National Science Board

SCIENCE AND ENGINEERING INDICATORS 2010

APPENDIX TABLES

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NATIONAL SCIENCE FOUNDATION

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Average mathematics scores of students followed from kindergarten through grade 8, by student characteristics: Fall 1998–spring 2007

Student characteristic	Fall 1998, kindergarten	Spring 2000, grade 1	Spring 2002, grade 3	Spring 2004, grade 5	Spring 2007, grade 8
All students	26	62	99	123	139
Kindergarten mathematics score					
Lowest quartile	17	46	78	101	120
Middle two quartiles	25	61	98	123	140
Highest quartile	38	79	123	144	157
Sex					
Male	26	62	101	125	140
Female	26	61	97	120	139
Race/ethnicity					
White	29	66	106	129	145
Black	22	52	84	105	123
Hispanic	22	56	92	118	135
Asian	30	65	105	133	148
Other	25	59	95	120	137
Mother's education					
Less than high school	20	51	82	106	123
High school diploma	24	58	93	116	133
Some college	26	63	101	125	142
Bachelor's or higher degree	32	72	114	138	154
Poverty status					
Below poverty threshold	21	53	84	107	125
At or above poverty threshold	28	64	103	127	143
Family structure					
Single-parent family	23	55	89	111	129
Two-parent family	27	64	103	127	143
Family risk factors					
None	29	66	106	130	145
1	24	57	93	116	134
2 or more	21	52	83	107	124
English language skills in kindergarten					
Proficient	27	63	101	125	141
Not proficient	18	50	82	109	128
Primary home language					
English	27	63	100	124	140
Other	22	55	92	118	136
Disability status					
Has a disability	22	53	87	110	127
Does not have a disability	28	65	104	128	144
Main disability related to cognitive function					
Has a related disability	20	45	77	98	116
Does not have a related disability	27	64	103	127	143
Race/ethnicity, by sex					
Male					
White	28	67	109	132	146
Black	22	52	85	107	123
Hispanic	21	56	93	119	135
Asian	30	65	107	136	150
Other	23	53	88	115	128
Female					
White	29	65	103	127	144
Black	22	53	82	104	123
Hispanic	23	57	91	117	135
Asian	29	62	100	128	144
Other	21	52	81	107	128

NOTES: Mathematics scale ranged from 0 to 174. For simplicity, students in followups of the ECLS-K kindergarten cohort referred to by modal and expected grade, e.g., first graders in spring 2000 assessment. All row variables use 1998 information except for those related to disabilities, collected in 2004 (fifth grade).

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 2000, 2002, 2004, and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-2

Mathematics test score gains of students followed from kindergarten through grade 8, by student characteristics: Fall 1998–spring 2007

Student characteristic	Kindergarten to grade 8	Kindergarten to grade 1	Grade 1 to grade 3	Grade 3 to grade 5	Grade 5 to grade 8
All students	113	36	37	24	16
Kindergarten mathematics score					
Lowest quartile	103	30	31	23	19
Middle two quartiles	115	36	37	25	17
Highest quartile	119	41	44	21	13
Sex					
Male	114	36	39	24	15
Female	112	35	36	24	18
Race/ethnicity					
White	117	38	39	24	16
Black	101	30	31	22	18
Hispanic	113	34	36	25	17
Asian	121	37	41	28	15
Other	112	34	36	25	17
Mother's education					
Less than high school	102	31	32	24	17
High school diploma	109	34	36	23	17
Some college	115	36	38	24	17
Bachelor's or higher degree	122	40	42	24	15
Poverty status					
Below poverty threshold	104	31	32	23	18
At or above poverty threshold	116	37	39	24	16
Family structure					
Single-parent family	106	32	33	23	18
Two-parent family	116	37	39	24	16
Family risk factors					
None	117	38	40	24	16
1	110	33	36	24	18
2 or more	104	31	31	23	18
English language skills					
Proficient	114	36	38	24	16
Not proficient	109	32	32	27	18
Primary home language					
English	113	36	38	23	16
Other	114	34	37	26	18
Disability status					
Has a disability	105	31	34	23	17
Does not have a disability	116	37	39	24	16
Main disability related to cognitive function					
Has a related disability	96	26	31	21	18
Does not have a related disability	115	37	38	24	16
Race/ethnicity, by sex					
Male					
White	118	39	41	24	14
Black	101	29	33	22	16
Hispanic	113	35	38	26	16
Asian	123	38	43	28	15
Other	105	31	35	25	13
Female					
White	116	37	38	24	18
Black	101	30	30	21	19
Hispanic	113	34	35	25	19
Asian	118	35	38	28	17
Other	107	31	30	26	21

NOTES: Mathematics assessment scale ranged from 0 to 174 across all grades. For simplicity, students in followups of the ECLS-K kindergarten cohort referred to by modal and expected grade at the time of the followup, e.g., first graders in spring 2000 assessment. All row variables use 1998 information except for those related to disabilities, collected in 2004 (fifth grade).

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 2000, 2002, 2004, and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-3

Proficiency of 1998–99 kindergartners in various mathematics skill areas in grade 8, by student characteristics: Spring 2007

(Percent)

Student characteristic	Ordinality, sequence	Addition, subtraction	Multiplication, division	Place value	Rate, measurement	Fractions	Area, volume
All students	100	100	98	89	66	37	16
Kindergarten mathematics score							
Lowest quartile	100	100	94	71	36	10	2
Middle two quartiles	100	100	99	93	69	33	11
Highest quartile	100	100	100	100	93	71	38
Sex							
Male	100	100	97	89	68	39	17
Female	100	100	98	90	65	34	14
Race/ethnicity							
White	100	100	99	94	76	46	20
Black	100	100	95	76	40	12	4
Hispanic	100	100	98	87	61	28	9
Asian	100	100	98	93	78	55	34
Other	100	100	97	86	63	34	14
Mother's education							
Less than high school	100	100	94	73	42	16	5
High school diploma	100	100	97	86	58	25	8
Some college	100	100	99	93	70	38	14
Bachelor's or higher degree	100	100	100	98	87	63	34
Poverty status							
Below poverty threshold	100	100	96	76	44	16	5
At or above poverty threshold	100	100	99	93	72	42	18
Family structure							
Single-parent family	100	100	97	82	50	19	6
Two-parent family	100	100	99	92	73	43	19
Family risk factors							
None	100	100	99	94	76	46	20
1	100	100	97	86	57	27	11
2 or more	100	100	96	76	43	15	5
English language skills							
Proficient	100	100	98	91	69	39	17
Not proficient	100	100	97	81	47	18	6
Primary home language							
English	100	100	98	90	68	38	16
Other	100	100	97	86	60	33	15
Disability status							
Has a disability	100	100	95	77	49	22	8
Does not have a disability	100	100	99	94	74	42	19
Main disability related to cognitive function							
Has a related disability	100	100	91	64	33	11	3
Does not have a related disability	100	100	99	93	72	41	18
Race/ethnicity, by sex							
Male							
White	100	100	99	93	78	49	22
Black	100	100	94	76	42	12	4
Hispanic	100	100	97	87	60	28	9
Asian	100	100	99	95	82	57	32
Other	100	100	92	76	50	28	10
Female							
White	100	100	99	94	74	42	18
Black	100	100	97	77	38	12	4
Hispanic	100	100	98	88	61	28	9
Asian	100	100	98	90	72	49	27
Other	100	100	96	79	50	17	5

NOTES: Mathematics assessment scale ranged from 0 to 174 across all grades. For simplicity, students in followups of the ECLS kindergarten cohort referred to by modal and expected grade, e.g., eighth graders in spring 2007 assessment. All row variables use 1998 information except for those related to disabilities, collected in 2004 (fifth grade).

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 2004 and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-4

Highest mathematics skill area in which 1998–99 kindergarteners demonstrated proficiency in grade 8, by student characteristics: Spring 2007

(Percent distribution)

Student characteristic	Ordinality, sequence	Addition, subtraction	Multiplication, division	Place value	Rate, measurement	Fractions	Area, volume
All students	1	2	8	24	30	20	15
Kindergarten mathematics score							
Lowest quartile	2	5	21	39	24	7	2
Middle two quartiles	0	1	6	26	37	21	10
Highest quartile	0	0	0	7	23	33	37
Sex							
Male	1	2	8	21	30	22	16
Female	1	1	9	27	30	18	14
Race/ethnicity							
White	0	1	6	18	30	25	19
Black	2	3	17	39	29	7	3
Hispanic	0	2	9	30	33	17	9
Asian	0	1	7	15	23	18	35
Other	0	5	8	27	27	19	15
Mother's education							
Less than high school	1	7	19	33	26	9	5
High school diploma	1	2	11	31	31	15	9
Some college	1	1	6	24	33	23	13
Bachelor's or higher degree	0	0	2	11	26	30	32
Poverty status							
Below poverty threshold	1	4	17	34	29	10	5
At or above poverty threshold	1	1	6	22	30	23	18
Family structure							
Single-parent family	1	3	15	35	30	10	6
Two-parent family	1	1	6	20	30	24	18
Family risk factors							
None	0	1	5	19	30	25	19
1	1	2	11	31	30	14	11
2 or more	1	5	18	34	28	9	4
English language skills							
Proficient	1	1	7	23	31	21	16
Not proficient	0	3	15	38	26	12	5
Primary home language							
English	1	2	8	23	31	21	15
Other	0	2	11	28	27	16	16
Disability status							
Has a disability	1	5	16	30	27	14	7
Does not have a disability	0	1	5	22	31	23	18
Main disability related to cognitive function							
Has a related disability	2	7	29	31	20	7	3
Does not have a related disability	0	1	6	23	31	22	17
Race/ethnicity, by sex							
Male							
White	1	1	6	15	29	27	21
Black	2	5	13	37	32	9	3
Hispanic	0	3	9	27	34	17	9
Asian	0	1	4	13	26	27	30
Other	0	12	12	23	23	18	12
Female							
White	0	1	6	22	31	23	18
Black	1	2	21	41	25	6	4
Hispanic	1	1	9	32	32	16	8
Asian	1	1	10	19	22	18	30
Other	1	8	8	39	33	5	6

NOTES: Percentages may not add to 100% because of rounding. Mathematics assessment scale ranged from 0 to 174 across all grades. For simplicity, students in followups of the ECLS-K kindergarten cohort referred to by modal and expected grade, e.g., eighth graders in spring 2007 assessment. All row variables use 1998 information except for those related to disabilities, collected in 2004 (fifth grade).

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 2004 and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-5

Average science scores of students followed from kindergarten through grade 8, by student characteristics: Spring 2002–spring 2007

Student characteristic	Spring 2002, grade 3	Spring 2004, grade 5	Spring 2007, grade 8
All students	51	64	83
Kindergarten mathematics score			
Lowest quartile	39	52	70
Middle two quartiles	50	64	83
Highest quartile	64	77	95
Sex			
Male	52	66	84
Female	49	63	82
Race/ethnicity			
White	56	70	89
Black	40	52	69
Hispanic	43	59	78
Asian	52	66	88
Other	48	61	81
Mother's education			
Less than high school	39	52	70
High school diploma	47	60	79
Some college	52	66	85
Bachelor's or higher degree	60	74	93
Poverty status			
Below poverty threshold	40	53	71
At or above poverty threshold	53	67	86
Family structure			
Single-parent family	44	57	75
Two-parent family	53	67	86
Family risk factors			
None	55	69	88
1	47	60	79
2 or more	38	52	70
English language skills			
Proficient	52	66	84
Not proficient	32	49	69
Primary home language			
English	52	65	84
Other	42	58	77
Disability status			
Has a disability	46	59	76
Does not have a disability	52	67	86
Main disability related to cognitive function			
Has a related disability	40	52	69
Does not have a related disability	52	66	85
Race/ethnicity, by sex			
Male			
White	58	72	90
Black	42	53	70
Hispanic	44	60	78
Asian	53	66	88
Other	44	58	75

Appendix table 1-5

Average science scores of students followed from kindergarten through grade 8, by student characteristics: Spring 2002–spring 2007

Student characteristic	Spring 2002, grade 3	Spring 2004, grade 5	Spring 2007, grade 8
Female			
White	54	68	87
Black	38	50	68
Hispanic	43	58	78
Asian	49	63	85
Other	40	55	74

NOTES: Science assessment scale ranged from 0 to 111 across all grades. For simplicity, students in followups of the ECLS-K kindergarten cohort referred to by modal and expected grade, e.g., third graders in spring 2002 assessment. All row variables use 1998 information except for those related to disabilities, collected in 2004 (fifth grade).

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), fall 1998 and spring 2002, 2004, and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-6

Average NAEP mathematics scores of students in grades 4 and 8, by student characteristics: 1990–2007

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

NA = not available

NAEP = National Assessment of Educational Progress

[a]Special analyses raised concerns about accuracy of grade 8 Asian/Pacific Islander results in 1996 and grade 4 Asian/Pacific Islander results in 2000; therefore the results were omitted from National Center for Education Statistics (NCES) reports and this report.
[b]Insufficient sample sizes in 1990 and 1992 for American Indian/Alaska Native (both grades) and also in 1996 for grade 8 precluded calculation of reliable estimates.
[c]Information on students' eligibility for free/reduced-price lunch, a measure of family poverty, first gathered in 1996.
[d]Scores for percentile rows are not averages, unlike rest of table, but the actual score that marks each percentile listed.

NOTES: For grades 4 and 8, scores on 0–500 scale across two grades. Grade 12 mathematics assessment for 2005 not comparable with previous assessments; therefore, mathematics trend information for grade 12 not available. For results from previous grade 12 mathematics assessments, see NCES, *The Nation's Report Card: Mathematics 2000*, NCES 2001-517 (2001). The NAEP program changed how it includes students with disabilities and limited English proficiency in 1996. From 1996 on, data shown here are for students allowed to use testing accommodations (e.g., extended time, one-on-one testing, bilingual dictionary).

SOURCES: Lee J, Grigg W, Dion G, *The Nation's Report Card: Mathematics 2007*, NCES 2007-494 (2007); and NAEP, 1990, 1992, 1996, 2003, 2005, and 2007 mathematics assessments.

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Appendix table 1-7

Students in grades 4 and 8 scoring at or above NAEP's proficient level in mathematics for their grade, by student characteristics: 1990–2007

(Percent)

Grade/student characteristic	1990	1992	1996	2000	2003	2005	2007
All grade 4 students	13	18	21	24	32	36	39
Sex							
Male	13	19	22	26	35	38	41
Female	12	16	20	22	30	34	36
Race/ethnicity							
White, non-Hispanic	16	22	27	31	43	47	51
Black, non-Hispanic	1	2	3	5	10	13	15
Hispanic	5	6	7	7	16	19	22
Asian/Pacific Islander[a]	22	28	27	NA	48	55	59
American Indian/Alaska Native	NA	NA	10	8	17	21	26
Free/reduced-price lunch[b]							
Eligible	NA	NA	8	8	15	19	22
Not eligible	NA	NA	27	32	45	49	53
All grade 8 students	15	21	23	26	29	30	32
Sex							
Male	17	21	25	27	30	31	33
Female	14	21	22	24	27	28	29
Race/ethnicity							
White, non-Hispanic	18	26	30	34	37	39	41
Black, non-Hispanic	5	2	4	5	7	9	11
Hispanic	7	7	8	8	12	13	15
Asian/Pacific Islander[a]	29	43	NA	41	43	47	49
American Indian/Alaska Native	NA	NA	NA	10	15	14	17
Free/reduced-price lunch[b]							
Eligible	NA	NA	8	10	12	13	15
Not eligible	NA	NA	28	34	37	39	42

NA = not available

NAEP = National Assessment of Educational Progress

[a]Special analyses raised concerns about accuracy of national grade 8 Asian/Pacific Islander results in 1996 and grade 4 Asian/Pacific Islander results in 2000; therefore, these results were omitted from National Center for Education Statistics (NCES) reports and this report.
[b]Information on students' eligibility for free/reduced-price lunch first gathered in 1996 for grades 4 and 8.

NOTES: Scores on 0–500 scale across grades 4 and 8. The NAEP program changed how it includes students with disabilities and limited English proficiency in 1996. From 1996 on, data shown here are for students allowed to use testing accommodations (e.g., extended time, one-on-one testing, bilingual dictionary).

SOURCES: Lee J, Grigg W, Dion G, *The Nation's Report Card: Mathematics 2007*, NCES 2007-494 (2007); and NAEP, 1990, 1992, 1996, 2003, 2005, and 2007 mathematics assessments.

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Appendix table 1-8

Average mathematics scores of 9-, 13-, and 17-year-olds on the NAEP Long-Term Trend tests, by student characteristics: 1973–2008

Student age/characteristic	1973	1978	1982	1986	1990	1992	1994	1996	1999	2004	2008
All students age 9	219	219	219	222	230	230	231	231	232	239	243
Sex											
Male	218	217	217	222	229	231	232	233	233	239	242
Female	220	220	221	222	230	228	230	229	231	240	243
Race/ethnicity											
White, non-Hispanic	225	224	224	227	235	235	237	237	239	245	250
Black, non-Hispanic	190	192	195	202	208	208	212	212	211	221	224
Hispanic	202	203	204	205	214	212	210	215	213	229	234
Asian/Pacific Islander	NA	229	242	235	236	243	234	235	245	263	265
American Indian/Alaska Native	NA	S	S	205	S	S	S	S	S	224	237
Free/reduced-price lunch											
Eligible	NA	NA	NA	NA	NA	NA	NA	NA	NA	225	229
Not eligible	NA	NA	NA	NA	NA	NA	NA	NA	NA	249	253
Disability status											
Has a disability	NA	NA	NA	NA	NA	NA	NA	NA	NA	209	214
Does not have a disability	NA	NA	NA	NA	NA	NA	NA	NA	NA	243	246
English language skills											
Proficient	NA	NA	NA	NA	NA	NA	NA	NA	NA	222	224
Not proficient	NA	NA	NA	NA	NA	NA	NA	NA	NA	241	245
All students age 13	266	264	269	269	270	273	274	274	276	279	281
Sex											
Male	265	264	269	270	271	274	276	276	277	279	284
Female	267	265	268	268	270	272	273	272	274	278	279
Race/ethnicity											
White, non-Hispanic	274	272	274	274	276	279	281	281	283	287	290
Black, non-Hispanic	228	230	240	249	249	250	252	252	251	257	262
Hispanic	239	238	252	254	255	259	256	256	259	264	268
Asian/Pacific Islander	NA	274	280	290	274	286	286	282	286	297	304
American Indian/Alaska Native	NA	S	257	S	S	S	S	S	S	S	274
Free/reduced-price lunch											
Eligible	NA	NA	NA	NA	NA	NA	NA	NA	NA	262	266
Not eligible	NA	NA	NA	NA	NA	NA	NA	NA	NA	288	290
Disability status											
Has a disability	NA	NA	NA	NA	NA	NA	NA	NA	NA	243	246
Does not have a disability	NA	NA	NA	NA	NA	NA	NA	NA	NA	282	285
English language skills											
Proficient	NA	NA	NA	NA	NA	NA	NA	NA	NA	245	252
Not proficient	NA	NA	NA	NA	NA	NA	NA	NA	NA	280	283

Appendix table 1-8

Average mathematics scores of 9-, 13-, and 17-year-olds on the NAEP Long-Term Trend tests, by student characteristics: 1973–2008

Student age/characteristic	1973	1978	1982	1986	1990	1992	1994	1996	1999	2004	2008
Parents' education											
Less than high school	NA	245	251	252	253	256	255	254	256	263	268
High school diploma	NA	263	263	263	263	263	266	267	264	270	272
Some college	NA	273	275	274	277	278	277	277	279	282	285
Bachelor's or higher degree	NA	284	282	280	280	283	285	283	286	289	291
All students age 17	304	300	298	302	305	307	306	307	308	305	306
Sex											
Male	309	304	301	305	306	309	309	310	310	307	309
Female	301	297	296	299	303	305	304	305	307	304	303
Race/ethnicity											
White, non-Hispanic	310	306	304	308	309	312	312	313	315	311	314
Black, non-Hispanic	270	268	272	279	289	286	286	286	283	284	287
Hispanic	277	276	277	283	284	292	291	292	293	292	293
Asian/Pacific Islander	NA	317	313	316	311	320	317	313	320	315	321
American Indian/Alaska Native	NA	297	S	S	S	S	S	S	S	S	305
Free/reduced-price lunch											
Eligible	NA	NA	NA	NA	NA	NA	NA	NA	NA	289	292
Not eligible	NA	NA	NA	NA	NA	NA	NA	NA	NA	309	312
Disability status											
Has a disability	NA	NA	NA	NA	NA	NA	NA	NA	NA	276	277
Does not have a disability	NA	NA	NA	NA	NA	NA	NA	NA	NA	308	309
English language skills											
Proficient	NA	NA	NA	NA	NA	NA	NA	NA	NA	280	279
Not proficient	NA	NA	NA	NA	NA	NA	NA	NA	NA	306	307
Parents' education											
Less than high school	NA	280	279	279	285	285	284	281	289	287	292
High school diploma	NA	294	293	293	294	298	295	297	299	294	296
Some college	NA	305	304	305	308	308	305	307	308	305	306
Bachelor's or higher degree	NA	317	312	314	316	316	318	317	317	315	316

S = suppressed, too few cases for reliable estimate; NA = not available

NAEP = National Assessment of Educational Progress

NOTES: The NAEP Long-Term Trend (LTT) Mathematics scale ranges from 0 to 500. Data from 1973 were extrapolated. Although skills and knowledge tested remained similar throughout LTT testing program, some changes were made in 2004, including replacing some test questions that used out-of-date contexts, adopting some new testing procedures, and accommodating some students' disabilities or limited English skills.

SOURCES: Rampey B, Dion G, Donahue P, *NAEP 2008 Trends in Academic Progress*, NCES 2009-479 (2009), figures 7, 12, and 13; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 1-9

Average TIMSS mathematics scores of students in grades 4 and 8 in all participating nations, relative to U.S. average scores, by nation: 2007

Nation	Grade 4
United States	529
Score higher than U.S.	
Hong Kong SAR[a]	607
Singapore	599
Chinese Taipei	576
Japan	568
Kazakhstan	549
Russian Federation	544
England	541
Latvia	537
Lithuania	530
Score not statistically different from U.S.	
Netherlands	535
Germany	525
Denmark	523
Score lower than U.S.	
Australia	516
Hungary	510
Italy	507
Sweden	503
Slovenia	502
Armenia	500
Slovak Republic	496
Scotland	494
New Zealand	492
Czech Republic	486
Norway	473
Ukraine	469
Georgia	438
Iran, Islamic Republic of	402
Algeria	378
Colombia	355
Morocco	341
El Salvador	330
Tunisia	327
Kuwait	316
Qatar	296
Yemen	224

Nation	Grade 8
United States	508
Score higher than U.S.	
Chinese Taipei	598
Republic of Korea	597
Singapore	593
Hong Kong SAR[a]	572
Japan	570
Score not statistically different from U.S.	
Hungary	517
England	513
Russian Federation	512
Lithuania	506
Czech Republic	504
Score lower than U.S.	
Slovenia	501
Armenia	499
Australia	496
Sweden	491
Malta	488
Scotland	487
Serbia	486
Italy	480
Malaysia	474
Norway	469
Cyprus	465
Bulgaria	464
Israel	463
Ukraine	462
Romania	461
Bosnia and Herzegovina	456
Lebanon	449
Thailand	441
Turkey	432
Jordan	427
Tunisia	420
Georgia	410
Iran, Islamic Republic of	403
Bahrain	398
Indonesia	397
Syrian Arab Republic	395
Egypt	391
Algeria	387
Colombia	380
Oman	372
Palestinian National Authority	367
Botswana	364
Kuwait	354
El Savador	340
Saudi Arabia	329
Ghana	309
Qatar	307

TIMSS = Trends in International Mathematics and Science Study

[a]Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

NOTES: Scores on separate 0–1,000 scales for each grade. Nations ordered by 2007 average score. All participating nations included here but not in corresponding text table, which includes only nations in selected comparison group and those meeting all TIMSS standards for sampling, participation rates, and related issues. For details on nations failing to meet standards, see source report. Tests for significance take into account standard error for reported difference.

SOURCES: Gonzales P, Williams T, Jocelyn L, Roey S, Kastberg D, Brenwald S, *Highlights From TIMSS 2007: Mathematics and Science Achievement of U.S. Fourth- and Eighth-Grade Students in an International Context*, NCES 2009–001 (2008), table 9; and International Association for the Evaluation of Educational Achievement data (2007).

Science and Engineering Indicators 2010

Appendix table 1-10

Average TIMSS science scores of students in grades 4 and 8 in all participating nations, relative to U.S. average scores, by nation: 2007

Nation	Grade 4
United States	539
Score higher than U.S.	
Singapore	587
Chinese Taipei	557
Hong Kong SAR[a]	554
Japan	548
Score not statistically different from U.S.	
Russian Federation	546
Latvia	542
England	542
Hungary	536
Italy	535
Kazakhstan	533
Score lower than U.S.	
Germany	528
Australia	527
Slovak Republic	526
Austria	526
Sweden	525
Netherlands	523
Slovenia	518
Denmark	517
Czech Republic	515
Lithuania	514
New Zealand	504
Scotland	500
Armenia	484
Norway	477
Ukraine	474
Iran, Islamic Republic of	436
Georgia	418
Colombia	400
El Salvador	390
Algeria	354
Kuwait	348
Tunisia	318
Morocco	297
Qatar	294
Yemen	197

Nation	Grade 8
United States	520
Score higher than U.S.	
Singapore	567
Chinese Taipei	561
Japan	554
Republic of Korea	553
England	542
Hungary	539
Czech Republic	539
Slovenia	538
Russian Federation	530
Score not statistically different from U.S.	
Hong Kong SAR[a]	530
Lithuania	519
Australia	515
Score lower than U.S.	
Sweden	511
Scotland	496
Italy	495
Armenia	488
Norway	487
Ukraine	485
Jordan	482
Malaysia	471
Thailand	471
Serbia	470
Bulgaria	470
Israel	468
Bahrain	467
Bosnia and Herzegovina	466
Romania	462
Iran, Islamic Republic of	459
Malta	457
Turkey	454
Syrian Arab Republic	452
Cyprus	452
Tunisia	445
Indonesia	427
Oman	423
Georgia	421
Kuwait	418
Colombia	417
Lebanon	414
Egypt	408
Algeria	408
Palestinian National Authority	404
Saudi Arabia	403
El Salvador	387
Botswana	355
Qatar	319
Ghana	303

TIMSS = Trends in International Mathematics and Science Study

[a]Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

NOTES: Scores on separate 0–1,000 scales for each grade. Nations ordered by 2007 average score. All participating nations included here but not in corresponding text table, which includes only nations in selected comparison group and those meeting all TIMSS standards for sampling, participation rates, and related issues. For details on nations failing to meet standards, see source report. Tests for significance take into account standard error for reported difference.

SOURCES: Gonzales P, Williams T, Jocelyn L, Roey S, Kastberg D, Brenwald S, *Highlights From TIMSS 2007: Mathematics and Science Achievement of U.S. Fourth- and Eighth-Grade Students in an International Context*, NCES 2009–001 (2008), table 11, and 2007 International Association for the Evaluation of Educational Achievement data.

Science and Engineering Indicators 2010

Appendix table 1-11

Average PISA mathematics and science literacy scores of 15-year-old students in all participating nations, relative to U.S. average scores: 2006

Nation	Mathematics
United States[a]	474
OECD nations	
Score higher than U.S.	
Finland	548
Republic of Korea	547
Netherlands	531
Switzerland	530
Canada	527
Japan	523
New Zealand	522
Australia	520
Belgium	520
Denmark	513
Czech Republic	510
Iceland	506
Austria	505
Germany	504
Sweden	502
Ireland	501
France	496
Poland	495
United Kingdom	495
Slovak Republic	492
Hungary	491
Luxembourg	490
Norway	490
Score not statistically different from U.S.	
Spain	480
Portugal	466
Score lower than U.S.	
Italy	462
Greece	459
Turkey	424
Mexico	406

Nation	Science
United States[a]	489
OECD nations	
Score higher than U.S.	
Finland	563
Canada	534
Japan	531
New Zealand	530
Australia	527
Netherlands	525
Republic of Korea	522
Germany	516
United Kingdom	515
Czech Republic	513
Switzerland	512
Austria	511
Belgium	510
Ireland	508
Hungary	504
Sweden	503
Score not statistically different from U.S.	
Poland	498
Denmark	496
France	495
Iceland	491
Spain	488
Slovak Republic	488
Norway	487
Luxembourg	486
Score lower than U.S.	
Italy	475
Portugal	474
Greece	473
Turkey	424
Mexico	410

Appendix table 1-11

Average PISA mathematics and science literacy scores of 15-year-old students in all participating nations, relative to U.S. average scores: 2006

Nation	Mathematics	Nation	Science
Non-OECD nations		Non-OECD nations	
Score higher than U.S.		Score higher than U.S.	
Chinese Taipei	549	Hong Kong SAR[b]	542
Hong Kong SAR[b]	547	Chinese Taipei	532
Liechtenstein	525	Estonia	531
Macao-China	525	Liechenstein	522
Estonia	515	Slovenia	519
Slovenia	504	Macao-China	511
Latvia	486		
Lithuania	486	Score not statistically different from U.S.	
		Croatia	493
Score not statistically different from U.S.		Latvia	490
Azerbaijain	476	Lithuania	488
Russian Federation	476	Russian Federation	479
Croatia	467		
		Score lower than U.S.	
Score lower than U.S.		Israel	454
Israel	442	Chile	438
Serbia, Republic of	435	Serbia, Republic of	436
Uruguay	427	Bulgaria	434
Thailand	417	Uruguay	428
Romania	415	Jordan	422
Bulgaria	413	Thailand	421
Chile	411	Romania	418
Montenegro, Republic of	399	Montenegro, Republic of	412
Indonesia	391	Indonesia	393
Jordan	384	Argentina	391
Argentina	381	Brazil	390
Brazil	370	Colombia	388
Colombia	370	Tunisia	386
Tunisia	365	Azerbaijan	382
Qatar	318	Qatar	349
Kyrgyz Republic	311	Kyrgyz Republic	322

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

[a]Average score for United States may be misestimated by approximately 1 score point because of error in test booklet printing.
[b]Hong Kong is a Special Administrative Region (SAR) of the People's Republic of China.

NOTES: Scores on separate 0–1,000 scales for each grade. Nations ordered by 2006 average score. All participating nations included here but not in corresponding text table, which includes only nations in selected comparison groups. Tests for significance take into account the standard error for the reported difference.

SOURCES: Baldi S, Jin Y, Skemer M, Green PJ, Herget D, *Highlights From PISA 2006: Performance of U.S. 15-Year-Old Students in Science and Mathematics Literacy in an International Context*, National Center for Education Statistics (NCES), NCES 2008-016 (2007), tables 2 and 3; and 2006 data from OECD.

Science and Engineering Indicators 2010

Appendix table 1-12

Public school students in grades 5 and 8 who were taught mathematics and science by teachers with a bachelor's or higher degree and a regular/advanced teaching certificate, by student characteristics: 2004 and 2007

(Percent)

Grade/student characteristic	Teachers of mathematics			Teachers of science		
	Bachelor's degree only	Master's or higher degree	Regular/advanced certificate	Bachelor's degree only	Master's or higher degree	Regular/advanced certificate
All grade 5 students (2004)	53	47	90	53	46	90
Race/ethnicity						
White, non-Hispanic	49	51	92	51	49	93
Black, non-Hispanic	61	39	86	52	48	87
Hispanic	57	42	85	61	39	86
Asian	54	46	88	52	48	87
Other[a]	61	38	95	61	37	95
Mother's education						
Less than high school	66	34	86	61	39	91
High school diploma	51	49	91	58	41	89
Some college	56	43	90	56	44	91
Bachelor's or higher degree	44	56	91	43	57	92
Family poverty status[b]						
Below poverty threshold	65	35	88	58	42	89
Above poverty threshold	50	50	90	53	47	91
Achievement in grade 3[c]						
Low	61	38	84	57	43	92
Middle	51	49	90	56	44	88
High	50	50	92	48	52	94
All grade 8 students (2007)	46	49	84	46	54	84
Race/ethnicity						
White, non-Hispanic	40	55	86	40	60	88
Black, non-Hispanic	55	39	77	55	44	76
Hispanic	56	39	80	56	44	82
Asian	43	50	85	43	57	80
Other[a]	60	44	89	60	40	83
Mother's education						
Less than high school	60	40	75	54	46	79
High school diploma	49	51	84	48	52	86
Some college	55	45	85	46	53	84
Bachelor's or higher degree	42	58	85	43	57	87
Family poverty status[b]						
Below poverty threshold	56	44	80	47	52	79
Above poverty threshold	49	51	85	46	54	86
Achievement in grade 5[c]						
Low	61	39	77	47	52	76
Middle	51	49	84	47	53	84
High	45	55	89	43	57	87

[a]Includes non-Hispanic Native Hawaiians, Pacific Islanders, American Indians, Alaska Natives, and children of more than one race.
[b]Federal poverty thresholds define households below poverty level based on household income and number of household members.
[c]Composite of reading, mathematics, and science achievement test scores. Low level includes students in bottom quartile of achievement distribution, middle level includes middle quartiles, high level includes top quartile.

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004 and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-13

Public school students in grades 5 and 8 who were taught mathematics and science by teachers with various levels of subject area preparation, by student characteristics: 2004 and 2007

(Percent distribution)

Grade/student characteristic	Teachers of mathematics				Teachers of science		
	In field	Related field	General education	None of these	In field	General education	None of these
All grade 5 students (2004)	38	4	54	4	43	54	3
Race/ethnicity							
White, non-Hispanic	39	4	55	2	47	52	1
Black, non-Hispanic	33	1	54	11	37	58	6
Hispanic	39	6	49	7	38	57	5
Asian	37	3	57	3	34	61	5
Other[a]	36	3	60	1	35	65	0
Mother's education							
Less than high school	37	3	51	9	37	57	6
High school diploma	41	4	51	3	48	48	4
Some college	42	4	51	4	42	56	2
Bachelor's or higher degree	34	4	60	2	43	56	1
Family poverty status[b]							
Below poverty threshold	37	3	53	7	42	55	3
Above poverty threshold	39	4	54	3	43	54	3
Achievement in grade 3[c]							
Low	33	5	51	11	38	57	5
Middle	39	4	53	3	45	52	3
High	41	3	55	1	43	55	1
All grade 8 students (2007)	85	2	10	4	88	9	3
Race/ethnicity							
White, non-Hispanic	88	2	8	2	90	9	2
Black, non-Hispanic	79	2	13	7	86	8	6
Hispanic	82	2	9	6	88	9	3
Asian	85	3	8	4	85	12	3
Other[a]	81	1	14	4	82	13	5
Mother's education							
Less than high school	78	2	10	9	84	12	4
High school diploma	84	2	9	5	85	12	2
Some college	86	1	11	2	87	9	4
Bachelor's or higher degree	86	3	8	3	93	5	2
Family poverty status[b]							
Below poverty threshold	76	1	14	9	84	12	5
Above poverty threshold	86	2	9	2	89	8	2
Achievement in grade 5[c]							
Low	76	1	17	5	84	10	7
Middle	85	2	10	3	89	9	3
High	92	2	5	1	90	9	2

[a]Includes non-Hispanic Native Hawaiians, Pacific Islanders, American Indians, Alaska Natives, and children of more than one race.
[b]Federal poverty thresholds define households below poverty level based on household income and number of household members.
[c]Composite of reading, mathematics, and science achievement test scores. Low level includes students in bottom quartile of achievement distribution, middle level includes middle quartiles, high level includes top quartile.

NOTES: See detailed definitions of subject area preparation in the text. Percentages may not add to 100% because of rounding.

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004 and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 1-14

Public school students in grades 5 and 8 who were taught mathematics and science by teachers with more than 3 years of teaching experience, by student characteristics: 2004 and 2007

(Percent)

Grade/student characteristic	Teachers of mathematics		Teachers of science	
	More than 3 years	More than 3 years in teaching grade 5 or subject area[a]	More than 3 years	More than 3 years in teaching grade 5 or subject area[a]
All grade 5 students (2004)	86	63	88	65
Race/ethnicity				
White, non-Hispanic	89	68	90	70
Black, non-Hispanic	80	48	89	57
Hispanic	80	58	83	57
Asian	90	68	86	71
Other[b]	93	64	87	61
Mother's education				
Less than high school	87	61	88	63
High school diploma	82	59	83	59
Some college	87	65	89	67
Bachelor's or higher degree	90	69	91	71
Family poverty status[c]				
Below poverty threshold	82	59	83	58
Above poverty threshold	88	65	89	68
Achievement in grade 3[d]				
Low	83	60	88	60
Middle	86	60	86	63
High	88	71	92	75
All grade 8 students (2007)	82	78	84	76
Race/ethnicity				
White, non-Hispanic	84	82	87	81
Black, non-Hispanic	74	67	78	69
Hispanic	79	72	81	70
Asian	86	80	87	80
Other[b]	88	85	77	63
Mother's education				
Less than high school	81	77	79	69
High school diploma	83	78	82	76
Some college	80	75	83	75
Bachelor's or higher degree	84	82	90	83
Family poverty status[c]				
Below poverty threshold	83	76	77	69
Above poverty threshold	82	79	86	79
Achievement in grade 5[d]				
Low	79	71	81	73
Middle	82	78	83	75
High	84	82	88	81

[a]Experience in teaching grade 5 for fifth grade teachers or in teaching subject area for eighth grade teachers.
[b]Includes non-Hispanic Native Hawaiians, Pacific Islanders, American Indians, Alaska Natives, and children of more than one race.
[c]Federal poverty thresholds define households below poverty level based on household income and number of household members.
[d]Composite of reading, mathematics, and science achievement test scores. Low level includes students in bottom quartile of achievement distribution, middle level includes middle quartiles, high level includes top quartile.

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004 and 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 1-15

Public school students in grade 5 whose teachers of mathematics and science agreed or strongly agreed with various statements about their schools, by student characteristics: 2004

(Percent)

Student characteristic	I feel accepted and respected by school staff	Teachers in this school are continually learning and seeking new ideas	Staff members in this school have school spirit	Administrator knows what kind of school he/she wants and has communicated it to the staff	Administration's behavior toward the staff is supportive and encouraging	Administrator sets priorities, makes plans, and sees that they are carried out	There is broad agreement among staff about the school's central mission	Administrator deals effectively with pressures from outside the school	Parents are supportive of school staff	Child misbehavior interferes with my teaching	Children bullying other children is a serious problem in this school	Many of the children I teach are not capable of learning the material I teach	Physical conflicts among children are a serious problem in this school
All students	94	86	81	81	80	77	75	74	70	21	20	14	12
Race/ethnicity													
White, non-Hispanic	95	88	84	81	82	77	76	75	77	17	17	11	8
Black, non-Hispanic	91	86	76	86	77	82	81	72	52	33	30	19	24
Hispanic	93	81	78	78	75	77	71	73	66	22	18	17	12
Asian	95	89	81	75	78	71	70	65	77	22	17	10	9
Other[a]	95	84	83	78	79	72	74	67	61	20	27	19	18
Mother's education													
Less than high school	93	82	80	79	75	77	69	74	61	25	25	18	14
High school diploma	95	87	83	82	80	78	76	76	70	23	21	17	12
Some college	92	86	80	81	79	77	75	72	67	23	20	14	12
Bachelor's or higher degree	95	88	83	81	83	79	78	75	82	12	15	7	7
Family poverty status[b]													
Below poverty threshold	91	83	77	79	74	75	70	72	59	28	26	20	17
Above poverty threshold	95	87	83	82	81	78	76	75	73	18	18	12	10
Achievement in grade 3[c]													
Low	91	83	78	77	76	77	72	70	61	27	26	18	17
Middle	94	86	81	82	80	77	75	74	70	21	20	14	11
High	94	87	83	82	82	77	78	75	78	16	14	8	7

[a]Includes non-Hispanic Native Hawaiians, Pacific Islanders, American Indians, Alaska Natives, and children of more than one race.

[b]Federal poverty thresholds define households below poverty level based on household income and number of household members.

[c]Composite of reading, mathematics, and science achievement test scores. Low level includes students in bottom quartile of achievement distribution, middle level includes middle quartiles, high level includes top quartile.

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2004; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 1-16

Public school students in grade 8 whose mathematics and science teachers agreed or strongly agreed with various statements about their schools, by student characteristics: 2007

(Percent)

Student characteristic	I feel accepted and respected by school staff	Teachers in this school are continually learning and seeking new ideas	Staff members in this school have school spirit	Parents are supportive of school staff	Child misbehavior interferes with my teaching	Many of the children I teach are not capable of learning the material I teach
All students	94	81	76	59	30	19
Race/ethnicity						
White, non-Hispanic	94	82	79	65	24	16
Black, non-Hispanic	93	79	70	44	45	23
Hispanic	94	82	76	52	34	23
Asian	95	82	74	65	29	19
Other[a]	90	78	65	54	41	20
Mother's education						
Less than high school	93	79	75	53	37	26
High school diploma	93	81	74	52	32	21
Some college	94	80	75	60	30	18
Bachelor's or higher degree	95	84	80	71	22	14
Family poverty status[b]						
Below poverty threshold	92	78	71	49	36	25
Above poverty threshold	94	82	77	63	28	17
Achievement in grade 5[c]						
Low	92	81	73	51	40	27
Middle	94	80	77	58	30	18
High	97	84	80	66	25	15

[a]Includes non-Hispanic Native Hawaiians, Pacific Islanders, American Indians, Alaska Natives, and children of more than one race.
[b]Federal poverty thresholds define households below poverty level based on household income and number of household members.
[c]Composite of reading, mathematics, and science achievement test scores. Low level includes students in bottom quartile of achievement distribution, middle level includes middle quartiles, high level includes top quartile.

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 1-17

Frequency that students in grade 8 use computers during mathematics and science class, by student characteristics: 2007

(Percent distribution)

Student characteristic	Mathematics class				Science class			
	Almost every day	Once or twice per week	Once or twice per month	Never or hardly ever	Almost every day	Once or twice per week	Once or twice per month	Never or hardly ever
All students	2	10	25	63	4	17	51	28
Mathematics achievement, grade 8								
Lowest quartile	2	16	22	60	5	15	47	34
Middle two quartiles	2	9	26	62	5	16	52	28
Highest quartile	1	7	25	67	2	22	53	23
Race/ethnicity								
White	1	9	27	63	4	17	54	25
Black	6	14	24	56	4	18	43	35
Hispanic	1	9	20	70	4	18	47	31
Asian	0	8	22	70	3	15	59	23
Other[a]	7	7	22	63	7	13	53	28
Mother's education								
Less than high school	2	12	24	62	6	13	48	33
High school diploma	2	11	27	60	5	14	49	32
Some college	3	11	25	61	5	18	49	29
Bachelor's or higher degree	1	8	25	67	2	19	57	21
Family poverty status[b]								
Below poverty threshold	1	12	29	59	5	15	47	33
At or above poverty threshold	2	9	24	64	4	18	52	27

[a]Includes non-Hispanic Native Hawaiians, Pacific Islanders, American Indians, Alaska Natives, and children of more than one race.
[b]Federal poverty thresholds define households below poverty level based on household income and number of household members.

SOURCES: National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), spring 2007; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 1-18

State standards and policies regarding K–12 teaching with and learning about technology: 2008–09

State	Standards for students include technology	Students tested on technology	Standards for teachers include technology	Requirements for intitial teaching license include technology coursework or test	Technology training or testing, or participation in technology-related professional development required for recertification
Alabama	Yes	No	Yes	No	No
Alaska	Yes	No	Yes	No	Yes
Arizona	Yes	Yes	Yes	No	No
Arkansas	Yes	No	Yes	No	Yes
California	Yes	No	Yes	Yes	No
Colorado	Yes	No	Yes	No	No
Connecticut	Yes	No	Yes	Yes	Yes
Delaware	Yes	No	Yes	No	No
District of Columbia	No	No	No	No	No
Florida	Yes	No	Yes	Yes	No
Georgia	Yes	Yes	Yes	Yes	Yes
Hawaii	Yes	No	Yes	No	No
Idaho	Yes	No	No	No	No
Illinois	Yes	No	Yes	Yes	No
Indiana	Yes	No	Yes	No	No
Iowa	Yes	No	Yes	Yes	No
Kansas	Yes	No	Yes	No	No
Kentucky	Yes	No	Yes	Yes	Yes
Louisiana	Yes	Yes	Yes	Yes	No
Maine	Yes	No	Yes	No	No
Maryland	Yes	Yes	Yes	Yes	No
Massachusetts	Yes	No	Yes	No	No
Michigan	Yes	No	Yes	No	No
Minnesota	Yes	No	Yes	No	No
Mississippi	Yes	No	Yes	No	No
Missouri	Yes	No	Yes	No	No
Montana	Yes	No	No	No	No
Nebraska	Yes	No	Yes	No	No
Nevada	Yes	No	No	No	No
New Hampshire	Yes	Yes	Yes	No	Yes
New Jersey	Yes	Yes	Yes	No	No
New Mexico	Yes	No	Yes	Yes	Yes
New York	Yes	No	Yes	Yes	No
North Carolina	Yes	Yes	Yes	No	No
North Dakota	Yes	No	Yes	Yes	No
Ohio	Yes	No	Yes	Yes	No
Oklahoma	Yes	No	Yes	Yes	No
Oregon	Yes	No	Yes	No	No
Pennsylvania	Yes	Yes	Yes	Yes	No
Rhode Island	Yes	Yes	Yes	No	No
South Carolina	Yes	Yes	Yes	No	Yes
South Dakota	Yes	Yes	Yes	Yes	No
Tennessee	Yes	No	Yes	No	No
Texas	Yes	No	Yes	Yes	No
Utah	Yes	Yes	No	No	No
Vermont	Yes	No	Yes	Yes	No
Virginia	Yes	No	Yes	Yes	No

Appendix table 1-18

State standards and policies regarding K–12 teaching with and learning about technology: 2008–09

State	Standards for students include technology	Students tested on technology	Standards for teachers include technology	Requirements for intitial teaching license include technology coursework or test	Technology training or testing, or participation in technology-related professional development required for recertification
Washington	Yes	No	Yes	No	Yes
West Virginia	Yes	Yes	Yes	Yes	Yes
Wisconsin	Yes	No	Yes	Yes	No
Wyoming	Yes	No	Yes	No	No

SOURCE: Editorial Projects in Education Research, "Breaking Away from Tradition: E-Education Expands Opportunities for Raising Achievement," *Education Week: Technology Counts 2009*, 28(26) (2009).

Science and Engineering Indicators 2010

Appendix table 1-19

Students who took Advanced Placement tests in mathematics and science and number and percentage with passing scores, by sex and race/ethnicity: 1997 and 2008

Subject	1997 Male	1997 Female	2008 Male	2008 Female	1997 White	1997 Black	1997 Hispanic	1997 Asian/Pacific Islander	2008 White	2008 Black	2008 Hispanic	2008 Asian/Pacific Islander
	Number											
Students taking AP tests												
Mathematics												
Calculus AB	57,255	51,182	110,243	104,843	73,219	4,019	5,144	16,183	139,801	10,290	19,830	33,147
Calculus BC	14,022	8,327	39,167	27,618	13,032	394	630	6,027	39,604	1,571	3,718	18,066
Statistics	4,163	3,388	52,452	54,082	4,849	313	390	1,334	68,700	5,603	8,705	17,480
Science												
Biology	30,387	39,081	61,988	88,736	44,508	2,860	3,280	11,255	90,770	8,995	13,628	27,128
Chemistry	23,517	17,286	50,938	45,520	25,548	1,394	1,550	8,269	57,696	4,478	7,301	21,023
Computer science A	5,584	1,408	12,225	2,789	4,301	320	337	1,350	8,757	673	1,142	3,556
Computer science AB	3,841	526	4,200	615	2,798	65	124	934	2,750	111	208	1,428
Physics B	13,471	7,139	35,966	19,261	13,328	541	902	3,667	34,091	2,107	4,799	10,829
Physics C: electricity and magnetism	4,407	1,310	8,922	2,790	3,421	125	183	1,388	7,071	197	541	3,168
Physics C: mechanics	8,591	3,149	19,917	7,320	7,164	291	485	2,580	17,042	627	1,598	6,210
Students with passing scores[a]												
Mathematics												
Calculus AB	36,184	28,138	70,641	59,772	44,293	1,274	2,170	10,409	90,517	3,133	7,677	21,942
Calculus BC	11,369	6,261	32,422	20,948	10,398	235	443	4,742	32,282	863	2,327	14,886
Statistics	2,930	1,756	34,010	28,918	3,139	90	124	901	43,538	1,339	2,919	11,833
Science												
Biology	22,310	24,455	34,667	40,378	30,668	1,027	1,526	8,132	48,576	1,902	3,575	16,036
Chemistry	14,848	8,845	31,232	21,871	14,986	406	547	5,285	33,143	1,008	2,182	13,572
Computer science A	2,773	515	7,087	1,450	2,164	43	104	635	5,359	167	398	2,169
Computer science AB	2,749	380	3,079	447	2,033	34	65	679	2,012	36	127	1,115
Physics B	8,727	3,593	23,190	9,658	8,147	179	377	2,239	21,850	573	1,509	6,954
Physics C: electricity and magnetism	3,005	762	6,378	1,754	2,309	34	75	941	4,946	92	299	2,297
Physics C: mechanics	6,451	1,858	15,272	4,639	5,162	117	238	1,885	12,831	279	800	4,749

Appendix table 1-19

Students who took Advanced Placement tests in mathematics and science and number and percentage with passing scores, by sex and race/ethnicity: 1997 and 2008

Subject	1997 Male	1997 Female	2008 Male	2008 Female	1997 White	1997 Black	1997 Hispanic	1997 Asian/Pacific Islander	2008 White	2008 Black	2008 Hispanic	2008 Asian/Pacific Islander
	Percent											
Students with passing scores[a]												
Mathematics												
Calculus AB	63.2	55.0	64.1	57.0	60.5	31.7	42.2	64.3	64.7	30.4	38.7	66.2
Calculus BC	81.1	75.2	82.8	75.8	79.8	59.6	70.3	78.7	81.5	54.9	62.6	82.4
Statistics	70.4	51.8	64.8	53.5	64.7	28.8	31.8	67.5	63.4	23.9	33.5	67.7
Science												
Biology	73.4	62.6	55.9	45.5	68.9	35.9	46.5	72.3	53.5	21.1	26.2	59.1
Chemistry	63.1	51.2	61.3	48.0	58.7	29.1	35.3	63.9	57.4	22.5	29.9	64.6
Computer science A	49.7	36.6	58.0	52.0	50.3	13.4	30.9	47.0	61.2	24.8	34.9	61.0
Computer science AB	71.6	72.2	73.3	72.7	72.7	52.3	52.4	72.7	73.2	32.4	61.1	78.1
Physics B	64.8	50.3	64.5	50.1	61.1	33.1	41.8	61.1	64.1	27.2	31.4	64.2
Physics C: electricity and magnetism	68.2	58.2	71.5	62.9	67.5	27.2	41.0	67.8	69.9	46.7	55.3	72.5
Physics C: mechanics	75.1	59.0	76.7	63.4	72.1	40.2	49.1	73.1	75.3	44.5	50.1	76.5

AP = Advanced Placement

[a]Passing scores defined as 3, 4, or 5 on a scale of 1–5.

NOTES: Subjects with more than one AP course/test distinguished as follows. Calculus AB and calculus BC are year-long courses and cover some of same material at similar level of depth. Calculus BC extends to additional topics and aims to substitute for additional college course beyond course(s) that calculus AB replaces. Computer science A includes subset of topics addressed in computer science AB and covers some in less depth (e.g., algorithms, data structures, design, abstraction). Physics B and physics C differ primarily in depth and level of mathematics required. Physics B rarely uses calculus but requires knowledge of algebra and trigonometry and is equivalent to 1-year terminal college course often taken by students majoring in such fields as life sciences, certain applied sciences, or premedicine. Physics C requires extensive use of calculus methods and is equivalent to college courses of up to 2 years' duration and is designed for students majoring in physical sciences or engineering. Students take one physics C exam, but components are scored separately for electricity/magnetism and for mechanics.

SOURCE: *Advanced Placement Program National Summary Reports, 1997–2008.* Copyright © 1997–2008, the College Board. Reproduced with permission. All rights reserved.

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Appendix table 1-20

Postsecondary experiences of the class of 2004, by mathematics and science preparation and skills in high school: 2006

(Percent)

High school preparation/skills	Enrollment by 2006		If enrolled, took remedial mathematics
	4-year college	2-year college	
All students	44	26	30
Highest mathematics course			
None, low academic, no algebra II	9	31	41
Algebra II	33	34	38
Advanced 1	52	27	27
Advanced 2: Precalculus	69	17	23
Advanced 3: Calculus	83	9	17
Highest science course			
None, low academic through biology	16	31	37
Chemistry 1 or physics 1	45	29	32
Chemistry 1 and physics 1	68	19	24
Advanced biology or chemistry 2 or physics 2	68	17	22
Advanced mathematics credits			
0	22	33	39
Up to 1	60	23	25
1.1 to 2	77	12	20
More than 2	88	6	17
Advanced science credits			
0	12	32	38
Up to 1	41	29	32
1.1 to 2	80	10	20
More than 2	90	5	16
12th-grade mathematics test score			
Bottom quartile	13	31	45
Second quartile	29	34	38
Third quartile	53	24	28
Top quartile	76	14	18

NOTE: Estimates for remedial coursetaking are based on student reports and limited to those who enrolled in postsecondary education.

SOURCE: National Center for Education Statistics (NCES), Education Longitudinal Study of 2002, 2006 followup (ELS: 2002/06).

