395	27,386	31,606	31,033	29,747
Central Asia and Europe	1,587	972	1,280	601	720	862	1,764	1,631	2,384	2,086	2,984
Kazakhstan	0	0	154	3	2	55	6	16	111	14	13
Russia	203	13	37	13	93	161	426	704	547	415	274
Turkey	1,244	765	1,020	390	309	527	1,174	729	1,407	1,226	2,451
Ukraine	1	3	3	8	7	32	45	47	82	168	132
All others	139	190	67	187	309	88	114	135	237	263	115
Middle East and North Africa	4,618	4,313	3,848	2,781	2,677	5,911	7,676	6,620	7,151	8,654	7,572
Algeria	0	264	225	19	40	190	37	14	29	56	231
Egypt	852	897	634	163	316	228	412	454	274	582	1,116
Iran	0	0	0	0	0	1	0	0	0	0	0
Iraq	0	0	0	5	39	106	173	316	251	153	173
Israel	846	1,144	944	804	1,424	1,429	1,562	1,632	1,552	996	874
Morocco	150	17	294	134	127	131	220	133	183	346	284
Saudi Arabia	1,839	1,410	320	388	227	344	329	344	781	1,067	899
Tunisia	122	53	10	9	10	29	8	15	17	10	10
United Arab Emirates	271	292	1,029	753	290	3,145	4,086	2,627	2,781	3,399	1,798
All others	264	244	564	508	206	313	852	1,143	1,289	2,045	2,186
South and Central America	2,910	3,493	2,977	2,792	4,320	4,684	6,903	7,505	9,030	9,447	8,131
Argentina	116	111	41	57	173	206	133	180	159	307	243
Brazil	1,470	2,207	1,473	1,138	2,305	2,233	3,244	4,525	5,563	4,674	4,422
Chile	176	199	53	80	82	277	735	499	513	1,242	359
Colombia	61	43	203	93	83	109	194	237	257	382	269
Costa Rica	18	12	24	11	31	44	67	37	81	22	83
Mexico	381	668	610	757	1,058	1,124	1,817	1,209	1,518	1,642	1,588
Peru	37	13	33	14	29	46	55	42	50	79	116
Venezuela	56	62	100	72	99	132	114	186	111	245	140
All others	595	178	439	569	460	512	542	590	779	854	911
Sub-Saharan Africa	665	1,191	531	672	763	1,211	1,166	943	1,231	1,055	1,184

Appendix table 6-39

U.S. trade in aerospace products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	7	5	18	38	12	44	541	177	393	82	73
Congo (Kinshasa)	0	0	0	0	1	0	6	1	5	2	5
Ethiopia	14	0	6	201	148	231	13	23	73	74	492
Kenya	10	431	117	59	159	374	128	210	104	199	74
Nigeria	18	21	52	18	68	147	74	128	56	217	134
South Africa	579	588	302	327	290	291	319	324	451	330	288
Tanzania	1	1	3	1	54	7	10	0	0	6	7
Uganda	0	1	0	1	1	4	3	5	11	50	16
All others	50	145	37	228	180	343	86	81	192	95	96
Other developed	6,073	6,093	7,403	6,230	6,597	8,454	8,811	9,932	10,978	9,016	9,201
Australia	1,215	981	3,126	2,377	1,246	1,158	1,534	1,214	1,722	1,793	1,628
Canada	3,203	3,460	3,050	3,013	4,068	5,531	5,316	6,858	7,277	5,729	5,376
New Zealand	450	750	391	336	409	669	988	630	326	218	611
Norway	345	320	256	150	163	278	263	411	484	615	828
Switzerland	778	505	483	341	618	680	677	673	1,091	603	699
All others	81	76	97	13	93	137	32	147	77	58	59
Other developing	149	349	147	1,572	1,486	1,056	1,075	754	832	774	674
Afghanistan	0	0	0	2	11	24	132	96	72	127	311
Bangladesh	4	5	5	5	5	8	7	19	19	11	12
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	2	0	0	2	2	0
Nepal	5	1	1	1	1	2	3	6	5	9	5
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	42	30	53	101	708	142	629	518	360	153	220
Sri Lanka	3	3	7	2	13	4	4	4	47	52	3
Vietnam	2	4	4	718	336	349	78	16	33	100	49
All others	89	302	72	26	75	177	145	79	262	320	73
Imports											
World	25,733	30,511	25,005	22,766	23,610	25,360	27,594	33,823	34,999	29,895	29,275
EU	15,141	17,152	13,103	10,741	11,197	12,349	14,937	17,484	18,137	16,268	15,711
Belgium	110	128	92	79	80	115	127	147	240	261	263
Czech Republic	10	27	39	70	94	103	158	206	250	152	135
France	7,021	7,730	6,234	5,069	5,094	4,943	6,791	8,964	8,793	7,480	7,355
Germany	3,266	3,663	2,338	1,699	1,833	2,835	2,542	2,382	2,798	3,059	2,150
Hungary	2	1	1	1	1	0	2	23	35	18	36
Ireland	48	52	55	44	61	82	90	99	110	50	26
Italy	421	494	432	386	461	625	680	865	918	816	1,072
Netherlands	161	169	154	149	171	191	206	214	237	248	272
Poland	15	21	20	26	53	54	252	202	158	169	358
Portugal	5	0	2	1	0	13	0	5	0	6	9
Spain	49	56	83	47	123	69	131	170	136	166	186
Sweden	143	150	127	114	140	106	111	246	253	160	220
United Kingdom	3,806	4,572	3,446	2,967	2,915	3,035	3,609	3,716	3,955	3,482	3,409
All others	85	88	79	88	165	177	232	245	247	201	220
Japan	1,530	1,818	1,380	1,290	1,405	1,685	2,236	2,794	2,562	2,842	2,989
China	77	103	115	133	183	176	261	354	408	413	508
Asia-8	381	550	424	443	544	674	812	975	967	907	1,041
India	5	5	5	9	11	9	13	15	42	31	31
Indonesia	1	2	1	2	5	5	8	6	6	9	12
Malaysia	1	2	9	16	19	31	28	40	31	42	63
Philippines	17	27	12	12	14	16	0	8	8	8	11
Singapore	93	124	128	121	142	172	179	237	318	245	260
South Korea	194	302	212	198	233	354	445	497	367	388	480
Taiwan	39	76	52	80	111	92	114	153	175	168	180
Thailand	9	13	5	6	12	9	13	8	6	16	3
All others	8,604	10,887	9,983	10,159	10,282	10,475	9,348	12,217	12,926	9,465	9,025

Appendix table 6-39

U.S. trade in aerospace products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	222	200	104	201	170	161	283	364	336	345	405
Kazakhstan	0	0	0	0	0	0	0	0	0	0	0
Russia	63	59	25	96	38	40	72	109	83	83	129
Turkey	85	2	72	73	91	120	147	189	214	253	271
Ukraine	74	50	7	32	40	1	1	62	36	4	3
All others	0	0	0	0	0	0	1	2	3	5	1
Middle East and North Africa	479	574	557	549	627	722	926	1,219	1,320	752	749
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	1	0	1	0	0	0
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0	0	0
Israel	473	567	554	548	622	713	920	1,212	1,309	746	742
Morocco	0	0	0	0	2	1	0	0	0	1	0
Saudi Arabia	5	1	2	0	2	5	0	0	5	1	1
Tunisia	0	0	0	0	1	2	3	3	4	3	5
United Arab Emirates	0	6	0	0	1	0	1	2	1	1	1
All others	0	1	0	0	0	0	0	0	0	0	0
South and Central America	1,579	2,078	2,165	1,887	2,578	1,998	1,345	2,060	2,834	1,131	1,317
Argentina	1	1	1	0	0	1	1	0	0	1	1
Brazil	1,466	1,936	1,848	1,682	2,384	1,807	1,151	1,703	2,290	673	633
Chile	1	1	0	0	0	1	1	5	6	1	2
Colombia	0	0	1	0	1	0	3	3	0	2	2
Costa Rica	0	0	0	0	0	0	0	1	1	0	1
Mexico	108	136	312	202	191	186	188	342	526	450	677
Peru	0	0	0	0	0	0	0	0	0	0	1
Venezuela	0	0	0	0	0	1	0	1	0	0	0
All others	3	3	3	2	1	2	1	6	11	3	2
Sub-Saharan Africa	3	1	3	5	6	3	4	3	9	5	6
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	1	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	2	0	0
Nigeria	0	0	0	0	0	0	0	0	2	0	0
South Africa	1	1	2	4	6	2	2	3	4	4	6
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	2	0	0	1	0	1	1	0	0	0	0
Other developed	6,320	8,033	7,149	7,516	6,900	7,590	6,788	8,566	8,420	7,231	6,545
Australia	111	146	128	126	107	124	136	174	171	160	159
Canada	6,082	7,706	6,805	7,232	6,591	7,166	6,317	8,065	7,779	6,685	6,041
New Zealand	2	2	3	8	10	10	13	10	4	2	7
Norway	73	132	126	91	136	73	80	88	116	116	105
Switzerland	53	47	87	60	55	217	241	229	350	267	233
All others	0	0	0	0	0	0	0	0	0	0	0
Other developing	1	1	6	1	1	1	2	5	7	2	2
Afghanistan	0	0	0	0	0	0	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	1	0	0	1	1	1	1	1	1
Sri Lanka	0	0	5	0	0	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0	0	0
All others	1	1	0	0	1	0	0	3	3	0	0

Appendix table 6-39

U.S. trade in aerospace products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	25,297	23,784	28,223	27,065	31,127	38,781	48,369	50,286	49,634	54,056	51,428
EU	7,472	4,133	6,730	9,473	11,935	10,595	9,794	12,376	12,308	13,555	10,452
Belgium	497	440	285	152	185	248	363	371	563	402	494
Czech Republic	178	83	74	-16	13	36	-71	-19	-74	-46	52
France	-2,734	-2,860	-786	-1,332	1,064	1,445	-375	-1,270	-1,509	1,166	-134
Germany	1,146	544	571	980	1,109	876	1,816	2,864	2,882	2,454	3,258
Hungary	9	53	28	297	459	124	32	19	21	49	-2
Ireland	669	709	794	976	1,026	1,479	1,111	1,333	1,279	1,846	1,688
Italy	374	213	1,245	1,230	908	406	436	128	227	221	-293
Netherlands	1,595	1,082	1,276	2,326	1,963	1,139	1,704	1,532	1,706	1,570	1,246
Poland	4	12	8	-5	-13	18	285	881	704	174	101
Portugal	99	99	137	105	391	431	557	500	735	204	181
Spain	1,291	584	365	392	546	773	569	741	833	406	429
Sweden	1,183	426	354	328	179	265	226	65	128	156	16
United Kingdom	2,287	1,570	978	1,780	2,016	2,310	1,873	2,911	3,221	2,614	2,566
All others	873	1,178	1,402	2,261	2,095	1,045	1,274	2,319	1,597	2,337	850
Japan	2,525	1,761	3,490	4,429	3,823	3,887	3,718	3,670	4,096	2,671	2,299
China	1,958	2,830	3,617	2,460	1,893	4,039	5,189	6,175	4,769	7,206	6,737
Asia-8	5,947	9,532	8,017	6,929	7,527	8,904	11,696	12,854	9,808	9,057	11,219
India	291	347	328	318	416	651	1,333	3,588	1,750	2,205	1,230
Indonesia	48	49	70	49	92	183	136	389	534	900	1,715
Malaysia	336	683	946	241	654	382	732	503	345	571	838
Philippines	95	25	54	54	114	50	63	68	148	254	293
Singapore	1,164	3,869	3,169	2,979	3,134	3,556	4,121	3,469	3,582	2,725	3,611
South Korea	1,911	2,482	2,237	1,486	1,593	1,760	3,116	2,859	2,216	1,549	2,087
Taiwan	1,564	1,518	1,044	1,185	1,336	2,083	1,336	1,363	1,002	640	1,163
Thailand	558	558	168	616	185	227	871	625	246	213	281
All others	7,397	5,523	6,202	4,489	6,282	11,702	18,047	15,169	18,680	21,568	20,722
Central Asia and Europe	1,364	772	1,176	400	551	701	1,481	1,268	2,048	1,741	2,579
Kazakhstan	0	0	154	3	2	55	6	16	111	14	13
Russia	139	-46	12	-83	55	121	353	595	463	332	145
Turkey	1,159	763	948	317	218	407	1,026	540	1,193	973	2,180
Ukraine	-73	-47	-5	-24	-33	31	44	-15	47	164	129
All others	139	190	67	187	309	87	112	133	234	258	114
Middle East and North Africa	4,140	3,738	3,291	2,232	2,050	5,190	6,749	5,402	5,831	7,902	6,823
Algeria	0	264	225	19	40	190	37	14	29	56	231
Egypt	852	897	634	163	315	228	412	453	274	582	1,116
Iran	0	0	0	0	0	1	0	0	0	0	0
Iraq	0	0	0	5	39	106	173	316	251	153	173
Israel	374	578	389	256	803	716	642	420	243	250	132
Morocco	150	17	294	133	125	130	220	133	183	345	284
Saudi Arabia	1,833	1,409	318	388	225	338	329	344	776	1,066	898
Tunisia	122	53	10	9	9	27	5	12	13	7	5
United Arab Emirates	271	286	1,029	753	289	3,144	4,085	2,625	2,780	3,398	1,797
All others	264	243	564	508	206	313	852	1,143	1,289	2,045	2,186
South and Central America	1,331	1,415	812	905	1,742	2,686	5,558	5,446	6,196	8,316	6,814
Argentina	115	110	40	57	173	205	132	180	159	306	242
Brazil	4	271	-374	-544	-79	425	2,093	2,822	3,273	4,001	3,789
Chile	175	198	53	80	81	276	734	495	507	1,241	357
Colombia	61	43	202	92	82	109	191	234	257	380	267
Costa Rica	18	12	24	10	31	44	67	36	81	22	82
Mexico	273	532	298	555	868	938	1,630	867	992	1,192	911
Peru	37	13	33	14	29	46	55	42	50	79	115
Venezuela	56	61	99	72	98	131	114	186	110	245	140
All others	592	175	436	568	459	510	541	584	768	851	909
Sub-Saharan Africa	662	1,190	528	667	757	1,208	1,162	940	1,222	1,050	1,178

Appendix table 6-39

U.S. trade in aerospace products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	7	5	18	38	12	44	541	177	393	82	73
Congo (Kinshasa)	0	0	0	0	1	0	5	1	5	2	5
Ethiopia	14	0	6	201	148	231	13	23	73	74	492
Kenya	10	431	117	59	159	374	128	210	103	199	74
Nigeria	18	21	52	18	68	147	74	128	53	217	134
South Africa	578	587	301	323	284	289	317	322	447	326	282
Tanzania	1	1	3	1	54	7	10	0	0	6	7
Uganda	0	1	0	1	1	4	3	5	11	50	16
All others	48	145	36	227	179	343	86	81	192	95	96
Other developed	-247	-1,940	254	-1,286	-303	864	2,023	1,366	2,558	1,785	2,656
Australia	1,104	835	2,998	2,252	1,139	1,034	1,398	1,040	1,551	1,633	1,469
Canada	-2,878	-4,247	-3,755	-4,219	-2,523	-1,635	-1,002	-1,207	-502	-956	-665
New Zealand	448	748	387	329	399	659	975	620	322	216	604
Norway	273	189	131	59	26	206	183	323	368	499	723
Switzerland	725	459	397	281	563	463	437	443	742	336	466
All others	81	76	97	13	93	137	32	147	77	58	59
Other developing	147	348	141	1,571	1,485	1,055	1,074	748	825	772	672
Afghanistan	0	0	0	2	11	24	132	96	72	127	311
Bangladesh	4	5	5	5	5	8	7	19	19	11	12
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	2	0	0	2	2	0
Nepal	5	1	1	1	1	2	3	6	5	9	5
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	42	29	52	101	708	141	628	517	359	152	219
Sri Lanka	3	3	3	2	13	4	4	4	47	52	3
Vietnam	2	4	4	717	336	349	78	16	32	100	49
All others	88	301	72	26	74	176	145	75	259	320	73

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

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Appendix table 6-40

U.S. trade in electronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	45,928	34,035	42,747	46,576	48,323	47,559	53,464	50,809	50,910	37,298	45,946
EU	5,517	4,787	5,298	4,975	4,795	4,401	5,472	5,426	4,875	2,903	2,993
Belgium	76	53	56	52	73	80	76	106	162	62	61
Czech Republic	15	16	57	41	39	49	45	23	17	15	14
France	953	661	592	531	368	307	335	316	358	306	378
Germany	985	1,086	1,489	1,503	1,277	1,338	1,967	1,820	1,507	744	871
Hungary	13	18	95	49	58	98	108	97	136	132	95
Ireland	437	349	317	556	491	366	415	230	223	196	205
Italy	444	261	308	268	305	265	392	303	295	178	243
Netherlands	354	348	557	419	331	389	338	301	243	241	208
Poland	10	7	11	18	33	29	31	29	18	17	25
Portugal	131	357	21	23	12	13	179	852	765	73	3
Spain	63	48	77	65	71	73	98	91	61	48	62
Sweden	153	114	146	112	108	107	237	257	162	282	206
United Kingdom	1,475	1,109	1,207	1,050	1,353	1,044	969	693	621	471	460
All others	408	362	364	288	276	243	282	309	306	137	160
Japan	3,299	2,545	2,780	2,392	2,230	1,714	2,032	1,736	1,584	1,166	1,274
China	2,637	2,278	3,977	5,302	6,953	6,977	8,995	9,723	9,515	7,866	9,285
Asia-8	24,610	17,576	21,225	24,274	23,026	22,293	25,005	23,379	23,712	15,396	19,124
India	48	52	70	82	90	118	139	134	172	170	173
Indonesia	79	53	37	29	42	36	34	62	52	49	74
Malaysia	5,063	3,633	4,926	6,434	5,573	5,085	5,906	5,039	6,107	4,363	5,909
Philippines	4,680	4,316	4,581	5,446	4,245	3,915	4,306	3,974	3,659	1,845	2,483
Singapore	3,075	1,828	2,216	2,389	3,137	2,847	3,629	4,243	3,925	2,119	2,948
South Korea	5,541	3,110	3,929	4,787	4,702	4,845	5,237	3,870	3,294	2,685	2,677
Taiwan	4,006	3,048	4,563	4,205	3,872	3,902	4,315	4,657	5,257	3,103	3,323
Thailand	2,118	1,537	902	902	1,365	1,546	1,438	1,400	1,247	1,063	1,538
All others	9,870	6,851	9,476	9,642	11,338	12,189	11,985	10,557	11,255	9,967	13,270
Central Asia and Europe	38	34	57	79	69	57	73	82	93	69	87
Kazakhstan	0	0	1	0	1	1	2	1	3	1	1
Russia	13	13	32	53	39	29	38	38	49	38	47
Turkey	22	17	18	20	24	23	26	34	29	22	26
Ukraine	1	2	2	3	2	2	2	4	4	1	2
All others	2	2	3	3	3	3	5	5	9	7	12
Middle East and North Africa	447	325	298	290	516	426	451	377	430	322	329
Algeria	0	1	0	0	0	14	11	3	4	1	1
Egypt	5	11	7	3	3	9	10	6	6	5	6
Iran	0	0	0	0	0	0	0	0	0	2	0
Iraq	0	1	0	0	3	7	5	5	7	5	2
Israel	386	272	256	241	453	349	351	267	297	175	218
Morocco	6	1	1	2	1	1	11	12	9	5	13
Saudi Arabia	5	9	5	9	10	11	13	17	23	25	23
Tunisia	1	0	0	1	0	1	1	1	1	4	2
United Arab Emirates	27	15	22	25	39	22	38	50	68	76	41
All others	17	16	7	9	7	11	12	16	17	24	23
South and Central America	5,502	4,257	6,413	6,549	7,176	7,517	7,744	6,868	7,439	6,905	9,693
Argentina	32	17	9	17	34	35	55	69	76	92	97
Brazil	670	516	650	635	672	693	692	653	896	917	1,367
Chile	27	19	30	33	34	53	55	50	33	30	31
Colombia	7	8	6	6	8	22	18	35	43	34	36
Costa Rica	219	244	838	1,016	848	869	1,047	1,029	1,353	894	676
Mexico	4,478	3,397	4,801	4,758	5,467	5,629	5,659	4,808	4,787	4,725	7,202
Peru	9	3	3	5	7	6	6	9	18	43	45
Venezuela	13	16	8	8	17	32	21	34	80	44	23
All others	47	37	68	71	89	177	192	182	153	127	216
Sub-Saharan Africa	23	22	23	29	26	69	60	49	30	29	28

Appendix table 6-40

U.S. trade in electronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	0	0	0	0	0	1	1	0	2	1	1
Congo (Kinshasa)	0	0	0	0	1	0	0	0	0	0	1
Ethiopia	0	0	0	1	0	0	0	0	1	1	0
Kenya	3	2	1	1	1	11	1	2	3	1	1
Nigeria	0	1	1	1	2	1	1	6	3	2	2
South Africa	17	17	17	18	14	14	16	21	14	20	19
Tanzania	0	0	0	0	0	0	0	16	9	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	3	2	4	8	8	42	41	20	6	3	4
Other developed	3,843	2,198	2,662	2,668	3,494	4,078	3,593	3,141	3,183	2,603	3,032
Australia	80	77	98	122	125	115	116	123	141	96	121
Canada	3,593	2,005	2,473	2,455	3,264	3,856	3,385	2,867	2,798	2,306	2,680
New Zealand	9	8	11	13	12	10	11	10	10	8	12
Norway	43	40	18	24	24	19	20	21	28	15	15
Switzerland	116	66	60	52	68	71	59	118	205	176	203
All others	1	1	2	2	1	6	2	1	1	2	2
Other developing	16	16	24	27	57	43	64	41	80	41	100
Afghanistan	0	0	0	1	2	4	1	3	3	5	11
Bangladesh	0	0	1	0	0	0	0	0	0	1	0
Burma	2	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	1	1	1	1	2	2	2	2	3	3	2
Sri Lanka	0	6	2	1	1	0	4	4	5	4	4
Vietnam	5	2	9	10	20	15	26	12	31	21	74
All others	5	4	3	4	10	6	4	6	6	6	9
Imports											
World	48,822	30,883	26,592	25,136	27,454	26,582	27,995	27,038	25,621	20,901	27,771
EU	3,833	3,204	3,076	3,179	3,049	3,034	3,120	3,333	3,209	1,891	2,304
Belgium	47	52	53	34	50	34	39	48	51	39	32
Czech Republic	25	11	14	12	9	5	3	5	6	13	16
France	570	530	478	557	527	513	406	360	220	155	192
Germany	1,004	1,035	1,026	950	777	797	875	861	793	502	676
Hungary	22	20	28	34	34	32	38	47	42	42	67
Ireland	261	167	103	127	111	134	178	501	513	73	74
Italy	420	196	375	328	358	338	334	279	505	370	408
Netherlands	87	82	44	57	53	35	25	28	29	27	22
Poland	5	3	6	4	4	16	27	51	67	21	17
Portugal	195	49	217	319	236	381	436	85	123	13	2
Spain	15	11	11	18	15	13	11	7	10	10	15
Sweden	113	72	63	48	55	44	45	52	43	34	44
United Kingdom	601	456	377	354	406	539	535	449	436	318	311
All others	469	371	281	337	356	269	254	332	371	274	429
Japan	7,773	4,240	2,649	2,332	2,800	2,586	2,948	3,021	2,937	2,054	2,861
China	2,109	1,392	1,291	1,173	1,703	2,130	2,488	2,494	2,132	1,741	2,820
Asia-8	30,074	18,088	16,238	14,970	16,219	15,088	16,127	15,251	14,585	10,843	14,865
India	19	29	20	15	35	45	73	64	96	60	76
Indonesia	266	196	163	144	871	871	714	877	1,109	123	173
Malaysia	6,163	4,448	4,146	3,479	3,557	18,770	3,027	2,725	2,854	2,077	3,796
Philippines	5,492	3,469	3,186	2,808	2,338	2,303	1,258	2,025	1,744	1,362	1,576
Singapore	3,368	1,769	1,300	1,302	1,495	1,539	1,981	1,846	1,473	1,039	1,685
South Korea	7,713	3,637	3,574	3,462	4,082	3,166	3,096	2,579	2,696	2,256	3,035
Taiwan	195	3,730	3,266	3,187	3,934	3,854	4,539	4,597	4,463	3,151	3,590
Thailand	2,146	811	584	575	616	648	911	6,019	6,426	775	934
All others	5,032	3,959	3,339	3,487	3,686	3,746	3,314	2,943	2,763	4,372	4,921

Appendix table 6-40

U.S. trade in electronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	12	6	3	3	4	4	6	4	15	6	10
Kazakhstan	0	0	0	0	0	0	0	1	0	0	0
Russia	10	5	3	2	3	3	4	3	13	5	9
Turkey	0	1	0	0	0	0	0	0	0	0	0
Ukraine	0	0	0	0	0	0	1	0	1	1	1
All others	1	1	0	0	1	0	1	1	1	0	0
Middle East and North Africa	645	314	395	410	458	370	510	246	173	2,158	277
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0	0	0
Israel	503	231	299	322	356	278	410	153	82	2,105	184
Morocco	141	1	96	88	101	91	99	3	2	53	92
Saudi Arabia	0	0	0	1	0	1	0	1	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0
United Arab Emirates	0	1	0	0	0	1	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0
South and Central America	1,886	1,531	1,573	1,723	1,608	1,332	1,392	1,387	1,251	984	3,515
Argentina	0	0	0	0	0	0	0	0	1	0	0
Brazil	18	9	3	3	3	5	7	8	13	5	16
Chile	0	0	0	0	0	0	0	1	0	0	0
Colombia	1	7	0	0	0	2	0	0	0	1	0
Costa Rica	203	328	452	629	493	331	247	202	209	117	2,487
Mexico	1,662	1,185	1,117	1,088	1,110	992	1,132	1,170	1,023	858	1,007
Peru	0	0	0	0	0	0	0	0	1	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0
All others	2	1	1	2	2	2	6	5	4	3	4
Sub-Saharan Africa	8	2	10	3	2	2	2	3	3	2	4
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	5	1	2	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	2	1	1	1	1	1	1	1	2	1	1
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	1	1	7	1	1	1	1	1	0	0	2
Other developed	2,481	2,105	1,353	1,339	1,606	2,030	1,397	1,294	1,310	1,218	1,111
Australia	12	15	9	11	13	14	10	13	17	16	16
Canada	2,369	1,972	1,252	1,223	1,411	1,835	1,262	1,173	1,105	1,093	994
New Zealand	2	3	4	5	6	5	3	3	2	1	3
Norway	6	5	5	2	5	14	6	8	8	9	18
Switzerland	92	109	83	97	170	162	115	98	177	96	76
All others	0	1	0	0	1	0	0	0	0	3	4
Other developing	2	1	4	9	8	7	7	9	10	5	3
Afghanistan	0	0	0	0	0	0	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	0	0	0	0	0	0	0	0	0
Sri Lanka	0	0	0	0	0	0	0	0	0	0	0
Vietnam	0	0	1	7	3	3	3	4	4	4	3
All others	1	1	1	0	2	0	1	1	1	1	0

Appendix table 6-40

U.S. trade in electronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	-2,894	3,153	16,155	21,440	20,869	20,977	25,469	23,770	25,289	16,397	18,175
EU	1,684	1,583	2,221	1,796	1,747	1,367	2,352	2,093	1,666	1,012	689
Belgium	30	1	2	18	23	46	37	58	111	23	29
Czech Republic	-10	5	44	29	30	45	42	18	10	2	-2
France	383	131	113	-27	-159	-206	-72	-44	137	151	186
Germany	-20	51	464	553	500	541	1,092	959	714	242	195
Hungary	-10	-3	67	15	23	66	70	50	94	90	28
Ireland	176	182	214	428	381	232	238	-271	-290	123	131
Italy	24	66	-68	-60	-53	-72	59	24	-210	-192	-165
Netherlands	266	266	514	363	278	354	312	273	215	214	186
Poland	6	4	5	14	29	13	4	-22	-48	-4	8
Portugal	-64	308	-197	-296	-225	-368	-257	767	642	60	1
Spain	48	37	66	47	56	60	87	84	51	38	47
Sweden	39	42	83	64	53	63	192	205	119	248	162
United Kingdom	875	653	830	697	948	505	435	244	185	153	149
All others	-60	-9	84	-49	-80	-25	27	-23	-65	-137	-269
Japan	-4,474	-1,694	131	61	-570	-872	-915	-1,285	-1,353	-888	-1,587
China	528	887	2,687	4,129	5,251	4,846	6,507	7,229	7,383	6,125	6,465
Asia-8	-5,465	-512	4,986	9,304	6,807	7,206	8,878	8,128	9,128	4,553	4,259
India	29	23	50	67	55	72	66	69	76	110	97
Indonesia	-187	-142	-125	-115	-829	-835	-680	-816	-1,058	-74	-99
Malaysia	-1,100	-815	780	2,955	2,016	-13,685	2,880	2,314	3,253	2,286	2,113
Philippines	-812	847	1,396	2,639	1,908	1,612	3,048	1,949	1,915	483	907
Singapore	-293	59	916	1,088	1,642	1,308	1,648	2,398	2,452	1,080	1,263
South Korea	-2,173	-527	355	1,324	619	1,678	2,142	1,291	598	429	-358
Taiwan	3,811	-682	1,297	1,018	-62	48	-224	60	794	-48	-267
Thailand	-28	726	318	327	748	898	527	-4,619	-5,179	288	604
All others	4,837	2,892	6,137	6,155	7,652	8,443	8,671	7,615	8,492	5,595	8,349
Central Asia and Europe	27	27	53	76	65	53	67	78	78	63	77
Kazakhstan	0	0	1	0	0	1	2	1	3	1	1
Russia	3	8	29	51	36	25	34	35	36	33	38
Turkey	22	16	18	20	24	22	26	34	28	22	26
Ukraine	1	2	2	3	2	2	1	3	3	0	1
All others	1	1	3	3	2	3	4	4	8	7	12
Middle East and North Africa	-198	11	-97	-120	59	55	-59	131	257	-1,836	52
Algeria	0	1	0	0	0	14	11	3	4	1	1
Egypt	5	11	7	3	3	9	10	6	6	5	6
Iran	0	0	0	0	0	0	0	0	0	2	0
Iraq	0	1	0	0	3	7	5	5	7	5	2
Israel	-117	41	-43	-81	97	71	-59	114	215	-1,930	34
Morocco	-135	0	-95	-86	-100	-90	-89	9	7	-48	-79
Saudi Arabia	5	9	5	8	10	11	13	17	23	25	23
Tunisia	1	0	0	1	0	1	1	0	1	4	2
United Arab Emirates	27	14	22	25	39	22	38	50	67	76	41
All others	17	16	7	9	7	11	12	16	16	24	23
South and Central America	3,617	2,726	4,840	4,826	5,568	6,185	6,352	5,481	6,188	5,921	6,178
Argentina	32	17	9	17	34	35	54	69	76	92	97
Brazil	653	507	647	632	669	689	685	645	883	912	1,351
Chile	27	19	30	33	34	52	55	49	33	30	31
Colombia	6	1	6	6	8	21	17	35	43	33	36
Costa Rica	16	-83	386	387	356	538	800	827	1,144	777	-1,811
Mexico	2,816	2,211	3,684	3,669	4,358	4,637	4,527	3,638	3,763	3,867	6,195
Peru	9	3	3	5	7	6	6	9	16	43	45
Venezuela	13	16	8	8	17	32	21	34	80	44	23
All others	45	36	66	69	87	176	186	176	149	124	212
Sub-Saharan Africa	16	20	13	26	23	66	58	47	27	27	24

Appendix table 6-40

U.S. trade in electronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	0	0	0	0	0	1	1	0	2	1	1
Congo (Kinshasa)	0	0	0	0	1	0	0	0	0	0	1
Ethiopia	0	0	0	1	0	0	0	0	1	1	0
Kenya	-2	1	-1	1	1	10	1	1	3	1	1
Nigeria	0	1	1	1	1	0	1	6	3	2	2
South Africa	15	16	17	17	13	13	16	20	12	19	18
Tanzania	0	0	0	0	0	0	0	16	9	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	2	1	-3	6	7	41	40	19	6	3	2
Other developed	1,362	93	1,309	1,330	1,888	2,048	2,195	1,847	1,873	1,385	1,921
Australia	68	62	90	111	113	101	106	111	124	80	105
Canada	1,225	32	1,221	1,232	1,854	2,021	2,123	1,695	1,693	1,213	1,686
New Zealand	7	5	7	8	5	5	8	7	8	7	9
Norway	38	35	13	22	19	6	13	13	19	6	-3
Switzerland	24	-42	-23	-46	-103	-91	-57	20	28	80	127
All others	1	0	2	2	0	6	2	1	1	-1	-2
Other developing	14	15	20	17	49	35	57	32	70	36	97
Afghanistan	0	0	0	1	2	4	1	3	3	5	11
Bangladesh	0	0	1	0	0	0	0	0	0	1	0
Burma	2	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	1	1	1	1	2	2	2	2	3	3	2
Sri Lanka	0	6	2	1	1	0	4	3	5	4	4
Vietnam	5	2	7	3	18	11	23	8	27	17	71
All others	4	3	2	4	8	6	3	6	5	5	9

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

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Appendix table 6-41

U.S. trade in life-sciences products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	11,413	12,123	11,828	12,994	14,537	16,506	18,759	21,580	25,172	25,260	27,834
EU	4,988	5,489	5,238	5,731	6,306	7,040	8,129	9,278	10,830	10,785	11,016
Belgium	307	268	268	319	363	450	564	846	1,005	1,156	1,228
Czech Republic	13	17	18	23	33	40	43	57	62	62	62
France	603	633	658	684	741	746	855	947	977	887	1,041
Germany	1,188	1,310	1,374	1,638	1,641	1,768	2,043	2,296	2,479	2,497	2,607
Hungary	11	11	15	19	20	19	19	30	29	36	41
Ireland	209	318	180	157	209	221	293	225	268	376	223
Italy	342	365	388	354	423	516	510	510	556	547	728
Netherlands	837	859	851	876	996	1,184	1,430	1,692	2,600	2,441	2,159
Poland	28	24	18	25	31	48	49	71	88	83	111
Portugal	32	43	22	22	32	35	37	39	40	33	38
Spain	239	320	181	247	235	252	311	361	381	359	449
Sweden	197	231	238	278	301	345	442	509	537	673	636
United Kingdom	740	829	786	814	953	1,060	1,126	1,134	1,302	1,076	1,083
All others	241	262	241	275	328	356	408	560	507	560	610
Japan	1,917	1,918	1,710	1,793	2,072	2,195	2,358	2,480	2,819	2,676	3,392
China	532	653	714	952	1,023	1,170	1,240	1,441	1,781	2,021	2,435
Asia-8	991	931	957	1,076	1,242	1,512	1,659	1,991	2,128	2,183	2,603
India	98	134	144	164	250	262	298	381	437	448	511
Indonesia	17	17	12	11	9	17	23	28	44	41	58
Malaysia	45	63	61	51	70	72	82	99	105	112	143
Philippines	31	27	23	22	28	50	56	55	61	74	86
Singapore	155	129	152	178	192	230	304	373	465	515	606
South Korea	326	308	313	381	388	515	537	617	602	598	730
Taiwan	262	203	207	206	216	237	247	295	260	248	319
Thailand	57	50	44	62	88	128	114	143	154	147	150
All others	2,992	3,144	3,220	3,460	3,906	4,613	5,401	6,417	7,653	7,595	8,389
Central Asia and Europe	127	123	114	138	159	218	283	367	477	388	468
Kazakhstan	6	7	3	1	2	6	15	17	15	12	12
Russia	36	52	51	66	52	50	75	137	228	131	191
Turkey	68	49	42	54	86	136	141	161	174	183	204
Ukraine	2	3	8	5	10	6	12	15	22	22	17
All others	15	11	11	11	9	20	41	38	38	40	45
Middle East and North Africa	284	339	306	378	402	454	497	620	742	901	899
Algeria	1	3	4	6	10	10	5	18	16	14	21
Egypt	40	53	32	21	29	32	31	41	70	58	54
Iran	0	0	1	3	6	12	9	13	19	20	19
Iraq	0	5	0	1	18	23	24	38	27	54	51
Israel	94	87	95	110	120	99	119	124	134	135	153
Morocco	2	3	2	4	6	4	6	8	12	18	15
Saudi Arabia	68	104	95	119	103	122	131	137	185	264	224
Tunisia	4	2	2	2	2	5	5	6	5	14	11
United Arab Emirates	39	35	42	60	45	61	83	110	144	175	150
All others	37	48	36	54	65	89	90	131	131	148	202
South and Central America	994	978	946	900	1,104	1,418	1,674	2,026	2,492	2,424	2,840
Argentina	81	66	20	38	54	83	98	116	147	154	184
Brazil	297	280	252	194	234	328	406	537	686	671	819
Chile	46	47	48	46	62	79	92	89	105	107	121
Colombia	42	47	54	48	69	96	117	139	165	163	227
Costa Rica	13	14	21	54	49	60	65	55	49	74	104
Mexico	364	329	372	379	436	501	575	666	814	791	799
Peru	14	14	12	14	19	23	31	56	66	56	65
Venezuela	49	68	61	29	60	100	120	152	223	168	240
All others	88	112	104	97	120	148	169	215	237	241	281
Sub-Saharan Africa	62	62	77	88	102	149	159	194	201	214	228

Appendix table 6-41

U.S. trade in life-sciences products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	1	1	1	2	2	5	6	16	12	16	12
Congo (Kinshasa)	0	0	0	0	0	0	0	0	1	0	1
Ethiopia	0	1	0	1	0	0	1	0	1	2	2
Kenya	2	1	3	2	6	5	4	6	5	5	5
Nigeria	1	4	6	3	3	6	10	12	18	15	19
South Africa	49	47	59	64	79	110	119	133	137	152	139
Tanzania	0	0	0	0	1	2	0	0	0	1	5
Uganda	0	0	0	1	2	1	1	2	1	1	1
All others	9	8	8	16	10	20	19	24	25	21	44
Other developed	1,485	1,594	1,728	1,888	2,067	2,255	2,648	3,068	3,571	3,511	3,747
Australia	308	345	334	342	393	429	558	616	783	800	863
Canada	873	908	1,060	1,172	1,319	1,433	1,619	1,855	2,027	1,930	2,122
New Zealand	39	39	30	39	48	59	53	67	77	85	91
Norway	45	47	50	62	53	66	104	151	139	145	133
Switzerland	217	253	246	266	249	261	309	367	536	540	517
All others	4	2	7	6	6	7	6	13	9	11	20
Other developing	40	47	48	68	72	119	140	141	170	157	207
Afghanistan	0	0	0	0	1	10	10	12	9	40	56
Bangladesh	4	2	3	3	7	13	10	7	11	13	17
Burma	1	0	0	1	0	0	1	0	1	1	2
Cambodia	0	1	0	0	0	0	1	1	1	1	1
Laos	0	0	0	0	0	0	0	0	0	1	0
Nepal	1	2	0	1	0	1	1	1	2	1	2
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	10	8	8	13	16	28	26	31	34	28	32
Sri Lanka	3	3	4	3	6	4	5	8	7	7	5
Vietnam	8	12	13	19	15	26	34	32	41	50	57
All others	6	7	6	10	12	10	18	16	21	16	35
Imports											
World	16,211	20,113	25,416	30,801	32,775	30,420	33,616	36,232	39,944	38,117	41,849
EU	10,807	13,940	18,022	21,278	22,788	20,683	22,359	23,675	26,828	25,047	27,162
Belgium	405	745	725	411	1,000	485	1,168	1,191	1,738	3,068	2,439
Czech Republic	8	15	15	20	33	39	42	50	73	60	49
France	491	931	1,418	1,901	1,865	1,561	1,400	1,432	1,695	1,563	1,818
Germany	2,432	2,565	2,644	2,995	4,236	3,379	3,569	3,727	3,411	3,218	3,508
Hungary	10	9	13	22	31	26	31	27	21	25	111
Ireland	4,744	7,061	10,229	12,691	11,697	11,981	11,905	12,749	14,672	12,611	14,555
Italy	470	363	386	399	498	402	398	392	434	478	413
Netherlands	372	451	518	556	740	726	789	786	786	743	804
Poland	1	2	2	1	3	6	11	20	22	30	30
Portugal	1	0	0	0	0	1	2	2	11	7	15
Spain	47	73	149	269	234	147	144	261	530	422	473
Sweden	98	96	121	122	156	159	211	214	203	184	188
United Kingdom	1,304	1,201	1,165	1,135	1,396	1,185	2,131	2,235	2,590	1,977	2,045
All others	425	429	637	755	898	584	556	577	643	661	714
Japan	1,690	1,770	1,801	1,903	2,007	2,159	2,135	2,332	2,103	1,919	2,227
China	358	368	450	498	594	405	625	794	1,085	1,270	1,518
Asia-8	520	593	1,217	1,818	1,875	1,013	1,335	1,360	1,461	1,714	1,886
India	43	83	112	159	189	233	321	381	509	501	709
Indonesia	0	0	0	1	1	2	2	2	1	4	10
Malaysia	17	14	15	18	26	0	58	61	56	62	102
Philippines	4	7	5	10	14	14	0	28	33	36	24
Singapore	311	352	925	1,433	1,411	528	680	679	613	807	638
South Korea	83	67	72	74	110	102	144	170	170	153	197
Taiwan	168	66	82	115	113	74	93	105	125	130	145
Thailand	0	4	5	9	12	20	25	1	1	20	62
All others	2,836	3,443	3,926	5,303	5,512	6,162	7,158	7,986	8,420	8,167	9,057

Appendix table 6-41

U.S. trade in life-sciences products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	16	18	22	29	32	42	48	55	68	55	71
Kazakhstan	0	0	0	0	0	0	0	0	0	0	0
Russia	14	14	19	26	29	35	36	36	45	42	47
Turkey	0	0	1	1	1	0	1	1	2	2	2
Ukraine	0	0	0	0	0	0	0	0	0	0	0
All others	2	3	2	3	2	6	11	1	20	10	21
Middle East and North Africa	318	350	440	505	564	490	479	506	529	457	503
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0	0	0
Israel	317	349	440	504	562	483	475	502	527	454	498
Morocco	0	0	0	0	0	0	0	0	0	0	2
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0
United Arab Emirates	0	0	0	1	1	1	2	3	1	2	2
All others	0	0	0	0	1	2	1	0	1	1	1
South and Central America	1,334	1,543	1,821	2,382	2,563	2,730	3,166	3,545	3,876	3,894	4,431
Argentina	5	3	2	2	3	2	3	3	3	4	4
Brazil	3	3	4	3	3	8	7	12	14	17	18
Chile	0	0	0	0	0	0	1	0	1	0	0
Colombia	0	1	1	1	0	0	3	0	0	0	1
Costa Rica	176	285	352	464	474	512	561	616	728	694	699
Mexico	793	895	1,113	1,480	1,695	1,831	2,234	2,586	2,786	2,828	3,215
Peru	0	0	0	0	0	0	0	0	0	1	0
Venezuela	0	0	1	0	0	2	8	0	1	1	0
All others	356	356	349	433	388	375	349	328	342	348	495
Sub-Saharan Africa	11	4	7	7	9	13	12	13	15	21	24
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	11	3	7	7	9	13	11	13	14	19	22
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	1	2	1
Other developed	1,133	1,506	1,608	2,352	2,307	2,853	3,419	3,803	3,827	3,649	3,940
Australia	88	85	107	127	165	259	333	412	446	411	494
Canada	386	521	578	824	781	779	1,187	1,727	1,380	1,165	883
New Zealand	26	32	40	40	58	67	78	90	105	107	110
Norway	35	29	46	34	41	64	87	87	79	70	80
Switzerland	588	829	824	1,304	1,234	1,651	1,688	1,445	1,776	1,863	2,334
All others	10	11	14	23	28	33	44	42	42	33	40
Other developing	24	23	28	27	37	34	35	64	105	91	88
Afghanistan	0	0	0	0	0	0	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	1	1
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	1	0	NA	NA	NA	NA	NA
Pakistan	24	23	27	26	30	31	32	42	54	52	49
Sri Lanka	0	0	0	0	0	0	1	0	0	0	0
Vietnam	0	0	0	0	1	0	1	10	25	37	37
All others	0	0	0	0	2	1	1	1	1	1	1

Appendix table 6-41

U.S. trade in life-sciences products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	-4,797	-7,990	-13,589	-17,806	-18,238	-13,915	-14,857	-14,652	-14,772	-12,857	-14,015
EU	-5,819	-8,450	-12,785	-15,547	-16,481	-13,642	-14,230	-14,397	-15,997	-14,262	-16,146
Belgium	-98	-477	-457	-91	-637	-36	-604	-345	-733	-1,912	-1,211
Czech Republic	5	2	3	3	0	1	1	7	-10	2	13
France	112	-298	-760	-1,217	-1,124	-815	-546	-485	-718	-676	-777
Germany	-1,244	-1,255	-1,271	-1,357	-2,595	-1,611	-1,526	-1,431	-932	-721	-901
Hungary	1	2	2	-4	-12	-6	-12	3	8	11	-70
Ireland	-4,535	-6,743	-10,049	-12,534	-11,487	-11,760	-11,612	-12,524	-14,405	-12,235	-14,332
Italy	-128	2	2	-45	-75	114	112	118	122	69	315
Netherlands	465	408	333	320	256	459	641	906	1,815	1,698	1,355
Poland	27	22	16	24	28	42	38	50	66	53	81
Portugal	31	43	22	22	32	33	35	37	29	26	23
Spain	192	246	32	-22	0	105	166	100	-149	-63	-24
Sweden	99	135	118	157	145	186	231	294	334	489	448
United Kingdom	-563	-372	-380	-321	-443	-125	-1,005	-1,100	-1,289	-901	-962
All others	-183	-166	-396	-480	-570	-228	-148	-17	-136	-101	-104
Japan	227	148	-91	-109	65	35	223	148	717	757	1,165
China	173	285	265	454	429	765	615	648	696	751	917
Asia-8	472	338	-260	-742	-633	499	324	631	667	469	717
India	55	51	32	5	61	29	-24	0	-72	-53	-198
Indonesia	17	17	12	10	9	15	21	26	43	37	48
Malaysia	29	49	46	33	44	72	24	38	49	50	41
Philippines	27	20	18	12	15	36	56	28	28	38	62
Singapore	-156	-223	-773	-1,255	-1,219	-298	-376	-305	-148	-292	-32
South Korea	244	241	240	307	278	413	393	447	432	445	533
Taiwan	94	137	125	92	104	163	153	190	135	118	174
Thailand	57	46	39	53	76	108	89	142	153	127	88
All others	156	-299	-706	-1,843	-1,606	-1,549	-1,757	-1,569	-766	-572	-688
Central Asia and Europe	111	105	93	108	127	176	235	312	409	333	397
Kazakhstan	6	7	3	1	2	6	15	17	15	12	12
Russia	22	38	31	41	23	15	39	101	182	89	144
Turkey	68	49	41	54	86	135	140	160	172	181	202
Ukraine	2	3	8	5	9	6	12	14	22	22	17
All others	13	8	9	8	7	14	30	37	18	30	24
Middle East and North Africa	-34	-10	-134	-127	-162	-36	18	115	213	444	396
Algeria	1	3	4	6	10	10	5	18	16	14	21
Egypt	40	53	32	21	29	32	31	41	70	58	54
Iran	0	0	1	3	6	12	9	13	19	20	19
Iraq	0	5	0	1	18	23	24	38	27	54	51
Israel	-224	-263	-345	-394	-442	-384	-356	-379	-392	-319	-345
Morocco	2	3	2	4	6	4	6	8	12	18	13
Saudi Arabia	68	104	95	119	103	122	131	137	185	264	224
Tunisia	4	2	2	2	2	5	5	6	5	14	11
United Arab Emirates	39	35	42	59	43	60	82	108	143	173	148
All others	37	48	35	53	64	87	89	131	130	147	201
South and Central America	-340	-564	-874	-1,483	-1,460	-1,312	-1,492	-1,519	-1,383	-1,470	-1,591
Argentina	76	63	18	36	51	81	95	114	144	150	180
Brazil	294	277	249	191	230	320	399	525	672	654	801
Chile	46	47	48	46	62	78	91	89	105	107	121
Colombia	42	47	54	48	69	96	114	139	165	163	226
Costa Rica	-164	-271	-330	-410	-424	-452	-496	-560	-679	-620	-595
Mexico	-429	-567	-741	-1,101	-1,260	-1,330	-1,659	-1,920	-1,972	-2,037	-2,416
Peru	14	14	12	14	19	23	31	56	66	55	65
Venezuela	49	67	61	29	60	98	112	152	222	167	240
All others	-268	-243	-245	-335	-267	-227	-179	-112	-105	-107	-214
Sub-Saharan Africa	52	58	70	81	93	136	147	181	187	193	204