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Appendix table 1-21

High school graduates enrolled in college in October after completing high school, by family income, race/ethnicity, and parents' education: 1975–2008

(Percent)

		Family income			Race/ethnicity			Parents' education			
Year	All graduates	Low	Middle	High	White	Black	Hispanic	Less than high school	High school diploma or equivalent	Some college	Bachelor's degree or higher
1975	51	31	46	65	51	42	58	NA	NA	NA	NA
1976	49	39	41	63	49	44	53	NA	NA	NA	NA
1977	51	28	44	66	51	50	51	NA	NA	NA	NA
1978	50	31	44	64	51	46	42	NA	NA	NA	NA
1979	49	31	43	63	50	47	45	NA	NA	NA	NA
1980	49	33	43	65	50	43	52	NA	NA	NA	NA
1981	54	34	49	68	55	43	52	NA	NA	NA	NA
1982	51	33	42	71	53	36	43	NA	NA	NA	NA
1983	53	35	45	70	55	38	54	NA	NA	NA	NA
1984	55	35	48	74	59	40	44	NA	NA	NA	NA
1985	58	40	51	75	60	42	51	NA	NA	NA	NA
1986	54	34	49	71	57	37	44	NA	NA	NA	NA
1987	57	37	50	74	59	52	34	NA	NA	NA	NA
1988	59	43	55	73	61	44	57	NA	NA	NA	NA
1989	60	48	55	71	61	53	55	NA	NA	NA	NA
1990	60	47	54	77	63	47	43	NA	NA	NA	NA
1991	63	40	58	78	65	46	57	NA	NA	NA	NA
1992	62	41	57	79	64	48	55	33	56	68	81
1993	63	50	57	79	63	56	62	47	52	63	88
1994	62	43	58	78	65	51	49	43	50	65	83
1995	62	34	56	84	64	51	54	27	47	70	88
1996	65	49	63	78	67	56	51	45	56	67	85
1997	67	57	61	82	68	59	66	51	62	63	86
1998	66	46	58	78	69	62	47	50	57	68	82
1999	63	49	63	76	66	59	42	36	54	60	82
2000	63	50	65	77	66	55	53	44	52	64	81
2001	62	44	56	80	64	55	52	39	52	62	81
2002	65	56	61	78	69	59	53	43	52	66	83
2003	64	53	58	80	66	58	59	43	54	63	82
2004	67	50	63	79	69	63	62	40	55	67	86
2005	69	54	65	81	73	56	54	43	62	66	89
2006	66	51	61	81	69	56	58	43	56	67	78
2007	67	58	63	78	70	56	64	45	52	65	86
2008	69	56	65	82	72	56	64	44	57	72	82

NA = not available

NOTES: Includes students ages 16–24 completing high school in survey year. 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: National Center for Education Statistics (NCES), *The Condition of Education 2009*, NCES 2009-081 (2009); U.S. Bureau of Labor Statistics, Current Population Survey (CPS), 2008 October supplement; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 2-1

S&E degrees awarded, by degree level, Carnegie institution type, and field: 2007

		S&E field									
Degree/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
Associate's	733,151	47,485	1,790	2,224	27,680	69	827	1,946	2,213	8,464	2,272
Doctorate-granting universities—very high research activity	3,761	62	33	0	23	0	0	0	0	6	0
Doctorate-granting universities—high research activity	2,940	135	51	13	66	0	0	2	0	2	1
Doctoral/research universities	5,926	237	1	2	222	0	2	9	0	1	0
Master's colleges and universities	34,101	1,355	13	25	1,096	6	7	53	40	105	10
Baccalaureate colleges	39,392	2,726	158	69	1,904	0	8	14	192	231	150
Associate's colleges	614,240	39,091	1,497	2,034	20,868	63	808	1,857	1,957	7,925	2,082
Medical schools and medical centers	535	0	0	0	0	0	0	0	0	0	0
Schools of engineering	38	25	0	0	15	0	0	0	0	0	10
Other specialized institutions	18,913	3,025	12	63	2,921	0	0	11	4	1	13
Tribal colleges	1,568	274	25	17	46	0	0	0	4	176	6
Not classified	11,737	555	0	1	519	0	2	0	16	17	0
Bachelor's	1,541,704	485,772	17,696	79,348	42,596	4,077	15,551	17,007	90,498	150,725	68,274
Doctorate-granting universities—very high research activity	367,989	174,291	8,247	29,874	6,801	1,428	5,118	5,693	24,128	58,300	34,702
Doctorate-granting universities—high research activity	244,390	79,577	3,217	12,562	4,908	727	1,978	2,338	14,235	22,896	16,716
Doctoral/research universities	102,967	25,322	405	3,587	4,180	174	805	801	5,253	7,999	2,118
Master's colleges and universities	556,454	134,449	3,973	20,781	15,155	1,146	5,111	5,062	33,629	39,926	9,666
Baccalaureate colleges	203,779	63,246	1,785	11,577	6,117	596	2,520	3,077	12,743	21,180	3,651
Associate's colleges	4,419	1,078	33	169	767	0	0	0	87	20	2
Medical schools and medical centers	5,646	46	0	46	0	0	0	0	0	0	0
Schools of engineering	1,543	1,405	0	11	71	6	15	28	0	1	1,273
Other specialized institutions	45,012	4,799	4	719	3,446	0	1	8	326	227	68
Tribal colleges	165	60	13	0	2	0	0	0	0	45	0
Not classified	9,340	1,499	19	22	1,149	0	3	0	97	131	78
Master's	610,469	120,278	4,126	8,794	16,314	1,632	5,035	4,243	18,594	30,604	30,936
Doctorate-granting universities–very high research activity	153,015	48,496	2,134	4,084	5,306	813	2,761	2,495	1,590	12,832	16,481
Doctorate-granting universities–high research activity	92,531	25,728	941	1,776	3,597	643	1,064	978	2,216	6,147	8,366
Doctoral/research universities	77,439	11,157	239	475	1,969	40	282	242	3,378	2,957	1,575
Master's colleges and universities	237,322	29,788	751	1,669	4,776	123	907	495	8,728	8,220	4,119
Baccalaureate colleges	15,170	1,169	46	56	155	6	9	29	559	197	112
Associate's colleges	76	10	0	0	0	0	0	0	8	0	2
Medical schools and medical centers	6,782	828	2	670	0	2	0	3	61	39	51
Schools of engineering	400	204	0	0	11	5	0	0	0	0	188
Other specialized institutions	22,396	2,467	0	51	246	0	12	1	2,007	129	21
Tribal colleges	17	0	0	0	0	0	0	0	0	0	0
Not classified	5,321	431	13	13	254	0	0	0	47	83	21

Appendix table 2-1

S&E degrees awarded, by degree level, Carnegie institution type, and field: 2007

		S&E field									
Degree/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
Doctorate	60,887	32,588	1,068	6,703	1,597	727	1,356	4,209	4,696	4,166	8,066
Doctorate-granting universities–very high research activity	35,373	22,762	812	4,818	1,200	583	1,109	3,326	1,255	3,188	6,471
Doctorate-granting universities–high research activity	10,629	5,622	222	833	275	133	224	784	1,036	720	1,395
Doctoral/research universities	6,411	1,920	17	106	96	5	19	58	1,351	162	106
Master's colleges and universities	3,243	468	12	27	25	3	2	14	270	45	70
Baccalaureate colleges	361	40	0	7	0	0	2	4	24	2	1
Medical schools and medical centers	2,302	1,082	5	899	1	0	0	21	116	21	19
Schools of engineering	7	7	0	0	0	3	0	0	0	0	4
Other specialized institutions	2,503	660	0	3	0	0	0	2	636	19	0
Not classified	58	27	0	10	0	0	0	0	8	9	0

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources 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: 1998–2007

Broad field/degree level	1998	2000	2001	2002	2003	2004	2005	2006	2007
All fields									
Associate's	61,559	76,170	83,135	84,191	96,889	100,644	108,446	113,619	119,400
Bachelor's	14,977	20,964	24,051	27,409	32,164	43,025	49,242	62,501	71,204
Master's	6,696	11,263	13,049	16,064	17,028	28,823	35,542	45,653	51,461
Doctorate	352	606	802	662	842	1,171	1,336	1,470	1,903
S&E									
Associate's	5,456	9,165	12,737	16,335	21,126	18,798	16,874	14,970	13,537
Bachelor's	2,879	4,086	5,175	6,928	9,954	13,219	12,892	13,716	13,125
Master's	642	1,337	1,434	1,363	1,755	2,425	2,231	2,365	2,866
Doctorate	226	349	517	367	391	482	500	611	683
Non-S&E									
Associate's	56,103	67,005	70,398	67,856	75,763	81,846	91,572	98,649	105,863
Bachelor's	12,098	16,878	18,876	20,481	22,210	29,806	36,350	48,785	58,079
Master's	6,054	9,926	11,615	14,701	15,273	26,398	33,311	43,288	48,595
Doctorate	126	257	285	295	451	689	836	859	1,220
	Percent								
All fields									
Associate's	10.9	13.3	14.2	14.0	15.2	15.0	15.5	15.8	16.3
Bachelor's	1.2	1.7	1.9	2.1	2.4	3.0	3.4	4.2	4.6
Master's	1.5	2.4	2.8	3.3	3.3	5.1	6.1	7.6	8.4
Doctorate	0.8	1.3	1.8	1.5	1.8	2.4	2.5	2.6	3.1
S&E									
Associate's	17.7	23.8	28.2	31.9	33.6	31.2	30.8	30.0	28.5
Bachelor's	0.7	1.0	1.3	1.7	2.2	2.9	2.7	2.9	2.7
Master's	0.7	1.4	1.4	1.4	1.6	2.0	1.8	2.0	2.4
Doctorate	0.8	1.4	2.0	1.5	1.5	1.8	1.8	2.0	2.1
Non-S&E									
Associate's	10.5	12.5	13.0	12.4	13.2	13.4	14.2	14.8	15.4
Bachelor's	1.5	2.0	2.2	2.3	2.4	3.1	3.7	4.8	5.5
Master's	1.8	2.7	3.1	3.8	3.7	6.0	7.3	9.0	9.9
Doctorate	0.7	1.3	1.5	1.5	2.2	3.1	3.4	3.3	4.3

NOTE: Data not available for 1999.

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

Science and Engineering Indicators 2010

Appendix table 2-3

Degrees awarded by private for-profit academic institutions, by field and degree level: 2007

Field	Associate's	Bachelor's	Master's	Doctorate
All fields	119,400	71,204	51,461	1,903
S&E	13,537	13,125	2,866	683
Agricultural sciences	0	11	5	0
Biological sciences	0	49	0	0
Computer science	13,092	11,268	840	10
Mathematics	0	1	0	0
Psychology	70	275	1,599	631
Social sciences	14	1,476	380	42
Engineering	361	45	42	0
Non-S&E	105,863	58,079	48,595	1,220
Architecture and environmental design	58	80	37	0
Arts and music	9,232	7,555	362	0
Business and management	30,023	36,255	25,387	438
Communication and librarianship	381	247	71	0
Education	203	183	16,617	642
Engineering technologies	8,571	1,853	67	0
English and literature	0	10	0	0
Health technologies	22,880	26	312	0
History	0	25	10	0
Law	42	36	0	0
Medical and other life sciences	3,572	5,020	4,762	110
Religion and theology	0	18	0	3
Science technologies	11	113	202	0
Social services	0	9	60	2
Vocational studies and home economics	15,388	4,770	573	8
Other non-S&E	15,502	1,879	135	17

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

Science and Engineering Indicators 2010

Appendix table 2-4

Enrollment in higher education, by Carnegie institution type: 1993–2007

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
1993	14,477,792	2,146,394	1,512,688	619,212	3,149,409	1,134,523	5,229,734	76,839	14,075	246,642	10,251	338,025
1994	14,449,476	2,143,968	1,505,465	621,444	3,152,452	1,133,454	5,191,810	77,693	12,733	255,819	9,619	345,019
1995	14,445,438	2,147,614	1,505,914	623,243	3,159,424	1,147,825	5,139,865	78,889	13,314	264,640	9,798	354,912
1996	14,550,056	2,146,987	1,493,408	628,978	3,173,424	1,159,916	5,270,093	80,409	11,823	284,055	16,439	284,524
1997	14,680,488	2,152,915	1,506,792	627,791	3,207,488	1,171,391	5,344,009	81,243	12,020	299,197	12,905	264,737
1998	14,711,280	2,177,443	1,517,419	639,607	3,252,642	1,171,455	5,329,287	81,032	11,421	312,482	13,488	205,004
2000	15,506,922	2,212,283	1,552,492	667,857	3,381,045	1,218,008	5,846,451	81,348	12,961	337,095	13,417	183,965
2001	16,129,629	2,261,898	1,599,014	709,570	3,512,331	1,254,963	6,223,456	82,369	13,210	359,575	13,768	99,475
2002	16,822,915	2,326,033	1,653,569	755,201	3,673,314	1,302,257	6,556,085	84,219	13,187	384,290	15,586	59,174
2003	17,118,126	2,354,908	1,675,963	800,799	3,768,949	1,343,216	6,621,921	85,817	13,424	409,471	17,568	26,090
2004	17,492,964	2,362,063	1,693,731	862,646	3,876,064	1,364,281	6,760,679	90,508	13,911	443,249	17,599	8,233
2005	17,710,640	2,378,925	1,693,929	880,533	3,957,181	1,392,206	6,754,062	94,128	13,114	459,293	16,889	70,380
2006	17,985,045	2,408,011	1,714,457	934,914	3,987,312	1,417,144	6,818,801	97,123	12,955	477,264	17,052	100,012
2007	18,474,977	2,442,062	1,744,094	1,015,603	4,046,978	1,446,859	7,018,490	98,244	12,807	490,382	16,979	142,479

NOTES: Data not available for 1999. Data from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-5

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/year	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.

SOURCE: 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 2010

Appendix table 2-6

Freshmen intending S&E major, by field, sex, and race/ethnicity: 1993–2008

(Percent)

Field, sex, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All intending S&E major	33.3	32.7	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
Physical sciences	2.5	2.1	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
Biological/agricultural sciences	8.2	9.2	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
Mathematics/statistics	0.8	0.8	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
Computer sciences	2.1	2.5	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
Social/behavioral sciences	9.7	9.4	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
Engineering	10.0	8.7	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
Male	41.1	39.7	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
Physical sciences	3.2	2.9	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
Biological/agricultural sciences	8.8	9.4	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
Mathematics/statistics	0.8	0.9	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
Computer sciences	3.5	4.1	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
Social/behavioral sciences	7.5	7.1	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
Engineering	17.3	15.3	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
Female	26.8	26.8	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
Physical sciences	1.9	1.5	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
Biological/agricultural sciences	7.7	8.9	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
Mathematics/statistics	0.7	0.7	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
Computer sciences	1.1	1.1	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
Social/behavioral sciences	11.5	11.3	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
Engineering	3.9	3.3	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
White	32.2	31.2	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
Physical sciences	2.6	2.2	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
Biological/agricultural sciences	8.0	9.1	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
Mathematics/statistics	0.9	0.8	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
Computer sciences	1.8	2.1	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
Social/behavioral sciences	9.4	9.1	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
Engineering	9.5	7.9	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
Male	40.1	38.4	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
Physical sciences	3.3	2.8	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
Biological/agricultural sciences	8.6	9.5	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
Mathematics/statistics	0.9	0.9	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
Computer sciences	3.2	3.8	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
Social/behavioral sciences	7.4	7.0	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
Engineering	16.7	14.4	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
Female	24.0	25.2	25.0	25.2	25.9	25.7	23.9	24.6	23.8	24.0	23.6	23.6	23.6	22.9	23.8	24.5
Physical sciences	1.5	1.9	1.5	1.8	1.5	1.6	1.3	1.4	1.3	1.3	1.3	1.4	1.7	1.6	1.7	1.8
Biological/agricultural sciences	6.6	7.5	8.7	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
Mathematics/statistics	0.8	0.7	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
Computer sciences	0.7	0.6	0.6	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
Social/behavioral sciences	11.3	11.1	10.8	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
Engineering	3.1	3.4	2.7	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

Appendix table 2-6

Freshmen intending S&E major, by field, sex, and race/ethnicity: 1993–2008

(Percent)

Field, sex, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Asian American	43.5	45.3	41.2	48.1	45.7	45.3	48.2	45.2	43.1	43.7	44.4	46.0	42.3	45.6	44.6	46.5
Physical sciences	2.6	2.4	1.9	1.9	1.5	1.9	1.4	1.3	1.6	1.8	2.1	2.2	2.2	2.6	2.5	2.7
Biological/agricultural sciences	14.0	14.0	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
Mathematics/statistics	0.7	0.6	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
Computer sciences	2.9	4.6	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
Social/behavioral sciences	8.6	7.3	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
Engineering	14.7	16.4	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
Male	52.2	54.4	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
Physical sciences	2.8	3.0	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
Biological/agricultural sciences	14.1	13.2	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
Mathematics/statistics	0.6	0.6	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
Computer sciences	4.3	6.8	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
Social/behavioral sciences	6.4	5.1	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
Engineering	24.0	25.7	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
Female	34.4	35.4	32.9	36.9	34.0	35.8	35.7	35.0	32.9	33.8	36.6	37.9	36.0	40.8	39.3	40.6
Physical sciences	2.3	1.8	1.5	1.9	1.5	1.7	1.1	1.2	1.4	1.5	1.9	2.0	2.2	2.6	2.3	2.3
Biological/agricultural sciences	13.6	14.9	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
Mathematics/statistics	0.7	0.7	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
Computer sciences	1.4	2.0	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
Social/behavioral sciences	10.6	9.8	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
Engineering	5.8	6.2	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
Black	38.2	34.8	35.6	36.9	39.0	34.9	37.1	37.5	35.0	35.4	33.6	34.3	32.0	33.6	33.8	32.7
Physical sciences	1.7	1.6	1.5	1.3	1.3	1.0	1.0	1.2	1.0	1.2	1.3	1.5	1.7	1.6	1.5	1.5
Biological/agricultural sciences	7.5	7.4	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
Mathematics/statistics	0.6	0.8	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
Computer sciences	5.5	4.7	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
Social/behavioral sciences	9.8	10.7	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
Engineering	13.1	9.6	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
Male	44.3	39.8	40.5	40.8	45.1	37.2	42.0	42.0	37.5	40.2	36.2	38.0	34.1	35.5	34.5	33.4
Physical sciences	1.9	1.7	1.6	1.1	1.4	1.3	1.2	1.2	1.0	1.2	1.2	1.5	1.7	1.5	1.8	1.7
Biological/agricultural sciences	6.8	6.8	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
Mathematics/statistics	0.6	0.7	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
Computer sciences	6.7	5.5	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
Social/behavioral sciences	7.2	8.0	6.1	6.0	6.8	7.0	7.4	6.4	7.3	8.1	7.7	7.1	7.1	8.3	8.1	8.0
Engineering	21.1	17.1	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
Female	34.0	31.1	32.8	34.0	34.4	33.6	34.5	34.2	33.3	32.6	31.4	31.9	30.3	31.9	33.8	32.3
Physical sciences	1.6	1.4	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
Biological/agricultural sciences	7.9	7.6	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
Mathematics/statistics	0.6	0.8	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
Computer sciences	4.8	4.1	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
Social/behavioral sciences	11.5	12.3	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
Engineering	7.6	4.9	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

Appendix table 2-6
Freshmen intending S&E major, by field, sex, and race/ethnicity: 1993–2008
(Percent)

Field, sex, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Mexican American/Chicano and Puerto Rican American	34.8	38.7	37.7	37.4	37.8	33.7	36.9	33.9	34.2	36.2	35.6	37.9	34.0	36.6	34.7	38.0
Physical sciences	1.5	1.6	1.1	0.9	1.3	1.1	0.9	0.9	1.0	1.4	1.4	1.5	1.2	1.6	1.3	1.4
Biological/agricultural sciences	8.2	8.3	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
Mathematics/statistics	0.4	0.7	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
Computer sciences	2.2	2.6	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
Social/behavioral sciences	12.1	13.5	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
Engineering	10.4	12.0	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
Male	40.6	43.4	43.6	46.1	44.6	38.8	45.2	42.3	42.6	42.4	41.7	45.2	39.2	40.9	38.8	41.2
Physical sciences	1.9	2.0	1.4	1.1	1.5	1.5	0.9	1.2	1.2	1.5	2.0	1.8	1.2	2.0	1.6	1.6
Biological/agricultural sciences	9.2	7.9	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
Mathematics/statistics	0.4	1.0	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
Computer sciences	3.3	4.2	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
Social/behavioral sciences	8.8	8.7	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
Engineering	17.0	19.6	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
Female	29.7	35.1	32.4	30.0	33.0	29.0	29.7	28.1	28.3	31.8	31.8	33.3	30.5	33.9	32.1	36.1
Physical sciences	1.2	1.4	0.8	0.8	1.3	0.7	0.6	0.9	1.0	1.3	1.0	1.2	1.0	1.4	1.2	1.2
Biological/agricultural sciences	7.4	8.6	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
Mathematics/statistics	0.4	0.5	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
Computer sciences	1.3	1.4	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
Social/behavioral sciences	14.9	17.4	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
Engineering	4.5	5.8	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
American Indian	28.1	23.0	27.9	32.5	32.6	28.5	34.6	30.7	34.7	30.6	30.1	28.4	31.8	35.9	36.3	27.6
Physical sciences	0.6	0.8	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
Biological/agricultural sciences	7.4	7.4	10.0	9.2	7.0	7.1	11.7	6.5	8.2	8.7	7.2	8.3	12.1	13.3	11.1	8.0
Mathematics/statistics	0.1	0.1	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
Computer sciences	2.8	1.8	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
Social/behavioral sciences	9.0	7.7	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
Engineering	8.2	5.2	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
Male	33.2	28.3	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
Physical sciences	1.0	1.4	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
Biological/agricultural sciences	9.0	5.8	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
Mathematics/statistics	0.0	0.0	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
Computer sciences	2.1	3.9	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
Social/behavioral sciences	8.5	6.6	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
Engineering	12.6	10.6	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
Female	24.2	19.0	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
Physical sciences	0.4	0.4	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
Biological/agricultural sciences	6.2	8.6	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
Mathematics/statistics	0.3	0.1	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
Computer sciences	3.4	0.2	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
Social/behavioral sciences	9.3	8.6	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
Engineering	4.6	1.1	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

NOTE: Physical sciences include physics; chemistry; astronomy; and earth, atmospheric, and ocean sciences.

SOURCE: Higher Education Research Institute, University of California at Los Angeles, Survey of the American Freshman: National Norms, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-7

Freshmen intending to major in selected S&E fields, by sex and race/ethnicity: 1993–2008

(Percent)

Sex, race/ethnicity, and field	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	56.3	55.0	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
Female	43.7	45.0	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
White	79.2	77.0	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
Physical sciences	85.9	82.6	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
Biological/agricultural sciences	79.8	79.3	78.4	77.9	78.1	78.2	77.0	73.3	70.6	70.0	66.9	66.8	66.1	67.5	66.4	64.7
Mathematics/statistics	86.9	82.2	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
Computer sciences	66.3	67.3	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
Social/behavioral sciences	81.3	78.4	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
Engineering	75.2	71.1	71.5	70.1	71.2	74.7	70.7	69.9	72.1	70.3	70.3	69.2	67.1	69.2	66.9	66.4
Asian American	5.6	7.8	7.0	7.7	7.9	7.7	9.2	9.6	9.5	10.1	11.4	11.7	11.6	10.7	11.2	11.8
Physical sciences	5.6	7.8	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
Biological/agricultural sciences	4.5	6.8	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
Mathematics/statistics	4.2	4.8	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
Computer sciences	5.5	10.0	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
Social/behavioral sciences	4.0	4.5	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
Engineering	6.3	10.5	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
Black	11.3	10.8	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
Physical sciences	7.2	7.6	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
Biological/agricultural sciences	9.1	8.2	9.8	9.9	10.1	9.3	8.9	10.6	10.6	10.6	10.3	10.7	11.6	10.6	11.0	11.0
Mathematics/statistics	7.3	10.3	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
Computer sciences	24.1	18.9	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
Social/behavioral sciences	10.3	11.6	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
Engineering	12.1	10.3	10.1	9.8	9.3	6.7	7.1	8.8	6.5	8.1	6.9	6.6	7.9	7.7	7.3	5.9
Hispanic	3.9	4.9	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
Physical sciences	2.5	3.7	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
Biological/agricultural sciences	3.6	3.8	4.3	4.3	4.7	5.1	5.8	7.0	7.2	6.6	7.0	7.8	7.6	8.9	9.1	11.4
Mathematics/statistics	1.9	3.5	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
Computer sciences	3.6	4.4	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
Social/behavioral sciences	5.0	5.8	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
Engineering	3.7	5.3	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
American Indian	1.7	2.0	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
Physical sciences	1.1	2.1	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
Biological/agricultural sciences	1.8	1.9	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	2.6
Mathematics/statistics	1.6	1.9	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
Computer sciences	1.9	2.0	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
Social/behavioral sciences	2.1	2.4	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
Engineering	0.4	0.3	0.4	0.5	0.3	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.3	0.3	0.3
Other/unknown	1.9	2.2	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
Physical sciences	1.7	1.7	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
Biological/agricultural sciences	2.0	2.3	2.6	3.1	3.6	3.3	3.7	3.5	3.7	3.5	4.0	3.9	3.7	4.4	4.3	4.9
Mathematics/statistics	2.1	1.7	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
Computer sciences	1.6	2.0	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
Social/behavioral sciences	2.1	2.4	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
Engineering	1.6	2.0	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

NOTES: Physical sciences include physics; chemistry; astronomy; and earth, atmospheric, and ocean sciences. Hispanic includes three group designations from freshman norms survey: Mexican American/Chicano, Puerto Rican American, and other Latino. Asian includes Native Hawaiian/other Pacific Islander. 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 (2009).

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Appendix table 2-8

Foreign undergraduate student enrollment in U.S. universities, by field and selected places of origin: April 2008 and 2009

Place of origin	All fields	S&E	Agricultural sciences	Biological sciences	Computer sciences	Engineering	Mathematics	Physical sciences	Psychology	Social sciences	Non-S&E
April 2008											
All locations	248,400	72,670	1,130	11,300	12,320	22,560	2,790	3,550	4,880	14,150	175,730
South Korea	32,840	7,950	90	1,660	970	1,820	380	570	510	1,950	24,890
India	10,740	5,230	20	680	1,010	2,630	80	140	130	550	5,500
China	16,530	4,610	110	560	640	1,220	520	260	210	1,090	11,920
Japan	19,370	4,250	200	670	390	410	120	260	630	1,570	15,120
Saudi Arabia	7,250	3,960	0	110	1,250	2,350	20	120	10	100	3,300
Nepal	8,210	3,370	110	940	820	820	80	260	50	290	4,840
Canada	11,780	2,380	60	660	110	470	50	130	320	580	9,400
Malaysia	3,200	1,950	30	340	90	850	330	60	150	100	1,250
Taiwan	7,160	1,740	20	300	290	500	70	100	150	310	5,420
Vietnam	7,270	1,690	20	290	540	430	50	170	30	180	5,590
Nigeria	3,510	1,690	10	360	210	700	30	90	40	250	1,830
Hong Kong	5,760	1,620	30	180	140	410	110	90	230	430	4,140
Mexico	5,790	1,580	30	120	170	860	30	50	130	200	4,210
Turkey	3,670	1,450	10	50	340	500	30	30	60	440	2,220
Indonesia	4,590	1,380	80	120	230	690	40	50	50	110	3,210
Kenya	4,440	1,240	10	300	290	290	60	70	70	150	3,200
Jamaica	3,400	1,000	20	230	260	180	40	50	100	130	2,400
Trinidad and Tobago	2,120	830	20	180	110	220	50	50	100	100	1,290
Pakistan	2,110	810	0	60	160	350	30	20	10	170	1,300
Brazil	4,220	750	20	120	110	160	10	10	90	240	3,470
Other locations	84,430	23,210	250	3,370	4,230	6,710	650	970	1,820	5,210	61,220
April 2009											
All locations	271,400	80,500	1,210	12,040	12,960	25,670	3,650	3,960	5,030	15,970	190,900
South Korea	36,520	8,940	100	1,840	1,010	2,070	470	610	570	2,270	27,580
China	27,720	7,990	160	800	1,000	2,300	1,030	430	360	1,910	19,730
India	11,910	5,940	30	700	1,270	2,980	90	150	140	590	5,970
Saudi Arabia	8,750	4,520	10	120	1,280	2,790	20	160	20	130	4,230
Nepal	9,590	4,010	110	1,050	1,040	1,060	130	290	60	300	5,570
Japan	16,540	3,630	150	540	340	370	130	220	520	1,380	12,910
Canada	12,060	2,520	70	690	100	470	60	150	360	620	9,540
Malaysia	3,530	2,170	40	390	80	920	380	70	160	140	1,350
Vietnam	9,670	2,060	20	370	610	520	70	190	30	250	7,610
Nigeria	3,620	1,730	20	350	220	720	20	100	40	250	1,890
Taiwan	7,040	1,710	30	290	260	490	90	90	130	330	5,330
Mexico	5,910	1,710	40	140	160	900	30	70	130	230	4,200
Hong Kong	6,010	1,670	20	220	130	370	130	100	230	480	4,330
Turkey	3,770	1,470	10	50	350	570	30	20	60	400	2,290
Indonesia	4,620	1,470	90	130	220	730	50	40	70	150	3,160
Kenya	4,410	1,210	20	310	240	290	60	80	50	170	3,200
Jamaica	3,210	930	10	230	230	170	40	50	80	130	2,280
Brazil	4,790	860	10	140	140	180	20	20	90	270	3,930
Pakistan	2,090	840	0	60	140	360	40	20	10	200	1,250
Sri Lanka	1,550	770	0	130	120	360	20	30	40	60	770
Other locations	88,120	24,340	290	3,510	4,040	7,060	760	1,070	1,890	5,730	63,790

NOTES: Numbers rounded to nearest 10. Countries ordered by number of S&E students.

SOURCE: Bureau of Citizenship and Immigration Services, Student and Exchange Visitor Information System database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-9

Undergraduate enrollment in engineering and engineering technology programs: 1993–2007

Enrollment level	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Engineering															
Students	375,944	367,298	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
Full time	337,817	328,463	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
Freshman	88,875	85,047	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
Sophomore	69,974	68,177	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
Junior	73,449	71,753	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
Senior or fifth year	105,519	103,486	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
Part time	38,127	38,835	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
Engineering technologies															
Students	106,976	107,275	105,809	105,345	108,459	108,993	108,754	107,165	108,886	112,654	110,250	107,931	97,371	96,371	99,476
Full time	65,581	66,457	63,929	62,330	67,864	68,545	69,173	66,771	71,147	72,704	72,040	69,584	62,560	61,977	61,743
First year	24,824	24,574	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
Second year	19,962	20,997	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
Other years associated	2,564	3,121	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
Bachelor's of engineering technologies third and later years	18,231	17,765	17,394	15,700	15,089	15,672	17,068	16,448	18,181	19,306	19,278	19,455	17,885	18,439	16,568
Part time	41,395	40,818	41,880	43,015	40,595	40,448	39,581	40,394	37,739	39,950	38,210	38,347	34,811	34,394	37,733

SOURCE: Engineering Workforce Commission, Engineering & Technology Enrollments, Fall 2007, American Association of Engineering Societies (2008).

Science and Engineering Indicators 2010

Appendix table 2-10

Earned associate's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Both sexes														
All fields	519,098	546,574	544,094	558,994	575,688	562,915	573,496	585,610	600,294	637,953	670,335	701,734	718,182	733,151
S&E	23,420	25,581	24,228	25,655	27,201	30,897	38,434	45,226	51,194	62,805	60,246	54,750	49,850	47,485
Engineering	2,526	2,844	2,285	2,232	1,989	2,170	1,794	1,898	1,781	2,278	2,843	2,557	2,291	2,272
Aerospace	8	6	2	2	1	0	1	0	0	0	0	0	2	0
Chemical	43	16	16	13	7	8	16	18	28	7	305	2	7	3
Civil	102	85	80	121	110	130	58	53	46	62	58	52	43	64
Electrical	400	410	257	314	265	428	280	309	182	672	910	691	531	459
Industrial	94	136	103	95	81	77	67	132	80	81	49	88	57	56
Materials	19	29	8	5	5	13	11	14	10	12	12	13	10	8
Mechanical	96	86	104	73	58	82	77	67	65	69	70	64	68	77
Other	1,764	2,076	1,715	1,609	1,462	1,432	1,284	1,305	1,370	1,375	1,439	1,647	1,573	1,605
Science	20,894	22,737	21,943	23,423	25,212	28,727	36,640	43,328	49,413	60,527	57,403	52,193	47,559	45,213
Natural sciences	15,062	16,118	15,866	16,744	18,523	21,806	29,130	35,718	41,243	52,130	48,289	42,494	37,622	34,536
Agricultural sciences	1,896	1,938	1,910	1,994	1,918	2,092	1,976	2,106	2,001	2,018	1,966	1,908	1,934	1,790
Biological sciences	1,499	1,907	1,901	2,074	2,181	2,180	1,484	1,536	1,577	1,786	1,753	1,979	2,028	2,224
Earth, atmospheric, and ocean sciences	168	226	186	189	191	78	82	82	58	52	41	45	67	69
Atmospheric sciences	89	119	107	97	95	3	0	1	0	0	2	2	7	10
Earth sciences	22	44	28	47	51	38	28	38	28	34	25	23	40	41
Oceanography	57	63	51	45	45	37	54	43	30	18	14	20	20	18
Mathematics/computer sciences	10,275	10,634	10,410	10,927	12,693	15,871	24,251	30,809	36,264	47,135	42,955	36,947	31,923	28,507
Computer sciences	9,532	9,868	9,627	10,168	11,900	15,027	23,576	30,113	35,578	46,400	42,153	36,140	31,170	27,680
Mathematics/statistics	743	766	783	759	793	844	675	696	686	735	802	807	753	827
Physical sciences	1,224	1,413	1,459	1,560	1,540	1,585	1,337	1,185	1,343	1,139	1,574	1,615	1,670	1,946
Astronomy	0	0	0	0	1	0	1	1	2	2	1	3	4	2
Chemistry	244	336	293	306	314	299	301	183	201	251	279	304	298	354
Physics	85	88	98	102	92	175	171	167	177	191	193	196	143	164
Other physical sciences	895	989	1,068	1,152	1,133	1,111	864	834	963	695	1,101	1,112	1,225	1,426
Social/behavioral sciences	5,832	6,619	6,077	6,679	6,689	6,921	7,510	7,610	8,170	8,397	9,114	9,699	9,937	10,677
Psychology	1,235	1,756	1,600	1,583	1,611	1,763	1,454	1,553	1,704	1,785	1,887	1,942	1,944	2,213
Social sciences	4,597	4,863	4,477	5,096	5,078	5,158	6,056	6,057	6,466	6,612	7,227	7,757	7,993	8,464
Anthropology	53	75	66	70	77	132	52	80	83	76	95	120	114	117
Area/ethnic studies	33	91	63	104	90	110	250	299	314	121	98	106	114	148
Economics	192	196	142	194	188	219	210	209	221	222	268	298	316	281
Linguistics	0	0	0	0	0	0	0	0	0	0	0	6	1	4
Political science/public administration	1,232	1,158	1,132	1,355	1,344	1,217	1,033	913	926	1,159	1,402	1,566	1,749	1,788
Sociology	276	317	364	494	504	573	366	371	416	456	552	500	475	510
Other social sciences	2,811	3,026	2,710	2,879	2,875	2,907	4,145	4,185	4,506	4,578	4,812	5,161	5,224	5,616
Non-S&E	495,678	520,993	519,866	533,339	548,487	532,018	535,062	540,384	549,100	575,148	610,089	646,984	668,332	685,666
Engineering technologies	40,946	42,414	39,190	37,709	38,266	37,009	40,470	39,732	37,901	39,600	37,020	32,488	29,710	30,097

Appendix table 2-10

Earned associate's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Male														
All fields	213,263	222,247	219,704	220,654	225,301	218,817	228,913	234,384	239,864	254,633	261,845	269,283	271,951	277,006
S&E	12,103	13,023	12,461	12,786	13,406	15,776	20,101	24,722	29,609	38,126	36,955	33,964	30,680	29,069
Engineering	2,196	2,474	1,978	1,945	1,709	1,842	1,545	1,582	1,483	1,905	2,247	2,185	1,970	1,944
Aerospace	8	5	2	1	1	0	1	0	0	0	0	0	2	0
Chemical	18	8	13	13	4	6	11	16	26	6	117	1	5	2
Civil	83	71	57	90	82	89	38	34	29	48	41	39	31	44
Electrical	368	375	238	283	241	391	250	269	144	554	766	600	475	403
Industrial	81	105	87	80	75	64	52	115	74	70	43	82	48	47
Materials	17	28	6	5	4	12	10	11	9	8	10	11	7	7
Mechanical	87	79	98	68	54	73	69	60	56	62	66	62	65	71
Other	1,534	1,803	1,477	1,405	1,248	1,207	1,114	1,077	1,145	1,157	1,204	1,390	1,337	1,370
Science	9,907	10,549	10,483	10,841	11,697	13,934	18,556	23,140	28,126	36,221	34,708	31,779	28,710	27,125
Natural sciences	7,809	8,332	8,412	8,776	9,683	11,635	16,356	21,000	25,834	33,749	32,187	29,026	25,889	24,056
Agricultural sciences	1,280	1,233	1,300	1,323	1,231	1,312	1,185	1,319	1,237	1,244	1,257	1,259	1,194	1,116
Biological sciences	613	770	757	830	789	795	496	501	500	580	608	667	702	751
Earth, atmospheric, and ocean sciences	130	162	148	131	126	51	45	48	37	30	21	25	38	44
Atmospheric sciences	77	96	91	80	74	0	0	1	0	0	1	1	4	8
Earth sciences	17	32	21	26	30	23	12	26	17	15	12	11	24	22
Oceanography	36	34	36	25	22	28	33	21	20	15	8	13	10	14
Mathematics/computer sciences	5,123	5,384	5,434	5,662	6,804	8,740	14,011	18,534	23,362	31,299	29,417	26,115	22,965	21,040
Computer sciences	4,695	4,947	4,996	5,198	6,360	8,249	13,603	18,084	22,916	30,833	28,914	25,586	22,482	20,492
Mathematics/statistics	428	437	438	464	444	491	408	450	446	466	503	529	483	548
Physical sciences	663	783	773	830	733	737	619	598	698	596	884	960	990	1,105
Astronomy	0	0	0	0	1	0	1	1	1	1	1	3	4	1
Chemistry	130	191	139	150	155	117	126	99	108	121	125	156	153	150
Physics	63	68	87	84	74	116	94	107	109	132	134	132	117	131
Other physical sciences	470	524	547	596	503	504	398	391	480	342	624	669	716	823
Social/behavioral sciences	2,098	2,217	2,071	2,065	2,014	2,299	2,200	2,140	2,292	2,472	2,521	2,753	2,821	3,069
Psychology	282	433	446	406	376	604	326	360	370	441	434	445	446	517
Social sciences	1,816	1,784	1,625	1,659	1,638	1,695	1,874	1,780	1,922	2,031	2,087	2,308	2,375	2,552
Anthropology	17	28	28	26	26	49	21	30	28	35	26	40	26	33
Area/ethnic studies	10	34	17	27	34	27	56	44	63	33	40	40	36	53
Economics	120	111	83	105	104	119	116	114	90	113	141	158	178	154
Linguistics	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Political science/public administration	516	423	365	377	335	329	251	204	225	271	286	372	367	361
Sociology	78	79	100	126	151	149	89	104	111	126	130	123	134	133
Other social sciences	1,075	1,109	1,032	998	988	1,022	1,341	1,284	1,405	1,453	1,464	1,572	1,634	1,818
Non-S&E	201,160	209,224	207,243	207,868	211,895	203,041	208,812	209,662	210,255	216,507	224,890	235,319	241,271	247,937
Engineering technologies	36,129	36,899	34,196	32,478	32,695	31,634	34,511	33,581	32,084	33,146	31,393	27,632	25,295	25,788

Appendix table 2-10

Earned associate's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Female														
All fields	305,835	324,327	324,390	338,340	350,387	344,098	344,583	351,226	360,430	383,320	408,490	432,451	446,231	456,145
S&E	11,317	12,558	11,767	12,869	13,795	15,121	18,333	20,504	21,585	24,679	23,291	20,786	19,170	18,416
Engineering	330	370	307	287	280	328	249	316	298	373	596	372	321	328
Aerospace	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Chemical	25	8	3	0	3	2	5	2	2	1	188	1	2	1
Civil	19	14	23	31	28	41	20	19	17	14	17	13	12	20
Electrical	32	35	19	31	24	37	30	40	38	118	144	91	56	56
Industrial	13	31	16	15	6	13	15	17	6	11	6	6	9	9
Materials	2	1	2	0	1	1	1	3	1	4	2	2	3	1
Mechanical	9	7	6	5	4	9	8	7	9	7	4	2	3	6
Other	230	273	238	204	214	225	170	228	225	218	235	257	236	235
Science	10,987	12,188	11,460	12,582	13,515	14,793	18,084	20,188	21,287	24,306	22,695	20,414	18,849	18,088
Natural sciences	7,253	7,786	7,454	7,968	8,840	10,171	12,774	14,718	15,409	18,381	16,102	13,468	11,733	10,480
Agricultural sciences	616	705	610	671	687	780	791	787	764	774	709	649	740	674
Biological sciences	886	1,137	1,144	1,244	1,392	1,385	988	1,035	1,077	1,206	1,145	1,312	1,326	1,473
Earth, atmospheric, and ocean sciences	38	64	38	58	65	27	37	34	21	22	20	20	29	25
Atmospheric sciences	12	23	16	17	21	3	0	0	0	0	1	1	3	2
Earth sciences	5	12	7	21	21	15	16	12	11	19	13	12	16	19
Oceanography	21	29	15	20	23	9	21	22	10	3	6	7	10	4
Mathematics/computer sciences	5,152	5,250	4,976	5,265	5,889	7,131	10,240	12,275	12,902	15,836	13,538	10,832	8,958	7,467
Computer sciences	4,837	4,921	4,631	4,970	5,540	6,778	9,973	12,029	12,662	15,567	13,239	10,554	8,688	7,188
Mathematics/statistics	315	329	345	295	349	353	267	246	240	269	299	278	270	279
Physical sciences	561	630	686	730	807	848	718	587	645	543	690	655	680	841
Astronomy	0	0	0	0	0	0	0	0	1	1	0	0	0	1
Chemistry	114	145	154	156	159	182	175	84	93	130	154	148	145	204
Physics	22	20	11	18	18	59	77	60	68	59	59	64	26	33
Other physical sciences	425	465	521	556	630	607	466	443	483	353	477	443	509	603
Social/behavioral sciences	3,734	4,402	4,006	4,614	4,675	4,622	5,310	5,470	5,878	5,925	6,593	6,946	7,116	7,608
Psychology	953	1,323	1,154	1,177	1,235	1,159	1,128	1,193	1,334	1,344	1,453	1,497	1,498	1,696
Social sciences	2,781	3,079	2,852	3,437	3,440	3,463	4,182	4,277	4,544	4,581	5,140	5,449	5,618	5,912
Anthropology	36	47	38	44	51	83	31	50	55	41	69	80	88	84
Area/ethnic studies	23	57	46	77	56	83	194	255	251	88	58	66	78	95
Economics	72	85	59	89	84	100	94	95	131	109	127	140	138	127
Linguistics	0	0	0	0	0	0	0	0	0	0	0	3	1	4
Political science/public administration	716	735	767	978	1,009	888	782	709	701	888	1,116	1,194	1,382	1,427
Sociology	198	238	264	368	353	424	277	267	305	330	422	377	341	377
Other social sciences	1,736	1,917	1,678	1,881	1,887	1,885	2,804	2,901	3,101	3,125	3,348	3,589	3,590	3,798
Non-S&E	294,518	311,769	312,623	325,471	336,592	328,977	326,250	330,722	338,845	358,641	385,199	411,665	427,061	437,729
Engineering technologies	4,817	5,515	4,994	5,231	5,571	5,375	5,959	6,151	5,817	6,454	5,627	4,856	4,415	4,309

NOTES: Data not available for 1999. Engineering technologies focused more on applied skills than on fundamental science and mathematics. Data from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
All citizenships and races/ethnicities												
All fields	544,094	558,994	575,688	562,915	573,496	585,610	600,294	637,953	670,335	701,734	718,182	733,151
S&E	24,228	25,655	27,201	30,897	38,434	45,226	51,194	62,805	60,246	54,750	49,850	47,485
Engineering	2,285	2,232	1,989	2,170	1,794	1,898	1,781	2,278	2,843	2,557	2,291	2,272
Aerospace	2	2	1	0	1	0	0	0	0	0	2	0
Chemical	16	13	7	8	16	18	28	7	305	2	7	3
Civil	80	121	110	130	58	53	46	62	58	52	43	64
Electrical	257	314	265	428	280	309	182	672	910	691	531	459
Industrial	103	95	81	77	67	132	80	81	49	88	57	56
Materials	8	5	5	13	11	14	10	12	12	13	10	8
Mechanical	104	73	58	82	77	67	65	69	70	64	68	77
Other	1,715	1,609	1,462	1,432	1,284	1,305	1,370	1,375	1,439	1,647	1,573	1,605
Science	21,943	23,423	25,212	28,727	36,640	43,328	49,413	60,527	57,403	52,193	47,559	45,213
Natural sciences	15,866	16,744	18,523	21,806	29,130	35,718	41,243	52,130	48,289	42,494	37,622	34,536
Agricultural sciences	1,910	1,994	1,918	2,092	1,976	2,106	2,001	2,018	1,966	1,908	1,934	1,790
Biological sciences	1,901	2,074	2,181	2,180	1,484	1,536	1,577	1,786	1,753	1,979	2,028	2,224
Earth, atmospheric, and ocean sciences	186	189	191	78	82	82	58	52	41	45	67	69
Atmospheric sciences	107	97	95	3	0	1	0	0	2	2	7	10
Earth sciences	28	47	51	38	28	38	28	34	25	23	40	41
Oceanography	51	45	45	37	54	43	30	18	14	20	20	18
Mathematics/computer sciences	10,410	10,927	12,693	15,871	24,251	30,809	36,264	47,135	42,955	36,947	31,923	28,507
Computer sciences	9,627	10,168	11,900	15,027	23,576	30,113	35,578	46,400	42,153	36,140	31,170	27,680
Mathematics	783	759	793	844	675	696	686	735	802	807	753	827
Physical sciences	1,459	1,560	1,540	1,585	1,337	1,185	1,343	1,139	1,574	1,615	1,670	1,946
Astronomy	0	0	1	0	1	1	2	2	1	3	4	2
Chemistry	293	306	314	299	301	183	201	251	279	304	298	354
Physics	98	102	92	175	171	167	177	191	193	196	143	164
Other physical sciences	1,068	1,152	1,133	1,111	864	834	963	695	1,101	1,112	1,225	1,426
Social/behavioral sciences	6,077	6,679	6,689	6,921	7,510	7,610	8,170	8,397	9,114	9,699	9,937	10,677
Psychology	1,600	1,583	1,611	1,763	1,454	1,553	1,704	1,785	1,887	1,942	1,944	2,213
Social sciences	4,477	5,096	5,078	5,158	6,056	6,057	6,466	6,612	7,227	7,757	7,993	8,464
Anthropology	66	70	77	132	52	80	83	76	95	120	114	117
Area/ethnic studies	63	104	90	110	250	299	314	121	98	106	114	148
Economics	142	194	188	219	210	209	221	222	268	298	316	281
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	6	1	4
Political science/public administration	1,132	1,355	1,344	1,217	1,033	913	926	1,159	1,402	1,566	1,749	1,788
Sociology	364	494	504	573	366	371	416	456	552	500	475	510
Other social sciences	2,710	2,879	2,875	2,907	4,145	4,185	4,506	4,578	4,812	5,161	5,224	5,616
Non-S&E	519,866	533,339	548,487	532,018	535,062	540,384	549,100	575,148	610,089	646,984	668,332	685,666
Engineering technologies	39,190	37,709	38,266	37,009	40,470	39,732	37,901	39,600	37,020	32,488	29,710	30,097

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
U.S. citizen/permanent resident												
All fields	534,183	548,855	564,879	550,538	563,380	574,008	588,000	624,467	655,767	687,613	704,750	719,324
S&E	23,524	24,917	26,426	29,924	37,585	44,071	49,778	61,190	58,625	53,398	48,751	46,590
Engineering	2,208	2,162	1,922	2,037	1,726	1,801	1,724	2,197	2,725	2,435	2,204	2,179
Aerospace	2	2	1	0	1	0	0	0	0	0	1	0
Chemical	16	12	7	8	14	17	26	7	302	2	5	2
Civil	78	118	105	119	54	53	44	56	57	52	39	63
Electrical	251	314	259	385	277	271	181	668	896	682	529	452
Industrial	103	93	80	76	66	130	78	80	49	85	55	53
Materials	8	5	5	13	11	14	10	12	12	13	10	8
Mechanical	102	72	57	80	76	67	64	68	69	62	68	76
Other	1,648	1,546	1,408	1,356	1,227	1,249	1,321	1,306	1,340	1,539	1,497	1,525
Science	21,316	22,755	24,504	27,887	35,859	42,270	48,054	58,993	55,900	50,963	46,547	44,411
Natural sciences	15,393	16,288	18,010	21,194	28,500	34,841	40,055	50,791	47,015	41,475	36,791	33,910
Agricultural sciences	1,892	1,977	1,899	2,041	1,953	2,060	1,949	2,007	1,923	1,893	1,892	1,782
Biological sciences	1,824	2,014	2,103	2,098	1,457	1,501	1,547	1,737	1,696	1,921	1,964	2,163
Earth, atmospheric, and ocean sciences	184	186	189	78	81	78	57	52	39	45	65	65
Atmospheric sciences	105	97	95	3	0	1	0	0	2	2	7	9
Earth sciences	28	44	49	38	27	34	27	34	23	23	38	38
Oceanography	51	45	45	37	54	43	30	18	14	20	20	18
Mathematics/computer sciences	10,111	10,634	12,371	15,467	23,727	30,050	35,203	45,914	41,869	36,118	31,327	28,059
Computer sciences	9,367	9,923	11,622	14,672	23,085	29,396	34,553	45,225	41,114	35,371	30,628	27,261
Mathematics	744	711	749	795	642	654	650	689	755	747	699	798
Physical sciences	1,382	1,477	1,448	1,510	1,282	1,152	1,299	1,081	1,488	1,498	1,543	1,841
Astronomy	0	0	1	0	1	1	2	2	1	3	4	2
Chemistry	247	256	253	260	269	174	196	238	266	285	279	336
Physics	89	91	82	167	163	164	172	175	184	185	131	160
Other physical sciences	1,046	1,130	1,112	1,083	849	813	929	666	1,037	1,025	1,129	1,343
Social/behavioral sciences	5,923	6,467	6,494	6,693	7,359	7,429	7,999	8,202	8,885	9,488	9,756	10,501
Psychology	1,581	1,551	1,572	1,705	1,432	1,528	1,668	1,742	1,843	1,904	1,922	2,192
Social sciences	4,342	4,916	4,922	4,988	5,927	5,901	6,331	6,460	7,042	7,584	7,834	8,309
Anthropology	58	66	66	126	49	78	82	76	93	119	111	113
Area/ethnic studies	49	92	85	100	234	278	299	115	95	104	110	148
Economics	120	156	150	183	192	182	201	191	230	266	287	262
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	2	1	4
Political science/public administration	1,115	1,318	1,317	1,189	1,021	899	915	1,149	1,379	1,553	1,723	1,767
Sociology	353	481	494	562	362	361	410	450	531	481	460	491
Other social sciences	2,647	2,803	2,810	2,828	4,069	4,103	4,424	4,479	4,714	5,059	5,142	5,524
Non-S&E	510,659	523,938	538,453	520,614	525,795	529,937	538,222	563,277	597,142	634,215	655,999	672,734
Engineering technologies	38,764	37,347	37,801	36,187	40,133	38,894	37,459	39,140	36,513	32,131	29,391	29,800

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
White												
All fields	408,126	417,186	420,001	403,965	396,145	396,412	401,199	417,683	431,419	449,935	456,951	461,859
S&E	16,392	17,131	17,730	19,600	23,837	28,362	31,883	37,939	35,655	32,581	29,621	28,050
Engineering	1,658	1,681	1,457	1,488	1,177	1,278	1,265	1,387	1,569	1,488	1,354	1,316
Aerospace	0	2	1	0	1	0	0	0	0	0	1	0
Chemical	14	11	5	7	11	17	22	6	175	2	3	2
Civil	53	100	77	95	31	40	25	43	35	35	26	35
Electrical	186	261	222	266	157	159	123	288	337	287	196	180
Industrial	85	74	67	57	58	92	59	66	43	79	42	38
Materials	8	4	5	13	8	12	8	11	12	13	10	7
Mechanical	55	52	44	64	52	46	40	48	50	43	47	45
Other	1,257	1,177	1,036	986	859	912	988	925	917	1,029	1,029	1,009
Science	14,734	15,450	16,273	18,112	22,660	27,084	30,618	36,552	34,086	31,093	28,267	26,734
Natural sciences	10,960	11,562	12,489	14,285	18,573	22,788	26,034	32,049	29,249	25,958	23,025	21,286
Agricultural sciences	1,633	1,795	1,727	1,845	1,741	1,840	1,725	1,795	1,695	1,716	1,686	1,556
Biological sciences	1,197	1,356	1,310	1,306	937	989	1,047	1,132	1,084	1,219	1,115	1,178
Earth, atmospheric, and ocean sciences	156	165	160	69	76	73	54	48	35	39	52	59
Atmospheric sciences	82	86	83	3	0	1	0	0	2	2	7	8
Earth sciences	23	39	40	33	24	30	25	31	21	18	32	33
Oceanography	51	40	37	33	52	42	29	17	12	19	13	18
Mathematics/computer sciences	6,950	7,228	8,293	10,111	15,020	19,133	22,317	28,386	25,519	22,032	19,213	17,415
Computer sciences	6,471	6,789	7,801	9,609	14,638	18,772	21,933	28,012	25,081	21,621	18,835	16,990
Mathematics	479	439	492	502	382	361	384	374	438	411	378	425
Physical sciences	1,024	1,018	999	954	799	753	891	688	916	952	959	1,078
Astronomy	0	0	0	0	0	1	2	0	0	2	4	1
Chemistry	153	148	153	172	144	98	133	128	153	158	158	156
Physics	62	54	45	62	65	72	77	80	89	92	66	86
Other physical sciences	809	816	801	720	590	582	679	480	674	700	731	835
Social/behavioral sciences	3,774	3,888	3,784	3,827	4,087	4,296	4,584	4,503	4,837	5,135	5,242	5,448
Psychology	1,146	1,093	1,092	1,071	959	1,012	1,121	1,121	1,152	1,130	1,148	1,268
Social sciences	2,628	2,795	2,692	2,756	3,128	3,284	3,463	3,382	3,685	4,005	4,094	4,180
Anthropology	45	53	44	89	32	51	63	44	62	75	79	64
Area/ethnic studies	14	19	10	19	59	209	211	16	15	17	16	26
Economics	78	77	67	92	81	92	88	85	102	116	142	124
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	1	0	0
Political science/public administration	544	625	593	513	371	353	338	497	650	761	812	813
Sociology	223	302	287	313	203	187	210	219	235	201	202	196
Other social sciences	1,724	1,719	1,691	1,730	2,382	2,392	2,553	2,521	2,621	2,834	2,843	2,957
Non-S&E	391,734	400,055	402,271	384,365	372,308	368,050	369,316	379,744	395,764	417,354	427,330	433,809
Engineering technologies	29,646	28,848	28,375	26,832	27,820	26,801	25,386	25,909	24,352	22,157	20,433	20,659

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Asian/Pacific Islander												
All fields	20,976	23,109	25,037	25,024	27,313	27,919	30,322	31,597	31,908	32,498	33,800	35,623
S&E	1,392	1,568	1,755	2,019	2,649	2,907	3,381	4,075	3,694	3,129	2,769	2,715
Engineering	152	147	146	166	160	132	101	142	169	147	132	175
Aerospace	1	0	0	0	0	0	0	0	0	0	0	0
Chemical	2	1	1	1	0	0	2	1	8	0	0	0
Civil	3	4	4	6	3	4	5	6	2	1	1	2
Electrical	6	6	6	28	38	18	5	36	40	14	10	59
Industrial	0	4	4	1	0	2	0	0	1	2	1	3
Materials	0	1	0	0	0	0	0	0	0	0	0	0
Mechanical	2	1	1	1	2	0	0	2	0	1	3	3
Other	138	130	130	129	117	108	89	97	118	129	117	108
Science	1,240	1,421	1,609	1,853	2,489	2,775	3,280	3,933	3,525	2,982	2,637	2,540
Natural sciences	935	1,047	1,253	1,484	2,010	2,342	2,802	3,432	2,955	2,359	2,002	1,822
Agricultural sciences	10	4	4	8	19	9	10	9	18	12	10	21
Biological sciences	190	216	264	248	109	94	93	143	148	204	224	257
Earth, atmospheric, and ocean sciences	5	2	4	3	1	0	0	1	0	0	1	0
Atmospheric sciences	4	1	3	0	0	0	0	0	0	0	0	0
Earth sciences	1	1	0	2	1	0	0	1	0	0	1	0
Oceanography	0	0	1	1	0	0	0	0	0	0	0	0
Mathematics/computer sciences	606	662	805	1,055	1,736	2,158	2,613	3,174	2,599	1,968	1,559	1,290
Computer sciences	513	558	718	955	1,646	2,052	2,522	3,072	2,499	1,871	1,474	1,212
Mathematics	93	104	87	100	90	106	91	102	100	97	85	78
Physical sciences	124	163	176	170	145	81	86	105	190	175	208	254
Astronomy	0	0	0	0	0	0	0	0	1	0	0	0
Chemistry	38	58	51	38	51	29	15	35	43	45	45	80
Physics	15	14	16	18	15	9	18	17	26	21	20	16
Other physical sciences	71	91	109	114	79	43	53	53	120	109	143	158
Social/behavioral sciences	305	374	356	369	479	433	478	501	570	623	635	718
Psychology	57	57	63	53	51	54	51	75	76	74	79	92
Social sciences	248	317	293	316	428	379	427	426	494	549	556	626
Anthropology	3	4	1	8	1	5	0	4	2	9	1	12
Area/ethnic studies	2	3	0	4	3	6	2	3	1	11	3	6
Economics	13	40	35	35	41	32	36	29	27	47	41	35
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	1	0	2
Political science/public administration	64	76	65	73	89	71	68	51	100	94	94	64
Sociology	11	29	28	34	24	12	12	18	26	31	28	46
Other social sciences	155	165	164	162	270	253	309	321	338	356	389	461
Non-S&E	19,584	21,541	23,282	23,005	24,664	25,012	26,941	27,522	28,214	29,369	31,031	32,908
Engineering technologies	1,458	1,501	1,744	1,685	2,200	2,120	2,192	2,375	1,687	1,255	1,055	1,125

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Black												
All fields	45,923	50,968	55,115	54,069	58,408	61,658	64,745	72,051	76,930	81,825	84,527	85,944
S&E	2,307	2,562	2,827	3,263	4,629	5,328	6,120	8,198	7,727	6,891	6,499	5,890
Engineering	148	152	140	119	131	117	134	217	289	288	215	190
Aerospace	1	0	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	0	0	0	0	14	0	0	0
Civil	5	3	12	4	5	3	3	2	8	9	3	5
Electrical	38	42	28	32	27	30	32	121	161	146	97	79
Industrial	7	7	5	4	1	3	3	3	2	2	2	3
Materials	0	0	0	0	0	0	1	1	0	0	0	0
Mechanical	0	0	0	0	0	0	1	0	0	0	1	0
Other	97	100	95	79	98	81	94	90	104	131	112	103
Science	2,159	2,410	2,687	3,144	4,498	5,211	5,986	7,981	7,438	6,603	6,284	5,700
Natural sciences	1,364	1,517	1,716	2,255	3,497	4,263	4,990	6,899	6,272	5,384	4,956	4,367
Agricultural sciences	23	18	11	9	20	4	14	13	19	8	18	28
Biological sciences	147	114	140	155	139	131	138	145	135	142	185	207
Earth, atmospheric, and ocean sciences	10	11	9	1	0	0	1	1	0	1	4	0
Atmospheric sciences	10	10	9	0	0	0	0	0	0	0	0	0
Earth sciences	0	0	0	1	0	0	0	1	0	1	1	0
Oceanography	0	1	0	0	0	0	1	0	0	0	3	0
Mathematics/computer sciences	1,091	1,273	1,460	1,978	3,253	4,048	4,760	6,677	6,043	5,154	4,652	4,032
Computer sciences	1,046	1,237	1,423	1,945	3,215	3,998	4,733	6,636	6,007	5,119	4,617	3,988
Mathematics	45	36	37	33	38	50	27	41	36	35	35	44
Physical sciences	93	101	96	112	85	80	77	63	75	79	97	100
Astronomy	0	0	0	0	0	0	0	0	0	0	0	0
Chemistry	22	20	17	9	17	12	9	15	15	22	16	17
Physics	5	3	7	7	2	1	1	6	5	3	5	4
Other physical sciences	66	78	72	96	66	67	67	42	55	54	76	79
Social/behavioral sciences	795	893	971	889	1,001	948	996	1,082	1,166	1,219	1,328	1,333
Psychology	126	147	125	111	136	144	141	146	158	173	198	203
Social sciences	669	746	846	778	865	804	855	936	1,008	1,046	1,130	1,130
Anthropology	3	1	4	3	3	1	1	1	0	6	3	2
Area/ethnic studies	9	20	19	9	16	7	13	24	17	23	19	15
Economics	5	8	11	11	7	5	9	9	19	14	22	23
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	0	0	0
Political science/public administration	264	311	347	330	276	254	248	292	312	350	449	449
Sociology	50	41	63	75	55	66	73	77	100	76	67	67
Other social sciences	338	365	402	350	508	471	511	533	560	577	570	574
Non-S&E	43,616	48,406	52,288	50,806	53,779	56,330	58,625	63,853	69,203	74,934	78,028	80,054
Engineering technologies	3,015	3,185	3,463	3,527	4,040	4,143	3,860	4,364	3,864	3,454	3,167	3,168

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Hispanic												
All fields	38,499	40,662	46,466	48,504	57,971	61,364	62,072	67,476	72,626	78,555	80,417	84,462
S&E	2,498	2,590	2,932	3,422	4,361	5,105	5,582	6,994	6,910	6,615	6,006	6,118
Engineering	161	134	111	196	181	196	143	339	558	373	345	344
Aerospace	0	0	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	3	0	2	0	89	0	2	0
Civil	7	9	6	12	5	2	6	2	5	2	6	19
Electrical	8	4	1	56	48	57	14	195	320	199	171	110
Industrial	6	5	1	13	7	33	11	8	3	0	9	8
Materials	0	0	0	0	0	0	1	0	0	0	0	1
Mechanical	44	17	12	13	21	19	23	18	17	14	17	27
Other	96	99	91	102	97	85	86	116	124	158	140	179
Science	2,337	2,456	2,821	3,226	4,180	4,909	5,439	6,655	6,352	6,242	5,661	5,774
Natural sciences	1,558	1,501	1,796	2,234	2,986	3,653	4,081	5,149	4,772	4,493	3,914	3,772
Agricultural sciences	136	89	75	85	77	109	86	68	54	43	58	59
Biological sciences	208	221	276	291	186	222	189	218	208	229	279	352
Earth, atmospheric, and ocean sciences	10	3	8	3	1	3	1	1	2	5	3	3
Atmospheric sciences	9	0	0	0	0	0	0	0	0	0	0	1
Earth sciences	1	2	7	2	1	3	1	1	1	4	1	2
Oceanography	0	1	1	1	0	0	0	0	1	1	2	0
Mathematics/computer sciences	1,134	1,082	1,335	1,671	2,550	3,158	3,654	4,717	4,347	4,042	3,416	3,151
Computer sciences	1,035	974	1,225	1,551	2,453	3,058	3,549	4,593	4,216	3,888	3,261	2,980
Mathematics	99	108	110	120	97	100	105	124	131	154	155	171
Physical sciences	70	106	102	184	172	161	151	145	161	174	158	207
Astronomy	0	0	1	0	1	0	0	2	0	0	0	0
Chemistry	20	19	23	26	42	27	24	42	37	48	40	56
Physics	5	17	11	74	76	70	68	59	50	61	30	34
Other physical sciences	45	70	67	84	53	64	59	42	74	65	88	117
Social/behavioral sciences	779	955	1,025	992	1,194	1,256	1,358	1,506	1,580	1,749	1,747	2,002
Psychology	193	179	209	180	193	222	260	298	338	384	366	447
Social sciences	586	776	816	812	1,001	1,034	1,098	1,208	1,242	1,365	1,381	1,555
Anthropology	4	7	12	19	8	11	13	16	17	14	11	15
Area/ethnic studies	8	12	23	23	17	7	15	24	12	20	18	28
Economics	20	23	26	33	50	43	55	50	58	65	60	58
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	0	0	1
Political science/public administration	214	274	277	248	249	195	219	250	223	241	259	287
Sociology	54	85	90	107	63	79	92	109	124	123	123	138
Other social sciences	286	375	388	382	614	699	704	759	808	902	910	1,028
Non-S&E	36,001	38,072	43,534	45,082	53,610	56,259	56,490	60,482	65,716	71,940	74,411	78,344
Engineering technologies	2,777	2,886	3,197	3,177	4,724	4,560	4,220	4,174	4,160	3,652	3,230	3,466

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
American Indian/Alaska Native												
All fields	5,352	5,460	5,852	6,096	6,282	6,392	6,565	7,134	7,692	8,001	8,068	8,076
S&E	419	508	489	546	608	605	703	811	825	839	801	851
Engineering	22	12	26	22	17	18	17	24	41	38	26	34
Aerospace	0	0	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	0	0	0	0	9	0	0	0
Civil	1	0	3	1	2	1	1	1	4	2	0	0
Electrical	1	0	2	2	0	2	2	5	7	11	2	4
Industrial	1	0	1	0	0	0	0	2	0	2	0	0
Materials	0	0	0	0	0	0	0	0	0	0	0	0
Mechanical	0	1	0	0	0	1	0	0	0	0	0	0
Other	19	11	20	19	15	14	14	16	21	23	24	30
Science	397	496	463	524	591	587	686	787	784	801	775	817
Natural sciences	241	285	273	335	384	417	444	546	524	504	498	446
Agricultural sciences	54	43	59	72	74	53	55	70	65	68	72	56
Biological sciences	40	42	46	37	39	33	43	27	47	44	65	55
Earth, atmospheric, and ocean sciences	1	0	1	0	0	0	0	1	0	0	0	1
Atmospheric sciences	0	0	0	0	0	0	0	0	0	0	0	0
Earth sciences	1	0	1	0	0	0	0	0	0	0	0	1
Oceanography	0	0	0	0	0	0	0	1	0	0	0	0
Mathematics/computer sciences	124	174	147	196	258	314	329	431	388	365	335	305
Computer sciences	111	165	145	183	251	302	322	418	377	352	325	291
Mathematics	13	9	2	13	7	12	7	13	11	13	10	14
Physical sciences	22	26	20	30	13	17	17	17	24	27	26	29
Astronomy	0	0	0	0	0	0	0	0	0	1	0	0
Chemistry	4	3	1	7	1	4	4	2	2	3	6	2
Physics	0	1	1	3	0	2	0	3	0	2	1	5
Other physical sciences	18	22	18	20	12	11	13	12	22	21	19	22
Social/behavioral sciences	156	211	190	189	207	170	242	241	260	297	277	371
Psychology	35	42	38	37	38	34	32	31	36	56	41	73
Social sciences	121	169	152	152	169	136	210	210	224	241	236	298
Anthropology	2	0	1	3	1	2	0	1	0	2	3	3
Area/ethnic studies	16	37	32	42	32	23	30	48	42	30	52	67
Economics	1	0	1	1	2	1	3	2	1	1	0	2
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	0	0	0
Political science/public administration	13	11	17	6	21	5	10	22	35	34	37	48
Sociology	7	12	9	8	1	4	4	6	5	17	10	20
Other social sciences	82	109	92	92	112	101	163	131	141	157	134	158
Non-S&E	4,933	4,952	5,363	5,550	5,674	5,787	5,862	6,323	6,867	7,162	7,267	7,225
Engineering technologies	286	285	293	337	367	299	295	366	415	330	313	289

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Other/unknown race/ethnicity												
All fields	15,307	11,470	12,408	12,880	17,261	20,263	23,097	28,526	35,192	36,799	40,987	43,360
S&E	516	558	693	1,074	1,501	1,764	2,109	3,173	3,814	3,343	3,055	2,966
Engineering	67	36	42	46	60	60	64	88	99	101	132	120
Aerospace	0	0	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	1	0	0	0	0	0	7	0	0	0
Civil	9	2	3	1	8	3	4	2	3	3	3	2
Electrical	12	1	0	1	7	5	5	23	31	25	53	20
Industrial	4	3	2	1	0	0	5	1	0	0	1	1
Materials	0	0	0	0	3	2	0	0	0	0	0	0
Mechanical	1	1	0	2	1	1	0	0	2	4	0	1
Other	41	29	36	41	41	49	50	62	56	69	75	96
Science	449	522	651	1,028	1,441	1,704	2,045	3,085	3,715	3,242	2,923	2,846
Natural sciences	335	376	483	601	1,050	1,378	1,704	2,716	3,243	2,777	2,396	2,217
Agricultural sciences	36	28	23	22	22	45	59	52	72	46	48	62
Biological sciences	42	65	67	61	47	32	37	72	74	83	96	114
Earth, atmospheric, and ocean sciences	2	5	7	2	3	2	1	0	2	0	5	2
Atmospheric sciences	0	0	0	0	0	0	0	0	0	0	0	0
Earth sciences	2	2	1	0	1	1	1	0	1	0	3	2
Oceanography	0	3	6	2	2	1	0	0	1	0	2	0
Mathematics/computer sciences	206	215	331	456	910	1,239	1,530	2,529	2,973	2,557	2,152	1,866
Computer sciences	191	200	310	429	882	1,214	1,494	2,494	2,934	2,520	2,116	1,800
Mathematics	15	15	21	27	28	25	36	35	39	37	36	66
Physical sciences	49	63	55	60	68	60	77	63	122	91	95	173
Astronomy	0	0	0	0	0	0	0	0	0	0	0	1
Chemistry	10	8	8	8	14	4	11	16	16	9	14	25
Physics	2	2	2	3	5	10	8	10	14	6	9	15
Other physical sciences	37	53	45	49	49	46	58	37	92	76	72	132
Social/behavioral sciences	114	146	168	427	391	326	341	369	472	465	527	629
Psychology	24	33	45	253	55	62	63	71	83	87	90	109
Social sciences	90	113	123	174	336	264	278	298	389	378	437	520
Anthropology	1	1	4	4	4	8	5	10	12	13	14	17
Area/ethnic studies	0	1	1	3	107	26	28	0	8	3	2	6
Economics	3	8	10	11	11	9	10	16	23	23	22	20
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	0	1	1
Political science/public administration	16	21	18	19	15	21	32	37	59	73	72	106
Sociology	8	12	17	25	16	13	19	21	41	33	30	24
Other social sciences	62	70	73	112	183	187	184	214	246	233	296	346
Non-S&E	14,791	10,912	11,715	11,806	15,760	18,499	20,988	25,353	31,378	33,456	37,932	40,394
Engineering technologies	1,582	642	729	629	982	971	1,506	1,952	2,035	1,283	1,193	1,093

Appendix table 2-11

Earned associate's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Temporary resident												
All fields	9,911	10,139	10,809	12,377	10,116	11,602	12,294	13,486	14,568	14,121	13,432	13,827
S&E	704	738	775	973	849	1,155	1,416	1,615	1,621	1,352	1,099	895
Engineering	77	70	67	133	68	97	57	81	118	122	87	93
Aerospace	0	0	0	0	0	0	0	0	0	0	1	0
Chemical	0	1	0	0	2	1	2	0	3	0	2	1
Civil	2	3	5	11	4	0	2	6	1	0	4	1
Electrical	6	0	6	43	3	38	1	4	14	9	2	7
Industrial	0	2	1	1	1	2	2	1	0	3	2	3
Materials	0	0	0	0	0	0	0	0	0	0	0	0
Mechanical	2	1	1	2	1	0	1	1	1	2	0	1
Other	67	63	54	76	57	56	49	69	99	108	76	80
Science	627	668	708	840	781	1,058	1,359	1,534	1,503	1,230	1,012	802
Natural sciences	473	456	513	612	630	877	1,188	1,339	1,274	1,019	831	626
Agricultural sciences	18	17	19	51	23	46	52	11	43	15	42	8
Biological sciences	77	60	78	82	27	35	30	49	57	58	64	61
Earth, atmospheric, and ocean sciences	2	3	2	0	1	4	1	0	2	0	2	4
Atmospheric sciences	2	0	0	0	0	0	0	0	0	0	0	1
Earth sciences	0	3	2	0	1	4	1	0	2	0	2	3
Oceanography	0	0	0	0	0	0	0	0	0	0	0	0
Mathematics/computer sciences	299	293	322	404	524	759	1,061	1,221	1,086	829	596	448
Computer sciences	260	245	278	355	491	717	1,025	1,175	1,039	769	542	419
Mathematics	39	48	44	49	33	42	36	46	47	60	54	29
Physical sciences	77	83	92	75	55	33	44	58	86	117	127	105
Astronomy	0	0	0	0	0	0	0	0	0	0	0	0
Chemistry	46	50	61	39	32	9	5	13	13	19	19	18
Physics	9	11	10	8	8	3	5	16	9	11	12	4
Other physical sciences	22	22	21	28	15	21	34	29	64	87	96	83
Social/behavioral sciences	154	212	195	228	151	181	171	195	229	211	181	176
Psychology	19	32	39	58	22	25	36	43	44	38	22	21
Social sciences	135	180	156	170	129	156	135	152	185	173	159	155
Anthropology	8	4	11	6	3	2	1	0	2	1	3	4
Area/ethnic studies	14	12	5	10	16	21	15	6	3	2	4	0
Economics	22	38	38	36	18	27	20	31	38	32	29	19
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	0	0	0	0	0	0	0	4	0	0
Political science/public administration	17	37	27	28	12	14	11	10	23	13	26	21
Sociology	11	13	10	11	4	10	6	6	21	19	15	19
Other social sciences	63	76	65	79	76	82	82	99	98	102	82	92
Non-S&E	9,207	9,401	10,034	11,404	9,267	10,447	10,878	11,871	12,947	12,769	12,333	12,932
Engineering technologies	426	362	465	822	337	838	442	460	507	357	319	297

NOTES: Data not available for 1999. Detailed field not collected by race/ethnicity prior to 1995. 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 from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-12

Earned bachelor's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Both sexes														
All fields	1,179,278	1,183,141	1,174,436	1,179,466	1,187,567	1,198,938	1,254,618	1,260,308	1,308,970	1,365,694	1,417,421	1,456,401	1,502,922	1,541,704
S&E	366,035	373,261	378,148	384,476	388,356	390,796	398,602	400,435	415,983	442,755	458,658	470,214	478,858	485,772
Engineering	62,705	63,012	63,371	63,077	62,356	60,925	59,487	59,214	60,605	63,789	64,680	66,152	68,227	68,274
Aerospace	2,735	2,330	1,771	1,642	1,290	1,247	1,267	1,498	1,747	2,017	2,318	2,384	2,753	2,828
Chemical	4,899	5,636	6,391	6,708	6,977	6,721	6,219	6,088	5,946	5,545	5,185	4,889	4,857	5,081
Civil	9,788	10,603	11,329	12,053	12,010	11,522	9,571	8,949	8,891	9,367	9,400	9,800	10,663	11,318
Electrical	19,598	18,241	17,579	16,646	16,438	16,333	17,675	18,359	18,957	20,757	21,374	21,459	19,933	18,547
Industrial	3,584	3,453	3,519	3,727	3,997	3,988	3,937	3,812	3,977	3,937	3,808	3,936	3,890	3,529
Materials	1,216	1,106	1046	1004	1,063	1,007	972	930	933	950	865	906	1,006	1,025
Mechanical	14,708	15,297	15,141	14,493	13,806	13,363	13,091	13,139	13,353	14,029	14,342	14,880	16,163	16,911
Other	6,177	6,346	6,595	6,804	6,775	6,744	6,755	6,439	6,801	7,187	7,388	7,898	8,962	9,035
Science	303,330	310,249	314,777	321,399	326,000	329,871	339,115	341,221	355,378	378,966	393,978	404,062	410,631	417,498
Natural sciences	116,745	122,976	129,465	135,849	140,302	144,522	150,962	152,623	158,975	170,068	173,633	173,460	173,966	176,275
Agricultural sciences	11,632	12,947	14,580	16,371	17,361	17,970	18,245	17,465	17,359	17,703	17,058	17,120	17,307	17,696
Biological sciences	47,989	52,321	56,890	62,061	65,103	67,121	64,887	62,010	61,675	63,517	64,750	67,972	72,972	79,348
Earth, atmospheric, and ocean sciences	3,503	3,868	4,478	4,457	4,466	4,321	4,019	3,968	3,984	3,949	3,903	3,959	3,987	4,077
Atmospheric sciences	369	405	444	434	431	443	490	456	525	562	572	677	651	745
Earth sciences	2,901	3,266	3,820	3,838	3,830	3,665	3,359	3,334	3,234	3,252	3,170	3,146	3,231	3,193
Oceanography	233	197	214	185	205	213	170	178	225	135	161	136	105	139
Mathematics/computer sciences	39,433	39,185	38,620	37,569	38,111	39,834	49,233	55,034	61,960	70,789	73,703	69,404	63,310	58,147
Computer sciences	24,580	24,553	24,769	24,505	25,396	27,739	37,519	43,597	49,706	57,926	59,968	54,588	48,000	42,596
Mathematics/statistics	14,853	14,632	13,851	13,064	12,715	12,095	11,714	11,437	12,254	12,863	13,735	14,816	15,310	15,551
Physical sciences	14,188	14,655	14,897	15,391	15,261	15,276	14,578	14,146	13,997	14,110	14,219	15,005	16,390	17,007
Astronomy	167	163	169	148	140	168	160	240	276	271	292	331	366	332
Chemistry	9,109	9,641	10,016	10,711	10,923	10,874	10,388	9,815	9,439	9,329	9,300	9,923	10,887	11,250
Physics	4,080	4,005	3,836	3,700	3,393	3,457	3,362	3,447	3,641	3,913	4,140	4,199	4,566	4,870
Other physical sciences	832	846	876	832	805	777	668	644	641	597	487	552	571	555
Social/behavioral sciences	186,585	187,273	185,312	185,550	185,698	185,349	188,153	188,598	196,403	208,898	220,345	230,602	236,665	241,223
Psychology	67,251	69,768	72,601	73,814	74,680	74,453	74,656	74,124	77,297	79,163	82,606	86,031	88,551	90,498
Social sciences	119,334	117,505	112,711	111,736	111,018	110,896	113,497	114,474	119,106	129,735	137,739	144,571	148,114	150,725
Anthropology	5,203	5,632	5,806	6,389	6,759	6,894	7,057	6,898	7,198	7,543	7,631	7,742	8,100	8,086
Area/ethnic studies	5,073	5,098	5,176	5,192	5,240	5,502	5,614	5,557	5,835	5,745	6,244	6,612	6,975	7,120
Economics	22,973	20,945	19,083	17,895	17,695	18,250	19,400	20,371	21,823	23,866	24,927	25,160	24,707	24,825
History of science	9	22	29	21	31	39	92	101	103	103	140	117	113	114
Linguistics	553	611	564	619	577	680	716	757	847	914	1,047	1,053	1,201	1,340
Political science/public administration	47,936	45,610	41,978	39,915	37,808	36,664	36,384	36,650	38,565	43,796	47,509	51,540	53,589	54,598
Sociology	21,007	22,468	22,974	24,158	24,749	24,886	25,685	25,357	25,296	26,200	27,020	28,556	28,541	29,050
Other social sciences	16,580	17,119	17,101	17,547	18,159	17,981	18,549	18,783	19,439	21,568	23,221	23,791	24,888	25,592
Non-S&E	813,243	809,880	796,288	794,990	799,211	808,142	856,016	859,873	892,987	922,939	958,763	986,187	1,024,064	1,055,932
Engineering technologies	17,022	16,703	16,607	16,188	14,641	14,776	15,410	15,366	15,637	15,591	15,341	15,649	15,327	15,894

Appendix table 2-12

Earned bachelor's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Male														
All fields	537,536	537,061	531,146	527,593	525,636	524,902	536,059	537,421	555,640	578,937	601,588	618,758	636,559	655,393
S&E	200,315	202,284	202,217	203,215	201,397	200,322	197,650	197,771	204,675	219,815	227,861	233,924	238,029	241,697
Engineering	52,724	52,609	52,421	51,763	50,885	49,584	47,281	47,302	47,923	50,809	51,417	52,949	54,889	55,621
Aerospace	2,419	2,035	1,541	1,395	1,088	1,050	1,029	1,194	1,435	1,633	1,905	1,980	2,252	2,376
Chemical	3,335	3,953	4,367	4,537	4,701	4,525	4,016	4,033	3,823	3,532	3,352	3,113	3,179	3,338
Civil	8,009	8,619	9,031	9,629	9,441	8,946	7,246	6,908	6,667	7,118	7,121	7,451	8,241	8,819
Electrical	17,339	15,990	15,409	14,675	14,419	14,319	15,325	15,817	16,240	17,839	18,331	18,614	17,346	16,438
Industrial	2,547	2,439	2,493	2,630	2,918	2,968	2,630	2,589	2,636	2,625	2,543	2,666	2,716	2,473
Materials	956	866	799	781	804	772	704	667	648	674	595	624	737	753
Mechanical	13,076	13,554	13,441	12,758	12,171	11,727	11,309	11,401	11,574	12,170	12,395	12,933	14,050	14,894
Other	5,043	5,153	5,340	5,358	5,343	5,277	5,022	4,693	4,900	5,218	5,175	5,568	6,368	6,530
Science	147,591	149,675	149,796	151,452	150,512	150,738	150,369	150,469	156,752	169,006	176,444	180,975	183,140	186,076
Natural sciences	67,799	70,997	73,540	76,556	77,569	78,943	80,832	82,030	85,578	92,543	95,462	95,606	94,589	95,924
Agricultural sciences	7,294	8,006	8,943	9,873	10,094	10,225	9,780	8,975	8,725	8,740	8,336	8,383	8,398	8,781
Biological sciences	23,145	25,341	26,972	29,207	29,848	30,015	26,936	24,972	24,030	24,023	24,319	25,698	27,917	31,347
Earth, atmospheric, and ocean sciences	2,453	2,665	2,954	2,972	2,924	2,722	2,413	2,346	2,282	2,298	2,256	2,299	2,341	2,399
Atmospheric sciences	305	329	362	348	348	339	376	324	374	386	369	436	432	483
Earth sciences	1,978	2,194	2,456	2,504	2,445	2,262	1,950	1,934	1,788	1,846	1,812	1,795	1,873	1,857
Oceanography	170	142	136	120	131	121	87	88	120	66	75	68	36	59
Mathematics/computer sciences	25,483	25,397	25,066	24,814	25,322	26,700	33,113	37,500	42,518	49,251	52,330	50,636	46,496	43,376
Computer sciences	17,629	17,533	17,706	17,740	18,492	20,265	26,997	31,549	36,016	42,258	44,902	42,429	38,061	34,652
Mathematics/statistics	7,854	7,864	7,360	7,074	6,830	6,435	6,116	5,951	6,502	6,993	7,428	8,207	8,435	8,724
Physical sciences	9,424	9,588	9,605	9,690	9,381	9,281	8,590	8,237	8,023	8,231	8,221	8,590	9,437	10,021
Astronomy	120	117	117	93	94	110	106	145	160	161	169	188	235	200
Chemistry	5,365	5,672	5,783	6,090	6,042	5,901	5,483	5,041	4,716	4,649	4,548	4,779	5,253	5,636
Physics	3,403	3,295	3,161	3,016	2,741	2,790	2,638	2,692	2,817	3,076	3,233	3,299	3,621	3,846
Other physical sciences	536	504	544	491	504	480	363	359	330	345	271	324	328	339
Social/behavioral sciences	79,792	78,678	76,256	74,896	72,943	71,795	69,537	68,439	71,174	76,463	80,982	85,369	88,551	90,152
Psychology	18,029	18,749	19,638	19,962	19,470	19,058	17,542	16,694	17,389	17,629	18,322	19,099	19,975	20,446
Social sciences	61,763	59,929	56,618	54,934	53,473	52,737	51,995	51,745	53,785	58,834	62,660	66,270	68,576	69,706
Anthropology	1,863	2,056	2,117	2,331	2,446	2,414	2,315	2,192	2,272	2,313	2,350	2,362	2,494	2,456
Area/ethnic studies	1,967	1,947	2,082	1,975	1,987	2,043	2,043	1,904	2,032	2,055	2,163	2,345	2,463	2,561
Economics	16,161	14,810	13,235	12,523	12,249	12,456	13,016	13,450	14,436	15,773	16,650	17,021	17,043	17,195
History of science	4	16	14	12	14	21	40	45	40	49	67	53	46	44
Linguistics	159	173	153	181	184	197	226	245	243	290	330	324	447	461
Political science/public administration	26,701	25,136	23,010	21,573	19,951	19,340	18,063	17,999	18,822	21,274	23,101	25,130	26,462	27,053
Sociology	6,638	7,155	7,435	7,790	7,845	7,762	7,657	7,437	7,299	7,558	7,718	8,430	8,548	8,698
Other social sciences	8,270	8,636	8,572	8,549	8,797	8,504	8,635	8,473	8,641	9,522	10,281	10,605	11,073	11,238
Non-S&E	337,221	334,777	328,929	324,378	324,239	324,580	338,409	339,650	350,965	359,122	373,727	384,834	398,530	413,696
Engineering technologies	15,114	14,877	14,704	14,346	12,933	12,942	13,448	13,286	13,480	13,276	13,195	13,425	13,274	13,989

Appendix table 2-12

Earned bachelor's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Female														
All fields	641,742	646,080	643,290	651,873	661,931	674,036	718,559	722,887	753,330	786,757	815,833	837,643	866,363	886,311
S&E	165,720	170,977	175,931	181,261	186,959	190,474	200,952	202,664	211,308	222,940	230,797	236,290	240,829	244,075
Engineering	9,981	10,403	10,950	11,314	11,471	11,341	12,206	11,912	12,682	12,980	13,263	13,203	13,338	12,653
Aerospace	316	295	230	247	202	197	238	304	312	384	413	404	501	452
Chemical	1,564	1,683	2,024	2,171	2,276	2,196	2,203	2,055	2,123	2,013	1,833	1,776	1,678	1,743
Civil	1,779	1,984	2,298	2,424	2,569	2,576	2,325	2,041	2,224	2,249	2,279	2,349	2,422	2,499
Electrical	2,259	2,251	2,170	1,971	2,019	2,014	2,350	2,542	2,717	2,918	3,043	2,845	2,587	2,109
Industrial	1,037	1,014	1,026	1,097	1,079	1,020	1,307	1,223	1,341	1,312	1,265	1,270	1,174	1,056
Materials	260	240	247	223	259	235	268	263	285	276	270	282	269	272
Mechanical	1,632	1,743	1,700	1,735	1,635	1,636	1,782	1,738	1,779	1,859	1,947	1,947	2,113	2,017
Other	1,134	1,193	1,255	1,446	1,432	1,467	1,733	1,746	1,901	1,969	2,213	2,330	2,594	2,505
Science	155,739	160,574	164,981	169,947	175,488	179,133	188,746	190,752	198,626	209,960	217,534	223,087	227,491	231,422
Natural sciences	48,946	51,979	55,925	59,293	62,733	65,579	70,130	70,593	73,397	77,525	78,171	77,854	79,377	80,351
Agricultural sciences	4,338	4,941	5,637	6,498	7,267	7,745	8,465	8,490	8,634	8,963	8,722	8,737	8,909	8,915
Biological sciences	24,844	26,980	29,918	32,854	35,255	37,106	37,951	37,038	37,645	39,494	40,431	42,274	45,055	48,001
Earth, atmospheric, and ocean sciences	1,050	1,203	1,524	1,485	1,542	1,599	1,606	1,622	1,702	1,651	1,647	1,660	1,646	1,678
Atmospheric sciences	64	76	82	86	83	104	114	132	151	176	203	241	219	262
Earth sciences	923	1072	1,364	1,334	1,385	1,403	1,409	1,400	1,446	1,406	1,358	1,351	1,358	1,336
Oceanography	63	55	78	65	74	92	83	90	105	69	86	68	69	80
Mathematics/computer sciences	13,950	13,788	13,554	12,755	12,789	13,134	16,120	17,534	19,442	21,538	21,373	18,768	16,814	14,771
Computer sciences	6,951	7,020	7,063	6,765	6,904	7,474	10,522	12,048	13,690	15,668	15,066	12,159	9,939	7,944
Mathematics/statistics	6,999	6,768	6,491	5,990	5,885	5,660	5,598	5,486	5,752	5,870	6,307	6,609	6,875	6,827
Physical sciences	4,764	5,067	5,292	5,701	5,880	5,995	5,988	5,909	5,974	5,879	5,998	6,415	6,953	6,986
Astronomy	47	46	52	55	46	58	54	95	116	110	123	143	131	132
Chemistry	3,744	3,969	4,233	4,621	4,881	4,973	4,905	4,774	4,723	4,680	4,752	5,144	5,634	5,614
Physics	677	710	675	684	652	667	724	755	824	837	907	900	945	1,024
Other physical sciences	296	342	332	341	301	297	305	285	311	252	216	228	243	216
Social/behavioral sciences	106,793	108,595	109,056	110,654	112,755	113,554	118,616	120,159	125,229	132,435	139,363	145,233	148,114	151,071
Psychology	49,222	51,019	52,963	53,852	55,210	55,395	57,114	57,430	59,908	61,534	64,284	66,932	68,576	70,052
Social sciences	57,571	57,576	56,093	56,802	57,545	58,159	61,502	62,729	65,321	70,901	75,079	78,301	79,538	81,019
Anthropology	3,340	3,576	3,689	4,058	4,313	4,480	4,742	4,706	4,926	5,230	5,281	5,380	5,606	5,630
Area/ethnic studies	3,106	3,151	3,094	3,217	3,253	3,459	3,571	3,653	3,803	3,690	4,081	4,267	4,512	4,559
Economics	6,812	6,135	5,848	5,372	5,446	5,794	6,384	6,921	7,387	8,093	8,277	8,139	7,664	7,630
History of science	5	6	15	9	17	18	52	56	63	54	73	64	67	70
Linguistics	394	438	411	438	393	483	490	512	604	624	717	729	754	879
Political science/public administration	21,235	20,474	18,968	18,342	17,857	17,324	18,321	18,651	19,743	22,522	24,408	26,410	27,127	27,545
Sociology	14,369	15,313	15,539	16,368	16,904	17,124	18,028	17,920	17,997	18,642	19,302	20,126	19,993	20,352
Other social sciences	8,310	8,483	8,529	8,998	9,362	9,477	9,914	10,310	10,798	12,046	12,940	13,186	13,815	14,354
Non-S&E	476,022	475,103	467,359	470,612	474,972	483,562	517,607	520,223	542,022	563,817	585,036	601,353	625,534	642,236
Engineering technologies	1,908	1,826	1,903	1,842	1,708	1,834	1,962	2,080	2,157	2,315	2,146	2,224	2,053	1,905

NOTES: Data not available for 1999. Engineering technologies focused more on applied skills than on fundamental science and mathematics. Data from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
All citizenships and races/ethnicities												
All fields	1,174,436	1,179,466	1,187,567	1,198,938	1,254,618	1,260,308	1,308,970	1,365,694	1,417,421	1,456,401	1,502,922	1,541,704
S&E	378,148	384,476	388,356	390,796	398,602	400,435	415,983	442,755	458,658	470,214	478,858	485,772
Engineering	63,371	63,077	62,356	60,925	59,487	59,214	60,605	63,789	64,680	66,152	68,227	68,274
Aerospace	1,771	1,642	1,290	1,247	1,267	1,498	1,747	2,017	2,318	2,384	2,753	2,828
Chemical	6,391	6,708	6,977	6,721	6,219	6,088	5,946	5,545	5,185	4,889	4,857	5,081
Civil	11,329	12,053	12,010	11,522	9,571	8,949	8,891	9,367	9,400	9,800	10,663	11,318
Electrical	17,579	16,646	16,438	16,333	17,675	18,359	18,957	20,757	21,374	21,459	19,933	18,547
Industrial	3,519	3,727	3,997	3,988	3,937	3,812	3,977	3,937	3,808	3,936	3,890	3,529
Materials	1,046	1,004	1,063	1,007	972	930	933	950	865	906	1,006	1,025
Mechanical	15,141	14,493	13,806	13,363	13,091	13,139	13,353	14,029	14,342	14,880	16,163	16,911
Other	6,595	6,804	6,775	6,744	6,755	6,439	6,801	7,187	7,388	7,898	8,962	9,035
Science	314,777	321,399	326,000	329,871	339,115	341,221	355,378	378,966	393,978	404,062	410,631	417,498
Natural sciences	129,465	135,849	140,302	144,522	150,962	152,623	158,975	170,068	173,633	173,460	173,966	176,275
Agricultural sciences	14,580	16,371	17,361	17,970	18,245	17,465	17,359	17,703	17,058	17,120	17,307	17,696
Biological sciences	56,890	62,061	65,103	67,121	64,887	62,010	61,675	63,517	64,750	67,972	72,972	79,348
Earth, atmospheric, and ocean sciences	4,478	4,457	4,466	4,321	4,019	3,968	3,984	3,949	3,903	3,959	3,987	4,077
Atmospheric sciences	444	434	431	443	490	456	525	562	572	677	651	745
Earth sciences	3,820	3,838	3,830	3,665	3,359	3,334	3,234	3,252	3,170	3,146	3,231	3,193
Oceanography	214	185	205	213	170	178	225	135	161	136	105	139
Mathematics/computer sciences	38,620	37,569	38,111	39,834	49,233	55,034	61,960	70,789	73,703	69,404	63,310	58,147
Computer sciences	24,769	24,505	25,396	27,739	37,519	43,597	49,706	57,926	59,968	54,588	48,000	42,596
Mathematics	13,851	13,064	12,715	12,095	11,714	11,437	12,254	12,863	13,735	14,816	15,310	15,551
Physical sciences	14,897	15,391	15,261	15,276	14,578	14,146	13,997	14,110	14,219	15,005	16,390	17,007
Astronomy	169	148	140	168	160	240	276	271	292	331	366	332
Chemistry	10,016	10,711	10,923	10,874	10,388	9,815	9,439	9,329	9,300	9,923	10,887	11,250
Physics	3,836	3,700	3,393	3,457	3,362	3,447	3,641	3,913	4,140	4,199	4,566	4,870
Other physical sciences	876	832	805	777	668	644	641	597	487	552	571	555
Social/behavioral sciences	185,312	185,550	185,698	185,349	188,153	188,598	196,403	208,898	220,345	230,602	236,665	241,223
Psychology	72,601	73,814	74,680	74,453	74,656	74,124	77,297	79,163	82,606	86,031	88,551	90,498
Social sciences	112,711	111,736	111,018	110,896	113,497	114,474	119,106	129,735	137,739	144,571	148,114	150,725
Anthropology	5,806	6,389	6,759	6,894	7,057	6,898	7,198	7,543	7,631	7,742	8,100	8,086
Area/ethnic studies	5,176	5,192	5,240	5,502	5,614	5,557	5,835	5,745	6,244	6,612	6,975	7,120
Economics	19,083	17,895	17,695	18,250	19,400	20,371	21,823	23,866	24,927	25,160	24,707	24,825
History of science	29	21	31	39	92	101	103	103	140	117	113	114
Linguistics	564	619	577	680	716	757	847	914	1,047	1,053	1,201	1,340
Political science/public administration	41,978	39,915	37,808	36,664	36,384	36,650	38,565	43,796	47,509	51,540	53,589	54,598
Sociology	22,974	24,158	24,749	24,886	25,685	25,357	25,296	26,200	27,020	28,556	28,541	29,050
Other social sciences	17,101	17,547	18,159	17,981	18,549	18,783	19,439	21,568	23,221	23,791	24,888	25,592
Non-S&E	796,288	794,990	799,211	808,142	856,016	859,873	892,987	922,939	958,763	986,187	1,024,064	1,055,932
Engineering technologies	16,607	16,188	14,641	14,776	15,410	15,366	15,637	15,591	15,341	15,649	15,327	15,894

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
U.S. citizen/permanent resident												
All fields	1,137,424	1,141,719	1,148,581	1,159,648	1,215,514	1,220,465	1,267,462	1,322,430	1,372,577	1,411,002	1,456,517	1,495,740
S&E	363,463	369,757	373,644	376,030	383,407	384,714	399,639	424,857	439,833	451,655	460,604	468,379
Engineering	58,561	58,320	57,559	56,281	54,955	54,795	56,339	59,512	60,130	61,412	63,516	63,885
Aerospace	1,655	1,519	1,161	1,110	1,146	1,350	1,625	1,857	2,144	2,213	2,606	2,653
Chemical	5,867	6,139	6,406	6,214	5,774	5,664	5,499	5,186	4,817	4,478	4,421	4,651
Civil	10,892	11,615	11,536	11,012	9,113	8,537	8,520	9,018	9,085	9,473	10,321	10,992
Electrical	15,462	14,664	14,568	14,495	15,839	16,517	17,089	18,703	19,098	19,138	17,757	16,668
Industrial	3,095	3,279	3,517	3,502	3,456	3,337	3,535	3,535	3,427	3,541	3,462	3,154
Materials	1,016	975	1,035	974	935	888	904	919	836	866	960	976
Mechanical	14,360	13,712	12,898	12,566	12,302	12,395	12,670	13,433	13,728	14,233	15,513	16,198
Other	6,214	6,417	6,438	6,408	6,390	6,107	6,497	6,861	6,995	7,470	8,476	8,593
Science	304,902	311,437	316,085	319,749	328,452	329,919	343,300	365,345	379,703	390,243	397,088	404,494
Natural sciences	124,311	130,805	135,372	139,537	145,371	146,503	152,293	162,204	165,350	165,719	166,833	169,717
Agricultural sciences	14,322	16,101	17,108	17,676	17,987	17,217	17,097	17,433	16,807	16,846	17,041	17,414
Biological sciences	55,607	60,695	63,643	65,698	63,511	60,574	60,220	61,979	63,099	66,005	70,853	77,015
Earth, atmospheric, and ocean sciences	4,405	4,403	4,388	4,239	3,973	3,919	3,925	3,892	3,853	3,879	3,911	4,019
Atmospheric sciences	440	433	420	439	482	454	519	554	569	667	646	736
Earth sciences	3,761	3,790	3,770	3,590	3,326	3,288	3,185	3,204	3,125	3,081	3,166	3,146
Oceanography	204	180	198	210	165	177	221	134	159	131	99	137
Mathematics/computer sciences	35,730	34,847	35,565	37,241	45,854	51,203	57,597	65,313	67,963	64,652	59,402	55,004
Computer sciences	22,472	22,334	23,383	25,599	34,619	40,192	45,797	53,072	54,908	50,597	44,901	40,163
Mathematics	13,258	12,513	12,182	11,642	11,235	11,011	11,800	12,241	13,055	14,055	14,501	14,841
Physical sciences	14,247	14,759	14,668	14,683	14,046	13,590	13,454	13,587	13,628	14,337	15,626	16,265
Astronomy	159	140	132	157	156	227	260	256	282	311	353	319
Chemistry	9,620	10,296	10,527	10,489	10,044	9,480	9,097	9,003	8,950	9,526	10,421	10,799
Physics	3,613	3,507	3,217	3,279	3,202	3,267	3,475	3,745	3,951	3,999	4,323	4,647
Other physical sciences	855	816	792	758	644	616	622	583	445	501	529	500
Social/behavioral sciences	180,591	180,632	180,713	180,212	183,081	183,416	191,007	203,141	214,353	224,524	230,255	234,777
Psychology	71,659	72,798	73,641	73,285	73,392	72,841	75,928	77,769	81,131	84,528	86,971	88,939
Social sciences	108,932	107,834	107,072	106,927	109,689	110,575	115,079	125,372	133,222	139,996	143,284	145,838
Anthropology	5,691	6,272	6,586	6,792	6,941	6,778	7,084	7,449	7,525	7,627	7,977	7,976
Area/ethnic studies	4,951	4,994	5,055	5,281	5,436	5,393	5,677	5,585	6,080	6,449	6,800	6,921
Economics	17,393	16,108	15,871	16,461	17,709	18,548	19,920	21,820	22,758	22,961	22,571	22,691
History of science	28	21	31	38	91	98	101	100	140	116	110	110
Linguistics	484	542	491	580	633	680	766	834	973	976	1,127	1,281
Political science/public administration	40,890	38,786	36,754	35,482	35,232	35,501	37,398	42,510	46,202	50,271	52,110	53,181
Sociology	22,642	23,834	24,450	24,577	25,386	25,099	25,001	25,851	26,693	28,227	28,151	28,652
Other social sciences	16,853	17,277	17,834	17,716	18,261	18,478	19,132	21,223	22,851	23,369	24,438	25,026
Non-S&E	773,961	771,962	774,937	783,618	832,107	835,751	867,823	897,573	932,744	959,347	995,913	1,027,361
Engineering technologies	16,057	15,607	14,084	14,185	14,967	14,823	15,171	15,132	14,825	15,161	14,949	15,515

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
White												
All fields	892,785	883,920	878,484	877,274	896,511	890,089	914,692	943,779	967,924	987,957	1,011,497	1,032,791
S&E	275,819	276,684	274,767	272,663	270,341	267,866	276,403	290,875	297,708	303,321	308,888	312,763
Engineering	43,766	43,122	41,670	40,583	39,025	38,723	39,693	41,820	41,838	42,191	43,526	43,980
Aerospace	1,301	1,172	869	877	899	1,058	1,279	1,447	1,629	1,723	2,005	2,017
Chemical	4,417	4,577	4,631	4,405	4,062	4,061	3,976	3,746	3,483	3,203	3,086	3,210
Civil	8,646	9,117	8,940	8,481	6,984	6,615	6,624	7,032	7,012	7,196	7,768	8,130
Electrical	10,079	9,416	9,297	9,183	9,717	9,875	9,968	10,971	10,939	10,868	10,026	9,620
Industrial	2,220	2,350	2,271	2,333	2,385	2,323	2,429	2,388	2,353	2,353	2,312	2,107
Materials	851	787	813	760	741	708	712	701	614	633	671	711
Mechanical	11,332	10,678	9,919	9,656	9,450	9,520	9,852	10,501	10,730	10,933	11,833	12,266
Other	4,920	5,025	4,930	4,888	4,787	4,563	4,853	5,034	5,078	5,282	5,825	5,919
Science	232,053	233,562	233,097	232,080	231,316	229,143	236,710	249,055	255,870	261,130	265,362	268,783
Natural sciences	94,609	98,553	100,828	102,130	103,331	102,252	105,511	110,194	110,989	111,642	112,658	114,851
Agricultural sciences	12,873	14,383	15,246	15,618	15,655	14,948	14,728	14,935	14,368	14,353	14,388	14,523
Biological sciences	40,697	43,731	45,383	45,918	43,903	41,261	41,212	41,893	42,443	43,759	46,495	49,771
Earth, atmospheric, and ocean sciences	4,012	4,010	3,986	3,803	3,536	3,436	3,450	3,442	3,338	3,366	3,360	3,474
Atmospheric sciences	401	403	390	416	437	395	467	493	508	597	575	662
Earth sciences	3,430	3,447	3,429	3,207	2,959	2,888	2,806	2,837	2,691	2,663	2,703	2,692
Oceanography	181	160	167	180	140	153	177	112	139	106	82	120
Mathematics/computer sciences	26,087	25,355	25,279	26,025	30,141	32,808	36,434	39,998	41,024	39,886	37,400	35,764
Computer sciences	15,601	15,558	15,847	17,121	21,759	24,649	27,696	31,040	31,400	29,742	26,948	25,033
Mathematics	10,486	9,797	9,432	8,904	8,382	8,159	8,738	8,958	9,624	10,144	10,452	10,731
Physical sciences	10,940	11,074	10,934	10,766	10,096	9,799	9,687	9,926	9,816	10,278	11,015	11,319
Astronomy	132	107	112	127	131	185	204	212	220	234	269	248
Chemistry	7,112	7,486	7,537	7,371	6,900	6,500	6,260	6,280	6,149	6,586	7,023	7,135
Physics	3,004	2,839	2,623	2,654	2,543	2,617	2,736	2,963	3,115	3,092	3,333	3,545
Other physical sciences	692	642	662	614	522	497	487	471	332	366	390	391
Social/behavioral sciences	137,444	135,009	132,269	129,950	127,985	126,891	131,199	138,861	144,881	149,488	152,704	153,932
Psychology	55,914	55,902	55,311	54,225	52,400	51,545	53,318	54,711	56,576	58,089	59,416	59,761
Social sciences	81,530	79,107	76,958	75,725	75,585	75,346	77,881	84,150	88,305	91,399	93,288	94,171
Anthropology	4,696	5,045	5,225	5,383	5,378	5,222	5,380	5,593	5,498	5,586	5,784	5,652
Area/ethnic studies	3,156	2,998	3,025	3,004	2,940	2,937	3,069	2,948	3,180	3,240	3,374	3,456
Economics	12,869	11,639	11,437	11,599	12,102	12,414	13,371	14,299	14,656	14,720	14,427	14,496
History of science	26	18	24	33	58	57	60	68	100	86	83	73
Linguistics	339	373	359	397	439	499	571	598	652	637	771	858
Political science/public administration	30,907	28,924	26,772	25,628	24,931	24,961	26,150	29,565	31,756	33,891	35,058	35,634
Sociology	16,170	16,777	16,661	16,450	16,561	16,099	15,817	16,283	16,677	17,231	16,963	16,985
Other social sciences	13,367	13,333	13,455	13,231	13,176	13,157	13,463	14,796	15,786	16,008	16,828	17,017
Non-S&E	616,966	607,236	603,717	604,611	626,170	622,223	638,289	652,904	670,216	684,636	702,609	720,028
Engineering technologies	12,675	12,075	10,994	10,993	10,916	10,760	10,925	10,744	10,453	10,634	10,605	11,209

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Asian/Pacific Islander												
All fields	59,295	63,136	67,440	70,022	75,384	75,741	79,482	83,498	86,743	91,482	96,315	99,011
S&E	28,604	30,412	32,570	34,006	35,556	36,468	37,518	39,944	41,403	43,312	44,475	45,516
Engineering	6,785	6,796	7,085	7,002	6,850	7,025	7,120	7,413	7,628	8,211	8,551	8,466
Aerospace	159	159	118	96	98	103	128	145	186	184	223	250
Chemical	652	735	874	897	788	702	636	563	527	486	558	652
Civil	942	986	1,017	909	642	521	482	500	493	585	770	908
Electrical	2,769	2,685	2,663	2,757	3,143	3,522	3,773	3,967	4,086	4,293	3,840	3,353
Industrial	287	322	437	369	332	319	356	386	376	352	362	333
Materials	93	88	84	119	91	88	85	91	95	101	166	153
Mechanical	1,249	1,176	1,135	1,128	1,002	998	892	939	928	1,082	1,249	1,413
Other	634	645	757	727	754	772	768	822	937	1,128	1,383	1,404
Science	21,819	23,616	25,485	27,004	28,706	29,443	30,398	32,531	33,775	35,101	35,924	37,050
Natural sciences	12,009	13,194	14,214	15,040	16,342	16,633	17,196	18,499	18,433	18,455	18,459	19,106
Agricultural sciences	282	307	396	439	454	399	411	459	415	448	542	606
Biological sciences	7,045	7,967	8,540	8,869	8,025	7,493	7,209	7,398	7,792	8,835	10,088	11,572
Earth, atmospheric, and ocean sciences	102	93	95	92	97	86	85	73	85	86	92	106
Atmospheric sciences	12	9	7	5	14	14	8	9	11	15	12	17
Earth sciences	77	79	77	76	77	64	65	58	65	69	75	82
Oceanography	13	5	11	11	6	8	12	6	9	2	5	7
Mathematics/computer sciences	3,335	3,361	3,658	4,056	6,304	7,311	8,274	9,426	8,912	7,770	6,119	5,020
Computer sciences	2,371	2,451	2,806	3,222	5,415	6,395	7,273	8,273	7,668	6,351	4,672	3,581
Mathematics	964	910	852	834	889	916	1,001	1,153	1,244	1,419	1,447	1,439
Physical sciences	1,245	1,466	1,525	1,584	1,462	1,344	1,217	1,143	1,229	1,316	1,618	1,802
Astronomy	13	15	7	12	9	12	24	16	18	21	37	16
Chemistry	986	1,172	1,280	1,337	1,208	1,126	978	893	960	1,024	1,267	1,420
Physics	214	236	204	208	218	184	184	204	223	236	281	327
Other physical sciences	32	43	34	27	27	22	31	30	28	35	33	39
Social/behavioral sciences	9,810	10,422	11,271	11,964	12,364	12,810	13,202	14,032	15,342	16,646	17,465	17,944
Psychology	3,331	3,666	4,067	4,266	4,188	4,150	4,241	4,064	4,350	4,797	5,305	5,615
Social sciences	6,479	6,756	7,204	7,698	8,176	8,660	8,961	9,968	10,992	11,849	12,160	12,329
Anthropology	259	316	363	404	340	332	377	396	398	424	496	534
Area/ethnic studies	510	621	574	676	737	714	686	671	758	875	879	899
Economics	1,995	1,994	2,154	2,430	2,774	3,082	3,235	3,708	4,007	4,003	3,913	3,874
History of science	2	2	4	3	12	15	20	16	14	11	9	8
Linguistics	51	58	62	85	72	69	73	83	105	112	112	136
Political science/public administration	2,088	2,009	2,100	2,141	2,073	2,228	2,325	2,648	2,903	3,267	3,488	3,539
Sociology	989	1,090	1,228	1,212	1,324	1,300	1,325	1,372	1,596	1,853	1,907	1,908
Other social sciences	585	666	719	747	844	920	920	1,074	1,211	1,304	1,356	1,431
Non-S&E	30,691	32,724	34,870	36,016	39,828	39,273	41,964	43,554	45,340	48,170	51,840	53,495
Engineering technologies	730	725	474	474	770	731	769	703	680	754	661	669

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Black												
All fields	85,287	89,426	92,138	95,730	104,341	106,966	111,330	117,902	123,636	127,978	133,743	137,566
S&E	26,911	28,341	29,824	30,770	32,993	33,386	34,899	36,961	38,737	39,846	40,108	40,401
Engineering	2,845	2,999	3,077	3,020	3,069	2,892	2,982	3,092	3,227	3,206	3,209	3,164
Aerospace	64	51	50	35	40	39	43	65	70	71	85	72
Chemical	305	337	373	385	383	373	346	317	303	273	231	244
Civil	326	409	403	401	403	329	317	292	320	342	324	403
Electrical	1,048	1,034	1,067	1,048	1,055	1,089	1,103	1,301	1,408	1,331	1,277	1,207
Industrial	236	238	245	262	256	238	256	275	251	297	273	252
Materials	22	29	20	32	24	27	32	22	22	19	28	22
Mechanical	604	632	642	548	594	515	561	471	504	537	569	570
Other	240	269	277	309	314	282	324	349	349	336	422	394
Science	24,066	25,342	26,747	27,750	29,924	30,494	31,917	33,869	35,510	36,640	36,899	37,237
Natural sciences	7,994	8,596	9,049	9,735	10,796	11,359	12,066	13,191	13,554	13,199	13,071	12,880
Agricultural sciences	253	340	367	409	450	428	454	452	450	444	485	481
Biological sciences	3,232	3,801	4,124	4,556	4,738	4,693	4,632	4,878	5,039	5,052	5,366	5,857
Earth, atmospheric, and ocean sciences	64	60	57	70	51	56	62	60	65	68	58	79
Atmospheric sciences	11	7	8	7	10	2	10	12	20	8	14	15
Earth sciences	49	48	41	60	40	52	42	43	43	54	43	61
Oceanography	4	5	8	3	1	2	10	5	2	6	1	3
Mathematics/computer sciences	3,475	3,356	3,448	3,643	4,467	5,186	5,900	6,873	7,042	6,670	6,122	5,420
Computer sciences	2,517	2,424	2,433	2,677	3,563	4,378	5,057	6,083	6,259	5,815	5,275	4,588
Mathematics	958	932	1,015	966	904	808	843	790	783	855	847	832
Physical sciences	970	1,039	1,053	1,057	1,090	996	1,018	928	958	965	1,040	1,043
Astronomy	3	3	0	2	1	2	3	1	3	4	9	3
Chemistry	738	788	861	824	888	827	796	744	756	760	827	852
Physics	172	176	148	179	152	133	182	147	166	166	171	163
Other physical sciences	57	72	44	52	49	34	37	36	33	35	33	25
Social/behavioral sciences	16,072	16,746	17,698	18,015	19,128	19,135	19,851	20,678	21,956	23,441	23,828	24,357
Psychology	5,741	6,017	6,646	6,852	7,572	7,561	7,748	8,014	8,485	9,141	9,097	9,729
Social sciences	10,331	10,729	11,052	11,163	11,556	11,574	12,103	12,664	13,471	14,300	14,731	14,628
Anthropology	145	183	220	234	268	242	253	258	338	320	337	358
Area/ethnic studies	607	635	653	692	738	691	784	749	805	905	1,011	926
Economics	1,156	1,020	925	979	1,044	1,089	1,221	1,326	1,409	1,377	1,379	1,289
History of science	0	0	2	0	6	6	4	6	8	5	4	12
Linguistics	17	19	8	21	14	24	25	17	32	33	44	44
Political science/public administration	3,859	3,808	3,761	3,640	3,601	3,556	3,737	4,059	4,452	4,866	5,099	4,955
Sociology	3,208	3,549	3,851	3,946	4,097	4,200	4,167	4,214	4,220	4,539	4,627	4,721
Other social sciences	1,339	1,515	1,632	1,651	1,788	1,766	1,912	2,035	2,207	2,255	2,230	2,323
Non-S&E	58,376	61,085	62,314	64,960	71,348	73,580	76,431	80,941	84,899	88,132	93,635	97,165
Engineering technologies	1,321	1,372	1,428	1,376	1,466	1,427	1,467	1,557	1,592	1,599	1,574	1,463