Appendix table 6-41

U.S. trade in life-sciences products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	1	1	1	2	2	5	6	16	12	16	12
Congo (Kinshasa)	0	0	0	0	0	0	0	0	1	0	1
Ethiopia	0	1	0	1	0	0	1	0	1	2	2
Kenya	2	1	3	2	6	5	4	6	5	5	5
Nigeria	1	4	6	3	3	6	10	11	18	15	19
South Africa	38	44	52	57	70	97	108	121	123	133	117
Tanzania	0	0	0	0	1	2	0	0	0	1	5
Uganda	0	0	0	1	2	1	1	2	1	1	1
All others	8	8	8	16	10	20	19	24	25	19	43
Other developed	352	88	119	-463	-240	-599	-771	-734	-256	-138	-193
Australia	220	260	227	215	228	169	225	204	337	389	369
Canada	486	387	483	348	537	654	431	128	648	765	1,239
New Zealand	13	8	-11	0	-10	-8	-25	-23	-27	-22	-19
Norway	10	17	4	28	12	2	17	64	60	75	53
Switzerland	-371	-575	-577	-1,038	-985	-1,390	-1,380	-1,078	-1,240	-1,323	-1,817
All others	-6	-9	-7	-17	-22	-27	-38	-29	-33	-22	-20
Other developing	15	24	20	42	36	86	104	77	65	66	119
Afghanistan	0	0	0	0	1	10	10	12	9	40	56
Bangladesh	4	2	3	3	7	13	10	7	11	12	16
Burma	1	0	0	1	0	0	1	0	1	1	2
Cambodia	0	1	0	0	0	0	1	1	1	1	1
Laos	0	0	0	0	0	0	0	0	0	1	0
Nepal	1	2	0	1	0	1	1	1	2	1	2
North Korea	0	0	0	0	-1	0	NA	NA	NA	NA	NA
Pakistan	-14	-15	-19	-13	-14	-3	-6	-10	-19	-24	-17
Sri Lanka	3	3	4	3	6	4	4	7	7	7	5
Vietnam	8	12	12	19	13	26	34	22	17	13	20
All others	5	7	6	9	10	9	16	16	20	15	34

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

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Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	3,815	3,091	2,430	2,467	3,525	4,583	5,033	5,379	5,000	4,484	6,178
EU	1,415	1,227	737	728	959	1,460	1,545	1,654	1,746	1,432	1,951
Belgium	9	14	16	41	55	69	59	66	83	79	82
Czech Republic	2	1	3	3	3	4	6	19	8	8	39
France	114	80	58	62	92	102	118	88	116	115	157
Germany	398	485	294	238	338	506	534	714	732	761	1,008
Hungary	1	2	3	2	1	2	5	3	5	4	5
Ireland	30	27	19	52	47	120	52	24	27	7	10
Italy	134	132	48	65	46	84	73	71	104	120	156
Netherlands	130	109	120	126	195	321	377	357	255	117	222
Poland	2	3	4	3	6	6	8	10	10	7	12
Portugal	2	1	1	2	4	8	10	6	17	15	8
Spain	16	31	24	18	17	27	54	72	159	26	58
Sweden	25	47	10	5	8	13	22	23	28	26	17
United Kingdom	516	243	102	83	112	144	164	143	154	110	116
All others	34	53	33	27	35	56	61	56	48	36	59
Japan	557	483	348	346	545	845	778	774	576	307	452
China	135	181	185	219	266	317	363	446	369	291	561
Asia-8	921	623	542	454	992	946	1,252	1,281	844	756	1,399
India	12	44	10	16	11	24	28	49	28	44	61
Indonesia	3	0	1	1	1	0	1	1	2	1	3
Malaysia	100	34	31	31	41	55	99	60	84	35	51
Philippines	69	30	12	5	16	11	10	11	7	5	17
Singapore	140	102	97	112	184	130	187	186	206	109	263
South Korea	133	148	86	93	190	221	400	325	275	184	331
Taiwan	453	255	295	180	515	468	492	608	212	355	645
Thailand	12	9	10	16	33	35	35	41	30	22	28
All others	787	577	620	721	763	1,015	1,097	1,225	1,467	1,698	1,815
Central Asia and Europe	10	5	9	10	14	21	22	34	35	27	37
Kazakhstan	0	0	0	0	0	0	1	0	2	0	1
Russia	0	1	2	5	9	8	11	11	7	7	24
Turkey	9	3	6	4	4	12	8	19	18	12	10
Ukraine	0	0	0	0	0	0	1	1	3	4	1
All others	1	1	1	1	1	1	2	2	5	4	2
Middle East and North Africa	66	74	34	50	61	80	90	131	133	136	165
Algeria	93	0	0	0	0	0	1	0	0	0	0
Egypt	4	2	1	4	1	3	4	9	1	1	6
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	1	4	2	5	6	8	15
Israel	51	65	26	37	45	49	55	88	76	60	58
Morocco	2	0	1	0	0	0	0	0	1	5	4
Saudi Arabia	1	1	2	2	1	5	7	7	18	25	20
Tunisia	0	0	0	0	0	0	0	0	3	1	0
United Arab Emirates	2	4	3	4	9	12	13	12	18	27	41
All others	6	2	2	4	3	6	8	10	10	8	20
South and Central America	334	187	218	365	329	473	498	603	774	991	808
Argentina	5	5	1	3	4	22	10	12	10	13	12
Brazil	101	22	23	19	19	45	62	83	80	53	95
Chile	3	3	8	12	8	17	20	16	17	14	21
Colombia	3	5	5	4	6	12	17	22	35	32	17
Costa Rica	2	3	2	2	2	4	5	4	6	7	13
Mexico	167	130	158	312	273	320	325	372	508	788	547
Peru	1	1	4	2	3	5	11	10	13	28	35
Venezuela	5	4	2	1	3	9	11	26	26	13	11
All others	46	14	14	12	11	39	36	58	79	44	55
Sub-Saharan Africa	16	11	12	15	17	26	18	19	36	26	26

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	0	0	0	0	0	0	0	2	4	1	1
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	1	3	3	1	1	1	1	1	2
Nigeria	0	0	1	0	0	5	3	1	9	7	5
South Africa	15	10	9	9	12	12	12	10	12	10	8
Tanzania	0	0	0	0	0	0	0	1	2	1	2
Uganda	0	6	0	1	0	0	0	0	1	1	0
All others	1	0	1	2	1	8	1	4	8	5	7
Other developed	358	299	341	277	331	404	457	416	469	483	726
Australia	38	25	28	26	43	39	47	44	63	51	39
Canada	291	248	289	224	253	315	340	312	358	397	644
New Zealand	2	3	3	3	3	7	7	4	5	6	6
Norway	5	6	4	4	4	17	25	15	9	4	10
Switzerland	22	18	17	21	28	25	37	40	34	25	27
All others	0	0	0	0	0	1	1	1	0	0	0
Other developing	2	2	5	3	10	10	11	22	20	35	53
Afghanistan	0	0	0	0	0	0	1	3	3	11	28
Bangladesh	0	0	1	1	0	0	0	1	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	1	0	0	0
Laos	0	1	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	1	1	7	1	2	7	9	10	4
Sri Lanka	0	0	0	0	0	0	0	1	1	0	0
Vietnam	0	0	1	0	1	1	1	2	2	6	17
All others	1	1	2	1	1	6	6	6	3	8	3
Imports											
World	5,823	5,607	5,447	5,256	7,802	12,149	19,584	24,964	25,566	23,290	25,936
EU	351	407	455	664	677	822	770	957	988	695	918
Belgium	14	11	24	57	44	54	19	12	11	8	11
Czech Republic	1	1	4	4	6	3	4	6	6	5	11
France	53	44	48	38	29	38	33	42	48	47	79
Germany	90	108	117	118	137	298	356	507	589	372	462
Hungary	4	19	49	60	52	55	55	43	30	8	6
Ireland	2	5	11	8	12	12	9	6	4	5	4
Italy	16	16	17	24	31	38	41	36	31	25	36
Netherlands	32	61	80	235	223	159	72	67	45	25	44
Poland	0	0	0	0	0	1	1	3	1	2	2
Portugal	3	0	4	4	1	2	4	12	7	4	4
Spain	7	10	6	3	6	4	2	15	14	4	6
Sweden	11	15	24	27	34	27	24	20	34	36	41
United Kingdom	106	97	48	58	66	91	102	137	124	113	153
All others	14	15	23	28	33	41	48	60	45	41	57
Japan	2,042	1,654	1,392	1,354	1,627	1,625	1,332	1,266	1,225	796	1,094
China	1,492	1,663	1,936	1,288	1,664	2,770	4,448	5,852	6,665	6,563	7,573
Asia-8	1,084	1,023	974	1,094	1,373	1,553	2,347	1,972	1,238	1,346	1,806
India	7	8	12	5	6	6	19	29	15	14	37
Indonesia	148	138	115	61	1	1	0	1	3	31	38
Malaysia	365	286	298	215	135	41	254	101	80	101	335
Philippines	38	54	51	60	67	77	17	123	213	224	113
Singapore	200	134	99	102	124	132	153	170	194	195	313
South Korea	88	150	206	283	502	418	511	383	121	67	93
Taiwan	11,376	109	81	258	294	355	596	894	438	216	332
Thailand	7	145	119	109	173	330	753	33	25	499	546
All others	854	860	684	856	2,455	5,355	10,616	14,844	15,214	13,890	14,545

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	1	1	1	2	2	5	4	7	7	5	5
Kazakhstan	0	0	0	0	0	0	0	0	0	0	0
Russia	1	0	1	1	2	3	2	5	5	3	3
Turkey	0	2	0	0	0	0	0	1	1	1	1
Ukraine	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	1	1	1	2	2	1
Middle East and North Africa	155	139	113	70	133	119	180	156	130	176	180
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	1	0	0	0	0
Iran	0	0	0	0	0	4	0	0	0	0	0
Iraq	155	139	112	69	133	118	179	155	130	0	0
Israel	0	0	1	0	0	0	0	0	1	176	179
Morocco	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0
United Arab Emirates	0	0	0	1	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	1	0	0	0	0
South and Central America	517	573	441	639	2,150	4,965	10,173	14,163	14,641	13,394	13,988
Argentina	0	0	1	0	0	0	0	3	3	2	3
Brazil	4	4	1	2	1	1	1	4	4	4	1
Chile	1	0	0	0	1	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	1	0	1	0
Costa Rica	0	0	0	0	0	0	0	0	0	0	0
Mexico	503	561	432	627	2,141	4,957	10,164	14,147	14,623	13,379	13,972
Peru	0	0	0	1	1	0	0	0	0	0	0
Venezuela	0	0	0	0	2	0	0	0	0	0	0
All others	10	7	6	8	6	6	7	9	10	7	11
Sub-Saharan Africa	0	0	1	2	2	2	3	1	2	1	2
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	1	2	1	2	3	1	1	1	1
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	1	0	0	0	0
Other developed	180	148	128	143	166	264	249	322	286	238	245
Australia	2	2	8	6	1	14	16	7	6	7	7
Canada	78	67	80	90	89	128	102	211	166	167	139
New Zealand	0	0	0	1	2	1	2	2	2	2	2
Norway	1	1	1	1	1	1	3	2	2	1	2
Switzerland	99	76	37	44	71	120	124	99	110	61	95
All others	0	1	1	1	1	0	1	0	0	0	0
Other developing	1	0	0	1	1	1	8	194	148	75	126
Afghanistan	0	0	0	0	0	0	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	0	0	0	0	0	0	0	0	0
Sri Lanka	0	0	0	0	0	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	4	97	74	74	126
All others	1	0	0	0	0	0	0	0	0	0	0

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	-2,008	-2,516	-3,017	-2,789	-4,277	-7,566	-14,551	-19,586	-20,566	-18,806	-19,758
EU	1,064	820	282	64	283	638	775	697	758	737	1,033
Belgium	-5	3	-8	-15	12	15	41	54	72	71	71
Czech Republic	1	0	-1	-1	-3	2	2	13	2	3	28
France	61	36	11	24	63	64	84	45	68	68	78
Germany	308	377	176	120	201	208	178	208	143	389	546
Hungary	-3	-17	-46	-58	-51	-53	-50	-39	-25	-4	-1
Ireland	29	22	7	44	35	108	43	18	23	2	6
Italy	118	116	31	41	15	46	32	35	72	95	120
Netherlands	98	48	40	-109	-28	162	305	290	210	92	178
Poland	2	3	4	3	6	5	7	8	8	5	10
Portugal	-1	1	-2	-2	4	5	7	-6	10	11	4
Spain	9	21	19	15	11	22	51	57	145	22	52
Sweden	14	31	-15	-21	-26	-14	-2	3	-6	-10	-24
United Kingdom	411	146	55	25	45	53	62	6	30	-3	-37
All others	20	37	11	-1	3	15	13	-3	4	-5	2
Japan	-1,484	-1,171	-1,044	-1,008	-1,082	-780	-555	-492	-649	-489	-642
China	-1,357	-1,482	-1,751	-1,069	-1,398	-2,452	-4,084	-5,406	-6,296	-6,272	-7,012
Asia-8	-163	-400	-432	-640	-381	-607	-1,095	-690	-394	-590	-407
India	5	36	-2	11	6	18	9	20	13	30	24
Indonesia	-144	-137	-114	-61	0	0	1	0	-1	-30	-35
Malaysia	-265	-252	-267	-185	-94	14	-155	-42	3	-66	-284
Philippines	30	-23	-39	-55	-51	-66	-7	-112	-205	-219	-96
Singapore	-59	-31	-2	10	60	-1	34	16	12	-86	-50
South Korea	45	-2	-120	-190	-312	-197	-111	-58	153	117	238
Taiwan	-10,923	146	215	-78	221	113	-105	-286	-226	139	313
Thailand	4	-136	-109	-93	-140	-294	-718	8	5	-477	-518
All others	-68	-283	-65	-135	-1,692	-4,340	-9,519	-13,618	-13,746	-12,192	-12,730
Central Asia and Europe	9	4	8	9	12	16	19	27	28	22	32
Kazakhstan	0	0	0	0	0	0	1	0	2	0	1
Russia	-1	0	2	4	8	4	9	6	3	4	21
Turkey	9	1	6	4	4	12	8	19	17	11	9
Ukraine	0	0	0	0	0	0	1	1	3	4	1
All others	0	0	1	1	0	1	1	1	3	2	1
Middle East and North Africa	-89	-65	-79	-19	-72	-38	-90	-24	3	-40	-15
Algeria	93	0	0	0	0	0	1	0	0	0	0
Egypt	4	2	1	4	1	3	3	9	1	1	6
Iran	0	0	0	0	0	-4	0	0	0	0	0
Iraq	-155	-139	-112	-69	-132	-114	-177	-150	-124	8	15
Israel	51	65	26	37	45	49	55	88	75	-116	-121
Morocco	2	0	1	0	0	0	0	0	1	5	4
Saudi Arabia	1	1	2	2	1	5	7	7	18	25	20
Tunisia	0	0	0	0	0	0	0	0	3	1	0
United Arab Emirates	2	4	3	3	9	12	13	11	18	27	41
All others	6	2	2	4	3	6	8	9	10	8	20
South and Central America	-183	-386	-223	-273	-1,821	-4,492	-9,675	-13,560	-13,867	-12,403	-13,180
Argentina	5	4	1	2	4	21	10	9	7	11	9
Brazil	97	17	22	16	18	44	61	80	76	49	94
Chile	2	3	8	12	7	17	20	16	17	14	21
Colombia	3	5	5	4	6	12	17	21	34	31	17
Costa Rica	1	3	2	2	2	4	5	4	6	7	13
Mexico	-335	-430	-274	-316	-1,867	-4,637	-9,839	-13,775	-14,115	-12,591	-13,425
Peru	1	1	4	1	1	5	11	10	13	28	35
Venezuela	5	4	2	1	1	9	11	26	26	13	11
All others	36	6	8	4	5	32	29	49	69	37	44
Sub-Saharan Africa	16	11	11	13	16	24	15	18	34	25	24

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	0	0	0	0	0	0	0	2	4	1	1
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	3	3	1	1	1	1	1	2
Nigeria	0	0	1	0	0	5	3	1	9	7	5
South Africa	15	10	8	7	11	10	10	9	11	9	7
Tanzania	0	0	0	0	0	0	0	1	2	1	2
Uganda	0	6	0	1	0	0	0	0	1	1	0
All others	1	0	1	2	1	8	1	3	8	5	7
Other developed	178	152	214	135	165	140	208	94	183	245	481
Australia	36	23	20	20	41	25	31	37	56	44	32
Canada	213	181	208	134	164	187	238	101	193	230	505
New Zealand	2	2	3	2	1	6	5	2	3	4	4
Norway	4	4	3	2	3	16	22	13	7	3	8
Switzerland	-78	-58	-20	-23	-43	-95	-87	-59	-76	-36	-68
All others	0	-1	-1	0	-1	0	0	0	0	0	0
Other developing	1	2	5	2	9	10	4	-172	-127	-40	-73
Afghanistan	0	0	0	0	0	0	1	3	3	11	28
Bangladesh	0	0	1	1	0	0	0	1	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	1	0	0	0
Laos	0	1	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	1	1	7	1	2	7	9	10	4
Sri Lanka	0	0	0	0	0	0	0	1	1	0	0
Vietnam	0	0	0	0	0	1	-3	-95	-72	-68	-109
All others	0	1	2	1	1	6	6	6	3	8	3

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

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Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Exports											
World	2,575	2,191	1,088	1,036	1,134	1,152	1,401	1,666	1,893	1,707	2,162
EU	749	573	255	277	335	324	356	435	473	370	539
Belgium	9	9	2	8	18	17	9	14	8	2	4
Czech Republic	1	1	1	2	3	4	2	2	3	2	7
France	173	68	20	14	24	23	31	52	64	48	64
Germany	122	131	96	92	97	92	87	82	79	66	86
Hungary	0	0	0	0	0	0	1	2	3	2	1
Ireland	46	46	26	31	43	46	41	46	55	33	12
Italy	19	16	16	26	31	20	30	41	52	50	65
Netherlands	79	60	16	34	26	21	15	23	34	50	59
Poland	2	1	1	1	2	4	6	21	36	25	26
Portugal	0	2	1	0	0	0	0	0	1	0	43
Spain	17	10	15	11	3	4	23	31	24	18	25
Sweden	9	19	6	3	7	6	8	7	6	7	5
United Kingdom	259	193	40	42	46	40	49	51	52	36	84
All others	13	18	16	14	34	48	54	64	55	28	59
Japan	372	296	239	198	159	138	157	196	151	163	169
China	122	462	84	116	99	85	161	267	328	282	262
Asia-8	266	206	201	218	246	189	237	325	358	246	347
India	2	11	7	8	7	4	3	7	9	8	5
Indonesia	3	1	1	6	4	2	3	4	7	5	5
Malaysia	21	15	13	12	20	12	18	19	24	17	41
Philippines	4	4	6	1	1	0	1	1	24	1	1
Singapore	105	47	53	65	63	50	47	70	68	47	85
South Korea	56	49	39	55	69	65	78	136	121	92	96
Taiwan	74	74	77	69	80	51	70	72	88	63	102
Thailand	1	5	4	2	3	4	17	17	17	13	12
All others	1,065	655	310	228	297	419	491	447	592	646	844
Central Asia and Europe	3	3	5	9	19	16	22	34	45	22	46
Kazakhstan	0	0	0	0	3	0	0	0	0	0	0
Russia	2	0	4	6	11	9	14	23	27	10	23
Turkey	0	0	1	3	4	7	7	7	14	8	16
Ukraine	0	0	0	0	0	0	0	3	2	1	2
All others	1	2	0	0	0	0	1	1	2	3	5
Middle East and North Africa	63	64	55	38	31	31	36	44	50	88	190
Algeria	0	1	0	1	0	0	0	0	2	3	1
Egypt	4	4	8	0	1	1	1	0	0	0	1
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	1	1	1	0	0	1
Israel	56	53	38	32	23	22	25	29	36	51	49
Morocco	0	0	2	3	2	0	0	0	0	0	0
Saudi Arabia	1	3	2	1	2	2	7	7	4	7	10
Tunisia	0	0	1	0	0	0	0	0	0	0	0
United Arab Emirates	1	1	3	0	2	4	2	4	5	19	72
All others	1	1	1	0	1	1	1	3	2	8	57
South and Central America	342	181	116	83	132	251	257	176	270	311	357
Argentina	29	29	0	0	1	2	1	2	2	2	2
Brazil	107	47	4	2	4	4	7	7	13	9	20
Chile	5	2	1	1	0	1	3	2	4	6	4
Colombia	5	5	2	4	3	3	11	18	28	9	9
Costa Rica	1	1	4	1	1	2	4	4	8	8	9
Mexico	108	81	99	67	116	221	197	120	186	246	278
Peru	3	1	0	1	1	1	1	5	4	1	3
Venezuela	71	7	2	1	2	2	6	5	6	4	4
All others	12	8	4	5	4	14	27	12	18	26	28
Sub-Saharan Africa	3	1	1	2	4	4	1	6	44	48	14

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	0	0	0	0	0	0	0	0	0	0	1
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	1	0	1	0
Nigeria	0	0	0	0	0	0	0	3	0	1	3
South Africa	2	0	0	2	2	2	1	1	39	38	6
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	1	0	0	0	3	1	1	0	4	8	4
Other developed	650	383	132	93	105	110	170	174	161	168	225
Australia	30	31	10	6	11	9	58	62	19	17	21
Canada	612	347	117	82	89	95	105	103	129	140	187
New Zealand	1	1	0	1	0	1	1	1	1	2	1
Norway	1	1	2	3	1	3	2	4	4	2	8
Switzerland	5	4	3	2	3	3	5	5	8	7	8
All others	0	0	0	0	0	0	0	0	0	0	0
Other developing	5	23	2	4	5	6	6	14	23	9	12
Afghanistan	0	0	0	0	0	0	0	0	1	1	1
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	0	0	0	1	1	2	2	1	1
Sri Lanka	0	0	0	0	0	0	0	0	0	0	0
Vietnam	0	0	0	2	2	2	2	5	8	6	8
All others	5	23	1	1	0	1	1	2	5	0	1
Imports											
World	2,707	2,436	1,468	1,511	1,794	1,803	2,176	2,379	2,255	1,506	1,997
EU	638	668	394	369	392	429	530	538	419	310	411
Belgium	3	3	1	2	2	1	1	1	2	2	3
Czech Republic	6	4	7	8	8	11	15	19	21	14	17
France	66	71	61	68	83	102	154	142	92	79	114
Germany	289	280	193	184	175	182	219	200	172	112	145
Hungary	0	0	0	0	0	2	1	1	0	0	1
Ireland	2	2	0	1	2	27	1	3	2	0	0
Italy	6	16	17	13	24	19	31	24	25	14	24
Netherlands	27	45	12	13	15	15	11	23	12	11	13
Poland	1	1	1	0	1	1	1	1	2	2	5
Portugal	0	0	0	1	0	2	3	1	5	0	0
Spain	0	4	0	1	1	1	1	2	1	0	0
Sweden	1	3	2	1	1	1	1	1	2	1	2
United Kingdom	106	104	42	31	33	24	34	51	32	27	30
All others	131	135	57	48	47	45	58	71	54	47	57
Japan	862	776	656	714	841	846	960	1,157	1,099	650	837
China	80	75	41	76	98	85	119	124	151	111	167
Asia-8	371	503	244	229	270	228	273	307	246	161	297
India	21	26	3	3	2	4	4	2	5	4	2
Indonesia	11	3	1	2	1	1	1	2	7	3	7
Malaysia	75	43	33	27	35	205	36	41	44	18	39
Philippines	2	6	4	1	1	0	5	1	0	2	0
Singapore	26	32	31	35	48	23	28	35	33	25	49
South Korea	132	306	118	108	119	117	143	156	102	51	120
Taiwan	63	79	53	51	58	47	49	57	50	51	70
Thailand	26	8	1	1	2	2	5	30	42	7	10
All others	756	414	133	127	193	215	295	253	342	273	285

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Central Asia and Europe	11	17	5	5	8	4	6	8	5	5	5
Kazakhstan	0	0	0	0	0	0	0	0	0	0	0
Russia	4	4	3	4	7	3	3	5	2	2	2
Turkey	6	91	1	0	0	0	0	0	0	0	0
Ukraine	0	0	0	0	0	0	0	1	1	0	0
All others	0	2	0	1	1	1	1	3	2	2	2
Middle East and North Africa	12	11	7	8	13	2	1	9	8	24	4
Algeria	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0	0	0
Israel	6	5	6	8	11	1	1	9	8	24	4
Morocco	0	82	0	0	0	0	0	93	90	0	0
Saudi Arabia	5	4	0	0	2	0	2	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	0
All others	1	2	0	0	0	0	0	0	0	0	0
South and Central America	145	115	65	64	125	187	252	192	265	214	246
Argentina	0	0	0	0	0	0	0	0	0	0	0
Brazil	21	16	3	1	0	0	0	0	1	0	0
Chile	0	0	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	1	0	0	1	0	0
Costa Rica	2	2	1	1	2	4	5	4	6	7	18
Mexico	119	96	61	63	123	183	245	184	256	206	227
Peru	0	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0
All others	3	1	0	0	0	0	0	3	3	0	0
Sub-Saharan Africa	5	6	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0
South Africa	4	6	0	0	0	0	0	0	0	0	0
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0
Other developed	584	265	57	46	46	21	35	44	63	30	29
Australia	36	23	5	5	1	1	0	2	2	1	1
Canada	534	229	44	34	38	17	21	18	14	15	18
New Zealand	2	1	0	0	0	0	0	0	0	0	0
Norway	2	1	0	1	1	2	10	20	42	11	8
Switzerland	10	8	6	5	5	2	4	4	5	3	3
All others	0	2	2	1	1	0	0	0	0	0	0
Other developing	0	0	0	2	1	1	1	0	1	0	1
Afghanistan	0	0	0	0	0	0	0	0	0	0	0
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	0	0	0	0	0	0	0	0	0
Sri Lanka	0	0	0	2	1	1	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0	0	1
All others	0	0	0	0	0	0	0	0	0	0	0

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Balance											
World	-133	-245	-380	-475	-660	-651	-774	-713	-362	201	165
EU	111	-96	-138	-91	-57	-105	-174	-104	54	60	128
Belgium	6	7	2	6	16	16	8	13	6	0	1
Czech Republic	-4	-3	-6	-5	-5	-7	-13	-17	-18	-12	-10
France	107	-3	-41	-54	-59	-79	-124	-90	-28	-31	-50
Germany	-167	-149	-97	-92	-78	-90	-133	-118	-93	-46	-59
Hungary	0	0	0	0	0	-2	0	1	3	2	0
Ireland	44	44	25	30	41	19	40	43	54	33	12
Italy	13	0	-1	13	7	1	-1	17	26	36	41
Netherlands	51	15	5	21	11	6	4	0	22	39	46
Poland	1	0	0	0	1	3	4	19	34	23	21
Portugal	0	2	1	-1	0	-2	-3	-1	-4	0	43
Spain	16	5	15	10	2	3	23	29	23	18	25
Sweden	8	16	4	3	6	5	7	6	4	6	3
United Kingdom	153	88	-2	12	13	15	15	-1	20	9	54
All others	-118	-117	-41	-34	-13	4	-4	-6	1	-19	2
Japan	-490	-480	-417	-516	-682	-709	-803	-961	-948	-487	-668
China	42	386	43	41	1	-1	42	143	177	171	95
Asia-8	-104	-297	-44	-11	-24	-39	-36	18	112	85	50
India	-20	-14	5	5	4	0	-1	5	4	4	3
Indonesia	-8	-3	0	4	3	1	2	2	0	2	-2
Malaysia	-54	-29	-20	-16	-14	-192	-18	-22	-21	-1	2
Philippines	2	-1	2	0	0	0	-4	0	24	-1	1
Singapore	79	15	22	31	15	28	19	35	36	22	36
South Korea	-76	-257	-79	-53	-50	-51	-65	-21	19	41	-24
Taiwan	11	-5	24	18	22	4	21	15	38	12	32
Thailand	-25	-3	3	1	1	2	12	-13	-25	6	2
All others	309	242	177	102	104	203	197	194	251	373	559
Central Asia and Europe	-8	-14	0	3	11	13	16	26	40	17	41
Kazakhstan	0	0	0	0	3	0	0	0	0	0	0
Russia	-3	-4	0	2	4	6	11	18	25	8	21
Turkey	-6	-90	0	2	4	7	6	7	13	8	16
Ukraine	0	0	0	0	0	0	0	2	1	1	2
All others	0	0	0	0	-1	0	0	-2	0	1	3
Middle East and North Africa	51	53	48	29	18	29	35	35	41	64	186
Algeria	0	1	0	1	0	0	0	0	2	3	1
Egypt	4	4	8	0	1	1	1	0	0	0	1
Iran	0	0	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	1	1	1	0	0	1
Israel	50	48	31	24	12	21	23	20	28	27	45
Morocco	0	-82	2	3	2	0	0	-93	-90	0	0
Saudi Arabia	-4	-1	2	1	0	2	5	6	4	7	10
Tunisia	0	0	1	0	0	0	0	0	0	0	0
United Arab Emirates	1	1	3	0	2	4	2	4	5	19	72
All others	0	-1	1	0	1	1	1	3	2	8	57
South and Central America	197	66	51	19	6	64	5	-16	5	97	111
Argentina	29	29	0	0	1	2	1	2	2	2	2
Brazil	85	31	0	2	3	4	7	6	12	9	20
Chile	5	2	1	1	0	1	3	2	4	6	4
Colombia	5	5	2	4	3	3	11	18	27	9	9
Costa Rica	-1	-1	3	1	-1	-2	-1	-1	3	1	-9
Mexico	-10	-15	39	4	-8	38	-49	-63	-69	40	51
Peru	3	1	0	1	1	1	1	5	4	1	3
Venezuela	71	7	2	1	2	2	6	5	6	4	4
All others	9	7	4	5	4	14	27	8	15	26	28
Sub-Saharan Africa	-2	-5	1	2	4	4	1	6	43	48	14

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–10

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Angola	0	0	0	0	0	0	0	0	0	0	1
Congo (Kinshasa)	0	0	0	0	0	0	0	0	0	0	0
Ethiopia	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	1	0	1	0
Nigeria	0	0	0	0	0	0	0	3	0	1	3
South Africa	-3	-6	0	2	2	2	1	1	39	38	6
Tanzania	0	0	0	0	0	0	0	0	0	0	0
Uganda	0	0	0	0	0	0	0	0	0	0	0
All others	1	0	0	0	3	1	1	0	3	8	4
Other developed	66	119	75	47	60	89	135	131	98	138	196
Australia	-6	8	5	1	10	8	58	60	17	16	20
Canada	79	118	73	49	51	78	84	85	115	125	169
New Zealand	-1	-1	0	0	0	1	1	1	1	2	1
Norway	0	0	1	1	0	1	-8	-16	-38	-9	0
Switzerland	-5	-5	-2	-3	-1	1	1	1	3	4	5
All others	0	-2	-1	-1	-1	0	0	0	0	0	0
Other developing	4	23	2	2	4	5	5	14	22	9	11
Afghanistan	0	0	0	0	0	0	0	0	1	1	1
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Burma	0	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0	0	0	0	0	0
Laos	0	0	0	0	0	0	0	0	0	0	0
Nepal	0	0	0	0	0	0	0	0	0	0	0
North Korea	0	0	0	0	0	0	NA	NA	NA	NA	NA
Pakistan	0	0	0	0	0	1	1	2	2	1	1
Sri Lanka	0	0	0	-2	-1	-1	0	0	0	0	0
Vietnam	0	0	0	2	2	2	2	5	8	6	7
All others	5	23	1	0	0	1	1	2	5	0	1

NA = not available; not provided by Census Bureau

EU = European Union

NOTES: Technologies classified by U.S. Census. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, special tabulations (15 January 2011).

Science and Engineering Indicators 2012

Appendix table 6-44

Companies in the United States reporting innovation activities, by industry: 2006–08

(Percent)

Industry and NAICS code	Companies (thousands)[a]	New or significantly improved product: Any good/service Yes	Any good/service No	Goods Yes	Goods No	Services Yes	Services No	New or significantly improved process: Any process Yes	Any process No	Manufacturing/production methods Yes	Manufacturing/production methods No	Logistics/delivery/distribution methods Yes	Logistics/delivery/distribution methods No	Support activities Yes	Support activities No
All industries, 21–33, 42–81	1,545.1	9	86	5	91	7	88	9	86	4	91	3	92	7	88
Manufacturing industries, 31–33	127.1	22	74	18	77	10	85	22	72	18	77	7	88	13	82
Food, 311	9.1	17	75	16	77	5	87	17	75	13	80	6	86	7	85
Beverage/tobacco products, 312	1.2	17	77	13	81	6	87	15	75	9	81	6	84	8	81
Textile/apparel/leather and allied products, 313–16	6.1	19	77	15	81	9	87	18	78	13	83	7	89	12	84
Wood products, 321	6.1	9	88	6	91	5	92	16	81	13	84	3	95	6	91
Chemicals, 325	5.9	41	52	33	60	18	75	34	59	22	71	17	75	20	72
Pharmaceuticals/medicines, 3254	1.5	45	51	24	72	27	69	42	53	18	77	27	69	32	63
Other 325	4.4	40	52	36	56	15	77	31	60	23	69	14	78	16	75
Plastics/rubber products, 326	6.1	24	72	21	75	11	85	28	68	24	72	8	87	15	81
Nonmetallic mineral products, 327	5.4	13	84	11	85	5	91	14	83	11	85	4	92	8	88
Primary metals, 331	2.1	17	79	13	83	11	84	19	76	17	78	4	91	11	84
Fabricated metal products, 332	26.1	16	80	11	84	9	87	22	73	19	77	5	90	12	84
Machinery, 333	12.0	26	70	23	72	11	83	24	71	21	74	5	90	15	81
Computer/electronic products, 334	7.0	45	46	43	48	18	73	33	58	26	64	11	79	18	73
Computers/peripheral equipment, 3341	0.6	56	39	47	49	26	68	46	49	31	63	19	75	21	73
Communications equipment, 3342	0.8	51	41	51	42	21	72	33	58	25	67	7	85	17	75
Semiconductor/other electronic components, 3344	2.5	27	65	25	67	10	81	25	65	19	72	7	84	14	77
Navigational/measuring/electromedical/control instruments, 3345	2.6	59	30	58	31	24	64	40	48	36	53	16	72	22	66
Other 334	0.5	37	59	35	61	13	83	14	82	10	86	3	93	10	86
Electrical equipment/appliance/components, 335	2.8	37	60	36	60	11	85	28	67	24	72	12	84	21	75
Transportation equipment, 336	5.4	28	65	25	67	11	82	23	70	18	75	5	88	15	77
Motor vehicles/trailers/parts, 3361–63	3.3	24	67	22	69	8	83	22	69	19	71	3	87	14	77
Aerospace products/parts, 3364	0.9	32	60	29	63	19	74	25	67	16	76	7	86	20	72
Other 336	1.3	35	63	31	67	12	85	25	73	15	83	8	90	16	81
Furniture/related products, 337	7.8	14	81	13	82	6	88	19	75	12	83	5	90	12	83
Manufacturing nec, other 31–33	24.1	22	75	17	80	12	85	23	73	17	79	7	89	14	82
Nonmanufacturing industries, 21–23, 42–81	1,417.9	8	87	3	92	7	89	8	87	2	93	3	92	6	89
Information, 51	23.1	30	65	16	78	25	71	20	74	7	88	10	84	16	78
Software publishers, 5112	4.0	77	18	58	37	56	38	53	40	19	74	22	71	43	49
Telecommunications/Internet service providers/Web search portals/data processing services, 517–18	6.3	37	58	15	80	34	61	22	73	7	88	11	84	20	75
Other 51	12.9	12	83	4	91	11	85	10	86	4	92	7	88	6	89
Finance/insurance, 52	55.9	8	83	1	90	8	83	8	84	1	90	2	88	7	84
Real estate/rental/leasing, 53	49.0	7	90	6	91	5	92	6	90	2	95	2	95	6	91
Professional/scientific/technical services, 54	173.6	13	84	6	91	12	85	12	85	4	92	5	92	10	87
Computer systems design/related services, 5415	19.4	35	60	20	75	30	65	25	68	8	86	7	86	23	71
Scientific R&D services, 5417	3.1	33	59	24	69	22	71	26	67	15	77	6	86	14	78
Other 54	151.1	10	87	4	94	9	88	10	87	4	93	4	93	8	89
Health care services, 621–23	183.5	10	86	3	93	9	86	8	87	3	92	3	92	7	89
Nonmanufacturing nec, other 21–23, 42–81	932.8	6	89	3	92	5	90	7	88	2	93	2	93	5	90

nec = not elsewhere classified

NAICS = North American Industry Classification System

[a]Weighted totals for companies that reported on the 2008 Business R&D and Innovation Survey whether they did or did not perform/fund R&D. Weighted totals do not include the estimated 327,300 nonresponding companies for whom an R&D status was not reported.

NOTES: Survey asked companies to identify innovations introduced in 2006 to 2008. Sum of yes plus no percentages may not add to 100% due to item nonresponse to some innovation question items. Figures are preliminary and may later be revised. Data may not be internationally comparable.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics and Census Bureau, Business R&D and Innovation Survey (2008).

Science and Engineering Indicators 2012

Appendix table 6-45

USPTO patent grants, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	101,417	109,642	111,982	147,509	153,481	157,489	166,033	167,327	169,020	164,290	143,805	173,771	157,282	157,772	167,350	219,642
United States	55,600	60,935	61,488	79,990	83,580	84,721	87,339	86,645	87,599	83,929	74,264	89,352	79,138	77,152	81,912	107,154
EU	16,266	16,900	17,706	22,964	23,762	25,215	27,292	27,202	26,922	25,043	21,280	24,571	22,134	22,012	22,355	30,703
France	2,819	2,799	2,968	3,689	3,825	3,838	4,062	4,035	3,874	3,402	2,903	3,461	3,151	3,184	3,162	4,478
Germany	6,608	6,850	7,015	9,103	9,363	10,255	11,264	11,301	11,456	10,781	9,038	10,053	9,080	8,952	9,017	12,380
Italy	1,092	1,198	1,258	1,601	1,503	1,702	1,727	1,759	1,722	1,603	1,315	1,496	1,318	1,369	1,377	1,840
Netherlands	808	803	825	1,250	1,265	1,267	1,328	1,391	1,329	1,286	1,004	1,339	1,274	1,324	1,317	1,659
Sweden	803	855	863	1,232	1,405	1,583	1,744	1,667	1,511	1,286	1,131	1,249	1,067	1,064	1,009	1,433
United Kingdom	2,501	2,479	2,704	3,490	3,600	3,685	3,976	3,847	3,641	3,471	3,153	3,621	3,303	3,117	3,230	4,383
All others	1,636	1,916	2,073	2,598	2,800	2,886	3,193	3,203	3,389	3,213	2,736	3,352	2,942	3,001	3,243	4,530
Japan	21,795	23,089	23,207	30,876	31,139	31,338	33,257	34,889	35,545	35,403	30,361	36,852	33,401	33,720	35,524	44,905
China	168	147	154	254	266	326	460	561	613	740	744	1,057	1,192	1,607	2,041	3,213
Asia-8	2,907	3,552	4,153	6,645	7,628	8,478	9,518	10,048	10,156	11,344	10,369	13,371	13,574	15,154	16,792	21,945
India	40	39	52	90	118	141	187	265	354	369	401	511	566	651	709	1,143
South Korea	1,166	1,494	1,903	3,267	3,568	3,331	3,547	3,793	3,952	4,428	4,364	5,899	6,299	7,540	8,769	11,655
Taiwan	1,624	1,905	2,065	3,110	3,718	4,704	5,397	5,444	5,299	5,950	5,114	6,350	6,104	6,345	6,663	8,233
All others	77	114	133	178	224	302	387	546	551	597	490	611	605	618	651	914
All others	4,681	5,019	5,274	6,780	7,106	7,411	8,166	7,983	8,187	7,830	6,789	8,569	7,843	8,128	8,727	11,722
Central Asia and Europe	137	175	163	271	265	251	318	288	297	242	222	275	283	283	282	385
Russia	0	0	0	0	0	0	253	220	224	188	167	199	201	200	217	308
All others	137	175	163	271	265	251	65	68	74	54	54	76	82	83	65	77
Middle East and North Africa	413	504	562	781	793	854	1,029	1,094	1,240	1,094	986	1,279	1,169	1,253	1,483	1,949
Israel	392	482	539	754	755	789	983	1,046	1,188	1,052	934	1,217	1,112	1,183	1,411	1,839
All others	21	22	23	27	38	65	46	48	52	41	52	62	57	70	71	110
South and Central America	204	195	217	268	333	315	343	348	368	313	239	309	260	272	304	420
Argentina	31	28	36	42	48	55	50	54	61	47	27	42	41	35	47	47
Brazil	63	65	62	73	98	102	113	99	132	106	75	130	92	101	111	181
Mexico	45	46	50	65	80	79	90	108	91	91	82	72	59	64	64	101
All others	64	56	68	87	107	79	90	87	84	69	55	65	68	72	82	91
Sub-Saharan Africa	129	114	103	119	119	116	128	123	128	117	105	120	88	103	107	136
South Africa	124	110	99	115	110	111	119	112	111	102	90	109	79	90	90	121
All others	5	4	4	5	9	5	9	11	16	15	15	11	9	13	16	14
All others	3,798	4,031	4,229	5,341	5,596	5,875	6,348	6,130	6,154	6,064	5,237	6,586	6,043	6,217	6,551	8,832
Australia	452	468	480	722	708	709	882	861	908	957	929	1,333	1,270	1,295	1,242	1,770
Canada	2,098	2,228	2,382	2,972	3,215	3,399	3,590	3,445	3,447	3,395	2,917	3,601	3,342	3,375	3,668	4,854
Switzerland	1,049	1,117	1,104	1,278	1,283	1,342	1,423	1,364	1,333	1,267	991	1,211	1,032	1,126	1,192	1,583
All others	199	218	263	369	390	425	454	460	466	445	401	440	399	421	449	625

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-46
U.S. patent applications and grants, by industry: 2009
(Number)

Industry and company size	NAICS code	Patent applications	Patents issued
All industries	21–23, 31-33, 42–81	116,972	60,583
Manufacturing industries	31–33	85,423	43,391
Food	311	2,698	917
Beverage and tobacco products	312	155	91
Textile, apparel and leather	313-316	302	221
Wood products	321	125	78
Paper	322	1,079	707
Printing and related support activities	323	44	40
Petroleum and coal products	324	353	146
Chemicals	325	12,305	6,485
Basic chemicals	3251	1,901	922
Resin, synthetic rubber, fibers, and filament	3252	598	489
Pesticide, fertilizer, and other agricultural chemicals	3253	768	513
Pharmaceuticals and medicines	3254	6,194	2,921
Soap, cleaning compound, and toilet preparations	3256	1,176	802
Paint, coating, adhesive, and other chemicals	3255, 3259	1,667	838
Plastics and rubber products	326	2,925	1,508
Nonmetallic mineral products	327	895	371
Primary metals	331	349	208
Fabricated metal products	332	1,678	916
Machinery	333	6,881	3,911
Agricultural implements	33311	479	348
Semiconductor machinery	333295	924	689
Engine, turbine, and power transmission equipment	3336	445	313
Other machinery	other 333	5,033	2,560
Computer and electronic products	334	35,012	16,850
Communications equipment	3342	4,338	2,855
Semiconductor and other electronic components	3344	9,372	7,117
Navigational, measuring, electromedical, and control instruments	3345	16,741	3,146
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	1,171	728
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	D	D
Other measuring and controlling devices	other 3345	D	D
Computer and peripheral equipment and other computer and electronic products	3341, 3343, 3346	4,561	3,733
Electrical equipment, appliances, and components	335	3,523	1,962
Transportation equipment	336	9,362	4,856
Automobiles, bodies, trailers, and parts	3361, 3362, 3363	3,620	2,030
Aerospace products and parts	3364	5,565	2,733
Aircraft, aircraft engine, and aircraft parts	336411–336413	4,788	2,375
Guided missile, space vehicle, and related parts	336414, 336415, 336419	777	358
Military armored vehicle, tank, and tank components	336992	17	11
Other transportation equipment	other 336	159	81
Furniture and related products	337	503	394
Miscellaneous manufacturing	339	7,235	3,729
Medical equipment and supplies	3391	4,647	2,620
Other miscellaneous manufacturing	3399	2,587	1,109
Nonmanufacturing industries	21–23, 42–81	31,549	17,192
Mining, extraction, and support activities	21	2,285	1,084
Utilities	22	158	36
Construction	23	42	14
Wholesale trade	42	670	329
Retail trade	44–45	382	113
Electronic shopping and mail-order houses	4541	344	102
Other retail trade	other 44–45	38	11
Transportation and warehousing	48–49	73	42
Information	51	13,041	10,263

Appendix table 6-46
U.S. patent applications and grants, by industry: 2009
(Number)

Industry and company size	NAICS code	Patent applications	Patents issued
Publishing	511	9,888	9,094
Newspaper, periodical, book, and directory publishers	5111	37	27
Software publishers	5112	9,851	9,066
Telecommunications	517	1,265	434
Internet service providers, web search portals, and data processing services	518	567	327
Other information	other 51	1,321	408
Finance and insurance	52	801	318
Real estate and rental and leasing	53	148	92
Professional, scientific, and technical services	54	13,611	4,714
Architectural, engineering, and related services	5413	1,247	393
Computer systems design and related services	5415	3,121	1,121
Scientific research and development services	5417	7,814	2,594
Biotechnology research and development	541711	3,800	1,304
Physical, engineering, and life sciences (except biotechnology) research and development	541712	3,958	1,257
Social sciences and humanities research and development	541720	56	33
Other professional, scientific, and technical services	other 54	1,430	606
Health care services	621–623	187	53
Other nonmanufacturing	55–56, 61, 624, 71–72, 81	151	134

D = data withheld to avoid disclosing operations of individual companies

NAICS = 2002 North American Industry Classification System

NOTES: Data are representative of companies where (worldwide R&D expense + worldwide R&D costs funded by others) > 0. Detail may not add to total because of rounding. Industry classification based on dominant business code for domestic R&D performance where available. For companies that did not report business codes, classification used for sampling was assigned.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics and Census Bureau, Business R&D and Innovation Survey (2009, preliminary).

Science and Engineering Indicators 2012

Appendix table 6-47

USPTO patents granted in information and communications technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	16,228	18,562	19,176	29,242	32,347	34,554	37,681	38,949	40,441	42,928	39,334	53,401	48,741	51,842	56,788	75,945
United States	8,104	9,593	10,118	15,982	17,761	19,245	20,751	21,238	22,224	23,562	21,834	29,771	26,454	27,586	30,392	40,232
EU	1,463	1,663	1,582	2,369	2,676	2,924	3,293	3,508	3,812	4,096	3,859	5,449	4,924	5,348	5,537	7,818
France	310	362	352	443	473	488	536	546	597	648	572	865	752	831	845	1,215
Germany	395	403	373	582	644	789	885	995	1,129	1,290	1,260	1,756	1,656	1,770	1,817	2,751
Italy	88	124	135	211	171	202	240	248	231	192	189	254	222	270	254	307
Netherlands	135	141	123	183	189	166	189	213	208	219	176	283	263	265	267	365
Sweden	92	143	140	205	284	363	368	378	346	272	274	324	238	256	257	446
United Kingdom	297	328	294	468	566	551	630	637	668	741	751	1,001	921	985	1,047	1,326
All others	145	162	165	278	349	365	446	493	633	733	639	965	872	971	1,050	1,409
Japan	5,570	5,841	5,690	7,849	8,215	8,080	8,673	9,308	9,430	9,628	8,353	10,874	9,829	9,964	10,679	13,829
China	16	18	22	30	27	43	62	73	90	138	174	277	312	483	672	1,065
Asia-8	758	1,025	1,306	2,293	2,815	3,330	3,864	3,725	3,591	4,069	3,766	4,973	5,279	6,240	6,995	9,437
India	7	7	6	5	10	13	29	34	76	84	126	198	252	323	373	682
South Korea	434	566	718	1,336	1,499	1,500	1,582	1,598	1,561	1,761	1,768	2,470	2,699	3,402	4,070	5,514
Taiwan	301	422	531	891	1,219	1,687	2,040	1,802	1,670	1,906	1,636	2,018	2,028	2,223	2,223	2,751
All others	16	30	51	61	87	130	213	291	284	318	236	287	300	292	329	490
All others	318	421	460	719	853	931	1,038	1,097	1,293	1,438	1,347	2,055	1,942	2,221	2,511	3,565
Central Asia and Europe	11	10	18	35	48	30	51	34	55	40	40	64	57	76	81	125
Russia	0	0	0	0	0	0	47	32	50	36	34	54	45	64	71	110
All others	11	10	18	35	48	30	4	2	4	4	6	10	13	12	10	14
Middle East and North Africa	73	104	116	186	201	228	270	296	377	399	375	532	469	540	641	869
Israel	72	102	114	185	199	221	263	291	371	392	368	522	463	524	625	840
All others	1	3	2	1	2	7	6	5	7	7	7	11	6	15	16	30
South and Central America	5	9	8	5	6	11	11	12	8	20	22	23	22	26	32	54
Argentina	1	0	2	1	0	1	0	0	0	2	0	3	4	1	5	4
Brazil	2	3	1	2	2	1	2	4	2	5	3	10	9	14	16	29
Mexico	2	2	1	0	2	8	6	5	4	9	13	6	6	2	2	9
All others	1	5	4	2	2	1	3	3	2	4	5	5	4	9	9	13
Sub-Saharan Africa	2	2	2	4	1	6	5	11	7	11	9	12	6	15	11	17
South Africa	2	2	1	4	1	6	3	8	6	9	8	12	4	15	10	16
All others	0	0	1	0	0	0	2	3	1	2	1	0	2	1	2	1
All others	227	296	316	489	597	656	701	744	846	968	901	1,424	1,388	1,564	1,746	2,500
Australia	17	22	24	36	42	53	58	72	100	113	118	242	258	250	249	381
Canada	140	228	220	355	455	515	537	542	605	684	627	962	923	1,090	1,232	1,755
Switzerland	49	39	60	62	74	62	70	91	89	119	109	153	141	147	195	266
All others	21	7	11	36	26	26	36	40	52	52	47	67	66	78	70	97

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. Information and communictions technology includes computer systems, information processes, networking, semiconductors, and telecommunications. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-48

USPTO patents granted in networking technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	674	739	756	1,253	1,438	1,785	1,931	2,320	2,626	3,379	3,321	5,239	4,859	5,806	6,921	9,861
United States	381	428	467	791	972	1,210	1,326	1,564	1,741	2,252	2,158	3,669	3,254	3,796	4,516	6,132
EU	102	103	80	123	125	185	189	260	316	439	445	537	552	692	748	1,059
France	29	31	33	23	31	45	43	44	53	68	67	78	86	130	107	184
Germany	28	22	11	34	20	29	28	45	68	78	91	121	127	142	196	268
Italy	0	1	4	4	0	4	4	5	8	12	7	11	14	26	26	48
Netherlands	13	8	7	8	5	8	7	7	5	10	24	22	17	30	23	41
Sweden	6	9	10	17	10	33	26	50	34	56	56	52	34	35	33	58
United Kingdom	22	22	8	28	35	42	48	58	61	93	90	126	126	154	167	200
All others	5	12	8	9	24	24	34	51	87	123	110	127	147	174	196	259
Japan	155	166	165	243	217	228	221	237	281	341	330	509	476	549	706	1,140
China	0	0	0	1	2	2	1	0	5	6	14	29	20	40	78	186
Asia-8	8	11	12	36	47	61	61	94	87	121	161	210	248	345	404	661
India	0	0	0	1	0	0	4	6	10	11	19	28	38	50	58	130
South Korea	3	8	10	28	31	45	41	56	59	67	97	100	108	204	224	369
Taiwan	4	2	2	7	13	14	15	26	15	35	36	74	90	82	98	139
All others	1	1	0	0	3	2	1	6	3	8	9	8	12	9	24	23
All others	28	31	32	60	76	96	133	165	194	220	212	283	310	385	470	685
Central Asia and Europe	0	1	1	0	2	0	2	2	0	2	3	2	4	9	6	14
Russia	0	0	0	0	0	0	1	2	0	2	1	2	2	7	4	11
All others	0	1	1	0	2	0	1	0	0	0	2	0	2	1	2	3
Middle East and North Africa	8	10	10	22	20	25	34	51	57	55	68	81	72	73	105	178
Israel	8	10	10	22	20	23	34	50	55	54	66	79	71	73	100	175
All others	0	0	0	0	0	2	0	0	2	1	2	2	1	1	5	3
South and Central America	1	0	0	0	0	0	0	2	0	2	3	1	3	3	7	11
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	2
Brazil	1	0	0	0	0	0	0	2	0	1	0	0	0	0	2	2
Mexico	0	0	0	0	0	0	0	1	0	0	2	0	0	1	0	1
All others	0	0	0	0	0	0	0	0	0	0	1	1	0	2	5	6
Sub-Saharan Africa	0	0	0	2	0	0	0	0	0	0	0	1	0	3	2	4
South Africa	0	0	0	2	0	0	0	0	0	0	0	1	0	3	2	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	19	20	21	36	54	71	97	110	137	162	138	198	231	297	350	478
Australia	2	1	3	1	2	4	8	5	9	10	14	17	34	45	36	57
Canada	9	14	15	30	42	61	85	97	114	137	110	159	167	218	268	362
Switzerland	8	5	3	2	7	6	4	4	6	11	9	11	21	20	34	41
All others	0	0	0	3	2	1	1	4	8	5	5	12	10	14	12	18

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-49

USPTO patents granted in information processes technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	2,637	3,316	3,806	6,559	6,808	6,539	7,092	7,032	7,533	8,365	8,141	12,626	11,672	13,268	15,075	22,038
United States	1,549	2,006	2,459	4,483	4,731	4,754	5,095	5,051	5,410	5,887	5,699	8,228	7,542	8,382	9,779	14,308
EU	197	244	276	404	449	422	505	540	565	680	692	1,251	1,189	1,381	1,543	2,301
France	50	63	69	82	76	75	81	105	98	130	130	198	183	223	222	359
Germany	32	39	51	96	98	103	109	133	134	170	172	393	394	497	548	891
Italy	11	12	9	23	15	10	17	21	22	18	19	45	39	57	43	63
Netherlands	13	21	23	28	23	29	36	36	37	36	23	76	62	63	80	97
Sweden	13	17	19	17	32	34	47	39	38	32	32	69	60	57	62	99
United Kingdom	63	75	83	133	160	126	151	157	167	201	219	311	294	312	359	500
All others	14	18	22	25	45	44	63	49	71	93	96	160	157	171	228	293
Japan	768	901	868	1,307	1,209	972	1,043	957	979	1,125	1,076	1,956	1,733	1,983	2,026	2,856
China	9	5	7	7	6	11	17	18	20	27	41	82	100	162	185	274
Asia-8	56	65	84	157	178	151	158	163	209	250	273	508	509	678	717	1,108
India	3	2	1	1	4	6	12	11	28	43	50	73	76	113	164	283
South Korea	32	37	42	95	103	79	87	64	84	87	94	206	212	291	285	501
Taiwan	19	21	35	53	62	56	49	65	82	99	111	199	188	224	223	270
All others	2	5	6	8	9	10	10	23	15	21	18	30	33	50	45	54
All others	58	95	113	203	234	229	275	303	350	397	360	602	599	681	825	1,190
Central Asia and Europe	3	1	6	13	19	5	13	9	18	12	14	29	18	24	36	54
Russia	0	0	0	0	0	0	12	8	17	11	13	24	14	22	33	48
All others	3	1	6	13	19	5	2	1	2	1	1	5	4	2	3	6
Middle East and North Africa	20	36	38	70	73	78	86	94	118	126	104	165	140	171	201	258
Israel	20	35	37	70	72	77	83	93	116	125	104	160	138	163	194	242
All others	0	1	1	1	1	1	3	2	1	1	0	4	3	8	7	16
South and Central America	0	5	3	2	3	3	4	4	3	8	7	12	9	12	14	24
Argentina	0	0	1	0	0	0	0	0	0	2	0	0	1	1	2	0
Brazil	0	1	0	1	1	0	1	1	0	3	1	7	5	7	8	13
Mexico	0	0	0	0	1	2	1	0	0	1	2	4	2	1	2	6
All others	0	4	2	1	1	1	3	3	2	3	3	1	2	3	2	5
Sub-Saharan Africa	0	0	0	2	0	2	3	3	1	4	3	4	1	5	5	6
South Africa	0	0	0	2	0	2	2	1	1	4	3	4	1	5	5	6
All others	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
All others	35	52	66	116	139	140	169	194	210	246	232	392	430	471	569	849
Australia	9	12	10	15	21	23	33	37	51	58	53	79	115	81	96	169
Canada	24	34	50	85	98	109	121	137	127	158	149	256	251	324	382	567
Switzerland	1	4	4	10	13	2	9	10	20	21	22	39	38	38	62	77
All others	2	2	2	7	7	5	5	9	12	9	9	18	26	28	29	37

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-50

USPTO patents granted in telecommunications technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	3,345	3,865	3,483	5,454	6,296	6,526	6,744	7,072	7,385	7,843	7,125	11,699	10,264	10,540	11,138	14,727
United States	1,723	2,007	1,862	2,881	3,343	3,522	3,624	3,714	3,834	4,182	3,796	6,342	5,467	5,294	5,676	7,293
EU	516	645	549	840	1,008	1,103	1,183	1,252	1,328	1,333	1,165	1,859	1,514	1,571	1,491	2,061
France	102	130	96	142	154	167	182	180	184	191	154	282	214	236	216	289
Germany	95	138	113	144	171	223	257	252	324	323	317	514	403	391	396	548
Italy	21	21	27	29	19	23	25	39	32	38	33	65	52	64	57	73
Netherlands	52	46	40	65	72	43	42	48	39	60	40	88	71	76	70	86
Sweden	63	102	82	125	189	233	221	237	224	149	137	153	97	120	120	224
United Kingdom	99	119	92	149	194	210	225	214	204	218	193	288	277	262	233	326
All others	83	90	99	187	209	203	232	283	321	355	291	469	400	421	400	514
Japan	926	961	820	1,250	1,319	1,258	1,253	1,396	1,408	1,331	1,199	1,844	1,559	1,650	1,702	2,283
China	1	4	3	9	8	10	11	4	9	24	24	69	67	91	164	277
Asia-8	82	110	103	236	291	301	349	388	448	521	528	907	1,090	1,302	1,453	1,888
India	0	1	0	0	1	1	4	5	10	12	26	36	45	64	63	96
South Korea	53	77	68	167	231	216	247	272	308	331	317	512	625	802	935	1,254
Taiwan	26	29	28	60	52	68	82	93	114	156	169	332	389	411	419	492
All others	4	3	8	9	7	16	16	18	15	22	16	27	31	25	36	46
All others	97	137	146	239	328	332	325	316	358	452	416	676	567	633	653	925
Central Asia and Europe	2	2	3	4	8	5	7	5	5	12	11	11	15	23	23	33
Russia	0	0	0	0	0	0	6	5	5	11	10	9	13	21	21	31
All others	2	2	3	4	8	5	1	1	1	1	1	2	2	3	2	3
Middle East and North Africa	16	19	26	40	51	49	56	61	93	116	103	157	134	150	181	224
Israel	16	19	25	40	50	47	54	60	92	113	99	155	133	146	179	218
All others	0	0	1	0	0	2	2	2	1	3	4	2	2	4	2	6
South and Central America	0	2	1	0	2	6	3	5	3	6	5	5	4	8	6	7
Argentina	0	0	0	0	0	1	0	0	0	0	0	1	0	0	3	1
Brazil	0	1	0	0	0	1	0	1	0	0	0	1	1	5	3	4
Mexico	0	1	0	0	1	3	3	4	3	6	4	2	2	0	0	1
All others	0	0	1	0	1	1	0	0	0	0	0	1	0	3	1	1
Sub-Saharan Africa	1	2	2	1	0	3	1	3	2	4	5	5	3	6	2	4
South Africa	1	2	1	1	0	3	0	3	2	4	4	5	2	5	2	4
All others	0	0	1	0	0	0	1	0	0	0	1	0	1	1	0	1
All others	78	112	114	193	267	270	258	242	255	314	293	498	411	447	441	657
Australia	4	7	4	13	9	11	10	16	12	20	26	48	37	37	52	73
Canada	57	98	88	155	229	228	218	183	203	244	223	377	322	355	337	500
Switzerland	14	5	17	12	24	21	13	25	21	30	29	55	37	40	42	62
All others	4	2	4	13	5	10	17	18	19	20	14	18	15	15	10	21

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-51

USPTO patents granted in automation and control technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,200	1,302	1,265	1,694	1,599	1,591	1,710	1,791	1,843	1,987	1,856	3,276	2,773	2,889	3,225	3,951
United States	696	768	765	995	949	921	988	993	998	1,154	1,047	1,912	1,532	1,675	1,698	2,036
EU	140	162	172	228	230	264	287	316	319	298	310	455	354	354	406	549
France	28	36	25	34	38	39	31	48	47	44	51	58	40	45	47	104
Germany	55	53	83	99	97	104	139	145	157	155	163	189	160	143	166	200
Italy	8	9	20	22	19	29	26	24	28	22	15	43	32	27	44	39
Netherlands	8	16	3	11	9	10	12	9	15	10	8	17	13	19	19	25
Sweden	8	11	10	15	18	10	19	23	11	14	12	22	15	23	19	32
United Kingdom	21	28	18	28	30	47	32	32	31	29	30	79	53	51	58	67
All others	12	8	12	19	20	25	28	35	28	24	31	48	42	45	54	82
Japan	275	273	229	312	274	252	283	308	340	321	315	555	503	462	607	714
China	1	0	0	3	2	0	1	4	2	5	5	18	34	42	46	82
Asia-8	45	41	35	75	71	75	67	84	93	114	99	192	238	236	319	363
India	1	0	1	0	0	1	2	1	0	3	3	6	9	14	12	16
South Korea	24	16	20	33	33	33	33	30	32	29	27	74	88	87	130	148
Taiwan	18	20	12	38	34	35	31	50	54	75	64	102	130	125	156	173
All others	2	5	3	4	4	6	1	3	7	7	5	10	11	10	21	26
All others	44	59	64	80	73	79	84	86	91	95	80	143	113	121	149	206
Central Asia and Europe	1	1	0	1	0	2	5	2	1	3	1	1	1	3	4	5
Russia	0	0	0	0	0	0	2	1	1	2	1	1	1	2	3	3
All others	1	1	0	1	0	2	3	1	0	1	0	1	0	1	0	2
Middle East and North Africa	8	5	10	9	13	11	8	11	19	14	12	21	23	18	25	34
Israel	8	5	10	9	13	10	7	10	18	13	10	20	22	16	23	27
All others	0	0	0	0	0	1	1	1	1	1	1	1	1	3	2	7
South and Central America	4	3	2	5	2	3	2	3	5	1	4	7	2	0	10	8
Argentina	1	0	0	0	1	1	0	0	1	0	0	1	0	0	1	0
Brazil	1	0	1	2	0	1	1	0	1	1	2	1	0	0	5	2
Mexico	0	1	1	3	1	1	1	2	2	0	2	3	1	0	3	5
All others	2	2	0	0	0	0	0	1	1	0	0	2	1	0	2	2
Sub-Saharan Africa	0	2	0	3	3	2	4	1	2	1	1	1	3	0	4	3
South Africa	0	2	0	3	3	2	4	1	2	1	0	1	3	0	4	2
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
All others	32	49	53	62	55	62	65	69	64	76	63	113	84	100	106	156
Australia	2	4	5	2	4	6	4	6	8	6	7	10	15	12	6	23
Canada	19	34	38	48	42	41	43	45	42	53	48	69	48	64	78	101
Switzerland	9	8	9	11	8	13	12	15	13	14	3	25	14	21	18	28
All others	2	3	2	2	2	2	6	4	2	4	5	8	7	3	5	5

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-52

USPTO patents granted in medical electronics technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,504	1,427	1,418	1,978	1,733	2,066	2,370	2,550	2,575	2,165	2,026	2,473	2,439	2,240	2,565	3,489
United States	965	960	944	1,362	1,215	1,439	1,554	1,649	1,624	1,372	1,282	1,531	1,537	1,291	1,586	2,213
EU	292	252	243	340	261	321	395	409	413	339	327	374	384	385	439	546
France	37	29	31	44	35	35	48	60	53	41	39	51	33	44	37	51
Germany	92	97	89	96	111	123	154	177	159	144	137	153	187	207	240	285
Italy	13	11	11	20	5	9	15	21	23	14	9	13	14	13	19	24
Netherlands	33	38	19	48	42	46	45	35	42	29	25	38	34	32	35	49
Sweden	60	27	35	51	21	41	43	34	40	39	37	37	38	23	20	27
United Kingdom	30	21	29	43	20	35	50	38	36	30	37	32	24	18	40	43
All others	27	30	30	40	27	32	40	44	62	42	43	50	54	47	49	67
Japan	178	156	161	169	156	155	216	283	312	265	242	383	331	358	297	408
China	0	1	2	3	4	2	1	6	2	4	6	5	6	11	20	33
Asia-8	7	0	7	19	18	24	28	40	41	36	42	37	35	47	43	60
India	0	0	0	0	1	1	2	1	3	4	2	7	6	5	9	6
South Korea	3	0	4	6	8	11	17	20	22	19	16	12	18	23	20	36
Taiwan	4	0	3	12	9	11	7	14	13	11	23	16	10	14	10	14
All others	0	0	0	1	0	2	2	5	3	2	1	2	1	5	4	4
All others	63	57	60	85	79	125	176	164	183	149	127	144	146	147	181	231
Central Asia and Europe	2	1	3	4	3	8	9	9	8	8	7	5	7	12	7	7
Russia	0	0	0	0	0	0	8	6	3	4	6	3	4	8	3	2
All others	2	1	3	4	3	8	1	4	5	4	1	2	3	4	4	5
Middle East and North Africa	15	17	15	28	25	34	82	71	82	67	55	70	58	64	94	99
Israel	15	17	15	28	25	34	82	70	81	67	54	70	57	61	93	98
All others	0	0	0	0	0	0	1	1	1	0	1	1	1	2	2	1
South and Central America	1	0	1	2	1	4	2	4	3	4	6	5	4	2	4	5
Argentina	0	0	0	0	0	1	0	1	1	0	1	1	1	1	1	2
Brazil	0	0	0	0	1	0	1	0	0	1	0	0	2	0	1	1
Mexico	0	0	1	1	0	2	1	0	0	1	3	1	2	0	0	1
All others	1	0	0	1	1	1	0	3	2	2	2	2	0	1	2	2
Sub-Saharan Africa	3	2	1	1	0	2	1	3	3	1	1	0	0	0	1	0
South Africa	3	2	1	1	0	2	1	1	1	0	1	0	0	0	1	0
All others	0	0	0	0	0	0	0	2	2	1	0	0	0	0	0	0
All others	42	37	40	50	51	78	83	77	87	69	58	64	77	70	75	120
Australia	7	12	8	9	14	22	11	16	15	14	9	19	19	20	21	33
Canada	26	19	18	27	24	31	47	36	43	32	30	28	38	32	29	54
Switzerland	5	4	8	11	10	12	15	10	12	14	13	9	10	11	15	17
All others	4	3	6	4	3	13	10	16	17	9	5	8	9	7	10	16

EU = European Union; USPTO = U.S. Patent and Trademark Office

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SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-53

USPTO patents granted in semiconductor technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	5,115	5,085	5,470	7,495	9,148	10,856	12,665	13,110	13,108	12,764	11,036	12,082	11,440	11,080	11,974	16,665
United States	2,304	2,334	2,457	3,398	4,155	5,061	5,842	6,080	6,133	5,783	5,058	5,556	5,080	4,644	4,712	6,383
EU	363	341	349	500	578	656	815	841	979	931	874	985	893	869	944	1,446
France	66	58	66	83	99	96	131	121	145	137	123	164	154	115	167	239
Germany	156	133	125	182	218	271	319	364	412	462	444	462	444	437	425	716
Italy	42	44	55	78	74	93	113	101	99	60	47	60	43	50	59	63
Netherlands	27	28	20	27	33	33	59	75	84	59	55	47	54	45	35	82
Sweden	7	10	18	35	38	47	48	31	24	19	26	22	23	18	20	32
United Kingdom	48	51	42	65	80	75	82	89	122	104	103	119	89	93	109	116
All others	18	18	23	30	37	42	64	60	94	91	76	110	87	111	130	200
Japan	1,972	1,813	1,896	2,357	2,766	2,985	3,359	3,766	3,764	3,713	3,091	3,164	3,033	2,872	3,271	4,624
China	4	5	4	4	9	9	17	26	29	40	54	42	54	67	83	151
Asia-8	404	523	686	1,142	1,544	2,035	2,486	2,265	2,025	2,147	1,838	2,166	2,215	2,463	2,790	3,805
India	1	3	3	0	2	1	3	6	13	11	16	29	42	30	25	56
South Korea	187	220	293	526	608	629	725	787	733	831	786	972	1,037	1,280	1,636	2,206
Taiwan	210	285	360	580	883	1,320	1,595	1,262	1,096	1,128	892	999	948	988	962	1,252
All others	6	15	30	36	51	85	163	210	183	177	144	166	188	165	167	291
All others	67	68	78	94	97	108	145	134	178	149	121	169	165	166	175	256
Central Asia and Europe	5	4	5	14	14	16	25	13	26	11	10	16	14	16	6	12
Russia	0	0	0	0	0	0	24	12	24	9	8	13	10	10	5	9
All others	5	4	5	14	14	16	1	1	2	1	2	3	4	6	1	3
Middle East and North Africa	8	12	18	18	25	27	40	36	39	33	29	37	42	48	48	62
Israel	8	11	17	18	24	26	39	35	37	32	28	35	42	45	47	59
All others	0	1	1	0	1	1	1	0	2	1	1	2	0	2	1	3
South and Central America	1	2	1	0	1	0	2	0	0	0	1	1	2	1	1	7
Argentina	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
Brazil	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	6
Mexico	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	0
All others	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Sub-Saharan Africa	1	0	0	0	1	1	0	1	1	1	1	1	0	0	1	4
South Africa	1	0	0	0	1	1	0	0	0	0	1	1	0	0	0	4
All others	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0
All others	52	50	54	62	57	64	78	84	112	104	80	114	107	101	120	171
Australia	1	1	2	2	6	2	4	7	14	16	8	21	15	17	18	18
Canada	26	35	27	37	28	42	45	43	68	51	48	60	71	62	72	99
Switzerland	22	14	25	20	23	18	27	31	25	31	22	26	16	16	26	48
All others	3	0	0	3	0	2	2	3	5	7	3	7	5	6	4	6

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-54

USPTO patents granted in optics technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	2,582	2,953	3,186	4,584	4,313	4,550	4,910	5,349	6,417	7,169	6,696	7,466	6,597	6,606	6,683	6,875
United States	1,057	1,144	1,241	1,647	1,679	1,705	1,966	2,190	2,513	2,671	2,459	2,629	2,257	2,235	1,979	2,057
EU	300	338	368	574	476	557	620	662	786	823	682	750	671	647	651	700
France	67	66	93	119	79	82	98	97	112	108	82	79	80	65	85	78
Germany	90	118	114	189	171	208	221	267	352	348	337	313	301	293	276	333
Italy	8	11	17	27	19	11	29	22	40	46	29	40	39	29	31	34
Netherlands	24	29	27	56	54	38	46	45	57	73	38	74	62	84	94	68
Sweden	9	14	12	20	21	39	36	36	34	30	23	35	25	18	17	25
United Kingdom	87	89	80	135	113	151	149	154	146	158	118	141	106	100	89	107
All others	15	11	25	29	19	28	41	41	45	61	55	67	56	58	59	56
Japan	1,063	1,288	1,366	1,954	1,751	1,888	1,885	1,896	2,288	2,680	2,519	2,865	2,442	2,360	2,506	2,463
China	4	2	0	4	11	6	2	9	14	25	21	24	37	42	46	70
Asia-8	71	95	107	255	241	261	269	401	572	715	807	954	977	1,107	1,274	1,341
India	1	0	1	1	0	1	0	1	1	1	4	1	5	3	3	3
South Korea	51	72	88	204	187	203	199	269	369	449	535	643	681	728	820	811
Taiwan	20	23	17	48	51	51	63	122	193	246	238	292	272	362	439	507
All others	0	0	1	2	3	7	7	9	9	20	30	18	19	14	12	20
All others	87	87	105	151	158	134	167	192	244	256	208	244	213	215	227	244
Central Asia and Europe	15	6	4	10	8	5	11	8	10	19	11	15	10	10	7	18
Russia	0	0	0	0	0	0	7	7	7	15	10	12	8	8	4	13
All others	15	6	4	10	8	5	3	2	4	4	1	3	2	3	3	5
Middle East and North Africa	15	9	13	25	21	21	48	42	59	41	35	39	52	51	61	60
Israel	14	9	13	25	20	21	48	42	59	40	34	38	50	51	60	59
All others	1	0	0	0	0	0	0	0	1	1	1	0	2	0	1	1
South and Central America	3	1	2	1	3	0	3	1	2	1	1	2	4	2	2	1
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	2	1	1	0	2	0	1	0	0	2	1	1	1	1
Mexico	3	1	0	0	2	0	0	0	1	0	0	0	3	0	1	0
All others	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
Sub-Saharan Africa	1	1	0	1	2	0	0	0	0	2	0	0	0	0	0	0
South Africa	1	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0
All others	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
All others	53	70	86	115	124	108	106	141	173	193	161	188	147	152	157	165
Australia	5	5	10	8	15	10	9	9	10	17	13	24	20	22	13	20
Canada	37	49	60	81	69	72	65	89	116	111	106	112	79	87	95	87
Switzerland	11	14	16	22	31	22	29	38	41	57	34	35	36	32	39	49
All others	1	3	1	4	9	5	3	5	7	8	8	18	12	11	10	9

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-55

USPTO patents granted in measuring techniques and instrumentation technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	5,529	6,076	5,544	6,989	6,958	7,391	7,802	8,527	9,219	9,311	8,406	9,803	9,478	9,694	9,790	10,919
United States	3,355	3,603	3,207	3,906	3,942	4,103	4,304	4,635	5,019	4,985	4,510	5,088	4,832	4,934	4,821	5,252
EU	777	931	883	1,139	1,068	1,235	1,369	1,523	1,593	1,536	1,399	1,681	1,636	1,604	1,646	2,000
France	156	172	138	198	161	191	177	176	181	165	179	203	217	238	218	291
Germany	307	391	377	508	494	557	656	739	828	770	695	834	783	752	762	924
Italy	27	36	32	42	42	46	57	55	59	64	53	61	63	63	69	79
Netherlands	36	36	44	55	50	53	71	77	80	73	51	69	76	107	87	90
Sweden	23	38	34	57	62	75	91	84	71	66	72	89	79	59	69	89
United Kingdom	165	174	172	189	166	195	228	247	218	249	233	268	241	221	253	319
All others	63	84	87	90	93	119	90	145	156	147	116	158	178	163	187	208
Japan	1,056	1,155	1,098	1,408	1,461	1,451	1,450	1,616	1,785	1,901	1,640	1,998	1,895	1,910	1,963	2,120
China	3	8	3	3	3	5	13	15	20	33	33	54	60	93	146	180
Asia-8	71	84	102	168	168	234	258	270	303	335	366	457	502	579	620	674
India	0	2	0	2	2	3	3	8	10	17	17	16	29	34	33	39
South Korea	33	41	51	95	76	93	93	96	103	110	124	201	225	266	287	307
Taiwan	34	34	48	62	80	120	139	134	147	169	195	206	200	226	258	292
All others	4	7	3	9	11	18	23	32	43	39	30	34	48	53	42	36
All others	268	297	251	364	316	364	408	468	500	520	458	524	553	572	595	694
Central Asia and Europe	4	10	11	17	15	15	23	25	29	19	12	20	22	19	20	21
Russia	0	0	0	0	0	0	22	22	25	17	10	16	17	12	17	15
All others	4	10	11	17	15	15	1	3	5	2	2	4	5	8	3	6
Middle East and North Africa	31	30	33	42	40	61	68	89	74	71	80	90	84	97	104	110
Israel	28	29	32	41	40	60	68	84	70	70	70	85	75	89	95	98
All others	3	1	1	1	0	2	0	4	4	2	9	5	9	8	9	12
South and Central America	3	5	3	8	7	5	12	6	18	16	11	21	17	11	12	16
Argentina	0	0	2	2	0	1	1	1	4	2	0	2	3	2	3	3
Brazil	0	2	0	4	2	2	5	1	5	1	2	4	5	6	4	6
Mexico	0	1	0	0	3	0	2	3	8	9	8	9	5	3	3	3
All others	3	2	1	2	2	2	5	1	1	3	1	6	3	0	2	3
Sub-Saharan Africa	3	6	2	4	6	5	4	4	1	4	2	6	5	3	4	4
South Africa	3	6	2	4	6	5	4	4	1	3	2	6	5	2	3	3
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
All others	227	247	202	294	248	277	301	344	378	410	352	387	425	442	455	543
Australia	18	18	14	34	18	22	32	29	36	45	32	59	65	51	57	67
Canada	108	97	96	130	133	133	144	160	182	181	145	166	182	168	182	208
Switzerland	89	112	77	111	75	94	103	122	130	145	129	125	137	157	163	193
All others	11	20	15	18	22	27	23	32	30	39	47	36	40	67	54	75

EU = European Union; USPTO = U.S. Patent and Trademark Office

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SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-56

USPTO patents granted in pharmaceuticals technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	3,754	4,167	5,025	5,214	5,687	5,388	5,753	6,152	5,590	4,324	3,911	4,492	3,835	3,796	4,275	5,471
United States	1,907	2,232	2,732	2,809	3,135	2,946	3,082	3,449	3,133	2,348	2,203	2,442	1,971	1,941	2,152	2,756
EU	1,047	1,065	1,329	1,381	1,466	1,448	1,465	1,523	1,386	1,056	957	1,141	1,060	1,060	1,117	1,462
France	200	190	242	256	234	226	230	250	242	152	156	179	177	175	187	217
Germany	356	330	443	423	462	476	471	501	446	359	291	377	331	332	334	442
Italy	110	121	120	129	125	124	127	122	87	85	79	84	88	89	93	140
Netherlands	30	17	25	31	39	31	50	41	43	35	30	30	32	34	38	53
Sweden	31	38	61	63	61	64	67	84	68	39	42	49	34	53	49	67
United Kingdom	196	212	290	300	331	361	325	311	292	213	221	253	240	226	230	283
All others	124	158	149	178	215	166	196	214	207	172	138	169	158	150	187	259
Japan	547	523	552	588	575	527	666	620	494	422	334	407	359	313	450	539
China	6	4	8	10	6	8	9	11	22	23	22	19	23	21	45	61
Asia-8 (sum 17-20)	26	53	71	76	107	98	120	158	184	157	137	150	167	164	175	222
India	7	6	15	22	35	32	44	64	86	57	67	75	77	82	85	109
South Korea	13	31	40	34	44	46	53	67	65	67	44	45	64	47	48	64
Taiwan	5	16	15	19	26	19	22	25	29	30	24	25	21	29	39	44
All others	1	0	1	1	2	1	1	2	5	3	2	5	5	6	3	5
All others	221	290	333	350	399	360	413	390	373	319	257	334	256	298	333	431
Central Asia and Europe	10	10	16	20	19	17	18	19	14	12	13	10	19	13	14	10
Russia	0	0	0	0	0	0	9	11	7	6	6	4	8	4	6	8
All others	10	10	16	20	19	17	9	8	6	6	7	5	11	9	9	2
Middle East and North Africa	18	37	34	32	48	51	44	54	60	49	44	55	47	57	80	70
Israel	18	35	32	30	47	48	41	52	58	47	39	53	46	56	79	69
All others	0	2	2	2	1	3	2	1	2	2	5	1	1	0	2	1
South and Central America	6	11	12	11	12	15	14	13	18	10	7	13	7	12	10	17
Argentina	2	3	3	6	5	5	7	9	9	3	1	7	4	3	3	2
Brazil	1	1	1	0	3	4	1	1	4	4	1	4	1	2	4	10
Mexico	3	4	3	2	2	4	3	1	4	1	2	0	0	3	2	2
All others	0	2	4	3	2	2	3	2	1	2	3	3	2	3	1	2
Sub-Saharan Africa	3	4	5	5	3	3	8	4	6	3	1	2	3	0	2	2
South Africa	2	4	5	4	2	2	5	3	5	3	1	1	3	0	2	2
All others	1	1	0	1	1	1	3	1	1	0	0	1	0	0	1	0
All others	184	228	266	282	317	274	329	300	275	245	192	254	180	216	227	332
Australia	11	13	17	29	30	19	47	33	25	19	21	28	17	20	19	28
Canada	63	92	109	133	152	136	148	153	138	130	91	119	85	98	105	139
Switzerland	101	108	123	106	113	92	116	101	93	87	67	89	69	87	87	139
All others	9	15	17	15	21	27	18	13	19	10	14	18	9	12	16	26

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-57

USPTO patents granted in materials technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	5,432	5,297	5,013	5,718	5,762	5,580	6,002	5,932	5,793	5,515	4,006	4,236	3,658	3,407	3,582	5,193
United States	2,471	2,522	2,341	2,564	2,608	2,497	2,644	2,626	2,557	2,345	1,805	1,839	1,538	1,359	1,399	2,035
EU	1,112	1,111	1,107	1,335	1,230	1,255	1,330	1,180	1,226	1,173	797	869	743	655	656	1,135
France	159	147	137	174	164	156	177	150	168	158	109	130	106	111	96	158
Germany	514	514	513	629	567	596	585	538	568	563	377	419	345	298	291	517
Italy	84	90	77	69	70	69	81	71	65	66	51	60	38	34	54	70
Netherlands	49	43	44	76	77	70	67	67	88	75	43	47	53	38	49	84
Sweden	27	38	34	33	42	57	61	45	33	40	25	20	32	27	25	31
United Kingdom	147	128	126	172	124	121	127	102	104	113	59	73	81	61	56	100
All others	132	152	177	182	186	186	232	207	200	158	134	120	88	85	85	176
Japan	1,542	1,401	1,294	1,480	1,547	1,463	1,619	1,660	1,512	1,491	1,023	1,084	1,001	1,013	1,043	1,341
China	5	6	8	7	10	13	9	17	16	20	9	18	23	28	28	65
Asia-8	79	74	86	116	126	137	161	176	218	259	210	243	200	197	283	343
India	1	3	5	8	8	10	13	15	17	24	20	21	24	25	25	38
South Korea	55	41	45	65	74	81	100	106	138	161	125	159	116	127	187	202
Taiwan	20	28	34	39	36	42	44	47	54	65	54	53	50	38	62	91
All others	3	2	2	4	8	4	4	8	9	9	11	10	10	7	9	12
All others	223	184	177	218	242	217	238	275	264	229	165	182	152	154	171	275
Central Asia and Europe	10	16	17	17	21	14	14	15	17	15	10	13	13	11	11	19
Russia	0	0	0	0	0	0	9	11	11	13	10	8	10	10	9	16
All others	10	16	17	17	21	14	5	5	6	2	0	5	3	1	2	3
Middle East and North Africa	5	5	5	11	13	15	16	16	22	11	15	21	12	15	12	19
Israel	4	4	4	10	10	9	12	10	16	7	13	18	12	14	11	15
All others	1	1	1	1	2	6	4	6	6	4	2	3	0	1	2	4
South and Central America	12	7	11	10	11	13	14	19	22	14	6	6	8	9	13	20
Argentina	1	0	2	0	0	0	2	0	1	0	1	0	0	0	0	0
Brazil	6	1	1	3	2	3	6	4	7	3	2	2	2	2	5	8
Mexico	4	2	1	3	4	6	0	5	7	5	0	2	3	5	4	5
All others	2	3	7	4	5	3	6	10	8	6	2	2	4	3	4	7
Sub-Saharan Africa	6	2	2	3	6	5	11	13	5	7	4	5	3	3	6	6
South Africa	6	1	2	3	6	5	11	13	5	6	3	5	3	3	6	6
All others	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
All others	190	154	142	177	191	170	183	212	198	182	130	137	116	116	129	211
Australia	16	15	10	15	29	13	19	21	28	30	15	24	17	18	20	33
Canada	106	84	65	91	91	83	94	119	98	86	70	68	53	58	70	96
Switzerland	63	44	56	62	66	62	61	63	55	52	34	37	37	29	32	64
All others	5	10	11	9	5	12	10	9	16	14	10	9	8	11	7	18

EU = European Union; USPTO = U.S. Patent and Trademark Office

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SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-58

USPTO patents granted in aerospace and defense technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,391	1,301	1,271	1,654	1,525	1,702	2,077	2,197	2,110	1,993	1,781	1,660	1,434	1,358	1,679	2,098
United States	989	876	883	1,175	1,014	1,095	1,360	1,507	1,371	1,290	1,202	1,046	898	888	1,067	1,344
EU	292	299	272	331	343	389	432	423	457	418	350	366	316	299	368	470
France	114	111	105	139	105	132	125	95	93	111	89	110	106	99	124	149
Germany	74	89	97	105	145	128	175	179	199	166	118	114	106	92	121	143
Italy	8	10	8	6	7	11	11	24	16	22	26	14	7	13	16	19
Netherlands	3	10	5	3	3	5	5	2	4	5	3	2	1	3	3	3
Sweden	16	11	11	15	15	19	26	23	23	24	20	24	15	14	10	23
United Kingdom	68	55	42	51	55	70	64	74	91	70	74	83	72	58	64	95
All others	10	12	5	12	13	24	27	27	29	21	21	18	10	19	29	37
Japan	30	38	38	46	65	97	112	112	127	122	109	93	66	52	59	86
China	2	0	0	0	0	0	3	3	0	3	4	5	3	1	4	4
Asia-8	5	9	5	16	9	9	22	17	20	23	17	21	30	20	41	25
India	0	0	0	0	0	1	0	0	0	2	2	1	3	0	6	5
South Korea	0	2	2	7	3	2	6	5	7	4	2	5	7	7	15	3
Taiwan	5	6	3	8	6	4	12	7	12	10	7	15	20	13	18	16
All others	0	1	0	1	0	2	4	5	1	7	6	0	0	0	1	1
All others	74	79	73	88	93	111	149	136	136	136	101	128	122	98	141	169
Central Asia and Europe	2	7	3	7	3	13	18	16	16	12	3	5	5	2	5	15
Russia	0	0	0	0	0	0	16	15	12	9	3	4	4	1	4	10
All others	2	7	3	7	3	13	2	1	4	3	0	1	1	1	0	5
Middle East and North Africa	12	14	13	14	16	9	20	14	18	15	16	14	15	16	16	27
Israel	12	14	13	14	13	8	20	13	18	15	15	14	13	15	12	27
All others	0	0	0	0	3	1	0	1	0	0	1	0	2	1	4	0
South and Central America	2	1	1	3	4	7	5	2	4	4	2	3	2	3	1	10
Argentina	0	0	0	0	0	0	0	1	1	0	1	2	0	0	0	0
Brazil	0	0	1	1	3	4	3	1	2	1	1	0	1	2	0	7
Mexico	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0
All others	2	1	0	2	0	2	2	0	0	2	0	1	1	1	1	3
Sub-Saharan Africa	7	6	3	3	3	5	5	0	5	4	4	3	0	4	5	5
South Africa	7	6	3	3	3	5	5	0	5	4	4	3	0	4	5	5
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	51	51	53	61	67	77	101	104	93	101	76	103	100	74	114	112
Australia	4	6	10	7	3	10	8	8	12	10	8	5	14	9	14	16
Canada	29	18	28	25	35	38	45	50	46	47	51	56	54	32	69	61
Switzerland	17	26	15	26	24	25	38	43	29	40	14	41	27	29	26	27
All others	2	1	1	3	6	3	9	4	6	4	3	2	5	4	5	9

EU = European Union; USPTO = U.S. Patent and Trademark Office

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SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-59

USPTO patents granted in computer systems technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	4,457	5,557	5,661	8,481	8,657	8,848	9,249	9,415	9,789	10,577	9,711	11,755	10,506	11,148	11,680	12,654
United States	2,147	2,818	2,873	4,430	4,560	4,697	4,864	4,829	5,105	5,457	5,123	5,975	5,111	5,471	5,710	6,116
EU	284	329	327	501	516	558	601	615	624	713	684	818	776	837	812	951
France	63	80	88	113	112	104	100	96	118	122	97	143	116	127	134	144
Germany	85	72	73	125	136	163	172	202	190	258	237	266	288	303	252	328
Italy	14	47	40	77	64	72	81	82	70	65	83	74	74	73	68	60
Netherlands	30	39	33	55	57	54	45	46	44	54	34	52	58	51	59	58
Sweden	4	6	12	12	16	17	27	21	26	18	22	27	24	25	22	33
United Kingdom	66	62	68	93	97	98	124	118	114	127	145	157	135	164	180	184
All others	24	24	13	28	34	51	53	50	62	71	66	98	80	94	96	143
Japan	1,748	1,999	1,941	2,692	2,704	2,637	2,796	2,953	2,998	3,118	2,658	3,401	3,028	2,911	2,973	2,927
China	3	4	8	9	2	10	17	25	27	41	41	54	72	123	162	177
Asia-8	207	317	421	722	757	779	811	817	822	1,028	967	1,183	1,217	1,452	1,633	1,974
India	3	1	2	3	3	4	6	6	15	7	15	32	51	66	63	117
South Korea	159	225	306	520	527	530	483	420	377	444	475	680	716	825	991	1,184
Taiwan	42	85	106	191	209	228	299	357	362	488	428	414	414	518	522	598
All others	3	5	7	8	18	17	23	34	68	89	49	57	36	43	57	75
All others	68	92	90	127	119	166	160	177	213	219	238	325	302	355	390	511
Central Asia and Europe	1	2	3	5	5	4	5	6	5	3	2	7	7	5	10	12
Russia	0	0	0	0	0	0	5	6	5	3	1	6	6	4	8	11
All others	1	2	3	5	5	4	0	0	0	0	1	1	1	0	1	1
Middle East and North Africa	21	28	24	37	33	49	54	54	70	69	71	93	80	98	107	148
Israel	20	27	24	36	32	48	54	53	70	68	71	93	80	97	105	146
All others	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1	2
South and Central America	3	1	2	3	0	2	2	0	3	5	6	3	5	2	4	5
Argentina	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
Brazil	1	0	0	1	0	0	1	0	2	1	2	2	2	1	2	4
Mexico	1	1	1	0	0	2	1	0	1	3	4	1	1	0	1	1
All others	0	0	0	1	0	0	0	0	0	1	0	1	2	2	1	0
Sub-Saharan Africa	0	0	0	0	0	0	1	3	3	1	0	2	2	2	2	0
South Africa	0	0	0	0	0	0	1	3	3	1	0	2	1	2	1	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
All others	43	62	61	82	81	111	98	114	132	141	159	221	208	248	267	346
Australia	1	1	4	6	4	12	2	7	14	10	18	77	57	70	47	65
Canada	24	47	42	48	57	74	69	82	93	94	97	111	113	130	173	227
Switzerland	5	11	11	18	8	15	17	19	17	26	27	22	28	33	32	39
All others	12	3	5	11	12	9	10	6	8	11	16	11	11	15	15	15

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-60

USPTO patents granted in biotechnology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	2,417	3,271	4,685	6,679	6,367	5,606	6,278	5,827	5,379	4,806	4,117	6,008	5,940	5,703	5,826	8,206
United States	1,526	2,126	3,182	4,409	4,164	3,658	4,053	3,799	3,456	3,042	2,611	3,726	3,724	3,438	3,558	4,853
EU	401	553	804	1,164	1,155	1,035	1,182	1,025	1,023	901	735	1,047	998	1,004	1,025	1,527
France	57	98	144	206	182	175	202	165	186	135	138	187	157	164	153	232
Germany	125	153	212	297	276	256	325	277	308	273	201	290	272	273	282	440
Italy	23	42	49	62	64	38	37	39	40	27	28	56	40	44	48	95
Netherlands	18	23	58	75	73	86	70	72	46	58	51	55	65	70	86	95
Sweden	28	25	38	55	67	59	75	67	72	56	44	52	60	61	43	76
United Kingdom	80	100	166	243	260	221	254	219	185	183	133	203	204	184	186	259
All others	70	111	137	225	233	200	218	184	186	168	140	205	201	207	227	330
Japan	313	351	386	587	507	406	453	412	367	373	361	514	513	559	493	715
China	5	2	6	9	8	9	17	20	14	20	25	40	64	54	53	83
Asia-8	19	25	40	63	74	75	117	111	118	111	119	229	185	209	210	380
India	6	4	7	13	8	17	21	28	44	35	35	50	44	44	28	60
South Korea	9	14	20	24	41	36	55	44	44	37	44	92	80	84	97	180
Taiwan	4	5	10	19	15	15	33	37	22	32	31	68	50	60	69	114
All others	0	2	3	7	10	7	8	2	8	7	9	19	11	21	16	26
All others	153	212	267	448	459	423	456	461	401	357	265	453	456	440	488	649
Central Asia and Europe	2	15	8	21	14	18	17	22	11	13	12	15	28	27	26	37
Russia	0	0	0	0	0	0	11	18	9	11	10	12	23	21	22	31
All others	2	15	8	21	14	18	6	3	2	2	2	4	5	6	4	6
Middle East and North Africa	16	24	26	62	72	51	54	56	62	49	35	68	66	65	86	113
Israel	14	24	23	61	70	47	52	56	61	48	34	64	63	63	85	108
All others	2	1	3	1	2	4	2	0	1	1	2	4	3	2	1	5
South and Central America	8	3	12	20	8	12	14	21	17	19	9	25	17	23	26	43
Argentina	1	1	3	3	1	1	1	1	0	5	0	5	3	3	3	3
Brazil	1	1	2	3	1	3	6	4	8	8	2	12	7	5	7	14
Mexico	4	1	3	4	2	4	4	2	4	3	2	3	1	3	7	9
All others	1	0	4	9	4	4	3	14	5	3	5	4	6	11	9	17
Sub-Saharan Africa	0	2	1	1	3	4	4	4	5	2	0	3	2	5	4	9
South Africa	0	2	0	0	3	2	3	3	2	2	0	2	1	2	2	5
All others	0	0	1	1	0	2	1	1	2	0	0	1	1	3	2	4
All others	127	168	220	344	362	338	367	359	306	274	209	342	343	320	346	447
Australia	36	35	39	72	81	56	81	59	54	49	44	71	62	72	76	93
Canada	60	84	122	187	207	206	204	220	180	161	110	183	204	174	185	237
Switzerland	25	38	50	63	51	52	61	53	48	37	35	63	46	49	46	83
All others	7	11	9	22	22	24	22	26	25	27	21	25	31	25	38	33

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-61

USPTO patents granted in medical equipment technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	4,786	5,046	5,374	7,022	6,994	6,929	6,840	6,481	7,412	6,064	4,913	5,219	4,582	4,022	4,691	7,424
United States	3,567	3,807	3,984	5,201	5,140	4,979	4,828	4,423	5,158	4,178	3,446	3,581	3,103	2,717	3,205	5,211
EU	632	643	754	922	930	1,046	1,039	1,004	1,065	922	694	707	697	545	672	1,035
France	109	94	137	144	139	161	174	150	170	130	94	83	96	103	92	161
Germany	242	230	271	348	317	374	365	395	365	334	239	255	261	186	270	408
Italy	36	45	51	57	62	72	69	68	84	77	52	45	55	36	46	61
Netherlands	34	25	40	49	48	43	49	47	31	37	24	29	31	20	26	41
Sweden	52	60	43	91	78	95	115	91	99	66	56	67	42	41	46	46
United Kingdom	95	104	119	133	159	167	147	139	163	144	117	114	108	87	91	145
All others	64	85	93	100	127	134	120	114	154	135	111	114	105	71	101	174
Japan	273	298	301	411	418	367	408	410	463	343	271	335	316	319	315	490
China	4	4	4	10	9	11	7	13	19	18	16	22	21	19	18	32
Asia-8	72	67	59	91	101	119	114	163	170	164	136	186	144	115	101	139
India	1	0	0	4	5	3	2	2	5	2	3	7	3	6	4	3
South Korea	7	13	12	21	18	26	27	39	61	36	34	47	39	25	29	44
Taiwan	64	50	44	62	74	87	81	114	92	120	95	122	99	79	58	78
All others	0	4	3	4	4	3	4	8	12	6	4	10	3	5	10	14
All others	238	227	272	388	396	407	445	470	538	439	350	387	300	306	380	515
Central Asia and Europe	9	11	6	14	18	24	18	13	16	11	10	11	14	11	13	10
Russia	0	0	0	0	0	0	15	11	13	5	9	8	9	7	10	8
All others	9	11	6	14	18	24	3	2	3	6	2	3	4	4	3	2
Middle East and North Africa	23	27	50	79	75	71	90	95	115	90	71	80	66	59	85	133
Israel	22	26	47	77	72	69	85	93	111	89	71	78	66	57	83	132
All others	1	1	3	2	3	1	5	2	4	1	0	3	0	2	1	2
South and Central America	13	18	23	26	37	25	30	32	38	22	18	15	8	9	20	16
Argentina	6	6	10	12	15	9	11	13	15	9	8	3	4	1	11	2
Brazil	3	6	6	7	6	7	7	6	12	1	5	7	0	4	1	6
Mexico	3	3	3	4	2	3	2	3	2	6	1	4	0	3	1	4
All others	1	3	5	4	14	7	10	9	8	5	4	2	4	2	6	4
Sub-Saharan Africa	9	3	2	7	7	8	6	4	7	4	6	10	3	3	5	6
South Africa	9	3	2	7	7	8	6	4	6	4	5	8	3	2	4	6
All others	0	0	0	0	0	0	0	0	0	0	1	2	0	1	1	0
All others	184	169	191	263	260	279	301	326	362	312	245	271	209	224	257	350
Australia	34	31	26	49	45	45	50	65	74	58	58	72	56	39	57	74
Canada	90	71	100	113	108	112	128	121	149	119	90	88	64	74	85	103
Switzerland	51	57	56	80	85	96	99	111	105	104	76	82	70	98	94	138
All others	10	11	9	20	23	25	24	29	35	32	21	28	20	13	20	35

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-62

Regions and countries/economies in USPTO patent data

- United States
  - United States
  - Puerto Rico
- EU
  - France
  - Germany
  - Italy
  - Netherlands
  - Sweden
  - United Kingdom
  - All others
    - Austria
    - Belgium
    - Bulgaria
    - Cyprus
    - Czech Republic
    - Denmark
    - Estonia
    - European Patent Office
    - Finland
    - Greece
    - Hague Agreement
    - Hungary
    - Ireland
    - Latvia
    - Lithuania
    - Luxembourg
    - Malta
    - Poland
    - Portugal
    - Romania
    - Slovakia
    - Slovenia
    - Spain
- Japan
- China
  - China
  - Hong Kong
  - Macau
- Asia-8
  - India
  - Indonesia
  - Malaysia
  - Philippines
  - Singapore
  - South Korea
- Asia-8 (continued)
  - Taiwan
  - Thailand
- All others
  - Central Asia and Europe
    - Russia
    - Turkey
    - All others
      - Albania
      - Andorra
      - Armenia
      - Azerbaijan
      - Belarus
      - Bosnia and Herzegovina
      - Kyrgyzstan
      - Macedonia
      - Moldova
      - Tajikistan
      - Ukraine
      - Uzbekistan
      - Yugoslavia
  - Middle East and North Africa
    - Israel
    - All others
      - Algeria
      - Bahrain
      - Egypt
      - Iran
      - Kuwait
      - Lebanon
      - Morocco
      - Oman
      - Pakistan
      - Qatar
      - Saudi Arabia
      - Syria
      - Tunisia
      - United Arab Emirates
      - Yemen
  - South and Central America
    - Argentina
    - Brazil
    - Chile
    - Colombia
    - Mexico
    - Venezuela
- South and Central America (continued)
  - All others
    - Antigua and Barbuda
    - Bahamas
    - Barbados
    - Belize
    - Bolivia
    - Costa Rica
    - Cuba
    - Dominica
    - Dominican Republic
    - Ecuador
    - El Salvador
    - Grenada
    - Guatemala
    - Guyana
    - Haiti
    - Honduras
    - Jamaica
    - Nicaragua
    - Panama
    - Paraguay
    - Peru
    - St. Kitts and Nevis
    - St. Lucia
    - Suriname
    - Trinidad and Tobago
    - Uruguay
  - Sub-Saharan Africa
    - South Africa
    - All others
      - Africa Regional Industrial Property Org.
      - African Intellectual Property Org.
      - Benin
      - Burkina Faso
      - Cameroon
      - Chad
      - Congo (Brazzaville)
      - Congo (Kinshasa)
      - Côte d'Ivoire
      - Djibouti
      - Ethiopia
      - Gabon
      - Gambia
      - Ghana
      - Guinea
- Sub-Saharan Africa
  - All others (continued)
    - Kenya
    - Liberia
    - Madagascar
    - Mali
    - Mauritius
    - Namibia
    - Niger
    - Nigeria
    - Rwanda
    - Senegal
    - Seychelles
    - Sierra Leone
    - Swaziland
    - Tanzania
    - Uganda
    - Zambia
    - Zimbabwe
- All others
  - Australia
  - Canada
  - Switzerland
  - All others
    - Afghanistan
    - Bangladesh
    - Brunei
    - Burma
    - French Guiana
    - Greenland
    - Iceland
    - Laos
    - Liechtenstein
    - Monaco
    - Nauru
    - Nepal
    - New Zealand
    - North Korea
    - Norway
    - Papua New Guinea
    - Sri Lanka
    - Vatican City
    - Vietnam

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTE: European Patent Office and Hague Agreement are part of EU.