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Hispanic												
All fields	66,691	71,016	74,994	78,075	88,445	90,232	95,492	101,030	106,388	111,616	118,057	124,787
S&E	21,359	22,881	24,445	25,714	27,980	28,361	29,935	32,533	33,748	35,662	37,049	38,546
Engineering	3,651	3,726	4,125	4,125	4,075	4,015	4,136	4,358	4,483	4,628	4,928	4,962
Aerospace	93	89	93	78	67	92	97	110	121	139	153	172
Chemical	345	331	379	393	380	341	353	320	313	333	345	326
Civil	693	738	874	920	762	742	761	798	836	888	952	1,006
Electrical	1,101	1,051	1,123	1,070	1,283	1,301	1,411	1,428	1,564	1,535	1,563	1,521
Industrial	302	316	451	450	391	356	372	365	332	364	391	337
Materials	26	42	89	42	38	34	33	50	52	59	58	40
Mechanical	827	845	832	866	846	880	819	950	935	962	1,050	1,147
Other	264	314	284	306	308	269	290	337	330	348	416	413
Science	17,708	19,155	20,320	21,589	23,905	24,346	25,799	28,175	29,265	31,034	32,121	33,584
Natural sciences	6,120	6,747	7,094	7,905	8,842	9,202	9,476	10,767	10,736	10,968	11,099	11,312
Agricultural sciences	383	504	559	631	635	607	662	686	673	710	651	776
Biological sciences	3,101	3,531	3,795	4,283	4,446	4,547	4,367	4,840	4,611	4,819	5,084	5,453
Earth, atmospheric, and ocean sciences	84	105	113	118	125	157	136	119	131	151	143	135
Atmospheric sciences	5	7	8	8	9	15	10	10	13	20	20	18
Earth sciences	74	91	100	98	105	130	109	103	112	121	120	113
Oceanography	5	7	5	12	11	12	17	6	6	10	3	4
Mathematics/computer sciences	1,836	1,840	1,887	2,077	2,753	3,021	3,448	4,261	4,436	4,350	4,232	3,916
Computer sciences	1,314	1,284	1,327	1,473	2,154	2,396	2,776	3,590	3,758	3,529	3,351	2,970
Mathematics	522	556	560	604	599	625	672	671	678	821	881	946
Physical sciences	716	767	740	796	883	870	863	861	885	938	989	1,032
Astronomy	6	6	4	11	7	16	10	12	23	17	12	18
Chemistry	553	616	593	640	719	669	666	669	651	704	739	748
Physics	105	113	119	117	125	151	156	164	187	183	206	246
Other physical sciences	52	32	24	28	32	34	31	16	24	34	32	20
Social/behavioral sciences	11,588	12,408	13,226	13,684	15,063	15,144	16,323	17,408	18,529	20,066	21,022	22,272
Psychology	4,543	5,036	5,281	5,509	6,127	6,178	6,695	6,828	7,285	7,708	8,236	8,506
Social sciences	7,045	7,372	7,945	8,175	8,936	8,966	9,628	10,580	11,244	12,358	12,786	13,766
Anthropology	308	363	445	397	462	465	494	533	568	578	607	636
Area/ethnic studies	476	535	570	678	659	648	688	717	756	827	926	971
Economics	844	841	829	851	976	1,030	1,068	1,188	1,290	1,352	1,423	1,510
History of science	0	1	1	2	3	5	7	4	7	6	5	5
Linguistics	40	47	24	39	42	45	39	48	71	68	80	101
Political science/public administration	2,866	2,841	2,913	2,829	2,973	2,925	3,135	3,586	3,872	4,583	4,531	5,105
Sociology	1,567	1,685	1,908	2,081	2,317	2,291	2,440	2,555	2,665	2,874	2,969	3,150
Other social sciences	944	1,059	1,255	1,298	1,504	1,557	1,757	1,949	2,015	2,070	2,245	2,288
Non-S&E	45,332	48,135	50,549	52,361	60,465	61,871	65,557	68,497	72,640	75,954	81,008	86,241
Engineering technologies	884	985	723	740	1,123	1,146	1,187	1,290	1,215	1,210	1,098	1,148

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
American Indian/Alaska Native												
All fields	6,454	6,809	7,243	7,693	8,414	8,683	8,744	9,314	10,021	9,704	10,281	10,751
S&E	1,995	2,149	2,297	2,391	2,607	2,800	2,649	2,909	3,264	3,209	3,341	3,319
Engineering	221	243	263	254	326	256	308	320	333	349	353	305
Aerospace	3	5	3	10	7	8	17	10	23	16	14	9
Chemical	31	31	29	31	42	31	33	34	29	30	27	25
Civil	58	59	71	62	83	65	67	67	64	73	73	75
Electrical	43	55	50	53	81	56	70	99	88	84	69	61
Industrial	4	8	19	15	23	17	21	12	15	27	17	14
Materials	2	4	6	3	5	4	6	3	6	5	8	5
Mechanical	55	57	45	47	52	51	61	58	73	72	91	71
Other	25	24	40	33	33	24	33	37	35	42	54	45
Science	1,774	1,906	2,034	2,137	2,281	2,544	2,341	2,589	2,931	2,860	2,988	3,014
Natural sciences	675	702	742	832	917	1,080	967	1,002	1,216	1,145	1,141	1,151
Agricultural sciences	124	139	146	151	190	215	158	163	188	161	186	165
Biological sciences	285	317	340	399	379	431	410	378	417	499	479	531
Earth, atmospheric, and ocean sciences	26	23	31	25	43	35	26	24	31	25	36	26
Atmospheric sciences	0	1	1	0	4	5	1	4	1	1	1	4
Earth sciences	25	20	26	25	35	29	23	18	30	23	35	21
Oceanography	1	2	4	0	4	1	2	2	0	1	0	1
Mathematics/computer sciences	168	142	156	176	240	326	290	343	504	357	338	312
Computer sciences	110	89	99	111	172	275	233	278	445	281	274	249
Mathematics	58	53	57	65	68	51	57	65	59	76	64	63
Physical sciences	72	81	69	81	65	73	83	94	76	103	102	117
Astronomy	0	0	0	0	2	2	2	4	1	3	1	1
Chemistry	57	57	54	64	49	47	57	71	50	65	73	90
Physics	13	21	11	14	12	19	21	17	20	33	24	22
Other physical sciences	2	3	4	3	2	5	3	2	5	2	4	4
Social/behavioral sciences	1,099	1,204	1,292	1,305	1,364	1,464	1,374	1,587	1,715	1,715	1,847	1,863
Psychology	407	470	496	515	518	561	542	545	597	555	597	612
Social sciences	692	734	796	790	846	903	832	1,042	1,118	1,160	1,250	1,251
Anthropology	69	75	86	80	89	93	85	111	103	98	114	116
Area/ethnic studies	40	62	62	75	80	106	121	128	145	134	127	170
Economics	73	67	68	69	71	68	65	95	108	95	104	103
History of science	0	0	0	0	1	0	0	0	0	0	0	0
Linguistics	6	3	5	10	10	2	2	9	4	12	7	11
Political science/public administration	218	228	253	215	230	234	241	288	354	345	397	368
Sociology	176	186	192	197	220	225	184	244	228	259	271	249
Other social sciences	110	113	130	144	145	175	134	167	176	217	230	234
Non-S&E	4,459	4,660	4,946	5,302	5,807	5,883	6,095	6,405	6,757	6,495	6,940	7,432
Engineering technologies	115	111	101	105	110	129	102	126	195	96	132	138

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Other/unknown race/ethnicity												
All fields	26,912	27,412	28,282	30,854	42,419	48,754	57,722	66,907	77,865	82,265	86,624	90,834
S&E	8,775	9,290	9,741	10,486	13,930	15,833	18,235	21,635	24,973	26,305	26,743	27,834
Engineering	1,293	1,434	1,339	1,297	1,610	1,884	2,100	2,509	2,621	2,827	2,949	3,008
Aerospace	35	43	28	14	35	50	61	80	115	80	126	133
Chemical	117	128	120	103	119	156	155	206	162	153	174	194
Civil	227	306	231	239	239	265	269	329	360	389	434	470
Electrical	422	423	368	384	560	674	764	937	1,013	1,027	982	906
Industrial	46	45	94	73	69	84	101	109	100	148	107	111
Materials	22	25	23	18	36	27	36	52	47	49	29	45
Mechanical	293	324	325	321	358	431	485	514	558	647	721	731
Other	131	140	150	145	194	197	229	282	266	334	376	418
Science	7,482	7,856	8,402	9,189	12,320	13,949	16,135	19,126	22,352	23,478	23,794	24,826
Natural sciences	2,904	3,013	3,445	3,895	5,143	5,977	7,077	8,551	10,422	10,310	10,405	10,417
Agricultural sciences	407	428	394	428	603	620	684	738	713	730	789	863
Biological sciences	1,247	1,348	1,461	1,673	2,020	2,149	2,390	2,592	2,797	3,041	3,341	3,831
Earth, atmospheric, and ocean sciences	117	112	106	131	121	149	166	174	203	183	222	199
Atmospheric sciences	11	6	6	3	8	23	23	26	16	26	24	20
Earth sciences	106	105	97	124	110	125	140	145	184	151	190	177
Oceanography	0	1	3	4	3	1	3	3	3	6	8	2
Mathematics/computer sciences	829	793	1,137	1,264	1,949	2,551	3,251	4,412	6,045	5,619	5,191	4,572
Computer sciences	559	528	871	995	1,556	2,099	2,762	3,808	5,378	4,879	4,381	3,742
Mathematics	270	265	266	269	393	452	489	604	667	740	810	830
Physical sciences	304	332	347	399	450	508	586	635	664	737	862	952
Astronomy	5	9	9	5	6	10	17	11	17	32	25	33
Chemistry	174	177	202	253	280	311	340	346	384	387	492	554
Physics	105	122	112	107	152	163	196	250	240	289	308	344
Other physical sciences	20	24	24	34	12	24	33	28	23	29	37	21
Social/behavioral sciences	4,578	4,843	4,957	5,294	7,177	7,972	9,058	10,575	11,930	13,168	13,389	14,409
Psychology	1,723	1,707	1,840	1,918	2,587	2,846	3,384	3,607	3,838	4,238	4,320	4,716
Social sciences	2,855	3,136	3,117	3,376	4,590	5,126	5,674	6,968	8,092	8,930	9,069	9,693
Anthropology	214	290	247	294	404	424	495	558	620	621	639	680
Area/ethnic studies	162	143	171	156	282	297	329	372	436	468	483	499
Economics	456	547	458	533	742	865	960	1,204	1,288	1,414	1,325	1,419
History of science	0	0	0	0	11	15	10	6	11	8	9	12
Linguistics	31	42	33	28	56	41	56	79	109	114	113	131
Political science/public administration	952	976	955	1,029	1,424	1,597	1,810	2,364	2,865	3,319	3,537	3,580
Sociology	532	547	610	691	867	984	1,068	1,183	1,307	1,471	1,414	1,639
Other social sciences	508	591	643	645	804	903	946	1,202	1,456	1,515	1,549	1,733
Non-S&E	18,137	18,122	18,541	20,368	28,489	32,921	39,487	45,272	52,892	55,960	59,881	63,000
Engineering technologies	332	339	364	497	582	630	721	712	690	868	879	888

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Temporary resident												
All fields	37,012	37,747	38,986	39,290	39,104	39,843	41,508	43,264	44,844	45,399	46,405	45,964
S&E	14,685	14,719	14,712	14,766	15,195	15,721	16,344	17,898	18,825	18,559	18,254	17,393
Engineering	4,810	4,757	4,797	4,644	4,532	4,419	4,266	4,277	4,550	4,740	4,711	4,389
Aerospace	116	123	129	137	121	148	122	160	174	171	147	175
Chemical	524	569	571	507	445	424	447	359	368	411	436	430
Civil	437	438	474	510	458	412	371	349	315	327	342	326
Electrical	2,117	1,982	1,870	1,838	1,836	1,842	1,868	2,054	2,276	2,321	2,176	1,879
Industrial	424	448	480	486	481	475	442	402	381	395	428	375
Materials	30	29	28	33	37	42	29	31	29	40	46	49
Mechanical	781	781	908	797	789	744	683	596	614	647	650	713
Other	381	387	337	336	365	332	304	326	393	428	486	442
Science	9,875	9,962	9,915	10,122	10,663	11,302	12,078	13,621	14,275	13,819	13,543	13,004
Natural sciences	5,154	5,044	4,930	4,985	5,591	6,120	6,682	7,864	8,283	7,741	7,133	6,558
Agricultural sciences	258	270	253	294	258	248	262	270	251	274	266	282
Biological sciences	1,283	1,366	1,460	1,423	1,376	1,436	1,455	1,538	1,651	1,967	2,119	2,333
Earth, atmospheric, and ocean sciences	73	54	78	82	46	49	59	57	50	80	76	58
Atmospheric sciences	4	1	11	4	8	2	6	8	3	10	5	9
Earth sciences	59	48	60	75	33	46	49	48	45	65	65	47
Oceanography	10	5	7	3	5	1	4	1	2	5	6	2
Mathematics/computer sciences	2,890	2,722	2,546	2,593	3,379	3,831	4,363	5,476	5,740	4,752	3,908	3,143
Computer sciences	2,297	2,171	2,013	2,140	2,900	3,405	3,909	4,854	5,060	3,991	3,099	2,433
Mathematics	593	551	533	453	479	426	454	622	680	761	809	710
Physical sciences	650	632	593	593	532	556	543	523	591	668	764	742
Astronomy	10	8	8	11	4	13	16	15	10	20	13	13
Chemistry	396	415	396	385	344	335	342	326	350	397	466	451
Physics	223	193	176	178	160	180	166	168	189	200	243	223
Other physical sciences	21	16	13	19	24	28	19	14	42	51	42	55
Social/behavioral sciences	4,721	4,918	4,985	5,137	5,072	5,182	5,396	5,757	5,992	6,078	6,410	6,446
Psychology	942	1,016	1,039	1,168	1,264	1,283	1,369	1,394	1,475	1,503	1,580	1,559
Social sciences	3,779	3,902	3,946	3,969	3,808	3,899	4,027	4,363	4,517	4,575	4,830	4,887
Anthropology	115	117	173	102	116	120	114	94	106	115	123	110
Area/ethnic studies	225	198	185	221	178	164	158	160	164	163	175	199
Economics	1,690	1,787	1,824	1,789	1,691	1,823	1,903	2,046	2,169	2,199	2,136	2,134
History of science	1	0	0	1	1	3	2	3	0	1	3	4
Linguistics	80	77	86	100	83	77	81	80	74	77	74	59
Political science/public administration	1,088	1,129	1,054	1,182	1,152	1,149	1,167	1,286	1,307	1,269	1,479	1,417

Appendix table 2-13

Earned bachelor's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Sociology	332	324	299	309	299	258	295	349	327	329	390	398
Other social sciences	248	270	325	265	288	305	307	345	370	422	450	566
Non-S&E	22,327	23,028	24,274	24,524	23,909	24,122	25,164	25,366	26,019	26,840	28,151	28,571
Engineering technologies	550	581	557	591	443	543	466	459	516	488	378	379

NOTES: Data not available for 1999. Detailed field not collected by race/ethnicity prior to 1995. 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 from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-14

S&E graduate enrollment, by sex and field: 1993–2006

Sex/field	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Both sexes														
S&E	504,304	504,399	499,640	494,079	487,208	485,627	493,256	493,311	509,607	540,404	567,121	574,463	582,226	597,643
Engineering	116,872	113,024	107,201	103,224	101,148	100,038	101,691	104,112	109,493	119,668	127,377	123,566	120,565	123,041
Aerospace	3,940	3,715	3,343	3,208	3,083	3,137	3,349	3,407	3,451	3,685	4,048	4,089	4,170	4,482
Chemical	7,554	7,639	7,452	7,408	7,288	7,093	6,883	7,056	6,913	7,414	7,516	7,452	7,173	7,261
Civil	19,583	19,925	19,218	18,528	17,193	16,517	16,226	16,451	16,665	17,713	18,890	18,561	18,114	17,802
Electrical	35,290	33,067	30,861	29,941	30,787	31,384	31,822	33,611	36,100	39,948	41,763	38,995	37,450	38,265
Industrial	13,905	13,992	13,475	12,675	11,957	11,221	11,803	12,119	12,940	14,033	14,313	13,852	13,650	13,829
Materials	5,410	5,228	4,956	4,747	4,688	4,680	4,481	4,377	4,721	4,992	5,131	5,059	5,160	5,268
Mechanical	18,477	17,761	16,363	15,509	15,045	14,696	14,956	15,235	15,852	17,139	18,393	17,852	17,373	17,919
Other	12,713	11,697	11,533	11,208	11,107	11,310	12,171	11,856	12,851	14,744	17,323	17,706	17,475	18,215
Science	387,432	391,375	392,439	390,855	386,060	385,589	391,565	389,199	400,114	420,736	439,744	450,897	461,661	474,602
Natural sciences	244,098	247,698	249,363	249,098	246,849	248,979	254,854	255,406	263,978	279,369	292,453	299,439	304,952	314,602
Agricultural sciences	12,305	12,611	12,768	12,301	12,203	12,168	12,312	12,023	12,235	12,698	13,197	13,445	13,123	13,016
Biological sciences	55,950	57,676	58,344	57,749	56,705	56,695	56,959	56,282	57,639	61,088	64,701	66,565	68,479	69,941
Earth, atmospheric, and ocean sciences	15,721	15,957	15,716	15,183	14,548	14,258	14,083	13,941	13,841	14,240	14,620	15,131	14,836	14,920
Atmospheric sciences	1,112	1,109	1,072	1,086	1,092	965	913	963	924	1,036	1,150	1,086	1,146	1,079
Earth sciences	7,759	7,713	7,582	7,304	6,959	6,687	6,637	6,596	6,544	6,712	6,889	7,358	7,212	7,177
Oceanography	2,627	2,870	2,723	2,615	2,479	2,562	2,624	2,668	2,585	2,618	2,695	2,801	2,760	2,770
Other geosciences	4,223	4,265	4,339	4,178	4,018	4,044	3,909	3,714	3,788	3,874	3,886	3,886	3,718	3,894
Mathematics/computer sciences	56,213	53,731	51,962	52,634	52,710	54,512	58,735	63,000	68,847	73,432	73,161	69,947	68,188	68,468
Computer sciences	36,213	34,158	33,458	34,626	35,991	38,027	42,478	47,350	52,196	55,269	53,696	50,016	47,978	47,653
Mathematics/statistics	20,000	19,573	18,504	18,008	16,719	16,485	16,257	15,650	16,651	18,163	19,465	19,931	20,210	20,815
Medical/other life sciences	68,581	73,257	77,174	78,898	79,578	80,771	82,074	79,775	80,378	85,570	92,476	98,590	103,951	111,356
Medical sciences	19,224	20,144	20,659	20,594	20,895	22,331	23,479	22,815	24,012	26,841	29,440	29,762	31,223	33,437
Other life sciences	49,357	53,113	56,515	58,304	58,683	58,440	58,595	56,960	56,366	58,729	63,036	68,828	72,728	77,919
Physical sciences	35,328	34,466	33,399	32,333	31,105	30,575	30,691	30,385	31,038	32,341	34,298	35,761	36,375	36,901
Astronomy	880	973	912	874	778	820	832	888	916	990	1,080	1,119	1,191	1,211
Chemistry	20,131	19,803	19,570	19,334	18,774	18,482	18,416	18,105	18,366	19,045	20,049	20,776	21,101	21,351
Physics	13,841	13,162	12,425	11,728	11,147	10,809	10,869	10,841	11,248	11,701	12,555	13,298	13,472	13,722
Other physical sciences	476	528	492	397	406	464	574	551	508	605	614	568	611	617
Social/behavioral sciences	143,334	143,677	143,076	141,757	139,211	136,610	136,711	133,793	136,136	141,367	147,291	151,458	156,709	160,000
Psychology	54,557	54,554	53,641	53,122	53,126	52,557	51,727	50,466	50,454	51,152	52,162	54,126	57,282	57,653
Social sciences	88,777	89,123	89,435	88,635	86,085	84,053	84,984	83,327	85,682	90,215	95,129	97,332	99,427	102,347
Anthropology	7,361	7,665	7,693	7,773	7,560	7,577	7,633	7,626	7,491	7,481	7,789	7,826	7,750	8,150
Economics	15,629	15,202	15,011	14,197	13,140	12,696	12,576	12,827	13,569	14,196	14,634	14,513	13,932	14,290
History of science	369	387	401	409	443	508	557	532	571	663	737	994	965	968
Linguistics	3,321	3,279	3,194	3,156	3,068	2,935	2,799	2,674	2,744	2,875	3,028	2,941	3,187	3,074
Political science/public administration	35,076	34,317	34,298	33,252	32,083	30,828	31,372	31,131	31,805	34,934	36,880	39,023	40,780	41,784
Sociology	10,360	10,485	10,505	10,348	10,361	9,915	9,707	9,397	9,620	9,665	9,900	9,713	9,866	9,872
Other social sciences	16,661	17,788	18,333	19,500	19,430	19,594	20,340	19,140	19,882	20,401	22,161	22,322	22,947	24,209

Appendix table 2-14

S&E graduate enrollment, by sex and field: 1993–2006

Sex/field	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Male														
S&E	294,476	288,355	279,305	271,660	264,497	261,019	262,675	262,109	271,155	287,059	298,682	296,714	295,291	299,818
Engineering	99,184	94,974	89,188	84,970	82,428	81,050	81,804	83,366	87,236	94,701	99,790	96,294	93,670	95,097
Aerospace	3,583	3,357	2,992	2,856	2,712	2,755	2,926	2,938	2,966	3,169	3,445	3,489	3,563	3,773
Chemical	6,050	6,110	5,885	5,757	5,568	5,366	5,150	5,181	5,084	5,419	5,416	5,346	5,094	5,102
Civil	15,725	15,714	14,986	14,228	13,029	12,415	12,069	12,174	12,162	12,808	13,492	13,120	12,709	12,379
Electrical	30,977	28,958	26,707	25,712	26,237	26,512	26,689	28,075	29,888	32,678	33,969	31,794	30,662	31,239
Industrial	11,260	11,135	10,652	9,906	9,301	8,769	9,144	9,406	10,132	10,957	11,047	10,622	10,354	10,363
Materials	4,373	4,145	3,882	3,670	3,571	3,550	3,397	3,336	3,548	3,741	3,800	3,738	3,812	3,878
Mechanical	16,703	15,938	14,686	13,873	13,266	12,934	13,168	13,403	13,908	15,056	16,039	15,396	14,965	15,434
Other	10,513	9,617	9,398	8,968	8,744	8,749	9,261	8,853	9,548	10,873	12,582	12,789	12,511	12,929
Science	195,292	193,381	190,117	186,690	182,069	179,969	180,871	178,743	183,919	192,358	198,892	200,420	201,621	204,721
Natural sciences	130,391	129,204	127,014	125,615	122,954	122,882	124,771	125,060	129,753	136,353	141,081	141,002	141,499	143,451
Agricultural sciences	8,058	8,160	8,169	7,716	7,497	7,316	7,263	6,935	6,892	7,045	7,171	7,187	6,921	6,717
Biological sciences	29,081	29,670	29,629	29,107	28,229	27,742	27,338	26,475	26,590	27,677	28,818	29,276	29,958	30,572
Earth, atmospheric, and ocean sciences	10,695	10,638	10,282	9,736	9,132	8,690	8,358	8,188	7,949	7,993	8,082	8,199	7,941	7,916
Atmospheric sciences	887	867	835	852	829	731	671	695	626	703	776	723	758	712
Earth sciences	5,665	5,490	5,299	4,984	4,663	4,372	4,237	4,141	4,061	4,099	4,125	4,299	4,169	4,096
Oceanography	1,611	1,755	1,616	1,545	1,424	1,400	1,402	1,401	1,330	1,309	1,303	1,292	1,279	1,273
Other geosciences	2,532	2,526	2,532	2,355	2,216	2,187	2,048	1,951	1,932	1,882	1,878	1,885	1,735	1,835
Mathematics/computer sciences	41,144	39,113	37,571	37,618	36,961	37,722	40,147	43,140	47,275	50,521	51,056	49,173	48,706	48,713
Computer sciences	27,782	26,071	25,325	25,829	26,110	27,225	29,933	33,270	36,894	39,244	38,880	36,739	35,933	35,591
Mathematics/statistics	13,362	13,042	12,246	11,789	10,851	10,497	10,214	9,870	10,381	11,277	12,176	12,434	12,773	13,122
Medical/other life sciences	15,291	16,324	17,049	18,150	18,878	19,590	19,889	19,052	19,345	20,842	22,434	22,706	23,324	24,637
Medical sciences	8,967	9,329	9,355	9,562	9,626	10,001	10,303	9,748	10,136	11,045	11,917	11,506	11,680	12,377
Other life sciences	6,324	6,995	7,694	8,588	9,252	9,589	9,586	9,304	9,209	9,797	10,517	11,200	11,644	12,260
Physical sciences	26,122	25,299	24,314	23,288	22,257	21,822	21,776	21,270	21,702	22,275	23,520	24,461	24,649	24,896
Astronomy	682	750	689	647	570	590	607	621	651	688	735	764	797	804
Chemistry	13,279	12,958	12,742	12,495	12,052	11,918	11,799	11,349	11,511	11,720	12,210	12,544	12,678	12,707
Physics	11,865	11,254	10,590	9,919	9,403	9,029	8,993	8,931	9,206	9,500	10,189	10,797	10,803	11,012
Other physical sciences	296	337	293	227	232	285	377	369	334	367	386	356	371	373
Social/behavioral sciences	64,901	64,177	63,103	61,075	59,115	57,087	56,100	53,683	54,166	56,005	57,811	59,418	60,122	61,270
Psychology	16,567	16,416	15,877	15,375	15,507	15,095	14,456	13,594	13,147	13,435	13,383	13,970	13,963	13,950
Social sciences	48,334	47,761	47,226	45,700	43,608	41,992	41,644	40,089	41,019	42,570	44,428	45,448	46,159	47,320
Anthropology	2,969	3,072	3,140	3,087	3,059	3,021	2,989	2,941	2,929	2,864	2,919	2,853	2,810	2,935
Economics	11,023	10,661	10,352	9,704	8,940	8,552	8,362	8,273	8,739	9,084	9,226	9,174	8,803	9,038
History of science	227	247	262	257	281	315	345	313	327	362	425	580	525	540
Linguistics	1,301	1,213	1,194	1,133	1,051	982	966	930	951	984	1,023	1,014	1,132	1,088
Political science/public administration	19,320	18,733	18,348	17,620	16,679	15,867	15,799	15,204	15,304	16,315	17,038	18,203	18,898	19,545
Sociology	4,280	4,154	4,168	4,022	3,968	3,697	3,498	3,354	3,388	3,444	3,493	3,372	3,528	3,532
Other social sciences	9,214	9,681	9,762	9,877	9,630	9,558	9,685	9,074	9,381	9,517	10,304	10,252	10,463	10,642

Appendix table 2-14

S&E graduate enrollment, by sex and field: 1993–2006

Sex/field	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Female														
S&E	209,828	216,044	220,335	222,419	222,711	224,608	230,581	231,202	238,452	253,345	268,439	277,749	286,935	297,825
Engineering	17,688	18,050	18,013	18,254	18,720	18,988	19,887	20,746	22,257	24,967	27,587	27,272	26,895	27,944
Aerospace	357	358	351	352	371	382	423	469	485	516	603	600	607	709
Chemical	1,504	1,529	1,567	1,651	1,720	1,727	1,733	1,875	1,829	1,995	2,100	2,106	2,079	2,159
Civil	3,858	4,211	4,232	4,300	4,164	4,102	4,157	4,277	4,503	4,905	5,398	5,441	5,405	5,423
Electrical	4,313	4,109	4,154	4,229	4,550	4,872	5,133	5,536	6,212	7,270	7,794	7,201	6,788	7,026
Industrial	2,645	2,857	2,823	2,769	2,656	2,452	2,659	2,713	2,808	3,076	3,266	3,230	3,296	3,466
Materials	1,037	1,083	1,074	1,077	1,117	1,130	1,084	1,041	1,173	1,251	1,331	1,321	1,348	1,390
Mechanical	1,774	1,823	1,677	1,636	1,779	1,762	1,788	1,832	1,944	2,083	2,354	2,456	2,408	2,485
Other	2,200	2,080	2,135	2,240	2,363	2,561	2,910	3,003	3,303	3,871	4,741	4,917	4,964	5,286
Science	192,140	197,994	202,322	204,165	203,991	205,620	210,694	210,456	216,195	228,378	240,852	250,477	260,040	269,881
Natural sciences	113,707	118,494	122,349	123,483	123,895	126,097	130,083	130,346	134,225	143,016	151,372	158,437	163,453	171,151
Agricultural sciences	4,247	4,451	4,599	4,585	4,706	4,852	5,049	5,088	5,343	5,653	6,026	6,258	6,202	6,299
Biological sciences	26,869	28,006	28,715	28,642	28,476	28,953	29,621	29,807	31,049	33,411	35,883	37,289	38,521	39,369
Earth, atmospheric, and ocean sciences	5,026	5,319	5,434	5,447	5,416	5,568	5,725	5,753	5,892	6,247	6,538	6,932	6,895	7,004
Atmospheric sciences	225	242	237	234	263	234	242	268	298	333	374	363	388	367
Earth sciences	2,094	2,223	2,283	2,320	2,296	2,315	2,400	2,455	2,483	2,613	2,764	3,059	3,043	3,081
Oceanography	1,016	1,115	1,107	1,070	1,055	1,162	1,222	1,267	1,255	1,309	1,392	1,509	1,481	1,497
Other geosciences	1,691	1,739	1,807	1,823	1,802	1,857	1,861	1,763	1,856	1,992	2,008	2,001	1,983	2,059
Mathematics/computer sciences	15,069	14,618	14,391	15,016	15,749	16,790	18,588	19,860	21,572	22,911	22,105	20,774	19,482	19,755
Computer sciences	8,431	8,087	8,133	8,797	9,881	10,802	12,545	14,080	15,302	16,025	14,816	13,277	12,045	12,062
Mathematics/statistics	6,638	6,531	6,258	6,219	5,868	5,988	6,043	5,780	6,270	6,886	7,289	7,497	7,437	7,693
Medical/other life sciences	53,290	56,933	60,125	60,748	60,700	61,181	62,185	60,723	61,033	64,728	70,042	75,884	80,627	86,719
Medical sciences	10,257	10,815	11,304	11,032	11,269	12,330	13,176	13,067	13,876	15,796	17,523	18,256	19,543	21,060
Other life sciences	43,033	46,118	48,821	49,716	49,431	48,851	49,009	47,656	47,157	48,932	52,519	57,628	61,084	65,659
Physical sciences	9,206	9,167	9,085	9,045	8,848	8,753	8,915	9,115	9,336	10,066	10,778	11,300	11,726	12,005
Astronomy	198	223	223	227	208	230	225	267	265	302	345	355	394	407
Chemistry	6,852	6,845	6,828	6,839	6,722	6,564	6,617	6,756	6,855	7,325	7,839	8,232	8,423	8,644
Physics	1,976	1,908	1,835	1,809	1,744	1,780	1,876	1,910	2,042	2,201	2,366	2,501	2,669	2,710
Other physical sciences	180	191	199	170	174	179	197	182	174	238	228	212	240	244
Social/behavioral sciences	78,433	79,500	79,973	80,682	80,096	79,523	80,611	80,110	81,970	85,362	89,480	92,040	96,587	98,730
Psychology	37,990	38,138	37,764	37,747	37,619	37,462	37,271	36,872	37,307	37,717	38,779	40,156	43,319	43,703
Social sciences	40,443	41,362	42,209	42,935	42,477	42,061	43,340	43,238	44,663	47,645	50,701	51,884	53,268	55,027
Anthropology	4,392	4,593	4,553	4,686	4,501	4,556	4,644	4,685	4,562	4,617	4,870	4,973	4,940	5,215
Economics	4,606	4,541	4,659	4,493	4,200	4,144	4,214	4,554	4,830	5,112	5,408	5,339	5,129	5,252
History of science	142	140	139	152	162	193	212	219	244	301	312	414	440	428
Linguistics	2,020	2,066	2,000	2,023	2,017	1,953	1,833	1,744	1,793	1,891	2,005	1,927	2,055	1,986
Political science/public administration	15,756	15,584	15,950	15,632	15,404	14,961	15,573	15,927	16,501	18,619	19,842	20,820	21,882	22,239
Sociology	6,080	6,331	6,337	6,326	6,393	6,218	6,209	6,043	6,232	6,221	6,407	6,341	6,338	6,340
Other social sciences	7,447	8,107	8,571	9,623	9,800	10,036	10,655	10,066	10,501	10,884	11,857	12,070	12,484	13,567

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

Appendix table 2-15

Engineering enrollment, by enrollment level and attendance: 1987–2007

	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
1987	392,198	100.0	356,998	91.0	35,200	9.0	110,778	100.0	69,343	62.6	41,435	37.4
1988	385,412	100.0	346,169	89.8	39,243	10.2	112,007	100.0	69,226	61.8	42,781	38.2
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

NOTE: Percents may not add to 100% because of rounding.

SOURCE: Engineering Workforce Commission, Engineering & Technology Enrollments, Fall 2007, American Association of Engineering Societies (2008).

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Appendix table 2-16

First-time full-time S&E graduate students, by field: 1993–2006

Field	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
S&E	92,748	92,171	89,482	88,984	89,177	90,828	92,214	94,340	98,112	104,184	107,715	106,544	110,219	116,482
Engineering	20,349	19,771	18,076	18,006	18,848	19,261	20,513	22,191	23,306	24,607	24,429	22,025	22,373	25,876
Aerospace	963	793	650	687	735	717	727	775	767	712	845	834	804	943
Chemical	1,532	1,465	1,421	1,478	1,467	1,503	1,491	1,595	1,541	1,616	1,600	1,392	1,293	1,429
Civil	4,019	4,194	3,825	3,845	3,792	3,785	3,726	3,840	3,820	4,107	4,363	4,175	4,057	4,198
Electrical	5,484	5,453	5,002	4,898	5,548	5,741	6,369	7,195	7,882	8,221	7,834	6,633	6,987	8,668
Industrial	1,663	1,731	1,541	1,605	1,549	1,547	1,851	2,005	2,216	2,238	2,029	1,724	1,674	2,148
Materials	892	858	822	791	870	900	892	1,005	975	1,044	958	926	992	1043
Mechanical	3,514	3,218	2,832	2,785	2,829	2,923	3,119	3,269	3,583	3,709	3,476	3,129	3,225	3,734
Other	2,282	2,059	1,983	1,917	2,058	2,145	2,338	2,507	2,522	2,960	3,324	3,212	3,341	3,713
Science	72,399	72,400	71,406	70,978	70,329	71,567	71,701	72,149	74,806	79,577	83,286	84,519	87,846	90,606
Natural sciences	45,309	45,980	46,055	45,495	45,825	47,972	48,677	49,626	51,215	54,124	55,791	56,655	58,228	60,076
Agricultural sciences	2,363	2,376	2,290	2,180	2,157	2,299	2,253	2,335	2,338	2,320	2,424	2,316	2,260	2,206
Biological sciences	11,017	11,289	11,356	10,766	11,053	11,335	10,959	10,955	11,608	12,127	12,719	12,796	12,918	13,055
Earth, atmospheric, and ocean sciences	2,985	3,007	2,801	2,631	2,681	2,859	2,746	2,649	2,794	3,085	3,104	2,926	2,758	2,795
Atmospheric sciences	214	224	198	213	224	189	203	222	205	213	268	228	228	207
Earth sciences	1,505	1,519	1,423	1,326	1,339	1,348	1,296	1,230	1,383	1,437	1,412	1,336	1,308	1,348
Oceanography	488	519	420	371	410	471	474	479	511	533	567	534	463	457
Other geosciences	778	745	760	721	708	851	773	718	695	902	857	828	759	783
Mathematics/computer sciences	8,786	8,719	8,361	8,367	8,320	9,092	9,948	11,850	12,763	12,955	12,319	12,035	12,454	13,325
Computer sciences	4,742	4,756	4,783	4,917	5,018	5,758	6,677	8,431	9,077	9,037	8,134	7,783	8,258	8,983
Mathematics/statistics	4,044	3,963	3,578	3,450	3,302	3,334	3,271	3,419	3,686	3,918	4,185	4,252	4,196	4,342
Medical/other life sciences	13,468	14,133	15,118	15,536	15,577	16,455	16,767	16,008	15,701	17,357	18,384	19,979	21,181	22,069
Medical sciences	4,419	4,336	4,743	4,614	4,531	5,047	5,037	5,127	5,361	5,780	6,034	6,525	6,644	7,096
Other life sciences	9,049	9,797	10,375	10,922	11,046	11,408	11,730	10,881	10,340	11,577	12,350	13,454	14,537	14,973
Physical sciences	6,690	6,456	6,129	6,015	6,037	5,932	6,004	5,829	6,011	6,280	6,841	6,603	6,657	6,626
Astronomy	153	164	147	157	125	162	171	183	193	194	225	210	190	204
Chemistry	3,842	3,813	3,708	3,702	3,758	3,682	3,672	3,482	3,651	3,746	3,983	3,862	3,904	3,900
Physics	2,642	2,381	2,188	2,088	2,074	2,046	2,074	2,101	2,102	2,231	2,543	2,442	2,458	2,409
Other physical sciences	53	98	86	68	80	42	87	63	65	109	90	89	105	113
Social/behavioral sciences	27,090	26,420	25,351	25,483	24,504	23,595	23,024	22,523	23,591	25,453	27,495	27,864	29,618	30,530
Psychology	9,686	9,530	9,241	9,140	8,800	8,590	8,305	7,545	7,691	8,420	8,858	9,478	10,358	10,224
Social sciences	17,404	16,890	16,110	16,343	15,704	15,005	14,719	14,978	15,900	17,033	18,637	18,386	19,260	20,306
Anthropology	1,309	1,331	1,247	1,252	1,196	1,219	1,193	1,157	1,119	1,177	1,279	1,187	1,243	1,314
Economics	3,407	3,326	3,097	2,902	2,835	2,769	2,837	2,963	3,058	3,418	3,457	3,209	3,281	3,450
History of science	69	74	70	58	79	89	91	78	72	97	107	107	138	121
Linguistics	611	612	594	620	579	493	422	454	495	466	588	570	633	577
Political science/public administration	6,567	6,131	5,916	5,842	5,264	4,953	4,837	5,142	5,562	6,241	6,950	7,333	7,807	8,319
Sociology	1,932	1,777	1,650	1,715	1,696	1,605	1,451	1,464	1,591	1,690	1,722	1,537	1,672	1,504
Other social sciences	3,509	3,639	3,536	3,954	4,055	3,877	3,888	3,720	4,003	3,944	4,534	4,443	4,486	5,021

SOURCE: National Science Foundation, Division of Science Resources 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 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All citizenships and race/ethnicities														
S&E	504,304	504,399	499,640	494,079	487,208	485,627	493,256	493,311	509,607	540,404	567,121	574,463	582,226	597,643
Engineering	116,872	113,024	107,201	103,224	101,148	100,038	101,691	104,112	109,493	119,668	127,377	123,566	120,565	123,041
Aerospace	3,940	3,715	3,343	3,208	3,083	3,137	3,349	3,407	3,451	3,685	4,048	4,089	4,170	4,482
Chemical	7,554	7,639	7,452	7,408	7,288	7,093	6,883	7,056	6,913	7,414	7,516	7,452	7,173	7,261
Civil	19,583	19,925	19,218	18,528	17,193	16,517	16,226	16,451	16,665	17,713	18,890	18,561	18,114	17,802
Electrical	35,290	33,067	30,861	29,941	30,787	31,384	31,822	33,611	36,100	39,948	41,763	38,995	37,450	38,265
Industrial	13,905	13,992	13,475	12,675	11,957	11,221	11,803	12,119	12,940	14,033	14,313	13,852	13,650	13,829
Materials	5,410	5,228	4,956	4,747	4,688	4,680	4,481	4,377	4,721	4,992	5,131	5,059	5,160	5,268
Mechanical	18,477	17,761	16,363	15,509	15,045	14,696	14,956	15,235	15,852	17,139	18,393	17,852	17,373	17,919
Other	12,713	11,697	11,533	11,208	11,107	11,310	12,171	11,856	12,851	14,744	17,323	17,706	17,475	18,215
Science	387,432	391,375	392,439	390,855	386,060	385,589	391,565	389,199	400,114	420,736	439,744	450,897	461,661	474,602
Natural sciences	244,098	247,698	249,363	249,098	246,849	248,979	254,854	255,406	263,978	279,369	292,453	299,439	304,952	314,602
Agricultural sciences	12,305	12,611	12,768	12,301	12,203	12,168	12,312	12,023	12,235	12,698	13,197	13,445	13,123	13,016
Biological sciences	55,950	57,676	58,344	57,749	56,705	56,695	56,959	56,282	57,639	61,088	64,701	66,565	68,479	69,941
Earth, atmospheric, and ocean sciences	15,721	15,957	15,716	15,183	14,548	14,258	14,083	13,941	13,841	14,240	14,620	15,131	14,836	14,920
Atmospheric sciences	1,112	1,109	1,072	1,086	1,092	965	913	963	924	1,036	1,150	1,086	1,146	1,079
Earth sciences	7,759	7,713	7,582	7,304	6,959	6,687	6,637	6,596	6,544	6,712	6,889	7,358	7,212	7,177
Oceanography	2,627	2,870	2,723	2,615	2,479	2,562	2,624	2,668	2,585	2,618	2,695	2,801	2,760	2,770
Other geosciences	4,223	4,265	4,339	4,178	4,018	4,044	3,909	3,714	3,788	3,874	3,886	3,886	3,718	3,894
Mathematics/computer sciences	56,213	53,731	51,962	52,634	52,710	54,512	58,735	63,000	68,847	73,432	73,161	69,947	68,188	68,468
Computer sciences	36,213	34,158	33,458	34,626	35,991	38,027	42,478	47,350	52,196	55,269	53,696	50,016	47,978	47,653
Mathematics/statistics	20,000	19,573	18,504	18,008	16,719	16,485	16,257	15,650	16,651	18,163	19,465	19,931	20,210	20,815
Medical/other life sciences	68,581	73,257	77,174	78,898	79,578	80,771	82,074	79,775	80,378	85,570	92,476	98,590	103,951	111,356
Medical sciences	19,224	20,144	20,659	20,594	20,895	22,331	23,479	22,815	24,012	26,841	29,440	29,762	31,223	33,437
Other life sciences	49,357	53,113	56,515	58,304	58,683	58,440	58,595	56,960	56,366	58,729	63,036	68,828	72,728	77,919
Physical sciences	35,328	34,466	33,399	32,333	31,105	30,575	30,691	30,385	31,038	32,341	34,298	35,761	36,375	36,901
Astronomy	880	973	912	874	778	820	832	888	916	990	1,080	1,119	1,191	1,211
Chemistry	20,131	19,803	19,570	19,334	18,774	18,482	18,416	18,105	18,366	19,045	20,049	20,776	21,101	21,351
Physics	13,841	13,162	12,425	11,728	11,147	10,809	10,869	10,841	11,248	11,701	12,555	13,298	13,472	13,722
Other physical sciences	476	528	492	397	406	464	574	551	508	605	614	568	611	617
Social/behavioral sciences	143,334	143,677	143,076	141,757	139,211	136,610	136,711	133,793	136,136	141,367	147,291	151,458	156,709	160,000
Psychology	54,557	54,554	53,641	53,122	53,126	52,557	51,727	50,466	50,454	51,152	52,162	54,126	57,282	57,653
Social sciences	88,777	89,123	89,435	88,635	86,085	84,053	84,984	83,327	85,682	90,215	95,129	97,332	99,427	102,347
Anthropology	7,361	7,665	7,693	7,773	7,560	7,577	7,633	7,626	7,491	7,481	7,789	7,826	7,750	8,150
Economics	15,629	15,202	15,011	14,197	13,140	12,696	12,576	12,827	13,569	14,196	14,634	14,513	13,932	14,290
History of science	369	387	401	409	443	508	557	532	571	663	737	994	965	968
Linguistics	3,321	3,279	3,194	3,156	3,068	2,935	2,799	2,674	2,744	2,875	3,028	2,941	3,187	3,074
Political science/public administration	35,076	34,317	34,298	33,252	32,083	30,828	31,372	31,131	31,805	34,934	36,880	39,023	40,780	41,784
Sociology	10,360	10,485	10,505	10,348	10,361	9,915	9,707	9,397	9,620	9,665	9,900	9,713	9,866	9,872
Other social sciences	16,661	17,788	18,333	19,500	19,430	19,594	20,340	19,140	19,882	20,401	22,161	22,322	22,947	24,209

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
U.S. citizen/permanent resident														
S&E	393,985	397,852	396,755	391,095	383,327	378,560	377,802	364,894	368,737	387,416	412,105	423,218	434,730	446,625
Engineering	77,577	76,018	71,717	68,168	64,642	62,249	60,188	56,651	56,890	61,277	67,310	66,379	66,551	67,698
Aerospace	2,739	2,476	2,157	1,935	1,765	1,720	1,817	1,894	1,805	1,999	2,361	2,401	2,528	2,998
Chemical	4,369	4,612	4,483	4,521	4,424	4,208	3,869	3,711	3,398	3,686	3,736	3,753	3,675	3,685
Civil	13,299	13,967	13,559	13,263	12,090	11,555	10,801	10,306	10,072	10,553	11,458	11,436	11,415	11,421
Electrical	22,839	21,640	19,585	18,489	18,032	17,459	16,517	15,315	15,534	16,579	18,118	16,878	16,662	16,166
Industrial	10,428	10,404	10,123	9,349	8,616	7,869	8,073	7,574	7,588	8,290	8,820	8,763	9,071	9,249
Materials	3,237	3,254	3,029	2,827	2,721	2,670	2,438	2,265	2,385	2,482	2,546	2,501	2,518	2,690
Mechanical	12,199	11,940	10,905	10,026	9,351	9,046	8,760	8,052	8,141	8,562	9,602	9,724	9,719	10,205
Other	8,467	7,725	7,876	7,758	7,643	7,722	7,913	7,534	7,967	9,126	10,669	10,923	10,963	11,284
Science	316,408	321,834	325,038	322,927	318,685	316,311	317,614	308,243	311,847	326,139	344,795	356,839	368,179	378,927
Natural sciences	190,145	195,259	198,753	198,278	196,206	196,819	198,867	193,036	195,250	205,691	218,875	226,950	232,603	240,588
Agricultural sciences	9,083	9,380	9,567	9,283	9,414	9,514	9,774	9,612	9,722	10,085	10,601	10,750	10,464	10,341
Biological sciences	43,175	44,997	46,276	46,377	45,641	45,359	45,770	44,521	45,196	47,253	49,865	50,734	52,012	53,034
Earth, atmospheric, and ocean sciences	12,713	12,693	12,769	12,417	12,033	11,759	11,563	11,249	11,059	11,463	11,837	12,337	12,058	12,153
Atmospheric sciences	815	844	806	803	801	710	639	659	639	721	861	813	849	821
Earth sciences	6,088	5,964	6,039	5,847	5,666	5,443	5,413	5,294	5,189	5,333	5,456	5,906	5,785	5,749
Oceanography	2,037	2,148	2,102	2,058	1,972	2,029	2,108	2,142	2,071	2,152	2,206	2,304	2,270	2,267
Other geosciences	3,773	3,737	3,822	3,709	3,594	3,577	3,403	3,154	3,160	3,257	3,314	3,314	3,154	3,316
Mathematics/computer sciences	38,170	36,606	35,358	35,026	34,249	34,669	35,653	34,681	36,309	39,342	41,477	40,785	40,177	39,894
Computer sciences	24,304	23,096	22,663	22,779	23,074	23,605	25,323	25,088	26,142	28,203	29,420	28,261	27,409	26,675
Mathematics/statistics	13,866	13,510	12,695	12,247	11,175	11,064	10,330	9,593	10,167	11,139	12,057	12,524	12,768	13,219
Medical/other life sciences	63,928	68,826	72,793	74,020	74,659	75,681	76,548	74,243	74,129	78,297	84,924	91,196	96,217	103,022
Medical sciences	15,827	17,056	17,522	17,082	17,440	18,734	19,646	19,090	19,784	21,773	24,212	24,789	26,163	27,936
Other life sciences	48,101	51,770	55,271	56,938	57,219	56,947	56,902	55,153	54,345	56,524	60,712	66,407	70,054	75,086
Physical sciences	23,076	22,757	21,990	21,155	20,210	19,837	19,559	18,730	18,835	19,251	20,171	21,148	21,675	22,144
Astronomy	663	711	680	658	593	607	593	617	633	687	747	749	828	845
Chemistry	13,456	13,391	13,156	13,059	12,662	12,457	12,331	11,883	11,797	11,792	12,168	12,637	12,833	13,050
Physics	8,557	8,215	7,745	7,098	6,608	6,379	6,140	5,757	5,991	6,259	6,744	7,270	7,473	7,722
Other physical sciences	400	440	409	340	347	394	495	473	414	513	512	492	541	527
Social/behavioral sciences	126,263	126,575	126,285	124,649	122,479	119,492	118,747	115,207	116,597	120,448	125,920	129,889	135,576	138,339
Psychology	52,676	52,211	51,554	51,149	51,118	50,371	49,488	48,203	47,933	48,295	49,055	50,932	54,228	54,802
Social sciences	73,587	74,364	74,731	73,500	71,361	69,121	69,259	67,004	68,664	72,153	76,865	78,957	81,348	83,537
Anthropology	6,561	6,878	6,999	7,083	6,858	6,838	6,810	6,797	6,722	6,634	6,967	6,966	6,892	7,225
Economics	9,204	8,985	8,624	7,776	6,837	6,552	6,118	6,006	6,233	6,530	6,920	6,938	6,590	6,810
History of science	314	331	355	359	376	441	498	463	501	595	668	925	886	881
Linguistics	2,260	2,267	2,197	2,154	2,086	1,912	1,837	1,714	1,782	1,893	2,065	1,936	2,257	2,124
Political science/public administration	31,545	30,904	30,920	29,709	28,657	27,276	27,453	26,972	27,582	30,280	32,003	34,054	35,895	36,477
Sociology	8,809	9,055	9,209	9,130	9,107	8,696	8,449	8,065	8,228	8,275	8,485	8,356	8,481	8,493
Other social sciences	14,894	15,944	16,427	17,289	17,440	17,406	18,094	16,987	17,616	17,946	19,757	19,782	20,347	21,527

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
White														
S&E	309,131	311,864	304,438	297,164	286,607	279,450	275,325	261,112	260,371	270,025	283,241	288,574	292,276	299,275
Engineering	57,415	55,988	51,931	49,089	46,093	44,098	42,063	39,083	38,459	40,559	43,469	43,235	42,868	43,293
Aerospace	2,071	2,024	1,774	1,577	1,440	1,391	1,437	1,451	1,434	1,512	1,747	1,791	1,844	1,969
Chemical	3,407	3,532	3,429	3,394	3,365	3,124	2,805	2,627	2,417	2,565	2,554	2,666	2,561	2,556
Civil	10,415	11,029	10,434	9,983	9,208	8,665	8,088	7,759	7,492	7,707	8,333	8,270	8,139	7,971
Electrical	15,606	14,308	12,630	11,759	11,092	10,729	9,897	8,982	8,876	9,121	9,709	9,444	9,150	8,875
Industrial	7,681	7,716	7,262	6,864	6,391	5,764	5,761	5,329	5,255	5,668	5,680	5,484	5,658	5,586
Materials	2,575	2,578	2,402	2,261	2,019	2,079	1,935	1,751	1,839	1,882	1,909	1,815	1,859	1,926
Mechanical	9,029	8,893	8,059	7,461	6,979	6,657	6,491	6,005	5,932	6,254	6,883	6,998	6,898	7,337
Other	6,631	5,908	5,941	5,790	5,599	5,689	5,649	5,179	5,214	5,850	6,654	6,767	6,759	7,073
Science	251,716	255,876	252,507	248,075	240,514	235,352	233,262	222,029	221,912	229,466	239,772	245,339	249,408	255,982
Natural sciences	152,198	156,521	156,251	154,536	149,950	148,560	148,357	142,528	141,957	148,248	155,919	160,578	163,685	168,414
Agricultural sciences	7,977	8,226	8,233	7,983	7,990	8,093	8,383	8,152	8,147	8,486	8,799	8,936	8,662	8,384
Biological sciences	34,819	36,130	36,279	36,116	34,778	34,323	34,319	33,255	33,193	34,568	35,809	36,053	36,627	37,163
Earth, atmospheric, and ocean sciences	11,076	11,282	11,245	10,873	10,402	10,098	10,007	9,812	9,573	9,799	9,963	10,342	10,126	10,116
Atmospheric sciences	714	733	691	709	657	601	552	557	547	623	713	663	697	690
Earth sciences	5,365	5,370	5,388	5,212	4,989	4,776	4,796	4,720	4,603	4,639	4,691	5,111	5,010	4,896
Oceanography	1,711	1,880	1,825	1,752	1,699	1,732	1,815	1,872	1,769	1,845	1,871	1,933	1,896	1,898
Other geosciences	3,286	3,299	3,341	3,200	3,057	2,989	2,844	2,663	2,654	2,692	2,688	2,635	2,523	2,632
Mathematics/computer sciences	27,376	26,242	24,427	23,675	22,413	22,045	22,036	21,423	22,443	23,885	25,674	25,797	25,471	25,144
Computer sciences	16,804	15,752	14,773	14,479	14,062	13,948	14,377	14,468	15,057	15,962	17,260	16,938	16,555	15,943
Mathematics/statistics	10,572	10,490	9,654	9,196	8,351	8,097	7,659	6,955	7,386	7,923	8,414	8,859	8,916	9,201
Medical/other life sciences	52,359	56,204	58,581	59,132	58,600	58,783	58,575	55,543	54,353	56,890	60,567	63,724	66,500	71,282
Medical sciences	11,546	12,464	12,372	11,967	11,915	12,456	12,763	12,017	12,492	14,307	15,425	15,560	15,507	16,310
Other life sciences	40,813	43,740	46,209	47,165	46,685	46,327	45,812	43,526	41,861	42,583	45,142	48,164	50,993	54,972
Physical sciences	18,591	18,437	17,486	16,757	15,767	15,218	15,037	14,343	14,248	14,620	15,107	15,726	16,299	16,325
Astronomy	580	624	577	570	514	507	511	523	527	570	610	631	677	683
Chemistry	10,687	10,662	10,297	10,203	9,712	9,484	9,394	9,028	8,977	8,926	8,955	9,171	9,435	9,314
Physics	7,005	6,771	6,250	5,696	5,268	4,967	4,840	4,514	4,485	4,789	5,209	5,600	5,765	5,937
Other physical sciences	319	380	362	288	273	260	292	278	259	335	333	324	422	391
Social/behavioral sciences	99,518	99,355	96,256	93,539	90,564	86,792	84,905	79,501	79,955	81,218	83,853	84,761	85,723	87,568
Psychology	42,662	42,062	40,146	39,327	38,724	37,622	36,267	33,801	33,569	33,464	33,552	33,580	34,359	35,045
Social sciences	56,856	57,293	56,110	54,212	51,840	49,170	48,638	45,700	46,386	47,754	50,301	51,181	51,364	52,523
Anthropology	5,581	5,827	5,815	5,867	5,641	5,549	5,440	5,311	5,190	5,153	5,316	5,258	5,097	5,287
Economics	7,173	7,026	6,691	5,934	5,107	4,688	4,476	4,314	4,392	4,481	4,778	4,819	4,625	4,679
History of science	294	308	317	312	303	380	424	386	414	426	514	700	679	673
Linguistics	1,770	1,770	1,688	1,689	1,518	1,404	1,375	1,237	1,293	1,335	1,418	1,349	1,540	1,503
Political science/public administration	24,044	23,296	22,413	20,955	19,984	18,526	18,317	17,401	17,635	18,785	19,525	20,468	20,966	21,242
Sociology	6,552	6,737	6,673	6,601	6,446	5,978	5,796	5,445	5,590	5,549	5,602	5,535	5,560	5,597
Other social sciences	11,442	12,329	12,513	12,854	12,841	12,645	12,810	11,606	11,872	12,025	13,148	13,052	12,897	13,542