SOURCE: The Patent Board™, Proprietary Patent Database (15 February 2011).

Science and Engineering Indicators 2012

Appendix table 6-63

Triadic patent families, by region/country/economy: 1999–2008

Region/country/economy	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	44,396	44,479	44,212	45,485	46,532	47,851	48,792	49,390	48,868	47,949
United States	14,513	13,658	13,532	14,381	14,720	15,098	15,272	15,088	14,823	14,399
EU	14,004	13,074	13,241	13,108	13,206	13,875	14,204	14,684	14,727	14,525
Austria	256	273	255	316	334	376	422	429	418	406
Belgium	375	321	335	342	325	413	411	409	420	396
Denmark	235	216	221	227	242	292	308	273	305	312
Finland	442	342	345	271	299	335	344	365	348	348
France	2,335	2,100	2,168	2,194	2,243	2,379	2,369	2,428	2,452	2,423
Germany	5,983	5,738	5,613	5,468	5,409	5,598	5,733	6,011	6,029	5,875
Hungary	40	27	29	28	41	44	41	44	48	46
Ireland	73	30	50	50	64	66	74	68	76	83
Italy	659	625	703	705	702	746	738	754	746	730
Netherlands	911	1,007	1,042	952	966	984	961	997	942	979
Poland	9	9	11	10	11	16	13	16	20	22
Spain	124	143	155	158	153	211	214	214	217	223
Sweden	876	603	666	690	670	692	826	899	951	948
United Kingdom	1,624	1,585	1,585	1,630	1,645	1,638	1,647	1,671	1,652	1,621
All others	61	55	62	66	102	84	103	107	105	114
Japan	12,848	14,379	13,858	13,909	13,948	13,699	13,610	13,872	13,599	13,446
China	81	98	129	179	236	243	326	402	498	503
Asia-8	719	890	1,133	1,510	1,999	2,306	2,535	2,667	2,603	2,480
India	39	53	85	120	128	122	149	127	139	141
Indonesia	1	4	2	2	1	2	1	1	0	1
Singapore	56	68	84	82	95	116	115	118	113	136
South Korea	580	726	908	1,202	1,680	1,953	2,112	2,255	2,145	2,006
Taiwan	44	40	54	103	95	112	157	166	206	196
All others	2,147	2,297	2,238	2,303	2,335	2,541	2,753	2,583	2,524	2,505
Other developed	2,010	2,139	2,090	2,154	2,178	2,375	2,552	2,380	2,317	2,301
Australia	287	360	317	338	331	353	354	314	302	297
Canada	521	513	528	582	566	645	711	648	623	609
Iceland	7	11	4	8	4	2	4	5	3	3
Israel	278	313	311	261	289	343	446	390	372	389
New Zealand	47	45	41	60	56	62	57	55	52	49
Norway	106	98	89	105	97	104	123	118	116	115
Switzerland	763	799	801	800	835	867	858	850	849	838
Other developing	137	158	147	149	158	166	201	203	207	204
Argentina	7	7	6	7	6	7	10	10	9	8
Brazil	26	29	43	41	42	47	51	56	64	60
Chile	2	2	5	5	3	5	5	6	4	5

Appendix table 6-63

Triadic patent families, by region/country/economy: 1999–2008

Region/country/economy	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Mexico	10	8	12	10	14	15	13	16	15	16
Russia	62	72	49	50	52	50	73	66	63	66
South Africa	27	36	23	27	32	29	36	33	30	28
Turkey	3	4	9	8	8	13	12	17	22	21

EU = European Union

NOTES: Triadic patent families include patents applied for in U.S. Patent and Trademark Office, European Patent Office, and Japan Patent Office. Patent families fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. EU includes all 27 member states; the countries in "all others" are Bulgaria, Cyprus, Czech Republic, Estonia, Greece, Latvia, Lithuania, Luxembourg, Malta, Portugal, Romania, Slovakia, and Slovenia. China includes Hong Kong and Macau. Asia-8 economies Malaysia, Philippines, and Thailand do not have activity in triadic patents.

SOURCE: Organization for Economic Cooperation and Development, Patent Statistics, Patents by Region database, http://stats.oecd.org/WBOS/index.aspx, accessed 16 February 2011.

Science and Engineering Indicators 2012

Appendix table 6-64
USPTO trademark applications, by region/country/economy: 1998–2008

Region/country/economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	246,611	260,761	292,464	216,308	212,637	220,965	248,406	264,510	277,579	304,129	294,070
United States	207,429	229,721	251,220	181,713	181,693	191,902	213,495	224,271	233,312	256,429	246,222
EU	19,988	13,658	18,426	14,443	11,711	12,906	14,670	17,361	19,481	21,632	22,414
Austria	418	231	307	306	271	241	279	387	418	392	420
Czech Republic	28	22	31	26	31	33	33	63	78	94	114
Denmark	366	223	359	297	277	329	240	383	397	448	504
France	3,347	2,272	2,591	2,160	2,013	1,933	2,057	2,521	2,631	2,752	2,834
Germany	5,262	3,548	4,661	3,937	2,114	3,485	3,587	4,436	4,361	4,646	4,987
Hungary	12	21	29	24	12	26	50	59	54	40	59
Ireland	246	270	314	221	186	224	219	222	317	347	369
Italy	1,653	1,270	1,499	1,265	1,235	1,258	1,335	1,861	2,369	2,266	2,034
Netherlands	1,250	899	1,299	926	843	863	454	469	457	602	520
Poland	20	13	41	33	40	63	97	99	98	115	123
Portugal	69	81	85	74	57	88	72	138	171	180	201
Spain	657	568	877	665	570	685	877	783	948	978	1,040
Sweden	1,148	656	922	595	511	529	501	575	551	635	690
United Kingdom	4,727	3,044	4,600	3,238	2,862	2,528	2,918	3,249	3,737	4,869	4,983
All others	785	540	811	676	689	621	1,951	2,116	2,894	3,268	3,536
Japan	2,971	2,374	3,027	4,370	2,607	2,845	3,015	3,126	3,158	2,957	3,284
China	329	291	356	332	418	1,030	1,407	1,263	1,530	3,717	2,579
Asia-8	537	605	943	809	881	797	1,017	996	1,259	1,974	1,942
India	86	134	198	159	235	192	229	176	282	307	360
Indonesia	0	0	0	0	0	32	27	0	0	35	40
Malaysia	0	0	0	0	0	0	79	0	0	72	98
Philippines	0	0	0	0	0	0	28	0	0	45	58
Singapore	0	0	0	0	0	1	159	77	91	306	287
South Korea	451	471	745	650	646	572	393	743	886	1,107	967
Thailand	0	0	0	0	0	0	102	0	0	102	132
All others	15,496	14,235	18,686	14,774	15,471	11,644	14,962	17,661	19,056	17,617	17,776
Central Asia and Europe	111	100	103	151	142	238	360	567	600	649	697
Russia	53	65	56	61	73	101	119	213	211	211	293
Turkey	58	35	47	90	69	134	163	283	302	281	295
All others	0	0	0	0	0	3	78	71	87	157	109
Middle East and North Africa	442	619	880	561	392	390	526	460	523	815	849
Israel	442	619	880	561	392	326	423	434	502	584	548
United Arab Emirates	0	0	0	0	0	11	20	0	0	91	152
All others	442	619	880	561	392	368	486	460	523	633	545
South and Central America	1,125	994	1,240	1,265	1,378	2,274	2,738	1,619	1,780	3,207	2,818
Argentina	126	149	239	179	195	228	167	202	203	236	202
Brazil	232	183	357	370	324	373	369	398	407	364	376
Chile	0	0	0	0	0	162	190	0	0	190	194
Colombia	0	0	0	0	0	131	132	0	0	196	151
Costa Rica	0	0	0	0	0	29	40	0	0	57	73
Mexico	767	662	644	716	859	768	948	1,018	1,166	1,311	1,103
All others	0	0	0	0	0	583	892	1	4	853	719
Sub-Saharan Africa	139	123	194	133	144	175	173	169	224	212	165
South Africa	139	123	194	133	144	159	160	168	217	197	147
All others	0	0	0	0	0	16	13	1	7	15	18
Other developed	10,352	8,747	11,096	8,279	7,403	8,121	9,327	9,935	10,766	12,043	11,794
Australia	1,095	1,104	1,526	1,093	1,116	1,331	1,414	1,612	1,910	2,174	1,999
Canada	6,856	5,961	7,483	5,248	4,434	4,816	5,490	5,920	6,090	6,660	6,569
New Zealand	200	266	246	257	221	280	318	306	348	374	327
Norway	237	144	179	144	105	109	116	209	199	221	280

Appendix table 6-64

USPTO trademark applications, by region/country/economy: 1998–2008

Region/country/economy	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Switzerland	1,847	1,222	1,603	1,486	1,496	1,537	1,809	1,767	2,077	2,371	2,338
All others	117	50	59	51	31	48	180	121	142	243	281
All others and unknown	3,327	3,652	5,173	4,385	6,012	462	1,851	4,912	5,170	706	1,471

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: EU includes 27 member countries; the countries in "all others" are Belgium, Bulgaria, Cyprus, Estonia, Finland, Greece, Latvia, Lithuania, Luxembourg, Malta, Romania, Slovakia, and Slovenia. China includes Hong Kong. Data are not available for Taiwan. Detail may not add to total because of rounding or minor discrepancies.

SOURCE: World Intellectual Property Organization, Intellectual Property Statistics, http://www.wipo.int/ipstats/en, accessed 15 November 2010.

Science and Engineering Indicators 2012

Appendix table 6-65

U.S. venture capital investment, by financing stage and industry/technology: 1995–2010

(Millions of dollars)

Financing stage and industry/technology	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
All financing stages																
All industries/technologies	5,885	8,936	12,002	43,809	16,083	86,823	35,308	21,509	19,471	22,322	24,207	29,668	32,200	31,243	22,348	26,415
Aerospace and defense	18	7	6	0	6	63	5	44	17	33	25	165	51	76	45	97
Agriculture and forestry	12	12	26	15	71	39	43	7	32	15	50	17	121	48	32	34
Biopharmaceuticals	480	798	1,021	1,693	1,279	4,046	3,452	3,243	3,636	4,595	4,074	4,837	5,822	4,626	4,030	3,246
Business support services	230	564	928	7,960	1,601	18,133	3,978	1,471	1,332	1,233	1,719	2,415	2,989	2,808	2,120	2,516
Communications and networking	1,208	1,562	2,385	9,842	3,432	21,293	8,460	4,470	2,985	2,644	2,895	3,927	2,580	1,665	1,587	1,027
Construction and civil engineering	51	73	11	75	33	48	97	82	66	94	50	52	240	199	336	141
Consumer information services	68	226	272	2,567	505	2,425	222	152	213	452	661	1,288	1,740	2,525	1,792	4,552
Electronics and computer hardware	385	447	489	815	517	2,049	1,431	1,074	867	1,235	1,191	1,278	1,648	1,361	1,061	1,282
Financial institutions and services	85	185	153	2,026	558	3,334	1,185	446	456	530	677	679	824	673	544	631
Food and beverage	35	53	93	55	63	18	23	17	26	12	58	54	183	113	69	100
Healthcare services	423	662	732	394	577	425	489	402	289	397	526	560	537	415	359	1,144
Household and office goods	26	11	19	6	22	17	3	5	17	21	21	23	6	60	48	71
Machinery and industrial goods	85	41	110	97	28	167	109	8	46	115	90	97	235	468	214	188
Materials and chemicals	48	80	91	62	93	81	114	212	208	148	366	218	487	276	289	413
Media and content	225	477	591	2,141	725	3,050	775	235	247	369	511	488	495	698	306	343
Medical devices and equipment	456	498	756	1,397	982	2,196	1,799	1,776	1,824	1,726	2,361	2,724	3,791	3,615	2,959	2,249
Medical software and information services	198	409	514	1,108	479	2,231	730	409	369	337	498	411	307	365	374	478
Non-renewable energy	0	44	71	0	64	0	47	22	13	11	81	335	297	54	239	296
Personal goods	18	129	47	16	12	23	8	7	40	19	37	35	77	72	59	47
Renewable energy	2	5	7	21	13	75	144	92	42	309	249	1,026	1,690	3,664	1,123	2,118
Retailers	423	452	519	3,362	671	2,143	268	161	100	179	355	368	177	176	130	182
Semiconductors	276	350	560	1,347	623	3,379	2,586	1,480	1,865	2,063	1,922	2,284	1,709	1,303	814	764
Software	972	1,741	2,455	8,492	3,408	20,956	8,990	5,612	4,707	5,594	5,591	5,933	5,669	5,153	3,231	3,762
Travel and leisure	139	104	143	253	302	365	186	49	62	130	188	301	244	376	93	133
Utilities	0	1	0	6	0	69	0	13	0	18	0	23	44	47	39	141
Vehicles and parts	9	9	5	31	19	16	87	7	3	44	13	112	236	396	455	460
Wholesale trade and shipping	13	0	0	28	1	182	79	12	12	0	0	17	0	10	0	0
Early stage																
All industries/technologies	2,010	3,238	4,324	15,492	6,136	29,322	8,067	4,351	3,880	5,091	5,958	6,275	8,104	6,999	4,242	4,570
Aerospace and defense	0	0	6	0	0	63	0	26	17	12	7	25	3	35	7	21
Agriculture and forestry	12	2	20	2	13	1	20	0	5	0	3	2	1	17	3	11
Biopharmaceuticals	121	197	338	573	461	1,112	1,163	932	622	1,001	1,139	1,223	1,601	1,345	854	578
Business support services	122	247	497	3,603	726	6,426	627	217	175	325	514	716	905	841	503	462
Communications and networking	234	582	622	3,719	1,467	6,852	1,668	503	286	514	399	391	450	242	109	315
Construction and civil engineering	17	3	5	57	32	25	53	20	19	25	4	18	163	53	60	18
Consumer information services	37	60	81	744	177	777	34	43	62	93	340	602	878	870	382	623
Electronics and computer hardware	134	159	165	204	250	603	426	172	249	315	252	181	351	225	121	127
Financial institutions and services	72	45	69	745	141	1,384	154	41	68	199	447	156	194	128	140	196
Food and beverage	34	20	23	8	3	10	10	12	15	3	43	25	62	25	11	37
Healthcare services	229	321	309	89	233	117	75	123	75	109	194	141	166	62	222	134
Household and office goods	17	8	6	2	2	14	3	4	6	0	2	3	6	48	22	37
Machinery and industrial goods	42	9	15	17	7	5	81	3	35	21	31	43	20	94	21	15
Materials and chemicals	37	45	24	32	25	27	51	74	46	34	92	74	103	112	63	39
Media and content	66	169	243	787	246	1,163	140	29	47	90	218	214	100	190	105	110

Appendix table 6-65

U.S. venture capital investment, by financing stage and industry/technology: 1995–2010

(Millions of dollars)

Financing stage and industry/technology	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Medical devices and equipment	97	143	225	331	327	474	213	337	380	440	437	541	722	784	356	333
Medical software and information services	89	149	150	362	179	788	114	53	67	80	75	54	73	103	64	156
Non-renewable energy	0	35	63	0	1	0	47	22	2	11	44	26	129	54	32	178
Personal goods	9	3	36	12	0	7	3	4	15	12	18	6	29	39	17	11
Renewable energy	2	0	3	0	3	22	47	47	21	61	45	483	597	477	151	146
Retailers	82	141	161	1,023	239	399	14	30	26	85	88	40	50	32	41	89
Semiconductors	72	73	251	393	235	1,062	748	331	525	411	367	308	117	132	45	69
Software	422	780	978	2,732	1,203	7,795	2,255	1,299	1,082	1,201	1,139	957	1,190	839	788	726
Travel and leisure	62	42	30	47	157	57	11	11	34	40	60	15	69	33	17	24
Utilities	0	1	0	6	0	14	0	13	0	0	0	10	30	25	3	86
Vehicles and parts	3	6	5	0	8	3	84	6	2	8	0	7	95	181	106	28
Wholesale trade and shipping	0	0	0	7	1	122	28	0	0	0	0	17	0	10	0	0
Expansion stage																
All industries/technologies	1,602	2,152	3,250	12,320	4,549	28,390	12,585	6,356	5,093	5,665	4,933	7,788	6,885	7,291	5,048	4,772
Aerospace and defense	0	0	0	0	6	0	5	1	0	21	18	0	44	4	24	7
Agriculture and forestry	0	10	6	13	13	0	0	4	15	0	0	14	3	0	10	3
Biopharmaceuticals	114	201	151	613	330	1,006	1,213	1,097	979	1,712	1,049	1,388	1,185	943	1,087	609
Business support services	68	177	219	2,398	368	6,812	1,790	291	313	162	232	562	678	613	635	576
Communications and networking	501	257	616	2,154	1,017	6,442	3,281	1,231	743	342	358	1,417	370	267	180	158
Construction and civil engineering	1	23	7	18	1	23	44	15	36	28	5	0	2	41	58	21
Consumer information services	25	108	72	972	154	593	91	40	27	231	93	384	482	809	508	424
Electronics and computer hardware	112	139	99	354	134	508	481	455	204	339	269	395	246	250	284	261
Financial institutions and services	1	58	41	740	199	1,248	430	110	149	46	39	185	137	92	130	122
Food and beverage	0	28	50	9	2	7	7	1	10	0	0	23	41	46	13	6
Healthcare services	38	190	187	89	157	227	69	48	17	119	120	133	130	135	54	97
Household and office goods	0	1	2	4	1	0	0	0	11	5	4	1	0	2	24	9
Machinery and industrial goods	0	28	7	0	18	11	9	0	0	54	0	37	142	49	65	61
Materials and chemicals	2	8	31	4	18	9	36	84	82	9	32	50	225	75	88	139
Media and content	60	78	196	553	182	888	326	50	51	180	26	163	110	71	47	75
Medical devices and equipment	190	92	177	355	330	621	473	468	444	358	568	487	718	831	650	412
Medical software and information services	44	60	185	363	135	841	273	73	38	78	94	91	40	45	49	46
Non-renewable energy	0	4	8	0	51	0	0	0	11	0	37	47	8	0	57	68
Personal goods	3	3	0	4	5	11	3	3	4	2	4	12	31	6	1	26
Renewable energy	0	4	3	0	0	3	61	8	12	60	126	232	545	1,419	168	685
Retailers	118	53	188	936	227	868	62	1	11	13	48	124	29	108	0	70
Semiconductors	74	96	92	468	139	1,095	770	563	537	529	445	571	475	288	108	44
Software	193	496	852	2,255	1,026	6,961	3,091	1,811	1,386	1,332	1,246	1,429	1,170	1,154	698	783
Travel and leisure	56	38	62	6	32	170	18	4	0	7	106	33	51	15	23	22
Utilities	0	0	0	0	0	33	0	0	0	18	0	0	0	0	36	0
Vehicles and parts	4	0	1	6	6	6	0	1	0	20	13	10	26	29	52	48
Wholesale trade and shipping	0	0	0	6	0	7	51	0	12	0	0	0	0	0	0	0
Later stage																
All industries/technologies	2,222	3,360	4,093	15,742	5,154	28,707	14,042	9,407	8,648	9,848	11,307	13,516	15,661	15,617	12,165	16,420
Aerospace and defense	18	7	0	0	0	0	0	18	0	0	0	140	5	33	15	68
Agriculture and forestry	0	0	0	0	45	37	23	3	11	8	45	2	118	30	20	20
Biopharmaceuticals	244	401	504	491	488	1,874	1,005	1,052	1,864	1,745	1,796	2,112	2,877	2,188	1,961	2,024

Appendix table 6-65

U.S. venture capital investment, by financing stage and industry/technology: 1995–2010

(Millions of dollars)

Financing stage and industry/technology	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Business support services	36	120	212	1,921	507	4,849	1,526	852	641	581	889	996	1,215	1,311	935	1,453
Communications and networking	465	717	965	3,960	925	7,924	3,442	2,339	1,531	1,557	1,748	1,533	1,390	933	1,016	506
Construction and civil engineering	33	47	0	0	0	0	0	47	11	41	41	34	61	105	217	101
Consumer information services	7	58	118	851	173	1,055	97	59	71	129	176	276	380	774	888	3,504
Electronics and computer hardware	129	132	222	254	131	932	523	385	380	496	648	645	998	830	625	883
Financial institutions and services	12	42	38	541	216	677	558	272	166	212	130	177	469	441	251	272
Food and beverage	0	5	14	38	57	0	6	5	1	9	15	5	80	41	45	58
Healthcare services	154	151	235	216	187	81	204	168	138	151	169	286	218	204	83	900
Household and office goods	9	2	3	0	17	2	0	0	0	15	15	14	0	10	2	25
Machinery and industrial goods	43	4	78	50	4	151	19	6	4	25	59	17	59	325	126	101
Materials and chemicals	9	27	37	26	50	46	24	48	76	73	225	89	159	89	131	235
Media and content	99	230	152	801	296	997	294	145	144	64	222	87	254	437	136	139
Medical devices and equipment	168	239	321	693	263	1,074	1,058	900	869	821	1,163	1,516	2,256	1,719	1,848	1,407
Medical software and information services	66	192	173	355	162	551	343	262	176	172	118	209	128	206	241	240
Non-renewable energy	0	0	0	0	12	0	0	0	0	0	0	262	160	0	150	50
Personal goods	6	123	9	0	7	6	3	0	21	5	15	17	17	27	41	10
Renewable energy	0	1	1	21	10	50	36	27	9	188	78	303	540	1,747	766	1,287
Retailers	218	258	142	1,403	200	876	193	106	54	61	206	147	98	36	89	23
Semiconductors	118	159	217	486	218	1,211	1,037	535	714	1,016	928	1,134	1,014	743	620	587
Software	353	421	602	3,394	1,087	6,110	3,506	2,136	1,746	2,431	2,603	3,159	2,927	2,921	1,609	2,001
Travel and leisure	21	23	50	200	95	122	145	32	21	33	16	248	124	282	53	88
Utilities	0	0	0	0	0	22	0	0	0	0	0	13	0	0	0	55
Vehicles and parts	2	3	0	25	5	7	2	0	0	16	0	95	115	185	297	384
Wholesale trade and shipping	13	0	0	15	0	53	0	12	0	0	0	0	0	0	0	0

NOTES: Industries and technologies classified by Dow Jones VentureSource. Early stage consists of seed, startup, and initiation of commercial sales. Expansion consists of second-round financing that provides working capital for company expansion, and financing to prepare for initial public offering. Later stage includes acquisition financing and management and leverage buyouts. Sum of financing stages does not add up to total.

SOURCE: Dow Jones, special tabulations (February 2011) of VentureSource database, http://www.dowjones.com/info/venture-capital-data.asp.

Science and Engineering Indicators 2012

Appendix table 6-66

USPTO patents granted in clean energy and pollution control technologies, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	2,991	3,171	3,080	3,678	3,619	3,641	4,046	4,065	4,218	4,027	3,533	3,887	3,638	3,688	4,238	6,145
United States	1,640	1,791	1,633	1,899	1,837	1,777	2,002	1,894	1,954	1,875	1,632	1,871	1,721	1,759	2,000	2,788
EU	498	504	525	621	633	621	678	698	717	609	581	534	589	592	634	992
France	91	90	92	105	94	106	106	119	97	67	82	61	98	85	97	152
Germany	227	209	234	281	287	306	321	307	352	314	283	262	261	274	310	466
Italy	16	24	25	24	26	31	25	36	28	30	23	27	26	29	25	44
Netherlands	20	21	16	21	36	20	35	29	31	24	19	12	22	31	16	37
Sweden	35	32	45	38	64	42	54	64	40	35	33	34	31	32	21	41
United Kingdom	63	71	61	87	70	55	65	66	79	63	54	78	74	70	64	93
All others	46	57	52	66	55	62	73	78	91	76	86	61	78	71	100	158
Japan	613	620	650	816	799	924	990	1,088	1,150	1,111	920	1,055	933	905	1,031	1,441
China	8	2	5	8	3	10	7	7	12	12	10	19	20	23	32	67
Asia-8	35	56	63	108	99	76	125	145	142	157	135	161	178	177	306	533
India	2	2	1	1	1	3	4	6	7	7	8	4	13	9	11	19
South Korea	13	25	37	65	56	45	76	89	84	98	75	105	105	106	209	390
Taiwan	19	25	21	36	39	26	39	43	47	46	46	50	52	61	79	108
All others	1	5	4	6	4	3	7	8	5	7	6	3	9	3	7	16
All others	197	199	205	225	249	234	245	233	243	264	256	246	197	232	235	326
Central Asia and Europe	12	13	9	11	14	7	16	14	15	12	15	9	8	15	11	16
Russia	0	0	0	0	0	0	14	12	10	9	10	7	5	14	9	11
All others	12	13	9	11	14	7	2	2	4	3	5	2	3	1	2	4
Middle East and North Africa	20	24	17	24	18	18	21	21	26	26	19	17	14	20	27	48
Israel	20	24	15	23	16	13	19	18	24	24	15	17	11	19	24	38
All others	0	0	2	1	2	5	2	3	2	3	4	0	2	1	3	10
South and Central America	7	11	7	7	11	2	8	14	9	11	8	6	5	11	8	15
Argentina	0	0	2	1	1	1	1	1	4	0	0	0	0	0	0	1
Brazil	5	2	2	4	2	1	1	2	2	4	3	2	3	3	3	6
Mexico	1	7	3	1	0	0	4	9	3	3	3	2	1	4	1	8
All others	1	3	0	1	8	0	3	3	0	4	2	2	1	5	4	1
Sub-Saharan Africa	5	4	6	4	7	7	8	3	2	4	4	7	6	6	5	11
South Africa	5	3	6	4	7	7	8	3	2	3	3	6	6	6	3	11
All others	0	1	0	0	0	0	0	0	0	1	1	1	1	0	2	1
All others	153	147	166	179	200	200	192	181	191	212	211	207	165	181	184	236
Australia	9	20	29	21	26	20	17	21	28	28	26	24	24	22	31	26
Canada	97	103	98	111	125	130	116	135	131	142	140	139	111	120	110	159
Switzerland	40	22	28	35	33	36	46	19	22	30	31	31	19	23	27	32
All others	8	2	11	13	16	15	14	7	9	11	14	13	12	16	16	19

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Clean energy and pollution control technologies include alternative energy, energy storage, smart grid, and pollution mitigation. Alternative energy includes solar, wind, nuclear, hydropower, wave/tidal/ocean, geothermal, and electric/hybrid. Energy storage includes batteries, compressed air, flywheels, superconductivity, magnet energy systems, ultracapacitors, hydrogen production and storage, and thermal energy. Pollution mitigation includes recycling, control of air, water, and solid waste pollution, environmental remediation, cleaner coal, and capture and storage of carbon and other greenhouse gases. Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, special tabulations (2011) of U.S. Patent and Trademark Office (USPTO), Patent Grant Bibliographic Data. Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-67

USPTO patents granted in alternative energy, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	825	920	834	1,062	1,080	1,154	1,330	1,509	1,563	1,578	1,482	1,644	1,565	1,606	1,952	2,993
United States	430	484	418	510	500	513	610	652	681	701	636	754	728	712	871	1,351
EU	135	142	135	197	183	188	201	241	262	239	262	223	270	296	326	501
France	39	35	33	49	27	30	28	38	34	25	31	31	41	29	34	61
Germany	52	54	55	93	94	103	106	116	139	130	139	125	134	163	183	255
Italy	2	7	5	2	9	7	9	14	7	7	7	9	7	13	10	21
Netherlands	3	4	2	3	5	10	12	8	12	10	7	4	14	16	11	17
Sweden	13	8	14	5	17	11	14	22	16	11	11	10	9	9	9	12
United Kingdom	15	20	19	23	18	12	14	20	20	23	27	21	29	36	27	40
All others	11	14	9	20	14	16	19	23	34	33	40	25	36	31	52	95
Japan	201	228	206	279	294	356	415	506	499	483	434	505	432	427	504	714
China	3	1	1	1	0	1	1	2	2	3	3	8	9	11	15	32
Asia-8	9	22	14	17	28	23	31	34	29	48	43	52	53	74	145	264
India	0	0	0	0	0	0	1	1	1	1	1	0	5	3	3	6
South Korea	3	10	9	9	13	13	14	13	17	26	28	28	28	42	90	185
Taiwan	6	11	4	7	12	9	10	19	9	20	13	22	20	28	48	63
All others	0	1	1	1	3	1	5	1	2	1	1	2	0	1	4	11
All others	47	43	61	59	75	74	73	75	90	104	105	102	73	87	91	131
Central Asia and Europe	1	3	1	0	0	1	3	7	4	2	5	2	3	3	2	6
Russia	0	0	0	0	0	0	2	7	2	2	3	1	2	3	2	4
All others	1	3	1	0	0	1	1	0	2	0	2	1	1	0	1	2
Middle East and North Africa	8	13	13	10	12	9	11	8	12	13	7	6	6	7	9	23
Israel	8	13	11	10	11	7	10	8	11	13	6	6	5	7	7	18
All others	0	0	2	0	1	2	1	0	1	0	1	0	1	1	1	5
South and Central America	1	2	1	0	4	1	2	3	0	3	4	3	2	2	2	3
Argentina	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Brazil	0	0	0	0	1	1	0	0	0	1	2	1	2	0	1	0
Mexico	0	1	1	0	0	0	1	3	0	1	1	0	0	1	0	2
All others	1	1	0	0	3	0	0	0	0	1	1	2	0	0	1	0
Sub-Saharan Africa	0	1	2	1	1	1	0	1	0	0	2	2	2	0	2	6
South Africa	0	1	2	1	1	1	0	1	0	0	1	2	2	0	1	6
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
All others	38	25	43	47	58	62	56	56	75	86	87	90	61	75	76	93
Australia	3	4	6	5	14	9	8	9	13	11	3	12	9	6	15	13
Canada	21	15	23	27	25	35	25	38	55	63	71	65	42	48	48	62
Switzerland	11	6	9	11	16	9	21	6	5	10	11	10	8	11	5	14
All others	3	0	4	5	3	9	2	3	2	3	2	3	2	10	8	5

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Alternative energy consists of solar, wind, nuclear, bioenergy, hydropower, wave/tidal/ocean, geothermal, fuel cells, and electric/hybrid. Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-68

USPTO patents granted in energy storage, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	227	309	354	416	399	476	546	592	620	621	461	534	519	526	633	980
United States	115	156	152	195	173	184	214	200	220	238	175	215	194	215	219	332
EU	21	31	32	34	33	39	55	59	55	59	43	31	35	41	46	75
France	4	10	12	5	9	11	16	16	11	9	3	3	6	9	13	21
Germany	4	10	9	11	13	20	22	22	26	36	22	13	21	12	18	34
Italy	2	3	3	2	1	2	2	3	1	2	2	2	1	2	1	7
Netherlands	1	0	2	3	1	0	2	3	4	3	5	1	0	8	1	1
Sweden	0	1	0	0	0	0	1	1	1	1	1	2	1	1	0	3
United Kingdom	9	4	2	4	4	3	7	5	6	4	5	9	7	5	5	6
All others	2	4	4	9	5	2	6	9	5	4	5	2	0	5	7	3
Japan	65	90	131	153	149	210	220	263	268	243	176	208	213	203	237	319
China	2	1	0	0	1	3	1	0	1	2	1	2	1	3	2	18
Asia-8	1	10	15	12	16	15	26	45	44	44	34	47	55	41	85	192
India	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	3
South Korea	0	5	12	10	14	13	22	39	36	36	29	43	46	36	81	172
Taiwan	1	4	3	3	2	3	4	4	7	6	3	6	7	5	11	22
All others	0	1	1	0	0	0	0	2	0	1	1	0	2	0	0	1
All others	23	23	24	21	27	23	30	25	32	35	31	29	20	24	37	37
Central Asia and Europe	2	3	1	0	3	2	3	5	4	5	5	3	1	4	4	3
Russia	0	0	0	0	0	0	3	4	3	3	3	3	1	4	3	3
All others	2	3	1	0	3	2	0	2	1	2	1	0	0	1	0	0
Middle East and North Africa	9	6	1	3	3	1	3	1	1	4	1	1	2	1	5	3
Israel	9	6	1	3	3	1	3	1	1	3	1	1	1	1	5	1
All others	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
South and Central America	0	0	0	0	0	0	3	0	0	0	0	1	0	1	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	2	0	0	0	0	1	0	1	0	0
Sub-Saharan Africa	4	0	1	1	2	0	0	0	0	1	0	0	0	1	1	4
South Africa	4	0	1	1	2	0	0	0	0	1	0	0	0	1	1	4
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	8	14	21	17	19	20	21	19	27	25	25	24	17	17	27	27
Australia	0	0	4	3	1	1	1	1	5	2	4	4	4	4	6	2
Canada	7	13	16	13	16	17	17	15	18	17	16	15	7	8	17	16
Switzerland	1	1	1	0	0	1	2	1	2	5	3	5	3	3	4	7
All others	0	0	0	1	2	2	2	1	1	2	3	0	3	1	1	4

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Energy storage includes batteries, compressed air, flywheels, superconductivity magnet energy systems, ultracapacitors, hydrogen production and storage, and thermal energy storage. Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-69

USPTO patents granted in smart grid technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	295	289	295	312	304	277	316	305	350	305	288	384	360	385	378	528
United States	140	153	160	178	160	158	186	174	195	172	162	226	218	248	230	303
EU	40	36	47	42	69	51	48	63	57	42	47	43	45	50	59	81
France	13	10	9	3	15	6	8	9	12	4	9	2	8	5	7	15
Germany	11	7	13	17	19	19	13	20	20	14	14	11	13	20	25	29
Italy	1	1	1	2	3	4	3	3	4	8	7	8	6	4	2	4
Netherlands	0	0	0	2	2	0	1	0	1	2	0	1	0	1	2	0
Sweden	5	8	16	7	22	8	10	17	10	3	6	7	5	5	2	12
United Kingdom	8	9	8	11	8	10	10	10	6	6	1	10	7	5	10	7
All others	2	1	1	1	1	4	4	4	5	5	11	4	6	10	11	15
Japan	93	77	65	59	52	43	54	41	52	42	31	53	40	36	33	66
China	0	0	1	0	0	0	2	0	1	0	1	1	1	4	6	5
Asia-8	4	6	3	9	6	5	9	6	13	10	12	22	20	15	20	24
India	0	1	0	1	0	0	1	1	1	2	1	2	3	2	1	4
South Korea	2	2	1	8	4	3	6	3	5	5	3	14	10	6	14	9
Taiwan	2	3	2	0	1	2	2	1	6	3	8	6	6	7	4	10
All others	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	1
All others	18	18	19	25	18	20	19	21	33	38	34	40	36	33	30	50
Central Asia and Europe	1	0	0	0	0	1	0	1	1	0	0	0	0	1	1	0
Russia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
All others	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0
Middle East and North Africa	1	1	1	1	0	1	0	1	2	2	5	6	3	5	5	8
Israel	1	1	1	1	0	1	0	1	2	2	4	6	3	5	5	6
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
South and Central America	0	1	0	2	0	0	0	0	3	1	1	1	0	0	1	3
Argentina	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Brazil	0	0	0	2	0	0	0	0	1	1	0	0	0	0	0	0
Mexico	0	1	0	0	0	0	0	0	1	0	1	1	0	0	0	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Sub-Saharan Africa	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1
South Africa	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
All others	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
All others	16	15	18	21	17	18	19	19	27	35	28	33	32	27	22	38
Australia	1	1	1	2	1	2	0	1	3	5	4	4	3	0	2	3
Canada	7	7	8	10	11	5	11	13	15	19	12	19	23	21	14	29
Switzerland	8	7	7	8	2	8	8	4	10	7	9	10	5	5	6	4
All others	0	0	3	2	3	3	1	1	0	4	3	0	1	2	0	2

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™. Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-70

USPTO patents granted in pollution mitigation, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	1,717	1,742	1,704	2,011	1,944	1,864	1,998	1,825	1,831	1,685	1,456	1,497	1,343	1,321	1,427	1,887
United States	992	1,050	957	1,076	1,062	984	1,058	945	932	831	744	767	666	668	764	945
EU	317	307	323	363	369	364	393	361	360	291	254	251	268	229	229	371
France	40	35	41	51	46	65	60	60	42	33	42	27	50	42	46	60
Germany	163	146	161	166	166	173	187	156	176	145	120	119	103	89	98	161
Italy	12	13	16	18	16	17	13	17	16	14	10	9	13	11	13	17
Netherlands	17	17	12	14	30	13	21	19	14	13	9	7	9	9	2	20
Sweden	17	15	17	26	26	24	29	27	15	20	15	17	18	18	11	18
United Kingdom	36	40	37	51	46	31	35	36	47	32	24	41	37	29	23	44
All others	32	40	40	38	39	42	49	47	52	35	34	31	38	30	36	52
Japan	267	243	278	365	326	350	346	327	374	398	305	334	274	267	287	376
China	5	1	3	7	2	6	4	5	8	6	5	9	11	9	10	13
Asia-8	23	18	33	71	51	34	66	64	57	60	52	43	52	53	55	64
India	1	1	1	1	1	3	2	4	4	4	5	2	4	4	8	5
South Korea	8	8	17	38	26	18	36	38	26	34	19	23	23	25	29	40
Taiwan	12	8	12	27	24	12	25	19	26	17	25	17	19	23	16	15
All others	1	2	3	5	0	1	3	4	2	5	4	1	5	2	2	4
All others	114	123	109	129	133	125	131	123	99	98	97	94	73	96	83	118
Central Asia and Europe	8	8	7	11	11	4	10	3	6	5	7	5	4	6	6	7
Russia	0	0	0	0	0	0	9	3	6	4	4	4	2	6	4	4
All others	8	8	7	11	11	4	1	0	0	1	3	1	2	0	1	2
Middle East and North Africa	5	7	3	12	3	7	8	12	14	10	5	5	2	7	8	16
Israel	5	6	3	11	2	4	7	9	13	8	4	5	2	7	6	13
All others	0	0	0	1	1	3	1	3	1	3	1	0	0	0	2	3
South and Central America	6	8	6	5	7	1	4	12	6	7	3	2	3	9	5	8
Argentina	0	0	2	1	1	1	0	1	3	0	0	0	0	0	0	0
Brazil	5	2	2	2	1	0	1	2	1	2	1	1	1	2	2	6
Mexico	1	5	2	1	0	0	3	7	2	2	1	1	1	3	1	2
All others	0	2	0	1	5	0	0	3	0	3	1	0	1	4	2	0
Sub-Saharan Africa	1	2	3	2	3	6	8	2	2	2	2	5	4	5	1	2
South Africa	1	2	3	2	3	6	8	2	2	2	2	4	3	5	0	2
All others	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
All others	95	98	90	100	110	108	102	93	71	74	81	77	60	69	64	85
Australia	5	15	18	12	11	9	8	11	8	13	16	7	9	12	10	10
Canada	64	73	55	63	77	78	68	71	51	50	47	52	42	47	33	57
Switzerland	20	8	13	20	14	19	17	8	6	8	9	8	4	5	12	7
All others	5	2	4	5	7	2	9	3	6	5	8	10	5	5	8	11

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Pollution mitigation includes recycling; control of air, solid waste, and water pollution; environmental remediation; cleaner coal; and capture and storage of carbon and other greenhouse gases. Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-71

USPTO patents granted in fuel cells, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	104	109	93	131	173	219	281	370	476	567	518	604	533	534	677	1,031
United States	44	55	46	60	101	125	166	211	251	284	249	288	241	215	245	373
EU	16	17	17	20	27	43	38	46	69	73	63	59	74	83	76	119
France	0	1	0	0	0	1	2	4	1	4	1	7	10	4	8	12
Germany	10	7	6	11	20	33	33	29	56	50	44	38	50	54	46	75
Italy	0	3	2	0	3	3	1	4	2	4	3	2	2	4	3	7
Netherlands	1	0	1	0	1	1	2	4	2	2	2	1	3	4	1	3
Sweden	0	0	1	0	0	0	0	0	0	0	0	2	0	1	0	1
United Kingdom	3	5	5	4	3	6	0	5	5	7	7	7	6	13	10	12
All others	2	1	2	5	0	0	0	1	3	6	6	2	3	3	8	9
Japan	33	30	22	39	31	36	55	81	111	149	143	189	169	175	250	366
China	0	0	0	0	0	0	0	0	1	1	0	2	2	3	5	5
Asia-8	2	1	1	0	3	3	2	3	4	7	10	19	21	29	67	137
India	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
South Korea	2	1	1	0	2	3	2	2	4	6	7	13	14	23	51	118
Taiwan	0	0	0	0	1	0	0	1	0	1	3	6	5	6	16	16
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
All others	10	7	7	12	11	11	20	29	40	52	52	44	26	29	34	32
Central Asia and Europe	0	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1
Russia	0	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East and North Africa	0	0	2	0	0	0	0	4	2	4	2	3	0	2	2	4
Israel	0	0	2	0	0	0	0	4	2	4	1	3	0	2	2	2
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
South and Central America	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Saharan Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	10	7	5	12	11	11	20	25	36	48	48	41	26	26	32	27
Australia	1	0	0	1	1	1	2	4	0	2	1	3	2	2	2	3
Canada	8	7	3	10	7	9	12	19	35	43	45	34	25	21	27	18
Switzerland	1	0	2	1	3	1	6	2	1	2	2	4	0	2	2	5
All others	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-72

USPTO patents granted in nuclear energy, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	263	257	229	278	218	144	175	180	177	145	127	93	83	83	104	120
United States	149	145	139	157	113	63	93	86	72	67	47	48	39	43	63	48
EU	64	61	54	76	67	39	44	46	48	31	34	20	24	22	21	32
France	29	27	26	39	16	15	14	17	21	10	14	11	15	10	11	17
Germany	19	16	13	22	29	16	13	13	14	6	14	6	3	9	5	10
Italy	1	0	2	0	1	1	0	0	1	1	0	0	0	0	0	0
Netherlands	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Sweden	9	8	7	3	14	4	8	10	6	4	1	2	2	1	3	4
United Kingdom	4	7	6	10	7	2	8	7	3	6	5	1	3	1	1	0
All others	1	3	0	3	0	2	1	0	2	4	1	1	0	1	1	2
Japan	43	45	28	35	26	35	26	31	49	34	31	16	14	14	9	23
China	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia-8	1	2	2	4	4	3	9	5	7	9	9	4	3	3	8	10
India	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
South Korea	1	2	2	4	3	3	7	3	6	9	9	4	2	3	8	10
Taiwan	1	0	0	0	1	0	1	2	0	0	0	1	0	0	0	0
All others	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
All others	4	5	6	7	8	4	3	11	2	4	5	6	3	1	3	7
Central Asia and Europe	0	2	1	0	0	0	1	5	0	2	0	1	1	0	1	2
Russia	0	0	0	0	0	0	1	5	0	2	0	1	1	0	1	2
All others	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East and North Africa	0	0	0	1	2	1	0	0	0	0	0	0	0	0	1	0
Israel	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
South and Central America	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Saharan Africa	0	0	0	0	1	0	0	0	0	0	1	2	1	0	0	1
South Africa	0	0	0	0	1	0	0	0	0	0	1	2	1	0	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	4	3	5	6	5	3	2	6	2	2	4	3	1	1	1	4
Australia	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0
Canada	2	3	4	2	3	2	1	5	2	1	3	2	0	1	1	3
Switzerland	2	0	0	3	0	0	1	0	0	0	1	0	1	0	0	1
All others	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-73

USPTO patents granted in air pollution control, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	701	696	685	848	826	835	908	864	929	896	819	822	708	719	827	1,076
United States	344	359	330	391	375	391	418	415	397	385	369	376	296	325	392	499
EU	143	144	135	165	184	182	211	182	214	175	166	164	160	147	156	228
France	19	14	17	28	27	36	35	23	25	19	19	14	29	30	34	31
Germany	78	80	75	88	94	100	120	100	119	103	94	99	79	72	74	124
Italy	3	4	7	6	6	5	6	8	8	6	7	5	6	5	9	3
Netherlands	8	5	4	4	11	4	9	7	6	4	5	2	2	3	1	11
Sweden	8	8	6	13	11	8	12	16	10	12	10	10	10	12	10	9
United Kingdom	16	19	12	19	21	13	10	17	27	18	18	21	20	15	13	27
All others	12	15	14	9	14	15	18	12	21	13	14	13	15	10	16	22
Japan	178	154	178	237	214	221	217	209	256	285	228	238	201	199	227	283
China	0	1	0	3	0	2	2	2	6	2	1	2	7	4	4	6
Asia-8	5	3	12	21	15	14	25	23	30	24	23	17	22	21	22	29
India	0	0	1	0	0	1	1	0	0	1	0	0	1	1	0	1
South Korea	1	0	3	12	7	7	12	14	18	15	10	12	15	15	14	18
Taiwan	4	3	7	9	8	5	11	7	11	7	12	6	6	5	6	8
All others	0	0	1	0	0	0	1	3	1	1	1	0	0	0	1	1
All others	31	35	30	31	38	25	36	34	26	25	32	25	22	23	28	32
Central Asia and Europe	4	3	5	2	5	0	2	1	0	1	1	3	1	0	3	3
Russia	0	0	0	0	0	0	2	1	0	1	1	3	0	0	2	2
All others	4	3	5	2	5	0	0	0	0	0	0	0	0	0	1	1
Middle East and North Africa	0	2	1	1	1	0	2	2	2	2	2	0	0	1	3	2
Israel	0	2	1	1	1	0	1	2	2	1	2	0	0	1	2	2
All others	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0
South and Central America	2	3	0	1	3	0	0	1	1	2	1	1	0	2	1	2
Argentina	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Brazil	1	1	0	0	0	0	0	0	0	0	1	1	0	0	1	2
Mexico	1	1	0	0	0	0	0	1	0	2	0	0	0	1	0	0
All others	0	2	0	1	3	0	0	0	0	0	0	0	0	1	0	0
Sub-Saharan Africa	0	2	0	1	2	2	0	0	0	0	0	1	1	0	0	0
South Africa	0	2	0	1	2	2	0	0	0	0	0	1	1	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	24	25	24	25	28	23	32	31	22	21	28	20	21	20	21	24
Australia	0	3	7	5	4	0	1	2	0	1	3	0	1	0	0	1
Canada	17	18	11	13	14	18	17	23	15	16	17	17	13	17	11	18
Switzerland	6	3	5	6	7	5	5	5	4	2	5	1	4	1	5	2
All others	1	1	2	1	3	0	8	1	3	2	3	3	3	2	5	3

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-74

USPTO patents granted in water pollution control, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	301	312	286	332	351	385	433	373	323	299	274	287	303	281	274	319
United States	187	190	167	194	213	226	252	202	201	183	173	178	182	164	166	180
EU	52	54	57	56	50	63	75	66	44	38	35	30	41	36	29	53
France	5	9	8	5	7	7	16	14	7	5	8	7	10	8	4	11
Germany	23	18	23	21	20	25	26	20	18	9	14	7	13	8	7	13
Italy	2	0	2	3	1	5	0	2	1	1	0	1	1	4	1	5
Netherlands	3	8	2	2	11	2	6	9	4	4	2	1	2	1	0	2
Sweden	5	2	5	7	2	7	5	4	2	5	1	3	4	3	1	8
United Kingdom	8	7	8	8	3	5	9	5	7	4	5	7	6	4	7	4
All others	6	10	9	11	5	12	14	13	4	10	5	4	5	8	9	11
Japan	30	33	30	27	38	45	45	37	31	32	23	35	36	28	30	36
China	3	0	0	1	2	3	1	1	0	1	1	3	3	3	3	5
Asia-8	5	7	10	25	19	9	16	25	13	18	13	16	21	20	22	14
India	0	0	0	1	1	1	0	1	4	0	3	2	1	1	5	1
South Korea	3	4	9	18	12	5	6	17	6	11	3	8	7	5	9	11
Taiwan	2	2	1	6	6	3	9	7	3	5	6	6	11	13	7	2
All others	0	1	0	1	0	0	0	0	0	2	1	0	2	2	1	0
All others	24	28	23	29	29	40	44	42	34	26	28	25	21	30	25	30
Central Asia and Europe	3	1	2	4	3	1	4	2	2	1	1	1	1	2	0	2
Russia	0	0	0	0	0	0	3	2	2	1	1	0	1	2	0	1
All others	3	1	2	4	3	1	1	0	0	0	0	1	0	0	0	1
Middle East and North Africa	0	1	0	3	1	4	3	5	6	3	3	1	2	3	3	8
Israel	0	1	0	3	0	1	3	2	5	2	2	1	2	3	2	7
All others	0	0	0	0	1	3	0	3	1	1	1	0	0	0	1	1
South and Central America	1	2	1	0	0	0	3	2	1	1	2	0	1	2	2	1
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0
Mexico	0	2	1	0	0	0	3	1	1	0	1	0	0	0	0	1
All others	0	0	0	0	0	0	0	1	0	0	1	0	0	1	2	0
Sub-Saharan Africa	0	0	3	1	1	2	5	2	2	1	1	3	3	1	1	0
South Africa	0	0	3	1	1	2	5	2	2	1	1	2	2	1	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
All others	20	24	17	22	24	32	30	31	23	20	22	20	14	22	19	20
Australia	2	3	3	0	2	3	4	6	3	6	7	2	2	6	3	5
Canada	10	19	10	18	18	26	23	25	17	14	13	16	11	15	13	11
Switzerland	6	2	1	1	2	3	3	0	0	1	2	0	0	0	0	1
All others	2	1	2	3	3	1	0	0	3	0	0	2	1	1	3	4

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-75

USPTO patents granted in recycling, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	327	338	325	395	379	322	326	303	291	266	170	167	154	120	132	186
United States	193	217	179	203	208	161	163	144	145	117	77	62	63	51	67	85
EU	70	69	74	79	78	68	74	68	57	46	27	28	42	17	26	40
France	10	5	8	7	6	12	9	9	2	3	3	1	2	0	4	8
Germany	39	34	37	36	35	26	33	23	23	21	8	7	6	4	7	7
Italy	4	4	3	8	7	7	3	4	5	6	0	3	4	1	4	8
Netherlands	4	4	5	6	5	3	4	3	0	0	1	3	3	1	0	0
Sweden	2	3	3	4	4	5	4	4	2	1	3	3	4	1	1	1
United Kingdom	3	6	8	9	8	4	8	7	6	5	2	2	8	2	2	3
All others	9	13	10	9	14	11	14	19	19	10	10	10	16	8	8	13
Japan	28	24	40	61	46	58	46	53	58	57	37	46	27	23	21	33
China	1	0	2	3	0	0	0	2	2	2	1	3	0	0	1	1
Asia-8	4	4	5	10	11	9	16	12	8	15	13	6	9	8	6	6
India	1	0	0	0	0	1	1	1	0	2	2	0	2	1	2	1
South Korea	2	1	3	3	6	4	13	6	1	7	5	2	2	3	3	2
Taiwan	1	2	2	6	5	3	1	4	7	5	4	3	2	4	1	2
All others	0	1	0	1	0	1	1	1	0	1	2	1	3	0	0	1
All others	31	24	26	39	36	27	26	23	21	29	15	21	13	20	11	21
Central Asia and Europe	1	2	0	3	0	1	0	0	1	1	1	1	3	2	2	2
Russia	0	0	0	0	0	0	0	0	1	0	1	1	2	2	1	1
All others	1	2	0	3	0	1	0	0	0	1	0	0	1	0	0	0
Middle East and North Africa	2	2	0	3	0	1	1	1	3	2	0	1	0	2	1	3
Israel	2	2	0	3	0	1	1	1	3	2	0	1	0	2	1	2
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
South and Central America	2	1	4	2	1	0	1	5	2	1	0	0	2	1	2	4
Argentina	0	0	2	1	1	0	0	0	1	0	0	0	0	0	0	0
Brazil	2	1	2	0	0	0	1	2	0	0	0	0	0	0	1	2
Mexico	0	0	0	1	0	0	0	3	1	0	0	0	1	1	1	2
All others	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Sub-Saharan Africa	0	0	0	0	0	1	1	0	0	1	1	1	0	3	0	1
South Africa	0	0	0	0	0	1	1	0	0	1	1	1	0	3	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	26	19	22	31	35	24	24	17	14	24	13	18	9	12	7	12
Australia	0	7	5	4	2	2	1	2	2	3	2	0	2	3	2	0
Canada	22	11	13	19	28	14	16	15	11	16	9	12	7	9	2	8
Switzerland	4	2	4	7	4	8	5	0	1	3	2	3	0	0	2	3
All others	0	0	0	1	1	1	1	0	0	3	0	3	0	0	0	1

EU = European Union; USPTO = U.S. Patent and Trademark Office

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SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-76

USPTO patents granted in bioenergy, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	43	62	50	95	65	71	67	78	69	62	60	69	98	100	167	222
United States	25	41	30	59	40	38	40	37	39	33	33	41	61	56	112	149
EU	11	13	12	18	16	16	10	18	18	13	13	14	18	20	27	35
France	3	1	5	2	1	3	2	1	2	0	1	2	2	1	3	6
Germany	3	5	2	7	2	7	1	7	6	4	3	3	3	5	9	8
Italy	0	2	0	0	1	1	1	1	1	0	1	2	1	3	1	5
Netherlands	1	0	0	1	2	2	2	0	1	3	0	0	2	2	2	2
Sweden	2	0	3	1	1	2	0	3	0	2	1	1	1	1	3	0
United Kingdom	1	2	1	3	3	0	0	0	1	2	2	2	4	4	1	4
All others	1	3	1	4	6	1	4	6	7	2	5	4	6	5	8	10
Japan	1	2	2	5	3	8	10	10	6	6	6	6	4	9	10	13
China	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	1
Asia-8	1	2	1	1	1	1	2	4	0	2	0	1	2	3	3	8
India	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
South Korea	0	2	1	0	1	1	1	3	0	1	0	0	1	0	0	3
Taiwan	1	0	0	1	0	0	1	1	0	1	0	1	1	3	1	4
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
All others	5	4	6	13	4	8	5	10	6	8	8	7	12	13	14	16
Central Asia and Europe	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	2
Russia	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
All others	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1
Middle East and North Africa	0	2	0	2	0	0	0	2	3	2	2	0	3	2	1	2
Israel	0	2	0	2	0	0	0	2	3	2	2	0	2	2	1	2
All others	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
South and Central America	0	0	0	0	0	0	0	1	0	0	2	1	1	1	1	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	2	1	1	0	1	0
Mexico	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Saharan Africa	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0
South Africa	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	5	2	6	10	4	8	5	5	3	6	3	6	7	10	11	12
Australia	0	0	0	0	0	1	0	1	1	1	0	0	2	1	3	1
Canada	4	1	4	7	4	6	4	3	2	3	3	6	4	7	8	11
Switzerland	0	1	2	3	0	1	1	1	0	2	0	0	1	1	0	0
All others	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

EU = European Union; USPTO = U.S. Patent and Trademark Office

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SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-77

USPTO patents granted in solar energy, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	210	228	210	210	276	377	386	390	372	303	244	243	252	238	353	651
United States	113	115	99	94	120	156	149	149	137	134	109	115	136	118	200	355
EU	17	21	24	35	40	49	47	57	55	31	39	39	36	42	43	102
France	2	2	1	3	6	6	1	6	5	3	3	5	3	9	7	13
Germany	9	12	14	26	24	27	29	35	29	20	20	22	15	17	25	51
Italy	0	1	1	1	1	1	2	1	2	0	1	2	1	2	0	4
Netherlands	0	1	0	1	0	4	5	1	5	3	3	1	5	3	1	7
Sweden	1	0	0	0	1	1	2	2	2	0	1	0	1	2	0	3
United Kingdom	3	2	3	2	4	4	2	5	6	1	4	4	4	4	4	9
All others	2	2	5	2	4	7	6	7	7	4	7	6	7	6	7	15
Japan	64	73	65	73	75	139	166	161	149	114	71	61	54	50	54	97
China	1	0	1	0	0	0	1	2	1	0	1	3	3	3	4	8
Asia-8	1	8	2	0	13	9	4	11	7	11	8	9	11	11	28	62
India	0	0	0	0	0	0	0	1	0	0	1	0	1	1	1	0
South Korea	0	2	0	0	5	3	0	2	5	3	1	1	4	3	10	22
Taiwan	1	5	2	0	7	5	4	7	1	7	6	7	6	8	14	31
All others	0	1	0	0	1	1	0	1	1	1	0	1	0	0	3	9
All others	14	11	19	9	28	25	20	11	23	13	17	17	12	14	24	27
Central Asia and Europe	1	0	0	0	0	1	1	0	1	0	1	0	0	0	2	0
Russia	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
All others	1	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0
Middle East and North Africa	6	3	4	2	5	4	6	0	2	6	2	2	4	2	3	9
Israel	6	3	4	2	5	4	6	0	2	6	2	2	4	2	3	7
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
South and Central America	0	1	1	0	2	1	1	1	0	1	2	0	0	0	0	0
Argentina	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0
All others	0	1	0	0	2	0	0	0	0	0	1	0	0	0	0	0
Sub-Saharan Africa	0	1	2	0	0	1	0	0	0	0	1	0	0	0	1	2
South Africa	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0	2
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
All others	8	6	13	7	21	18	13	10	20	6	11	15	8	11	18	16
Australia	2	3	4	4	10	3	3	3	10	2	2	7	3	2	10	7
Canada	1	0	5	2	3	5	2	2	7	3	4	6	3	3	6	4
Switzerland	4	3	2	1	6	6	8	3	4	1	5	2	2	4	1	5
All others	1	0	2	0	2	4	0	1	0	0	0	0	0	2	1	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-78

USPTO patents granted in hybrid and electric vehicles, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	129	189	188	272	271	247	313	400	384	353	365	423	388	377	395	532
United States	54	74	69	91	77	75	97	117	123	104	117	150	144	134	139	215
EU	8	23	26	42	26	28	43	52	50	48	48	38	45	51	44	68
France	1	3	1	5	2	4	6	10	3	6	6	3	7	6	5	12
Germany	6	11	18	30	19	19	29	25	36	31	28	28	29	41	30	44
Italy	0	1	1	1	3	1	5	5	1	1	1	3	1	0	1	3
Netherlands	0	2	0	1	0	0	0	1	2	0	0	1	1	1	2	1
Sweden	1	0	2	0	0	1	1	6	4	5	7	0	2	2	1	5
United Kingdom	0	2	4	2	1	1	2	3	2	4	2	3	2	1	2	1
All others	0	4	0	3	1	2	0	3	3	1	4	0	3	1	3	4
Japan	58	76	82	126	154	131	152	219	188	178	180	212	176	166	178	199
China	1	1	0	1	0	1	0	0	0	0	0	2	1	2	2	4
Asia-8	2	7	5	4	3	6	6	6	8	13	11	11	12	15	29	36
India	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
South Korea	0	2	4	3	2	4	3	3	1	6	8	5	8	11	19	26
Taiwan	2	5	1	1	1	2	2	3	7	7	2	6	3	4	10	9
All others	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
All others	7	8	6	8	12	6	15	5	15	11	9	11	10	8	3	10
Central Asia and Europe	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
Russia	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East and North Africa	1	3	0	1	1	0	0	0	0	1	1	0	0	1	0	0
Israel	1	3	0	1	0	0	0	0	0	1	0	0	0	1	0	0
All others	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
South and Central America	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Mexico	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Saharan Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	6	4	6	7	10	6	13	5	15	9	8	11	10	6	3	10
Australia	0	0	0	0	0	1	2	0	2	1	0	1	1	0	0	1
Canada	2	2	3	4	4	4	6	4	12	4	7	6	7	3	2	8
Switzerland	3	2	3	1	6	0	5	0	0	4	1	3	2	2	1	1
All others	1	0	0	2	0	1	0	1	1	1	0	0	0	1	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-79

USPTO patents granted in wind energy, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	28	34	29	34	28	55	58	65	69	98	137	151	174	197	221	355
United States	19	25	16	20	17	31	32	33	31	41	59	74	80	92	82	153
EU	5	5	4	7	3	7	17	21	28	36	56	42	68	63	102	139
France	0	0	0	0	0	0	3	0	1	1	6	2	3	0	0	1
Germany	1	2	1	2	0	4	4	12	10	20	30	29	39	42	66	71
Italy	0	0	0	0	0	0	0	1	0	0	1	0	1	3	3	2
Netherlands	0	1	1	0	0	2	1	1	2	2	1	0	3	3	3	6
Sweden	0	0	1	0	1	0	2	1	4	0	2	2	1	1	1	0
United Kingdom	1	1	0	2	1	0	2	0	0	2	3	2	6	4	6	4
All others	3	1	1	3	1	1	5	6	11	11	13	7	15	12	23	55
Japan	0	1	3	1	1	4	6	4	3	5	8	16	14	18	12	19
China	0	0	0	0	0	0	0	0	1	0	1	1	1	2	3	14
Asia-8	1	0	1	3	3	2	1	3	2	4	5	6	5	10	12	8
India	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2
South Korea	0	0	1	0	1	0	1	0	1	1	3	4	0	2	4	3
Taiwan	1	0	0	3	1	2	0	3	1	3	2	1	5	6	7	3
All others	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0
All others	3	3	5	3	4	11	2	4	4	12	9	12	6	13	10	23
Central Asia and Europe	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	0
Russia	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0
All others	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Middle East and North Africa	0	0	2	0	0	1	0	1	2	0	1	2	0	1	1	5
Israel	0	0	0	0	0	1	0	1	1	0	1	2	0	0	1	4
All others	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	1
South and Central America	0	0	0	0	1	0	0	0	0	1	0	2	0	0	0	1
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
All others	0	0	0	0	1	0	0	0	0	1	0	2	0	0	0	0
Sub-Saharan Africa	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	2	2	3	3	3	10	1	2	2	11	7	8	5	11	8	15
Australia	0	1	0	0	0	0	1	0	1	3	0	1	1	1	1	3
Canada	1	1	2	2	3	7	0	2	1	7	6	7	2	7	7	11
Switzerland	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
All others	0	0	1	1	0	3	0	0	0	0	1	1	2	2	0	1

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-80

USPTO patents granted in battery technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	124	189	229	239	213	285	299	347	334	325	224	251	247	235	333	547
United States	62	94	89	94	84	87	101	96	85	81	62	65	63	55	73	104
EU	10	15	19	14	16	22	18	28	29	23	15	9	10	10	10	34
France	2	5	7	3	5	8	5	11	7	5	2	1	2	3	3	16
Germany	1	6	5	3	6	11	4	9	10	12	6	2	4	1	3	9
Italy	0	0	2	2	0	2	2	1	1	1	1	0	1	0	0	3
Netherlands	0	0	0	0	1	0	1	3	3	1	0	0	0	0	0	0
Sweden	0	1	0	0	0	0	1	0	1	0	0	2	1	1	0	1
United Kingdom	5	2	2	1	2	1	2	2	4	3	3	3	2	2	2	3
All others	2	1	3	5	1	0	3	3	4	2	3	2	0	3	1	2
Japan	36	58	95	108	90	144	140	181	181	173	107	127	128	125	150	219
China	1	0	0	0	1	3	1	0	0	2	0	2	0	2	2	13
Asia-8	0	7	10	10	11	14	23	30	29	38	31	42	40	35	82	165
India	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
South Korea	0	3	8	7	9	11	20	29	29	34	28	38	38	34	74	153
Taiwan	0	4	1	3	2	3	3	1	0	2	2	4	1	1	8	12
All others	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
All others	16	17	17	14	12	15	16	12	10	8	9	6	6	9	17	12
Central Asia and Europe	0	1	1	0	0	0	1	1	0	1	2	0	0	0	1	1
Russia	0	0	0	0	0	0	1	1	0	0	1	0	0	0	1	1
All others	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0
Middle East and North Africa	7	5	1	3	2	1	3	1	0	0	0	0	0	0	1	0
Israel	7	5	1	3	2	1	3	1	0	0	0	0	0	0	1	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South and Central America	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0
Sub-Saharan Africa	4	0	1	1	2	0	0	0	0	1	0	0	0	1	1	4
South Africa	4	0	1	1	2	0	0	0	0	1	0	0	0	1	1	4
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	5	11	14	10	8	14	10	10	9	6	7	6	6	7	14	8
Australia	0	0	0	0	0	1	0	1	4	1	0	1	1	2	2	0
Canada	4	11	13	10	8	12	9	7	5	5	7	3	3	5	11	5
Switzerland	1	0	1	0	0	0	0	1	1	0	0	2	1	0	0	1
All others	0	0	0	0	0	1	1	1	0	0	1	0	1	0	1	2

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-81

USPTO patents granted in hydrogen production and storage, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	54	76	73	89	111	114	156	140	169	187	161	192	179	193	198	278
United States	23	35	31	34	43	50	71	70	86	104	77	107	95	118	109	166
EU	8	13	7	12	12	14	30	22	19	25	23	18	19	25	28	30
France	1	4	2	1	4	3	7	3	2	2	1	2	4	4	7	5
Germany	2	2	2	6	4	7	14	9	12	16	13	7	10	6	12	16
Italy	2	3	1	0	1	0	0	2	0	0	1	2	0	1	1	4
Netherlands	0	0	1	2	0	0	0	0	1	2	5	0	0	8	1	0
Sweden	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1
United Kingdom	3	1	0	1	1	2	5	3	2	1	1	6	5	3	3	3
All others	0	3	1	3	3	1	3	5	1	2	2	0	0	2	5	1
Japan	18	21	24	35	40	40	44	38	49	44	42	51	43	39	41	44
China	1	1	0	0	0	1	1	0	1	0	0	0	1	1	0	1
Asia-8	1	4	6	2	6	4	4	5	3	1	3	2	13	4	7	21
India	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
South Korea	0	2	5	2	6	4	3	4	1	0	1	1	5	2	5	13
Taiwan	1	1	1	0	0	0	1	0	1	1	1	1	5	2	2	6
All others	0	1	0	0	0	0	0	1	0	0	1	0	2	0	0	0
All others	3	2	5	6	10	5	7	5	12	13	15	14	10	6	12	16
Central Asia and Europe	0	1	0	0	0	0	0	0	0	0	2	0	0	0	1	1
Russia	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1
All others	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle East and North Africa	1	0	0	0	0	0	0	0	0	2	0	1	1	0	3	2
Israel	1	0	0	0	0	0	0	0	0	1	0	1	0	0	3	0
All others	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
South and Central America	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Sub-Saharan Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	2	1	5	6	10	5	7	5	12	11	13	12	9	6	8	13
Australia	0	0	3	2	1	0	0	0	0	0	2	0	2	2	2	1
Canada	2	1	2	3	7	4	5	5	11	10	8	11	4	3	6	8
Switzerland	0	0	0	0	0	1	1	0	0	0	1	1	1	1	0	2
All others	0	0	0	1	2	1	1	0	1	2	2	0	2	1	0	2

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-82

USPTO patents granted in cleaner coal technology, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	64	73	82	85	68	72	57	52	71	54	60	48	35	54	85	158
United States	43	49	45	52	42	46	29	37	51	35	42	33	28	38	57	111
EU	12	11	15	6	11	8	7	8	8	5	4	4	5	7	11	19
France	2	1	2	0	2	4	0	3	1	2	2	0	3	1	2	3
Germany	2	4	3	4	5	3	3	4	6	2	3	2	1	2	5	5
Italy	0	1	1	0	1	0	1	0	0	0	0	0	0	1	0	0
Netherlands	1	1	1	0	0	0	1	0	0	1	0	1	0	0	0	5
Sweden	1	0	1	1	2	0	1	1	0	0	0	0	0	0	2	1
United Kingdom	2	3	3	1	0	1	0	0	0	0	0	0	1	1	0	5
All others	3	1	5	0	1	0	1	0	1	1	0	1	0	2	2	0
Japan	5	8	15	17	10	15	18	3	6	11	6	5	0	4	6	14
China	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Asia-8	0	1	1	0	2	0	0	0	1	0	0	1	0	0	1	6
India	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
South Korea	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	4
Taiwan	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	4	5	5	10	3	4	3	3	6	3	8	6	2	5	10	7
Central Asia and Europe	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	1
Russia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1
Middle East and North Africa	0	0	0	3	1	1	1	2	2	1	0	0	0	0	0	1
Israel	0	0	0	3	1	1	1	2	2	1	0	0	0	0	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South and Central America	0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	0
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Mexico	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
Sub-Saharan Africa	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
South Africa	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	4	5	4	7	1	3	2	1	2	1	5	5	2	4	9	5
Australia	0	0	2	1	1	2	0	0	0	0	1	1	1	1	2	2
Canada	3	5	2	4	0	0	1	1	0	1	2	4	1	3	2	3
Switzerland	1	0	0	1	0	1	1	1	0	0	0	0	0	0	5	0
All others	0	0	0	1	0	0	0	0	2	0	2	0	0	0	1	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-83

USPTO patents granted in capture and storage of carbon and other greenhouse gases, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	41	39	57	49	70	71	80	87	98	65	72	61	62	74	96	152
United States	21	27	31	23	42	44	50	50	57	36	40	33	31	46	56	88
EU	9	7	6	11	12	10	13	19	20	9	11	12	16	20	15	31
France	0	3	0	4	5	4	7	11	8	3	7	4	7	4	4	10
Germany	4	0	1	4	1	5	1	6	3	2	1	3	5	7	8	7
Italy	1	0	0	0	1	0	1	1	0	1	0	0	0	1	0	0
Netherlands	1	1	0	1	1	0	0	1	0	2	2	0	2	3	1	6
Sweden	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
United Kingdom	3	3	5	2	4	2	3	0	7	1	1	5	2	5	1	6
All others	1	0	0	0	0	0	1	1	2	0	0	0	0	1	2	1
Japan	8	4	14	11	10	13	11	14	13	16	11	8	7	4	16	12
China	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Asia-8	0	0	1	2	0	0	0	0	2	2	1	0	2	0	1	6
India	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
South Korea	0	0	1	1	0	0	0	0	2	0	0	0	2	0	1	4
Taiwan	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	1
All others	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
All others	3	1	4	3	6	4	6	4	6	3	9	9	6	4	8	15
Central Asia and Europe	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0
Russia	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
All others	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Middle East and North Africa	0	0	2	0	1	0	1	0	0	1	0	0	0	0	0	0
Israel	0	0	2	0	1	0	0	0	0	1	0	0	0	0	0	0
All others	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
South and Central America	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0
Argentina	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Sub-Saharan Africa	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0
South Africa	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	3	1	2	3	4	4	4	3	6	1	7	8	6	4	7	15
Australia	0	0	0	1	1	0	0	1	0	0	0	1	0	0	2	0
Canada	2	1	2	1	3	3	2	1	3	0	4	5	3	2	2	12
Switzerland	0	0	0	0	0	1	0	1	1	0	1	2	0	1	0	0
All others	1	0	0	1	0	0	2	0	2	1	2	0	3	1	3	3

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™. Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 6-84

USPTO patents granted in solid waste control, by region/country/economy: 1995–2010

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	304	311	283	332	263	235	219	239	178	163	137	140	101	116	104	129
United States	180	201	167	185	147	119	111	118	81	74	68	75	55	61	68	59
EU	55	50	57	64	58	56	39	45	40	33	26	24	21	20	15	29
France	7	7	10	13	7	8	4	10	7	5	8	5	7	4	3	3
Germany	29	26	28	21	21	30	9	9	14	14	6	9	4	4	6	10
Italy	3	5	4	5	2	0	3	4	2	1	2	1	2	0	1	2
Netherlands	1	1	2	2	2	4	2	1	3	2	0	1	1	1	0	1
Sweden	4	2	4	5	7	1	5	2	1	2	2	1	1	2	0	1
United Kingdom	5	5	4	7	10	8	6	8	5	3	1	5	5	4	2	6
All others	5	4	7	12	10	5	11	11	10	7	7	2	1	5	3	6
Japan	34	30	32	39	31	33	38	37	33	30	17	19	13	14	3	10
China	2	0	0	1	0	1	1	0	1	1	2	3	1	1	2	1
Asia-8	9	6	7	17	8	2	10	11	9	5	5	6	2	6	5	12
India	1	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0
South Korea	2	4	2	6	3	0	5	6	2	4	0	4	1	4	2	6
Taiwan	5	2	3	9	5	2	5	4	6	0	4	2	1	1	3	3
All others	1	0	2	2	0	0	0	1	0	0	0	0	0	0	0	2
All others	24	25	20	25	19	24	20	27	14	20	19	13	10	13	12	18
Central Asia and Europe	0	0	0	4	2	2	3	1	2	2	1	1	2	1	1	1
Russia	0	0	0	0	0	0	3	1	2	2	1	1	2	1	1	0
All others	0	0	0	4	2	2	0	0	0	0	0	0	0	0	0	0
Middle East and North Africa	2	1	1	0	1	1	1	2	2	2	1	3	0	1	1	4
Israel	2	1	1	0	1	1	1	2	2	2	1	3	0	1	1	3
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
South and Central America	0	2	0	2	1	0	0	4	2	1	0	0	0	2	0	0
Argentina	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Brazil	0	1	0	2	1	0	0	0	0	1	0	0	0	1	0	0
Mexico	0	1	0	0	0	0	0	2	1	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Sub-Saharan Africa	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	2
South Africa	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	2
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	21	22	18	20	16	22	16	20	9	15	16	10	8	8	9	11
Australia	3	1	6	2	3	2	2	4	3	3	1	3	2	1	2	1
Canada	13	17	8	7	8	14	8	11	6	9	10	6	6	4	6	6
Switzerland	5	4	3	11	6	6	7	4	0	2	2	1	0	3	1	2
All others	1	0	1	1	0	0	0	1	0	1	3	0	0	0	0	2

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Patents fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. United States includes Puerto Rico. EU includes 27 member countries. China includes Hong Kong and Macau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-62 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2011).

Science and Engineering Indicators 2012

Appendix table 7-1

Primary source of information about current news events, by respondent characteristic: 2010

(Percent)

Characteristic	Newspaper	Magazine	Internet	Book/ other print	Television	Radio	Government agency	Family	Friend/ colleague	Other	Don't know
All adults (*n* = 781)	16	1	24	1	45	8	1	1	2	*	*
Sex											
Male (*n* = 357)	17	2	26	1	40	10	2	0	2	0	*
Female (*n* = 424)	16	1	22	*	50	6	0	2	2	*	*
Formal education[a]											
<High school (*n* = 115)	22	0	11	0	56	6	0	0	4	0	1
High school graduate (*n* = 264)	16	1	11	2	59	7	1	1	2	0	*
Some college (*n* = 173)	11	2	40	1	30	9	2	2	2	*	0
Baccalaureate (*n* = 138)	11	1	39	0	37	10	0	1	2	0	0
Graduate/professional degree (*n* = 90)	28	5	30	1	26	9	0	0	1	0	0
Science/mathematics education[b]											
Low (*n* = 294)	17	1	17	1	53	6	2	1	2	0	0
Middle (*n* = 99)	21	*	30	2	39	6	0	*	1	0	0
High (*n* = 113)	10	2	49	0	24	14	0	0	2	0	0
Family income (quartile)[a]											
Top (*n* = 140)	15	3	36	0	36	9	0	1	*	0	*
Second (*n* = 197)	18	1	22	1	41	9	1	1	5	0	0
Third (*n* = 186)	14	2	23	0	49	8	0	1	1	*	0
Bottom (*n* = 186)	9	1	23	2	54	5	2	1	2	0	*
Age (years)[a]											
18–24 (*n* = 40)	1	2	41	0	48	3	0	1	3	0	0
25–34 (*n* = 150)	7	1	39	1	37	11	0	*	4	0	0
35–44 (*n* = 134)	15	1	32	0	35	13	0	2	3	0	0
45–54 (*n* = 136)	8	1	20	*	56	9	0	1	4	0	0
55–64 (*n* = 160)	20	2	18	2	50	4	2	1	0	*	0
≥65 (*n* = 157)	39	1	5	2	46	5	2	0	0	0	1

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 582 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.

NOTES: Responses to *We are interested in how people get information about events in the news. Where do you get most of your information about current news events?* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-2

Primary source of information about science and technology, by respondent characteristic: 2010

(Percent)

Characteristic	Newspaper	Magazine	Internet	Book/ other print	Television	Radio	Government agency	Family	Friend/ colleague	Other	Don't know
All adults (*n* = 781)	6	9	35	9	34	2	*	1	2	1	2
Sex											
Male (*n* = 357)	6	11	36	9	33	1	1	*	1	1	1
Female (*n* = 424)	6	7	34	9	35	2	*	2	2	1	2
Formal education[a]											
<High school (*n* = 115)	8	6	13	8	55	3	0	2	0	0	6
High school graduate (*n* = 264)	6	10	26	8	42	2	1	1	3	*	1
Some college (*n* = 173)	2	7	54	6	27	*	0	*	2	1	*
Baccalaureate (*n* = 138)	7	8	43	17	17	1	0	3	1	3	0
Graduate/professional degree (*n* = 90)	7	14	43	13	20	1	0	0	0	3	0
Science/mathematics education[b]											
Low (*n* = 294)	7	8	33	8	36	2	1	1	2	*	3
Middle (*n* = 99)	5	11	43	12	24	0	0	1	1	1	1
High (*n* = 113)	4	15	47	12	13	1	0	1	3	5	0
Family income (quartile)[a]											
Top (*n* = 140)	6	9	48	10	22	1	0	1	1	1	*
Second (*n* = 197)	6	9	35	12	32	2	1	*	1	1	0
Third (*n* = 186)	6	9	34	6	38	1	*	2	2	1	1
Bottom (*n* = 186)	5	4	27	8	45	2	0	1	2	2	4
Age (years)[a]											
18–24 (*n* = 40)	0	7	65	2	24	1	0	0	1	0	0
25–34 (*n* = 150)	1	7	50	5	28	*	0	2	2	2	1
35–44 (*n* = 134)	6	5	44	8	32	2	*	1	1	*	1
45–54 (*n* = 136)	3	9	37	11	34	2	0	1	2	1	1
55–64 (*n* = 160)	9	9	22	13	40	1	0	1	2	1	1
≥65 (*n* = 157)	12	15	8	13	41	0	2	1	0	2	5

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 582 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.

NOTES: Responses to *We are interested in how people get information about science and technology. Where do you get most of your information about science and technology?* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-3

Primary source of information about specific scientific issues, by respondent characteristic: 2010

(Percent)

Characteristic	Newspaper	Magazine	Internet	Book/ other print	Television	Radio	Government agency	Family	Friend/ colleague	Other	Don't know
All adults (*n* = 781)	3	3	59	12	15	1	3	1	1	1	1
Sex											
Male (*n* = 357)	3	2	60	13	15	1	3	1	1	*	1
Female (*n* = 424)	3	5	57	11	15	1	3	1	1	2	2
Formal education[a]											
<High school (*n* = 115)	7	3	35	13	27	1	4	4	1	3	3
High school graduate (*n* = 264)	3	1	55	11	23	1	3	*	1	1	1
Some college (*n* = 173)	0	4	73	9	7	0	4	1	1	*	1
Baccalaureate (*n* = 138)	4	3	65	16	5	2	1	1	*	2	1
Graduate/professional degree (*n* = 90)	2	7	67	14	2	1	4	0	1	*	3
Science/mathematics education[b]											
Low (*n* = 294)	4	3	59	9	18	*	3	1	1	1	1
Middle (*n* = 99)	2	5	59	19	8	0	4	*	1	0	1
High (*n* = 113)	2	3	75	11	1	1	3	0	1	3	0
Family income (quartile)[a]											
Top (*n* = 140)	1	3	68	14	6	0	5	1	1	0	1
Second (*n* = 197)	3	3	64	13	12	1	2	0	1	1	0
Third (*n* = 186)	5	3	59	7	16	1	4	3	*	2	*
Bottom (*n* = 186)	2	2	51	11	23	1	3	1	2	2	3
Age (years)[a]											
18–24 (*n* = 40)	0	0	69	6	11	0	6	7	1	0	0
25–34 (*n* = 150)	1	2	75	4	11	1	1	*	2	1	1
35–44 (*n* = 134)	2	2	69	11	12	1	2	0	0	0	1
45–54 (*n* = 136)	2	3	60	13	19	1	1	1	0	*	0
55–64 (*n* = 160)	4	5	52	16	18	1	2	*	1	1	1
≥65 (*n* = 157)	7	4	33	19	16	1	10	1	1	4	5

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 582 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.

NOTES: Responses to *If you wanted to learn about scientific issues such as global warming or biotechnology, where would you get information?* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-4

Public interest in selected issues: 1981–2010

(Percent)

Issue	1981 (*n* = 3,193)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2008 (*n* = 2,021)	2010 (*n* = 1,461)
New medical discoveries												
Very interested	NA	NA	68	72	68	66	69	70	68	65	58	60
Moderately interested	NA	NA	29	25	29	31	27	26	28	32	36	35
Not at all interested	NA	NA	3	3	3	3	4	4	4	4	6	5
Don't know/refused to answer	NA	NA	0	*	0	*	*	*	*	0	1	1
Local school issues												
Very interested	46	46	47	51	50	54	57	58	54	59	46	54
Moderately interested	36	36	39	33	34	35	31	30	34	31	40	36
Not at all interested	18	18	14	15	16	12	12	11	12	10	15	9
Don't know/refused to answer	*	*	*	*	0	*	*	*	*	*	*	1
Environmental pollution												
Very interested	NA	NA	NA	NA	64	59	52	52	51	48	47	46
Moderately interested	NA	NA	NA	NA	31	36	41	40	41	43	42	46
Not at all interested	NA	NA	NA	NA	5	5	6	8	8	8	10	7
Don't know/refused to answer	NA	NA	NA	NA	*	*	*	*	*	0	1	1
Economic issues and business conditions												
Very interested	52	57	48	48	51	56	47	47	42	45	46	44
Moderately interested	37	33	41	42	40	36	42	42	45	45	43	45
Not at all interested	10	10	11	10	10	8	11	11	13	10	11	10
Don't know/refused to answer	*	1	*	*	*	*	0	*	*	*	*	1
New scientific discoveries												
Very interested	37	48	44	43	39	36	44	49	45	47	38	41
Moderately interested	45	41	43	46	49	49	45	42	43	45	47	50
Not at all interested	17	11	12	12	12	15	11	9	11	8	15	8
Don't know/refused to answer	*	*	*	0	0	*	*	*	1	*	*	1
Use of new inventions and technologies												
Very interested	33	42	39	40	39	37	43	47	41	42	40	40
Moderately interested	51	45	49	49	49	53	46	43	48	47	46	48
Not at all interested	16	12	12	12	12	10	11	10	10	10	13	10
Don't know/refused to answer	*	*	*	*	*	*	*	*	*	1	*	1
Military and defense policy												
Very interested	NA	43	47	47	55	47	37	35	42	38	38	37
Moderately interested	NA	42	42	42	35	43	46	48	44	44	47	47
Not at all interested	NA	15	11	11	9	10	17	18	14	18	15	15
Don't know/refused to answer	NA	1	*	*	*	*	*	*	*	*	1	1
Agricultural and farm issues												
Very interested	24	NA	30	40	24	NA	21	24	22	29	22	25
Moderately interested	47	NA	48	45	48	NA	53	50	50	46	52	55
Not at all interested	29	NA	22	15	28	NA	26	26	28	25	26	20
Don't know/refused to answer	*	NA	*	0	0	NA	1	*	*	*	*	1

Appendix table 7-4

Public interest in selected issues: 1981–2010

(Percent)

Issue	1981 (*n* = 3,193)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2008 (*n* = 2,021)	2010 (*n* = 1,461)
Space exploration												
Very interested	25	27	29	34	26	22	25	32	28	26	21	23
Moderately interested	43	45	46	44	48	50	49	45	46	47	45	49
Not at all interested	31	28	25	22	26	28	26	22	25	27	34	27
Don't know/refused to answer	*	*	0	1	0	*	*	1	1	*	*	1
International and foreign policy issues												
Very interested	35	30	33	33	48	38	21	23	30	28	23	22
Moderately interested	47	47	51	50	39	47	53	50	47	49	48	48
Not at all interested	18	22	16	16	12	15	26	28	23	22	29	29
Don't know/refused to answer	*	*	*	*	*	*	*	*	*	*	1	2

NA = not available, question not asked; * = <0.5% responded

NOTES: Responses to *There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read you a short list of issues, and for each one I would like you to tell me if you are very interested, moderately interested, or not at all interested.* Table includes all years for which data collected. Percentages may not add to 100% because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1981–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2008–10).

Science and Engineering Indicators 2012

Appendix table 7-5

Public interest in selected issues, by respondent characteristic: 2010

(Percent)

Characteristic	New medical discoveries			Local school issues			Environmental pollution			Economic issues/business conditions			New scientific discoveries		
	Very interested (*n* = 883)	Moderately interested (*n* = 499)	Not at all interested (*n* = 66)	Very interested (*n* = 798)	Moderately interested (*n* = 506)	Not at all interested (*n* = 142)	Very interested (*n* = 677)	Moderately interested (*n* = 652)	Not at all interested (*n* = 118)	Very interested (*n* = 654)	Moderately interested (*n* = 641)	Not at all interested (*n* = 152)	Very interested (*n* = 576)	Moderately interested (*n* = 746)	Not at all interested (*n* = 123)
All adults (*n* = 1,461)	60	35	5	54	36	9	46	46	7	44	45	10	41	50	8
Sex															
Male (*n* = 592)	54	41	5	45	42	13	44	46	9	44	46	10	46	46	7
Female (*n* = 869)	65	30	4	61	31	7	48	45	6	45	44	10	37	54	8
Formal education															
<High school (*n* = 190)	56	35	9	56	32	11	47	39	13	36	46	18	39	42	17
High school graduate (*n* = 463)	59	34	6	56	33	10	45	44	10	37	49	14	34	55	10
Some college (*n* = 370)	63	32	4	57	35	7	48	46	6	45	46	9	43	52	5
Baccalaureate (*n* = 274)	59	39	1	48	39	12	42	52	4	53	42	5	47	50	2
Graduate/professional degree (*n* = 164)	60	35	3	47	43	7	48	46	3	61	34	2	48	47	2
Science/mathematics education[a]															
Low (*n* = 477)	58	36	6	59	31	9	47	42	10	37	46	17	35	55	11
Middle (*n* =194)	62	33	4	51	39	9	45	49	5	43	49	7	40	53	6
High (*n* = 205)	62	37	1	48	40	12	47	48	5	57	40	4	55	43	2
Family income (quartile)[b]															
Top (*n* = 275)	57	38	2	53	38	7	45	49	4	53	40	5	44	50	3
Second (*n* = 337)	59	38	3	57	34	9	44	51	5	42	50	8	37	57	6
Third (*n* = 307)	55	41	3	55	39	7	47	47	6	45	48	8	35	59	5
Bottom (*n* = 392)	65	28	7	56	33	11	51	39	10	41	44	14	49	39	11
Age (years)[b]															
18–24 (*n* = 79)	55	36	9	45	39	16	40	51	9	44	43	13	50	42	8
25–34 (*n* = 277)	56	37	7	58	32	9	42	49	9	40	47	11	33	57	9
35–44 (*n* = 267)	53	41	5	62	31	6	42	47	10	38	51	9	40	52	7
45–54 (*n* = 271)	61	35	3	50	41	9	49	45	5	46	42	11	47	47	5
55–64 (*n* = 264)	65	31	3	53	34	12	51	43	5	48	44	7	40	52	8
≥65 (*n* = 296)	68	28	2	49	40	9	49	42	7	49	39	10	39	49	9

Appendix table 7-5

Public interest in selected issues, by respondent characteristic: 2010

(Percent)

Characteristic	Use of new inventions/technologies			Military/defense policy			Agricultural/farm issues			Space exploration			International/foreign policy issues		
	Very interested (*n* = 571)	Moderately interested (*n* = 722)	Not at all interested (*n* = 152)	Very interested (*n* = 555)	Moderately interested (*n* = 684)	Not at all interested (*n* = 207)	Very interested (*n* = 372)	Moderately interested (*n* = 797)	Not at all interested (*n* = 275)	Very interested (*n* = 329)	Moderately interested (*n* = 711)	Not at all interested (*n* = 406)	Very interested (*n* = 331)	Moderately interested (*n* = 697)	Not at all interested (*n* = 410)
All adults (*n* = 1,461)	40	48	10	37	47	15	25	55	20	23	49	27	22	48	29
Sex															
Male (*n* = 592)	49	41	10	44	43	13	29	52	19	30	48	21	30	44	26
Female (*n* = 869)	33	55	11	31	51	16	22	57	20	18	50	31	16	51	31
Formal education															
<High school (*n* = 190)	37	45	18	35	46	18	31	48	20	22	40	37	11	37	49
High school graduate (*n* = 463)	35	48	16	34	49	16	23	54	22	19	51	30	14	45	39
Some college (*n* = 370)	42	50	7	34	50	15	27	57	16	25	50	24	23	51	26
Baccalaureate (*n* = 274)	43	53	3	41	46	11	21	56	22	28	48	24	30	57	13
Graduate/professional degree (*n* = 164)	50	43	5	45	40	12	22	57	18	26	55	16	44	46	7
Science/mathematics education[a]															
Low (*n* = 477)	36	47	17	35	47	17	27	53	20	20	44	35	17	45	37
Middle (*n* =194)	41	51	7	32	50	17	19	57	22	23	54	21	28	51	19
High (*n* = 205)	52	47	*	41	48	12	27	52	22	28	51	21	33	55	12
Family income (quartile)[b]															
Top (*n* = 275)	40	53	4	43	45	10	22	60	16	20	57	20	33	50	15
Second (*n* = 337)	43	48	9	37	52	11	27	55	18	25	50	25	23	51	26
Third (*n* = 307)	39	51	10	34	51	15	27	57	16	22	51	27	22	51	26
Bottom (*n* = 392)	41	45	13	36	44	19	26	52	21	28	40	31	14	44	41
Age (years)[b]															
18–24 (*n* = 79)	53	34	13	16	63	20	19	43	38	25	48	28	8	47	44
25–34 (*n* = 277)	38	50	10	30	47	22	19	54	27	21	48	30	13	48	38
35–44 (*n* = 267)	36	54	9	27	55	16	21	62	15	26	48	26	20	50	29
45–54 (*n* = 271)	43	47	10	41	45	13	27	60	12	24	49	27	25	46	28
55–64 (*n* = 264)	39	50	11	45	44	10	31	51	17	23	53	23	29	46	24
≥65 (*n* = 296)	38	50	10	53	37	8	29	51	17	20	49	28	32	48	16

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 983 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[b]Categories do not add to total because "don't know" and "refused" responses not shown.

NOTES: Responses to *There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read you a short list of issues, and for each one I would like you to tell me if you are very interested, moderately interested, or not at all interested.* Percentages may not add to 100% because of rounding and because "don't know" and "refused" responses not shown.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-6

Visitors to informal science and other cultural institutions: 1981–2008

(Percent)

Institution	1981 (*n* = 1,235)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2008 (*n* = 2,021)
Informal science institution											
Zoo/aquarium	64	49	48	51	51	54	52	51	51	58	52
Natural history museum	37	29	29	30	30	31	29	30	27	30	28
Science/technology museum	39	26	24	26	25	21	28	27	30	30	27
Any informal science institution[a]	72	61	58	59	59	62	61	60	61	66	61
Public library	NA	NA	67	68	65	69	69	70	72	75	64
Art museum	43	32	31	33	31	29	31	30	30	32	34

NA = not available, question not asked

[a]Visited zoo/aquarium, natural history museum, or science/technology museum at least once.

NOTES: Responses to *I am going to read you a short list of places and ask you to tell me how many times you visited each type of place during the last year, that is, the last 12 months.* Table includes all years for which data collected. Percentages indicate individuals who visited institution at least once. Percentages based on total in sample, including those who responded "don't know" or refused to respond.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1981–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2012

Appendix table 7-7

Visitors to informal science and other cultural institutions, by respondent characteristic: 2008

(Percent)

Characteristic	Informal science institution				Public library	Art museum
	Zoo/ aquarium	Natural history museum	Science/technology museum	Any informal science institution[a]		
All adults (*n* = 2,021)	52	28	27	61	64	34
Sex						
Male (*n* = 918)	49	30	29	59	59	32
Female (*n* = 1,103)	55	26	25	63	69	35
Formal education						
<High school (*n* = 283)	34	12	8	39	44	11
High school graduate (*n* = 632)	44	17	16	51	53	15
Some college (*n* = 550)	56	33	32	68	74	41
Baccalaureate (*n* = 356)	66	45	42	76	75	55
Graduate/professional degree (*n* = 200)	68	42	47	79	81	69
Science/mathematics education[b]						
Low (*n* =1,199)	44	19	18	52	57	22
Middle (*n* = 340)	62	42	38	76	74	51
High (*n* = 395)	69	43	44	79	82	56
Family income (quartile)[c]						
Top (*n* = 381)	65	46	43	78	70	50
Second (*n* = 485)	59	31	31	68	69	37
Third (*n* = 411)	50	20	20	56	60	26
Bottom (*n* = 506)	38	18	16	46	64	22
Age (years)[c]						
18–24 (*n* = 173)	56	33	38	74	73	45
25–34 (*n* = 346)	65	29	26	71	68	34
35–44 (*n* = 377)	62	30	32	67	70	32
45–54 (*n* = 421)	50	31	25	61	61	34
55–64 (*n* = 335)	48	26	26	55	62	34
≥65 (*n* = 354)	30	18	14	38	53	26
Minor children at home[c]						
Yes (*n* = 718)	62	33	31	70	72	31
No (*n* = 1,293)	46	25	24	56	60	36

[a]Visited zoo/aquarium, natural history museum, or science/technology museum at least once.

[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[c]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

NOTES: Responses to *I am going to read you a short list of places and ask you to tell me how many times you visited each type of place during the last year, that is, the last 12 months.* Percentages indicate individuals who visited institution at least once. Percentages based on *n* in each row, including those who responded "don't know" or refused to respond.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2012

Appendix table 7-8

Correct answers to trend factual knowledge of science questions, by respondent characteristic: 1992–2010

(Average percent correct)

Characteristic	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2006 (*n* = 1,864)	2008 (*n* =2,021)	2010 (*n* = 1,932)
All adults	59	60	60	61	64	64	64	63
Sex								
Male	64	65	66	66	69	69	68	67
Female	55	55	55	57	59	60	60	59
Formal education								
<High school	44	44	43	44	45	44	43	42
High school graduate	59	59	60	62	62	62	63	60
Baccalaureate	73	68	75	77	80	74	77	78
Graduate/professional	80	77	80	83	80	82	81	80
Science/mathematics education[a]								
Low	52	52	51	53	55	56	57	55
Middle	66	68	66	71	72	69	70	68
High	79	80	83	82	84	82	82	83
Family income (quartile)								
Top	NA	NA	NA	NA	NA	71	74	73
Second	NA	NA	NA	NA	NA	69	69	69
Third	NA	NA	NA	NA	NA	65	63	63
Bottom	NA	NA	NA	NA	NA	56	56	54
Age (years)								
18–24	59	63	64	65	66	68	67	64
25–34	64	64	63	65	68	64	67	67
35–44	65	64	66	66	66	67	63	63
45–54	61	62	61	64	68	68	67	65
55–64	53	52	57	58	61	64	65	63
≥65	47	47	45	46	49	53	54	54
Verbal ability[b]								
0–4	NA	NA	NA	NA	NA	48	47	46
5	NA	NA	NA	NA	NA	60	58	55
6	NA	NA	NA	NA	NA	66	63	63
7	NA	NA	NA	NA	NA	70	73	67
8–10	NA	NA	NA	NA	NA	77	80	80

NA = not available, question not asked

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses.

NOTES: Percentage of nine questions in trend factual knowledge of science scale answered correctly. "Don't know" responses and refusals to respond count as incorrect. Table includes all years for which data collected. Questions in trend factual knowledge of science scale listed below:
• *The center of the Earth is very hot.* (True)
• *All radioactivity is man-made.* (False)
• *It is the father's gene that decides whether the baby is a boy or a girl.* (True) Or (in 2008) *It is the mother's gene that decides whether the baby is a boy or a girl.* (False) (Split ballot in 2008; 1,251 survey respondents asked about "father's gene"; 254 survey respondents asked about "mother's gene.")
• *Lasers work by focusing sound waves.* (False)
• *Electrons are smaller than atoms.* (True)
• *Antibiotics kill viruses as well as bacteria.* (False)
• *The continents on which we live have been moving their locations for millions of years and will continue to move in the future.* (True)
• *Does the Earth go around the Sun, or does the Sun go around the Earth?* (Earth around Sun)
• *How long does it take for the Earth to go around the Sun?* (1 year) (Asked only if respondent answered correctly that Earth goes around Sun.)

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1992–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2006–10).

Science and Engineering Indicators 2012

Appendix table 7-9

Correct answers to factual knowledge questions in physical and biological sciences: 1985–2010

(Percent)

Question	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 2,021)	2010 (*n* = 1,932)
Physical science												
1. *The center of the Earth is very hot.* (True)	NA	80	79	81	78	82	80	80	78	80	84	84
2. *The continents on which we live have been moving their locations for millions of years and will continue to move in the future.* (True)	79	80	77	79	78	78	80	79	77	80	78	80
3a. *Does the Earth go around the Sun, or does the Sun go around the Earth?* (Earth around Sun)	NA	73	73	71	73	73	72	75	71	76	72	73
3b. *How long does it take for the Earth to go around the Sun?* (One year)[a]	NA	45	48	46	47	48	49	54	NA	55	52	52
4. *All radioactivity is man-made.* (False)	NA	65	63	73	72	71	71	76	73	70	71	67
5. *Electrons are smaller than atoms.* (True)	NA	43	41	46	44	43	46	48	45	53	54	51
6. *Lasers work by focusing sound waves.* (False)	NA	36	37	37	40	39	43	45	42	45	49	47
7. *The universe began with a huge explosion.* (True)	NA	54	32	38	35	32	33	33	40	33	33	38
Biological science												
1a. *It is the father's gene that decides whether the baby is a boy or a girl.* (True)	NA	NA	NA	65	64	62	66	65	62	64	62[b]	61
1b. *It is the mother's gene that decides whether the baby is a boy or a girl.* (False)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72[b]	NA
2. *Antibiotics kill viruses as well as bacteria.* (False)	NA	25	30	35	40	43	45	51	54	56	54	50
3. *Human beings, as we know them today, developed from earlier species of animals.* (True)	45	46	45	45	44	44	45	53	50	43	46	47

NA = not available, question not asked

[a]Question asked only of survey respondents who answered correctly that the Earth goes around the Sun. Individuals who responded incorrectly that the Sun goes around the Earth also count as having responded incorrectly to question on length of the Earth's revolution around the Sun.