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Asian/Pacific Islander														
S&E	26,853	29,617	29,361	29,926	30,371	31,615	32,717	30,190	31,945	34,918	38,155	37,735	37,764	37,863
Engineering	8,996	9,787	9,018	8,440	8,133	8,012	8,161	7,214	7,926	9,299	10,687	9,712	9,730	9,179
Aerospace	224	223	177	159	153	140	153	206	138	186	207	212	251	312
Chemical	461	524	458	482	512	469	486	486	474	551	540	453	493	496
Civil	1,167	1,339	1,322	1,254	1,050	1,104	931	744	771	855	1,024	997	1,006	957
Electrical	3,746	4,103	3,712	3,548	3,489	3,443	3,491	3,119	3,454	4,079	4,606	3,823	3,762	3,414
Industrial	883	882	855	750	739	643	784	628	667	850	998	929	1,026	1,010
Materials	336	346	311	272	295	272	240	246	244	298	316	346	315	337
Mechanical	1,307	1,421	1,225	1,073	947	973	1,008	759	903	870	994	973	962	940
Other	872	949	958	902	948	968	1,068	1,026	1,275	1,610	2,002	1,979	1,915	1,713
Science	17,857	19,830	20,343	21,486	22,238	23,603	24,556	22,976	24,019	25,619	27,468	28,023	28,034	28,684
Natural sciences	13,532	15,003	15,402	16,389	16,879	18,220	19,161	17,843	18,625	19,708	20,906	21,202	20,876	21,508
Agricultural sciences	282	293	282	291	309	315	310	250	262	286	316	329	290	338
Biological sciences	3,433	3,938	4,298	4,458	4,479	4,439	4,476	4,246	4,701	4,826	5,158	5,277	5,420	5,709
Earth, atmospheric, and ocean sciences	462	449	419	409	417	424	400	351	341	346	355	428	400	389
Atmospheric sciences	55	66	69	52	56	55	41	41	26	22	46	53	44	35
Earth sciences	217	180	151	145	166	153	144	132	139	149	126	149	136	141
Oceanography	66	74	83	80	60	62	67	64	51	64	48	69	65	57
Other geosciences	124	129	116	132	135	154	148	114	125	111	135	157	155	156
Mathematics/computer sciences	4,577	5,254	5,164	5,489	5,677	6,393	7,146	6,280	6,412	7,137	7,131	6,400	5,945	5,635
Computer sciences	3,557	4,046	4,043	4,266	4,626	5,219	6,144	5,332	5,427	5,953	5,767	5,102	4,573	4,222
Mathematics/statistics	1,020	1,208	1,121	1,223	1,051	1,174	1,002	948	985	1,184	1,364	1,298	1,372	1,413
Medical/other life sciences	2,805	3,146	3,459	3,997	4,359	4,889	5,147	5,192	5,451	5,689	6,369	7,090	7,190	7,684
Medical sciences	1,458	1,613	1,729	1,957	2,074	2,400	2,490	2,437	2,495	2,506	2,881	3,111	3,364	3,624
Other life sciences	1,347	1,533	1,730	2,040	2,285	2,489	2,657	2,755	2,956	3,183	3,488	3,979	3,826	4,060
Physical sciences	1,973	1,923	1,780	1,745	1,638	1,760	1,682	1,524	1,458	1,424	1,577	1,678	1,631	1,753
Astronomy	24	35	30	38	39	32	31	33	36	44	53	38	46	54
Chemistry	1,186	1,174	1,122	1,144	1,106	1,179	1,133	1,079	983	950	1,061	1,123	1,093	1,173
Physics	732	681	611	542	467	528	490	393	422	405	431	492	470	500
Other physical sciences	31	33	17	21	26	21	28	19	17	25	32	25	22	26
Social/behavioral sciences	4,325	4,827	4,941	5,097	5,359	5,383	5,395	5,133	5,394	5,911	6,562	6,821	7,158	7,176
Psychology	1,470	1,583	1,598	1,757	1,909	2,019	2,038	2,063	2,176	2,186	2,374	2,443	2,551	2,612
Social sciences	2,855	3,244	3,343	3,340	3,450	3,364	3,357	3,070	3,218	3,725	4,188	4,378	4,607	4,564
Anthropology	172	192	208	242	236	241	256	260	253	252	283	294	308	311
Economics	639	709	646	589	601	665	650	506	524	623	694	663	636	652
History of science	12	9	14	18	21	22	20	20	21	28	29	48	36	35
Linguistics	139	186	179	181	212	187	148	106	154	183	215	176	247	177
Political science/public administration	1,025	1,092	1,227	1,155	1,264	1,180	1,163	1,206	1,225	1,489	1,622	1,784	1,950	1,970
Sociology	343	428	434	451	420	414	406	367	374	387	456	402	397	433
Other social sciences	525	628	635	704	696	655	714	605	667	763	889	1,011	1,033	986

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Black														
S&E	20,433	21,174	22,148	22,972	23,560	24,261	25,200	25,928	27,071	28,715	31,242	32,496	33,547	34,866
Engineering	2,561	2,784	2,857	2,899	2,879	2,821	2,965	2,977	2,915	3,074	3,212	3,399	3,470	3,572
Aerospace	56	61	51	47	35	34	52	57	45	51	59	68	73	79
Chemical	160	157	175	191	172	185	147	168	167	160	173	169	146	149
Civil	393	424	471	491	443	410	450	448	431	453	428	453	456	508
Electrical	864	861	821	778	874	874	886	830	812	846	812	850	843	828
Industrial	451	514	541	535	489	465	541	557	591	616	685	714	764	763
Materials	75	89	88	104	112	75	92	94	107	112	110	105	102	129
Mechanical	336	398	403	417	428	412	375	396	354	358	382	369	411	419
Other	226	280	307	336	326	366	422	427	408	478	563	671	675	697
Science	17,872	18,390	19,291	20,073	20,681	21,440	22,235	22,951	24,156	25,641	28,030	29,097	30,077	31,294
Natural sciences	8,233	8,426	8,998	9,376	9,724	10,178	10,650	10,849	11,695	12,584	14,100	14,917	15,456	16,483
Agricultural sciences	268	270	308	304	288	344	310	292	327	375	460	394	417	453
Biological sciences	1,701	1,679	1,871	1,974	2,105	2,141	2,218	2,241	2,351	2,479	2,757	2,902	2,991	3,071
Earth, atmospheric, and ocean sciences	223	202	215	219	203	202	213	220	227	266	270	261	262	263
Atmospheric sciences	13	12	18	15	12	8	7	18	19	25	32	36	30	26
Earth sciences	65	56	67	70	56	59	62	56	57	64	75	84	82	71
Oceanography	30	41	34	33	26	25	28	28	31	36	35	30	37	41
Other geosciences	115	93	96	101	109	110	116	118	120	141	128	111	113	125
Mathematics/computer sciences	1,877	1,855	1,844	1,987	1,957	1,968	2,079	2,084	2,299	2,524	2,606	2,495	2,481	2,485
Computer sciences	1,167	1,182	1,155	1,276	1,300	1,355	1,485	1,512	1,709	1,898	1,951	1,799	1,761	1,774
Mathematics/statistics	710	673	689	711	657	613	594	572	590	626	655	696	720	711
Medical/other life sciences	3,320	3,564	3,863	3,906	4,219	4,610	4,927	5,094	5,616	6,047	7,068	7,872	8,299	9,202
Medical sciences	1,034	1,024	1,179	1,182	1,239	1,602	1,728	1,780	1,829	1,955	2,402	2,398	2,601	3,014
Other life sciences	2,286	2,540	2,684	2,724	2,980	3,008	3,199	3,314	3,787	4,092	4,666	5,474	5,698	6,188
Physical sciences	844	856	897	986	952	913	903	918	875	893	939	993	1,006	1,009
Astronomy	12	8	11	14	11	9	9	9	12	10	9	10	10	11
Chemistry	594	596	624	679	667	635	633	650	631	636	663	711	692	732
Physics	211	242	248	280	245	242	234	235	211	220	236	248	272	229
Other physical sciences	27	10	14	13	29	27	27	24	21	27	31	24	32	37
Social/behavioral sciences	9,639	9,964	10,293	10,697	10,957	11,262	11,585	12,102	12,461	13,057	13,930	14,180	14,621	14,811
Psychology	3,284	3,529	3,359	3,452	3,644	3,813	3,749	4,214	4,343	4,487	4,692	4,990	5,238	5,089
Social sciences	6,355	6,435	6,934	7,245	7,313	7,449	7,836	7,888	8,118	8,570	9,238	9,190	9,383	9,722
Anthropology	176	209	215	251	254	266	291	270	274	248	276	272	277	278
Economics	482	447	468	433	389	387	375	397	390	405	441	434	384	422
History of science	4	7	8	10	8	12	14	14	16	24	25	30	42	31
Linguistics	63	59	51	43	45	46	49	44	47	44	49	47	64	46
Political science/public administration	3,258	3,228	3,552	3,627	3,699	3,795	4,097	4,073	4,264	4,632	4,849	4,917	4,932	5,063
Sociology	985	1,057	1,096	1,137	1,161	1,213	1,159	1,098	1,132	1,132	1,201	1,164	1,194	1,140
Other social sciences	1,387	1,428	1,544	1,744	1,757	1,730	1,851	1,992	1,995	2,085	2,397	2,326	2,490	2,742

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Hispanic														
S&E	16,050	15,963	17,237	17,742	18,154	18,765	20,322	21,327	22,329	24,282	26,684	28,031	29,309	30,510
Engineering	2,696	2,863	2,808	2,936	2,812	2,900	2,924	3,018	3,183	3,461	3,979	4,164	4,090	4,381
Aerospace	70	75	65	62	71	76	80	80	71	92	119	118	116	136
Chemical	181	171	202	200	142	179	182	182	180	206	249	249	240	277
Civil	550	551	593	712	694	723	701	776	747	778	846	898	896	967
Electrical	842	856	785	793	810	812	769	717	825	941	1,094	1,097	1,090	1,044
Industrial	337	384	386	421	396	364	426	439	469	477	562	629	579	664
Materials	76	122	102	89	86	84	75	84	80	79	98	99	106	98
Mechanical	382	453	422	383	360	389	388	366	407	450	537	566	575	621
Other	258	251	253	276	253	273	303	374	404	438	474	508	488	574
Science	13,354	13,100	14,429	14,806	15,342	15,865	17,398	18,309	19,146	20,821	22,705	23,867	25,219	26,129
Natural sciences	6,853	6,619	7,399	7,637	7,899	8,132	9,016	9,269	9,787	10,579	12,046	12,874	13,156	13,892
Agricultural sciences	309	273	292	376	411	391	422	440	425	406	490	524	506	535
Biological sciences	1,647	1,642	1,822	1,849	1,987	2,053	2,185	2,183	2,338	2,585	2,830	2,993	3,146	3,289
Earth, atmospheric, and ocean sciences	370	339	365	374	399	370	400	355	397	413	484	538	508	540
Atmospheric sciences	15	14	10	11	12	13	7	12	15	16	21	27	36	30
Earth sciences	160	140	152	141	161	137	154	136	155	163	187	217	206	217
Oceanography	102	88	99	106	116	108	132	113	137	131	158	161	150	151
Other geosciences	93	97	104	116	110	112	107	94	90	103	118	133	116	142
Mathematics/computer sciences	1,110	1,000	1,064	1,125	1,150	1,208	1,312	1,323	1,376	1,546	1,705	1,767	1,832	1,902
Computer sciences	695	631	664	700	723	754	865	863	894	1,004	1,101	1,142	1,199	1,207
Mathematics/statistics	415	369	400	425	427	454	447	460	482	542	604	625	633	695
Medical/other life sciences	2,670	2,690	3,125	3,171	3,170	3,278	3,802	4,124	4,355	4,648	5,443	5,819	5,922	6,370
Medical sciences	1,051	981	1,125	1,110	1,055	1,147	1,493	1,533	1,734	1,669	1,874	1,999	1,943	2,093
Other life sciences	1,619	1,709	2,000	2,061	2,115	2,131	2,309	2,591	2,621	2,979	3,569	3,820	3,979	4,277
Physical sciences	747	675	731	742	782	832	895	844	896	981	1,094	1,233	1,242	1,256
Astronomy	13	16	16	13	11	12	13	17	17	17	25	23	27	27
Chemistry	472	442	485	504	523	562	618	602	629	668	750	838	823	823
Physics	252	211	219	216	237	226	229	202	239	274	297	343	358	374
Other physical sciences	10	6	11	9	11	32	35	23	11	22	22	29	34	32
Social/behavioral sciences	6,501	6,481	7,030	7,169	7,443	7,733	8,382	9,040	9,359	10,242	10,659	10,993	12,063	12,237
Psychology	2,562	2,485	2,799	2,937	3,075	3,228	3,567	4,145	4,309	4,655	4,677	4,791	5,101	5,222
Social sciences	3,939	3,996	4,231	4,232	4,368	4,505	4,815	4,895	5,050	5,587	5,982	6,202	6,962	7,015
Anthropology	248	295	345	336	338	344	327	368	383	409	436	453	472	491
Economics	391	407	419	370	330	318	283	277	346	362	411	409	390	406
History of science	3	5	4	8	10	12	22	17	18	55	38	56	60	64
Linguistics	165	158	138	131	157	150	135	142	126	140	136	148	163	125
Political science/public administration	1,902	1,786	1,927	1,895	1,926	1,989	2,166	2,303	2,223	2,587	2,749	2,960	3,298	3,235
Sociology	485	494	531	546	625	643	674	634	636	686	709	693	718	721
Other social sciences	745	851	867	946	982	1,049	1,208	1,154	1,318	1,348	1,503	1,483	1,861	1,973

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
American Indian/Alaska Native														
S&E	1,605	1,724	1,856	1,906	1,969	2,036	1,994	2,021	2,136	2,239	2,399	2,354	2,485	2,689
Engineering	209	241	230	234	239	236	242	208	227	244	304	273	273	290
Aerospace	8	6	8	5	3	7	8	8	8	11	15	16	13	10
Chemical	14	18	21	31	18	21	16	20	13	21	19	27	24	20
Civil	43	38	42	48	58	43	56	39	43	58	65	51	52	62
Electrical	43	52	51	50	46	33	47	37	45	39	63	54	54	46
Industrial	36	24	24	22	23	34	39	41	43	34	52	48	51	55
Materials	4	6	8	8	11	33	10	5	8	11	8	6	5	8
Mechanical	30	54	44	35	35	25	33	27	32	32	42	24	28	32
Other	31	43	32	35	45	40	33	31	35	38	40	47	46	57
Science	1,396	1,483	1,626	1,672	1,730	1,800	1,752	1,813	1,909	1,995	2,095	2,081	2,212	2,399
Natural sciences	716	758	859	836	884	965	932	905	992	1,062	1,104	1,111	1,161	1,323
Agricultural sciences	37	39	62	48	62	71	69	56	58	76	77	82	76	85
Biological sciences	155	182	203	200	197	191	186	189	205	210	236	248	277	310
Earth, atmospheric, and ocean sciences	45	48	52	65	82	84	63	61	70	81	63	67	61	69
Atmospheric sciences	2	3	4	3	2	2	2	3	4	4	5	4	3	1
Earth sciences	27	29	27	31	38	36	26	27	32	36	26	33	29	36
Oceanography	3	6	8	12	17	16	12	10	12	11	8	11	11	11
Other geosciences	13	10	13	19	25	30	23	21	22	30	24	19	18	21
Mathematics/computer sciences	102	80	126	95	103	126	104	105	125	107	129	130	138	164
Computer sciences	70	44	56	54	60	92	74	80	87	83	104	91	100	105
Mathematics/statistics	32	36	70	41	43	34	30	25	38	24	25	39	38	59
Medical/other life sciences	296	342	340	368	370	429	441	419	453	505	520	506	527	577
Medical sciences	65	91	82	74	98	110	125	113	124	138	167	134	133	148
Other life sciences	231	251	258	294	272	319	316	306	329	367	353	372	394	429
Physical sciences	81	67	76	60	70	64	69	75	81	83	79	78	82	118
Astronomy	3	3	3	2	1	2	2	1	0	2	3	3	5	8
Chemistry	54	46	43	45	50	46	53	61	62	58	51	54	53	78
Physics	22	16	30	13	18	14	13	12	19	22	24	18	20	26
Other physical sciences	2	2	0	0	1	2	1	1	0	1	1	3	4	6
Social/behavioral sciences	680	725	767	836	846	835	820	908	917	933	991	970	1,051	1,076
Psychology	289	317	330	359	341	311	300	360	334	320	324	323	332	344
Social sciences	391	408	437	477	505	524	520	548	583	613	667	647	719	732
Anthropology	79	89	103	106	103	119	105	109	102	89	99	106	123	145
Economics	23	24	26	21	19	21	20	24	25	32	38	56	42	33
History of science	0	1	1	0	1	1	2	2	2	2	5	7	5	8
Linguistics	3	7	9	4	7	9	15	13	13	12	16	17	17	21
Political science/public administration	139	145	140	154	155	172	177	175	192	217	241	212	246	241
Sociology	62	62	58	71	86	76	75	75	82	82	83	71	68	65
Other social sciences	85	80	100	121	134	126	126	150	167	179	185	178	218	219

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Other/unknown race/ethnicity														
S&E	19,913	17,510	21,715	21,385	22,666	22,433	22,244	24,316	24,885	27,237	30,384	34,028	39,349	41,422
Engineering	5,700	4,355	4,873	4,570	4,486	4,182	3,833	4,151	4,180	4,640	5,659	5,596	6,120	6,983
Aerospace	310	87	82	85	63	72	87	92	109	147	214	196	231	492
Chemical	146	210	198	223	215	230	233	228	147	183	201	189	211	187
Civil	731	586	697	775	637	610	575	540	588	702	762	767	866	956
Electrical	1,738	1,460	1,586	1,561	1,721	1,568	1,427	1,630	1,522	1,553	1,834	1,610	1,763	1,959
Industrial	1,040	884	1,055	757	578	599	522	580	563	645	843	959	993	1,171
Materials	171	113	118	93	198	127	86	85	107	100	105	130	131	192
Mechanical	1,115	721	752	657	602	590	465	499	513	598	764	794	845	856
Other	449	294	385	419	472	386	438	497	631	712	936	951	1,080	1,170
Science	14,213	13,155	16,842	16,815	18,180	18,251	18,411	20,165	20,705	22,597	24,725	28,432	33,229	34,439
Natural sciences	8,613	7,932	9,844	9,504	10,870	10,764	10,751	11,642	12,194	13,510	14,800	16,268	18,269	18,968
Agricultural sciences	210	279	390	281	354	300	280	422	503	456	459	485	513	546
Biological sciences	1,420	1,426	1,803	1,780	2,095	2,212	2,386	2,407	2,408	2,585	3,075	3,261	3,551	3,492
Earth, atmospheric, and ocean sciences	537	373	473	477	530	581	480	450	451	558	702	701	701	776
Atmospheric sciences	16	16	14	13	62	31	30	28	28	31	44	30	39	39
Earth sciences	254	189	254	248	256	282	231	223	203	282	351	312	322	388
Oceanography	125	59	53	75	54	86	54	55	71	65	86	100	111	109
Other geosciences	142	109	152	141	158	182	165	144	149	180	221	259	229	240
Mathematics/computer sciences	3,128	2,175	2,733	2,655	2,949	2,929	2,976	3,466	3,654	4,143	4,232	4,196	4,310	4,564
Computer sciences	2,011	1,441	1,972	2,004	2,303	2,237	2,378	2,833	2,968	3,303	3,237	3,189	3,221	3,424
Mathematics/statistics	1,117	734	761	651	646	692	598	633	686	840	995	1,007	1,089	1,140
Medical/other life sciences	2,478	2,880	3,425	3,446	3,941	3,692	3,656	3,871	3,901	4,518	4,957	6,185	7,779	7,907
Medical sciences	673	883	1,035	792	1,059	1,019	1,047	1,210	1,110	1,198	1,463	1,587	2,615	2,747
Other life sciences	1,805	1,997	2,390	2,654	2,882	2,673	2,609	2,661	2,791	3,320	3,494	4,598	5,164	5,160
Physical sciences	840	799	1,020	865	1,001	1,050	973	1,026	1,277	1,250	1,375	1,440	1,415	1,683
Astronomy	31	25	43	21	17	45	27	34	41	44	47	44	63	62
Chemistry	463	471	585	484	604	551	500	463	515	554	688	740	737	930
Physics	335	294	387	351	373	402	334	401	615	549	547	569	588	656
Other physical sciences	11	9	5	9	7	52	112	128	106	103	93	87	27	35
Social/behavioral sciences	5,600	5,223	6,998	7,311	7,310	7,487	7,660	8,523	8,511	9,087	9,925	12,164	14,960	15,471
Psychology	2,409	2,235	3,322	3,317	3,425	3,378	3,567	3,620	3,202	3,183	3,436	4,805	6,647	6,490
Social sciences	3,191	2,988	3,676	3,994	3,885	4,109	4,093	4,903	5,309	5,904	6,489	7,359	8,313	8,981
Anthropology	305	266	313	281	286	319	391	479	520	483	557	583	615	713
Economics	496	372	374	429	391	473	314	488	556	627	558	557	513	618
History of science	1	1	11	11	33	14	16	24	30	60	57	84	64	70
Linguistics	120	87	132	106	147	116	115	172	149	179	231	199	226	252
Political science/public administration	1,177	1,357	1,661	1,923	1,629	1,614	1,533	1,814	2,043	2,570	3,017	3,713	4,503	4,726
Sociology	382	277	417	324	369	372	339	446	414	439	434	491	544	537
Other social sciences	710	628	768	920	1,030	1,201	1,385	1,480	1,597	1,546	1,635	1,732	1,848	2,065

Appendix table 2-17

S&E graduate enrollment, by citizenship, field, and race/ethnicity: 1993–2006

Citizenship, field, and race/ethnicity	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Temporary resident														
S&E	110,319	106,547	102,885	102,984	103,881	107,067	115,454	128,417	140,870	152,988	155,016	151,245	147,496	151,018
Engineering	39,295	37,006	35,484	35,056	36,506	37,789	41,503	47,461	52,603	58,391	60,067	57,187	54,014	55,343
Aerospace	1,201	1,239	1,186	1,273	1,318	1,417	1,532	1,513	1,646	1,686	1,687	1,688	1,642	1,484
Chemical	3,185	3,027	2,969	2,887	2,864	2,885	3,014	3,345	3,515	3,728	3,780	3,699	3,498	3,576
Civil	6,284	5,958	5,659	5,265	5,103	4,962	5,425	6,145	6,593	7,160	7,432	7,125	6,699	6,381
Electrical	12,451	11,427	11,276	11,452	12,755	13,925	15,305	18,296	20,566	23,369	23,645	22,117	20,788	22,099
Industrial	3,477	3,588	3,352	3,326	3,341	3,352	3,730	4,545	5,352	5,743	5,493	5,089	4,579	4,580
Materials	2,173	1,974	1,927	1,920	1,967	2,010	2,043	2,112	2,336	2,510	2,585	2,558	2,642	2,578
Mechanical	6,278	5,821	5,458	5,483	5,694	5,650	6,196	7,183	7,711	8,577	8,791	8,128	7,654	7,714
Other	4,246	3,972	3,657	3,450	3,464	3,588	4,258	4,322	4,884	5,618	6,654	6,783	6,512	6,931
Science	71,024	69,541	67,401	67,928	67,375	69,278	73,951	80,956	88,267	94,597	94,949	94,058	93,482	95,675
Natural sciences	53,953	52,439	50,610	50,820	50,643	52,160	55,987	62,370	68,728	73,678	73,578	72,489	72,349	74,014
Agricultural sciences	3,222	3,231	3,201	3,018	2,789	2,654	2,538	2,411	2,513	2,613	2,596	2,695	2,659	2,675
Biological sciences	12,775	12,679	12,068	11,372	11,064	11,336	11,189	11,761	12,443	13,835	14,836	15,831	16,467	16,907
Earth, atmospheric, and ocean sciences	3,008	3,264	2,947	2,766	2,515	2,499	2,520	2,692	2,782	2,777	2,783	2,794	2,778	2,767
Atmospheric sciences	297	265	266	283	291	255	274	304	285	315	289	273	297	258
Earth sciences	1,671	1,749	1,543	1,457	1,293	1,244	1,224	1,302	1,355	1,379	1,433	1,452	1,427	1,428
Oceanography	590	722	621	557	507	533	516	526	514	466	489	497	490	503
Other geosciences	450	528	517	469	424	467	506	560	628	617	572	572	564	578
Mathematics/computer sciences	18,043	17,125	16,604	17,608	18,461	19,843	23,082	28,319	32,538	34,090	31,684	29,162	28,011	28,574
Computer sciences	11,909	11,062	10,795	11,847	12,917	14,422	17,155	22,262	26,054	27,066	24,276	21,755	20,569	20,978
Mathematics/statistics	6,134	6,063	5,809	5,761	5,544	5,421	5,927	6,057	6,484	7,024	7,408	7,407	7,442	7,596
Medical/other life sciences	4,653	4,431	4,381	4,878	4,919	5,090	5,526	5,532	6,249	7,273	7,552	7,394	7,734	8,334
Medical sciences	3,397	3,088	3,137	3,512	3,455	3,597	3,833	3,725	4,228	5,068	5,228	4,973	5,060	5,501
Other life sciences	1,256	1,343	1,244	1,366	1,464	1,493	1,693	1,807	2,021	2,205	2,324	2,421	2,674	2,833
Physical sciences	12,252	11,709	11,409	11,178	10,895	10,738	11,132	11,655	12,203	13,090	14,127	14,613	14,700	14,757
Astronomy	217	262	232	216	185	213	239	271	283	303	333	370	363	366
Chemistry	6,675	6,412	6,414	6,275	6,112	6,025	6,085	6,222	6,569	7,253	7,881	8,139	8,268	8,301
Physics	5,284	4,947	4,680	4,630	4,539	4,430	4,729	5,084	5,257	5,442	5,811	6,028	5,999	6,000
Other physical sciences	76	88	83	57	59	70	79	78	94	92	102	76	70	90
Social/behavioral sciences	17,071	17,102	16,791	17,108	16,732	17,118	17,964	18,586	19,539	20,919	21,371	21,569	21,133	21,661
Psychology	1,881	2,343	2,087	1,973	2,008	2,186	2,239	2,263	2,521	2,857	3,107	3,194	3,054	2,851
Social sciences	15,190	14,759	14,704	15,135	14,724	14,932	15,725	16,323	17,018	18,062	18,264	18,375	18,079	18,810
Anthropology	800	787	694	690	702	739	823	829	769	847	822	860	858	925
Economics	6,425	6,217	6,387	6,421	6,303	6,144	6,458	6,821	7,336	7,666	7,714	7,575	7,342	7,480
History of science	55	56	46	50	67	67	59	69	70	68	69	69	79	87
Linguistics	1,061	1,012	997	1,002	982	1,023	962	960	962	982	963	1,005	930	950
Political science/public administration	3,531	3,413	3,378	3,543	3,426	3,552	3,919	4,159	4,223	4,654	4,877	4,969	4,885	5,307
Sociology	1,551	1,430	1,296	1,218	1,254	1,219	1,258	1,332	1,392	1,390	1,415	1,357	1,385	1,379
Other social sciences	1,767	1,844	1,906	2,211	1,990	2,188	2,246	2,153	2,266	2,455	2,404	2,540	2,600	2,682

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

Appendix table 2-18

First-time full-time S&E graduate students, by citizenship and field: 2000–06

Citizenship/field	2000	2001	2002	2003	2004	2005	2006
All citizenships							
S&E	94,340	98,112	104,184	107,715	106,544	110,219	116,482
Engineering	22,191	23,306	24,607	24,429	22,025	22,373	25,876
Aerospace	775	767	712	845	834	804	943
Chemical	1,595	1,541	1,616	1,600	1,392	1,293	1,429
Civil	3,840	3,820	4,107	4,363	4,175	4,057	4,198
Electrical	7,195	7,882	8,221	7,834	6,633	6,987	8,668
Industrial	2,005	2,216	2,238	2,029	1,724	1,674	2,148
Materials	1,005	975	1,044	958	926	992	1,043
Mechanical	3,269	3,583	3,709	3,476	3,129	3,225	3,734
Other	2,507	2,522	2,960	3,324	3,212	3,341	3,713
Science	72,149	74,806	79,577	83,286	84,519	87,846	90,606
Natural sciences	49,626	51,215	54,124	55,791	56,655	58,228	60,076
Agricultural sciences	2,335	2,338	2,320	2,424	2,316	2,260	2,206
Biological sciences	10,955	11,608	12,127	12,719	12,796	12,918	13,055
Earth, atmospheric, and ocean sciences	2,649	2,794	3,085	3,104	2,926	2,758	2,795
Atmospheric sciences	222	205	213	268	228	228	207
Earth sciences	1,230	1,383	1,437	1,412	1,336	1,308	1,348
Oceanography	479	511	533	567	534	463	457
Other geosciences	718	695	902	857	828	759	783
Mathematics/computer sciences	11,850	12,763	12,955	12,319	12,035	12,454	13,325
Computer sciences	8,431	9,077	9,037	8,134	7,783	8,258	8,983
Mathematics/statistics	3,419	3,686	3,918	4,185	4,252	4,196	4,342
Medical/other life sciences	16,008	15,701	17,357	18,384	19,979	21,181	22,069
Medical sciences	5,127	5,361	5,780	6,034	6,525	6,644	7,096
Other life sciences	10,881	10,340	11,577	12,350	13,454	14,537	14,973
Physical sciences	5,829	6,011	6,280	6,841	6,603	6,657	6,626
Astronomy	183	193	194	225	210	190	204
Chemistry	3,482	3,651	3,746	3,983	3,862	3,904	3,900
Physics	2,101	2,102	2,231	2,543	2,442	2,458	2,409
Other physical sciences	63	65	109	90	89	105	113
Social/behavioral sciences	22,523	23,591	25,453	27,495	27,864	29,618	30,530
Psychology	7,545	7,691	8,420	8,858	9,478	10,358	10,224
Social sciences	14,978	15,900	17,033	18,637	18,386	19,260	20,306
Anthropology	1,157	1,119	1,177	1,279	1,187	1,243	1,314
Economics	2,963	3,058	3,418	3,457	3,209	3,281	3,450
History of science	78	72	97	107	107	138	121
Linguistics	454	495	466	588	570	633	577
Political science/public administration	5,142	5,562	6,241	6,950	7,333	7,807	8,319
Sociology	1,464	1,591	1,690	1,722	1,537	1,672	1,504
Other social sciences	3,720	4,003	3,944	4,534	4,443	4,486	5,021
U.S. citizen/permanent resident							
S&E	61,021	62,396	70,346	76,478	77,169	79,531	81,142
Engineering	8,603	8,668	10,749	12,263	11,188	10,905	11,747
Aerospace	374	348	396	536	537	508	616
Chemical	651	616	760	852	733	624	684
Civil	2,009	1,989	2,250	2,595	2,591	2,492	2,650
Electrical	1,901	1,985	2,679	3,127	2,458	2,430	2,305
Industrial	596	590	781	832	755	690	933
Materials	413	410	502	479	454	482	545
Mechanical	1,231	1,373	1,681	1,843	1,684	1,668	1,889
Other	1,428	1,357	1,700	1,999	1,976	2,011	2,125
Science	52,418	53,728	59,597	64,215	65,981	68,626	69,395
Natural sciences	34,659	34,988	39,006	41,645	42,752	43,728	44,112
Agricultural sciences	1,916	1,845	1,856	1,971	1,870	1,828	1,764
Biological sciences	8,355	8,768	9,261	9,763	9,808	9,925	9,946
Earth, atmospheric, and ocean sciences	2,082	2,210	2,548	2,573	2,468	2,270	2,289
Atmospheric sciences	147	140	157	220	186	172	170
Earth sciences	986	1,091	1,179	1,129	1,102	1,073	1,068
Oceanography	374	426	447	485	476	376	380
Other geosciences	575	553	765	739	704	649	671
Mathematics/computer sciences	4,263	4,651	5,845	6,418	6,264	6,193	5,904
Computer sciences	2,414	2,621	3,534	3,891	3,632	3,632	3,382
Mathematics/statistics	1,849	2,030	2,311	2,527	2,632	2,561	2,522

Appendix table 2-18

First-time full-time S&E graduate students, by citizenship and field: 2000–06

Citizenship/field	2000	2001	2002	2003	2004	2005	2006
Medical/other life sciences	14,720	14,189	15,721	16,829	18,316	19,374	20,164
Medical sciences	4,248	4,302	4,640	4,982	5,372	5,455	5,836
Other life sciences	10,472	9,887	11,081	11,847	12,944	13,919	14,328
Physical sciences	3,323	3,325	3,775	4,091	4,026	4,138	4,045
Astronomy	123	135	137	150	145	144	142
Chemistry	2,151	2,125	2,292	2,438	2,391	2,461	2,405
Physics	1,009	1,025	1,270	1,442	1,416	1,439	1,406
Other physical sciences	40	40	76	61	74	94	92
Social/behavioral sciences	17,759	18,740	20,591	22,570	23,229	24,898	25,283
Psychology	7,060	7,167	7,902	8,285	8,944	9,800	9,645
Social sciences	10,699	11,573	12,689	14,285	14,285	15,098	15,638
Anthropology	996	985	1,028	1,142	1,068	1,131	1,170
Economics	1,207	1,275	1,559	1,694	1,589	1,594	1,634
History of science	65	62	90	95	97	115	109
Linguistics	257	294	305	405	381	440	417
Political science/public administration	3,870	4,291	4,949	5,561	5,974	6,475	6,670
Sociology	1,205	1,311	1,440	1,501	1,357	1,474	1,339
Other social sciences	3,099	3,355	3,318	3,887	3,819	3,869	4,299
Temporary resident							
S&E	33,319	35,716	33,838	31,237	29,375	30,688	35,340
Engineering	13,588	14,638	13,858	12,166	10,837	11,468	14,129
Aerospace	401	419	316	309	297	296	327
Chemical	944	925	856	748	659	669	745
Civil	1,831	1,831	1,857	1,768	1,584	1,565	1,548
Electrical	5,294	5,897	5,542	4,707	4,175	4,557	6,363
Industrial	1,409	1,626	1,457	1,197	969	984	1,215
Materials	592	565	542	479	472	510	498
Mechanical	2,038	2,210	2,028	1,633	1,445	1,557	1,845
Other	1,079	1,165	1,260	1,325	1,236	1,330	1,588
Science	19,731	21,078	19,980	19,071	18,538	19,220	21,211
Natural sciences	14,967	16,227	15,118	14,146	13,903	14,500	15,964
Agricultural sciences	419	493	464	453	446	432	442
Biological sciences	2,600	2,840	2,866	2,956	2,988	2,993	3,109
Earth, atmospheric, and ocean sciences	567	584	537	531	458	488	506
Atmospheric sciences	75	65	56	48	42	56	37
Earth sciences	244	292	258	283	234	235	280
Oceanography	105	85	86	82	58	87	77
Other geosciences	143	142	137	118	124	110	112
Mathematics/computer sciences	7,587	8,112	7,110	5,901	5,771	6,261	7,421
Computer sciences	6,017	6,456	5,503	4,243	4,151	4,626	5,601
Mathematics/statistics	1,570	1,656	1,607	1,658	1,620	1,635	1,820
Medical/other life sciences	1,288	1,512	1,636	1,555	1,663	1,807	1,905
Medical sciences	879	1,059	1,140	1,052	1,153	1,189	1,260
Other life sciences	409	453	496	503	510	618	645
Physical sciences	2,506	2,686	2,505	2,750	2,577	2,519	2,581
Astronomy	60	58	57	75	65	46	62
Chemistry	1,331	1,526	1,454	1,545	1,471	1,443	1,495
Physics	1,092	1,077	961	1,101	1,026	1,019	1,003
Other physical sciences	23	25	33	29	15	11	21
Social/behavioral sciences	4,764	4,851	4,862	4,925	4,635	4,720	5,247
Psychology	485	524	518	573	534	558	579
Social sciences	4,279	4,327	4,344	4,352	4,101	4,162	4,668
Anthropology	161	134	149	137	119	112	144
Economics	1,756	1,783	1,859	1,763	1,620	1,687	1,816
History of science	13	10	7	12	10	23	12
Linguistics	197	201	161	183	189	193	160
Political science/public administration	1,272	1,271	1,292	1,389	1,359	1,332	1,649
Sociology	259	280	250	221	180	198	165
Other social sciences	621	648	626	647	624	617	722

NOTE: Data on first-time full-time enrollment by race/ethnicity and citizenship not collected before 1999.

SOURCE: National Science Foundation, Division of Science Resources 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 2010

Appendix table 2-19

Foreign graduate student enrollment in U.S. universities, by field and selected places of origin: April 2008 and 2009

Place of origin	All fields	S&E	Agricultural sciences	Biological sciences	Computer sciences	Engineering	Mathematics	Physical sciences	Psychology	Social sciences	Non-S&E
April 2008											
All locations	251,360	146,020	3,440	16,920	23,740	57,770	7,370	16,380	3,080	17,330	105,340
India	67,890	50,290	700	4,490	13,540	26,570	720	2,760	270	1,250	17,600
China	46,600	33,140	690	5,160	3,480	11,220	3,290	5,880	260	3,140	13,450
South Korea	23,620	9,830	230	990	870	3,940	580	940	260	2,030	13,790
Taiwan	15,870	5,980	130	990	730	2,370	280	530	210	740	9,900
Turkey	5,370	3,330	30	230	290	1,300	160	340	90	890	2,050
Japan	5,600	2,240	80	270	110	320	90	220	220	950	3,360
Canada	8,160	2,090	80	370	70	330	80	250	390	530	6,070
Iran	2,190	1,840	20	80	160	1,280	50	130	30	100	350
Nepal	2,890	1,630	110	130	390	420	70	310	10	190	1,260
Thailand	4,200	1,390	70	70	300	580	40	90	20	240	2,810
Mexico	2,860	1,380	100	130	90	440	80	190	40	310	1,480
Germany	2,720	1,350	30	180	120	230	100	220	80	380	1,370
Colombia	2,240	1,310	70	250	60	450	70	180	20	210	930
Saudi Arabia	2,520	1,170	10	70	340	490	30	90	20	140	1,340
France	2,030	1,020	20	100	50	420	70	140	10	200	1,010
Russia	1,720	990	10	110	90	130	90	310	20	220	740
Pakistan	1,540	930	10	40	250	400	20	90	10	120	610
Sri Lanka	1,090	890	30	100	70	160	90	380	10	50	210
Nigeria	1,880	850	30	90	110	380	20	100	10	110	1,040
Romania	1,430	840	10	100	130	120	120	170	30	170	590
Other locations	48,940	23,530	980	2,970	2,490	6,220	1,320	3,060	1,070	5,360	25,380
April 2009											
All locations	270,770	158,430	3,660	17,830	26,860	64,300	8,120	16,800	3,090	17,770	112,340
India	76,100	56,680	730	5,120	15,800	29,790	780	2,960	260	1,240	19,410
China	53,800	36,890	830	5,290	3,970	13,110	3,840	6,070	300	3,470	16,910
South Korea	24,150	9,880	220	980	940	3,910	590	900	270	2,070	14,270
Taiwan	15,380	6,110	140	990	700	2,470	300	540	210	760	9,270
Turkey	5,390	3,340	20	240	320	1,290	160	330	80	910	2,050
Iran	2,830	2,390	20	90	210	1,710	60	170	30	110	440
Japan	5,200	2,110	70	260	100	320	80	210	190	890	3,100
Canada	8,030	2,080	90	360	70	300	90	220	420	540	5,950
Nepal	3,350	2,020	130	180	490	540	90	370	10	220	1,330
Mexico	2,980	1,430	100	150	100	460	90	180	40	320	1,550
Colombia	2,420	1,410	70	250	70	500	90	190	30	220	1,010
Thailand	4,140	1,380	70	80	270	610	40	90	20	210	2,760
Germany	2,740	1,360	30	190	120	240	100	200	80	390	1,380
Saudi Arabia	3,010	1,310	10	80	370	530	40	110	20	160	1,700
France	2,120	1,070	20	100	50	470	70	140	20	210	1,050
Sri Lanka	1,250	1,020	40	100	100	190	110	450	10	40	230
Russia	1,760	960	20	110	80	130	90	300	20	210	800
Nigeria	2,250	960	40	100	120	440	20	100	10	120	1,280
Bangladesh	1,190	940	10	60	180	510	30	60	0	90	250
Pakistan	1,510	920	10	40	220	430	30	70	10	120	590
Other locations	51,140	24,150	1,010	3,070	2,590	6,350	1,440	3,150	1,080	5,460	27,000

NOTES: Numbers rounded to nearest 10. Countries ordered by number of S&E students.

SOURCE: Bureau of Citizenship and Immigration Services, Student and Exchange Visitor Information System database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-20

Full-time S&E graduate students, by source and mechanism of primary support: 1993–2006

	All mechanisms		Research assistantship		Fellowship		Traineeship		Teaching assistantship		Other		Self-support[a]	
Source	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All sources														
1993	329,644	100.0	90,154	27.3	29,132	8.8	15,445	4.7	67,290	20.4	21,347	6.5	106,276	32.2
1994	332,088	100.0	92,008	27.7	28,892	8.7	15,681	4.7	66,844	20.1	21,628	6.5	107,035	32.2
1995	329,283	100.0	89,946	27.3	28,887	8.8	15,943	4.8	65,976	20.0	21,844	6.6	106,687	32.4
1996	328,536	100.0	87,694	26.7	28,862	8.8	15,481	4.7	65,756	20.0	21,268	6.5	109,475	33.3
1997	327,289	100.0	88,001	26.9	28,956	8.8	14,488	4.4	65,425	20.0	21,678	6.6	108,741	33.2
1998	327,389	100.0	88,097	26.9	29,106	8.9	14,946	4.6	65,173	19.9	21,843	6.7	108,224	33.1
1999	334,423	100.0	91,279	27.3	30,112	9.0	14,707	4.4	66,294	19.8	22,615	6.8	109,416	32.7
2000	341,283	100.0	94,323	27.6	31,330	9.2	14,171	4.2	66,423	19.5	22,604	6.6	112,432	32.9
2001	354,522	100.0	99,923	28.2	32,270	9.1	14,154	4.0	68,267	19.3	23,272	6.6	116,636	32.9
2002	378,991	100.0	108,185	28.5	34,849	9.2	15,006	4.0	70,732	18.7	23,565	6.2	126,654	33.4
2003	397,420	100.0	114,256	28.7	34,460	8.7	15,126	3.8	73,105	18.4	25,743	6.5	134,730	33.9
2004	402,573	100.0	114,768	28.5	35,034	8.7	14,903	3.7	73,009	18.1	27,781	6.9	137,078	34.1
2005	406,620	100.0	114,304	28.1	36,414	9.0	14,570	3.6	74,238	18.3	27,691	6.8	139,403	34.3
2006	419,015	100.0	114,774	27.4	36,689	8.8	14,571	3.5	75,911	18.1	30,464	7.3	146,606	35.0
Federal														
1993	67,673	100.0	44,502	65.8	7,510	11.1	10,174	15.0	846	1.3	4,641	6.9	NA	NA
1994	68,550	100.0	45,621	66.6	6,939	10.1	10,407	15.2	780	1.1	4,803	7.0	NA	NA
1995	67,294	100.0	44,597	66.3	6,914	10.3	10,234	15.2	739	1.1	4,810	7.1	NA	NA
1996	65,240	100.0	43,370	66.5	7,044	10.8	9,869	15.1	843	1.3	4,114	6.3	NA	NA
1997	64,522	100.0	43,328	67.2	7,074	11.0	9,291	14.4	908	1.4	3,921	6.1	NA	NA
1998	63,759	100.0	41,826	65.6	7,033	11.0	9,658	15.1	1,120	1.8	4,122	6.5	NA	NA
1999	65,796	100.0	43,061	65.4	7,345	11.2	9,725	14.8	997	1.5	4,668	7.1	NA	NA
2000	67,588	100.0	44,620	66.0	7,475	11.1	9,544	14.1	1,371	2.0	4,578	6.8	NA	NA
2001	68,843	100.0	46,205	67.1	7,406	10.8	9,497	13.8	1,077	1.6	4,658	6.8	NA	NA
2002	75,538	100.0	51,621	68.3	7,899	10.5	9,996	13.2	1,227	1.6	4,795	6.3	NA	NA
2003	81,761	100.0	57,255	70.0	7,608	9.3	10,090	12.3	1,531	1.9	5,277	6.5	NA	NA
2004	83,816	100.0	58,559	69.9	7,965	9.5	9,916	11.8	1,533	1.8	5,843	7.0	NA	NA
2005	83,723	100.0	58,197	69.5	8,267	9.9	9,731	11.6	1,596	1.9	5,932	7.1	NA	NA
2006	83,962	100.0	57,547	68.5	8,251	9.8	9,754	11.6	1,659	2.0	6,751	8.0	NA	NA
Nonfederal														
1993	155,695	100.0	45,652	29.3	21,622	13.9	5,271	3.4	66,444	42.7	16,706	10.7	NA	NA
1994	156,503	100.0	46,387	29.6	21,953	14.0	5,274	3.4	66,064	42.2	16,825	10.8	NA	NA
1995	155,302	100.0	45,349	29.2	21,973	14.1	5,709	3.7	65,237	42.0	17,034	11.0	NA	NA
1996	153,821	100.0	44,324	28.8	21,818	14.2	5,612	3.6	64,913	42.2	17,154	11.2	NA	NA
1997	154,026	100.0	44,673	29.0	21,882	14.2	5,197	3.4	64,517	41.9	17,757	11.5	NA	NA
1998	155,406	100.0	46,271	29.8	22,073	14.2	5,288	3.4	64,053	41.2	17,721	11.4	NA	NA
1999	159,211	100.0	48,218	30.3	22,767	14.3	4,982	3.1	65,297	41.0	17,947	11.3	NA	NA
2000	161,263	100.0	49,703	30.8	23,855	14.8	4,627	2.9	65,052	40.3	18,026	11.2	NA	NA

Appendix table 2-20

Full-time S&E graduate students, by source and mechanism of primary support: 1993–2006

	All mechanisms		Research assistantship		Fellowship		Traineeship		Teaching assistantship		Other		Self-support[a]	
Source	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
2001	169,043	100.0	53,718	31.8	24,864	14.7	4,657	2.8	67,190	39.7	18,614	11.0	NA	NA
2002	176,799	100.0	56,564	32.0	26,950	15.2	5,010	2.8	69,505	39.3	18,770	10.6	NA	NA
2003	180,929	100.0	57,001	31.5	26,852	14.8	5,036	2.8	71,574	39.6	20,466	11.3	NA	NA
2004	181,679	100.0	56,209	30.9	27,069	14.9	4,987	2.7	71,476	39.3	21,938	12.1	NA	NA
2005	183,494	100.0	56,107	30.6	28,147	15.3	4,839	2.6	72,642	39.6	21,759	11.9	NA	NA
2006	188,447	100.0	57,227	30.4	28,438	15.1	4,817	2.6	74,252	39.4	23,713	12.6	NA	NA

NA = not available

[a]Includes any loans (including federal) and support from personal or family financial contributions.

NOTES: S&E includes health fields (i.e., medical sciences and other life sciences). These fields reported separately in National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Graduate Students and Postdoctorates in Science and Engineering (annual series). Self-support not included in federal or nonfederal counts. Percents may not add to 100% because of rounding.

SOURCE: NSF/SRS, 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 2010

Appendix table 2-21

Full-time S&E graduate students, by field and mechanism of primary support: 2006

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
S&E	419,015	100.0	114,774	27.4	36,689	8.8	14,571	3.5	75,911	18.1	30,464	7.3	146,606	35.0
Engineering	87,818	100.0	35,192	40.1	7,218	8.2	1,003	1.1	12,178	13.9	6,213	7.1	26,014	29.6
Aerospace	3,374	100.0	1,390	41.2	302	9.0	40	1.2	480	14.2	317	9.4	845	25.0
Chemical	6,218	100.0	3,654	58.8	683	11.0	114	1.8	746	12.0	244	3.9	777	12.5
Civil	13,074	100.0	4,354	33.3	1,041	8.0	148	1.1	2,141	16.4	746	5.7	4,644	35.5
Electrical	27,379	100.0	9,874	36.1	1,542	5.6	94	0.3	3,853	14.1	1,890	6.9	10,126	37.0
Industrial	6,421	100.0	1,586	24.7	417	6.5	54	0.8	964	15.0	749	11.7	2,651	41.3
Materials	4,627	100.0	2,849	61.6	547	11.8	29	0.6	460	9.9	147	3.2	595	12.9
Mechanical	12,666	100.0	5,638	44.5	986	7.8	95	0.8	2,245	17.7	698	5.5	3,004	23.7
Other	14,059	100.0	5,847	41.6	1,700	12.1	429	3.1	1,289	9.2	1,422	10.1	3,372	24.0
Science	331,197	100.0	79,582	24.0	29,471	8.9	13,568	4.1	63,733	19.2	24,251	7.3	120,592	36.4
Natural sciences	226,212	100.0	65,624	29.0	17,848	7.9	11,161	4.9	43,138	19.1	16,116	7.1	72,325	32.0
Agricultural sciences	9,478	100.0	5,367	56.6	555	5.9	50	0.5	1,191	12.6	495	5.2	1,820	19.2
Biological sciences	58,918	100.0	25,002	42.4	6,816	11.6	5,511	9.4	9,474	16.1	3,476	5.9	8,639	14.7
Earth, atmospheric, and ocean sciences	11,431	100.0	4,729	41.4	1,308	11.4	106	0.9	2,770	24.2	399	3.5	2,119	18.5
Atmospheric sciences	930	100.0	633	68.1	38	4.1	16	1.7	128	13.8	23	2.5	92	9.9
Earth sciences	5,497	100.0	2,089	38.0	650	11.8	42	0.8	1,838	33.4	152	2.8	726	13.2
Oceanography	2,231	100.0	1,177	52.8	341	15.3	16	0.7	312	14.0	68	3.0	317	14.2
Other geosciences	2,773	100.0	830	29.9	279	10.1	32	1.2	492	17.7	156	5.6	984	35.5
Mathematics/computer sciences	44,331	100.0	9,059	20.4	3,025	6.8	287	0.6	12,774	28.8	2,947	6.6	16,239	36.6
Computer sciences	28,760	100.0	7,252	25.2	1,490	5.2	186	0.6	4,558	15.8	2,222	7.7	13,052	45.4
Mathematics/statistics	15,571	100.0	1,807	11.6	1,535	9.9	101	0.6	8,216	52.8	725	4.7	3,187	20.5
Medical/other life sciences	69,213	100.0	7,563	10.9	3,030	4.4	4,770	6.9	4,349	6.3	7,916	11.4	41,585	60.1
Medical sciences	24,050	100.0	4,983	20.7	1,609	6.7	1,850	7.7	1,910	7.9	2,194	9.1	11,504	47.8
Other life sciences	45,163	100.0	2,580	5.7	1,421	3.1	2,920	6.5	2,439	5.4	5,722	12.7	30,081	66.6
Physical sciences	32,841	100.0	13,904	42.3	3,114	9.5	437	1.3	12,580	38.3	883	2.7	1,923	5.9
Astronomy	1,158	100.0	664	57.3	179	15.5	6	0.5	239	20.6	37	3.2	33	2.8
Chemistry	18,942	100.0	7,550	39.9	1,807	9.5	312	1.6	7,818	41.3	446	2.4	1,009	5.3
Physics	12,439	100.0	5,631	45.3	1,121	9.0	115	0.9	4,484	36.0	368	3.0	720	5.8
Other physical sciences	302	100.0	59	19.5	7	2.3	4	1.3	39	12.9	32	10.6	161	53.3
Social/behavioral sciences	104,985	100.0	13,958	13.3	11,623	11.1	2,407	2.3	20,595	19.6	8,135	7.7	48,267	46.0
Psychology	38,994	100.0	5,760	14.8	2,611	6.7	1,066	2.7	6,552	16.8	3,299	8.5	19,706	50.5
Social sciences	65,991	100.0	8,198	12.4	9,012	13.7	1,341	2.0	14,043	21.3	4,836	7.3	28,561	43.3
Anthropology	6,219	100.0	562	9.0	1,443	23.2	55	0.9	1,802	29.0	315	5.1	2,042	32.8
Economics	11,854	100.0	2,185	18.4	1,723	14.5	171	1.4	3,497	29.5	734	6.2	3,544	29.9
History of science	602	100.0	26	4.3	183	30.4	8	1.3	186	30.9	37	6.1	162	26.9
Linguistics	2,488	100.0	239	9.6	405	16.3	22	0.9	752	30.2	207	8.3	863	34.7
Political science/public administration	23,109	100.0	1,776	7.7	3,288	14.2	710	3.1	3,052	13.2	1,872	8.1	12,411	53.7
Sociology	7,261	100.0	1,118	15.4	911	12.5	256	3.5	2,529	34.8	495	6.8	1,952	26.9
Other social sciences	14,458	100.0	2,292	15.9	1,059	7.3	119	0.8	2,225	15.4	1,176	8.1	7,587	52.5

[a]Includes any loans (including federal) and support from personal or family financial contributions.

NOTE: Percents may not add to 100% because of rounding.

SOURCE: National Science Foundation, Division of Science Resources 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 2010

Appendix table 2-22

Full-time S&E graduate students primarily supported by federal government, by field and mechanism of primary support: 2006

(Percent)

Field	All mechanisms	Research assistantship	Fellowship	Traineeship	Teaching assistantship	Other
S&E	20.0	50.1	22.5	66.9	2.2	3.8
Engineering	24.3	48.5	25.0	52.7	2.2	5.0
Aerospace	34.3	58.0	32.8	25.0	1.5	20.2
Chemical	33.9	48.0	30.5	72.8	5.0	2.2
Civil	14.3	36.0	17.9	8.8	2.7	0.9
Electrical	21.9	54.2	18.3	61.7	1.6	1.9
Industrial	14.0	32.9	23.5	77.8	2.1	6.3
Materials	35.2	50.2	27.1	55.2	2.8	3.0
Mechanical	25.6	49.0	31.5	32.6	1.8	2.6
Other	31.4	49.4	28.0	64.3	2.9	15.4
Science	18.9	50.8	21.9	68.0	2.2	3.6
Natural sciences	24.5	56.3	28.1	75.6	2.5	4.5
Agricultural sciences	24.1	36.6	20.9	40.0	3.4	6.1
Biological sciences	37.7	58.4	28.4	74.9	4.2	9.5
Earth, atmospheric, and ocean sciences	29.0	56.3	31.0	52.8	3.1	4.2
Atmospheric sciences	52.8	72.8	28.9	87.5	3.1	0.9
Earth sciences	27.5	58.3	28.6	26.2	3.4	4.0
Oceanography	37.5	55.8	37.8	62.5	0.6	9.9
Other geosciences	17.2	39.6	28.7	65.6	3.5	2.7
Mathematics/computer sciences	15.3	55.0	27.0	47.0	1.1	3.7
Computer sciences	17.5	54.5	26.8	42.5	0.8	3.6
Mathematics/statistics	11.3	56.8	27.2	55.4	1.3	3.8
Medical/other life sciences	13.9	42.0	25.9	79.7	5.0	3.3
Medical sciences	21.3	49.9	30.6	79.8	3.6	4.3
Other life sciences	10.0	26.9	20.5	79.7	6.1	3.0
Physical sciences	34.2	68.8	30.7	68.2	1.7	7.9
Astronomy	45.4	67.5	27.9	100.0	1.7	25.7
Chemistry	31.3	66.2	28.1	73.1	1.6	5.3
Physics	38.2	72.8	35.1	52.2	1.8	11.7
Other physical sciences	10.6	37.3	57.1	100.0	5.1	0.0
Social/behavioral sciences	6.9	25.2	12.3	32.6	1.4	2.1
Psychology	9.1	32.2	25.7	47.8	1.3	1.9
Social sciences	5.5	20.3	8.4	20.5	1.5	2.2
Anthropology	6.6	20.1	13.8	47.3	1.5	2.0
Economics	6.7	24.4	7.1	21.6	1.0	1.5
History of science	3.5	0.0	7.7	37.5	0.0	2.0
Linguistics	6.3	33.9	8.4	18.2	0.1	3.4
Political science/public administration	3.5	8.6	5.2	10.4	2.8	2.3
Sociology	7.0	25.0	9.0	33.6	0.8	1.5
Other social sciences	6.5	22.2	12.5	37.8	1.8	2.4

SOURCE: National Science Foundation, Division of Science Resources 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 2010

Appendix table 2-23

Full-time S&E graduate students primarily supported by federal government, by agency: 1993–2006

Year	All federal		National Institutes of Health		Other Department of Health and Human Services		National Science Foundation		Department of Defense		Department of Agriculture		National Aeronautics and Space Administration		Department of Energy		Other agencies	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1993	67,673	100.0	18,135	26.8	3,888	5.7	13,530	20.0	9,750	14.4	3,324	4.9	NA	NA	NA	NA	19,046	28.1
1994	68,550	100.0	18,292	26.7	4,374	6.4	13,990	20.4	9,449	13.8	3,422	5.0	NA	NA	NA	NA	19,023	27.8
1995	67,294	100.0	18,109	26.9	4,666	6.9	13,661	20.3	9,339	13.9	3,254	4.8	NA	NA	NA	NA	18,265	27.1
1996	65,240	100.0	17,929	27.5	4,432	6.8	13,412	20.6	8,802	13.5	3,004	4.6	NA	NA	2,309	3.5	15,352	23.5
1997	64,522	100.0	18,087	28.0	4,443	6.9	13,362	20.7	9,021	14.0	2,646	4.1	NA	NA	2,586	4.0	14,377	22.3
1998	63,759	100.0	18,215	28.6	4,489	7.0	13,459	21.1	8,259	13.0	2,485	3.9	NA	NA	2,646	4.2	14,206	22.3
1999	65,796	100.0	19,019	28.9	4,423	6.7	13,835	21.0	8,026	12.2	2,634	4.0	2,749	4.2	2,579	3.9	12,531	19.0
2000	67,588	100.0	19,472	28.8	4,018	5.9	14,599	21.6	8,141	12.0	2,630	3.9	2,995	4.4	2,780	4.1	12,953	19.2
2001	68,843	100.0	19,904	28.9	4,433	6.4	15,429	22.4	7,960	11.6	2,735	4.0	3,116	4.5	2,819	4.1	12,447	18.1
2002	75,538	100.0	22,129	29.3	4,830	6.4	17,135	22.7	7,977	10.6	3,100	4.1	3,548	4.7	3,082	4.1	13,737	18.2
2003	81,761	100.0	24,309	29.7	4,922	6.0	19,308	23.6	9,204	11.3	3,468	4.2	4,024	4.9	3,230	4.0	13,296	16.3
2004	83,816	100.0	26,689	31.8	4,211	5.0	19,975	23.8	9,007	10.7	3,563	4.3	4,135	4.9	2,916	3.5	13,320	15.9
2005	83,723	100.0	26,868	32.1	3,912	4.7	20,387	24.4	8,993	10.7	3,351	4.0	4,392	5.2	2,691	3.2	13,129	15.7
2006	83,962	100.0	27,587	32.9	3,662	4.4	20,339	24.2	8,867	10.6	3,000	3.6	4,480	5.3	2,364	2.8	13,663	16.3

NA = not available

NOTES: S&E includes health fields (i.e., medical sciences and other life sciences). Percents may not add to 100% because of rounding. Data not reported until first year given.