[b]Question about "mother's gene" asked of 515 survey respondents. Question about "father's gene" asked of 1,506 respondents.

NOTES: Table includes all years for which data collected. "Don't know" responses and refusals to respond count as incorrect.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1985–2001); University of Michigan, Survey of Consumer Attitudes (2004); and University of Chicago, National Opinion Research Center, General Social Survey (2006–10).

Science and Engineering Indicators 2012

Appendix table 7-10

Correct answers to factual knowledge questions in physical and biological sciences, by respondent characteristic: 2010

(Percent)

	Physical science			
Characteristic	*The center of the Earth is very hot.* (True)	*The continents on which we live have been moving their locations for millions of years and will continue to move in the future.* (True)	*Does the Earth go around the Sun, or does the Sun go around the Earth?* (Earth around Sun)	*How long does it take for the Earth to go around the Sun: one day, one month, or one year?* [a] (One year)
All adults (*n* = 1,932)	84	80	73	52
Sex				
Male (*n* = 798)	87	83	79	61
Female (*n* = 1,134)	81	77	67	44
Formal education[b]				
<High school (*n* = 257)	68	63	54	23
High school graduate (*n* = 610)	81	75	62	39
Some college (*n* = 477)	87	85	77	59
Baccalaureate (*n* = 369)	92	88	88	72
Graduate/professional degree (*n* = 218)	90	90	91	76
Science/mathematics education[c]				
Low (*n* = 695)	81	76	65	40
Middle (*n* = 272)	88	86	77	61
High (*n* = 321)	94	90	88	78
Family income (quartile)[b]				
Top (*n* = 360)	90	88	83	63
Second (*n* = 468)	90	85	76	60
Third (*n* = 407)	84	81	76	50
Bottom (*n* = 510)	78	72	61	39
Age (years)[b]				
18–24 (*n* = 111)	98	85	71	54
25–34 (*n* = 377)	87	81	79	60
35–44 (*n* = 347)	82	75	75	57
45–54 (*n* = 360)	85	85	74	54
55–64 (*n* = 352)	82	79	72	49
≥65 (*n* = 376)	73	76	62	35
Verbal ability[d]				
0–4 (*n* = 70)	75	63	53	31
5 (*n* = 46)	84	84	65	41
6 (*n* = 84)	79	81	77	53
7 (*n* = 46)	85	79	76	58
8–10 (*n* = 81)	95	88	90	72
Trend factual knowledge of science scale (quartile)[e]				
Top (*n* = 505)	98	96	100	97
Second (*n* = 550)	94	91	91	67
Third (*n* = 469)	83	78	63	28
Bottom (*n* = 408)	52	45	24	5

Appendix table 7-10

Correct answers to factual knowledge questions in physical and biological sciences, by respondent characteristic: 2010

(Percent)

	Physical science (continued)			
Characteristic	*All radioactivity is man-made.* (False)	*Electrons are smaller than atoms.* (True)	*Lasers work by focusing sound waves.* (False)	*The universe began with a huge explosion.* (True)
All adults (*n* = 1,932)	67	51	47	38
Sex				
Male (*n* = 798)	72	58	63	46
Female (*n* = 1,134)	63	46	35	32
Formal education[b]				
<High school (*n* = 257)	39	32	31	26
High school graduate (*n* = 610)	60	41	38	31
Some college (*n* = 477)	74	56	46	40
Baccalaureate (*n* = 369)	80	69	66	49
Graduate/professional degree (*n* = 218)	88	68	69	53
Science/mathematics education[c]				
Low (*n* = 695)	58	39	36	33
Middle (*n* = 272)	71	64	46	42
High (*n* = 321)	91	80	75	53
Family income (quartile)[b]				
Top (*n* = 360)	78	57	60	46
Second (*n* = 468)	73	56	53	45
Third (*n* = 407)	70	49	47	36
Bottom (*n* = 510)	54	50	38	32
Age (years)[b]				
18–24 (*n* = 111)	64	65	46	44
25–34 (*n* = 377)	64	61	52	40
35–44 (*n* = 347)	67	47	49	34
45–54 (*n* = 360)	69	51	49	37
55–64 (*n* = 352)	71	48	52	41
≥65 (*n* = 376)	66	40	32	35
Verbal ability[d]				
0–4 (*n* = 70)	45	41	33	28
5 (*n* = 46)	64	43	33	35
6 (*n* = 84)	68	51	48	36
7 (*n* = 46)	72	54	44	35
8–10 (*n* = 81)	88	66	61	48
Trend factual knowledge of science scale (quartile)[e]				
Top (*n* = 505)	97	92	90	55
Second (*n* = 550)	79	54	55	46
Third (*n* = 469)	55	37	25	30
Bottom (*n* = 408)	28	16	11	16

Appendix table 7-10

Correct answers to factual knowledge questions in physical and biological sciences, by respondent characteristic: 2010

(Percent)

	Biological science		
Characteristic	*It is the father's gene that decides whether the baby is a boy or a girl.* (True)	*Antibiotics kill viruses as well as bacteria.* (False)	*Human beings, as we know them today, developed from earlier species of animals.* (True)
All adults (*n* = 1,932)	61	50	47
Sex			
Male (*n* = 798)	52	48	54
Female (*n* = 1,134)	68	52	40
Formal education[b]			
<High school (*n* = 257)	47	24	41
High school graduate (*n* = 610)	55	37	35
Some college (*n* = 477)	61	55	51
Baccalaureate (*n* = 369)	75	75	57
Graduate/professional degree (*n* = 218)	72	74	61
Science/mathematics education[c]			
Low (*n* = 695)	55	40	41
Middle (*n* = 272)	64	58	53
High (*n* = 321)	75	75	64
Family income (quartile)[b]			
Top (*n* = 360)	69	65	57
Second (*n* = 468)	66	59	45
Third (*n* = 407)	59	48	45
Bottom (*n* = 510)	55	34	46
Age (years)[b]			
18–24 (*n* = 111)	52	43	55
25–34 (*n* = 377)	68	50	53
35–44 (*n* = 347)	63	48	48
45–54 (*n* = 360)	67	56	41
55–64 (*n* = 352)	59	56	46
≥65 (*n* = 376)	51	47	40
Verbal ability[d]			
0–4 (*n* = 70)	43	25	42
5 (*n* = 46)	49	35	43
6 (*n* = 84)	66	46	47
7 (*n* = 46)	74	61	40
8–10 (*n* = 81)	78	79	58
Trend factual knowledge of science scale (quartile)[e]			
Top (*n* = 505)	86	89	62
Second (*n* = 550)	66	59	49
Third (*n* = 469)	55	31	44
Bottom (*n* = 408)	30	14	28

[a]Question asked only of survey respondents who answered correctly that the Earth goes around the Sun. Individuals who responded incorrectly that the Sun goes around the Earth also count as having responded incorrectly to question on length of the Earth's revolution around the Sun.

[b]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[c]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Question asked of 1,454 survey respondents; categories do not add to total *n* because "don't know" and "refused" responses not shown.

[d]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge, completed by 327 survey respondents. Categories represent number of correct responses.

[e]See notes to appendix table 7-8 for explanation of trend factual knowledge of science scale.

NOTE: "Don't know" responses and refusals to respond count as incorrect.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

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Appendix table 7-11

Correct answers to nanotechnology questions, by respondent characteristic: 2010

(Percent)

Characteristic	*Nanotechnology involves manipulating extremely small units of matter, such as individual atoms, in order to produce better materials.* (True)	*The properties of nanoscale materials often differ fundamentally and unexpectedly from the properties of the same materials at larger scales.* (True)	*Nanotechnology knowledge index* [a]
All adults (*n* = 963)	31	18	14
Sex			
Male (*n* = 397)	40	24	19
Female (*n* = 566)	23	13	11
Formal education			
<High school (*n* = 119)	10	4	4
High school graduate (*n* = 296)	23	12	9
Some college (*n* = 243)	34	20	15
Baccalaureate (*n* = 205)	45	25	21
Graduate/professional (*n* = 100)	49	36	29
Science/mathematics education[b]			
Low (*n* = 236)	18	13	8
Middle (*n* = 103)	45	27	22
High (*n* = 103)	50	28	23
Family income (quartile)[c]			
Top (*n* = 185)	43	25	20
Second (*n* = 230)	37	20	17
Third (*n* = 191)	23	14	8
Bottom (*n* = 250)	27	16	13
Age (years)[c]			
18–24 (*n* = 53)	39	12	11
25–34 (*n* = 179)	30	18	14
35–44 (*n* = 165)	32	17	13
45–54 (*n* = 183)	33	17	15
55–64 (*n* = 173)	34	22	18
≥65 (*n* = 204)	22	18	13
Trend factual knowledge of science scale (quartile)[d]			
Top (*n* = 248)	59	37	30
Second (*n* = 290)	35	18	15
Third (*n* = 223)	19	11	8
Bottom (*n* = 202)	5	2	1
How much have you heard about nanotechnology?[e]			
A lot (*n* = 47)	68	46	35
Some (*n* = 197)	67	44	35
Just a little (*n* = 284)	50	24	19

[a]Percentage of respondents who answered both questions correctly.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 485 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[c]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[d]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.
[e]Nanotechnology knowledge questions asked only of the 528 survey respondents who had heard about nanotechnology.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

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Appendix table 7-12

Correct answers to polar questions, by respondent characteristic: 2006 and 2010

(Percent)

Characteristic	2006 (*n* = 1,864)					2010 (*n* = 1,447)				
	The North Pole is on a sheet of ice that floats on the Arctic Ocean. (True)	*The sun never shines at the South Pole.* (False)	*Hunting is more likely than climate change to make polar bears become extinct.* (False)	*Have the polar ice caps gotten larger or smaller over the last 25 years?* (Smaller)	Polar knowledge index[a]	*The North Pole is on a sheet of ice that floats on the Arctic Ocean.* (True)	*The sun never shines at the South Pole.* (False)	*Hunting is more likely than climate change to make polar bears become extinct.* (False)	*Have the polar ice caps gotten larger or smaller over the last 25 years?* (Smaller)	Polar knowledge index[a]
All adults	41	67	36	77	55	48	68	44	79	60
Sex										
Male	52	75	40	86	63	56	76	46	81	65
Female	33	61	32	71	49	42	61	41	77	55
Formal education										
<High school	39	50	19	60	42	45	49	32	62	47
High school graduate	39	61	33	70	51	43	62	38	75	54
Some college	37	67	40	82	56	50	70	45	82	62
Baccalaureate	47	78	38	84	61	59	82	53	87	70
Graduate/professional	52	85	45	91	69	46	79	57	91	68
Science/mathematics education[b]										
Low	36	61	33	70	50	44	61	39	74	55
Middle	42	72	37	86	59	55	74	50	88	67
High	55	80	43	90	67	62	81	58	90	73
Family income (quartile)										
Top	47	78	40	89	64	53	76	52	85	66
Second	43	68	43	81	59	52	75	44	85	64
Third	41	67	34	79	55	49	68	45	78	60
Bottom	41	59	29	68	49	41	59	36	69	51
Age (years)										
18–24	48	66	37	83	59	53	65	38	87	61
25–34	45	72	33	73	56	51	68	45	81	61
35–44	38	68	37	75	54	45	72	47	74	60
45–54	39	69	37	79	56	53	72	48	79	63
55–64	45	63	36	83	57	45	72	46	81	61
65+	35	60	34	75	51	42	54	36	73	51
Trend factual knowledge of science scale (quartile)[c]										
Top	61	89	46	94	73	62	90	54	91	74
Second	37	71	42	85	59	51	74	53	86	66
Third	37	57	28	72	49	47	57	40	79	56
Bottom	24	38	20	43	31	28	44	23	53	37

[a]Percentage of four polar questions answered correctly.

[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.

[c]See notes to appendix table 7-8 for explanation of trend factual knowledge of science scale.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2006, 2010).

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Appendix table 7-13

Correct answers to scientific process questions: 1990–2010

(Percent)

Question	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* =2,021)	2010 (*n* = 1,454)
Understanding of scientific inquiry[a]	NA	NA	26	34	32	40	39	41	36	42
Components of understanding scientific inquiry scale										
Understanding of probability[b]	61	64	63	62	64	67	64	69	64	66
If the first three children are healthy, the fourth child will have illness.	78	80	77	78	78	78	NA	NA	NA	NA
If the first child has illness, the next three will not.	81	83	81	80	82	84	82	86	82	81
Each of the couple's children will have the same risk of illness.	70	71	72	71	74	75	73	75	72	75
If the couple has only three children, none will have illness.	81	83	79	79	81	84	NA	NA	NA	NA
Understanding of experiment[c]	NA	NA	26	36	34	40	46	42	38	51
Understanding of scientific study[d]	18	21	16	23	21	26	23	25	23	18

NA = not available, question not asked

[a]To be classified as understanding scientific inquiry, survey respondent had to (1) answer correctly the two probability questions stated in footnote b and (2) either provide "theory-testing" response to open-ended question about what it means to study something scientifically (see note d) or correct response to open-ended question about experiment, i.e., explain why it is better to test a drug using a control group (see note c).

[b]To be classified as understanding probability, survey respondent had to answer correctly *A doctor tells a couple that their genetic makeup means that they've got one in four chances of having a child with an inherited illness.* (1) *Does this mean that if their first child has the illness, the next three will not have the illness?* (No) and (2) *Does this mean that each of the couple's children will have the same risk of suffering from the illness?* (Yes).

[c]To be classified as understanding experiment, survey respondent had to answer correctly (1) *Two scientists want to know if a certain drug is effective against high blood pressure. The first scientist wants to give the drug to 1,000 people with high blood pressure and see how many of them experience lower blood pressure levels. The second scientist wants to give the drug to 500 people with high blood pressure and not give the drug to another 500 people with high blood pressure, and see how many in both groups experience lower blood pressure levels. Which is the better way to test this drug?* and (2) *Why is it better to test the drug this way?* (The second way because a control group is used for comparison.)

[d]To be classified as understanding scientific study, survey respondent had to answer (1) *When you read news stories, you see certain sets of words and terms. We are interested in how many people recognize certain kinds of terms. First, some articles refer to the results of a scientific study. When you read or hear the term scientific study, do you have a clear understanding of what it means, a general sense of what it means, or little understanding of what it means?* and (2) (If "clear understanding" or "general sense" response) *In your own words, could you tell me what it means to study something scientifically?* (Formulation of theories/test hypothesis, experiments/control group, or rigorous/systematic comparison.)

NOTES: Table includes all years for which data collected. "Don't know" responses and refusals to respond count as incorrect.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1990–2001); University of Michigan, Survey of Consumer Attitudes (2004); and University of Chicago, National Opinion Research Center, General Social Survey (2006–10).

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Appendix table 7-14

Correct answers to scientific process questions, by respondent characteristic: 2010

(Percent)

Characteristic	Scientific inquiry	Probability	Experiment	Scientific study
All adults (*n* = 1,454)	42	66	51	18
Sex				
Male (*n* = 597)	44	68	51	18
Female (*n* = 857)	41	64	51	17
Formal education[a]				
<High school (*n* = 195)	13	48	19	1
High school graduate (*n* = 476)	28	57	40	5
Some college (*n* = 349)	49	69	57	23
Baccalaureate (*n* = 266)	65	82	69	36
Graduate/professional degree (*n* = 167)	73	82	82	39
Science/mathematics education[b]				
Low (*n* = 695)	29	59	40	6
Middle (*n* = 272)	56	71	64	27
High (*n* = 321)	71	85	76	41
Family income (quartile)[a]				
Top (*n* = 258)	62	77	68	31
Second (*n* = 352)	51	73	59	20
Third (*n* = 308)	36	67	47	15
Bottom (*n* = 398)	27	53	34	12
Age (years)[a]				
18–24 (*n* = 87)	40	64	50	26
25–34 (*n* = 298)	52	73	61	21
35–44 (*n* = 256)	45	63	55	21
45–54 (*n* = 264)	43	63	48	16
55–64 (*n* = 256)	42	68	50	18
≥65 (*n* = 285)	29	62	37	5
Verbal ability[c]				
0–4 (*n* = 53)	16	46	27	1
5 (*n* = 39)	37	70	41	13
6 (*n* = 62)	54	77	60	20
7 (*n* = 35)	47	73	57	22
8–10 (*n* = 62)	65	85	69	38
Trend factual knowledge of science scale (quartile)[d]				
Top (*n* = 375)	72	86	77	41
Second (*n* = 406)	49	72	59	19
Third (*n* = 370)	28	62	38	6
Bottom (*n* = 303)	14	38	24	2

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Categories do not add to total because "don't know" and "refused" responses not shown.
[c]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses. Verbal ability questions asked of 251 survey respondents.
[d]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: See footnotes to appendix table 7-13 for explanation of understanding of probability, experiment, scientific inquiry, and scientific study. "Don't know" responses and refusals to respond count as incorrect.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

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Appendix table 7-15

Correct answers to questions about charts and statistics, reasoning/life sciences, and understanding of experiment/controlling variables, by respondent characteristic: 2008

(Percent)

Characteristic	Charts and statistics		Reasoning/life sciences	
	Day-night rhythms dramatically affect our bodies. Probably no body system is more influenced than the nervous system. The figure on Card 3 illustrates the number of errors made by shift workers in different portions of the 24-hour cycle. Based on the data illustrated in the figure, during which of these time periods did the most errors occur?	*As part of a laboratory experiment, five students measured the weight of the same leaf four times. They recorded 20 slightly different weights. All of the work was done carefully and correctly. Their goal was to be as accurate as possible and reduce error in the experiment to a minimum. Which of the following is the BEST method to report the weight of the leaf?* [a]	*The two objects shown on Card 1 have the same mass, but object B loses heat more quickly than object A. Which combination of bodily features would be BEST suited to a small animal that lives in a cold climate and needs to minimize heat loss?* [b]	*A gardener has an idea that a plant needs sand in the soil for healthy growth. In order to test her idea she uses two pots of plants. She sets up one pot of plants as shown on the top part of Card 4. Which one of the pictures on the bottom part of the card shows what she should use for the second pot?* [c]
All adults (*n* = 1,727)	74	66	50	51
Sex				
Male (*n* = 796)	77	69	55	49
Female (*n* = 931)	72	64	46	52
Formal education				
<High school (*n* = 244)	49	38	23	41
High school graduate (*n* = 573)	72	59	44	50
Some college (*n* = 465)	80	73	53	48
Baccalaureate (*n* = 289)	88	82	73	58
Graduate/professional (*n* = 156)	85	79	68	64
Science/mathematics education[e]				
Low (*n* = 1,056)	68	57	41	46
Middle (*n* = 284)	86	77	60	56
High (*n* = 316)	90	88	76	62
Family income (quartile)[f]				
Top (*n* = 309)	87	79	67	56
Second (*n* = 412)	78	73	56	54
Third (*n* = 377)	77	67	49	51
Bottom (*n* = 462)	63	52	36	43
Age (years)				
18–24 (*n* = 151)	76	69	49	47
25–34 (*n* = 291)	78	72	52	50
35–44 (*n* = 310)	75	69	49	51
45–54 (*n* = 358)	79	67	53	51
55–64 (*n* = 289)	77	70	57	51
≥65 (*n* = 317)	61	47	40	52
Verbal ability[g]				
0–4 (*n* = 304)	48	45	26	33
5 (*n* = 249)	68	59	38	38
6 (*n* = 302)	83	69	54	53
7 (*n* = 245)	86	74	60	55
8–10 (*n* = 317)	87	80	71	66
Understanding of probability[h] (*n* = 1,727)	84	77	59	59
Understanding of experiment[h] (*n* = 1,727)	89	83	66	62

Appendix table 7-15

Correct answers to questions about charts and statistics, reasoning/life sciences, and understanding of experiment/controlling variables, by respondent characteristic: 2008

(Percent)

Characteristic	Experiment/controlling variables			
	A gardener has an idea that a plant needs sand in the soil for healthy growth. In order to test her idea she uses two pots of plants. She sets up one pot of plants as shown on the top part of Card 4. Which one of the pictures on the bottom part of the card shows what she should use for the second pot? [c]	*A student wants to find out if temperature affects the behavior of goldfish. He has 4 fish bowls and 20 goldfish. Which of the experiments on Card 2 should he do?*	*Card 5 shows a picture of lights shining above 4 fish bowls. The water temperature in all 4 bowls is 25 degrees Celsius. There are 8 fish in one bowl; 6 in another; 4 in another; and 2 in another. What is the scientist trying to find out from this experiment?* (Follow-up question) *Why did you choose that answer?*	*Experimental index* [d]
All adults (*n* = 1,727)	51	57	29	46
Sex				
Male (*n* = 796)	49	59	30	46
Female (*n* = 931)	52	55	28	45
Formal education				
<High school (*n* = 244)	41	32	6	26
High school graduate (*n* = 573)	50	52	20	41
Some college (*n* = 465)	48	60	29	46
Baccalaureate (*n* = 289)	58	76	53	62
Graduate/professional (*n* = 156)	64	73	52	63
Science/mathematics education[e]				
Low (*n* = 1,056)	46	47	17	37
Middle (*n* = 284)	56	72	41	56
High (*n* = 316)	62	81	60	67
Family income (quartile)[f]				
Top (*n* = 309)	56	76	45	59
Second (*n* = 412)	54	64	38	52
Third (*n* = 377)	51	55	19	42
Bottom (*n* = 462)	43	45	17	35
Age (years)				
18–24 (*n* = 151)	47	69	28	48
25–34 (*n* = 291)	50	63	36	50
35–44 (*n* = 310)	51	58	30	46
45–54 (*n* = 358)	51	61	33	49
55–64 (*n* = 289)	51	61	29	47
≥65 (*n* = 317)	52	31	14	33

Appendix table 7-15

Correct answers to questions about charts and statistics, reasoning/life sciences, and understanding of experiment/controlling variables, by respondent characteristic: 2008

(Percent)

Characteristic	Experiment/controlling variables			
	A gardener has an idea that a plant needs sand in the soil for healthy growth. In order to test her idea she uses two pots of plants. She sets up one pot of plants as shown on the top part of Card 4. Which one of the pictures on the bottom part of the card shows what she should use for the second pot? [c]	*A student wants to find out if temperature affects the behavior of goldfish. He has 4 fish bowls and 20 goldfish. Which of the experiments on Card 2 should he do?*	*Card 5 shows a picture of lights shining above 4 fish bowls. The water temperature in all 4 bowls is 25 degrees Celsius. There are 8 fish in one bowl; 6 in another; 4 in another; and 2 in another. What is the scientist trying to find out from this experiment?* (Follow-up question) *Why did you choose that answer?*	*Experimental index* [d]
Verbal ability[g]				
0–4 (*n* = 304)	33	36	8	26
5 (*n* = 249)	38	43	12	31
6 (*n* = 302)	53	62	28	48
7 (*n* = 245)	55	68	40	54
8–10 (*n* = 317)	66	75	52	64
Understanding of probability[h] (*n* = 1,727)	59	67	38	55
Understanding of experiment[h] (*n* = 1,727)	62	76	48	62

[a]Question asked of 2,021 survey respondents. All other questions asked of 1,727 respondents.
[b]Respondent can reach correct answer through both reasoning and knowledge of life sciences. Picture on card 1 gives away answer, so a respondent who does not know the answer from knowledge of life sciences can reason it through from picture clues and reach correct answer.
[c]Question included under both reasoning/life sciences and experiment/controlling variables because correct answer can be reached by either method.
[d]Percentage of questions in "Experiment/controlling variables" group answered correctly.
[e]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[f]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[g]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge completed by 1,417 survey respondents. Categories represent number of correct responses.
[h]See footnotes to appendix table 7-13 for explanation of understanding of probability and experiment.

NOTES: *n*'s lower than in other tables for all questions except one (see footnote a) because show cards could not be administered to subset of survey respondents interviewed by telephone. All questions multiple choice. "Don't know" responses and refusals to respond count as incorrect. For complete questions, see appendix table 7-17.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-16

Comparison of correct answers given by adults and students to scientific process questions

(Percent)

Process question	Field of study	U.S. adult: 2008 General Social Survey	Student: United States	Student: International	Question source
1. *Please look at Card A. A gardener has an idea that a plant needs sand in the soil for healthy growth. In order to test her idea she uses two pots of plants. She sets up one pot of plants as shown on the top part of the card. Which one of the pictures on the bottom part of the card shows what she should use for the second pot?* [a]	Life sciences	51	70	58	TIMSS Science 2003, 8th grade
2a. *Please look at Card 5. What is the scientist trying to find out from this experiment?*	Life sciences	40	38	NA	AAAS Project 2061
2b. (Follow-up to question 2a) *Why did you choose that answer?*	Life sciences	38	46	NA	AAAS Project 2061

NA = not available, question not asked

AAAS = American Association for the Advancement of Science; TIMSS = Trends in International Mathematics and Science Study

[a]Respondent can answer this question by using knowledge of experiment/controlling variable or knowledge in the life sciences.

NOTES: Questions appeared in 2008 General Social Survey. Original sources of questions are TIMSS and AAAS Project 2061. For complete questions, see appendix table 7-17. For U.S. adult responses by respondent characteristic, see appendix table 7-15.

SOURCES: University of Chicago, National Opinion Research Center, General Social Survey (2008); TIMSS, http://nces.ed.gov/timss/results03.asp; Deboer GE and Gogos A, unpublished results of national field test assessing middle school students' understanding of controlling variables, AAAS Project 2061.

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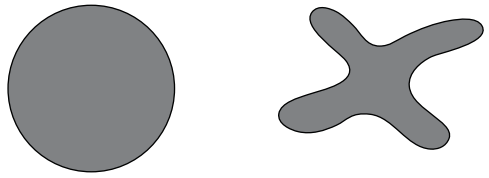
These questions were included in the 2008 General Social Survey to assess different aspects of science and technology knowledge. Answers are bold. The factual knowledge questions (questions 1, 3–5, and 7–11) are combined into "factual knowledge of science, scale 2" in appendix table 7-18; see also chapter table 7-8. Other questions test a person's knowledge of charts and statistics (questions 12 and 13), use of reasoning skills or knowledge of life sciences (questions 2 and 14), and understanding of the experiment/controlling variables concept (questions 6 and 14–16); see appendix tables 7-15 and 7-16. The correct answer for question 14 can be reached by using reasoning skills, knowledge of life sciences, or understanding of the experiment/controlling variables concept.

Opening script: Now, we are going to do some more detailed questions on science and technology. Scientists and educators are interested in how familiar adults are with the things being taught in today's schools. Many of these questions are likely to concern things that weren't taught or emphasized when you were in school. Some of the questions involve pictures or graphs.

1. What property of water is most important for living organisms?
   A) It is odorless.
   B) It does not conduct electricity.
   C) It is tasteless.
   D) It is liquid at most temperatures on Earth.

2. Please look at Card 1. The two objects shown there have the same mass, but object B loses heat more quickly than object A.

Card 1
Body Structures and Heat Loss



Which combination of bodily features would be BEST suited to a small animal that lives in a cold climate and needs to minimize heat loss?
   A) Long ears and a long body.
   B) Small ears and a short tail.
   C) A long nose and a long tail.
   D) A short nose and large ears.
   E) A long tail and a short nose.

3. Which of the following is a key factor that enables an airplane to lift?
   A) Air pressure beneath the wing is greater than that above the wing.
   B) Pressure within the airplane is greater that that of the outside.
   C) Engine power is greater than that of friction.
   D) The plane's wing is lighter than air.

4. Lightning and thunder happen at the same time, but you see the lightning before you hear the thunder. Explain why this is so.

A correct response indicates that light travels faster than sound so the light gets to your eye before the sound reaches your ear.

5. A solution of hydrochloric acid (HCl) in water will turn blue litmus paper red. A solution of the base sodium hydroxide (NaOH) in water will turn red litmus paper blue. If the acid and base solutions are mixed in the right proportion, the resulting solution will cause neither red nor blue litmus paper to change color.

A correct response refers to a neutralization or a chemical reaction that results in products that do not react with litmus paper.

6. Please look at Card 2. A student wants to find out if temperature affects the behavior of goldfish. He has 4 fish bowls and 20 goldfish. Which of the experiments on Card 2 should he do? **Correct answer: A.**

7. A farmer thinks that the vegetables on her farm are not getting enough water. Her son suggests that they use water from the nearby ocean to water the vegetables. Is this a good idea?
   A) Yes, because there is plenty of ocean water.
   B) Yes, because ocean water has many natural fertilizers.
   C) No, because ocean water is too salty for plants grown on land.
   D) No, because ocean water is much more polluted than rainwater.

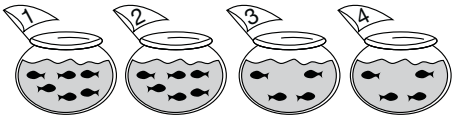
8. Which one of the following is NOT an example of erosion?
   A) The wind in the desert blows sand against a rock.
   B) A glacier picks up boulders as it moves.
   C) A flood washes over a riverbank, and the water carries small soil particles downstream.
   D) An icy winter causes the pavement in a road to crack.

Card 2

A

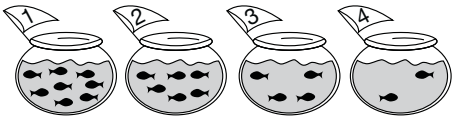
Number of fish	5 fish	5 fish	5 fish	5 fish
Temperature	15°C	20°C	25°C	30°C

B



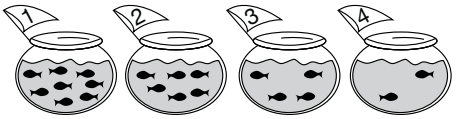
Number of fish	6 fish	6 fish	4 fish	4 fish
Temperature	20°C	20°C	30°C	30°C

C



Number of fish	8 fish	6 fish	4 fish	2 fish
Temperature	25°C	25°C	25°C	25°C

D



Number of fish	8 fish	6 fish	4 fish	2 fish
Temperature	15°C	20°C	25°C	30°C

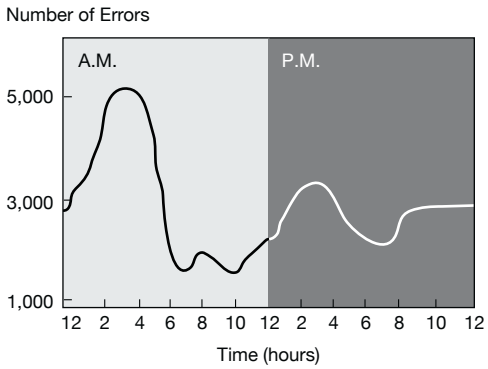
9. Traits are transferred from generation to generation through the…
A) sperm only.
B) egg only.
C) sperm and egg.
D) testes.

10. How do most fish get the oxygen they need to survive?
A) They take in water and break it down into hydrogen and oxygen.
B) Using their gills, they take in oxygen that is dissolved in water.
C) They get their oxygen from the food they eat.
D) They come to the surface every few minutes to breathe air into their lungs.

11. For which reason may people experience shortness of breath more quickly at the top of a mountain than along a seashore?
A) A slower pulse rate.
B) A greater gravitational force on the body.
C) A lower percent of oxygen in the blood.
D) A faster heartbeat.
E) A slower circulation of blood.

12. Please look at Card 3. Day-night rhythms dramatically affect our bodies. Probably no body system is more influenced than the nervous system. The figure on Card 3 illustrates the number of errors made by shift workers in different portions of the 24-hour cycle.

Card 3
Day-Night Cycles

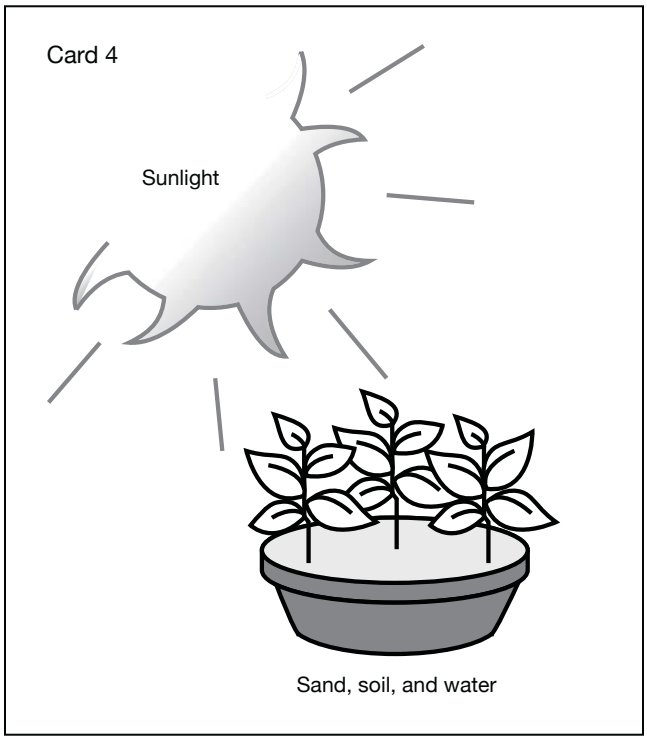


Based on the data illustrated in the figure, during which of these time periods did the most errors occur?
A) 2 A.M. to 4 A.M.
B) 8 A.M. to 10 A.M.
C) 12 P.M. to 2 P.M.
D) 2 P.M. to 4 P.M.
E) 8 P.M. to 10 P.M.

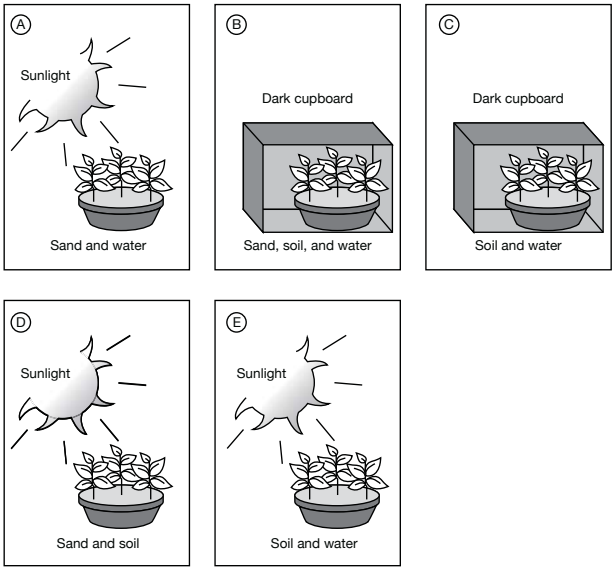
13. As part of a laboratory experiment, five students measured the weight of the same leaf four times. They recorded 20 slightly different weights. All of the work was done carefully and correctly. Their goal was to be as accurate as possible and reduce error in the experiment to a minimum.

Which of the following is the BEST method to report the weight of the leaf?
A) Ask the teacher to weigh the leaf.
B) Report the first measurement.
C) Average all of the weights that were recorded.
D) Average the highest and lowest weights recorded.
E) Discard the lowest five weights.

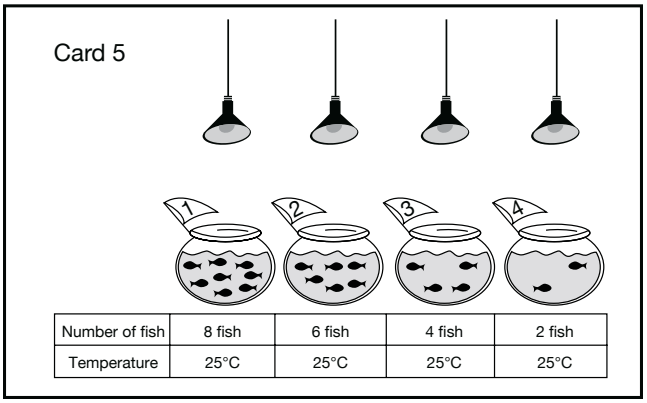
14. Please look at Card 4. A gardener has an idea that a plant needs sand in the soil for healthy growth. In order to test her idea she uses two pots of plants. She sets up one pot of plants as shown on the top part of the card. Which one of the pictures on the bottom part of the card shows what she should use for the second pot? **Correct answer is E.**



Which ONE of the following should she use for the second pot of plants?



15. Please look at Card 5. What is the scientist trying to find out from this experiment?



Number of fish	8 fish	6 fish	4 fish	2 fish
Temperature	25°C	25°C	25°C	25°C

A) If the number of fish in the fish bowl affects the behavior of the fish.
B) If the temperature of the fish bowl affects the behavior of the fish.
C) If the temperature and the amount of light affect the behavior of the fish.
D) If the number of fish, the temperature, and the amount of light affect the behavior of the fish.

16. Why did you choose that answer?
A) Because I already know what affects the behavior of fish.
B) Because that is what is allowed to change in this experiment.
C) Because that is what stays the same in this experiment.
D) Because that is what the scientist decided to include in this experiment.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Appendix table 7-18

Correct answers to scientific terms and concept questions in "factual knowledge of science, scale 2," by respondent characteristic: 2008

(Percent)

Characteristic	*Which one of the following is NOT an example of erosion?*	*Traits are transferred from generation to generation through the…*	*How do most fish get the oxygen they need to survive?*	*What property of water is most important for living organisms?*	*Which of the following is a key factor that enables an airplane to lift?*
All adults (*n* = 2,021)	54	79	75	68	53
Sex					
Male (*n* = 918)	63	78	80	75	65
Female (*n* = 1,103)	45	80	70	61	43
Formal education					
<High school (*n* = 283)	39	59	54	44	30
High school graduate (*n* = 632)	49	76	72	62	47
Some college (*n* = 550)	55	83	81	71	59
Baccalaureate (*n* = 356)	64	92	83	81	63
Graduate/professional degree (*n* = 200)	68	86	83	84	71
Science/mathematics education[a]					
Low (*n* = 1,199)	47	74	71	60	45
Middle (*n* = 340)	64	88	79	77	62
High (*n* = 395)	68	92	88	88	76
Family income (quartile)[b]					
Top (*n* = 381)	65	87	86	82	67
Second (*n* = 485)	60	86	77	70	56
Third (*n* = 411)	56	78	75	65	52
Bottom (*n* = 506)	38	68	64	56	41
Age (years)[b]					
18–24 (*n* = 173)	48	84	74	71	56
25–34 (*n* = 346)	48	82	76	72	51
35–44 (*n* = 377)	47	80	77	69	42
45–54 (*n* = 421)	61	80	79	70	56
55–64 (*n* = 335)	64	82	77	69	62
≥65 (*n* = 354)	50	68	64	53	53
Verbal ability[c]					
0–4 (*n* = 364)	34	56	57	48	33
5 (*n* = 290)	48	72	72	57	45
6 (*n* = 363)	52	84	79	74	56
7 (*n* = 297)	62	93	79	75	58
8–10 (*n* = 380)	70	91	88	83	72
Trend factual knowledge of science scale (quartile)[d]					
Top (*n* = 559)	74	94	89	89	81
Second (*n* = 566)	58	84	79	75	56
Third (*n* = 521)	42	75	72	55	42
Bottom (*n* = 375)	30	54	49	37	20

Appendix table 7-18

Correct answers to scientific terms and concept questions in "factual knowledge of science, scale 2," by respondent characteristic: 2008

(Percent)

Characteristic	*For which reason may people experience shortness of breath more quickly at the top of a mountain than along a seashore?*	*A farmer thinks that the vegetables on her farm are not getting enough water. Her son suggests that they use water from the nearby ocean to water the vegetables. Is this a good idea?*	*A solution of hydrochloric acid (HCl) in water will turn blue litmus paper red. A solution of the base sodium hydroxide (NaOH) in water will turn red litmus paper blue. If the acid and base solutions are mixed in the right proportion, the resulting solution will cause neither red nor blue litmus paper to change color. Explain why the litmus paper does not change color in the mixed solution.*	*Lightning and thunder happen at the same time, but you see the lightning before you hear the thunder. Explain why this is so.*	Factual knowledge of science, scale 2[e]
All adults (*n* = 2,021)	67	84	20	44	60
Sex					
Male (*n* = 918)	73	87	25	55	67
Female (*n* = 1,103)	61	82	16	34	55
Formal education					
<High school (*n* = 283)	40	69	3	12	39
High school graduate (*n* = 632)	60	84	11	38	56
Some college (*n* = 550)	69	85	20	45	63
Baccalaureate (*n* = 356)	88	93	38	65	74
Graduate/professional degree (*n* = 200)	81	93	42	72	76
Science/mathematics education[a]					
Low (*n* = 1,199)	58	81	9	33	53
Middle (*n* = 340)	76	89	27	55	69
High (*n* = 395)	88	96	50	71	80
Family income (quartile)[b]					
Top (*n* = 381)	83	93	29	61	73
Second (*n* = 485)	71	89	27	52	65
Third (*n* = 411)	65	86	16	37	59
Bottom (*n* = 506)	48	73	13	28	47
Age (years)[b]					
18–24 (*n* = 173)	61	79	23	42	60
25–34 (*n* = 346)	66	80	23	52	61
35–44 (*n* = 377)	66	86	20	45	59
45–54 (*n* = 421)	70	88	21	43	63
55–64 (*n* = 335)	73	89	19	45	64
≥65 (*n* = 354)	61	83	15	35	54
Verbal ability[c]					
0–4 (*n* = 364)	38	66	6	21	40
5 (*n* = 290)	56	80	10	31	52
6 (*n* = 363)	70	89	24	43	63
7 (*n* = 297)	80	92	24	55	69
8–10 (*n* = 380)	85	93	35	65	76

Appendix table 7-18

Correct answers to scientific terms and concept questions in "factual knowledge of science, scale 2," by respondent characteristic: 2008

(Percent)

Characteristic	*For which reason may people experience shortness of breath more quickly at the top of a mountain than along a seashore?*	*A farmer thinks that the vegetables on her farm are not getting enough water. Her son suggests that they use water from the nearby ocean to water the vegetables. Is this a good idea?*	*A solution of hydrochloric acid (HCl) in water will turn blue litmus paper red. A solution of the base sodium hydroxide (NaOH) in water will turn red litmus paper blue. If the acid and base solutions are mixed in the right proportion, the resulting solution will cause neither red nor blue litmus paper to change color. Explain why the litmus paper does not change color in the mixed solution.*	*Lightning and thunder happen at the same time, but you see the lightning before you hear the thunder. Explain why this is so.*	Factual knowledge of science, scale 2[e]
Trend factual knowledge of science scale (quartile)[d]					
Top (*n* = 559)	89	95	46	77	82
Second (*n* = 566)	77	89	18	50	65
Third (*n* = 521)	54	82	7	24	50
Bottom (*n* = 375)	31	63	2	11	33

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[b]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[c]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge completed by 1,694 survey respondents. Categories represent number of correct responses.
[d]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.
[e]Percentage of nine questions in "factual knowledge of science, scale 2" answered correctly; questions are columns in this table. For complete questions, see appendix table 7-17.

NOTES: Seven of nine questions multiple choice. "Don't know" responses and refusals to respond counted as incorrect.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-19

Public assessment of astrology, by respondent characteristic: 1979–2010

(Percent)

Characteristic	1979 (*n* = 1,635)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 2,021)	2010 (*n* = 1,434)
All adults														
Very scientific	8	10	8	6	6	7	7	7	7	9	6	5	5	6
Sort of scientific	34	35	31	31	29	29	28	29	29	31	26	26	28	28
Not at all scientific	50	51	57	60	60	62	60	59	59	56	66	65	63	62
Don't know	9	4	4	3	5	3	5	5	5	4	3	4	4	3
Sex														
Male														
Very scientific	7	9	7	5	5	6	7	7	7	9	5	5	5	7
Sort of scientific	30	29	29	25	23	25	24	27	25	27	21	23	28	24
Not at all scientific	54	58	60	67	66	66	65	63	63	60	72	68	64	67
Don't know	9	4	3	3	5	2	4	2	5	4	2	4	4	2
Female														
Very scientific	8	10	9	7	6	7	7	7	7	8	6	5	5	6
Sort of scientific	37	41	32	36	35	32	32	31	32	36	30	29	28	32
Not at all scientific	46	44	55	53	55	58	56	55	56	52	61	63	63	58
Don't know	9	5	4	3	5	3	6	7	5	4	3	4	4	4
Formal education														
<High school														
Very scientific	11	13	14	11	7	12	11	11	13	14	10	10	7	10
Sort of scientific	34	37	38	35	31	34	30	37	34	35	38	41	40	37
Not at all scientific	39	40	42	50	49	49	46	42	41	45	50	42	42	48
Don't know	16	10	5	4	12	5	13	10	13	6	2	8	11	4
High school graduate														
Very scientific	7	10	8	6	6	6	8	7	7	9	7	5	6	7
Sort of scientific	37	38	29	32	32	31	28	30	30	35	29	29	31	32
Not at all scientific	50	50	60	59	60	61	61	60	60	52	62	62	61	58
Don't know	6	2	3	3	2	2	3	4	3	4	2	4	3	3
Baccalaureate														
Very scientific	1	3	4	2	4	3	6	2	2	4	2	2	2	3
Sort of scientific	23	26	25	24	19	19	34	21	20	25	17	16	19	17
Not at all scientific	67	69	68	72	75	76	60	75	76	69	80	78	79	78
Don't know	9	3	3	1	2	3	*	2	3	2	1	4	1	2
Graduate/professional degree														
Very scientific	5	5	1	*	1	3	2	4	2	3	*	*	3	2
Sort of scientific	15	23	23	19	17	14	22	15	19	13	16	12	12	16
Not at all scientific	76	69	74	78	80	82	74	78	77	83	83	84	83	79
Don't know	4	3	2	2	2	*	2	2	2	*	1	4	3	3
Age (years)														
18–24														
Very scientific	9	13	10	10	5	14	9	11	7	17	10	5	5	11
Sort of scientific	40	43	39	36	37	37	33	38	40	39	36	34	38	43

Appendix table 7-19

Public assessment of astrology, by respondent characteristic: 1979–2010

(Percent)

Characteristic	1979 (*n* = 1,635)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 2,021)	2010 (*n* = 1,434)
Not at all scientific	47	42	51	54	56	49	53	50	50	42	52	56	55	46
Don't know	4	3	*	0	2	1	5	1	3	1	2	5	1	0
25–34														
Very scientific	7	7	6	6	6	4	9	6	5	10	6	8	6	8
Sort of scientific	36	39	32	32	32	33	30	32	30	33	33	28	30	33
Not at all scientific	52	51	60	60	61	62	59	59	61	54	60	60	62	58
Don't know	4	3	1	1	2	1	2	3	3	3	1	4	2	1
35–44														
Very scientific	6	11	8	6	5	7	4	4	7	7	4	5	5	8
Sort of scientific	37	32	29	31	26	27	32	26	32	32	24	28	31	27
Not at all scientific	53	54	61	60	68	64	61	66	59	58	69	65	61	64
Don't know	5	3	2	2	1	3	3	4	1	3	2	2	3	1
45–54														
Very scientific	8	7	5	4	7	6	4	4	5	5	4	3	4	5
Sort of scientific	28	40	32	26	25	27	26	28	23	27	18	24	24	23
Not at all scientific	54	50	59	66	64	63	67	65	67	66	74	70	68	69
Don't know	10	3	5	4	4	4	3	4	5	3	3	3	4	3
55–64														
Very scientific	10	8	11	5	5	3	8	7	10	6	6	3	4	6
Sort of scientific	32	33	24	33	25	18	20	17	27	27	25	24	26	24
Not at all scientific	44	56	56	56	59	77	66	69	58	62	66	68	67	65
Don't know	15	3	9	5	10	2	6	7	6	5	3	5	4	5
65+														
Very scientific	5	12	11	6	5	7	10	11	11	6	6	5	5	2
Sort of scientific	26	24	26	27	29	27	22	31	20	31	26	21	21	24
Not at all scientific	50	52	55	60	53	60	55	47	57	54	64	68	65	67
Don't know	19	12	8	6	13	6	12	11	13	9	3	7	9	8
Trend factual knowledge of science scale (quartile)[a]														
Top														
Very scientific	NA	NA	NA	NA	NA	2	3	2	2	3	NA	2	3	1
Sort of scientific	NA	NA	NA	NA	NA	20	18	21	21	20	NA	14	18	18
Not at all scientific	NA	NA	NA	NA	NA	76	78	76	75	75	NA	82	78	79
Don't know	NA	NA	NA	NA	NA	2	1	1	1	2	NA	1	1	1
Second														
Very scientific	NA	NA	NA	NA	NA	5	6	6	6	13	NA	5	5	5
Sort of scientific	NA	NA	NA	NA	NA	30	28	25	27	31	NA	25	27	30
Not at all scientific	NA	NA	NA	NA	NA	63	64	66	65	54	NA	66	67	62
Don't know	NA	NA	NA	NA	NA	2	2	3	2	2	NA	4	2	3
Third														
Very scientific	NA	NA	NA	NA	NA	8	11	8	9	9	NA	7	6	11

Appendix table 7-19

Public assessment of astrology, by respondent characteristic: 1979–2010

(Percent)

Characteristic	1979 (*n* = 1,635)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 2,021)	2010 (*n* = 1,434)
Sort of scientific	NA	NA	NA	NA	NA	30	30	38	35	38	NA	33	37	33
Not at all scientific	NA	NA	NA	NA	NA	60	55	50	54	49	NA	55	55	53
Don't know	NA	NA	NA	NA	NA	2	4	3	2	4	NA	5	2	2
Bottom														
Very scientific	NA	NA	NA	NA	NA	10	8	11	13	10	NA	5	6	9
Sort of scientific	NA	NA	NA	NA	NA	34	34	31	31	38	NA	36	34	32
Not at all scientific	NA	NA	NA	NA	NA	50	45	44	38	42	NA	50	47	52
Don't know	NA	NA	NA	NA	NA	6	14	14	18	10	NA	8	13	6
Understanding of scientific inquiry[b]														
Understands scientific inquiry														
Very scientific	NA	NA	NA	NA	NA	NA	2	3	4	4	2	4	3	2
Sort of scientific	NA	NA	NA	NA	NA	NA	24	26	22	29	19	19	18	24
Not at all scientific	NA	NA	NA	NA	NA	NA	74	70	73	66	78	75	77	73
Don't know	NA	NA	NA	NA	NA	NA	1	1	2	1	1	2	2	1
Doesn't understand scientific inquiry														
Very scientific	NA	NA	NA	NA	NA	NA	9	9	9	12	8	5	6	11
Sort of scientific	NA	NA	NA	NA	NA	NA	29	31	32	33	31	31	33	32
Not at all scientific	NA	NA	NA	NA	NA	NA	55	53	53	49	58	58	56	54
Don't know	NA	NA	NA	NA	NA	NA	6	7	7	6	3	5	5	4

* = <0.5% responded; NA = not available, question not asked

[a]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.
[b]See notes to appendix table 7-13 for explanation of scientific inquiry. For 2001 it is not possible to conclude whether or not 41 survey respondents understood scientific inquiry because they were not asked all of the questions related to understanding scientific inquiry.