SOURCE: National Science Foundation, Division of Science Resources 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 2010

Appendix table 2-24

Primary support mechanisms for S&E doctorate recipients, by citizenship, sex, and race/ethnicity: 2007

Support mechanism	All doctorate recipients	Temporary residents	Unknown citizenship	U.S. citizens and permanent residents						Other/unknown race/ethnicity
				Total	Male	Female	White	Asian	Underrepresented minority	
All mechanisms										
Number	33,826	12,755	2,408	18,663	9,793	8,869	14,178	1,822	2,361	302
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	11,666	6,842	98	4,726	2,830	1,896	3,670	586	400	70
Percent	34.5	53.6	4.1	25.3	28.9	21.4	25.9	32.2	16.9	23.2
Fellowships or traineeships										
Number	6,566	1,662	45	4,859	2,436	2,423	3,460	502	829	68
Percent	19.4	13.0	1.9	26.0	24.9	27.3	24.4	27.6	35.1	22.5
Teaching assistantships										
Number	4,907	2,305	35	2,567	1,394	1,173	2,091	212	222	42
Percent	14.5	18.1	1.5	13.8	14.2	13.2	14.7	11.6	9.4	13.9
Grant/stipend										
Number	2,089	446	12	1,631	856	775	1,268	166	184	13
Percent	6.2	3.5	0.5	8.7	8.7	8.7	8.9	9.1	7.8	4.3
Personal[b]										
Number	3,503	301	30	3,172	1,282	1,890	2,461	183	485	43
Percent	10.4	2.4	1.2	17.0	13.1	21.3	17.4	10.0	20.5	14.2
Other[c]										
Number	1,210	423	10	777	512	265	616	75	74	12
Percent	3.6	3.3	0.4	4.2	5.2	3.0	4.3	4.1	3.1	4.0
Unknown										
Number	3,885	776	2,178	931	483	447	612	98	167	54
Percent	11.5	6.1	90.4	5.0	4.9	5.0	4.3	5.4	7.1	17.9

[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.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-25

Amount of undergraduate and graduate debt of S&E doctorate recipients, by field: 2007

(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	41,894	53.6	10.6	8.8	6.6	4.6	3.8	2.7	2.7	6.7
S&E	29,785	56.5	10.5	8.9	6.4	4.2	3.3	2.3	2.3	5.6
Engineering	6,829	68.2	10.1	6.8	4.7	2.4	1.8	1.5	1.4	3.1
Sciences	22,956	53.0	10.7	9.6	6.9	4.7	3.7	2.6	2.6	6.3
Agricultural sciences	1,000	50.8	13.1	10.1	5.9	5.4	3.5	2.1	4.3	4.8
Biological sciences	6,577	54.8	10.9	10.7	7.7	5.0	3.3	2.3	1.9	3.4
Computer sciences	1,472	73.2	9.2	5.7	4.0	1.2	1.2	0.7	1.3	3.5
Earth, atmospheric, and ocean sciences	806	51.4	14.0	11.2	9.2	4.4	3.7	1.9	2.0	2.4
Mathematics	1,249	70.5	9.1	6.3	5.4	2.1	1.6	1.3	1.3	2.3
Medical/other health sciences	1,792	49.6	9.7	9.0	6.6	6.3	5.0	2.8	3.3	7.8
Physical sciences	3,640	60.4	11.8	10.1	6.0	3.5	2.3	1.7	1.5	2.7
Psychology	2,659	30.0	7.7	10.1	8.6	6.2	6.5	5.6	5.1	20.3
Social sciences	3,761	47.5	11.4	8.9	6.8	5.5	4.9	3.4	3.3	8.2
Non-S&E	12,109	46.7	10.7	8.4	7.0	5.5	5.0	3.6	3.6	9.6
Undergraduate debt										
All fields	42,679	73.8	8.0	7.6	4.8	2.7	1.6	0.8	0.5	0.4
S&E	30,270	73.4	8.1	8.1	5.0	2.6	1.5	0.7	0.4	0.3
Engineering	6,896	81.5	6.2	4.8	3.8	1.5	1.2	0.6	0.3	0.3
Sciences	23,374	71.0	8.6	9.1	5.4	2.9	1.6	0.7	0.4	0.3
Agricultural sciences	1,014	71.1	9.1	9.5	3.4	3.4	1.5	1.2	0.8	0.2
Biological sciences	6,647	67.7	8.7	10.7	6.7	3.4	1.4	0.8	0.4	0.3
Computer sciences	1,489	83.8	6.3	4.4	2.7	1.3	0.8	0.3	0.3	0.1
Earth, atmospheric, and ocean sciences	810	66.7	9.6	10.9	6.1	4.4	1.4	0.5	0.4	0.1
Mathematics	1,257	81.9	6.7	6.0	3.3	1.1	0.5	0.5	0.1	0.1
Medical/other health sciences	1,831	74.3	7.2	7.3	4.8	2.8	2.0	0.8	0.4	0.5
Physical sciences	3,672	71.4	9.3	9.4	5.2	2.2	1.5	0.5	0.4	0.1
Psychology	2,798	62.4	9.9	11.4	7.4	4.0	2.6	1.0	0.7	0.6
Social sciences	3,856	73.5	8.7	7.7	4.1	2.7	1.7	0.9	0.3	0.5
Non-S&E	12,409	74.8	7.8	6.3	4.2	2.9	1.9	0.9	0.7	0.5
Graduate debt										
All fields	42,226	65.9	8.5	5.8	4.2	3.5	2.9	2.2	2.3	4.6
S&E	29,965	69.8	8.3	5.3	3.6	3.0	2.4	1.8	1.9	3.7
Engineering	6,857	78.0	7.8	4.7	2.4	1.8	1.5	1.0	1.2	1.7
Sciences	23,108	67.4	8.5	5.5	4.0	3.4	2.7	2.1	2.2	4.3
Agricultural sciences	1,010	64.1	11.6	6.6	4.0	3.7	2.6	1.5	3.0	3.1
Biological sciences	6,604	73.8	8.0	5.1	3.7	2.9	1.9	1.4	1.3	1.8
Computer sciences	1,479	82.0	6.4	3.3	1.8	1.1	1.2	0.8	1.5	2.0
Earth, atmospheric, and ocean sciences	808	69.8	13.0	5.0	3.6	3.0	3.1	1.0	0.6	1.0
Mathematics	1,253	80.3	6.5	4.5	2.9	1.1	1.3	1.4	0.7	1.4
Medical/other health sciences	1,805	61.0	8.7	6.8	4.6	4.6	3.5	2.3	2.6	6.0
Physical sciences	3,660	76.7	8.9	4.6	2.5	2.5	1.5	1.1	0.8	1.4
Psychology	2,690	43.5	6.5	6.6	6.1	5.4	5.5	5.1	5.5	15.7
Social sciences	3,799	58.0	9.9	6.7	5.4	4.6	3.8	2.8	3.2	5.7
Non-S&E	12,261	56.3	8.9	7.1	5.7	4.6	4.2	3.1	3.3	6.7

NOTES: 5,400 doctorate recipients did not report undergraduate debt; 5,853 did not report graduate debt. Percents may not add to 100% because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-26

Earned master's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Both sexes														
All fields	370,973	389,008	399,428	408,110	421,292	432,311	460,142	471,329	485,535	516,098	562,862	578,964	599,365	610,469
S&E	86,425	91,411	94,309	94,889	93,474	93,786	96,230	99,528	99,650	108,355	119,296	120,870	120,999	120,278
Engineering	27,664	28,717	28,630	27,520	25,874	26,052	25,738	26,436	26,180	29,472	33,922	33,899	32,263	30,936
Aerospace	1,047	1,038	821	765	625	567	560	611	682	702	870	935	936	912
Chemical	1,220	1,287	1,369	1,416	1,345	1,372	1,352	1,368	1,267	1,364	1,506	1,506	1,432	1,230
Civil	4,438	4,918	5,168	5,002	4,880	4,710	4,140	4,010	3,945	4,188	4,445	4,631	4,493	4,184
Electrical	8,828	8,870	8,743	8,076	7,341	7,931	8,341	8,596	8,246	10,038	12,220	11,613	10,456	10,093
Industrial	2,745	2,882	2,873	2,931	2,935	3,109	3,048	3,375	3,375	3,842	4,247	3,937	3,558	3,505
Materials	849	910	852	771	724	698	759	706	624	717	800	790	765	787
Mechanical	4,169	4,277	4,368	4,005	3,756	3,551	3,378	3,471	3,516	3,802	4,555	4,739	4,542	4,365
Other	4,368	4,535	4,436	4,554	4,268	4,114	4,160	4,299	4,525	4,819	5,279	5,748	6,081	5,860
Science	58,761	62,694	65,679	67,369	67,600	67,734	70,492	73,092	73,470	78,883	85,374	86,971	88,736	89,342
Natural sciences	27,574	28,717	29,288	30,347	30,185	30,866	33,326	35,471	35,780	39,300	41,970	41,078	40,808	40,144
Agricultural sciences	3,272	3,410	3,574	3,922	3,927	3,862	3,858	3,752	4,019	3,955	4,221	4,171	4,100	4,126
Biological sciences	4,840	5,276	5,495	6,286	6,594	6,373	6,329	6,487	6,341	6,883	7,644	8,120	8,718	8,794
Earth, atmospheric, and ocean sciences	1,397	1,418	1,483	1,487	1,435	1,426	1,345	1,363	1,406	1,491	1,570	1,637	1,684	1,632
Atmospheric sciences	202	197	203	199	177	199	156	140	141	167	179	212	206	193
Earth sciences	1,052	1,073	1,142	1,146	1,145	1,105	1,104	1,121	1,151	1,203	1,248	1,314	1,350	1,312
Oceanography	143	148	138	142	113	122	85	102	114	121	143	111	128	127
Mathematics/computer sciences	14,100	14,350	14,495	14,288	14,088	15,265	18,281	20,132	20,389	23,311	24,505	23,086	22,028	21,349
Computer sciences	10,349	10,546	10,563	10,546	10,489	11,740	14,986	16,852	16,965	19,590	20,208	18,489	17,138	16,314
Mathematics/statistics	3,751	3,804	3,932	3,742	3,599	3,525	3,295	3,280	3,424	3,721	4,297	4,597	4,890	5,035
Physical sciences	3,965	4,263	4,241	4,364	4,141	3,940	3,513	3,737	3,625	3,660	4,030	4,064	4,278	4,243
Astronomy	135	129	119	115	93	101	102	93	112	123	150	159	146	152
Chemistry	1,853	2,010	2,105	2,273	2,268	2,173	1,909	2,009	1,867	1,830	2,056	1,912	2,097	2,144
Physics	1,781	1,952	1,826	1,686	1,497	1,372	1,244	1,376	1,353	1,453	1,637	1,794	1,853	1,792
Other physical sciences	196	172	191	290	283	294	258	259	293	254	187	199	182	155
Social/behavioral sciences	31,187	33,977	36,391	37,022	37,415	36,868	37,166	37,621	37,690	39,583	43,404	45,893	47,928	49,198
Psychology	10,412	11,572	13,132	13,031	13,628	13,136	13,806	14,449	14,204	14,885	15,700	16,478	17,302	18,594
Social sciences	20,775	22,405	23,259	23,991	23,787	23,732	23,360	23,172	23,486	24,698	27,704	29,415	30,626	30,604
Anthropology	927	989	1,053	1,051	1,111	1,098	950	1,092	1,017	1,043	1,098	1,107	1,156	1,214
Area/ethnic studies	1,501	1,597	1,584	1,657	1,581	1,550	1,511	1,511	1,473	1,427	1,616	1,662	2,017	1,641
Economics	2,725	2,989	2,838	2,964	2,804	2,843	2,515	2,492	2,651	2,951	3,201	3,504	3,330	3,351
History of science	9	16	13	10	18	22	24	26	35	25	25	29	41	28
Linguistics	610	650	603	601	642	568	553	552	520	525	574	611	621	583
Political science/public administration	11,310	12,041	12,802	13,370	13,368	13,151	13,038	12,937	13,200	14,135	15,780	17,421	18,073	18,525
Sociology	1,564	1,675	1,790	1,822	1,752	1,774	2,036	1,901	1,957	1,929	2,031	1,518	1,577	1,575
Other social sciences	2,129	2,448	2,576	2,516	2,511	2,726	2,733	2,661	2,633	2,663	3,379	3,563	3,811	3,687
Non-S&E	284,548	297,597	305,119	313,221	327,818	338,525	363,912	371,801	385,885	407,743	443,566	458,094	478,366	490,191

Appendix table 2-26

Earned master's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Male														
All fields	169,753	176,762	179,198	179,688	181,598	185,100	192,821	195,277	200,199	212,513	230,786	234,829	239,418	239,892
S&E	55,454	57,970	58,518	57,512	55,219	55,219	54,560	55,884	55,939	61,183	67,215	67,244	66,249	65,353
Engineering	23,570	24,294	23,998	22,800	21,179	20,894	20,396	20,819	20,617	23,301	26,774	26,287	24,784	23,957
Aerospace	941	938	722	673	550	487	484	521	557	596	721	771	781	742
Chemical	996	1,008	1,063	1,110	1,013	1,028	1,008	1,016	932	1,021	1,089	1,081	1,046	854
Civil	3,607	3,965	4,123	3,938	3,781	3,559	3,065	2,951	2,883	3,041	3,234	3,309	3,147	2,969
Electrical	7,777	7,721	7,539	6,887	6,197	6,556	6,781	6,921	6,685	8,136	9,822	9,133	8,243	8,079
Industrial	2,190	2,346	2,361	2,323	2,331	2,433	2,400	2,591	2,583	2,999	3,341	3,018	2,640	2,628
Materials	682	723	668	597	550	528	558	534	456	536	601	586	565	578
Mechanical	3,769	3,860	3,918	3,551	3,337	3,090	2,923	3,023	3,048	3,343	3,992	4,140	3,909	3,782
Other	3,608	3,733	3,604	3,721	3,420	3,213	3,177	3,262	3,473	3,629	3,974	4,249	4,453	4,325
Science	31,884	33,676	34,520	34,712	34,040	34,325	34,164	35,065	35,322	37,882	40,441	40,957	41,465	41,396
Natural sciences	17,954	18,667	18,860	19,093	18,684	18,990	19,765	20,934	21,097	23,356	24,768	24,417	24,457	23,946
Agricultural sciences	2,007	2,019	2,103	2,237	2,232	2,153	2,039	1,915	2,022	1,896	1,965	1,951	1,947	1,859
Biological sciences	2,374	2,496	2,637	2,945	3,076	3,015	2,816	2,732	2,668	2,864	3,160	3,233	3,612	3,541
Earth, atmospheric, and ocean sciences	1,006	994	1,032	1,051	948	932	832	799	834	879	869	927	923	891
Atmospheric sciences	161	150	152	164	135	147	119	100	95	112	112	143	135	124
Earth sciences	756	745	789	799	752	708	670	649	678	702	682	737	738	713
Oceanography	89	99	91	88	61	77	43	50	61	65	75	47	50	54
Mathematics/computer sciences	9,773	10,128	10,130	9,946	9,620	10,386	11,780	13,052	13,274	15,375	16,257	15,766	15,323	14,975
Computer sciences	7,554	7,817	7,777	7,710	7,510	8,331	9,983	11,161	11,325	13,335	13,910	13,180	12,520	12,038
Mathematics/statistics	2,219	2,311	2,353	2,236	2,110	2,055	1,797	1,891	1,949	2,040	2,347	2,586	2,803	2,937
Physical sciences	2,794	3,030	2,958	2,914	2,808	2,504	2,298	2,436	2,299	2,342	2,517	2,540	2,652	2,680
Astronomy	106	98	88	88	61	71	77	57	85	81	97	97	80	93
Chemistry	1,110	1,183	1,220	1,275	1,341	1,175	1,086	1,184	1,015	1,001	1,106	973	1,073	1,139
Physics	1,463	1,655	1,535	1,385	1,242	1,121	1,000	1,090	1,067	1,140	1,224	1,372	1,414	1,375
Other physical sciences	115	94	115	166	164	137	135	105	132	120	90	98	85	73
Social/behavioral sciences	13,930	15,009	15,660	15,619	15,356	15,335	14,399	14,131	14,225	14,526	15,673	16,540	17,008	17,450
Psychology	2,928	3,287	3,735	3,666	3,715	3,602	3,443	3,510	3,426	3,478	3,465	3,560	3,665	3,915
Social sciences	11,002	11,722	11,925	11,953	11,641	11,733	10,956	10,621	10,799	11,048	12,208	12,980	13,343	13,535
Anthropology	393	379	385	420	399	412	363	403	375	388	377	370	395	375
Area/ethnic studies	740	778	766	801	738	708	643	619	608	554	656	687	794	644
Economics	1,909	2,030	1,944	1,962	1,851	1,899	1,563	1,519	1,601	1,790	1,949	2,113	2,011	2,045
History of science	5	9	9	6	11	15	18	16	18	15	11	17	30	10
Linguistics	218	232	187	208	224	179	146	172	160	145	164	178	171	175
Political science/public administration	6,069	6,417	6,678	6,716	6,677	6,585	6,317	6,094	6,213	6,399	6,947	7,614	7,850	8,209
Sociology	604	652	678	642	610	656	649	643	642	633	673	485	467	485
Other social sciences	1,064	1,225	1,278	1,198	1,131	1,279	1,257	1,155	1,182	1,124	1,431	1,516	1,625	1,592
Non-S&E	114,299	118,792	120,680	122,176	126,379	129,881	138,261	139,393	144,260	151,330	163,571	167,585	173,169	174,539

Appendix table 2-26

Earned master's degrees, by sex and field: 1993–2007

Sex/field	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Female														
All fields	201,220	212,246	220,230	228,422	239,694	247,211	267,321	276,052	285,336	303,585	332,076	344,135	359,947	370,577
S&E	30,971	33,441	35,791	37,377	38,255	38,567	41,670	43,644	43,711	47,172	52,081	53,626	54,750	54,925
Engineering	4,094	4,423	4,632	4,720	4,695	5,158	5,342	5,617	5,563	6,171	7,148	7,612	7,479	6,979
Aerospace	106	100	99	92	75	80	76	90	125	106	149	164	155	170
Chemical	224	279	306	306	332	344	344	352	335	343	417	425	386	376
Civil	831	953	1,045	1,064	1,099	1,151	1,075	1,059	1,062	1,147	1,211	1,322	1,346	1,215
Electrical	1,051	1,149	1,204	1,189	1,144	1,375	1,560	1,675	1,561	1,902	2,398	2,480	2,213	2,014
Industrial	555	536	512	608	604	676	648	784	792	843	906	919	918	877
Materials	167	187	184	174	174	170	201	172	168	181	199	204	200	209
Mechanical	400	417	450	454	419	461	455	448	468	459	563	599	633	583
Other	760	802	832	833	848	901	983	1,037	1,052	1,190	1,305	1,499	1,628	1,535
Science	26,877	29,018	31,159	32,657	33,560	33,409	36,328	38,027	38,148	41,001	44,933	46,014	47,271	47,946
Natural sciences	9,620	10,050	10,428	11,254	11,501	11,876	13,561	14,537	14,683	15,944	17,202	16,661	16,351	16,198
Agricultural sciences	1,265	1,391	1,471	1,685	1,695	1,709	1,819	1,837	1,997	2,059	2,256	2,220	2,153	2,267
Biological sciences	2,466	2,780	2,858	3,341	3,518	3,358	3,513	3,755	3,673	4,019	4,484	4,887	5,106	5,253
Earth, atmospheric, and ocean sciences	391	424	451	436	487	494	513	564	572	612	701	710	761	741
Atmospheric sciences	41	47	51	35	42	52	37	40	46	55	67	69	71	69
Earth sciences	296	328	353	347	393	397	434	472	473	501	566	577	612	599
Oceanography	54	49	47	54	52	45	42	52	53	56	68	64	78	73
Mathematics/computer sciences	4,327	4,222	4,365	4,342	4,468	4,879	6,501	7,080	7,115	7,936	8,248	7,320	6,705	6,374
Computer sciences	2,795	2,729	2,786	2,836	2,979	3,409	5,003	5,691	5,640	6,255	6,298	5,309	4,618	4,276
Mathematics/statistics	1,532	1,493	1,579	1,506	1,489	1,470	1,498	1,389	1,475	1,681	1,950	2,011	2,087	2,098
Physical sciences	1,171	1,233	1,283	1,450	1,333	1,436	1,215	1,301	1,326	1,318	1,513	1,524	1,626	1,563
Astronomy	29	31	31	27	32	30	25	36	27	42	53	62	66	59
Chemistry	743	827	885	998	927	998	823	825	852	829	950	939	1,024	1,005
Physics	318	297	291	301	255	251	244	286	286	313	413	422	439	417
Other physical sciences	81	78	76	124	119	157	123	154	161	134	97	101	97	82
Social/behavioral sciences	17,257	18,968	20,731	21,403	22,059	21,533	22,767	23,490	23,465	25,057	27,731	29,353	30,920	31,748
Psychology	7,484	8,285	9,397	9,365	9,913	9,534	10,363	10,939	10,778	11,407	12,235	12,918	13,637	14,679
Social sciences	9,773	10,683	11,334	12,038	12,146	11,999	12,404	12,551	12,687	13,650	15,496	16,435	17,283	17,069
Anthropology	534	610	668	631	712	686	587	689	642	655	721	737	761	839
Area/ethnic studies	761	819	818	856	843	842	868	892	865	873	960	975	1,223	997
Economics	816	959	894	1,002	953	944	952	973	1,050	1,161	1,252	1,391	1,319	1,306
History of science	4	7	4	4	7	7	6	10	17	10	14	12	11	18
Linguistics	392	418	416	393	418	389	407	380	360	380	410	433	450	408
Political science/public administration	5,241	5,624	6,124	6,654	6,691	6,566	6,721	6,843	6,987	7,736	8,833	9,807	10,223	10,316
Sociology	960	1,023	1,112	1,180	1,142	1,118	1,387	1,258	1,315	1,296	1,358	1,033	1,110	1,090
Other social sciences	1,065	1,223	1,298	1,318	1,380	1,447	1,476	1,506	1,451	1,539	1,948	2,047	2,186	2,095
Non-S&E	170,249	178,805	184,439	191,045	201,439	208,644	225,651	232,408	241,625	256,413	279,995	290,509	305,197	315,652

NOTES: Data not available for 1999. Data from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
All citizenships and races/ethnicities												
All fields	399,428	408,110	421,292	432,311	460,142	471,329	485,535	516,098	562,862	578,964	599,365	610,469
S&E	94,309	94,889	93,474	93,786	96,230	99,528	99,650	108,355	119,296	120,870	120,999	120,278
Engineering	28,630	27,520	25,874	26,052	25,738	26,436	26,180	29,472	33,922	33,899	32,263	30,936
Aerospace	821	765	625	567	560	611	682	702	870	935	936	912
Chemical	1,369	1,416	1,345	1,372	1,352	1,368	1,267	1,364	1,506	1,506	1,432	1,230
Civil	5,168	5,002	4,880	4,710	4,140	4,010	3,945	4,188	4,445	4,631	4,493	4,184
Electrical	8,743	8,076	7,341	7,931	8,341	8,596	8,246	10,038	12,220	11,613	10,456	10,093
Industrial	2,873	2,931	2,935	3,109	3,048	3,375	3,375	3,842	4,247	3,937	3,558	3,505
Materials	852	771	724	698	759	706	624	717	800	790	765	787
Mechanical	4,368	4,005	3,756	3,551	3,378	3,471	3,516	3,802	4,555	4,739	4,542	4,365
Other	4,436	4,554	4,268	4,114	4,160	4,299	4,525	4,819	5,279	5,748	6,081	5,860
Science	65,679	67,369	67,600	67,734	70,492	73,092	73,470	78,883	85,374	86,971	88,736	89,342
Natural sciences	29,288	30,347	30,185	30,866	33,326	35,471	35,780	39,300	41,970	41,078	40,808	40,144
Agricultural sciences	3,574	3,922	3,927	3,862	3,858	3,752	4,019	3,955	4,221	4,171	4,100	4,126
Biological sciences	5,495	6,286	6,594	6,373	6,329	6,487	6,341	6,883	7,644	8,120	8,718	8,794
Earth, atmospheric, and ocean sciences	1,483	1,487	1,435	1,426	1,345	1,363	1,406	1,491	1,570	1,637	1,684	1,632
Atmospheric sciences	203	199	177	199	156	140	141	167	179	212	206	193
Earth sciences	1,142	1,146	1,145	1,105	1,104	1,121	1,151	1,203	1,248	1,314	1,350	1,312
Oceanography	138	142	113	122	85	102	114	121	143	111	128	127
Mathematics/computer sciences	14,495	14,288	14,088	15,265	18,281	20,132	20,389	23,311	24,505	23,086	22,028	21,349
Computer sciences	10,563	10,546	10,489	11,740	14,986	16,852	16,965	19,590	20,208	18,489	17,138	16,314
Mathematics/statistics	3,932	3,742	3,599	3,525	3,295	3,280	3,424	3,721	4,297	4,597	4,890	5,035
Physical sciences	4,241	4,364	4,141	3,940	3,513	3,737	3,625	3,660	4,030	4,064	4,278	4,243
Astronomy	119	115	93	101	102	93	112	123	150	159	146	152
Chemistry	2,105	2,273	2,268	2,173	1,909	2,009	1,867	1,830	2,056	1,912	2,097	2,144
Physics	1,826	1,686	1,497	1,372	1,244	1,376	1,353	1,453	1,637	1,794	1,853	1,792
Other physical sciences	191	290	283	294	258	259	293	254	187	199	182	155
Social/behavioral sciences	36,391	37,022	37,415	36,868	37,166	37,621	37,690	39,583	43,404	45,893	47,928	49,198
Psychology	13,132	13,031	13,628	13,136	13,806	14,449	14,204	14,885	15,700	16,478	17,302	18,594
Social sciences	23,259	23,991	23,787	23,732	23,360	23,172	23,486	24,698	27,704	29,415	30,626	30,604
Anthropology	1,053	1,051	1,111	1,098	950	1,092	1,017	1,043	1,098	1,107	1,156	1,214
Area/ethnic studies	1,584	1,657	1,581	1,550	1,511	1,511	1,473	1,427	1,616	1,662	2,017	1,641
Economics	2,838	2,964	2,804	2,843	2,515	2,492	2,651	2,951	3,201	3,504	3,330	3,351
History of science	13	10	18	22	24	26	35	25	25	29	41	28
Linguistics	603	601	642	568	553	552	520	525	574	611	621	583
Political science/public administration	12,802	13,370	13,368	13,151	13,038	12,937	13,200	14,135	15,780	17,421	18,073	18,525
Sociology	1,790	1,822	1,752	1,774	2,036	1,901	1,957	1,929	2,031	1,518	1,577	1,575
Other social sciences	2,576	2,516	2,511	2,726	2,733	2,661	2,633	2,663	3,379	3,563	3,811	3,687
Non-S&E	305,119	313,221	327,818	338,525	363,912	371,801	385,885	407,743	443,566	458,094	478,366	490,191

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
U.S. citizen/permanent resident												
All fields	350,672	360,189	371,737	379,924	404,158	409,897	421,846	444,498	487,965	505,724	527,585	542,133
S&E	72,092	73,276	72,210	71,163	71,415	72,085	72,074	75,952	83,835	87,402	90,157	91,595
Engineering	18,931	18,553	17,238	16,894	15,914	15,434	15,380	16,125	18,282	19,034	18,972	19,276
Aerospace	615	568	441	357	339	360	395	417	579	645	683	731
Chemical	685	820	748	780	721	726	662	656	704	739	734	691
Civil	3,712	3,664	3,664	3,521	3,048	2,777	2,591	2,684	2,782	3,080	3,070	2,968
Electrical	5,375	4,925	4,265	4,414	4,232	3,924	4,004	4,362	5,303	5,214	4,970	5,068
Industrial	1,874	1,958	1,872	2,004	1,872	1,966	1,945	2,077	2,271	2,178	2,102	2,165
Materials	535	498	472	447	483	406	380	378	417	451	431	456
Mechanical	2,939	2,806	2,602	2,423	2,212	2,221	2,213	2,214	2,630	2,827	2,818	2,841
Other	3,196	3,314	3,174	2,948	3,007	3,054	3,190	3,337	3,596	3,900	4,164	4,356
Science	53,161	54,723	54,972	54,269	55,501	56,651	56,694	59,827	65,553	68,368	71,185	72,319
Natural sciences	20,986	22,069	21,994	22,047	22,990	23,725	24,102	25,722	27,903	28,378	28,828	28,599
Agricultural sciences	2,921	3,268	3,269	3,264	3,342	3,281	3,540	3,440	3,575	3,575	3,539	3,587
Biological sciences	4,610	5,295	5,671	5,473	5,579	5,614	5,536	5,882	6,530	6,910	7,430	7,468
Earth, atmospheric, and ocean sciences	1,198	1,238	1,198	1,218	1,150	1,191	1,207	1,285	1,312	1,390	1,431	1,416
Atmospheric sciences	151	163	143	152	118	116	113	128	135	166	161	158
Earth sciences	938	962	959	972	962	987	1,001	1,046	1,058	1,132	1,162	1,156
Oceanography	109	113	96	94	70	88	93	111	119	92	108	102
Mathematics/computer sciences	9,483	9,389	9,122	9,441	10,546	11,141	11,382	12,632	13,824	13,795	13,573	13,293
Computer sciences	6,667	6,677	6,516	6,942	8,362	9,091	9,252	10,423	11,312	10,975	10,489	10,027
Mathematics/statistics	2,816	2,712	2,606	2,499	2,184	2,050	2,130	2,209	2,512	2,820	3,084	3,266
Physical sciences	2,774	2,879	2,734	2,651	2,373	2,498	2,437	2,483	2,662	2,708	2,855	2,835
Astronomy	94	94	74	82	80	65	77	94	102	122	117	114
Chemistry	1,366	1,468	1,501	1,446	1,310	1,388	1,261	1,297	1,384	1,289	1,396	1,432
Physics	1,144	1,082	938	853	761	808	829	851	1,010	1,121	1,175	1,148
Other physical sciences	170	235	221	270	222	237	270	241	166	176	167	141
Social/behavioral sciences	32,175	32,654	32,978	32,222	32,511	32,926	32,592	34,105	37,650	39,990	42,357	43,720
Psychology	12,659	12,607	13,227	12,676	13,336	13,981	13,719	14,201	15,081	15,827	16,672	17,931
Social sciences	19,516	20,047	19,751	19,546	19,175	18,945	18,873	19,904	22,569	24,163	25,685	25,789
Anthropology	958	956	1,020	1,012	864	1,004	918	960	993	1,034	1,064	1,109
Area/ethnic studies	1,401	1,489	1,391	1,340	1,282	1,283	1,249	1,201	1,363	1,426	1,756	1,439
Economics	1,561	1,620	1,456	1,440	1,209	1,172	1,191	1,337	1,493	1,774	1,778	1,827
History of science	13	10	16	16	22	21	33	18	22	23	32	26
Linguistics	412	430	473	420	380	394	351	353	398	422	450	404
Political science/public administration	11,217	11,580	11,517	11,220	11,114	10,954	11,053	11,913	13,415	14,926	15,735	16,235
Sociology	1,614	1,647	1,580	1,622	1,845	1,744	1,766	1,744	1,832	1,349	1,409	1,411
Other social sciences	2,340	2,315	2,298	2,476	2,459	2,373	2,312	2,378	3,053	3,209	3,461	3,338
Non-S&E	278,580	286,913	299,527	308,761	332,743	337,812	349,772	368,546	404,130	418,322	437,428	450,538

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
White												
All fields	277,437	282,357	288,578	292,110	299,781	296,202	299,441	309,126	330,212	342,100	352,593	355,075
S&E	54,610	55,069	53,765	52,214	50,130	48,920	48,583	50,191	54,729	56,535	58,127	58,408
Engineering	13,831	13,414	12,492	12,014	11,020	10,391	10,337	10,615	11,763	12,198	12,084	11,949
Aerospace	451	420	345	282	284	277	310	327	444	490	506	534
Chemical	494	605	541	537	501	487	435	431	455	452	481	435
Civil	2,913	2,849	2,842	2,757	2,337	2,128	1,930	1,994	2,089	2,245	2,277	2,126
Electrical	3,473	3,113	2,737	2,676	2,474	2,216	2,287	2,401	2,815	2,785	2,609	2,580
Industrial	1,342	1,414	1,360	1,406	1,238	1,266	1,247	1,298	1,364	1,226	1,207	1,218
Materials	447	394	350	356	373	293	282	280	304	314	305	328
Mechanical	2,237	2,119	1,967	1,815	1,630	1,557	1,583	1,605	1,840	2,042	1,968	1,997
Other	2,474	2,500	2,350	2,185	2,183	2,167	2,263	2,279	2,452	2,644	2,731	2,731
Science	40,779	41,655	41,273	40,200	39,110	38,529	38,246	39,576	42,966	44,337	46,043	46,459
Natural sciences	15,836	16,704	16,486	16,309	16,154	15,989	16,270	16,947	18,313	18,794	19,270	18,851
Agricultural sciences	2,447	2,842	2,809	2,827	2,864	2,782	2,951	2,898	2,953	2,930	2,880	2,886
Biological sciences	3,642	4,131	4,395	4,217	4,183	4,124	4,088	4,291	4,617	4,876	5,248	5,073
Earth, atmospheric, and ocean sciences	1,019	1,074	1,084	1,106	1,036	1,043	1,065	1,125	1,144	1,197	1,217	1,232
Atmospheric sciences	133	148	128	133	111	99	98	117	120	149	141	140
Earth sciences	819	853	873	889	861	876	890	914	921	963	982	1,006
Oceanography	67	73	83	84	64	68	77	94	103	85	94	86
Mathematics/computer sciences	6,576	6,407	6,110	6,158	6,296	6,166	6,383	6,808	7,576	7,800	7,830	7,650
Computer sciences	4,354	4,324	4,105	4,263	4,641	4,651	4,828	5,185	5,781	5,818	5,715	5,463
Mathematics/statistics	2,222	2,083	2,005	1,895	1,655	1,515	1,555	1,623	1,795	1,982	2,115	2,187
Physical sciences	2,152	2,250	2,088	2,001	1,775	1,874	1,783	1,825	2,023	1,991	2,095	2,010
Astronomy	77	79	67	73	65	47	59	67	76	98	97	91
Chemistry	1,007	1,099	1,068	1,028	930	992	877	905	1,012	886	963	977
Physics	924	866	755	674	585	627	613	642	790	851	883	820
Other physical sciences	144	206	198	226	195	208	234	211	145	156	152	122
Social/behavioral sciences	24,943	24,951	24,787	23,891	22,956	22,540	21,976	22,629	24,653	25,543	26,773	27,608
Psychology	10,367	10,061	10,440	9,808	9,721	9,885	9,452	9,694	10,175	10,410	11,048	11,646
Social sciences	14,576	14,890	14,347	14,083	13,235	12,655	12,524	12,935	14,478	15,133	15,725	15,962
Anthropology	774	789	862	839	686	800	705	743	770	779	786	811
Area/ethnic studies	947	999	992	958	890	792	763	691	838	809	938	825
Economics	1,161	1,205	1,047	1,067	839	840	827	828	927	1,097	1,077	1,161
History of science	11	9	12	16	20	18	23	13	17	20	29	20
Linguistics	317	340	364	319	295	284	270	258	290	300	298	282
Political science/public administration	8,320	8,551	8,185	7,820	7,429	7,013	7,066	7,518	8,361	9,107	9,406	9,723
Sociology	1,165	1,160	1,130	1,165	1,254	1,178	1,183	1,177	1,202	858	906	912
Other social sciences	1,881	1,837	1,755	1,899	1,822	1,730	1,687	1,707	2,073	2,163	2,285	2,228
Non-S&E	222,827	227,288	234,813	239,896	249,651	247,282	250,858	258,935	275,483	285,565	294,466	296,667

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Asian/Pacific Islander												
All fields	15,906	17,216	17,935	20,003	21,720	22,309	23,134	24,616	27,526	29,378	30,362	32,056
S&E	5,989	6,286	6,180	6,555	7,032	7,056	6,839	7,601	8,642	8,891	8,731	9,088
Engineering	2,572	2,594	2,319	2,452	2,380	2,399	2,190	2,431	3,016	3,094	3,186	3,355
Aerospace	44	47	42	35	26	37	29	39	51	55	64	74
Chemical	100	98	87	123	114	120	96	96	135	106	110	103
Civil	369	381	386	329	283	220	203	240	254	298	277	306
Electrical	1,117	1,088	911	1,083	1,062	1,014	915	1,047	1,435	1,381	1,333	1,444
Industrial	221	183	153	180	192	210	189	273	284	332	319	313
Materials	42	50	62	50	54	55	43	52	53	64	63	65
Mechanical	344	328	293	278	265	358	315	262	347	324	360	343
Other	335	419	385	374	384	385	400	422	457	534	660	707
Science	3,417	3,692	3,861	4,103	4,652	4,657	4,649	5,170	5,626	5,797	5,545	5,733
Natural sciences	2,305	2,430	2,546	2,747	3,199	3,164	3,165	3,530	3,760	3,748	3,406	3,526
Agricultural sciences	97	99	103	83	94	97	126	99	111	111	84	128
Biological sciences	426	528	575	591	595	540	537	646	762	795	820	883
Earth, atmospheric, and ocean sciences	50	37	30	30	22	28	37	28	39	31	30	25
Atmospheric sciences	6	6	4	11	4	5	7	4	5	4	5	5
Earth sciences	37	28	19	15	17	17	25	18	28	26	23	16
Oceanography	7	3	7	4	1	6	5	6	6	1	2	4
Mathematics/computer sciences	1,494	1,499	1,560	1,795	2,248	2,279	2,252	2,526	2,652	2,568	2,252	2,211
Computer sciences	1,266	1,279	1,322	1,579	2,068	2,074	2,038	2,305	2,377	2,244	1,856	1,754
Mathematics/statistics	228	220	238	216	180	205	214	221	275	324	396	457
Physical sciences	238	267	278	248	240	220	213	231	196	243	220	279
Astronomy	8	7	2	4	5	5	4	7	6	7	2	4
Chemistry	136	180	197	172	172	153	125	157	128	154	137	177
Physics	91	77	73	60	53	56	66	57	60	74	78	94
Other physical sciences	3	3	6	12	10	6	18	10	2	8	3	4
Social/behavioral sciences	1,112	1,262	1,315	1,356	1,453	1,493	1,484	1,640	1,866	2,049	2,139	2,207
Psychology	289	322	364	379	473	503	530	531	593	597	651	733
Social sciences	823	940	951	977	980	990	954	1,109	1,273	1,452	1,488	1,474
Anthropology	25	27	25	36	39	39	34	42	43	44	39	51
Area/ethnic studies	75	86	91	83	78	101	90	97	93	111	126	110
Economics	138	144	155	127	132	113	119	156	157	185	207	191
History of science	0	0	0	0	0	0	2	2	3	1	1	1
Linguistics	47	41	37	41	42	43	26	32	37	41	43	32
Political science/public administration	405	500	478	534	516	534	512	601	717	855	862	880
Sociology	74	65	69	72	66	70	86	95	106	78	71	62
Other social sciences	59	77	96	84	107	90	85	84	117	137	139	147
Non-S&E	9,917	10,930	11,755	13,448	14,688	15,253	16,295	17,015	18,884	20,487	21,631	22,968

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Black												
All fields	22,954	24,530	26,942	28,646	33,589	35,426	36,936	40,090	45,183	49,109	52,844	55,624
S&E	4,210	4,404	4,870	4,896	5,563	6,174	6,230	6,919	7,511	7,764	8,011	8,371
Engineering	665	664	674	714	658	699	735	823	853	869	883	926
Aerospace	13	10	9	7	7	10	14	7	11	19	22	26
Chemical	28	33	35	43	34	34	31	43	31	56	37	39
Civil	105	116	109	127	93	102	101	96	76	100	88	106
Electrical	228	190	168	198	183	188	189	226	238	230	226	251
Industrial	80	106	89	111	90	119	141	158	170	152	171	152
Materials	12	9	18	13	15	9	19	14	21	19	12	9
Mechanical	91	85	110	96	91	89	71	78	85	81	86	85
Other	108	115	136	119	145	148	169	201	221	212	241	258
Science	3,545	3,740	4,196	4,182	4,905	5,475	5,495	6,096	6,658	6,895	7,128	7,445
Natural sciences	897	980	1,041	998	1,179	1,382	1,374	1,606	1,678	1,602	1,691	1,753
Agricultural sciences	74	85	96	95	84	96	88	103	102	85	96	113
Biological sciences	163	199	236	190	223	313	288	298	385	377	406	438
Earth, atmospheric, and ocean sciences	15	11	12	15	7	21	18	18	22	17	30	23
Atmospheric sciences	2	0	2	2	0	4	2	2	3	3	7	3
Earth sciences	13	9	10	13	6	15	15	13	16	13	21	18
Oceanography	0	2	0	0	1	2	1	3	3	1	2	2
Mathematics/computer sciences	513	580	565	567	748	822	859	1,075	1,049	1,022	1,007	1,056
Computer sciences	373	435	411	425	650	709	746	977	934	887	853	898
Mathematics/statistics	140	145	154	142	98	113	113	98	115	135	154	158
Physical sciences	132	105	132	131	117	130	121	112	120	101	152	123
Astronomy	4	1	2	0	0	0	2	1	1	2	3	0
Chemistry	77	65	84	79	65	82	74	76	87	55	93	74
Physics	41	32	39	34	44	41	37	32	27	39	51	43
Other physical sciences	10	7	7	18	8	7	8	3	5	5	5	6
Social/behavioral sciences	2,648	2,760	3,155	3,184	3,726	4,093	4,121	4,490	4,980	5,293	5,437	5,692
Psychology	802	869	1,059	1,021	1,347	1,601	1,643	1,829	1,942	2,142	1,996	2,253
Social sciences	1,846	1,891	2,096	2,163	2,379	2,492	2,478	2,661	3,038	3,151	3,441	3,439
Anthropology	38	28	29	26	33	37	32	33	31	30	32	41
Area/ethnic studies	101	98	109	104	91	86	108	121	127	135	136	142
Economics	95	96	96	94	71	66	76	67	70	96	100	101
History of science	1	0	1	0	0	1	2	0	0	0	1	2
Linguistics	12	7	12	12	4	14	5	7	3	9	13	14
Political science/public administration	1,176	1,198	1,386	1,453	1,585	1,754	1,718	1,861	2,057	2,243	2,451	2,490
Sociology	229	261	247	220	344	294	285	274	301	205	201	190
Other social sciences	194	203	216	254	251	240	252	298	449	433	507	459
Non-S&E	18,744	20,126	22,072	23,750	28,026	29,252	30,706	33,171	37,672	41,345	44,833	47,253

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Hispanic												
All fields	13,905	15,372	16,355	17,432	20,911	22,450	23,356	25,517	29,905	32,435	34,081	36,456
S&E	2,945	3,075	3,214	3,464	3,762	4,113	4,106	4,384	5,111	5,380	5,681	6,041
Engineering	711	741	765	807	852	835	853	862	1,130	1,145	1,094	1,220
Aerospace	22	10	20	16	13	11	19	13	21	38	26	38
Chemical	30	43	51	46	39	40	45	39	40	41	49	43
Civil	151	147	159	158	180	167	187	152	163	208	185	199
Electrical	197	204	187	190	211	172	179	238	340	274	281	294
Industrial	95	128	108	150	172	191	205	162	229	239	212	238
Materials	11	21	22	15	15	21	15	6	16	26	17	21
Mechanical	100	98	113	117	99	93	87	116	157	151	153	171
Other	105	90	105	115	123	140	116	136	164	168	171	216
Science	2,234	2,334	2,449	2,657	2,910	3,278	3,253	3,522	3,981	4,235	4,587	4,821
Natural sciences	674	685	732	761	935	1,124	1,050	1,252	1,392	1,362	1,459	1,451
Agricultural sciences	96	90	105	116	133	123	175	132	171	185	196	176
Biological sciences	167	194	214	192	268	310	267	268	330	362	373	418
Earth, atmospheric, and ocean sciences	34	27	23	20	30	28	35	28	36	47	51	42
Atmospheric sciences	6	1	3	2	2	0	1	2	2	3	2	5
Earth sciences	28	25	18	17	26	25	31	24	32	43	47	33
Oceanography	0	1	2	1	2	3	3	2	2	1	2	4
Mathematics/computer sciences	282	274	274	304	408	544	437	680	728	628	671	670
Computer sciences	210	186	211	219	308	472	355	572	615	498	506	491
Mathematics/statistics	72	88	63	85	100	72	82	108	113	130	165	179
Physical sciences	95	100	116	129	96	119	136	144	127	140	168	145
Astronomy	2	4	2	0	2	1	2	2	3	2	6	3
Chemistry	51	46	72	84	56	74	72	90	70	84	107	79
Physics	37	39	36	35	34	37	56	41	44	49	54	60
Other physical sciences	5	11	6	10	4	7	6	11	10	5	1	3
Social/behavioral sciences	1,560	1,649	1,717	1,896	1,975	2,154	2,203	2,270	2,589	2,873	3,128	3,370
Psychology	622	666	718	789	842	946	962	974	1,102	1,222	1,331	1,466
Social sciences	938	983	999	1,107	1,133	1,208	1,241	1,296	1,487	1,651	1,797	1,904
Anthropology	45	35	37	48	37	45	59	48	58	62	60	67
Area/ethnic studies	88	102	85	96	97	111	109	119	116	132	174	144
Economics	53	64	71	63	67	53	57	79	80	111	100	86
History of science	0	0	1	0	0	1	0	1	0	0	0	1
Linguistics	17	23	24	27	18	27	19	23	26	26	42	37
Political science/public administration	573	593	634	651	702	736	743	802	909	1,026	1,070	1,248
Sociology	85	87	69	97	110	116	140	117	139	111	126	112
Other social sciences	77	79	78	125	102	119	114	107	159	183	225	209
Non-S&E	10,960	12,297	13,141	13,968	17,149	18,337	19,250	21,133	24,794	27,055	28,400	30,415

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
American Indian/Alaska Native												
All fields	1,542	1,692	1,844	1,951	2,109	2,293	2,410	2,574	2,857	2,969	3,142	3,178
S&E	307	321	370	371	383	476	421	457	540	501	568	552
Engineering	43	56	53	54	64	60	56	69	85	82	87	73
Aerospace	2	5	2	0	0	2	4	2	6	2	8	5
Chemical	3	4	5	1	3	4	2	2	0	4	2	7
Civil	10	9	10	14	14	10	11	13	16	13	17	15
Electrical	10	15	8	9	14	10	13	18	10	20	17	5
Industrial	5	3	6	7	8	15	8	8	19	18	9	13
Materials	1	2	0	0	4	1	2	1	1	1	1	0
Mechanical	7	11	10	13	7	7	6	9	21	6	11	12
Other	5	7	12	10	14	11	10	16	12	18	22	16
Science	264	265	317	317	319	416	365	388	455	419	481	479
Natural sciences	79	72	98	91	108	147	119	126	136	134	168	141
Agricultural sciences	13	14	18	23	23	18	25	24	23	27	35	34
Biological sciences	20	17	25	21	26	29	34	31	33	29	46	32
Earth, atmospheric, and ocean sciences	4	5	5	10	9	11	4	9	7	11	4	9
Atmospheric sciences	0	0	0	0	0	0	0	0	0	1	0	1
Earth sciences	4	4	5	8	9	8	4	9	7	10	4	8
Oceanography	0	1	0	2	0	3	0	0	0	0	0	0
Mathematics/computer sciences	27	31	39	24	41	80	41	50	65	56	69	54
Computer sciences	16	26	25	15	32	71	33	42	58	47	58	40
Mathematics/statistics	11	5	14	9	9	9	8	8	7	9	11	14
Physical sciences	15	5	11	13	9	9	15	12	8	11	14	12
Astronomy	0	0	0	0	0	0	0	1	0	1	0	0
Chemistry	11	3	8	12	5	7	11	5	3	6	9	8
Physics	4	2	2	1	3	2	4	5	5	3	3	3
Other physical sciences	0	0	1	0	1	0	0	1	0	1	2	1
Social/behavioral sciences	185	193	219	226	211	269	246	262	319	285	313	338
Psychology	81	78	97	108	69	107	97	109	112	118	118	114
Social sciences	104	115	122	118	142	162	149	153	207	167	195	224
Anthropology	16	12	10	14	14	17	12	11	19	14	21	25
Area/ethnic studies	10	22	21	15	16	20	20	33	27	27	28	25
Economics	5	3	8	5	3	7	10	6	6	10	3	12
History of science	0	0	0	0	0	1	1	0	0	0	0	0
Linguistics	0	2	2	2	1	1	4	1	2	6	2	2
Political science/public administration	46	48	55	49	62	70	74	78	118	90	107	134
Sociology	14	20	16	19	30	28	17	17	17	7	10	9
Other social sciences	13	8	10	14	16	18	11	7	18	13	24	17
Non-S&E	1,235	1,371	1,474	1,580	1,726	1,817	1,989	2,117	2,317	2,468	2,574	2,626

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Other/unknown race/ethnicity												
All fields	18,928	19,022	20,083	19,782	26,048	31,217	36,569	42,575	52,282	49,733	54,563	59,744
S&E	4,031	4,121	3,811	3,663	4,545	5,346	5,895	6,400	7,302	8,331	9,039	9,135
Engineering	1,109	1,084	935	853	940	1,050	1,209	1,325	1,435	1,646	1,638	1,753
Aerospace	83	76	23	17	9	23	19	29	46	41	57	54
Chemical	30	37	29	30	30	41	53	45	43	80	55	64
Civil	164	162	158	136	141	150	159	189	184	216	226	216
Electrical	350	315	254	258	288	324	421	432	465	524	504	494
Industrial	131	124	156	150	172	165	155	178	205	211	184	231
Materials	22	22	20	13	22	27	19	25	22	27	33	33
Mechanical	160	165	109	104	120	117	151	144	180	223	240	233
Other	169	183	186	145	158	203	232	283	290	324	339	428
Science	2,922	3,037	2,876	2,810	3,605	4,296	4,686	5,075	5,867	6,685	7,401	7,382
Natural sciences	1,195	1,198	1,091	1,141	1,415	1,919	2,124	2,261	2,624	2,738	2,834	2,877
Agricultural sciences	194	138	138	120	144	165	175	184	215	237	248	250
Biological sciences	192	226	226	262	284	298	322	348	403	471	537	624
Earth, atmospheric, and ocean sciences	76	84	44	37	46	60	48	77	64	87	99	85
Atmospheric sciences	4	8	6	4	1	8	5	3	5	6	6	4
Earth sciences	37	43	34	30	43	46	36	68	54	77	85	75
Oceanography	35	33	4	3	2	6	7	6	5	4	8	6
Mathematics/computer sciences	591	598	574	593	805	1,250	1,410	1,493	1,754	1,721	1,744	1,652
Computer sciences	448	427	442	441	663	1,114	1,252	1,342	1,547	1,481	1,501	1,381
Mathematics/statistics	143	171	132	152	142	136	158	151	207	240	243	271
Physical sciences	142	152	109	129	136	146	169	159	188	222	206	266
Astronomy	3	3	1	5	8	12	10	16	16	12	9	16
Chemistry	84	75	72	71	82	80	102	64	84	104	87	117
Physics	47	66	33	49	42	45	53	74	84	105	106	128
Other physical sciences	8	8	3	4	4	9	4	5	4	1	4	5
Social/behavioral sciences	1,727	1,839	1,785	1,669	2,190	2,377	2,562	2,814	3,243	3,947	4,567	4,505
Psychology	498	611	549	571	884	939	1,035	1,064	1,157	1,338	1,528	1,719
Social sciences	1,229	1,228	1,236	1,098	1,306	1,438	1,527	1,750	2,086	2,609	3,039	2,786
Anthropology	60	65	57	49	55	66	76	83	72	105	126	114
Area/ethnic studies	180	182	93	84	110	173	159	140	162	212	354	193
Economics	109	108	79	84	97	93	102	201	253	275	291	276
History of science	1	1	2	0	2	0	5	2	2	2	1	2
Linguistics	19	17	34	19	20	25	27	32	40	40	52	37
Political science/public administration	697	690	779	713	820	847	940	1,053	1,253	1,605	1,839	1,760
Sociology	47	54	49	49	41	58	55	64	67	90	95	126
Other social sciences	116	111	143	100	161	176	163	175	237	280	281	278
Non-S&E	14,897	14,901	16,272	16,119	21,503	25,871	30,674	36,175	44,980	41,402	45,524	50,609

Appendix table 2-27

Earned master's degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Temporary resident												
All fields	48,756	47,921	49,555	52,387	55,984	61,432	63,689	71,600	74,897	73,240	71,780	68,336
S&E	22,217	21,613	21,264	22,623	24,815	27,443	27,576	32,403	35,461	33,468	30,842	28,683
Engineering	9,699	8,967	8,636	9,158	9,824	11,002	10,800	13,347	15,640	14,865	13,291	11,660
Aerospace	206	197	184	210	221	251	287	285	291	290	253	181
Chemical	684	596	597	592	631	642	605	708	802	767	698	539
Civil	1,456	1,338	1,216	1,189	1,092	1,233	1,354	1,504	1,663	1,551	1,423	1,216
Electrical	3,368	3,151	3,076	3,517	4,109	4,672	4,242	5,676	6,917	6,399	5,486	5,025
Industrial	999	973	1,063	1,105	1,176	1,409	1,430	1,765	1,976	1,759	1,456	1,340
Materials	317	273	252	251	276	300	244	339	383	339	334	331
Mechanical	1,429	1,199	1,154	1,128	1,166	1,250	1,303	1,588	1,925	1,912	1,724	1,524
Other	1,240	1,240	1,094	1,166	1,153	1,245	1,335	1,482	1,683	1,848	1,917	1,504
Science	12,518	12,646	12,628	13,465	14,991	16,441	16,776	19,056	19,821	18,603	17,551	17,023
Natural sciences	8,302	8,278	8,191	8,819	10,336	11,746	11,678	13,578	14,067	12,700	11,980	11,545
Agricultural sciences	653	654	658	598	516	471	479	515	646	596	561	539
Biological sciences	885	991	923	900	750	873	805	1,001	1,114	1,210	1,288	1,326
Earth, atmospheric, and ocean sciences	285	249	237	208	195	172	199	206	258	247	253	216
Atmospheric sciences	52	36	34	47	38	24	28	39	44	46	45	35
Earth sciences	204	184	186	133	142	134	150	157	190	182	188	156
Oceanography	29	29	17	28	15	14	21	10	24	19	20	25
Mathematics/computer sciences	5,012	4,899	4,966	5,824	7,735	8,991	9,007	10,679	10,681	9,291	8,455	8,056
Computer sciences	3,896	3,869	3,973	4,798	6,624	7,761	7,713	9,167	8,896	7,514	6,649	6,287
Mathematics/statistics	1,116	1,030	993	1,026	1,111	1,230	1,294	1,512	1,785	1,777	1,806	1,769
Physical sciences	1,467	1,485	1,407	1,289	1,140	1,239	1,188	1,177	1,368	1,356	1,423	1,408
Astronomy	25	21	19	19	22	28	35	29	48	37	29	38
Chemistry	739	805	767	727	599	621	606	533	672	623	701	712
Physics	682	604	559	519	483	568	524	602	627	673	678	644
Other physical sciences	21	55	62	24	36	22	23	13	21	23	15	14
Social/behavioral sciences	4,216	4,368	4,437	4,646	4,655	4,695	5,098	5,478	5,754	5,903	5,571	5,478
Psychology	473	424	401	460	470	468	485	684	619	651	630	663
Social sciences	3,743	3,944	4,036	4,186	4,185	4,227	4,613	4,794	5,135	5,252	4,941	4,815
Anthropology	95	95	91	86	86	88	99	83	105	73	92	105
Area/ethnic studies	183	168	190	210	229	228	224	226	253	236	261	202
Economics	1,277	1,344	1,348	1,403	1,306	1,320	1,460	1,614	1,708	1,730	1,552	1,524
History of science	0	0	2	6	2	5	2	7	3	6	9	2
Linguistics	191	171	169	148	173	158	169	172	176	189	171	179
Political science/public administration	1,585	1,790	1,851	1,931	1,924	1,983	2,147	2,222	2,365	2,495	2,338	2,290
Sociology	176	175	172	152	191	157	191	185	199	169	168	164
Other social sciences	236	201	213	250	274	288	321	285	326	354	350	349
Non-S&E	26,539	26,308	28,291	29,764	31,169	33,989	36,113	39,197	39,436	39,772	40,938	39,653

NOTES: Data not available for 1999. Detailed field not collected by citizenship or race/ethnicity prior to 1995. Racial/ethnic breakouts for U.S. citizens and permanent residents only; temporary resident includes all racial/ethnic groups. Data from 1996 to 2007 based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match previously published data based on accredited higher education institutions.

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

Science and Engineering Indicators 2010

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
All citizenships														
Both sexes														
All fields	42,206	43,261	44,513	44,734	45,974	46,114	44,947	45,068	44,311	46,177	48,560	52,855	56,309	60,887
S&E	26,298	27,090	27,808	28,193	28,915	29,019	27,862	28,096	27,588	28,746	30,979	34,468	37,541	40,980
Engineering	5,823	5,964	6,112	6,371	6,202	5,985	5,384	5,561	5,196	5,282	5,931	6,548	7,402	8,066
Aerospace	203	220	229	260	254	223	203	202	193	178	190	205	209	234
Chemical	678	671	651	756	721	730	665	680	693	608	708	872	911	915
Civil	617	698	674	696	713	699	628	647	669	685	736	830	864	935
Electrical	1,536	1,593	1,683	1,716	1,636	1,601	1,515	1,527	1,361	1,402	1,634	1,782	2,124	2,380
Industrial	291	280	329	318	303	272	218	262	275	258	280	286	302	364
Materials	513	545	579	559	587	542	454	454	381	457	494	514	611	663
Mechanical	969	979	965	1,017	985	993	821	906	813	786	835	963	1,139	1,138
Other	1,016	978	1,002	1,049	1,003	925	880	883	811	908	1,054	1,096	1,242	1,437
Science	20,475	21,126	21,696	21,822	22,713	23,034	22,478	22,535	22,392	23,464	25,048	27,920	30,139	32,914
Natural sciences	13,382	13,962	14,175	14,380	14,831	14,993	14,296	14,084	14,385	15,340	16,773	19,329	21,563	24,052
Agricultural sciences	966	1,057	1,024	1,020	1,011	1,064	984	934	969	1,060	1,016	1,004	1,037	1,068
Biological sciences	4,486	4,583	4,712	4,850	4,894	5,043	4,992	4,750	4,596	5,212	5,491	5,925	6,138	6,703
Earth, atmospheric, and ocean sciences	691	668	622	652	655	667	579	542	562	544	540	572	600	727
Atmospheric sciences	65	91	83	97	91	79	87	70	68	78	77	96	95	87
Earth sciences	514	500	460	450	462	508	393	380	404	368	369	379	430	513
Oceanography	112	77	79	105	102	80	99	92	90	98	94	97	75	127
Mathematics/computer sciences	1,951	1,940	2,069	2,030	1,995	2,082	1,858	1,769	1,677	1,825	1,975	2,301	2,713	2,953
Computer sciences	805	810	884	867	857	858	777	768	750	816	910	1,121	1,416	1,597
Mathematics/statistics	1,146	1,130	1,185	1,163	1,138	1,224	1,081	1,001	927	1,009	1,065	1,180	1,297	1,356
Medical/other life sciences	1,599	1,742	1,887	1,911	2,458	2,236	2,439	2,643	3,334	3,321	4,406	5,907	7,089	8,392
Medical sciences	671	793	855	830	882	780	893	864	882	850	1,010	1,144	1,252	1,293
Other life sciences	928	949	1,032	1,081	1,576	1,456	1,546	1,779	2,452	2,471	3,396	4,763	5,837	7,099
Physical sciences	3,689	3,972	3,861	3,917	3,818	3,901	3,444	3,446	3,247	3,378	3,345	3,620	3,986	4,209
Astronomy	98	100	112	125	99	117	101	103	70	101	101	115	114	128
Chemistry	2,264	2,360	2,280	2,294	2,265	2,345	2,090	2,134	2,037	2,158	2,105	2,226	2,502	2,606
Physics	1,277	1,465	1,424	1,462	1,410	1,393	1,208	1,169	1,096	1,089	1,119	1,254	1,341	1,442
Other physical sciences	50	47	45	36	44	46	45	40	44	30	20	25	29	33
Social/behavioral sciences	7,093	7,164	7,521	7,442	7,882	8,041	8,182	8,451	8,007	8,124	8,275	8,591	8,576	8,862
Psychology	3,580	3,511	3,757	3,652	3,988	4,015	4,200	4,538	4,185	4,258	4,389	4,681	4,484	4,696
Social sciences	3,513	3,653	3,764	3,790	3,894	4,026	3,982	3,913	3,822	3,866	3,886	3,910	4,092	4,166
Anthropology	370	404	388	406	450	489	471	428	508	487	537	459	480	519
Area/ethnic studies	178	150	175	184	177	178	212	216	209	176	204	184	220	226
Economics	1,023	1,035	1,079	1,109	1,105	1,106	1,001	1,016	961	967	978	1,111	1,057	1,107
History of science	12	9	11	7	12	18	23	21	20	27	20	28	34	27
Linguistics	182	189	194	192	204	205	202	193	152	201	194	172	216	219
Political science/public administration	830	956	972	943	972	1,018	1,019	1,047	992	1,055	1,001	1,049	1,098	1,093
Sociology	549	542	555	531	601	604	602	550	547	598	564	534	574	573
Other social sciences	369	368	390	418	373	408	452	442	433	355	388	373	413	402
Non-S&E	15,908	16,171	16,705	16,541	17,059	17,095	17,085	16,972	16,723	17,431	17,581	18,387	18,768	19,907

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Male														
All fields	26,098	26,577	26,937	26,876	27,181	26,690	25,064	24,781	23,760	24,398	25,359	27,039	28,702	30,336
S&E	17,915	18,366	18,552	18,734	18,748	18,413	17,024	16,873	16,164	16,569	17,532	18,970	20,254	21,653
Engineering	5,265	5,300	5,385	5,572	5,439	5,252	4,549	4,640	4,300	4,373	4,884	5,326	5,918	6,381
Aerospace	197	209	217	238	238	207	179	179	174	154	170	178	184	204
Chemical	590	567	549	618	603	597	529	518	527	459	530	667	667	682
Civil	564	617	590	612	618	591	513	520	541	549	576	630	667	685
Electrical	1,403	1,440	1,505	1,537	1,480	1,455	1,328	1,330	1,213	1,230	1,418	1,530	1,826	2,004
Industrial	257	239	271	249	255	226	175	209	200	188	228	221	220	260
Materials	435	465	486	478	483	472	371	363	307	359	403	392	456	494
Mechanical	913	912	905	945	896	912	732	816	715	698	736	847	988	991
Other	906	851	862	895	866	792	722	705	623	736	823	861	910	1,061
Science	12,650	13,066	13,167	13,162	13,309	13,161	12,475	12,233	11,864	12,196	12,648	13,644	14,336	15,272
Natural sciences	9,071	9,429	9,444	9,548	9,605	9,507	8,833	8,553	8,398	8,748	9,119	10,142	10,889	11,860
Agricultural sciences	720	798	782	741	731	746	663	601	637	672	640	642	612	630
Biological sciences	2,693	2,716	2,809	2,815	2,783	2,890	2,790	2,655	2,557	2,826	2,948	3,014	3,125	3,419
Earth, atmospheric, and ocean sciences	564	536	488	509	508	495	413	386	385	376	360	375	382	441
Atmospheric sciences	55	74	69	80	73	59	70	55	47	57	54	67	62	54
Earth sciences	424	404	360	357	356	379	273	270	284	264	245	256	282	318
Oceanography	85	58	59	72	79	57	70	61	54	55	61	52	38	69
Mathematics/computer sciences	1,561	1,569	1,644	1,665	1,585	1,627	1,453	1,351	1,238	1,382	1,473	1,749	2,022	2,219
Computer sciences	689	685	723	741	721	718	646	632	579	648	709	907	1,109	1,269
Mathematics/statistics	872	884	921	924	864	909	807	719	659	734	764	842	913	950
Medical/other life sciences	675	716	782	814	1,065	832	930	1,027	1,223	1,046	1,266	1,734	1,931	2,224
Medical sciences	371	410	429	445	455	367	419	393	431	393	419	466	500	510
Other life sciences	304	306	353	369	610	465	511	634	792	653	847	1,268	1,431	1,714
Physical sciences	2,858	3,094	2,939	3,004	2,933	2,917	2,584	2,533	2,358	2,446	2,432	2,628	2,817	2,927
Astronomy	81	83	89	98	79	91	76	83	56	73	69	77	74	85
Chemistry	1,625	1,696	1,567	1,604	1,601	1,592	1,426	1,415	1,346	1,451	1,411	1,456	1,609	1,642
Physics	1,107	1,285	1,251	1,276	1,223	1,203	1,050	1,002	926	899	940	1,072	1,107	1,177
Other physical sciences	45	30	32	26	30	31	32	33	30	23	12	23	27	23
Social/behavioral sciences	3,579	3,637	3,723	3,614	3,704	3,654	3,642	3,680	3,466	3,448	3,529	3,502	3,447	3,412
Psychology	1,398	1,317	1,404	1,251	1,335	1,304	1,370	1,440	1,348	1,327	1,356	1,348	1,236	1,282
Social sciences	2,181	2,320	2,319	2,363	2,369	2,350	2,272	2,240	2,118	2,121	2,173	2,154	2,211	2,130
Anthropology	143	187	163	187	198	221	205	181	209	190	244	198	208	199
Area/ethnic studies	90	75	80	94	95	95	106	86	107	67	97	81	98	95
Economics	784	803	813	860	844	804	733	724	690	687	689	772	733	749
History of science	10	5	7	4	7	10	16	18	16	13	11	17	17	13
Linguistics	84	86	101	98	91	89	86	84	63	79	78	60	85	89
Political science/public administration	577	664	670	628	673	640	636	683	573	646	620	609	642	577
Sociology	280	270	265	251	269	267	248	229	215	245	226	205	206	211
Other social sciences	213	230	220	241	192	224	242	235	245	194	208	212	222	197
Non-S&E	8,183	8,211	8,385	8,142	8,433	8,277	8,040	7,908	7,596	7,829	7,827	8,069	8,448	8,683

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Female														
All fields	16,108	16,684	17,576	17,858	18,793	19,424	19,883	20,287	20,551	21,779	23,201	25,816	27,607	30,551
S&E	8,383	8,724	9,256	9,459	10,167	10,606	10,838	11,223	11,424	12,177	13,447	15,498	17,287	19,327
Engineering	558	664	727	799	763	733	835	921	896	909	1,047	1,222	1,484	1,685
Aerospace	6	11	12	22	16	16	24	23	19	24	20	27	25	30
Chemical	88	104	102	138	118	133	136	162	166	149	178	205	244	233
Civil	53	81	84	84	95	108	115	127	128	136	160	200	197	250
Electrical	133	153	178	179	156	146	187	197	148	172	216	252	298	376
Industrial	34	41	58	69	48	46	43	53	75	70	52	65	82	104
Materials	78	80	93	81	104	70	83	91	74	98	91	122	155	169
Mechanical	56	67	60	72	89	81	89	90	98	88	99	116	151	147
Other	110	127	140	154	137	133	158	178	188	172	231	235	332	376
Science	7,825	8,060	8,529	8,660	9,404	9,873	10,003	10,302	10,528	11,268	12,400	14,276	15,803	17,642
Natural sciences	4,311	4,533	4,731	4,832	5,226	5,486	5,463	5,531	5,987	6,592	7,654	9,187	10,674	12,192
Agricultural sciences	246	259	242	279	280	318	321	333	332	388	376	362	425	438
Biological sciences	1,793	1,867	1,903	2,035	2,111	2,153	2,202	2,095	2,039	2,386	2,543	2,911	3,013	3,284
Earth, atmospheric, and ocean sciences	127	132	134	143	147	172	166	156	177	168	180	197	218	286
Atmospheric sciences	10	17	14	17	18	20	17	15	21	21	23	29	33	33
Earth sciences	90	96	100	93	106	129	120	110	120	104	124	123	148	195
Oceanography	27	19	20	33	23	23	29	31	36	43	33	45	37	58
Mathematics/computer sciences	390	371	425	365	410	455	405	418	439	443	502	552	691	734
Computer sciences	116	125	161	126	136	140	131	136	171	168	201	214	307	328
Mathematics/statistics	274	246	264	239	274	315	274	282	268	275	301	338	384	406
Medical/other life sciences	924	1,026	1,105	1,097	1,393	1,404	1,509	1,616	2,111	2,275	3,140	4,173	5,158	6,168
Medical sciences	300	383	426	385	427	413	474	471	451	457	591	678	752	783
Other life sciences	624	643	679	712	966	991	1,035	1,145	1,660	1,818	2,549	3,495	4,406	5,385
Physical sciences	831	878	922	913	885	984	860	913	889	932	913	992	1,169	1,282
Astronomy	17	17	23	27	20	26	25	20	14	28	32	38	40	43
Chemistry	639	664	713	690	664	753	664	719	691	707	694	770	893	964
Physics	170	180	173	186	187	190	158	167	170	190	179	182	234	265
Other physical sciences	5	17	13	10	14	15	13	7	14	7	8	2	2	10
Social/behavioral sciences	3,514	3,527	3,798	3,828	4,178	4,387	4,540	4,771	4,541	4,676	4,746	5,089	5,129	5,450
Psychology	2,182	2,194	2,353	2,401	2,653	2,711	2,830	3,098	2,837	2,931	3,033	3,333	3,248	3,414
Social sciences	1,332	1,333	1,445	1,427	1,525	1,676	1,710	1,673	1,704	1,745	1,713	1,756	1,881	2,036
Anthropology	227	217	225	219	252	268	266	247	299	297	293	261	272	320
Area/ethnic studies	88	75	95	90	82	83	106	130	102	109	107	103	122	131
Economics	239	232	266	249	261	302	268	292	271	280	289	339	324	358
History of science	2	4	4	3	5	8	7	3	4	14	9	11	17	14
Linguistics	98	103	93	94	113	116	116	109	89	122	116	112	131	130
Political science/public administration	253	292	302	315	299	378	383	364	419	409	381	440	456	516
Sociology	269	272	290	280	332	337	354	321	332	353	338	329	368	362
Other social sciences	156	138	170	177	181	184	210	207	188	161	180	161	191	205
Non-S&E	7,725	7,960	8,320	8,399	8,626	8,818	9,045	9,064	9,127	9,602	9,754	10,318	10,320	11,224

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
U.S. citizen/permanent resident														
All fields	30,749	31,731	33,383	33,284	34,521	34,774	34,113	34,105	33,382	34,551	35,807	38,512	40,334	43,888
S&E	17,705	18,411	19,086	19,058	19,811	19,929	19,401	19,382	19,110	19,731	21,136	23,113	24,816	27,283
Engineering	2,686	2,789	3,111	3,253	3,196	3,058	2,656	2,562	2,261	2,237	2,347	2,452	2,714	2,994
Aerospace	NA	NA	135	154	151	144	125	101	77	72	73	91	80	108
Chemical	NA	NA	321	361	361	351	364	357	354	295	340	360	423	373
Civil	NA	NA	292	281	323	323	319	300	273	283	257	296	296	359
Electrical	NA	NA	876	898	866	806	641	587	506	478	531	567	560	645
Industrial	NA	NA	155	156	145	133	104	109	115	93	119	107	117	129
Materials	NA	NA	311	289	306	285	240	217	172	198	205	191	242	286
Mechanical	NA	NA	465	532	482	502	384	414	335	336	307	338	388	376
Other	2,686	2,789	556	582	562	514	479	477	429	482	515	502	608	718
Science	15,019	15,622	15,975	15,805	16,615	16,871	16,745	16,820	16,849	17,494	18,789	20,661	22,102	24,289
Natural sciences	8,880	9,406	9,754	9,671	9,974	10,152	9,779	9,682	10,048	10,765	11,872	13,661	15,139	17,116
Agricultural sciences	548	588	594	568	575	579	553	544	549	626	601	611	640	643
Biological sciences	3,234	3,297	3,538	3,550	3,542	3,680	3,724	3,579	3,443	3,901	4,118	4,330	4,377	4,713
Earth, atmospheric, and ocean sciences	NA	NA	439	446	452	464	409	362	368	376	356	360	389	481
Atmospheric sciences	NA	NA	53	62	61	51	57	40	43	46	45	54	45	48
Earth sciences	NA	NA	334	316	325	353	280	258	266	259	245	244	296	347
Oceanography	NA	NA	52	68	66	60	72	64	59	71	66	62	48	86
Mathematics/computer sciences	1,010	1,044	1,162	1,112	1,085	1,159	990	920	848	926	963	1,040	1,134	1,325
Computer sciences	453	448	508	472	488	489	402	395	410	413	455	500	551	680
Mathematics/statistics	557	596	654	640	597	670	588	525	438	513	508	540	583	645
Medical/other life sciences	1,366	1,489	1,450	1,467	1,867	1,783	1,955	2,121	2,796	2,876	3,865	5,284	6,416	7,688
Medical sciences	1,366	1,489	590	576	592	536	615	582	568	577	655	735	816	862
Other life sciences	NA	NA	860	891	1,275	1,247	1,340	1,539	2,228	2,299	3,210	4,549	5,600	6,826
Physical sciences	2,722	2,988	2,571	2,528	2,453	2,487	2,148	2,156	2,044	2,060	1,969	2,036	2,183	2,266
Astronomy	NA	NA	80	88	76	83	76	78	53	79	75	73	73	89
Chemistry	NA	NA	1,563	1,512	1,489	1,534	1,336	1,383	1,355	1,374	1,321	1,366	1,461	1,464
Physics	NA	NA	904	903	861	835	708	677	604	591	562	585	635	696
Other physical sciences	2,722	2,988	24	25	27	35	28	18	32	16	11	12	14	17
Social/behavioral sciences	6,139	6,216	6,221	6,134	6,641	6,719	6,966	7,138	6,801	6,729	6,917	7,000	6,963	7,173
Psychology	3,503	3,431	3,579	3,461	3,835	3,832	4,042	4,381	4,042	4,059	4,191	4,452	4,230	4,450
Social sciences	2,636	2,785	2,642	2,673	2,806	2,887	2,924	2,757	2,759	2,670	2,726	2,548	2,733	2,723
Anthropology	NA	NA	336	337	371	412	409	356	430	420	466	392	425	433
Area/ethnic studies	144	129	148	156	159	148	180	180	180	149	168	154	187	202
Economics	NA	NA	555	558	542	537	474	422	419	377	396	368	371	369
History of science	NA	NA	10	7	12	16	18	20	16	24	14	21	28	16
Linguistics	NA	NA	115	95	124	121	105	100	84	102	105	95	114	123
Political science/public administration	NA	NA	752	756	812	835	856	859	821	827	809	806	827	811
Sociology	NA	NA	417	425	481	476	510	473	474	492	460	436	466	459
Other social sciences	2,492	2,656	309	339	305	342	372	347	335	279	308	276	315	310
Non-S&E	13,044	13,320	14,297	14,226	14,710	14,845	14,712	14,723	14,272	14,820	14,671	15,399	15,518	16,605

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Male														
All fields	17,162	17,713	18,428	18,160	18,646	18,376	17,408	17,061	16,263	16,501	16,767	17,391	18,294	19,321
S&E	10,867	11,289	11,594	11,514	11,662	11,497	10,712	10,457	10,024	10,097	10,487	10,925	11,496	12,285
Engineering	2,347	2,385	2,612	2,745	2,705	2,630	2,160	2,079	1,810	1,807	1,854	1,941	2,108	2,317
Aerospace	NA	NA	124	141	138	130	108	85	67	63	64	81	69	92
Chemical	NA	NA	245	273	285	281	275	271	267	225	245	277	306	279
Civil	NA	NA	241	239	260	259	248	224	206	204	178	200	211	268
Electrical	NA	NA	760	780	764	721	557	524	449	418	457	477	497	555
Industrial	NA	NA	122	116	113	104	81	77	76	66	90	79	73	88
Materials	NA	NA	238	237	241	246	186	170	128	155	169	141	176	212
Mechanical	NA	NA	425	482	432	459	330	372	298	297	258	296	329	319
Other	2,347	2,385	457	477	472	430	375	356	319	379	393	390	447	504
Science	8,520	8,904	8,982	8,769	8,957	8,867	8,552	8,378	8,214	8,290	8,633	8,984	9,388	9,968
Natural sciences	5,650	6,007	6,172	6,076	6,121	6,083	5,693	5,554	5,508	5,683	5,912	6,466	6,879	7,485
Agricultural sciences	403	423	444	396	404	369	359	334	344	388	367	376	381	365
Biological sciences	1,885	1,888	2,062	2,008	1,956	2,073	2,021	1,963	1,893	2,068	2,189	2,185	2,237	2,386
Earth, atmospheric, and ocean sciences	NA	NA	334	334	334	335	289	243	233	249	226	234	241	276
Atmospheric sciences	NA	NA	46	50	51	41	46	34	32	32	32	42	32	30
Earth sciences	NA	NA	251	241	236	255	195	171	168	181	152	161	185	204
Oceanography	NA	NA	37	43	47	39	48	38	33	36	42	31	24	42
Mathematics/computer sciences	769	816	896	891	821	865	752	691	617	687	700	785	853	987
Computer sciences	364	366	394	394	398	391	329	311	308	323	345	397	421	535
Mathematics/statistics	405	450	502	497	423	474	423	380	309	364	355	388	432	452
Medical/other life sciences	490	553	513	543	731	599	687	766	955	830	1,016	1,460	1,639	1,918
Medical sciences	490	553	249	272	272	233	261	239	245	241	235	269	286	281
Other life sciences	NA	NA	264	271	459	366	426	527	710	589	781	1,191	1,353	1,637
Physical sciences	2,103	2,327	1,923	1,904	1,875	1,842	1,585	1,557	1,466	1,461	1,414	1,426	1,528	1,553
Astronomy	NA	NA	62	66	61	66	56	62	43	58	50	45	47	58
Chemistry	NA	NA	1,048	1,038	1,053	1,031	885	905	892	911	889	871	943	912
Physics	NA	NA	796	783	744	721	626	576	510	480	469	499	526	573
Other physical sciences	2,103	2,327	17	17	17	24	18	14	21	12	6	11	12	10
Social/behavioral sciences	2,870	2,897	2,810	2,693	2,836	2,784	2,859	2,824	2,706	2,607	2,721	2,518	2,509	2,483
Psychology	1,345	1,278	1,312	1,167	1,266	1,231	1,296	1,369	1,293	1,255	1,293	1,274	1,147	1,215
Social sciences	1,525	1,619	1,498	1,526	1,570	1,553	1,563	1,455	1,413	1,352	1,428	1,244	1,362	1,268
Anthropology	NA	NA	139	149	157	178	167	144	175	160	218	157	180	166
Area/ethnic studies	66	59	66	73	81	77	81	69	92	56	80	65	81	88
Economics	NA	NA	386	410	394	369	336	275	288	260	274	231	251	251
History of science	NA	NA	6	4	7	10	13	17	13	11	8	11	14	6
Linguistics	NA	NA	56	37	48	45	46	41	31	43	38	33	45	49
Political science/public administration	NA	NA	496	485	546	503	523	543	456	488	481	446	472	409
Sociology	NA	NA	179	183	197	191	206	186	185	190	165	153	162	164
Other social sciences	1,459	1,560	170	185	140	180	191	180	173	144	164	148	157	135
Non-S&E	6,295	6,424	6,834	6,646	6,984	6,879	6,696	6,604	6,239	6,404	6,280	6,466	6,798	7,036

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Female														
All fields	13,587	14,018	14,955	15,124	15,875	16,398	16,705	17,044	17,119	18,050	19,040	21,121	22,040	24,567
S&E	6,838	7,122	7,492	7,544	8,149	8,432	8,689	8,925	9,086	9,634	10,649	12,188	13,320	14,998
Engineering	339	404	499	508	491	428	496	483	451	430	493	511	606	677
Aerospace	NA	NA	11	13	13	14	17	16	10	9	9	10	11	16
Chemical	NA	NA	76	88	76	70	89	86	87	70	95	83	117	94
Civil	NA	NA	51	42	63	64	71	76	67	79	79	96	85	91
Electrical	NA	NA	116	118	102	85	84	63	57	60	74	90	63	90
Industrial	NA	NA	33	40	32	29	23	32	39	27	29	28	44	41
Materials	NA	NA	73	52	65	39	54	47	44	43	36	50	66	74
Mechanical	NA	NA	40	50	50	43	54	42	37	39	49	42	59	57
Other	339	404	99	105	90	84	104	121	110	103	122	112	161	214
Science	6,499	6,718	6,993	7,036	7,658	8,004	8,193	8,442	8,635	9,204	10,156	11,677	12,714	14,321
Natural sciences	3,230	3,399	3,582	3,595	3,853	4,069	4,086	4,128	4,540	5,082	5,960	7,195	8,260	9,631
Agricultural sciences	145	165	150	172	171	210	194	210	205	238	234	235	259	278
Biological sciences	1,349	1,409	1,476	1,542	1,586	1,607	1,703	1,616	1,550	1,833	1,929	2,145	2,140	2,327
Earth, atmospheric, and ocean sciences	NA	NA	105	112	118	129	120	119	135	127	130	126	148	205
Atmospheric sciences	NA	NA	7	12	10	10	11	6	11	14	13	12	13	18
Earth sciences	NA	NA	83	75	89	98	85	87	98	78	93	83	111	143
Oceanography	NA	NA	15	25	19	21	24	26	26	35	24	31	24	44
Mathematics/computer sciences	241	228	266	221	264	294	238	229	231	239	263	255	281	338
Computer sciences	89	82	114	78	90	98	73	84	102	90	110	103	130	145
Mathematics/statistics	152	146	152	143	174	196	165	145	129	149	153	152	151	193
Medical/other life sciences	876	936	937	924	1,136	1,184	1,268	1,355	1,841	2,046	2,849	3,824	4,777	5,770
Medical sciences	876	936	341	304	320	303	354	343	323	336	420	466	530	581
Other life sciences	NA	NA	596	620	816	881	914	1,012	1,518	1,710	2,429	3,358	4,247	5,189
Physical sciences	619	661	648	624	578	645	563	599	578	599	555	610	655	713
Astronomy	NA	NA	18	22	15	17	20	16	10	21	25	28	26	31
Chemistry	NA	NA	515	474	436	503	451	478	463	463	432	495	518	552
Physics	NA	NA	108	120	117	114	82	101	94	111	93	86	109	123
Other physical sciences	619	661	7	8	10	11	10	4	11	4	5	1	2	7
Social/behavioral sciences	3,269	3,319	3,411	3,441	3,805	3,935	4,107	4,314	4,095	4,122	4,196	4,482	4,454	4,690
Psychology	2,158	2,153	2,267	2,294	2,569	2,601	2,746	3,012	2,749	2,804	2,898	3,178	3,083	3,235
Social sciences	1,111	1,166	1,144	1,147	1,236	1,334	1,361	1,302	1,346	1,318	1,298	1,304	1,371	1,455
Anthropology	NA	NA	197	188	214	234	242	212	255	260	248	235	245	267
Area/ethnic studies	78	70	82	83	78	71	99	111	88	93	88	89	106	114
Economics	NA	NA	169	148	148	168	138	147	131	117	122	137	120	118
History of science	NA	NA	4	3	5	6	5	3	3	13	6	10	14	10
Linguistics	NA	NA	59	58	76	76	59	59	53	59	67	62	69	74

Appendix table 2-28

Earned doctoral degrees, by citizenship, field, and sex: 1993–2007

Citizenship/field/sex	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Political science/public administration	NA	NA	256	271	266	332	333	316	365	339	328	360	355	402
Sociology	NA	NA	238	242	284	285	304	287	289	302	295	283	304	295
Other social sciences	1,033	1,096	139	154	165	162	181	167	162	135	144	128	158	175
Non-S&E	6,749	6,896	7,463	7,580	7,726	7,966	8,016	8,119	8,033	8,416	8,391	8,933	8,720	9,569

NA = not available

NOTES: Data not available for 1999. Detailed field not collected by citizenship or race/ethnicity prior to 1995. 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.

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

Science and Engineering Indicators 2010

Appendix table 2-29
Median number of years from S&E doctorate recipients' entry to graduate school to receipt of doctorate, by field: 1977–2007

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
1977	6.7	6.6	6.3	7.2	7.0	6.6	6.3	7.5	6.2	6.3	8.0
1978	6.8	6.5	6.3	6.9	7.0	6.6	6.5	7.5	6.2	6.5	8.0
1979	6.8	6.5	6.4	6.8	7.0	6.5	6.7	7.8	6.0	7.0	8.3
1980	6.9	6.6	6.4	6.6	7.3	6.7	6.5	8.2	6.0	7.0	8.3
1981	7.0	6.5	6.5	6.7	7.5	6.7	6.6	8.9	6.0	7.3	8.5
1982	7.0	6.9	6.5	7.0	7.6	6.8	6.4	9.0	6.0	7.5	8.8
1983	7.2	7.0	6.8	7.5	7.8	6.8	6.9	9.4	6.2	8.0	8.9
1984	7.3	7.2	7.0	7.7	7.9	6.8	7.0	9.2	6.2	8.1	9.0
1985	7.4	7.3	7.0	7.6	7.8	6.8	7.0	10.0	6.3	8.2	9.3
1986	7.5	7.7	7.0	7.8	8.0	6.9	6.7	10.2	6.3	8.4	9.3
1987	7.5	7.6	7.2	7.7	8.1	6.8	7.0	10.2	6.2	8.5	9.6
1988	7.6	8.0	7.1	7.9	8.4	6.8	7.2	10.9	6.3	8.6	9.6
1989	7.5	8.1	7.2	7.7	7.9	7.0	7.0	11.0	6.3	8.6	9.3
1990	7.7	8.3	7.5	7.6	8.0	7.0	7.3	11.4	6.5	8.6	9.6
1991	7.7	8.5	7.2	7.9	8.3	7.2	7.1	11.6	6.4	8.5	9.6
1992	7.9	8.5	7.4	7.9	8.6	7.3	7.6	11.9	6.7	8.6	9.5
1993	7.9	8.6	7.5	8.1	9.0	7.5	7.4	11.8	6.8	8.3	9.7
1994	8.0	8.5	7.6	8.3	9.2	7.5	7.4	11.9	6.9	8.0	9.6
1995	8.0	8.7	7.5	8.3	9.0	7.6	7.5	11.4	7.0	8.3	9.7
1996	7.9	9.0	7.5	8.5	9.7	7.5	7.3	12.0	6.7	8.0	9.3
1997	7.7	8.8	7.3	8.6	8.9	7.4	7.5	11.9	6.6	7.8	9.2
1998	7.6	8.7	7.0	8.5	8.6	7.5	7.0	11.8	6.5	7.6	9.0
1999	7.6	8.5	7.0	8.5	8.5	7.5	7.0	11.0	6.6	7.6	9.0
2000	7.7	8.8	7.1	8.4	8.6	7.5	7.1	11.5	6.6	7.6	9.0
2001	7.6	8.9	7.0	8.2	8.5	7.3	7.0	10.9	6.5	7.6	9.1
2002	7.7	8.8	7.0	8.4	8.5	7.4	7.0	11.3	6.5	7.7	9.0
2003	7.7	8.5	7.0	8.4	8.3	7.6	7.0	10.6	6.5	7.6	9.3
2004	7.3	8.0	6.8	8.0	8.0	7.3	6.6	9.6	6.3	7.3	8.9
2005	7.4	8.0	6.9	7.9	8.0	7.4	7.0	9.8	6.5	7.3	9.0
2006	7.3	8.0	6.8	7.8	7.8	7.0	6.7	9.7	6.4	7.3	8.9
2007	7.2	7.6	6.9	7.6	7.5	7.0	6.9	9.7	6.4	7.3	8.9

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
All citizenships and races/ethnicities												
All fields	44,513	44,734	45,974	46,114	44,947	45,068	44,311	46,177	48,560	52,855	56,309	60,887
S&E	27,808	28,193	28,915	29,019	27,862	28,096	27,588	28,746	30,979	34,468	37,541	40,980
Engineering	6,112	6,371	6,202	5,985	5,384	5,561	5,196	5,282	5,931	6,548	7,402	8,066
Aerospace	229	260	254	223	203	202	193	178	190	205	209	234
Chemical	651	756	721	730	665	680	693	608	708	872	911	915
Civil	674	696	713	699	628	647	669	685	736	830	864	935
Electrical	1,683	1,716	1,636	1,601	1,515	1,527	1,361	1,402	1,634	1,782	2,124	2,380
Industrial	329	318	303	272	218	262	275	258	280	286	302	364
Materials	579	559	587	542	454	454	381	457	494	514	611	663
Mechanical	965	1,017	985	993	821	906	813	786	835	963	1,139	1,138
Other	1,002	1,049	1,003	925	880	883	811	908	1,054	1,096	1,242	1,437
Science	21,696	21,822	22,713	23,034	22,478	22,535	22,392	23,464	25,048	27,920	30,139	32,914
Natural sciences	14,175	14,380	14,831	14,993	14,296	14,084	14,385	15,340	16,773	19,329	21,563	24,052
Agricultural sciences	1,024	1,020	1,011	1,064	984	934	969	1,060	1,016	1,004	1,037	1,068
Biological sciences	4,712	4,850	4,894	5,043	4,992	4,750	4,596	5,212	5,491	5,925	6,138	6,703
Earth, atmospheric, and ocean sciences	622	652	655	667	579	542	562	544	540	572	600	727
Atmospheric sciences	83	97	91	79	87	70	68	78	77	96	95	87
Earth sciences	460	450	462	508	393	380	404	368	369	379	430	513
Oceanography	79	105	102	80	99	92	90	98	94	97	75	127
Mathematics/computer sciences	2,069	2,030	1,995	2,082	1,858	1,769	1,677	1,825	1,975	2,301	2,713	2,953
Computer sciences	884	867	857	858	777	768	750	816	910	1,121	1,416	1,597
Mathematics/statistics	1,185	1,163	1,138	1,224	1,081	1,001	927	1,009	1,065	1,180	1,297	1,356
Medical/other life sciences	1,887	1,911	2,458	2,236	2,439	2,643	3,334	3,321	4,406	5,907	7,089	8,392
Medical sciences	855	830	882	780	893	864	882	850	1,010	1,144	1,252	1,293
Other life sciences	1,032	1,081	1,576	1,456	1,546	1,779	2,452	2,471	3,396	4,763	5,837	7,099
Physical sciences	3,861	3,917	3,818	3,901	3,444	3,446	3,247	3,378	3,345	3,620	3,986	4,209
Astronomy	112	125	99	117	101	103	70	101	101	115	114	128
Chemistry	2,280	2,294	2,265	2,345	2,090	2,134	2,037	2,158	2,105	2,226	2,502	2,606
Physics	1,424	1,462	1,410	1,393	1,208	1,169	1,096	1,089	1,119	1,254	1,341	1,442
Other physical sciences	45	36	44	46	45	40	44	30	20	25	29	33
Social/behavioral sciences	7,521	7,442	7,882	8,041	8,182	8,451	8,007	8,124	8,275	8,591	8,576	8,862
Psychology	3,757	3,652	3,988	4,015	4,200	4,538	4,185	4,258	4,389	4,681	4,484	4,696
Social sciences	3,764	3,790	3,894	4,026	3,982	3,913	3,822	3,866	3,886	3,910	4,092	4,166
Anthropology	388	406	450	489	471	428	508	487	537	459	480	519
Area/ethnic studies	175	184	177	178	212	216	209	176	204	184	220	226
Economics	1,079	1,109	1,105	1,106	1,001	1,016	961	967	978	1,111	1,057	1,107
History of science	11	7	12	18	23	21	20	27	20	28	34	27
Linguistics	194	192	204	205	202	193	152	201	194	172	216	219
Political science/public administration	972	943	972	1,018	1,019	1,047	992	1,055	1,001	1,049	1,098	1,093
Sociology	555	531	601	604	602	550	547	598	564	534	574	573
Other social sciences	390	418	373	408	452	442	433	355	388	373	413	402
Non-S&E	16,705	16,541	17,059	17,095	17,085	16,972	16,723	17,431	17,581	18,387	18,768	19,907

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
U.S. citizen/permanent resident												
All fields	33,383	33,284	34,521	34,774	34,113	34,105	33,382	34,551	35,807	38,512	40,334	43,888
S&E	19,086	19,058	19,811	19,929	19,401	19,382	19,110	19,731	21,136	23,113	24,816	27,283
Engineering	3,111	3,253	3,196	3,058	2,656	2,562	2,261	2,237	2,347	2,452	2,714	2,994
Aerospace	135	154	151	144	125	101	77	72	73	91	80	108
Chemical	321	361	361	351	364	357	354	295	340	360	423	373
Civil	292	281	323	323	319	300	273	283	257	296	296	359
Electrical	876	898	866	806	641	587	506	478	531	567	560	645
Industrial	155	156	145	133	104	109	115	93	119	107	117	129
Materials	311	289	306	285	240	217	172	198	205	191	242	286
Mechanical	465	532	482	502	384	414	335	336	307	338	388	376
Other	556	582	562	514	479	477	429	482	515	502	608	718
Science	15,975	15,805	16,615	16,871	16,745	16,820	16,849	17,494	18,789	20,661	22,102	24,289
Natural sciences	9,754	9,671	9,974	10,152	9,779	9,682	10,048	10,765	11,872	13,661	15,139	17,116
Agricultural sciences	594	568	575	579	553	544	549	626	601	611	640	643
Biological sciences	3,538	3,550	3,542	3,680	3,724	3,579	3,443	3,901	4,118	4,330	4,377	4,713
Earth, atmospheric, and ocean sciences	439	446	452	464	409	362	368	376	356	360	389	481
Atmospheric sciences	53	62	61	51	57	40	43	46	45	54	45	48
Earth sciences	334	316	325	353	280	258	266	259	245	244	296	347
Oceanography	52	68	66	60	72	64	59	71	66	62	48	86
Mathematics/computer sciences	1,162	1,112	1,085	1,159	990	920	848	926	963	1,040	1,134	1,325
Computer sciences	508	472	488	489	402	395	410	413	455	500	551	680
Mathematics/statistics	654	640	597	670	588	525	438	513	508	540	583	645
Medical/other life sciences	1,450	1,467	1,867	1,783	1,955	2,121	2,796	2,876	3,865	5,284	6,416	7,688
Medical sciences	590	576	592	536	615	582	568	577	655	735	816	862
Other life sciences	860	891	1,275	1,247	1,340	1,539	2,228	2,299	3,210	4,549	5,600	6,826
Physical sciences	2,571	2,528	2,453	2,487	2,148	2,156	2,044	2,060	1,969	2,036	2,183	2,266
Astronomy	80	88	76	83	76	78	53	79	75	73	73	89
Chemistry	1,563	1,512	1,489	1,534	1,336	1,383	1,355	1,374	1,321	1,366	1,461	1,464
Physics	904	903	861	835	708	677	604	591	562	585	635	696
Other physical sciences	24	25	27	35	28	18	32	16	11	12	14	17
Social/behavioral sciences	6,221	6,134	6,641	6,719	6,966	7,138	6,801	6,729	6,917	7,000	6,963	7,173
Psychology	3,579	3,461	3,835	3,832	4,042	4,381	4,042	4,059	4,191	4,452	4,230	4,450
Social sciences	2,642	2,673	2,806	2,887	2,924	2,757	2,759	2,670	2,726	2,548	2,733	2,723
Anthropology	336	337	371	412	409	356	430	420	466	392	425	433
Area/ethnic studies	148	156	159	148	180	180	180	149	168	154	187	202
Economics	555	558	542	537	474	422	419	377	396	368	371	369
History of science	10	7	12	16	18	20	16	24	14	21	28	16
Linguistics	115	95	124	121	105	100	84	102	105	95	114	123
Political science/public administration	752	756	812	835	856	859	821	827	809	806	827	811
Sociology	417	425	481	476	510	473	474	492	460	436	466	459
Other social sciences	309	339	305	342	372	347	335	279	308	276	315	310
Non-S&E	14,297	14,226	14,710	14,845	14,712	14,723	14,272	14,820	14,671	15,399	15,518	16,605

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
White												
All fields	26,616	26,363	27,183	27,463	26,471	25,865	25,319	25,864	26,425	28,152	29,114	31,355
S&E	14,926	14,760	15,398	15,736	14,975	14,663	14,620	14,926	15,765	17,082	18,057	19,929
Engineering	2,178	2,344	2,389	2,307	1,948	1,844	1,592	1,571	1,633	1,696	1,818	1,973
Aerospace	109	124	129	121	108	79	65	48	61	73	60	81
Chemical	238	262	280	283	275	271	240	209	242	275	297	250
Civil	212	200	252	264	238	225	205	216	188	209	208	245
Electrical	581	586	578	548	436	374	325	282	331	346	346	367
Industrial	99	116	105	95	79	79	83	67	88	73	77	82
Materials	203	229	243	229	191	170	135	150	159	136	163	191
Mechanical	325	390	372	389	261	285	236	254	200	242	274	265
Other	411	437	430	378	360	361	303	345	364	342	393	492
Science	12,748	12,416	13,009	13,429	13,027	12,819	13,028	13,355	14,132	15,386	16,239	17,956
Natural sciences	7,639	7,440	7,641	8,071	7,621	7,387	7,863	8,263	9,052	10,324	11,300	12,877
Agricultural sciences	484	455	473	468	470	453	474	522	502	519	526	541
Biological sciences	2,784	2,708	2,701	2,878	2,845	2,689	2,613	2,912	3,047	3,172	3,206	3,426
Earth, atmospheric, and ocean sciences	379	368	378	406	344	301	332	318	311	300	328	400
Atmospheric sciences	43	47	48	45	50	33	40	36	37	43	30	39
Earth sciences	292	266	277	310	230	210	242	224	212	204	258	289
Oceanography	44	55	53	51	64	58	50	58	62	53	40	72
Mathematics/computer sciences	895	829	841	924	746	687	624	671	697	706	784	895
Computer sciences	380	347	374	388	289	287	264	282	309	308	356	437
Mathematics/statistics	515	482	467	536	457	400	360	389	388	398	428	458
Medical/other life sciences	1,154	1,158	1,346	1,423	1,544	1,643	2,247	2,249	2,995	4,101	4,811	5,948
Medical sciences	459	438	465	393	465	417	422	398	471	475	531	578
Other life sciences	695	720	881	1,030	1,079	1,226	1,825	1,851	2,524	3,626	4,280	5,370
Physical sciences	1,943	1,922	1,902	1,972	1,672	1,614	1,573	1,591	1,500	1,526	1,645	1,667
Astronomy	71	73	61	69	55	52	41	61	63	62	57	63
Chemistry	1,174	1,140	1,164	1,210	1,030	1,028	1,031	1,078	986	1,021	1,080	1,071
Physics	681	695	658	666	561	516	473	437	442	435	496	519
Other physical sciences	17	14	19	27	26	18	28	15	9	8	12	14
Social/behavioral sciences	5,109	4,976	5,368	5,358	5,406	5,432	5,165	5,092	5,080	5,062	4,939	5,079
Psychology	3,032	2,863	3,161	3,109	3,186	3,373	3,104	3,145	3,057	3,241	3,034	3,171
Social sciences	2,077	2,113	2,207	2,249	2,220	2,059	2,061	1,947	2,023	1,821	1,905	1,908
Anthropology	291	287	306	349	332	283	326	313	349	296	325	330
Area/ethnic studies	103	108	110	98	123	116	106	84	93	84	91	103
Economics	422	419	402	398	349	325	318	272	286	244	237	233
History of science	10	5	9	11	11	15	12	20	13	17	19	13
Linguistics	88	72	94	88	82	66	65	74	82	73	74	86
Political science/public administration	596	615	663	661	659	636	625	596	605	591	580	573
Sociology	326	323	371	368	375	343	340	356	352	301	337	326
Other social sciences	241	284	252	276	289	275	269	232	243	215	242	244
Non-S&E	11,690	11,603	11,785	11,727	11,496	11,202	10,699	10,938	10,660	11,070	11,057	11,426

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Asian/Pacific Islander												
All fields	2,555	2,492	2,528	2,228	2,297	2,440	2,184	2,259	2,464	2,695	2,996	3,251
S&E	2,055	1,962	1,950	1,664	1,714	1,767	1,606	1,651	1,816	2,071	2,249	2,414
Engineering	592	533	456	427	380	398	357	292	346	372	470	508
Aerospace	17	15	10	14	9	11	3	8	8	8	11	8
Chemical	57	52	39	38	50	49	65	44	64	43	70	63
Civil	44	47	37	27	37	33	30	19	25	40	44	50
Electrical	196	195	181	169	120	127	111	112	97	128	121	156
Industrial	34	21	21	14	13	14	10	12	14	17	10	15
Materials	74	39	39	24	27	26	22	14	27	17	38	55
Mechanical	87	82	62	61	67	76	49	40	52	42	66	52
Other	83	82	67	80	57	62	67	43	59	77	110	109
Science	1,463	1,429	1,494	1,237	1,334	1,369	1,249	1,359	1,470	1,699	1,779	1,906
Natural sciences	1,163	1,155	1,192	956	979	982	914	1,000	1,086	1,313	1,361	1,451
Agricultural sciences	60	60	33	41	26	24	17	28	28	22	25	24
Biological sciences	391	440	414	401	429	399	388	475	489	508	477	563
Earth, atmospheric, and ocean sciences	36	39	27	26	15	25	12	15	12	16	23	11
Atmospheric sciences	4	10	9	4	3	5	1	6	4	6	6	1
Earth sciences	27	22	15	18	12	19	8	7	8	6	16	8
Oceanography	5	7	3	4	0	1	3	2	0	4	1	2
Mathematics/computer sciences	172	163	144	114	127	108	98	98	110	142	155	190
Computer sciences	87	79	66	56	56	53	72	55	62	88	92	111
Mathematics/statistics	85	84	78	58	71	55	26	43	48	54	63	79
Medical/other life sciences	125	128	313	148	196	211	229	214	276	416	461	441
Medical sciences	48	73	54	50	69	69	67	67	69	107	124	104
Other life sciences	77	55	259	98	127	142	162	147	207	309	337	337
Physical sciences	379	325	261	226	186	215	170	170	171	209	220	222
Astronomy	3	7	5	8	8	4	3	5	7	6	6	6
Chemistry	221	196	154	136	124	138	120	111	127	139	160	155
Physics	151	116	101	78	52	73	45	53	37	62	54	60
Other physical sciences	4	6	1	4	2	0	2	1	0	2	0	1
Social/behavioral sciences	300	274	302	281	355	387	335	359	384	386	418	455
Psychology	101	96	129	112	181	209	177	195	224	221	242	265
Social sciences	199	178	173	169	174	178	158	164	160	165	176	190
Anthropology	14	12	10	15	16	19	13	22	23	17	23	23
Area/ethnic studies	5	12	5	7	7	11	13	17	18	13	14	16
Economics	71	66	62	63	44	42	44	38	33	46	47	50
History of science	0	1	0	0	0	0	0	1	0	1	2	1
Linguistics	15	16	16	18	15	13	10	10	10	10	20	24
Political science/public administration	43	33	43	34	44	46	41	42	38	41	38	42
Sociology	34	30	29	23	27	33	25	25	25	26	21	23
Other social sciences	17	8	8	9	21	14	12	9	13	11	11	11
Non-S&E	500	530	578	564	583	673	578	608	648	624	747	837

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Black												
All fields	1,606	1,563	1,786	1,984	2,147	2,091	2,268	2,362	2,725	2,854	2,884	3,452
S&E	593	571	649	741	821	838	871	893	1,034	1,071	1,204	1,287
Engineering	71	69	87	81	91	98	80	94	99	101	110	117
Aerospace	1	4	2	1	4	1	1	1	0	1	4	2
Chemical	3	12	13	5	8	15	10	8	7	9	13	18
Civil	8	6	12	9	8	9	11	11	6	10	9	10
Electrical	23	26	25	27	23	28	17	19	33	28	20	24
Industrial	9	3	9	9	6	5	6	6	10	6	11	8
Materials	6	2	3	10	5	5	4	9	6	7	11	8
Mechanical	12	8	12	11	24	17	16	12	18	12	13	16
Other	9	8	11	9	13	18	15	28	19	28	29	31
Science	522	502	562	660	730	740	791	799	935	970	1,094	1,170
Natural sciences	226	218	252	279	316	308	344	366	459	492	605	664
Agricultural sciences	7	17	23	24	20	16	16	26	20	19	28	24
Biological sciences	85	75	97	93	106	101	112	110	159	152	173	173
Earth, atmospheric, and ocean sciences	1	0	2	5	3	3	3	11	5	3	3	7
Atmospheric sciences	0	0	0	1	1	0	1	2	1	0	2	2
Earth sciences	1	0	1	4	2	3	2	6	3	2	0	3
Oceanography	0	0	1	0	0	0	0	3	1	1	1	2
Mathematics/computer sciences	13	17	12	26	28	26	35	36	26	37	41	51
Computer sciences	9	9	5	9	15	9	21	17	18	19	21	30
Mathematics/statistics	4	8	7	17	13	17	14	19	8	18	20	21
Medical/other life sciences	79	56	66	73	94	90	109	118	185	229	305	323
Medical sciences	38	16	29	24	36	30	29	36	46	62	74	75
Other life sciences	41	40	37	49	58	60	80	82	139	167	231	248
Physical sciences	41	53	52	58	65	72	69	65	64	52	55	86
Astronomy	0	1	2	0	1	0	1	1	1	0	1	2
Chemistry	28	41	35	43	45	56	46	47	51	37	43	64
Physics	11	11	13	13	19	16	22	17	11	15	11	20
Other physical sciences	2	0	2	2	0	0	0	0	1	0	0	0
Social/behavioral sciences	296	284	310	381	414	432	447	433	476	478	489	506
Psychology	145	148	158	178	214	240	231	241	281	275	256	278
Social sciences	151	136	152	203	200	192	216	192	195	203	233	228
Anthropology	6	5	10	6	20	12	25	23	26	24	21	19
Area/ethnic studies	18	21	21	24	17	25	28	17	22	21	36	38
Economics	21	23	13	24	22	9	19	11	19	9	18	18
History of science	0	0	0	3	0	1	1	0	0	1	1	1
Linguistics	3	3	2	6	1	4	1	0	4	2	5	0
Political science/public administration	57	49	49	62	70	79	78	79	67	83	90	85
Sociology	26	23	39	49	50	42	44	51	40	44	45	47
Other social sciences	20	12	18	29	20	20	20	11	17	19	17	20
Non-S&E	1,013	992	1,137	1,243	1,326	1,253	1,397	1,469	1,691	1,783	1,680	2,165

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Hispanic												
All fields	1,010	1,032	1,166	1,318	1,382	1,594	1,503	1,609	1,739	1,914	1,980	2,138
S&E	533	600	650	722	775	905	840	878	1,057	1,121	1,190	1,301
Engineering	56	84	87	102	86	88	88	106	101	98	105	138
Aerospace	4	1	3	6	2	7	3	4	3	4	0	7
Chemical	10	15	8	14	18	8	17	13	9	20	20	16
Civil	6	4	9	16	11	14	6	14	21	13	16	25
Electrical	11	23	24	19	17	17	26	22	19	14	11	33
Industrial	4	5	6	7	3	4	9	2	2	4	12	12
Materials	6	5	8	11	7	10	5	9	6	13	12	9
Mechanical	4	11	11	16	10	16	11	15	13	14	12	13
Other	11	20	18	13	18	12	11	27	28	16	22	23
Science	477	516	563	620	689	817	752	772	956	1,023	1,085	1,163
Natural sciences	236	247	280	293	319	386	342	382	468	503	573	619
Agricultural sciences	17	8	17	18	13	21	20	16	17	14	36	15
Biological sciences	96	103	115	129	149	155	139	171	186	216	212	226
Earth, atmospheric, and ocean sciences	5	16	5	4	9	10	4	8	10	11	12	18
Atmospheric sciences	0	1	0	0	1	0	1	1	0	1	2	2
Earth sciences	4	12	4	3	6	6	1	3	10	9	10	12
Oceanography	1	3	1	1	2	4	2	4	0	1	0	4
Mathematics/computer sciences	19	17	28	31	25	29	28	28	41	38	33	38
Computer sciences	6	9	11	9	13	12	19	11	18	17	6	17
Mathematics/statistics	13	8	17	22	12	17	9	17	23	21	27	21
Medical/other life sciences	38	49	54	62	56	90	82	94	141	148	187	230
Medical sciences	18	20	14	27	16	28	22	29	31	30	34	51
Other life sciences	20	29	40	35	40	62	60	65	110	118	153	179
Physical sciences	61	54	61	49	67	81	69	65	73	76	93	92
Astronomy	0	0	2	1	3	4	1	2	2	2	1	5
Chemistry	45	37	36	33	45	59	48	44	58	57	70	65
Physics	16	16	22	13	19	18	19	19	13	16	21	22
Other physical sciences	0	1	1	2	0	0	1	0	0	1	1	0
Social/behavioral sciences	241	269	283	327	370	431	410	390	488	520	512	544
Psychology	161	188	198	228	267	308	297	247	339	388	367	417
Social sciences	80	81	85	99	103	123	113	143	149	132	145	127
Anthropology	12	15	18	15	8	19	20	29	37	20	25	18
Area/ethnic studies	5	3	5	3	7	9	10	8	13	12	13	14
Economics	13	18	18	15	18	18	13	20	25	22	21	22
History of science	0	0	0	0	1	2	0	0	0	1	2	1
Linguistics	4	2	2	5	1	5	3	4	2	3	4	3
Political science/public administration	21	23	21	40	28	34	35	36	43	35	35	34
Sociology	13	12	15	15	24	24	22	37	24	29	37	23
Other social sciences	12	8	6	6	16	12	10	9	5	10	8	12
Non-S&E	477	432	516	596	607	689	663	731	682	793	790	837