NOTES: Responses to *Would you say that astrology is very scientific, sort of scientific, or not at all scientific?* Table includes all years for which data collected. Percentages may not add to 100% because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1979–2001); University of Michigan, Survey of Consumer Attitudes (2004); and University of Chicago, National Opinion Research Center, General Social Survey (2006–10).

Science and Engineering Indicators 2012

Appendix table 7-20

Public assessment of benefits and harms of scientific research, by respondent characteristic: 2010

(Percent)

Characteristic	Benefits strongly outweigh harmful results	Benefits slightly outweigh harmful results	Benefits are about equal to harmful results	Harmful results slightly outweigh benefits	Harmful results strongly outweigh benefits	Don't know
All adults (*n* = 1,434)	46	23	14	7	2	8
Sex						
Male (*n* = 603)	49	22	14	8	2	6
Female (*n* = 831)	42	25	13	6	3	10
Formal education[a]						
<High school (*n* = 186)	21	28	19	12	3	16
High school graduate (*n* = 443)	33	27	18	8	3	10
Some college (*n* = 350)	50	20	12	8	3	7
Baccalaureate (*n* = 300)	68	20	7	2	1	2
Graduate/professional degree (*n* = 154)	66	21	7	1	2	3
Science/mathematics education[b]						
Low (*n* = 454)	36	24	18	10	3	10
Middle (*n* = 181)	55	23	10	4	3	5
High (*n* = 219)	66	17	10	2	1	4
Family income (quartile)[a]						
Top (*n* = 270)	67	17	7	2	*	6
Second (*n* = 361)	52	26	13	3	2	5
Third (*n* = 291)	40	27	14	10	3	6
Bottom (*n* = 368)	28	29	17	16	2	7
Age (years)[a]						
18–24 (*n* = 85)	36	29	14	6	2	13
25–34 (*n* = 279)	42	25	17	7	1	8
35–44 (*n* = 245)	46	23	14	10	4	4
45–54 (*n* = 272)	54	19	12	4	4	6
55–64 (*n* = 261)	51	23	11	7	1	7
≥65 (*n* = 284)	43	24	14	5	3	12
Trend factual knowledge of science scale (quartile)[c]						
Top (*n* = 378)	67	17	7	3	1	4
Second (*n* = 416)	52	26	11	5	2	5
Third (*n* = 355)	35	27	17	10	3	9
Bottom (*n* = 285)	22	24	21	12	4	16

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 956 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *People have frequently noted that scientific research has produced benefits and harmful results. Would you say that, on balance, the benefits of scientific research have outweighed the harmful results, or have the harmful results of scientific research been greater than its benefits?* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-21

Public assessment of whether science and technology result in more opportunities for next generation, by respondent characteristic: 2010

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 1,434)	35	56	6	1	2
Sex					
Male (*n* = 603)	41	51	6	1	1
Female (*n* = 831)	29	61	6	1	4
Formal education[a]					
<High school (*n* = 186)	26	58	9	3	5
High school graduate (*n* = 443)	33	58	6	1	2
Some college (*n* = 350)	36	58	4	1	1
Baccalaureate (*n* = 300)	36	57	6	*	1
Graduate/professional degree (*n* = 154)	46	44	6	1	3
Science/mathematics education[b]					
Low (*n* = 454)	30	60	6	1	2
Middle (*n* = 181)	38	56	2	1	4
High (*n* = 219)	46	49	4	*	1
Family income (quartile)[a]					
Top (*n* = 270)	40	53	5	*	1
Second (*n* = 361)	39	56	4	*	1
Third (*n* = 291)	33	57	7	2	1
Bottom (*n* = 368)	29	62	7	2	1
Age (years)[a]					
18–24 (*n* = 85)	44	53	1	2	0
25–34 (*n* = 279)	33	60	4	1	2
35–44 (*n* = 245)	34	57	6	1	2
45–54 (*n* = 272)	38	56	5	0	1
55–64 (*n* = 261)	34	55	9	*	2
≥65 (*n* = 284)	28	56	8	2	6
Trend factual knowledge of science scale (quartile)[c]					
Top (*n* = 378)	37	56	6	*	1
Second (*n* = 416)	39	54	5	1	1
Third (*n* = 355)	29	62	6	1	2
Bottom (*n* = 285)	32	54	7	1	7

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 956 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *Because of science and technology, there will be more opportunities for the next generation.* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-22

Public assessment of whether science makes life change too fast, by respondent characteristic: 2010

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 1,434)	9	42	40	7	2
Sex					
Male (*n* = 603)	9	41	39	11	1
Female (*n* = 831)	9	43	40	5	3
Formal education[a]					
<High school (*n* = 186)	10	61	20	2	7
High school graduate (*n* = 443)	7	49	36	5	2
Some college (*n* = 350)	13	33	45	7	2
Baccalaureate (*n* = 300)	6	30	53	11	*
Graduate/professional degree (*n* = 154)	6	37	39	17	1
Science/mathematics education[b]					
Low (*n* = 454)	12	49	32	5	2
Middle (*n* = 181)	6	41	41	9	4
High (*n* = 219)	10	27	50	13	1
Family income (quartile)[a]					
Top (*n* = 270)	6	35	46	12	1
Second (*n* = 361)	8	40	45	7	1
Third (*n* = 291)	8	46	38	7	1
Bottom (*n* = 368)	15	46	33	4	2
Age (years)[a]					
18–24 (*n* = 85)	11	48	37	2	2
25–34 (*n* = 279)	8	41	41	8	2
35–44 (*n* = 245)	10	40	43	5	2
45–54 (*n* = 272)	9	38	42	11	*
55–64 (*n* = 261)	7	43	39	10	2
≥65 (*n* = 284)	10	44	35	6	6
Trend factual knowledge of science scale (quartile)[c]					
Top (*n* = 378)	7	30	48	15	*
Second (*n* = 416)	7	40	45	6	1
Third (*n* = 355)	13	47	33	5	2
Bottom (*n* = 285)	9	53	28	3	7

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 956 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *Science makes our way of life change too fast.* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-23

Attitudes toward science and technology, by region/country: Most recent year

(Percent)

Statement	United States (2004 or 2010)[a]						Japan (2001)						South Korea (2008)						Russia (2003)			
	Total agree	Strongly agree	Agree	Disagree	Strongly disagree	Don't know	Total agree	Strongly agree	Agree	Disagree	Strongly disagree	Don't know	Total agree	Strongly agree	Agree	Disagree	Strongly disagree	Don't know	Total agree	Agree	Disagree	Don't know
Promise of science																						
Science and technology are making our lives healthier, easier, and more comfortable.	90	27	63	7	2	1	73	6	67	13	1	13	93	26	68	5	1	1	NA	NA	NA	NA
With the application of science and new technology, work will become more interesting.	76	13	63	19	2	2	54	4	50	25	2	20	85	24	61	10	2	2	NA	NA	NA	NA
Because of science and technology, there will be more opportunities for the next generation.	91	35	56	6	1	2	66	6	60	16	1	18	84	31	53	12	2	2	NA	NA	NA	NA
Reservations about science																						
We depend too much on science and not enough on faith.	55	17	39	32	10	2	NA	NA	NA	NA	NA	NA	54	9	44	36	6	4	NA	NA	NA	NA
It is not important for me to know about science in my daily life.	14	2	13	55	30	1	25	2	23	57	11	8	30	5	25	49	19	3	31	31	56	13
Science makes our way of life change too fast.	51	9	42	40	7	2	62	8	54	24	1	13	73	14	59	22	3	2	30	30	48	22

Appendix table 7-23

Attitudes toward science and technology, by region/country: Most recent year

(Percent)

	China (2001 or 2007)[b,c]					India (2004)				Malaysia (2008)[d]				EU (2010)				
Statement	Total agree	Agree	Neither agree nor oppose	Oppose	Don't know	Total agree	Agree	Disagree	Don't know	Total agree	Agree	Disagree	Not sure	Total agree	Agree	Neither agree nor disagree	Disagree	Don't know
Promise of science																		
Science and technology are making our lives healthier, easier, and more comfortable.	86	86	7	1	6	77	77	5	19	84	84	NA	NA	66	66	20	12	2
With the application of science and new technology, work will become more interesting.	70	70	15	2	13	61	61	10	30	71	71	NA	NA	61	61	21	14	4
Because of science and technology, there will be more opportunities for the next generation.	82	82	10	1	7	54	54	12	35	NA	NA	NA	NA	75	75	14	8	3
Reservations about science																		
We depend too much on science and not enough on faith.	16	16	33	28	24	NA	NA	NA	NA	39	39	33	27	38	38	24	34	4
It is not important for me to know about science in my daily life.	17	NA	NA	74	9	NA	NA	NA	NA	NA	NA	69	NA	33	33	18	48	1
Science makes our way of life change too fast.	73	NA	NA	16	11	75	75	7	18	66	66	NA	NA	58	58	18	22	2

Appendix table 7-23

Attitudes toward science and technology, by region/country: Most recent year

(Percent)

	United States (2010)							Japan (2001)							South Korea (2006)						
Statement	Total benefit	B>>H	B>H	B=H	H>B	H>>B	Don't know	Total benefit	B>>H	B>H	B=H	H>B	H>>B	Don't know	Total benefit	B>>H	B>H	B=H	H>B	H>>B	Don't know
Benefit (B) versus harm (H)																					
Have the benefits of scientific research outweighed the harmful results?	69	46	23	14	7	2	8	40	13	27	28	15	6	11	71	33	39	22	2	0	4

	Russia (2003)					China (2007)[b]					Malaysia (2008)				EU (2010)				
Statement	Total benefit	B>H	B=H	H>B	Don't know	Total benefit	B>H	B=H	H>B	Unclear	Total benefit	B>H	H>B	Equal/ not sure	Total benefit	B>H	B=H	H>B	Don't know
Benefit (B) versus harm (H)																			
Have the benefits of scientific research outweighed the harmful results?	59	59	30	5	6	62	62	17	7	14	74	74	8	18	46	46	29	20	5

NA = not available, question not asked or different response categories offered; S&T = science and technology
EU = European Union
B>>H = benefits strongly outweigh harmful results; B>H = benefits slightly outweigh harmful results; B=H = benefits about equal harmful results; H>B = harmful results slightly outweigh benefits; H>>B = harmful results strongly outweigh benefits

[a]U.S. responses to 2004 survey include "Science and technology are making our lives healthier..."; "With the application of science and new technology..."; "We depend too much on science..."; and "It is not important for me to know about science..." Responses to other items are from 2010 survey.
[b]China's responses to 2007 survey include "Promise of science" questions and "We depend too much on science…" China's responses to 2001 survey include "It is not important for me to know about science…" and "Science makes our way of life change…"
[c]Chinese respondents to 2001 survey were given different categories (Agree, Basically agree, Don't agree, Don't know), with no neutral category.
[d]Malaysian question corresponding to "Science and technology are making our lives healthier, easier, and more comfortable" stated as "Science and technology improves the quality of our lives." Question corresponding to "With the application of science and new technology, work will become more interesting" stated as "Our daily work will be more efficient with the use of science and technology." Question corresponding to "It is not important for me to know about science in my daily life" stated in a positive form as "We need to have knowledge about science in order to manage our daily lives"; Malaysian responses of agree and disagree reversed to make them correspond to negative form of statement asked by other countries.

NOTES: "Benefit versus harm" data for United States, Japan, South Korea, Russia, and EU are responses to questions or statements that included words "benefit" and "harm." For Russia, B>H is aggregate of Russian response categories "undoubtedly more benefits" and "probably more benefits"; H>B is aggregate of "undoubtedly more harms" and "probably more harms." EU survey provided statement, "The benefits of science are greater than any harmful effects it may have"; B>H is aggregate of EU response categories "totally agree" and "tend to agree"; H>B is aggregate of "tend to disagree" and "totally disagree." Chinese survey asked respondents to indicate whether S&T brings about more "advantages" or more "disadvantages," whether advantages and disadvantages of S&T are about equal, or whether respondent was "unclear" about it. Malaysian survey asked respondents to indicate whether they agreed with, disagreed with, or weren't sure about statement, "Scientific research has more positive effects than negative effects." Percentages may not add to 100% because of rounding.

SOURCES: United States—University of Michigan, Survey of Consumer Attitudes (2004) and University of Chicago, National Opinion Research Center, General Social Survey (2010); Japan—Ministry of Education, Culture, Sports, Science and Technology, National Institute of Science and Technology Policy, *The 2001 Survey of Public Attitudes Toward and Understanding of Science and Technology in Japan* (2002); Korea—Korea Foundation for the Advancement of Science and Creativity (formerly Korea Science Foundation), *Report: Survey of Public Attitudes Toward, and Understanding of Science and Technology* (2006), Korea Gallup; *National Understanding of Science and Technology: Survey Report Results* (2009); Russia—Gokhberg L and Shuvalova O, *Russian Public Opinion of the Knowledge Economy: Science, Innovation, Information Technology and Education as Drivers of Economic Growth and Quality of Life*, British Council, Russia (2004); China—Chinese Ministry of Science and Technology, *China Science and Technology Indicators 2002* (2002); India—Shukla R, *India Science Report: Science Education, Human Resources and Public Attitude towards Science and Technology*, National Council of Applied Economic Research (2005); Malaysia—Malaysian Science and Technology Information Centre, *Public Awareness of Science and Technology: Malaysia 2008* (2010); and EU—European Commission, Special Eurobarometer 340/Wave 73.1: *Science and Technology Report* (2010).

Science and Engineering Indicators 2012

Appendix table 7-24

Public opinion on whether federal government should fund basic scientific research: 1985–2010

(Percent)

Opinion	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 2,021)	2010 (*n* = 1,434)
Strongly agree	9	16	18	14	17	22	21	19	29	32	24	23
Agree	70	65	63	63	61	57	61	62	53	55	60	59
Disagree	16	14	15	18	17	15	13	14	15	8	11	12
Strongly disagree	*	1	1	2	2	3	2	1	2	1	1	2
Don't know	5	4	4	3	3	3	3	4	1	3	4	4

* = <0.5% responded

NOTES: Responses to *Even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary and should be supported by the federal government.* Table includes all years for which data collected. Percentages may not add to 100% because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1985–2001); University of Michigan, Survey of Consumer Attitudes (2004); and University of Chicago, National Opinion Research Center, General Social Survey (2006–10).

Science and Engineering Indicators 2012

Appendix table 7-25

Public opinion on whether federal government should fund basic research, by respondent characteristic: 2010

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 1,434)	23	59	12	2	4
Sex					
Male (*n* = 603)	27	59	10	2	2
Female (*n* = 831)	20	59	13	1	7
Formal education[a]					
<High school (*n* = 186)	10	64	16	2	8
High school graduate (*n* = 443)	20	58	15	1	6
Some college (*n* = 350)	23	62	10	2	3
Baccalaureate (*n* = 300)	28	59	9	2	2
Graduate/professional degree (*n* = 154)	42	47	7	1	3
Science/mathematics education[b]					
Low (*n* = 454)	20	61	14	1	4
Middle (*n* = 181)	23	60	9	2	7
High (*n* = 219)	34	56	8	2	1
Family income (quartile)[a]					
Top (*n* = 270)	29	61	8	1	2
Second (*n* = 361)	24	62	12	2	1
Third (*n* = 291)	22	62	12	2	1
Bottom (*n* = 368)	19	58	17	2	4
Age (years)[a]					
18–24 (*n* = 85)	17	65	6	1	12
25–34 (*n* = 279)	26	56	13	1	5
35–44 (*n* = 245)	24	61	11	3	2
45–54 (*n* = 272)	27	55	14	2	1
55–64 (*n* = 261)	23	61	12	1	3
≥65 (*n* = 284)	21	58	13	1	7
Trend factual knowledge of science scale (quartile)[c]					
Top (*n* = 378)	31	55	11	2	1
Second (*n* = 416)	24	62	8	2	4
Third (*n* = 355)	22	58	15	1	5
Bottom (*n* = 285)	15	59	15	1	9

* = <0.5% responded

[a]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 956 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *Even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary and should be supported by the federal government.* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-26

Public assessment of federal government spending, by policy area: 1981–2010

(Percent)

Policy area	1981 (*n* = 1,611)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)[a]	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2002 (*n* = 1,358)[b]	2004 (*n* = 1,401)[c]	2006 (*n* = 2,992)[d]	2008 (*n* = 3,559)[e]	2010 (*n* = 4,901)[f]
Education														
Too little	62	71	73	76	77	81	76	75	76	73	73	73	74	74
About right	30	23	22	19	17	14	16	18	17	20	21	20	21	20
Too much	6	5	3	4	4	4	6	6	5	6	5	5	5	5
Don't know	2	2	2	1	2	1	2	1	1	1	1	1	1	1
Developing alternative energy sources														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4
Assistance for the poor														
Too little	45	NA	54	55	57	56	43	49	53	66	69	68	68	61
About right	29	NA	29	30	25	26	30	30	29	24	23	22	23	27
Too much	24	NA	13	12	15	17	23	19	15	8	6	8	7	10
Don't know	2	NA	3	3	3	2	4	2	2	2	1	2	2	2
Health														
Too little	61	NA	68	67	75	79	68	71	70	73	77	72	75	58
About right	31	NA	26	28	20	15	23	22	24	21	17	19	17	22
Too much	6	NA	3	2	3	4	7	6	4	4	4	7	7	17
Don't know	2	NA	2	2	1	1	2	2	2	1	1	2	2	2
Environment														
Too little	52	54	69	76	76	72	65	65	63	60	63	67	66	57
About right	32	31	21	18	17	20	23	25	28	29	27	23	23	30
Too much	13	11	6	4	5	7	8	7	6	8	7	7	8	10
Don't know	3	4	3	2	2	2	4	3	3	2	3	3	3	2
Law enforcement														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	56	56	57	54	53
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	36	33	35	36
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	5	8	8	9
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3	2	2	2
Social Security														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	59	63	61	58	53
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	33	27	30	32	35
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	5	5	5	8
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	4	4	4	4
Drug rehabilitation														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	56	53	55	51	49
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	31	34	31	34	36
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	9	9	10	10
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	4	5	5	5
Assistance for childcare														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	56	54	51	49	46
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	31	34	35	39	41
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	6	7	6	7

Appendix table 7-26

Public assessment of federal government spending, by policy area: 1981–2010

(Percent)

Policy area	1981 (*n* = 1,611)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)[a]	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2002 (*n* = 1,358)[b]	2004 (*n* = 1,401)[c]	2006 (*n* = 2,992)[d]	2008 (*n* = 3,559)[e]	2010 (*n* = 4,901)[f]
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6	7	6	6
Highways and bridges														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	29	35	43	42
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	55	52	45	44
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	12	13	11	9	11
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3	3	3	3
Mass transportation														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	35	39	45	40
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	50	47	42	46
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	10	8	8	9
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6	6	5	4
Supporting scientific research														
Too little	31	NA	29	34	30	34	34	37	36	34	38	41	36	36
About right	47	NA	46	48	47	43	46	43	44	46	45	41	46	47
Too much	18	NA	18	15	16	19	14	14	14	13	12	11	11	12
Don't know	4	NA	7	4	6	4	7	6	7	6	5	7	7	5
Parks and recreation														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	31	33	30	32
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	58	60	59	63	60
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	7	6	5	6
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	2	2	2	2
Assistance to big cities														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	41	40	32	31	28
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	37	38	36	38	38
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	13	12	22	20	24
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	9	10	10	11	10
Assistance to blacks														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	32	29	29	26
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	45	46	42	44	46
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	13	18	15	16
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	9	11	11	11
National defense														
Too little	34	19	11	11	15	15	23	31	29	33	33	26	23	25
About right	38	31	36	35	42	42	42	40	41	44	38	33	34	39
Too much	26	47	50	52	40	40	32	25	25	20	26	39	40	33
Don't know	2	3	3	3	3	2	4	4	5	3	3	3	3	3
Welfare														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	20	23	24	23	22
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	37	34	36	37	35
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	40	40	37	36	41
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	2	3	4	3
Space exploration														
Too little	18	17	9	17	9	12	14	15	11	12	14	14	14	16
About right	37	42	43	38	37	36	38	36	38	47	43	45	45	44

Appendix table 7-26

Public assessment of federal government spending, by policy area: 1981–2010

(Percent)

Policy area	1981 (*n* = 1,611)	1983 (*n* = 1,631)	1985 (*n* = 2,003)	1988 (*n* = 2,041)[a]	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2002 (*n* = 1,358)[b]	2004 (*n* = 1,401)[c]	2006 (*n* = 2,992)[d]	2008 (*n* = 3,559)[e]	2010 (*n* = 4,901)[f]
Too much	42	39	45	43	52	50	45	46	48	35	37	35	36	35
Don't know	2	2	2	2	2	1	3	3	3	6	6	6	6	5
Assistance to other countries														
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	10	11	11	8
About right	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	26	24	26	28
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	61	62	59	60
Don't know	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	4	4	4	3

NA = not available, question not asked

[a]In 1988 "national defense" asked of 1,021 survey respondents.
[b]In 2002 "assistance for the poor" asked of 1,407 survey respondents; "environment," "Social Security," "childcare," "highways and bridges," "mass transportation," "parks and recreation," and "national defense" asked of 2,765 respondents.
[c]In 2004 "assistance for the poor" asked of 1,411 survey respondents; "environment," "Social Security," "childcare," "highways and bridges," "mass transportation," "parks and recreation," and "national defense" asked of 2,812 respondents.
[d]In 2006 "assistance for the poor" asked of 1,508 survey respondents; "welfare" asked of 1,484 respondents.
[e]In 2008 "assistance for the poor" asked of 1,781 survey respondents; "welfare" asked of 1,778 respondents; "environment," "health," "law enforcement," "drug rehabilitation," "assistance to big cities," and "space exploration" asked of 3,558 respondents.
[f]In 2010 "assistance for the poor" asked of 2,480 survey respondents; "welfare" asked of 2,421 respondents; "developing alternative energy sources" and "highways and bridges" asked of 2,044 respondents; "environment," "health," "law enforcement," and "national defense" asked of 4,900 respondents; "assistance to big cities" asked of 4,899 respondents; "assistance to blacks" asked of 4,892 respondents.

NOTES: Responses to *We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one, I'd like you to tell me if you think that the Government is spending too little money on it, about the right amount, or too much.* Table includes all years for which data collected. Beginning in 2002, two versions of question administered with different wording for some policy areas. Wording also varies for some policy areas in 1981–2001. Table combines data for policy areas with similar wording or meaning (see below). Percentages may not add to 100% because of rounding.

Policy areas with different wording in 1981–2001 or alternate wording on second version of questionnaire in 2002–10:

- *Education*: "improving education" in 1981–2001; alternate wording "improving the nation's education system" in 2002–10.
- *Assistance for the poor*: "helping low-income persons" in 1981–2001; no alternate wording in 2002–10.
- *Environment*: "reducing pollution" in 1981–2001; alternate wording "improving and protecting the environment" in 2002–10.
- *Health*: "improving health care" in 1981–2001; alternate wording "improving and protecting the nation's health" in 2002–10.
- *Law enforcement*: alternate wording "halting the rising crime rate" in 2002–10.
- *Drug rehabilitation*: alternate wording "dealing with drug addiction" in 2002–10.
- *Assistance to big cities*: alternate wording "solving the problems of the big cities" in 2002–10.
- *Assistance to blacks*: alternate wording "improving the conditions of blacks" in 2002–10.
- *National defense*: "improving national defense" in 1981–2001; alternate wording "military, armaments and defense" in 2002–10.
- *Space exploration*: alternate wording "space exploration program" in 2002–10.
- *Assistance to other countries*: alternate wording "foreign aid" in 2002–10.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1981–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2002–10).

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Appendix table 7-27

Public confidence in institutional leaders: 1973–2010

(Percent)

Year (number)	Military	Medicine	Scientific community	U.S. Supreme Court	Education	Organized religion	Executive branch of federal government	Major companies	Organized labor	Television	Congress	Banks and financial institutions	Press	Mean[a]
2010 (*n* = 3,278)	52	41	40	30	26	18	16	12	11	11	10	10	9	23
2008 (*n* = 2,390)	48	40	38	29	28	20	10	16	11	9	10	20	8	22
2006 (*n* = 1,989)	47	40	41	33	28	24	16	18	12	9	12	30	10	24
2004 (*n* = 876)	58	38	42	31	28	23	22	18	13	10	15	29	9	26
2002 (*n* = 912)	56	37	37	36	26	19	27	17	12	9	14	22	10	25
2000 (*n* = 1,896)	40	44	41	32	27	28	13	28	13	10	13	29	10	25
1998 (*n* = 1,911)	36	45	40	31	27	27	13	26	11	10	10	26	9	24
1996 (*n* = 1,925)	39	45	40	28	23	25	10	24	11	10	7	24	11	23
1994 (*n* = 2,011)	37	42	39	31	25	25	11	26	11	10	8	18	10	23
1993 (*n* = 1,057)	41	40	37	30	22	22	11	21	8	12	6	14	11	22
1991 (*n* = 1,017)	61	48	40	37	30	25	27	20	11	15	18	12	16	29
1990 (*n* = 899)	33	45	38	34	27	23	24	26	11	14	16	17	14	25
1989 (*n* = 1,035)	33	47	41	35	30	22	20	25	9	14	17	18	17	26
1988 (*n* = 997)	35	52	39	35	30	21	16	25	11	14	16	27	19	26
1987 (*n* = 1,819)	34	51	41	35	36	30	17	28	12	12	16	27	19	28
1986 (*n* = 1,470)	31	47	39	30	28	25	21	25	9	15	16	21	19	25
1984 (*n* = 989)	36	50	44	33	28	30	19	30	8	13	13	30	17	27
1983 (*n* = 1,599)	30	52	42	27	28	28	13	24	8	12	10	23	13	24
1982 (*n* = 1,860)	29	45	35	30	35	33	17	21	13	15	13	26	18	25
1980 (*n* = 1,468)	28	53	41	24	30	35	12	27	15	15	9	32	22	26
1978 (*n* = 1,532)	30	46	36	28	28	30	12	21	11	14	13	32	20	24
1977 (*n* = 1,530)	36	53	41	36	40	40	27	27	15	18	19	42	25	31
1976 (*n* = 1,499)	40	54	42	34	37	30	13	21	11	18	13	39	28	29
1975 (*n* = 1,490)	35	51	37	30	31	24	13	19	10	18	13	31	24	25
1974 (*n* = 1,484)	39	61	45	33	49	44	14	31	19	23	17	NA	25	33
1973 (*n* = 1,504)	32	54	37	31	37	34	29	29	15	18	23	NA	23	30

[a]Excludes banks and financial institutions.

NOTES: Data represent respondents expressing "great deal of confidence" when asked: *As far as the people running these institutions are concerned, would you say that you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?* Sample size not exact for all institutions. Table includes all years for which data collected.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (1973–2010).

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Appendix table 7-28

Public preferences about various groups' influence on decisions about public issues: 2006 and 2010

(Percent and mean score)

	2006						2010					
	Preferred degree of influence						Preferred degree of influence					
Public issue/group	A great deal	A fair amount	A little	None at all	Don't know	Mean score	A great deal	A fair amount	A little	None at all	Don't know	Mean score
Global warming: deciding what to do about global warming												
Environmental scientists	47	38	7	3	4	3.4	48	37	9	3	3	3.3
Elected officials	17	33	33	13	4	2.6	12	35	34	17	3	2.4
Business leaders	10	22	38	25	5	2.2	8	22	40	27	3	2.1
Genetically modified foods: deciding whether to restrict the sale of GM foods												
Medical researchers	41	40	10	3	5	3.3	NA	NA	NA	NA	NA	NA
Elected officials	7	30	37	21	5	2.2	NA	NA	NA	NA	NA	NA
Business leaders	3	16	41	35	5	1.9	NA	NA	NA	NA	NA	NA
Stem cell research: deciding about government funding for stem cell research												
Medical researchers	39	41	11	4	5	3.2	41	39	11	5	4	3.2
Elected officials	11	35	32	15	6	2.4	9	32	34	21	4	2.3
Religious leaders	8	21	36	29	6	2.1	7	18	36	35	4	2.0
Nuclear power: deciding whether to expand the use of nuclear power												
Nuclear engineers	NA	NA	NA	NA	NA	NA	38	41	11	4	6	3.2
Elected officials	NA	NA	NA	NA	NA	NA	10	38	35	11	6	2.5
Business leaders	NA	NA	NA	NA	NA	NA	5	27	42	21	5	2.2
Federal income taxes: deciding on whether to reduce federal income taxes												
Economists	21	51	18	4	6	2.9	18	55	18	4	6	2.9
Elected officials	21	40	24	11	4	2.7	23	39	24	9	5	2.8
Business leaders	9	37	36	13	4	2.5	11	41	33	10	5	2.6

NA = not available, question not asked

GM = genetically modified

NOTES: Responses to *How much influence should each of the following groups have in deciding: what to do about global warming policy; about government funding for stem cell research; whether to reduce federal income taxes; whether to expand the use of nuclear power; whether to restrict sale of genetically modified foods?* Mean preferred influence score based on 4-point scale, where 4 = a great deal of influence, 3 = a fair amount, 2 = a little influence, 1 = none at all. In 2006, questions on global warming and stem cell research asked of 928 survey respondents; questions on genetically modified foods and federal income taxes asked of 936 respondents. In 2010, questions on global warming and stem cell research asked of 961 survey respondents; questions on nuclear power and federal income taxes asked of 971 respondents. Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2006, 2010).

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Appendix table 7-29

Public perceptions of various groups' understanding of public issues: 2006 and 2010

(Percent and mean score)

	2006							2010						
	Degree of understanding (on scale of 1 to 5)							Degree of understanding (on scale of 1 to 5)						
Public issue/group	Very well 5	4	3	2	Not at all 1	Don't know	Mean score	Very well 5	4	3	2	Not at all 1	Don't know	Mean score
Nuclear power: understand the likely effects of using nuclear power to generate electricity														
Nuclear engineers	NA	NA	NA	NA	NA	NA	NA	58	18	11	4	3	5	4.3
Elected officials	NA	NA	NA	NA	NA	NA	NA	5	11	32	33	15	5	2.6
Business leaders	NA	NA	NA	NA	NA	NA	NA	5	11	32	30	17	5	2.5
Stem cell research: understand stem cell research														
Medical researchers	50	24	15	3	3	6	4.2	49	26	14	3	2	5	4.2
Elected officials	3	7	35	26	22	6	2.4	4	7	34	28	24	5	2.4
Religious leaders	6	8	26	29	25	6	2.4	5	6	27	28	29	5	2.3
Global warming: understand the causes of global warming														
Environmental scientists	44	22	22	4	4	4	4.0	40	20	21	10	6	4	3.8
Elected officials	5	7	31	29	24	4	2.4	5	10	28	26	26	4	2.4
Business leaders	4	8	30	32	22	4	2.4	4	9	29	28	26	4	2.3
Genetically modified foods: understand the risks posed by genetically modified foods														
Medical researchers	32	32	18	8	5	6	3.8	NA	NA	NA	NA	NA	NA	NA
Elected officials	3	6	24	33	29	5	2.2	NA	NA	NA	NA	NA	NA	NA
Business leaders	4	7	24	31	28	6	2.2	NA	NA	NA	NA	NA	NA	NA
Federal income taxes: understand the likely effects of reducing federal income taxes														
Economists	33	19	29	7	7	5	3.7	27	21	31	8	6	7	3.6
Elected officials	10	18	34	19	15	5	2.9	10	18	32	18	17	6	2.8
Business leaders	15	29	33	12	6	4	3.4	16	24	31	14	9	7	3.3

NA = not available, question not asked

NOTES: Responses to *How well do the following groups understand: causes of global warming; stem cell research; effects of reducing federal income taxes; likely effects of using nuclear power to generate electricity; risks posed by genetically modified foods?* Mean understanding score based on 5-point scale, where 5 = understands very well and 1 = understands not at all. In 2006, questions on stem cell research and global warming asked of 928 survey respondents; questions on genetically modified foods and federal income taxes asked of 936 respondents. In 2010, questions on stem cell research and global warming asked of 961 survey respondents; questions on nuclear power and federal income taxes asked of 971 respondents. Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2006, 2010).

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Appendix table 7-30

Public perceptions of various groups' impartiality in making policy recommendations about public issues: 2006 and 2010

(Percent and mean score)

	2006							2010						
	Extent to which group would support (on scale of 1 to 5)							Extent to which group would support (on scale of 1 to 5)						
Public issue/group	What is best for country 5	4	3	2	Own narrow interests 1	Don't know	Mean score	What is best for country 5	4	3	2	Own narrow interests 1	Don't know	Mean score
Global warming														
Environmental scientists	40	27	17	6	6	5	3.9	42	22	18	7	7	4	3.9
Elected officials	9	10	25	24	28	5	2.5	11	10	25	22	28	4	2.5
Business leaders	6	4	22	27	36	5	2.1	6	4	24	27	34	4	2.2
Genetically modified foods														
Medical researchers	34	29	19	7	6	5	3.8	NA	NA	NA	NA	NA	NA	NA
Elected officials	6	10	32	25	21	5	2.5	NA	NA	NA	NA	NA	NA	NA
Business leaders	2	4	25	32	32	5	2.1	NA	NA	NA	NA	NA	NA	NA
Stem cell research														
Medical researchers	32	27	21	9	7	4	3.7	30	28	21	9	7	5	3.7
Elected officials	8	7	32	23	25	5	2.5	6	10	25	26	29	4	2.4
Religious leaders	13	12	22	20	26	6	2.6	9	10	24	24	27	6	2.5
Nuclear power														
Nuclear engineers	NA	NA	NA	NA	NA	NA	NA	27	28	22	9	8	6	3.6
Elected officials	NA	NA	NA	NA	NA	NA	NA	8	16	32	22	17	6	2.7
Business leaders	NA	NA	NA	NA	NA	NA	NA	6	9	28	28	23	6	2.4
Federal income taxes														
Economists	22	30	25	9	8	6	3.5	19	27	28	11	9	6	3.4
Elected officials	8	14	26	24	24	4	2.6	10	11	27	22	24	6	2.6
Business leaders	3	8	24	30	30	4	2.2	5	11	23	29	27	6	2.4

NA = not available, question not asked

NOTES: Responses to *When making policy decisions about [public issue], to what extent do you think [group] would support doing what is best for the country as a whole or what serves their own narrow interests?* Mean impartiality score based on 5-point scale, where 5 = best for the country and 1 = own narrow interests. In 2006, questions on global warming and stem cell research asked of 928 survey respondents; questions on genetically modified foods and federal income taxes asked of 936 respondents. In 2010, questions on global warming and stem cell research asked of 961 survey respondents; questions on nuclear power and federal income taxes asked of 971 respondents. Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2006, 2010).

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Appendix table 7-31

Public perceptions of scientific consensus on public issues: 2006 and 2010

(Percent and mean score)

	2006							2010						
	Degree of consensus (on scale of 1 to 5)							Degree of consensus (on scale of 1 to 5)						
Group/public issue	Near complete agreement 5	4	3	2	No agreement at all 1	Don't know	Mean score	Near complete agreement 5	4	3	2	No agreement at all 1	Don't know	Mean score
Medical researchers on importance of stem cells for research	19	33	29	4	5	9	3.6	28	30	26	6	4	7	3.8
Nuclear engineers on risks and benefits of nuclear power to generate electricity	NA	NA	NA	NA	NA	NA	NA	19	34	28	6	3	11	3.7
Environmental scientists on existence and causes of global warming	14	28	35	9	6	9	3.4	15	23	35	11	10	6	3.2
Medical researchers on risks and benefits of genetically modified foods	9	19	41	11	7	13	3.1	NA	NA	NA	NA	NA	NA	NA
Economists on effects of reducing federal income taxes	5	15	40	14	13	13	2.8	5	16	38	14	15	12	2.8

NA = not available, question not asked

NOTES: Responses to *To what extent do [people in group] agree on [public issue]?* Mean consensus score based on 5-point scale, where 5 = near complete agreement and 1 = no agreement at all. In 2006, questions on stem cell research and global warming asked of 928 survey respondents; questions on genetically modified foods and federal income taxes asked of 936 respondents. In 2010, questions on stem cell research and global warming asked of 961 survey respondents; questions on nuclear power and federal income taxes asked of 971 respondents. Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2006, 2010).

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Appendix table 7-32

Awareness, knowledge, and attitudes about stem cell research in the United States, Europe, Japan, and Israel: 2008

(Percent)

Country	*Recently information has been appearing about a type of cell called "stem cells." Have you heard or read anything about this kind of cell?* (Yes)	*Stem cells can be transformed into different types of cells that can then be grown into specialized tissues like muscles or nerves.* (True)[a]	*Nowadays, stem cells are usually extracted from human embryos without destroying them.* (True)[a]	*On a scale from 0 to 10, where 0 means you totally disagree and 10 that you totally agree, I would like you to tell me how much you agree or disagree with the statement "Research with human embryos that are a few days old to obtain stem cells is immoral."* (Mean score)
Sweden	86	71	20	4.8
Denmark	86	76	16	4.3
United States	76	65	30	5.5
United Kingdom	75	65	17	4.6
Netherlands	75	63	19	4.8
Italy	66	54	14	4.7
France	65	53	11	5.0
Ireland	65	49	15	5.1
Spain	60	42	11	4.5
Czech Republic	59	45	16	4.9
Germany	58	50	8	5.8
Poland	44	30	10	5.9
Austria	42	32	6	6.2
Israel	39	26	9	5.8
Japan	33	28	4	5.8

[a]Percentages based on respondents who had heard or read about stem cells.

SOURCE: BBVA Foundation, BBVA Foundation International Study on Attitudes To Stem Cell Research and Hybrid Embryos (2008), fieldwork April–June 2007 and January–February 2008.

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Appendix table 7-33
Familiarity with nanotechnology, by respondent characteristic: 2010
(Percent)

Characteristic	How much respondents have heard about nanotechnology				Don't know
	A lot	Some	Just a little	Nothing at all	
All adults (*n* = 963)	4	20	30	44	2
Sex					
Male (*n* = 397)	6	27	29	36	2
Female (*n* = 566)	2	15	30	51	3
Formal education					
<High school (*n* = 119)	*	7	17	74	1
High school graduate (*n* = 296)	1	14	30	52	3
Some college (*n* = 243)	5	23	31	40	2
Baccalaureate (*n* = 205)	4	31	37	26	1
Graduate/professional degree (*n* = 100)	14	29	28	23	5
Science/mathematics education[a]					
Low (*n* = 236)	1	15	24	59	2
Middle (*n* = 103)	3	27	39	28	3
High (*n* = 103)	7	40	23	30	0
Family income (quartile)[b]					
Top (*n* = 185)	7	22	37	30	5
Second (*n* = 230)	3	26	33	36	1
Third (*n* = 191)	4	23	26	46	1
Bottom (*n* = 250)	3	15	27	54	1
Age (years)[b]					
18–24 (*n* = 53)	4	19	36	42	0
25–34 (*n* = 179)	2	19	34	44	1
35–44 (*n* = 165)	4	20	32	43	1
45–54 (*n* = 183)	6	21	30	40	2
55–64 (*n* = 173)	5	25	28	38	3
≥65 (*n* = 204)	3	18	21	54	5
Trend factual knowledge of science scale (quartile)[c]					
Top (*n* = 248)	9	43	34	13	1
Second (*n* = 290)	4	20	35	40	1
Third (*n* = 223)	2	8	35	53	2
Bottom (*n* = 202)	0	7	10	78	5

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 485 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.
[b]Categories do not add to total *n* because "don't know" and "refused" responses not shown.
[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *How much have you heard about nanotechnology? Have you heard a lot, some, just a little, or nothing at all?* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

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Appendix table 7-34

Public assessment of benefits and harms of nanotechnology, by respondent characteristic: 2010

(Percent)

Characteristic	Benefits will outweigh harmful results	Benefits will be about equal to harmful results	Harmful results will outweigh benefits	Don't know
All adults (*n* = 963)	37	9	11	43
Sex				
Male (*n* = 397)	45	10	9	36
Female (*n* = 566)	30	9	11	50
Formal education				
<High school (*n* = 119)	22	13	9	56
High school graduate (*n* = 296)	26	14	19	41
Some college (*n* = 243)	41	8	7	44
Baccalaureate (*n* = 205)	49	4	4	43
Graduate/professional degree (*n* = 100)	53	6	7	34
Science/mathematics education[a]				
Low (*n* = 236)	30	14	11	46
Middle (*n* = 103)	43	8	7	42
High (*n* = 103)	55	5	2	38
Family income (quartile)[b]				
Top (*n* = 185)	51	5	6	39
Second (*n* = 230)	38	11	9	43
Third (*n* = 191)	39	9	11	42
Bottom (*n* = 250)	33	9	17	41
Age (years)[b]				
18–24 (*n* = 53)	32	18	18	32
25–34 (*n* = 179)	41	14	7	38
35–44 (*n* = 165)	40	7	15	38
45–54 (*n* = 183)	43	8	6	43
55–64 (*n* = 173)	35	6	13	46
≥65 (*n* = 204)	28	7	7	58
Trend factual knowledge of science scale (quartile)[c]				
Top (*n* = 248)	54	9	5	31
Second (*n* = 290)	42	10	10	38
Third (*n* = 223)	30	11	8	51
Bottom (*n* = 202)	14	8	20	58
How much have you heard about nanotechnology?				
A lot (*n* = 47)	82	6	7	5
Some (*n* = 197)	60	7	6	27
Just a little (*n* = 284)	38	8	8	46
Nothing at all (*n* = 412)	22	12	15	50
Don't know (*n* = 23)	0	4	0	96

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Questions asked of 485 survey respondents; categories do not add to total because "don't know" and "refused" responses not shown.

[b]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *Nanotechnology works at the molecular level atom by atom to build new structures, materials, and machines. People have frequently noted that new technologies have produced both benefits and harmful results. Do you think the benefits of nanotechnology will outweigh the harmful results or the harmful results will outweigh the benefits?* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2010).

Science and Engineering Indicators 2012

Appendix table 7-35

Public attitudes toward conducting human health research that may inflict pain or injury to animals: 1988–2008

(Percent)

Opinion	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2008 (*n* = 2,021)
Strongly agree	5	5	9	7	7	6	6	6
Agree	48	45	44	43	39	42	38	33
Disagree	28	31	28	33	34	34	34	35
Strongly disagree	14	14	14	13	15	14	17	21
Don't know	5	6	4	5	5	4	5	4

NOTES: Responses to *Scientists should be allowed to do research that causes pain and injury to animals like dogs and chimpanzees if it produces new information about human health problems.* Table includes all years for which data collected. Percentages may not add to 100% because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1988–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2012

Appendix table 7-36

Public attitudes toward conducting human health research that may inflict pain or injury to animals, by respondent characteristic: 2008

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 2,021)	6	33	35	21	4
Sex					
Male (*n* = 918)	8	44	31	13	4
Female (*n* = 1,103)	4	23	39	28	5
Formal education					
<High school (*n* = 283)	9	32	28	23	8
High school graduate (*n* = 632)	6	32	39	19	4
Some college (*n* = 550)	5	32	35	26	3
Baccalaureate (*n* = 356)	4	39	35	18	4
Graduate/professional degree (*n* = 200)	9	30	40	15	6
Science/mathematics education[a]					
Low (*n* = 1,199)	6	30	36	24	4
Middle (*n* = 340)	6	39	34	18	3
High (*n* = 395)	5	37	36	18	4
Family income (quartile)[b]					
Top (*n* = 381)	7	34	35	20	3
Second (*n* = 485)	4	38	34	20	4
Third (*n* = 411)	5	32	39	21	2
Bottom (*n* = 506)	8	28	37	21	6
Age (years)[b]					
18–24 (*n* = 173)	5	32	38	24	1
25–34 (*n* = 346)	4	36	38	18	5
35–44 (*n* = 377)	4	34	35	22	5
45–54 (*n* = 421)	8	32	36	20	4
55–64 (*n* = 335)	8	32	33	24	3
≥65 (*n* = 354)	7	32	34	20	7
Trend factual knowledge of science scale (quartile)[c]					
Top (*n* = 559)	7	33	41	17	2
Second (*n* = 566)	5	32	37	23	4
Third (*n* = 521)	5	35	31	25	4
Bottom (*n* = 375)	7	31	32	20	10

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Categories do not add to total *n* because "don't know" and "refused" responses not shown..

[b]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *Scientists should be allowed to do research that causes pain and injury to animals like dogs and chimpanzees if it produces new information about human health problems.* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2012

Appendix table 7-37

Public assessment of whether the quality of science and mathematics education in American schools is inadequate: 1985–2008

(Percent)

Opinion	1985 (*n* = 2,003)	1988 (*n* = 2,041)	1990 (*n* = 2,005)	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2008 (*n* = 2,021)
Strongly agree	14	18	24	24	21	23	21	17	21
Agree	49	50	48	51	48	45	42	51	49
Disagree	27	23	22	19	22	22	26	24	22
Strongly disagree	2	2	2	2	3	4	4	2	2
Don't know	8	7	4	4	6	6	7	7	6

NOTES: Responses to *The quality of science and mathematics education in American schools is inadequate.* Table includes all years for which data collected. Percentages may not add to 100% because of rounding.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1985–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2012

Appendix table 7-38

Public assessment of whether the quality of science and mathematics education in American schools is inadequate, by respondent characteristic: 2008

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* =2,021)	21	49	22	2	6
Sex					
Male (*n* = 918)	20	52	22	2	5
Female (*n* = 1,103)	22	47	22	2	8
Formal education					
<High school (*n* = 283)	16	47	24	2	10
High school graduate (*n* = 632)	16	48	25	2	9
Some college (*n* = 550)	21	49	25	1	4
Baccalaureate (*n* = 356)	27	51	17	1	4
Graduate/professional degree (*n* = 200)	32	53	8	1	5
Science/mathematics education[a]					
Low (*n* = 1,199)	19	48	23	2	8
Middle (*n* = 340)	24	51	20	2	2
High (*n* = 395)	28	53	17	*	2
Family income (quartile)[b]					
Top (*n* = 381)	29	49	17	1	4
Second (*n* = 485)	20	53	21	1	5
Third (*n* = 411)	17	53	23	1	5
Bottom (*n* = 506)	18	45	27	3	7
Age (years)[b]					
18–24 (*n* = 173)	12	41	41	3	2
25–34 (*n* = 346)	16	54	25	1	5
35–44 (*n* = 377)	19	53	20	2	6
45–54 (*n* = 421)	26	48	18	2	6
55–64 (*n* = 335)	28	49	19	1	3
≥65 (*n* = 354)	23	49	12	1	15
Trend factual knowledge of science scale (quartile)[c]					
Top (*n* = 559)	28	50	17	1	3
Second (*n* = 566)	24	51	22	1	3
Third (*n* = 521)	14	51	25	2	8
Bottom (*n* = 375)	16	43	25	2	15

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[b]Categories do not add to total *n* because "don't know" and "refused" responses not shown.

[c]Quartiles based on percentage of nine questions in trend factual knowledge of science scale answered correctly. See notes to appendix table 7-8 for questions.

NOTES: Responses to *The quality of science and mathematics education in American schools is inadequate.* Percentages may not add to 100% because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2012

Appendix table 8-1

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 white students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	White 4th grade students (%)	Average scale score	Students≥ proficient (%)	White 4th grade students (%)	Average scale score	Students≥ proficient (%)	White 8th grade students (%)	Average scale score	Students≥ proficient (%)	White 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	62	233	30	54	248	50	63	283	33	56	292	43
Alabama	58	227	20	61	237	34	66	275	23	60	280	29
Alaska	NA	NA	NA	50	249	52	NA	NA	NA	53	293	44
Arizona	55	230	24	40	243	44	58	281	28	44	292	42
Arkansas	69	225	18	66	245	46	71	268	18	69	284	34
California	37	228	24	28	247	51	37	277	26	28	289	39
Colorado	NA	NA	NA	61	252	57	NA	NA	NA	61	299	51
Connecticut	72	242	39	66	253	58	74	291	42	70	298	49
Delaware	NA	NA	NA	51	249	50	NA	NA	NA	54	294	43
District of Columbia	5	254	62	7	270	81	4	300	56	3	S	S
Florida	NA	NA	NA	46	250	53	NA	NA	NA	46	289	39
Georgia	52	230	27	47	247	48	57	279	27	47	289	39
Hawaii	18	227	25	14	247	51	17	274	22	14	282	31
Idaho	85	227	21	81	244	44	88	280	28	81	292	43
Illinois	56	235	30	51	249	52	61	285	35	58	294	44
Indiana	87	235	32	76	247	48	85	285	32	76	291	41
Iowa	91	233	27	84	245	45	NA	NA	NA	86	287	37
Kansas	79	237	34	69	251	55	84	287	36	73	294	45
Kentucky	86	223	19	83	241	39	87	272	22	85	282	29
Louisiana	53	230	22	47	241	37	52	275	18	52	283	29
Maine	96	230	23	94	245	46	97	281	31	94	287	36
Maryland	51	236	34	48	255	60	57	286	38	49	303	56
Massachusetts	77	239	36	68	258	67	79	284	34	73	305	59
Michigan	77	237	34	71	243	43	79	285	34	74	286	37
Minnesota	82	238	36	76	255	61	88	290	41	79	300	53
Mississippi	49	222	15	45	241	37	55	268	14	48	279	25
Missouri	80	233	27	76	245	46	83	277	25	80	290	39
Montana	87	231	26	83	247	49	90	288	39	85	296	47
Nebraska	81	230	27	73	245	45	87	285	33	77	291	41
Nevada	59	226	21	42	245	46	60	273	24	44	287	36
New Hampshire	NA	NA	NA	91	252	57	NA	NA	NA	92	293	44
New Jersey	NA	NA	NA	55	255	63	NA	NA	NA	59	302	54
New Mexico	37	227	22	28	245	49	38	274	23	29	288	39
New York	52	238	32	52	248	50	56	284	33	54	294	44
North Carolina	61	238	34	54	254	59	65	287	37	55	297	49
North Dakota	90	232	26	86	248	49	91	285	33	88	296	46
Ohio	80	235	29	72	249	54	85	285	34	78	291	41
Oklahoma	65	229	20	58	241	40	69	274	22	58	282	29
Oregon	81	227	24	69	243	43	82	284	34	72	290	41
Pennsylvania	NA	NA	NA	71	249	53	NA	NA	NA	77	294	45

Appendix table 8-1

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 white students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	White 4th grade students (%)	Average scale score	Students≥ proficient (%)	White 4th grade students (%)	Average scale score	Students≥ proficient (%)	White 8th grade students (%)	Average scale score	Students≥ proficient (%)	White 8th grade students (%)	Average scale score	Students≥ proficient (%)
Rhode Island	75	232	28	68	247	50	79	275	26	71	286	35
South Carolina	55	233	28	55	245	46	57	277	27	54	293	43
South Dakota	NA	NA	NA	80	247	47	NA	NA	NA	84	295	46
Tennessee	74	227	23	69	239	36	75	269	20	70	282	30
Texas	43	241	39	31	254	61	48	286	35	37	301	54
Utah	84	230	25	77	246	48	88	277	27	80	289	40
Vermont	98	232	29	94	248	51	96	281	31	94	293	44
Virginia	64	237	32	56	251	54	66	283	32	59	294	44
Washington	NA	NA	NA	62	247	51	NA	NA	NA	68	295	46
West Virginia	94	224	18	92	233	28	95	267	18	93	271	20
Wisconsin	NA	NA	NA	75	250	53	NA	NA	NA	79	294	45
Wyoming	89	231	27	84	244	44	90	278	25	84	289	38

NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

Science and Engineering Indicators 2012

Appendix table 8-2

Average science NAEP scores and achievement-level results for grades 4 and 8 white students in public schools, by state: 2009

	4th grade			8th grade		
State	White 4th grade students (%)	Average scale score	Students≥ proficient (%)	White 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	54	162	46	56	161	41
Alabama	61	155	39	60	152	29
Alaska	NA	NA	NA	NA	NA	NA
Arizona	40	155	38	45	157	35
Arkansas	66	157	38	69	154	32
California	28	157	42	28	157	38
Colorado	61	166	52	60	166	47
Connecticut	66	167	53	70	164	44
Delaware	51	166	49	53	159	36
District of Columbia	NA	NA	NA	NA	NA	NA
Florida	46	163	46	46	158	36
Georgia	46	159	41	47	161	42
Hawaii	14	159	42	14	153	29
Idaho	82	159	40	81	162	42
Illinois	51	164	49	58	162	41
Indiana	77	158	41	76	159	38
Iowa	84	161	45	86	160	38
Kansas	NA	NA	NA	NA	NA	NA
Kentucky	84	164	49	85	159	36
Louisiana	47	159	42	52	155	32
Maine	94	161	43	94	159	36
Maryland	48	164	48	47	164	44
Massachusetts	68	169	56	73	167	48
Michigan	71	160	43	74	162	43
Minnesota	76	166	51	79	166	46
Mississippi	45	152	31	47	150	27
Missouri	77	164	47	80	161	40
Montana	83	164	48	85	166	46
Nebraska	NA	NA	NA	NA	NA	NA
Nevada	42	156	36	44	153	30
New Hampshire	91	165	49	92	161	40
New Jersey	55	166	53	59	165	44
New Mexico	29	163	48	29	163	39
New York	52	161	44	54	164	45
North Carolina	54	162	45	55	158	36
North Dakota	86	165	50	88	166	45
Ohio	72	165	50	78	164	43
Oklahoma	58	156	37	59	155	33
Oregon	69	157	40	72	160	40
Pennsylvania	71	164	48	77	162	42
Rhode Island	69	161	43	71	155	34

Appendix table 8-2

Average science NAEP scores and achievement-level results for grades 4 and 8 white students in public schools, by state: 2009

	4th grade			8th grade		
State	White 4th grade students (%)	Average scale score	Students≥ proficient (%)	White 8th grade students (%)	Average scale score	Students≥ proficient (%)
South Carolina	55	163	49	54	158	36
South Dakota	80	162	46	84	165	45
Tennessee	69	159	43	70	157	36
Texas	31	168	53	37	167	47
Utah	77	161	45	80	164	45
Vermont	NA	NA	NA	NA	NA	NA
Virginia	57	172	59	59	166	48
Washington	62	160	44	68	161	41
West Virginia	92	150	29	93	146	23
Wisconsin	75	164	49	79	165	45
Wyoming	83	159	40	84	162	40

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

Science and Engineering Indicators 2012

Appendix table 8-3

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 black students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Black 4th grade students (%)	Average scale score	Students≥ proficient (%)	Black 4th grade students (%)	Average scale score	Students≥ proficient (%)	Black 8th grade students (%)	Average scale score	Students≥ proficient (%)	Black 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	17	203	4	16	222	15	17	243	5	16	260	12
Alabama	39	203	4	33	211	7	33	240	3	35	248	6
Alaska	NA	NA	NA	4	225	17	NA	NA	NA	4	268	17
Arizona	4	207	6	6	222	19	4	244	7	5	269	23
Arkansas	28	194	2	23	217	12	26	227	2	21	251	8
California	10	194	3	7	217	13	9	235	4	6	250	10
Colorado	NA	NA	NA	5	225	23	NA	NA	NA	6	263	16
Connecticut	14	210	7	12	222	14	13	247	4	11	261	10
Delaware	NA	NA	NA	33	226	17	NA	NA	NA	34	267	13
District of Columbia	87	188	2	80	213	9	87	231	3	87	249	S
Florida	NA	NA	NA	22	228	20	NA	NA	NA	22	264	13
Georgia	41	204	5	36	221	15	39	244	4	37	262	11
Hawaii	2	211	6	2	232	33	2	S	S	3	271	21
Idaho	1	S	S	1	S	S	1	S	S	1	S	S
Illinois	22	202	4	19	216	11	20	252	8	18	255	9
Indiana	9	211	10	11	222	13	10	256	7	12	266	14
Iowa	3	216	11	5	226	17	NA	NA	NA	5	259	9
Kansas	8	208	4	10	224	18	7	245	10	9	264	15
Kentucky	12	196	2	10	220	14	11	250	6	10	258	8
Louisiana	44	205	4	48	218	8	44	239	2	43	257	7
Maine	1	S	S	3	228	28	1	S	S	2	261	14
Maryland	39	202	6	35	228	21	33	244	6	35	266	15
Massachusetts	7	213	7	8	236	30	7	258	9	8	272	23
Michigan	17	199	3	20	212	9	14	239	3	18	246	5
Minnesota	6	208	12	9	227	25	4	S	S	7	264	13
Mississippi	50	198	2	52	215	8	43	237	1	50	251	5
Missouri	17	202	4	17	221	17	15	238	3	14	260	11
Montana	*	S	S	1	S	S	*	S	S	1	S	S
Nebraska	6	193	5	7	213	10	4	247	6	8	253	10
Nevada	11	203	4	10	218	12	9	244	5	10	256	10
New Hampshire	NA	NA	NA	2	S	S	NA	NA	NA	2	S	S
New Jersey	NA	NA	NA	16	228	19	NA	NA	NA	16	267	17
New Mexico	2	S	S	3	225	19	2	S	S	3	259	13
New York	21	210	5	19	225	19	23	251	8	19	262	13
North Carolina	31	215	9	27	226	18	29	252	7	28	262	12
North Dakota	2	S	S	2	S	S	1	S	S	1	S	S
Ohio	17	206	2	19	222	14	13	251	7	15	260	11
Oklahoma	10	205	4	11	222	14	9	245	5	10	261	10
Oregon	3	196	6	4	223	18	2	S	S	2	264	12
Pennsylvania	NA	NA	NA	15	223	17	NA	NA	NA	13	260	13

Appendix table 8-3

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 black students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Black 4th grade students (%)	Average scale score	Students≥ proficient (%)	Black 4th grade students (%)	Average scale score	Students≥ proficient (%)	Black 8th grade students (%)	Average scale score	Students≥ proficient (%)	Black 8th grade students (%)	Average scale score	Students≥ proficient (%)
Rhode Island	8	200	3	10	221	15	7	240	4	9	256	8
South Carolina	42	203	4	35	220	14	41	247	4	38	263	12
South Dakota	NA	NA	NA	2	225	17	NA	NA	NA	2	S	S
Tennessee	24	198	4	24	213	7	22	235	3	25	254	10
Texas	15	220	10	13	231	12	12	250	7	14	272	17
Utah	1	S	S	2	221	15	1	S	S	1	S	S
Vermont	*	S	S	2	S	S	1	S	S	2	S	S
Virginia	28	211	5	26	225	16	25	253	6	26	268	14
Washington	NA	NA	NA	6	227	24	NA	NA	NA	5	269	16
West Virginia	5	205	5	6	225	20	4	247	7	5	263	11
Wisconsin	NA	NA	NA	10	217	11	NA	NA	NA	10	254	11
Wyoming	1	S	S	2	S	S	1	S	S	1	S	S

* = rounds to zero; NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

Science and Engineering Indicators 2012

Appendix table 8-4

Average science NAEP scores and achievement-level results for grades 4 and 8 black students in public schools, by state: 2009

	4th grade			8th grade		
State	Black 4th grade students (%)	Average scale score	Students≥ proficient (%)	Black 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	16	127	10	16	125	8
Alabama	33	121	6	35	115	4
Alaska	NA	NA	NA	NA	NA	NA
Arizona	6	129	13	5	126	8
Arkansas	24	117	6	21	111	4
California	7	122	9	6	122	8
Colorado	5	128	12	6	135	13
Connecticut	12	129	9	11	126	9
Delaware	33	135	11	34	133	10
District of Columbia	NA	NA	NA	NA	NA	NA
Florida	22	131	10	22	126	7
Georgia	36	126	10	37	129	9
Hawaii	3	134	16	3	133	15
Idaho	1	S	S	1	S	S
Illinois	19	120	9	19	118	4
Indiana	11	129	9	12	126	8
Iowa	5	130	14	5	127	8
Kansas	NA	NA	NA	NA	NA	NA
Kentucky	10	135	15	10	137	16
Louisiana	48	123	8	43	120	5
Maine	3	139	26	2	126	11
Maryland	35	131	12	36	127	8
Massachusetts	8	138	17	8	132	14
Michigan	20	118	6	18	121	6
Minnesota	9	129	12	7	128	11
Mississippi	52	116	4	50	114	3
Missouri	17	127	12	14	129	9
Montana	1	S	S	1	S	S
Nebraska	NA	NA	NA	NA	NA	NA
Nevada	10	122	8	11	127	9
New Hampshire	2	S	S	2	S	S
New Jersey	16	133	12	16	127	8
New Mexico	3	134	16	3	S	S
New York	19	127	9	19	123	7
North Carolina	28	126	9	28	121	5
North Dakota	2	S	S	1	S	S
Ohio	19	129	10	15	126	6
Oklahoma	12	125	8	10	124	7
Oregon	4	131	12	2	135	13
Pennsylvania	15	121	7	13	123	7
Rhode Island	9	126	10	8	125	8

Appendix table 8-4

Average science NAEP scores and achievement-level results for grades 4 and 8 black students in public schools, by state: 2009

State	4th grade			8th grade		
	Black 4th grade students (%)	Average scale score	Students≥ proficient (%)	Black 8th grade students (%)	Average scale score	Students≥ proficient (%)
South Carolina	35	128	10	39	124	6
South Dakota	2	S	S	2	141	24
Tennessee	24	121	8	25	122	6
Texas	13	139	18	14	133	13
Utah	2	S	S	1	S	S
Vermont	NA	NA	NA	NA	NA	NA
Virginia	26	141	18	26	135	10
Washington	6	127	8	5	135	15
West Virginia	6	130	11	5	127	10
Wisconsin	11	121	8	10	120	5
Wyoming	1	S	S	1	S	S

NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

Science and Engineering Indicators 2012

Appendix table 8-5

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 Hispanic students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Hispanic 4th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 4th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 8th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	16	207	7	22	227	21	14	252	8	21	266	17
Alabama	1	S	S	4	220	11	1	S	S	3	260	10
Alaska	NA	NA	NA	7	232	27	NA	NA	NA	6	275	23
Arizona	33	204	5	45	220	15	32	248	6	42	265	16
Arkansas	3	S	S	8	233	26	2	S	S	8	269	15
California	40	201	4	51	219	14	41	242	6	51	256	11
Colorado	NA	NA	NA	29	228	24	NA	NA	NA	28	267	18
Connecticut	11	210	6	17	227	18	10	249	7	15	263	14
Delaware	NA	NA	NA	12	231	22	NA	NA	NA	9	278	22
District of Columbia	8	190	6	11	227	24	7	236	5	3	265	18
Florida	NA	NA	NA	25	238	33	NA	NA	NA	26	274	22
Georgia	3	217	12	11	231	26	2	S	S	10	270	18
Hawaii	2	S	S	3	230	28	2	S	S	3	276	26
Idaho	11	207	6	14	225	18	8	250	7	14	264	15
Illinois	20	211	6	22	227	20	15	258	11	18	269	17
Indiana	3	S	S	7	230	23	3	S	S	7	273	19
Iowa	3	S	S	8	223	17	NA	NA	NA	6	266	15
Kansas	9	213	13	15	233	24	5	263	12	14	274	22
Kentucky	1	S	S	3	227	22	1	S	S	2	272	22
Louisiana	2	S	S	4	230	23	2	S	S	2	S	S
Maine	*	S	S	1	S	S	1	S	S	1	S	S
Maryland	5	216	11	11	238	32	4	263	20	10	275	26
Massachusetts	10	203	7	17	232	25	8	246	8	11	271	21
Michigan	3	S	S	5	227	20	3	S	S	4	269	17
Minnesota	2	S	S	7	232	29	4	S	S	5	269	21
Mississippi	1	S	S	2	S	S	1	S	S	2	S	S
Missouri	2	S	S	4	237	37	1	S	S	3	284	37
Montana	2	S	S	3	241	41	1	S	S	3	278	27
Nebraska	9	205	4	16	224	16	6	242	5	12	262	10
Nevada	21	207	7	39	227	19	21	249	8	35	262	13
New Hampshire	NA	NA	NA	4	234	31	NA	NA	NA	3	270	22
New Jersey	NA	NA	NA	21	232	25	NA	NA	NA	17	272	22
New Mexico	50	207	6	58	224	18	48	251	5	58	262	12
New York	21	207	6	20	231	25	14	251	10	20	262	15
North Carolina	3	220	12	11	236	27	2	S	S	10	274	24
North Dakota	1	S	S	2	S	S	1	S	S	2	S	S
Ohio	2	S	S	3	233	25	1	S	S	2	267	16
Oklahoma	7	211	5	10	229	20	5	260	13	11	263	12
Oregon	9	202	10	17	221	16	8	248	6	16	264	15

Appendix table 8-5

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 Hispanic students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Hispanic 4th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 4th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 8th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 8th grade students (%)	Average scale score	Students≥ proficient (%)
Pennsylvania	NA	NA	NA	9	227	23	NA	NA	NA	6	266	18
Rhode Island	14	197	3	18	219	14	10	240	3	17	255	8
South Carolina	2	S	S	6	232	28	1	S	S	5	269	16
South Dakota	NA	NA	NA	3	233	27	NA	NA	NA	2	268	13
Tennessee	2	S	S	5	225	19	1	S	S	3	270	19
Texas	38	223	14	51	233	26	36	262	13	46	277	25
Utah	9	205	6	16	219	16	6	244	6	14	259	11
Vermont	*	S	S	1	S	S	1	S	S	1	S	S
Virginia	4	224	16	8	234	28	4	263	16	8	274	23
Washington	NA	NA	NA	18	227	20	NA	NA	NA	15	264	13
West Virginia	1	S	S	1	S	S	*	S	S	1	S	S
Wisconsin	NA	NA	NA	9	228	22	NA	NA	NA	7	268	20
Wyoming	7	214	9	11	231	22	5	257	8	10	269	15

* = rounds to zero; NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-6

Average science NAEP scores and achievement-level results for grades 4 and 8 Hispanic students in public schools, by state: 2009

	4th grade			8th grade		
State	Hispanic 4th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	22	130	13	21	131	12
Alabama	4	125	9	3	129	10
Alaska	NA	NA	NA	NA	NA	NA
Arizona	45	124	9	42	127	9
Arkansas	8	136	15	7	134	12
California	51	121	8	51	122	7
Colorado	28	134	15	28	137	14
Connecticut	17	128	11	15	128	9
Delaware	12	142	20	9	141	15
District of Columbia	NA	NA	NA	NA	NA	NA
Florida	25	144	22	26	139	16
Georgia	11	133	14	10	137	15
Hawaii	3	134	21	3	148	25
Idaho	14	128	10	14	137	14
Illinois	22	129	10	18	131	10
Indiana	6	136	15	7	135	15
Iowa	8	134	15	7	133	12
Kansas	NA	NA	NA	NA	NA	NA
Kentucky	3	150	31	2	145	24
Louisiana	4	144	23	2	S	S
Maine	1	S	S	1	S	S
Maryland	11	143	21	10	136	13
Massachusetts	17	132	12	11	131	14
Michigan	5	138	20	4	139	20
Minnesota	7	134	16	5	132	14
Mississippi	2	142	21	2	S	S
Missouri	4	141	21	3	150	29
Montana	3	149	26	3	155	32
Nebraska	NA	NA	NA	NA	NA	NA
Nevada	39	128	12	35	129	10
New Hampshire	4	139	20	3	131	12
New Jersey	21	136	15	17	138	13
New Mexico	58	134	15	58	135	13
New York	20	130	13	20	125	10
North Carolina	11	132	10	10	132	11
North Dakota	2	S	S	2	S	S
Ohio	3	140	26	2	140	18
Oklahoma	9	131	12	11	127	9
Oregon	17	128	12	16	130	11
Pennsylvania	9	125	12	6	121	6
Rhode Island	18	124	9	17	119	5

Appendix table 8-6

Average science NAEP scores and achievement-level results for grades 4 and 8 Hispanic students in public schools, by state: 2009

State	4th grade			8th grade		
	Hispanic 4th grade students (%)	Average scale score	Students≥ proficient (%)	Hispanic 8th grade students (%)	Average scale score	Students≥ proficient (%)
South Carolina	6	140	23	5	129	13
South Dakota	3	145	23	2	135	10
Tennessee	5	134	17	4	139	21
Texas	51	136	16	45	141	17
Utah	16	129	12	14	129	13
Vermont	NA	NA	NA	NA	NA	NA
Virginia	8	152	32	8	144	20
Washington	18	125	10	15	132	9
West Virginia	1	S	S	1	S	S
Wisconsin	9	138	17	7	134	14
Wyoming	11	140	18	10	137	12

NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-7

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 Asian students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Asian 4th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 4th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 8th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	S	S	S	5	255	61	4	287	40	5	300	53
Alabama	1	S	S	1	S	S	*	S	S	1	S	S
Alaska	NA	NA	NA	8	236	35	NA	NA	NA	9	282	31
Arizona	3	S	S	3	245	45	2	S	S	3	295	52
Arkansas	1	S	S	2	S	S	1	S	S	1	S	S
California	10	221	19	11	257	61	12	283	34	13	294	46
Colorado	NA	NA	NA	4	246	51	NA	NA	NA	4	301	55
Connecticut	3	239	36	4	257	65	2	S	S	4	305	61
Delaware	NA	NA	NA	4	258	66	NA	NA	NA	3	312	69
District of Columbia	1	S	S	2	S	S	2	S	S	1	S	S
Florida	NA	NA	NA	2	261	73	NA	NA	NA	2	302	55
Georgia	2	S	S	3	256	60	2	S	S	3	300	49
Hawaii	67	214	12	65	235	35	67	260	15	68	274	25
Idaho	1	S	S	2	S	S	1	S	S	2	S	S
Illinois	2	S	S	5	265	73	3	S	S	4	304	60
Indiana	1	S	S	2	S	S	1	S	S	2	S	S
Iowa	2	S	S	2	259	66	NA	NA	NA	2	S	S
Kansas	1	S	S	2	258	64	2	S	S	2	S	S
Kentucky	1	S	S	1	265	69	1	S	S	1	S	S
Louisiana	1	S	S	1	S	S	1	S	S	2	S	S
Maine	2	S	S	1	S	S	1	S	S	2	S	S
Maryland	4	230	27	6	259	67	6	297	49	7	320	76
Massachusetts	4	237	36	6	264	70	4	292	44	6	314	66
Michigan	1	S	S	3	252	55	2	S	S	2	309	59
Minnesota	7	213	12	6	243	44	4	S	S	6	283	35
Mississippi	1	S	S	1	S	S	1	S	S	1	S	S
Missouri	1	S	S	2	255	62	1	S	S	2	S	S
Montana	1	S	S	1	S	S	1	S	S	1	S	S
Nebraska	1	S	S	2	251	55	1	S	S	2	S	S
Nevada	6	227	22	8	245	45	6	273	25	9	283	33
New Hampshire	NA	NA	NA	3	257	67	NA	NA	NA	2	308	62
New Jersey	NA	NA	NA	8	261	72	NA	NA	NA	8	323	77
New Mexico	1	S	S	2	S	S	2	S	S	1	S	S
New York	5	241	36	9	257	67	6	280	37	7	309	63
North Carolina	1	S	S	2	259	62	2	S	S	2	311	65
North Dakota	1	S	S	1	S	S	1	S	S	1	S	S
Ohio	1	S	S	2	S	S	1	S	S	1	S	S
Oklahoma	1	S	S	2	S	S	2	S	S	2	289	38
Oregon	4	236	35	6	245	48	4	285	38	5	296	50
Pennsylvania	NA	NA	NA	4	258	62	NA	NA	NA	3	305	60

Appendix table 8-7

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 Asian students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Asian 4th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 4th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 8th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 8th grade students (%)	Average scale score	Students≥ proficient (%)
Rhode Island	3	217	18	3	242	40	3	267	20	3	292	40
South Carolina	1	S	S	2	S	S	1	S	S	1	S	S
South Dakota	NA	NA	NA	1	S	S	NA	NA	NA	1	S	S
Tennessee	1	S	S	1	S	S	1	S	S	2	S	S
Texas	3	248	47	4	259	71	3	292	44	4	313	67
Utah	3	219	18	4	241	39	3	262	20	3	276	27
Vermont	1	S	S	2	S	S	1	S	S	2	S	S
Virginia	4	247	46	6	258	64	4	293	44	6	304	55
Washington	NA	NA	NA	9	253	56	NA	NA	NA	8	302	53
West Virginia	*	S	S	1	S	S	1	S	S	1	S	S
Wisconsin	NA	NA	NA	3	240	39	NA	NA	NA	3	289	40
Wyoming	1	S	S	1	S	S	1	S	S	1	S	S

* = rounds to zero; NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-8

Average science NAEP scores and achievement-level results for grades 4 and 8 Asian students in public schools, by state: 2009

	4th grade			8th grade		
State	Asian 4th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	5	160	45	5	159	40
Alabama	1	S	S	1	S	S
Alaska	NA	NA	NA	NA	NA	NA
Arizona	3	156	43	3	159	43
Arkansas	2	152	35	1	S	S
California	11	160	45	13	154	34
Colorado	4	162	49	4	161	41
Connecticut	4	164	48	4	169	52
Delaware	3	169	53	3	160	40
District of Columbia	NA	NA	NA	NA	NA	NA
Florida	2	158	44	3	163	40
Georgia	3	167	50	3	172	59
Hawaii	65	138	21	68	136	14
Idaho	2	156	40	2	S	S
Illinois	5	166	51	4	167	48
Indiana	2	S	S	2	S	S
Iowa	2	156	44	2	S	S
Kansas	NA	NA	NA	NA	NA	NA
Kentucky	1	172	65	1	S	S
Louisiana	1	S	S	2	S	S
Maine	1	S	S	2	S	S
Maryland	6	164	46	6	169	51
Massachusetts	5	167	53	6	168	49
Michigan	3	162	50	2	S	S
Minnesota	6	147	30	6	141	23
Mississippi	1	S	S	1	S	S
Missouri	2	S	S	2	167	48
Montana	1	S	S	1	S	S
Nebraska	NA	NA	NA	NA	NA	NA
Nevada	8	151	31	8	148	27
New Hampshire	3	171	57	2	S	S
New Jersey	8	173	62	7	174	58
New Mexico	2	S	S	1	S	S
New York	9	156	38	7	161	43
North Carolina	2	163	51	2	165	45
North Dakota	1	S	S	1	S	S
Ohio	2	S	S	1	S	S
Oklahoma	2	S	S	2	S	S
Oregon	6	159	44	5	160	45
Pennsylvania	4	166	53	3	159	41
Rhode Island	3	152	37	3	146	22

Appendix table 8-8

Average science NAEP scores and achievement-level results for grades 4 and 8 Asian students in public schools, by state: 2009

State	4th grade			8th grade		
	Asian 4th grade students (%)	Average scale score	Students≥ proficient (%)	Asian 8th grade students (%)	Average scale score	Students≥ proficient (%)
South Carolina	1	S	S	1	S	S
South Dakota	1	S	S	1	S	S
Tennessee	2	S	S	1	S	S
Texas	4	163	47	4	170	55
Utah	4	147	29	3	147	31
Vermont	NA	NA	NA	NA	NA	NA
Virginia	6	174	61	6	168	49
Washington	9	156	41	8	157	39
West Virginia	1	S	S	1	S	S
Wisconsin	3	153	36	4	152	28
Wyoming	1	S	S	1	S	S

NA = not available; S = data suppressed because reporting standards not met

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-9

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 female students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Female 4th grade students (%)	Average scale score	Students≥ proficient (%)	Female 4th grade students (%)	Average scale score	Students≥ proficient (%)	Female 8th grade students (%)	Average scale score	Students≥ proficient (%)	Female 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	49	223	20	49	238	37	50	271	23	49	281	31
Alabama	49	219	13	48	228	24	49	263	15	49	269	20
Alaska	NA	NA	NA	49	236	36	NA	NA	NA	49	283	33
Arizona	47	219	15	49	230	26	49	266	18	50	276	27
Arkansas	49	216	13	49	236	34	49	259	13	49	277	27
California	49	213	13	48	231	29	49	260	16	49	268	21
Colorado	NA	NA	NA	49	242	44	NA	NA	NA	49	286	38
Connecticut	48	233	29	49	243	44	47	278	30	49	289	41
Delaware	NA	NA	NA	49	238	33	NA	NA	NA	49	283	31
District of Columbia	51	192	5	50	221	17	53	234	5	53	255	11
Florida	NA	NA	NA	50	241	39	NA	NA	NA	50	278	27
Georgia	51	218	16	50	236	32	50	265	18	50	278	27
Hawaii	51	217	14	48	236	37	48	265	16	49	276	27
Idaho	50	225	19	50	240	39	47	277	25	49	286	37
Illinois	48	222	17	50	237	35	48	278	28	49	280	31
Indiana	49	232	28	49	242	41	50	281	26	50	285	34
Iowa	48	230	24	49	242	40	NA	NA	NA	49	284	33
Kansas	49	231	26	48	244	44	49	283	32	50	287	36
Kentucky	50	219	15	49	238	34	49	269	18	50	278	25
Louisiana	49	217	13	48	229	21	53	257	10	51	273	20
Maine	49	227	20	49	242	42	49	281	29	49	284	32
Maryland	49	220	20	50	243	43	48	272	27	50	287	38
Massachusetts	50	232	29	50	251	55	48	278	29	50	298	50
Michigan	49	228	26	50	235	33	50	277	28	49	277	29
Minnesota	50	232	29	49	248	51	50	287	38	49	293	45
Mississippi	52	211	8	49	228	21	49	253	7	51	265	15
Missouri	50	228	22	48	240	39	48	270	19	49	285	34
Montana	48	226	21	49	242	41	48	287	36	49	291	42
Nebraska	51	225	23	49	239	37	47	277	27	49	283	32
Nevada	49	218	13	50	234	30	50	264	17	50	273	24
New Hampshire	NA	NA	NA	48	250	54	NA	NA	NA	49	292	42
New Jersey	NA	NA	NA	49	245	46	NA	NA	NA	50	290	42
New Mexico	50	211	10	49	229	25	50	260	12	50	269	19
New York	51	224	18	49	239	37	52	270	22	50	282	32
North Carolina	50	230	24	49	244	42	49	275	26	49	284	34
North Dakota	49	229	23	49	244	42	48	282	30	49	291	42
Ohio	50	228	21	50	242	43	49	280	29	50	284	34
Oklahoma	50	223	14	50	236	30	48	269	17	49	274	21
Oregon	49	222	20	48	236	34	48	278	28	49	283	33
Pennsylvania	NA	NA	NA	48	242	43	NA	NA	NA	50	287	37

Appendix table 8-9

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 female students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Female 4th grade students (%)	Average scale score	Students≥ proficient (%)	Female 4th grade students (%)	Average scale score	Students≥ proficient (%)	Female 8th grade students (%)	Average scale score	Students≥ proficient (%)	Female 8th grade students (%)	Average scale score	Students≥ proficient (%)
Rhode Island	49	223	19	48	237	36	48	270	22	49	278	26
South Carolina	48	219	15	49	235	32	50	265	17	50	280	29
South Dakota	NA	NA	NA	48	241	39	NA	NA	NA	49	289	39
Tennessee	49	219	16	49	231	28	50	260	14	49	275	25
Texas	51	230	23	49	240	37	49	275	25	50	286	35
Utah	48	227	21	49	239	40	51	272	23	49	283	33
Vermont	50	231	29	49	247	49	49	282	30	50	292	42
Virginia	50	227	22	49	241	39	50	274	22	49	285	33
Washington	NA	NA	NA	49	242	42	NA	NA	NA	49	288	38
West Virginia	49	223	15	49	232	26	48	268	17	50	270	18
Wisconsin	NA	NA	NA	48	242	43	NA	NA	NA	49	287	38
Wyoming	47	227	22	48	241	38	49	276	23	49	284	31

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-10

Average science NAEP scores and achievement-level results for grades 4 and 8 female students in public schools, by state: 2009

State	4th grade			8th grade		
	Female 4th grade students (%)	Average scale score	Students≥ proficient (%)	Female 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	49	148	31	49	147	26
Alabama	48	142	25	49	136	14
Alaska	NA	NA	NA	NA	NA	NA
Arizona	49	138	20	49	139	17
Arkansas	49	146	27	49	142	19
California	48	137	23	49	135	18
Colorado	49	153	38	49	153	32
Connecticut	49	155	39	49	153	32
Delaware	49	152	32	49	146	21
District of Columbia	NA	NA	NA	NA	NA	NA
Florida	50	150	30	50	144	22
Georgia	50	143	25	50	144	24
Hawaii	48	143	25	49	137	15
Idaho	50	153	34	49	155	33
Illinois	50	147	30	49	146	25
Indiana	49	152	33	49	150	29
Iowa	49	157	41	49	154	31
Kansas	NA	NA	NA	NA	NA	NA
Kentucky	49	160	44	49	154	30
Louisiana	48	141	23	51	138	17
Maine	49	158	39	49	156	33
Maryland	50	149	31	49	146	26
Massachusetts	50	159	44	50	158	38
Michigan	50	149	32	49	152	31
Minnesota	49	158	41	49	157	36
Mississippi	49	132	16	51	130	13
Missouri	48	158	41	49	154	33
Montana	49	160	42	49	159	38
Nebraska	NA	NA	NA	NA	NA	NA
Nevada	50	139	21	50	140	19
New Hampshire	48	163	49	49	157	33
New Jersey	49	154	37	49	153	31
New Mexico	49	141	23	50	140	17
New York	49	147	29	49	147	27
North Carolina	49	146	27	49	143	23
North Dakota	49	160	42	49	159	38
Ohio	50	155	38	49	154	32
Oklahoma	50	148	28	49	144	22
Oregon	48	151	33	49	152	32
Pennsylvania	48	151	35	50	151	31
Rhode Island	48	149	32	49	143	22

Appendix table 8-10

Average science NAEP scores and achievement-level results for grades 4 and 8 female students in public schools, by state: 2009

State	4th grade			8th grade		
	Female 4th grade students (%)	Average scale score	Students≥ proficient (%)	Female 8th grade students (%)	Average scale score	Students≥ proficient (%)
South Carolina	49	149	32	50	142	22
South Dakota	48	156	38	49	157	35
Tennessee	48	148	32	49	146	24
Texas	49	147	28	50	148	26
Utah	49	153	37	49	156	36
Vermont	NA	NA	NA	NA	NA	NA
Virginia	49	162	47	49	155	32
Washington	49	151	35	49	153	30
West Virginia	49	147	26	50	142	18
Wisconsin	48	156	40	49	155	33
Wyoming	48	154	35	49	154	30

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-11

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 male students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Male 4th grade students (%)	Average scale score	Students≥ proficient (%)	Male 4th grade students (%)	Average scale score	Students≥ proficient (%)	Male 8th grade students (%)	Average scale score	Students≥ proficient (%)	Male 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	51	225	25	51	240	40	50	273	26	50	283	34
Alabama	51	216	14	52	228	25	51	265	17	51	268	21
Alaska	NA	NA	NA	51	238	40	NA	NA	NA	51	283	34
Arizona	53	219	16	51	230	30	51	271	22	50	279	31
Arkansas	51	216	14	51	239	39	51	256	14	51	275	27
California	51	212	13	52	233	32	51	259	17	51	272	26
Colorado	NA	NA	NA	51	244	46	NA	NA	NA	51	289	41
Connecticut	52	235	33	51	246	49	53	283	36	51	288	39
Delaware	NA	NA	NA	51	241	40	NA	NA	NA	51	284	32
District of Columbia	49	191	6	50	218	17	47	235	6	47	252	12
Florida	NA	NA	NA	50	243	42	NA	NA	NA	50	281	31
Georgia	49	220	19	50	237	35	50	265	19	50	277	27
Hawaii	49	215	15	52	235	37	52	260	16	51	271	24
Idaho	50	224	20	50	242	42	53	277	27	51	288	39
Illinois	52	224	23	50	240	41	52	272	24	51	284	35
Indiana	51	234	31	51	243	42	50	282	33	50	288	39
Iowa	52	233	28	51	243	43	NA	NA	NA	51	285	35
Kansas	51	233	31	52	246	48	51	283	35	50	290	43
Kentucky	50	220	19	51	240	39	51	271	22	50	281	30
Louisiana	51	219	14	52	230	24	47	260	12	49	272	21
Maine	51	232	25	51	247	48	51	282	32	51	288	38
Maryland	51	223	23	50	244	44	52	272	27	50	290	42
Massachusetts	50	235	33	50	253	59	52	279	31	50	300	53
Michigan	51	230	30	50	238	37	50	278	29	51	280	32
Minnesota	50	236	36	51	251	56	50	287	39	51	296	49
Mississippi	48	210	10	51	227	23	51	255	10	49	265	15
Missouri	50	228	24	52	241	43	52	272	23	51	287	37
Montana	52	231	27	51	247	49	52	284	37	51	292	45
Nebraska	49	225	25	51	239	39	53	282	33	51	286	37
Nevada	51	221	18	50	236	34	50	266	20	50	275	26
New Hampshire	NA	NA	NA	52	252	58	NA	NA	NA	51	293	45
New Jersey	NA	NA	NA	51	248	51	NA	NA	NA	50	295	47
New Mexico	50	216	14	51	231	27	50	259	13	50	271	21
New York	49	227	23	51	242	43	48	273	27	50	283	36
North Carolina	50	230	26	51	244	44	51	277	28	51	284	37
North Dakota	51	231	27	51	247	47	52	282	31	51	294	45
Ohio	50	232	28	50	245	48	51	281	32	50	287	38
Oklahoma	50	225	17	50	238	35	52	271	20	51	278	26
Oregon	51	225	25	52	240	40	52	282	34	51	287	40
Pennsylvania	NA	NA	NA	52	245	48	NA	NA	NA	50	290	42

Appendix table 8-11

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 male students in public schools, by state: 2000 and 2009

	4th grade						8th grade					
	2000			2009			2000			2009		
State	Male 4th grade students (%)	Average scale score	Students≥ proficient (%)	Male 4th grade students (%)	Average scale score	Students≥ proficient (%)	Male 8th grade students (%)	Average scale score	Students≥ proficient (%)	Male 8th grade students (%)	Average scale score	Students≥ proficient (%)
Rhode Island	51	225	25	52	240	43	52	268	21	51	278	29
South Carolina	52	221	20	51	236	36	50	264	17	50	281	31
South Dakota	NA	NA	NA	52	243	44	NA	NA	NA	51	292	44
Tennessee	51	221	20	51	232	29	50	263	19	51	275	26
Texas	49	233	28	51	241	39	51	272	23	50	287	38
Utah	52	227	24	51	241	42	49	275	26	51	285	37
Vermont	50	232	29	51	249	53	51	279	31	50	294	45
Virginia	50	232	26	51	245	46	50	276	28	51	287	38
Washington	NA	NA	NA	51	242	45	NA	NA	NA	51	290	41
West Virginia	51	224	19	51	234	30	52	265	17	50	271	21
Wisconsin	NA	NA	NA	52	245	47	NA	NA	NA	51	289	41
Wyoming	53	230	27	52	243	43	51	276	24	51	288	38

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-12

Average science NAEP scores and achievement-level results for grades 4 and 8 male students in public schools, by state: 2009

	4th grade			8th grade		
State	Male 4th grade students (%)	Average scale score	Students≥ proficient (%)	Male 8th grade students (%)	Average scale score	Students≥ proficient (%)
United States	51	149	34	51	151	32
Alabama	52	144	29	51	142	24
Alaska	NA	NA	NA	NA	NA	NA
Arizona	51	137	22	51	143	26
Arkansas	51	146	29	51	145	29
California	52	136	22	51	138	22
Colorado	51	156	41	51	158	39
Connecticut	51	156	43	51	157	38
Delaware	51	153	35	51	151	29
District of Columbia	NA	NA	NA	NA	NA	NA
Florida	50	151	32	50	148	28
Georgia	50	145	29	50	150	30
Hawaii	52	137	24	51	140	20
Idaho	50	154	37	51	160	42
Illinois	50	148	35	51	150	32
Indiana	51	153	37	51	155	36
Iowa	51	158	42	51	158	39
Kansas	NA	NA	NA	NA	NA	NA
Kentucky	51	161	46	51	159	37
Louisiana	52	141	26	49	141	22
Maine	51	161	45	51	160	38
Maryland	50	151	34	51	150	31
Massachusetts	50	162	47	50	162	44
Michigan	50	151	36	51	155	38
Minnesota	51	159	45	51	161	44
Mississippi	51	134	18	49	134	17
Missouri	52	155	40	51	158	38
Montana	51	160	43	51	165	46
Nebraska	NA	NA	NA	NA	NA	NA
Nevada	50	142	26	50	142	22
New Hampshire	52	163	47	51	164	44
New Jersey	51	156	41	51	156	37
New Mexico	51	142	25	50	147	24
New York	51	148	32	51	150	33
North Carolina	51	149	33	51	145	26
North Dakota	51	164	49	51	166	47
Ohio	50	159	44	51	161	42
Oklahoma	50	148	29	51	149	28
Oregon	52	151	34	51	156	37
Pennsylvania	52	156	41	50	157	39
Rhode Island	52	151	35	51	149	29

Appendix table 8-12

Average science NAEP scores and achievement-level results for grades 4 and 8 male students in public schools, by state: 2009

State	4th grade			8th grade		
	Male 4th grade students (%)	Average scale score	Students≥ proficient (%)	Male 8th grade students (%)	Average scale score	Students≥ proficient (%)
South Carolina	51	150	35	50	144	24
South Dakota	52	158	42	51	164	45
Tennessee	52	149	34	51	149	32
Texas	51	148	31	50	152	32
Utah	51	155	40	51	159	43
Vermont	NA	NA	NA	NA	NA	NA
Virginia	51	161	44	51	157	39
Washington	51	151	34	51	156	38
West Virginia	51	149	30	50	148	26
Wisconsin	52	157	42	51	160	42
Wyoming	52	157	37	51	162	42

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

Science and Engineering Indicators 2012

Appendix table 8-13

Coefficient of variation for estimates of employed S&E doctorate holders, by state: 1997, 2003, and 2008

State	Employed S&E doctorate holders			Coefficient of variation for employed S&E doctorate holders (%)		
	1997	2003	2008	1997	2003	2008
United States	516,560	590,910	647,800	0.3	0.3	0.2
Alabama	6,610	5,730	6,000	5.8	6.4	6.3
Alaska	1,110	1,140	1,200	14.5	15.5	13.4
Arizona	6,280	7,500	8,800	5.9	5.8	5.1
Arkansas	2,320	2,790	2,400	10.4	10.0	9.9
California	70,490	86,550	95,700	1.7	1.6	1.8
Colorado	10,740	12,220	13,100	4.4	4.4	4.5
Connecticut	8,770	9,780	10,600	5.3	4.9	4.8
Delaware	3,710	3,000	3,300	8.6	9.4	8.0
District of Columbia	11,800	13,800	13,100	4.5	4.7	4.3
Florida	13,330	16,000	18,600	4.3	4.0	4.3
Georgia	9,880	12,220	13,500	4.8	4.7	4.3
Hawaii	2,550	3,040	3,200	9.4	9.4	8.3
Idaho	2,030	2,450	2,800	11.2	10.3	9.5
Illinois	21,260	22,400	24,200	3.2	3.1	3.7
Indiana	7,570	9,590	10,300	5.3	5.7	4.9
Iowa	4,120	4,660	5,200	7.5	7.5	8.1
Kansas	3,770	4,060	4,300	7.8	8.0	8.5
Kentucky	4,110	4,720	4,800	7.1	7.5	8.3
Louisiana	5,360	5,420	5,200	6.6	6.0	7.1
Maine	2,150	2,110	2,300	11.7	11.1	11.2
Maryland	21,020	25,280	28,100	3.2	3.0	3.1
Massachusetts	23,330	30,220	35,000	3.1	2.4	2.6
Michigan	15,050	17,130	16,700	3.9	3.6	4.2
Minnesota	9,810	11,110	12,600	4.7	4.5	4.4
Mississippi	3,000	3,120	3,300	8.8	9.0	8.3
Missouri	9,490	9,080	10,000	5.0	4.9	4.8
Montana	1,690	1,740	2,100	11.1	12.7	12.1
Nebraska	3,010	2,820	2,800	9.6	9.9	10.0
Nevada	1,620	2,070	2,800	12.4	10.5	10.9
New Hampshire	2,230	2,640	2,900	10.2	10.8	9.8
New Jersey	20,440	20,980	21,300	3.2	3.5	3.5
New Mexico	7,480	8,120	7,800	5.6	6.3	6.3
New York	40,080	44,890	49,000	2.3	2.6	2.2
North Carolina	13,730	17,380	20,100	3.9	3.2	3.8
North Dakota	1,350	1,130	1,300	11.6	14.8	13.3
Ohio	18,700	20,870	20,800	3.5	3.6	3.6
Oklahoma	4,580	4,640	4,500	7.2	7.3	7.8
Oregon	6,210	7,830	8,700	6.3	6.2	5.8
Pennsylvania	23,940	27,820	30,000	3.1	3.4	2.7
Rhode Island	2,450	3,170	2,800	10.0	8.9	9.5
South Carolina	4,780	5,210	6,300	7.0	7.7	7.0
South Dakota	1,060	1,020	1,300	13.7	14.4	14.6
Tennessee	8,520	8,840	10,100	5.3	5.1	5.4
Texas	28,570	33,280	39,900	2.8	2.8	2.6
Utah	4,800	4,240	5,600	7.6	7.7	6.9
Vermont	1,750	1,770	1,800	11.7	10.7	12.6
Virginia	15,250	18,880	21,300	4.0	3.5	3.5
Washington	13,360	15,430	17,700	4.1	4.2	3.7
West Virginia	1,980	1,980	2,000	10.1	12.6	13.0

Appendix table 8-13

Coefficient of variation for estimates of employed S&E doctorate holders, by state: 1997, 2003, and 2008

State	Employed S&E doctorate holders			Coefficient of variation for employed S&E doctorate holders (%)		
	1997	2003	2008	1997	2003	2008
Wisconsin	8,460	8,390	9,900	5.2	5.8	5.2
Wyoming	860	650	700	16.2	17.5	21.9
Puerto Rico	660	1,710	2,000	11.5	9.5	8.1

NOTE: The coefficient of variation (CV) is used to evaluate and compare the precision of estimates from a sample survey. It is the ratio of the sampling error of an estimate to the estimate itself. A higher CV indicates that the estimate is less precise.

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Appendix table 8-14

Coefficient of variation for estimates of science and engineering doctorate holders in academia, by state: 1997, 2003, and 2008

State	S&E doctorate holders in academia			Coefficient of variation for S&E doctorate holders in academia (%)		
	1997	2003	2008	1997	2003	2008
United States	245,670	277,970	289,500	0.4	0.7	0.8
Alabama	4,640	3,240	3,500	6.7	8.1	8.1
Alaska	450	600	700	19.9	21.6	19.2
Arizona	3,050	3,660	4,200	8.0	8.0	7.1
Arkansas	1,520	1,850	1,500	12.1	11.7	13.2
California	26,050	29,830	30,500	2.8	2.4	2.9
Colorado	4,550	5,320	5,200	6.7	7.5	6.8
Connecticut	4,000	4,490	5,100	7.6	7.3	7.3
Delaware	750	800	800	19.7	18.4	16.7
District of Columbia	2,210	2,690	2,100	9.5	9.2	11.0
Florida	6,850	8,710	9,700	6.1	5.2	5.7
Georgia	5,780	7,240	8,100	6.1	6.0	5.4
Hawaii	1,380	1,910	1,900	11.0	11.3	10.2
Idaho	780	1,190	1,400	18.3	13.4	15.0
Illinois	10,620	10,930	11,500	4.6	4.9	5.9
Indiana	4,680	5,810	5,900	6.8	6.8	6.8
Iowa	3,100	3,390	3,900	8.7	8.9	9.0
Kansas	2,260	2,380	2,700	9.6	10.4	9.4
Kentucky	3,040	3,320	3,400	8.2	9.4	9.6
Louisiana	3,580	3,570	3,100	8.0	8.2	9.9
Maine	1,340	1,150	1,200	14.9	15.4	14.7
Maryland	6,400	7,060	8,200	5.7	6.9	5.4
Massachusetts	11,810	14,630	13,800	4.1	4.1	4.5
Michigan	7,850	9,050	9,000	5.2	5.3	6.0
Minnesota	4,490	5,600	5,400	6.4	6.8	7.0
Mississippi	1,940	2,060	1,900	11.1	9.7	9.6
Missouri	5,770	5,770	5,800	6.5	6.9	6.9
Montana	1,020	1,090	1,200	14.1	16.6	15.7
Nebraska	2,360	1,880	1,800	10.6	11.3	11.9
Nevada	980	1,260	1,500	17.1	12.7	13.9
New Hampshire	1,130	1,360	1,600	14.1	14.1	12.0
New Jersey	5,290	6,160	6,300	6.4	6.0	7.3
New Mexico	2,450	2,960	2,300	9.3	9.4	11.6
New York	20,900	22,360	23,100	3.1	3.8	3.1
North Carolina	7,740	9,650	10,600	5.2	4.3	4.7
North Dakota	900	740	900	13.9	18.2	18.0
Ohio	9,750	10,620	9,900	4.7	4.6	5.0
Oklahoma	2,680	2,900	3,000	9.0	8.9	9.6
Oregon	2,690	3,690	3,300	9.0	8.5	9.0
Pennsylvania	12,150	15,650	15,200	4.2	4.5	4.3
Rhode Island	1,730	2,180	1,800	12.2	10.4	12.0
South Carolina	3,230	3,000	3,800	8.7	10.4	9.2
South Dakota	700	670	700	15.9	18.9	20.5
Tennessee	4,720	5,210	5,500	6.9	5.9	7.1
Texas	13,760	15,240	18,400	4.0	4.2	3.8
Utah	3,080	2,770	3,400	9.7	9.2	8.6
Vermont	1,140	1,100	900	14.8	14.5	16.5
Virginia	5,830	7,630	8,800	6.2	5.6	6.2
Washington	5,410	6,740	7,300	6.2	6.7	6.3
West Virginia	1,190	1,190	1,200	13.4	15.8	16.9

Appendix table 8-14

Coefficient of variation for estimates of science and engineering doctorate holders in academia, by state: 1997, 2003, and 2008

	S&E doctorate holders in academia			Coefficient of variation for S&E doctorate holders in academia (%)		
State	1997	2003	2008	1997	2003	2008
Wisconsin	5,390	5,180	6,000	6.4	7.5	6.3
Wyoming	560	490	500	21.0	20.2	25.8
Puerto Rico	640	1,360	1,300	11.6	10.7	9.8

NOTE: The coefficient of variation (CV) is used to evaluate and compare the precision of estimates from a sample survey. It is the ratio of the sampling error of an estimate to the estimate itself. A higher CV indicates that the estimate is less precise.

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