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
American Indian/Alaska Native												
All fields	129	153	169	180	155	170	175	185	206	224	214	232
S&E	60	79	87	107	82	88	84	106	117	109	111	128
Engineering	5	11	12	10	5	10	6	12	8	6	7	8
Aerospace	0	0	0	0	0	0	0	0	0	1	0	0
Chemical	1	1	0	3	0	3	1	1	1	0	1	1
Civil	0	1	2	0	1	0	1	0	1	0	0	3
Electrical	0	2	2	3	1	3	0	3	3	0	2	1
Industrial	2	2	0	0	0	0	0	0	0	0	1	0
Materials	0	1	0	1	0	0	1	0	0	1	0	0
Mechanical	0	2	3	1	2	2	2	1	1	2	2	1
Other	2	2	5	2	1	2	1	7	2	2	1	2
Science	55	68	75	97	77	78	78	94	109	103	104	120
Natural sciences	25	33	27	35	34	33	36	39	53	56	50	62
Agricultural sciences	2	3	3	4	2	1	0	1	7	4	1	3
Biological sciences	4	14	5	9	8	14	14	18	16	18	19	23
Earth, atmospheric, and ocean sciences	0	0	2	3	6	0	0	1	3	3	0	2
Atmospheric sciences	0	0	0	0	0	0	0	0	1	1	0	0
Earth sciences	0	0	2	3	5	0	0	1	2	2	0	1
Oceanography	0	0	0	0	1	0	0	0	0	0	0	1
Mathematics/computer sciences	1	3	4	3	2	3	2	2	1	0	6	4
Computer sciences	0	2	2	1	0	1	1	1	1	0	6	3
Mathematics/statistics	1	1	2	2	2	2	1	1	0	0	0	1
Medical/other life sciences	9	2	5	6	8	10	11	11	14	24	15	23
Medical sciences	3	0	1	2	4	4	2	4	2	2	3	5
Other life sciences	6	2	4	4	4	6	9	7	12	22	12	18
Physical sciences	9	11	8	10	8	5	9	6	12	7	9	7
Astronomy	0	0	1	0	1	0	0	0	0	0	0	0
Chemistry	8	8	5	5	7	5	7	6	9	6	6	3
Physics	1	3	2	5	0	0	2	0	3	1	3	4
Other physical sciences	0	0	0	0	0	0	0	0	0	0	0	0
Social/behavioral sciences	30	35	48	62	43	45	42	55	56	47	54	58
Psychology	17	20	29	43	28	27	24	31	36	29	32	36
Social sciences	13	15	19	19	15	18	18	24	20	18	22	22
Anthropology	4	1	4	5	4	3	6	6	5	4	4	6
Area/ethnic studies	4	1	6	0	2	2	3	2	3	4	5	6
Economics	1	1	2	0	0	0	0	2	1	0	2	2
History of science	0	0	0	0	0	0	0	0	0	0	0	0
Linguistics	0	0	2	0	0	1	0	0	0	0	1	1
Political science/public administration	1	1	0	5	3	7	1	4	4	3	4	0
Sociology	1	7	4	5	4	4	7	6	1	5	0	4
Other social sciences	2	4	1	4	2	1	1	4	6	2	6	3
Non-S&E	69	74	82	73	73	82	91	79	89	115	103	104

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Other/unknown race/ethnicity												
All fields	1,467	1,681	1,689	1,601	1,661	1,945	1,933	2,272	2,248	2,673	3,146	3,460
S&E	919	1,086	1,077	959	1,034	1,121	1,089	1,277	1,347	1,659	2,005	2,224
Engineering	209	212	165	131	146	124	138	162	160	179	204	250
Aerospace	4	10	7	2	2	3	5	11	1	4	5	10
Chemical	12	19	21	8	13	11	21	20	17	13	22	25
Civil	22	23	11	7	24	19	20	23	16	24	19	26
Electrical	65	66	56	40	44	38	27	40	48	51	60	64
Industrial	7	9	4	8	3	7	7	6	5	7	6	12
Materials	22	13	13	10	10	6	5	16	7	17	18	23
Mechanical	37	39	22	24	20	18	21	14	23	26	21	29
Other	40	33	31	32	30	22	32	32	43	37	53	61
Science	710	874	912	828	888	997	951	1,115	1,187	1,480	1,801	1,974
Natural sciences	465	578	582	518	510	586	549	715	754	973	1,250	1,443
Agricultural sciences	24	25	26	24	22	29	22	33	27	33	24	36
Biological sciences	178	210	210	170	187	221	177	215	221	264	290	302
Earth, atmospheric, and ocean sciences	18	23	38	20	32	23	17	23	15	27	23	43
Atmospheric sciences	6	4	4	1	2	2	0	1	2	3	5	4
Earth sciences	10	16	26	15	25	20	13	18	10	21	12	34
Oceanography	2	3	8	4	5	1	4	4	3	3	6	5
Mathematics/computer sciences	62	83	56	61	62	67	61	91	88	117	115	147
Computer sciences	26	26	30	26	29	33	33	47	47	68	70	82
Mathematics/statistics	36	57	26	35	33	34	28	44	41	49	45	65
Medical/other life sciences	45	74	83	71	57	77	118	190	254	366	637	723
Medical sciences	24	29	29	40	25	34	26	43	36	59	50	49
Other life sciences	21	45	54	31	32	43	92	147	218	307	587	674
Physical sciences	138	163	169	172	150	169	154	163	149	166	161	192
Astronomy	6	7	5	5	8	18	7	10	2	3	8	13
Chemistry	87	90	95	107	85	97	103	88	90	106	102	106
Physics	44	62	65	60	57	54	43	65	56	56	50	71
Other physical sciences	1	4	4	0	0	0	1	0	1	1	1	2
Social/behavioral sciences	245	296	330	310	378	411	402	400	433	507	551	531
Psychology	123	146	160	162	166	224	209	200	254	298	299	283
Social sciences	122	150	170	148	212	187	193	200	179	209	252	248
Anthropology	9	17	23	22	29	20	40	27	26	31	27	37
Area/ethnic studies	13	11	12	16	24	17	20	21	19	20	28	25
Economics	27	31	45	37	41	28	25	34	32	47	46	44
History of science	0	1	3	2	6	2	3	3	1	1	4	0
Linguistics	5	2	8	4	6	11	5	14	7	7	10	9
Political science/public administration	34	35	36	33	52	57	41	70	52	53	80	77
Sociology	17	30	23	16	30	27	36	17	18	31	26	36
Other social sciences	17	23	20	18	24	25	23	14	24	19	31	20
Non-S&E	548	595	612	642	627	824	844	995	901	1,014	1,141	1,236

Appendix table 2-30

Earned doctoral degrees, by citizenship, field, and race/ethnicity: 1995–2007

Citizenship, field, and race/ethnicity	1995	1996	1997	1998	2000	2001	2002	2003	2004	2005	2006	2007
Temporary resident												
All fields	11,130	11,450	11,453	11,340	10,834	10,963	10,929	11,626	12,753	14,343	15,975	16,999
S&E	8,722	9,135	9,104	9,090	8,461	8,714	8,478	9,015	9,843	11,355	12,725	13,697
Engineering	3,001	3,118	3,006	2,927	2,728	2,999	2,935	3,045	3,584	4,096	4,688	5,072
Aerospace	94	106	103	79	78	101	116	106	117	114	129	126
Chemical	330	395	360	379	301	323	339	313	368	512	488	542
Civil	382	415	390	376	309	347	396	402	479	534	568	576
Electrical	807	818	770	795	874	940	855	924	1,103	1,215	1,564	1,735
Industrial	174	162	158	139	114	153	160	165	161	179	185	235
Materials	268	270	281	257	214	237	209	259	289	323	369	377
Mechanical	500	485	503	491	437	492	478	450	528	625	751	762
Other	446	467	441	411	401	406	382	426	539	594	634	719
Science	5,721	6,017	6,098	6,163	5,733	5,715	5,543	5,970	6,259	7,259	8,037	8,625
Natural sciences	4,421	4,709	4,857	4,841	4,517	4,402	4,337	4,575	4,901	5,668	6,424	6,936
Agricultural sciences	430	452	436	485	431	390	420	434	415	393	397	425
Biological sciences	1,174	1,300	1,352	1,363	1,268	1,171	1,153	1,311	1,373	1,595	1,761	1,990
Earth, atmospheric, and ocean sciences	183	206	203	203	170	180	194	168	184	212	211	246
Atmospheric sciences	30	35	30	28	30	30	25	32	32	42	50	39
Earth sciences	126	134	137	155	113	122	138	109	124	135	134	166
Oceanography	27	37	36	20	27	28	31	27	28	35	27	41
Mathematics/computer sciences	907	918	910	923	868	849	829	899	1,012	1,261	1,579	1,628
Computer sciences	376	395	369	369	375	373	340	403	455	621	865	917
Mathematics/statistics	531	523	541	554	493	476	489	496	557	640	714	711
Medical/other life sciences	437	444	591	453	484	522	538	445	541	623	673	704
Medical sciences	265	254	290	244	278	282	314	273	355	409	436	431
Other life sciences	172	190	301	209	206	240	224	172	186	214	237	273
Physical sciences	1,290	1,389	1,365	1,414	1,296	1,290	1,203	1,318	1,376	1,584	1,803	1,943
Astronomy	32	37	23	34	25	25	17	22	26	42	41	39
Chemistry	717	782	776	811	754	751	682	784	784	860	1,041	1,142
Physics	520	559	549	558	500	492	492	498	557	669	706	746
Other physical sciences	21	11	17	11	17	22	12	14	9	13	15	16
Social/behavioral sciences	1,300	1,308	1,241	1,322	1,216	1,313	1,206	1,395	1,358	1,591	1,613	1,689
Psychology	178	191	153	183	158	157	143	199	198	229	254	246
Social sciences	1,122	1,117	1,088	1,139	1,058	1,156	1,063	1,196	1,160	1,362	1,359	1,443
Anthropology	52	69	79	77	62	72	78	67	71	67	55	86
Area/ethnic studies	27	28	18	30	32	36	29	27	36	30	33	24
Economics	524	551	563	569	527	594	542	590	582	743	686	738
History of science	1	0	0	2	5	1	4	3	6	7	6	11
Linguistics	79	97	80	84	97	93	68	99	89	77	102	96
Political science/public administration	220	187	160	183	163	188	171	228	192	243	271	282
Sociology	138	106	120	128	92	77	73	106	104	98	108	114
Other social sciences	81	79	68	66	80	95	98	76	80	97	98	92
Non-S&E	2,408	2,315	2,349	2,250	2,373	2,249	2,451	2,611	2,910	2,988	3,250	3,302

NOTES: Data not available for 1999. Detailed field not collected by citizenship or race/ethnicity prior to 1995. 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.

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

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Appendix table 2-31

Plans of foreign recipients of U.S. S&E doctorates to stay in United States, by field and place of origin: 1996–2007

	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
Field/place of origin	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07
All S&E fields									
All non-U.S. citizens	40,756	38,184	49,894	71.3	73.1	76.6	45.2	50.8	50.7
East/South Asia	24,804	21,483	30,499	77.3	79.4	81.8	48.9	54.5	53.1
China[a]	10,715	10,105	15,533	92.6	92.5	90.8	58.5	63.6	58.7
Taiwan	4,128	2,293	1,924	60.2	66.4	64.6	33.4	40.3	37.7
Japan	661	751	897	46.9	56.7	58.9	29.8	39.3	40.7
South Korea	3,580	3,541	4,743	50.0	68.6	69.2	30.4	45.7	43.1
India	4,798	3,259	5,759	90.1	89.1	88.9	62.2	66.5	61.6
Other	922	1,534	1,643	36.1	27.8	40.5	22.0	21.1	24.4
West Asia	3,218	3,442	4,341	61.4	61.7	66.1	34.7	41.8	44.0
Iran	460	311	513	86.1	88.1	91.8	46.1	55.6	62.0
Israel	234	180	268	62.8	72.2	61.9	45.3	48.3	47.8
Turkey	696	1,318	1,491	60.5	58.3	67.5	36.4	40.3	46.1
Other	1,828	1,633	2,069	55.4	58.2	59.2	29.8	39.7	37.5
Pacific/Australasia	868	662	746	54.4	60.6	70.9	32.9	41.5	48.5
Australia	211	160	225	62.1	68.1	68.4	45.0	46.9	53.3
Indonesia	252	228	220	32.5	50.4	65.5	17.5	32.5	37.7
New Zealand	104	91	96	59.6	64.8	65.6	42.3	48.4	56.3
Other	301	183	205	65.4	64.5	82.0	34.2	44.8	51.2
Africa	1,632	1,430	1,816	59.5	67.3	70.6	28.2	41.3	42.1
Egypt	342	380	525	51.8	63.4	65.0	10.8	44.2	43.0
Nigeria	148	78	142	83.8	88.5	87.3	30.4	46.2	43.7
South Africa	146	147	126	54.1	59.9	53.2	34.2	42.9	35.7
Other	996	825	1,023	59.3	68.5	73.3	32.9	39.3	42.2
Europe	5,735	6,465	7,112	71.1	74.0	74.5	50.1	54.7	53.4
Greece	470	352	420	67.7	66.2	68.1	46.8	50.9	46.0
United Kingdom	506	513	459	76.7	78.8	75.6	56.9	57.5	53.8
Germany	770	856	724	63.1	65.0	69.3	45.7	50.4	52.5
Italy	337	441	541	52.8	60.1	70.2	37.7	45.1	50.6
France	308	357	460	60.4	68.3	72.2	35.1	47.1	51.3
Spain	253	277	282	55.7	63.2	57.8	37.2	46.9	40.8
Other	3,091	3,669	4,226	77.1	79.1	77.9	54.5	58.1	55.7
North/South America	4,128	4,391	5,117	51.8	56.6	61.7	35.2	40.9	43.5
Canada	1,221	1,349	1,612	67.2	68.9	67.0	49.3	53.2	49.9
Mexico	679	829	770	35.5	43.7	50.1	21.9	29.4	37.1
Argentina	275	290	394	66.2	65.9	67.8	45.1	51.0	51.3
Brazil	721	544	599	31.5	38.1	47.7	20.2	27.6	34.1
Chile	128	181	206	46.9	41.4	39.8	33.6	32.6	25.2
Colombia	171	264	386	49.7	60.2	61.9	32.7	42.8	40.2
Peru	136	123	157	69.1	72.4	72.6	44.1	46.3	48.4
Other	797	811	993	54.0	58.3	70.6	34.1	38.1	45.2
Country unknown	371	311	263	70.1	32.2	52.5	35.6	14.1	20.9
Physical/earth, atmospheric, and ocean sciences									
All non-U.S. citizens	7,025	6,321	8,042	79.0	80.0	81.1	52.2	58.7	55.6
East/South Asia	4,252	3,447	4,541	85.3	86.1	86.2	54.6	63.0	57.8
China[a]	2,480	2,069	2,833	93.4	92.6	90.8	59.0	66.3	59.7
Taiwan	489	231	207	69.3	77.1	75.8	42.5	52.8	55.6
Japan	83	95	127	59.0	71.6	57.5	39.8	49.5	36.2
South Korea	500	467	575	63.8	79.2	80.9	45.6	62.5	57.0
India	607	446	644	90.9	86.3	86.8	60.0	67.7	61.0
Other	93	139	155	52.7	37.4	56.1	26.9	27.3	34.8
West Asia	372	395	607	71.0	64.8	75.0	44.1	45.8	51.9
Iran	69	37	62	84.1	81.1	85.5	50.7	64.9	59.7
Israel	22	16	32	77.3	62.5	68.8	63.6	37.5	56.3
Turkey	66	127	169	60.6	59.1	78.7	40.9	39.4	52.7
Other	215	215	344	69.3	65.6	71.8	40.9	47.0	49.7

Appendix table 2-31

Plans of foreign recipients of U.S. S&E doctorates to stay in United States, by field and place of origin: 1996–2007

	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
Field/place of origin	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07
Pacific/Australasia	135	92	138	63.0	73.9	79.7	36.3	48.9	57.2
Australia	27	13	42	59.3	61.5	66.7	40.7	61.5	52.4
Indonesia	23	27	17	60.9	63.0	76.5	39.1	44.4	41.2
New Zealand	15	9	15	73.3	66.7	73.3	46.7	44.4	73.3
Other	70	43	64	62.9	86.0	90.6	31.4	48.8	60.9
Africa	174	156	273	69.5	84.6	81.7	33.9	56.4	48.4
Egypt	18	33	45	44.4	81.8	64.4	27.8	63.6	33.3
Nigeria	19	5	26	94.7	60.0	88.5	26.3	60.0	38.5
South Africa	19	16	12	47.4	62.5	66.7	42.1	43.8	58.3
Other	118	102	190	72.9	90.2	85.8	34.7	55.9	36.6
Europe	1,490	1,653	1,738	72.2	75.5	76.1	53.8	56.6	54.5
Greece	75	51	67	57.3	60.8	62.7	38.7	47.1	43.3
United Kingdom	117	115	101	68.4	75.7	75.2	53.0	60.9	55.4
Germany	216	220	142	58.8	64.1	66.9	44.4	51.4	48.6
Italy	71	99	144	52.1	55.6	63.9	40.8	40.4	45.1
France	72	94	102	50.0	68.1	70.6	30.6	47.9	52.0
Spain	28	41	50	53.6	58.5	58.0	35.7	39.0	48.0
Other	911	1,033	1,132	81.0	81.9	80.9	60.7	60.8	57.5
North/South America	528	528	701	62.3	69.1	68.8	46.4	52.8	51.5
Canada	175	197	282	78.3	77.7	66.3	64.6	65.5	50.4
Mexico	74	88	95	35.1	59.1	56.8	18.9	43.2	42.1
Argentina	61	38	43	77.0	78.9	74.4	54.1	57.9	53.5
Brazil	69	41	43	42.0	34.1	62.8	33.3	19.5	51.2
Chile	16	12	15	50.0	66.7	46.7	37.5	41.7	40.0
Colombia	16	46	54	50.0	71.7	70.4	37.5	58.7	57.4
Peru	20	14	25	65.0	78.6	88.0	35.0	35.7	64.0
Other	97	92	144	62.9	69.6	79.9	44.3	48.9	56.3
Country unknown	74	50	44	68.9	38.0	40.9	39.2	20.0	18.2
Biological/agricultural sciences									
All non-U.S. citizens	9,789	8,474	9,942	76.0	77.5	80.4	50.0	53.3	54.5
East/South Asia	6,161	4,973	5,998	85.1	87.2	87.8	56.8	59.8	59.1
China[a]	3,555	2,816	3,221	93.8	94.4	92.9	62.3	64.0	60.7
Taiwan	871	468	403	68.8	78.2	78.7	44.8	51.7	51.6
Japan	90	109	133	67.8	77.1	75.9	48.9	53.2	57.9
South Korea	612	588	734	68.6	87.6	88.0	50.7	65.3	63.1
India	822	681	1,211	90.8	91.9	91.9	59.4	63.0	64.3
Other	211	311	296	38.4	28.0	33.8	26.5	18.0	20.6
West Asia	605	600	593	65.6	55.2	65.8	38.2	37.2	44.2
Iran	101	45	33	87.1	84.4	100.0	47.5	48.9	63.6
Israel	48	26	31	77.1	88.5	48.4	50.0	53.8	32.3
Turkey	96	236	174	55.2	38.1	73.0	29.2	25.4	52.3
Other	360	293	355	60.8	61.4	60.6	36.4	43.3	39.4
Pacific/Australasia	229	149	174	51.1	59.1	68.4	27.9	39.6	46.0
Australia	48	31	44	56.3	80.6	72.7	39.6	51.6	50.0
Indonesia	64	34	37	23.4	47.1	59.5	14.1	26.5	40.5
New Zealand	27	24	29	48.1	50.0	55.2	29.6	41.7	44.8
Other	90	60	64	68.9	58.3	76.6	31.1	40.0	46.9
Africa	401	332	448	54.4	62.3	71.2	22.4	36.4	42.6
Egypt	23	51	108	39.1	62.7	70.4	26.1	45.1	49.1
Nigeria	29	17	26	96.6	88.2	92.3	31.0	35.3	42.3
South Africa	31	36	38	45.2	55.6	52.6	29.0	36.1	31.6
Other	318	228	276	52.5	61.4	72.1	20.8	34.6	41.7

Appendix table 2-31

Plans of foreign recipients of U.S. S&E doctorates to stay in United States, by field and place of origin: 1996–2007

	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
Field/place of origin	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07
Europe	1,085	1,115	1,267	74.9	78.6	79.3	53.1	55.7	56.7
Greece	62	50	68	74.2	56.0	76.5	56.5	40.0	57.4
United Kingdom	124	115	106	84.7	86.1	77.4	64.5	58.3	50.9
Germany	167	164	142	68.9	73.8	80.3	48.5	54.9	62.0
Italy	51	49	78	54.9	61.2	80.8	35.3	44.9	48.7
France	58	54	84	63.8	70.4	78.6	34.5	37.0	54.8
Spain	62	51	44	59.7	72.5	72.7	37.1	52.9	40.9
Other	561	632	745	79.3	82.8	80.0	56.9	59.3	58.5
North/South America	1,229	1,268	1,409	47.9	56.2	61.1	32.5	40.6	43.3
Canada	306	341	392	71.9	72.1	71.7	53.9	56.9	54.3
Mexico	251	259	205	32.3	39.0	46.8	20.3	26.3	36.6
Argentina	69	90	117	53.6	72.2	59.0	43.5	51.1	45.3
Brazil	224	155	178	23.7	33.5	47.2	13.8	26.5	34.8
Chile	46	60	64	52.2	56.7	48.4	43.5	43.3	29.7
Colombia	60	81	101	53.3	64.2	53.5	38.3	40.7	31.7
Peru	26	30	46	69.2	76.7	76.1	50.0	40.0	56.5
Other	247	252	306	50.2	55.6	69.0	26.7	37.7	42.5
Country unknown	79	37	53	75.9	48.6	50.9	46.8	18.9	15.1
Health									
All non-U.S. citizens	1,423	1,546	1,893	60.3	59.3	65.9	37.2	39.7	41.1
East/South Asia	813	899	1,161	65.8	61.5	70.5	39.9	41.2	43.7
China[a]	207	248	320	89.9	91.9	88.4	56.5	63.7	60.9
Taiwan	213	169	196	43.7	44.4	43.9	24.9	25.4	21.4
Japan	24	43	45	41.7	44.2	66.7	20.8	34.9	44.4
South Korea	105	108	152	47.6	73.1	73.0	27.6	46.3	36.2
India	181	153	307	94.5	87.6	90.9	60.2	60.8	58.0
Other	83	178	141	30.1	10.1	21.3	13.3	6.2	12.1
West Asia	118	145	171	44.1	46.2	41.5	21.2	26.2	22.2
Iran	10	D	12	90.0	100.0	100.0	40.0	0.0	50.0
Israel	10	6	10	60.0	83.3	50.0	50.0	33.3	30.0
Turkey	8	17	15	62.5	64.7	73.3	50.0	41.2	60.0
Other	90	118	134	35.6	39.8	32.1	13.3	24.6	14.9
Pacific/Australasia	47	24	22	55.3	75.0	77.3	36.2	58.3	59.1
Australia	24	13	11	66.7	92.3	81.8	45.8	76.9	72.7
Indonesia	6	D	D	33.3	25.0	100.0	33.3	0.0	100.0
New Zealand	6	D	D	66.7	75.0	75.0	50.0	75.0	50.0
Other	11	D	6	36.4	66.7	66.7	9.1	33.3	33.3
Africa	100	90	127	54.0	61.1	58.3	28.0	32.2	33.1
Egypt	19	18	37	47.4	55.6	54.1	26.3	33.3	35.1
Nigeria	14	9	17	85.7	100.0	76.5	42.9	44.4	58.8
South Africa	15	6	11	53.3	33.3	54.5	26.7	33.3	27.3
Other	52	57	62	48.1	59.6	56.5	25.0	29.8	25.8
Europe	132	149	159	60.6	67.1	66.7	47.0	48.3	42.1
Greece	17	13	9	47.1	69.2	88.9	47.1	69.2	55.6
United Kingdom	21	29	26	81.0	89.7	65.4	66.7	69.0	50.0
Germany	25	18	18	64.0	55.6	66.7	52.0	44.4	33.3
Italy	D	6	13	50.0	33.3	84.6	0.0	0.0	61.5
France	9	10	5	77.8	80.0	80.0	44.4	50.0	80.0
Spain	13	8	7	61.5	62.5	71.4	46.2	25.0	28.6
Other	45	65	81	51.1	61.5	60.5	37.8	43.1	35.8

Appendix table 2-31

Plans of foreign recipients of U.S. S&E doctorates to stay in United States, by field and place of origin: 1996–2007

	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
Field/place of origin	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07
North/South America	196	224	232	50.0	54.0	64.7	34.2	39.7	46.6
Canada	105	109	110	54.3	67.9	69.1	37.1	54.1	55.5
Mexico	21	15	18	38.1	46.7	50.0	19.0	20.0	38.9
Argentina	10	D	6	50.0	75.0	83.3	40.0	50.0	83.3
Brazil	33	37	46	30.3	29.7	47.8	18.2	18.9	26.1
Chile	D	7	5	100.0	28.6	40.0	100.0	28.6	40.0
Colombia	5	13	11	60.0	30.8	81.8	20.0	30.8	45.5
Peru	5	8	D	80.0	62.5	66.7	80.0	25.0	0.0
Other	16	31	33	62.5	48.4	75.8	50.0	32.3	48.5
Country unknown	17	15	21	76.5	20.0	47.6	35.3	13.3	14.3
Mathematics/computer sciences									
All non-U.S. citizens	3,897	3,642	5,801	73.4	76.4	78.4	47.7	56.7	56.2
East/South Asia	2,189	1,852	3,549	78.5	82.7	84.4	50.2	59.8	59.6
China[a]	860	876	2,097	92.4	90.8	91.2	57.8	67.5	64.9
Taiwan	353	194	171	62.6	65.5	63.7	33.1	36.1	39.8
Japan	32	43	61	71.9	74.4	65.6	46.9	51.2	45.9
South Korea	332	327	444	48.8	76.5	74.5	23.2	51.7	46.6
India	544	314	637	90.3	92.0	86.2	68.9	72.0	64.8
Other	68	98	139	39.7	39.8	39.6	25.0	30.6	27.3
West Asia	269	329	460	53.5	63.8	67.4	31.2	49.5	48.9
Iran	28	31	60	78.6	90.3	83.3	42.9	64.5	60.0
Israel	33	29	34	75.8	65.5	61.8	66.7	48.3	47.1
Turkey	59	118	169	64.4	68.6	69.2	37.3	55.1	53.8
Other	149	151	197	39.6	54.3	61.9	18.8	42.4	41.6
Pacific/Australasia	79	60	61	74.7	68.3	78.7	50.6	55.0	67.2
Australia	23	26	28	82.6	53.8	67.9	60.9	50.0	64.3
Indonesia	14	8	13	42.9	75.0	84.6	0.0	50.0	53.8
New Zealand	18	19	9	77.8	78.9	88.9	66.7	52.6	88.9
Other	24	7	11	83.3	85.7	90.9	58.3	85.7	72.7
Africa	92	92	168	68.5	77.2	71.4	35.9	52.2	50.0
Egypt	30	23	61	66.7	78.3	60.7	40.0	56.5	39.3
Nigeria	D	D	D	100.0	100.0	100.0	0.0	50.0	66.7
South Africa	10	16	7	70.0	75.0	71.4	50.0	50.0	71.4
Other	48	51	97	66.7	76.5	77.3	33.3	51.0	54.6
Europe	892	961	1,118	74.9	76.6	72.7	52.6	59.4	54.5
Greece	76	54	82	65.8	72.2	58.5	44.7	48.1	50.0
United Kingdom	44	53	39	86.4	69.8	59.0	68.2	60.4	43.6
Germany	95	112	99	64.2	63.4	62.6	45.3	53.6	46.5
Italy	57	45	50	61.4	68.9	64.0	49.1	51.1	60.0
France	20	27	44	85.0	63.0	65.9	30.0	44.4	50.0
Spain	30	15	34	43.3	53.3	50.0	33.3	40.0	29.4
Other	570	655	770	79.6	81.4	78.2	55.8	62.9	57.5
North/South America	336	323	413	53.3	57.6	58.8	34.8	43.3	43.6
Canada	96	98	130	67.7	66.3	65.4	47.9	51.0	53.8
Mexico	57	64	64	36.8	39.1	51.6	21.1	28.1	35.9
Argentina	22	19	34	77.3	78.9	79.4	45.5	73.7	64.7
Brazil	66	57	74	37.9	54.4	45.9	22.7	40.4	32.4
Chile	9	13	12	33.3	53.8	50.0	11.1	38.5	16.7
Colombia	24	20	27	54.2	55.0	55.6	41.7	35.0	33.3
Peru	D	6	8	100.0	83.3	50.0	66.7	83.3	37.5
Other	59	46	64	54.2	58.7	60.9	35.6	39.1	42.2
Country unknown	40	25	32	67.5	32.0	59.4	42.5	8.0	31.3

Appendix table 2-31

Plans of foreign recipients of U.S. S&E doctorates to stay in United States, by field and place of origin: 1996–2007

	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
Field/place of origin	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07
Social/behavioral sciences									
All non-U.S. citizens	6,264	6,211	7,188	51.6	56.2	59.5	30.4	39.4	41.8
East/South Asia	2,969	2,470	3,003	50.8	55.2	59.1	28.4	38.1	40.1
China[a]	738	573	878	80.5	81.8	77.8	46.9	60.9	56.7
Taiwan	462	295	290	31.0	39.3	41.7	11.7	22.4	24.1
Japan	311	349	393	41.8	47.6	48.3	25.7	31.8	35.6
South Korea	819	678	792	28.2	39.7	46.7	13.2	24.9	28.3
India	464	363	391	78.4	81.3	76.7	50.0	58.4	53.7
Other	175	212	259	26.3	23.1	42.5	13.1	15.6	23.6
West Asia	535	585	734	44.1	54.9	52.3	25.8	36.2	36.0
Iran	35	21	27	77.1	85.7	92.6	40.0	28.6	48.1
Israel	79	80	119	51.9	66.3	58.8	36.7	50.0	43.7
Turkey	112	222	317	40.2	50.5	48.9	28.6	35.6	35.0
Other	309	262	271	39.8	52.7	49.4	20.4	33.2	32.5
Pacific/Australasia	217	179	167	42.4	48.6	55.1	26.3	32.4	35.3
Australia	63	56	65	55.6	66.1	58.5	42.9	39.3	44.6
Indonesia	65	54	49	15.4	27.8	44.9	4.6	14.8	18.4
New Zealand	25	22	19	44.0	63.6	47.4	36.0	50.0	36.8
Other	64	47	34	56.3	44.7	67.6	28.1	36.2	41.2
Africa	395	342	351	53.4	61.4	59.0	21.3	33.9	33.0
Egypt	28	29	43	42.9	37.9	39.5	21.4	27.6	32.6
Nigeria	47	28	25	61.7	85.7	80.0	19.1	50.0	32.0
South Africa	36	41	30	52.8	53.7	30.0	25.0	34.1	16.7
Other	284	244	253	53.2	62.7	63.6	21.1	32.8	35.2
Europe	1,065	1,336	1,555	62.4	65.2	68.7	42.5	50.3	52.9
Greece	76	58	49	73.7	53.4	67.3	50.0	39.7	44.9
United Kingdom	151	153	130	71.5	76.5	78.5	51.0	54.9	58.5
Germany	156	179	208	63.5	65.4	66.3	44.2	51.4	53.4
Italy	106	150	154	45.3	59.3	66.2	34.0	50.0	53.2
France	65	77	81	61.5	67.5	67.9	36.9	50.6	55.6
Spain	85	110	87	51.8	59.1	49.4	35.3	47.3	42.5
Other	426	609	846	63.4	65.7	70.3	42.0	50.4	53.2
North/South America	1,024	1,226	1,329	47.9	49.9	55.1	31.2	35.7	39.6
Canada	362	438	465	56.9	60.0	59.4	38.1	45.4	43.7
Mexico	133	188	181	31.6	35.1	42.0	20.3	20.7	33.7
Argentina	67	98	133	56.7	49.0	67.7	28.4	39.8	55.6
Brazil	124	131	144	31.5	38.2	43.1	22.6	29.0	33.3
Chile	39	53	58	48.7	24.5	32.8	30.8	20.8	17.2
Colombia	36	41	79	30.6	46.3	44.3	16.7	36.6	26.6
Peru	55	43	37	61.8	65.1	54.1	41.8	48.8	27.0
Other	208	234	232	48.6	53.4	66.4	31.7	32.5	42.7
Country unknown	59	73	49	55.9	37.0	46.9	16.9	19.2	26.5
Engineering									
All non-U.S. citizens	12,358	11,990	17,028	73.8	75.8	80.0	45.2	50.3	49.3
East/South Asia	8,420	7,842	12,247	77.6	80.3	83.0	47.9	52.8	50.7
China[a]	2,875	3,523	6,184	93.8	93.1	91.6	56.8	61.1	55.4
Taiwan	1,740	936	657	62.6	70.5	68.9	32.1	40.6	33.8
Japan	121	112	138	30.6	50.9	68.1	16.5	37.5	39.1
South Korea	1,212	1,373	2,046	50.1	68.9	66.3	27.9	40.3	37.4
India	2,180	1,302	2,569	91.7	90.2	90.3	65.0	69.6	61.2
Other	292	596	653	36.0	30.5	43.3	22.6	17.6	26.0
West Asia	1,319	1,388	1,776	67.0	67.6	70.8	35.9	44.9	45.3
Iran	217	173	319	88.5	90.2	93.4	45.6	58.4	64.3
Israel	42	23	42	50.0	87.0	78.6	28.6	47.8	69.0
Turkey	355	598	647	67.6	66.9	71.6	39.4	45.2	45.9
Other	705	594	768	61.1	60.9	60.4	31.6	40.6	35.7

Appendix table 2-31

Plans of foreign recipients of U.S. S&E doctorates to stay in United States, by field and place of origin: 1996–2007

	Foreign S&E doctorate recipients			Plans to stay (%)			Definite plans to stay (%)		
Field/place of origin	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07	1996–99	2000–03	2004–07
Pacific/Australasia	161	158	184	57.8	62.7	77.7	36.6	41.8	48.9
Australia	26	21	35	69.2	61.9	80.0	50.0	28.6	60.0
Indonesia	80	101	103	43.8	59.4	72.8	26.3	40.6	42.7
New Zealand	13	13	20	69.2	69.2	80.0	38.5	46.2	65.0
Other	42	23	26	73.8	73.9	92.3	47.6	56.5	46.2
Africa	470	418	449	64.7	68.9	75.5	35.3	45.2	44.5
Egypt	224	226	231	53.1	63.3	70.1	29.0	42.9	46.3
Nigeria	35	17	45	94.3	94.1	91.1	45.7	47.1	46.7
South Africa	35	32	28	62.9	68.8	67.9	42.9	59.4	46.4
Other	176	143	145	73.9	74.8	80.7	39.8	45.5	40.7
Europe	1,071	1,251	1,275	72.5	75.9	77.4	48.0	53.0	49.7
Greece	164	126	145	70.1	75.4	71.0	46.3	61.1	39.3
United Kingdom	49	48	57	81.6	79.2	82.5	55.1	45.8	54.4
Germany	111	163	115	61.3	58.9	70.4	45.0	41.7	52.2
Italy	50	92	102	58.0	63.0	78.4	32.0	42.4	50.0
France	84	95	144	58.3	68.4	73.6	38.1	49.5	45.8
Spain	35	52	60	68.6	69.2	61.7	42.9	51.9	40.0
Other	578	675	652	78.2	83.3	81.7	51.6	56.7	52.9
North/South America	815	822	1,033	55.8	59.5	66.5	37.4	40.9	42.9
Canada	177	166	233	76.8	77.7	75.1	57.1	51.8	49.4
Mexico	143	215	207	44.1	51.6	57.0	28.7	36.3	38.6
Argentina	46	41	61	82.6	73.2	72.1	60.9	61.0	41.0
Brazil	205	123	114	34.6	39.8	50.0	21.0	26.8	31.6
Chile	17	36	52	29.4	30.6	32.7	17.6	27.8	25.0
Colombia	30	63	114	60.0	63.5	77.2	33.3	42.9	50.0
Peru	27	22	38	81.5	77.3	81.6	40.7	54.5	55.3
Other	170	156	214	60.0	65.4	73.4	40.0	41.7	44.9
Country unknown	102	111	64	74.5	22.5	64.1	32.4	8.1	20.3

D = suppressed to avoid disclosure of confidential information

[a]Includes Hong Kong.

NOTES: Data include permanent and temporary residents. Recipients who plan to stay report planning to locate in United States; those with definite plans report postdoctoral research appointment or definite employment plans in United States.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 2-32

Postdocs at U.S. universities, by field and citizenship: 1993–2006

Field/citizenship	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All fields/citizenships														
S&E	34,322	36,377	35,926	37,107	38,481	40,086	40,800	43,115	43,311	45,034	46,728	47,240	48,555	49,261
Engineering	2,446	2,606	2,648	2,677	2,971	2,853	3,196	3,313	3,152	3,566	3,810	3,949	4,166	4,626
Aerospace	116	100	101	109	125	133	128	111	128	140	141	141	153	165
Chemical	529	527	576	545	636	613	671	703	574	758	686	689	702	722
Civil	181	210	201	230	248	225	299	295	268	342	300	313	384	462
Electrical	388	411	381	395	508	488	548	525	436	613	646	654	689	716
Industrial	63	54	30	30	28	30	27	48	21	43	45	50	51	51
Materials	403	441	490	496	465	404	421	507	479	507	539	567	578	571
Mechanical	358	388	410	425	440	434	476	480	501	441	543	514	562	642
Other	408	475	459	447	521	526	626	644	745	722	910	1,021	1,047	1,297
Science	31,876	33,771	33,278	34,430	35,510	37,233	37,604	39,802	40,159	41,468	42,918	43,291	44,389	44,635
Natural sciences	30,977	32,830	32,320	33,392	34,563	36,225	36,434	38,601	38,941	40,199	41,556	42,024	43,134	43,371
Agricultural sciences	720	729	724	699	724	695	750	822	833	963	1,054	959	1,007	927
Biological sciences	13,778	14,379	14,659	14,890	15,082	15,761	16,097	16,734	17,032	17,640	18,625	18,716	18,747	18,797
Earth, atmospheric, and ocean sciences	765	824	845	861	942	902	925	1,155	1,049	1,129	1,182	1,263	1,364	1,493
Atmospheric sciences	81	89	88	80	98	85	107	94	100	94	109	128	123	128
Earth sciences	426	444	440	451	494	468	479	514	471	444	463	507	521	540
Oceanography	204	237	258	244	258	249	235	246	218	270	250	300	347	346
Other geosciences	54	54	59	86	92	100	104	301	260	321	360	328	373	479
Mathematics/computer sciences	388	424	475	576	630	653	685	729	689	751	804	852	906	1,032
Computer sciences	164	185	213	250	322	374	334	344	336	356	355	384	406	458
Mathematics/statistics	224	239	262	326	308	279	351	385	353	395	449	468	500	574
Medical/other life sciences	9,657	10,590	9,766	10,538	11,217	12,210	11,820	12,891	13,115	13,097	13,062	13,175	14,099	14,448
Medical sciences	9,398	10,350	9,507	10,253	10,917	11,867	11,520	12,503	12,727	12,683	12,635	12,726	13,666	13,938
Other life sciences	259	240	259	285	300	343	300	388	388	414	427	449	433	510
Physical sciences	5,669	5,884	5,851	5,828	5,968	6,004	6,157	6,270	6,223	6,619	6,829	7,059	7,011	6,674
Astronomy	219	246	276	312	319	360	375	315	311	330	319	367	388	360
Chemistry	3,573	3,729	3,647	3,572	3,747	3,741	3,836	3,877	3,864	3,990	4,147	4,338	4,216	4,044
Physics	1,838	1,865	1,832	1,858	1,803	1,863	1,862	1,948	1,912	2,155	2,202	2,138	2,208	2,102
Other physical sciences	39	44	96	86	99	40	84	130	136	144	161	216	199	168
Social/behavioral sciences	899	941	958	1,038	947	1,008	1,170	1,201	1,218	1,269	1,362	1,267	1,255	1,264
Psychology	521	551	582	594	586	617	716	730	809	815	960	902	884	870
Social sciences	378	390	376	444	361	391	454	471	409	454	402	365	371	394
Anthropology	52	57	67	74	59	62	87	73	56	66	57	54	65	61
Economics	84	91	66	72	69	67	74	73	57	50	61	54	53	52
History of science	26	30	36	35	28	23	10	14	9	13	14	6	9	8
Linguistics	29	20	16	36	19	18	15	19	17	22	29	29	24	25
Political science/public administration	35	44	36	35	31	64	70	50	52	61	51	44	42	62
Sociology	77	82	91	127	102	79	104	102	92	109	76	77	63	43
Other social sciences	75	66	64	65	53	78	94	140	126	133	114	101	115	143

Appendix table 2-32

Postdocs at U.S. universities, by field and citizenship: 1993–2006

Field/citizenship	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
U.S. citizen/permanent resident														
S&E	16,727	17,986	18,142	18,412	18,916	19,710	18,884	19,452	18,379	19,663	19,663	20,156	21,507	21,063
Engineering	843	1,018	999	1,050	1,089	950	1,018	1,069	965	1,117	1,133	1,297	1,413	1,520
Aerospace	46	33	36	35	45	57	34	51	43	47	56	46	56	48
Chemical	153	202	218	206	251	190	197	187	132	239	207	227	246	203
Civil	61	87	76	84	94	81	106	117	93	115	120	105	139	205
Electrical	132	137	140	141	164	182	161	146	117	183	145	191	248	228
Industrial	34	42	20	19	13	17	16	23	4	15	16	16	16	17
Materials	113	167	162	200	142	118	105	138	125	140	129	166	160	180
Mechanical	135	140	139	170	146	108	156	155	152	117	133	158	150	172
Other	169	210	208	195	234	197	243	252	299	261	327	388	398	467
Science	15,884	16,968	17,143	17,362	17,827	18,760	17,866	18,383	17,414	18,546	18,530	18,859	20,094	19,543
Natural sciences	15,263	16,293	16,417	16,571	17,120	18,008	16,985	17,488	16,538	17,588	17,625	17,986	19,251	18,705
Agricultural sciences	378	363	392	355	370	364	376	331	327	407	468	431	433	384
Biological sciences	6,924	7,251	7,396	7,483	7,300	7,684	7,360	7,078	7,004	7,795	7,760	7,808	7,739	7,815
Earth, atmospheric, and ocean sciences	460	514	502	504	573	530	535	705	603	656	617	695	739	733
Atmospheric sciences	39	53	54	49	63	52	77	62	45	32	48	51	45	43
Earth sciences	266	270	239	268	300	270	258	277	247	261	221	245	231	226
Oceanography	123	159	174	142	153	147	133	124	115	146	108	159	188	167
Other geosciences	32	32	35	45	57	61	67	242	196	217	240	240	275	297
Mathematics/computer sciences	196	227	230	258	284	315	296	278	265	362	372	374	427	437
Computer sciences	89	96	113	121	146	188	144	129	111	173	157	162	164	159
Mathematics/statistics	107	131	117	137	138	127	152	149	154	189	215	212	263	278
Medical/other life sciences	5,092	5,517	5,319	5,482	6,081	6,744	6,159	6,825	6,306	6,139	6,121	6,187	7,429	7,028
Medical sciences	4,894	5,332	5,120	5,282	5,861	6,486	5,966	6,532	6,037	5,860	5,823	5,896	7,150	6,687
Other life sciences	198	185	199	200	220	258	193	293	269	279	298	291	279	341
Physical sciences	2,213	2,421	2,578	2,489	2,512	2,371	2,259	2,271	2,033	2,229	2,287	2,491	2,484	2,308
Astronomy	143	178	184	208	204	207	204	184	160	162	172	202	230	163
Chemistry	1,297	1,427	1,503	1,381	1,496	1,404	1,375	1,355	1,241	1,215	1,295	1,422	1,376	1,354
Physics	749	794	840	857	766	742	642	651	567	782	733	754	765	705
Other physical sciences	24	22	51	43	46	18	38	81	65	70	87	113	113	86
Social/behavioral sciences	621	675	726	791	707	752	881	895	876	958	905	873	843	838
Psychology	386	426	465	483	453	487	535	561	594	612	632	626	585	600
Social sciences	235	249	261	308	254	265	346	334	282	346	273	247	258	238
Anthropology	46	49	56	57	45	50	74	61	42	52	49	46	57	52
Economics	30	35	38	42	42	39	51	47	35	30	28	19	23	16
History of science	12	18	19	19	16	15	8	11	6	10	7	1	4	5
Linguistics	22	15	11	26	15	12	14	10	9	14	17	19	19	13
Political science/public administration	20	28	25	25	23	45	48	29	33	46	35	33	34	38
Sociology	57	62	72	99	85	65	89	86	74	93	53	57	46	30
Other social sciences	48	42	40	40	28	39	62	90	83	101	84	72	75	84

Appendix table 2-32

Postdocs at U.S. universities, by field and citizenship: 1993–2006

Field/citizenship	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Temporary resident														
S&E	17,595	18,391	17,784	18,695	19,565	20,376	21,916	23,663	24,932	25,371	27,065	27,084	27,048	28,198
Engineering	1,603	1,588	1,649	1,627	1,882	1,903	2,178	2,244	2,187	2,449	2,677	2,652	2,753	3,106
Aerospace	70	67	65	74	80	76	94	60	85	93	85	95	97	117
Chemical	376	325	358	339	385	423	474	516	442	519	479	462	456	519
Civil	120	123	125	146	154	144	193	178	175	227	180	208	245	257
Electrical	256	274	241	254	344	306	387	379	319	430	501	463	441	488
Industrial	29	12	10	11	15	13	11	25	17	28	29	34	35	34
Materials	290	274	328	296	323	286	316	369	354	367	410	401	418	391
Mechanical	223	248	271	255	294	326	320	325	349	324	410	356	412	470
Other	239	265	251	252	287	329	383	392	446	461	583	633	649	830
Science	15,992	16,803	16,135	17,068	17,683	18,473	19,738	21,419	22,745	22,922	24,388	24,432	24,295	25,092
Natural sciences	15,714	16,537	15,903	16,821	17,443	18,217	19,449	21,113	22,403	22,611	23,931	24,038	23,883	24,666
Agricultural sciences	342	366	332	344	354	331	374	491	506	556	586	528	574	543
Biological sciences	6,854	7,128	7,263	7,407	7,782	8,077	8,737	9,656	10,028	9,845	10,865	10,908	11,008	10,982
Earth, atmospheric, and ocean sciences	305	310	343	357	369	372	390	450	446	473	565	568	625	760
Atmospheric sciences	42	36	34	31	35	33	30	32	55	62	61	77	78	85
Earth sciences	160	174	201	183	194	198	221	237	224	183	242	262	290	314
Oceanography	81	78	84	102	105	102	102	122	103	124	142	141	159	179
Other geosciences	22	22	24	41	35	39	37	59	64	104	120	88	98	182
Mathematics/computer sciences	192	197	245	318	346	338	389	451	424	389	432	478	479	595
Computer sciences	75	89	100	129	176	186	190	215	225	183	198	222	242	299
Mathematics/statistics	117	108	145	189	170	152	199	236	199	206	234	256	237	296
Medical/other life sciences	4,565	5,073	4,447	5,056	5,136	5,466	5,661	6,066	6,809	6,958	6,941	6,988	6,670	7,420
Medical sciences	4,504	5,018	4,387	4,971	5,056	5,381	5,554	5,971	6,690	6,823	6,812	6,830	6,516	7,251
Other life sciences	61	55	60	85	80	85	107	95	119	135	129	158	154	169
Physical sciences	3,456	3,463	3,273	3,339	3,456	3,633	3,898	3,999	4,190	4,390	4,542	4,568	4,527	4,366
Astronomy	76	68	92	104	115	153	171	131	151	168	147	165	158	197
Chemistry	2,276	2,302	2,144	2,191	2,251	2,337	2,461	2,522	2,623	2,775	2,852	2,916	2,840	2,690
Physics	1,089	1,071	992	1,001	1,037	1,121	1,220	1,297	1,345	1,373	1,469	1,384	1,443	1,397
Other physical sciences	15	22	45	43	53	22	46	49	71	74	74	103	86	82
Social/behavioral sciences	278	266	232	247	240	256	289	306	342	311	457	394	412	426
Psychology	135	125	117	111	133	130	181	169	215	203	328	276	299	270
Social sciences	143	141	115	136	107	126	108	137	127	108	129	118	113	156
Anthropology	6	8	11	17	14	12	13	12	14	14	8	8	8	9
Economics	54	56	28	30	27	28	23	26	22	20	33	35	30	36
History of science	14	12	17	16	12	8	2	3	3	3	7	5	5	3
Linguistics	7	5	5	10	4	6	1	9	8	8	12	10	5	12
Political science/public administration	15	16	11	10	8	19	22	21	19	15	16	11	8	24
Sociology	20	20	19	28	17	14	15	16	18	16	23	20	17	13
Other social sciences	27	24	24	25	25	39	32	50	43	32	30	29	40	59

NOTES: Medical/other life sciences reported separately from S&E fields in National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Graduate Students and Posdoctorates in Science and Engineering.

SOURCE: NSF/SRS, 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 2010

Appendix table 2-33

Expenditures on tertiary education as a percentage of GDP and change in expenditures: 1995, 2000, and 2005

(Percent)

Country	Expenditures on tertiary education as a percentage of GDP			Change in expenditures (2000 = 100), constant prices		
	1995	2000	2005	1995	2000	2005
OECD countries						
Australia	1.6	1.5	1.6	91	100	122
Austria	1.2	1.0	1.3	98	100	133
Belgium	NA	1.3	1.2	NA	100	102
Canada	2.1	2.3	2.6	75	100	117
Czech Republic	0.9	0.8	1.0	101	100	153
Denmark	1.6	1.6	1.7	91	100	116
Finland	1.9	1.7	1.7	90	100	116
France	1.4	1.3	1.3	91	100	107
Germany	1.1	1.1	1.1	95	100	106
Greece	0.6	0.8	1.5	66	100	236
Hungary	1.0	1.1	1.1	74	100	126
Iceland	NA	0.9	1.2	NA	100	177
Ireland	1.3	1.5	1.2	57	100	102
Italy	0.7	0.9	0.9	79	100	112
Japan	1.3	1.4	1.4	88	100	106
Korea	NA	2.3	2.4	NA	100	130
Luxembourg	NA	NA	NA	NA	100	NA
Mexico	1.1	1.0	1.3	77	100	137
Netherlands	1.4	1.2	1.3	94	100	111
New Zealand	NA	NA	1.5	105	100	118
Norway	1.6	1.2	1.3	107	100	117
Poland	0.8	1.1	1.6	59	100	174
Portugal	0.9	1.0	1.4	73	100	142
Slovak Republic	0.7	0.8	0.9	81	100	149
Spain	1.0	1.1	1.1	72	100	114
Sweden	1.5	1.6	1.6	81	100	116
Switzerland	0.9	1.1	1.4	74	100	133
Turkey	0.7	1.0	NA	NA	100	NA
United Kingdom	1.1	1.0	1.3	98	100	149
United States	2.3	2.7	2.9	70	100	118
OECD average	NA	NA	1.5	83	100	130
EU-19 average	NA	NA	1.3	82	100	131
Partner countries						
Brazil	0.7	0.7	0.8	78	100	118
Chile	1.7	2.0	1.8	61	100	112
Estonia	1.0	1.0	1.1	68	100	113
Israel	1.9	1.9	1.9	77	100	108
Russian Federation	NA	0.5	0.8	NA	100	228

NA = not available

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

NOTES: For Canada, year of reference 2004 instead of 2005. For Chile, year of reference 2006 instead of 2005. For expenditures as a percentage of GDP, data for Luxembourg, Norway, Switzerland, Brazil, and Russian Federation for public expenditures only. For chang in expenditures, data for Canada, Hungary, Italy, Poland, Portugal, Switzerland, and Brazil for public institutions only and data for New Zealand, Switzerland, Brazil, and Estonia for public expenditures only.

SOURCE: OECD, Education at a Glance 2008, http://www.oecd.org/document/9/0,3343,en_2649_39263238_41266761_1_1_1_1,00.html. Accessed 17 March 2009.

Science and Engineering Indicators 2010

Appendix table 2-34

Tertiary-type A, advanced research programs, and tertiary education, by age group and country: 2006

(Percent)

Country	Tertiary-type A and advanced research programs		All tertiary	
	25–64 years	25–34 years	25–64 years	25–34 years
OECD average	19.3	24.6	26.8	33.2
Australia	23.8	29.2	33.0	38.8
Austria	10.1	12.9	17.6	19.2
Belgium	14.1	19.4	31.8	41.9
Brazil (2004)	NA	NA	7.8	7.9
Canada	24.0	29.3	47.0	54.8
Chile (2004)	10.3	14.2	13.2	18.3
Czech Republic	13.5	15.2	13.5	15.2
Denmark	27.1	31.7	34.7	40.8
Estonia	22.2	24.1	33.3	32.8
Finland	19.2	29.4	35.1	38.5
France	15.6	23.7	26.2	41.4
Germany	15.1	15.1	23.9	22.0
Greece	15.1	17.7	22.2	26.7
Hungary	17.4	20.1	17.7	20.7
Iceland	25.6	28.5	29.5	31.5
Ireland	19.9	28.2	30.8	42.2
Israel	29.8	34.8	45.8	50.0
Italy	12.4	16.7	12.9	17.3
Japan	23.0	29.7	40.5	54.1
Korea	23.5	32.9	32.9	53.0
Luxembourg	16.4	22.7	24.0	33.5
Mexico	14.4	17.5	15.4	18.6
Netherlands	28.4	34.3	30.2	36.0
New Zealand	23.0	29.8	38.3	43.6
Norway	30.5	39.8	32.9	41.5
Poland	17.9	28.0	17.9	28.0
Portugal	13.5	20.0	13.5	20.0
Russian Federation (2002)	20.8	21.3	54.0	55.5
Slovak Republic	13.3	15.7	14.2	16.6
Slovenia	10.6	15.2	20.2	24.7
Spain	19.8	26.0	28.5	39.2
Sweden	21.7	30.6	30.5	39.1
Switzerland	19.9	23.2	29.9	32.2
Turkey	10.4	12.8	10.4	12.8
United Kingdom	21.7	28.6	30.5	36.7
United States	29.9	29.9	39.5	39.2

NA = not available

OECD = Organisation for Economic Co-operation and Development

NOTES: Tertiary education includes International Standard Classification of Education (ISCED) levels 5A, 5B, and 6 programs. ISCED 5A programs 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 devoted to advanced studies and original research leading to award of an advanced research qualification. In 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 2008 (2008).

Science and Engineering Indicators 2010

Appendix table 2-35

First university degrees, by selected region and country/economy: 2006 or most recent year

Region/country/economy	Field of first university degree								Degrees in (%)		
	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
All regions[a]	12,321,906	4,256,148	772,562	443,064	196,916	1,191,528	1,652,078	8,065,758	34.5	11.5	13.4
Asia[a]	4,133,459	1,827,879	402,906	73,843	64,560	412,420	874,150	2,305,580	44.2	13.1	21.1
Bangladesh (2003)	180,258	74,844	18,905	5,598	1,469	48,002	870	105,414	41.5	14.4	0.5
Brunei	865	54	9	10	0	35	0	811	6.2	2.2	0.0
Cambodia	8,333	2,544	141	1,228	411	246	518	5,789	30.5	21.4	6.2
China	1,726,674	911,846	194,807	NA	36,740	104,665	575,634	814,828	52.8	13.4	33.3
India (1990)	750,000	176,036	147,036	NA	NA	NA	29,000	573,964	23.5	19.6	3.9
Japan[b]	558,184	350,137	19,805	NA	16,019	217,638	96,675	208,047	62.7	6.4	17.3
Kyrgyzstan	32,011	6,866	523	1,547	177	2,396	2,223	25,145	21.4	7.0	6.9
Laos	2,931	514	0	0	172	102	240	2,417	17.5	5.9	8.2
Mongolia	22,038	6,685	693	594	563	2,169	2,666	15,353	30.3	8.4	12.1
Philippines[c] (2004)	350,529	86,690	0	26,321	0	15,145	45,224	263,839	24.7	7.5	12.9
Singapore[d] (2007)	11,171	5,691	1,325	NA	NA	NA	4,366	5,480	50.9	11.9	39.1
South Korea	270,546	116,231	14,237	15,321	4,021	14,051	68,601	154,315	43.0	12.4	25.4
Taiwan	219,919	89,741	5,425	23,224	4,988	7,971	48,133	130,178	40.8	15.3	21.9
Middle East[a]	682,398	234,561	43,547	31,567	19,722	66,085	73,640	447,837	34.4	13.9	10.8
Bahrain	2,116	533	60	155	0	184	134	1,583	25.2	10.2	6.3
Iran	209,698	87,222	16,551	7,918	12,269	17,775	32,709	122,476	41.6	17.5	15.6
Iraq (2004)	54,396	11,629	1,606	1,289	1,185	570	6,979	42,767	21.4	7.5	12.8
Israel	51,270	6,246	0	0	334	0	5,912	45,024	12.2	0.7	11.5
Jordan	38,728	15,164	4,479	4,079	984	2,298	3,324	23,564	39.2	24.6	8.6
Lebanon	24,696	8,594	1,284	1,353	95	3,141	2,721	16,102	34.8	11.1	11.0
Oman	8,672	1,904	525	675	134	312	258	6,768	22.0	15.4	3.0
Palestine	17,120	5,067	447	1,091	43	2,220	1,266	12,053	29.6	9.2	7.4
Qatar (2007)	1,303	334	56	138	0	59	81	969	25.6	14.9	6.2
Saudi Arabia	71,291	26,748	8,662	8,296	223	7,635	1,932	44,543	37.5	24.1	2.7
Turkey	203,108	71,120	9,877	6,573	4,455	31,891	18,324	131,988	35.0	10.3	9.0
Africa[a]	301,826	103,635	20,750	11,487	7,854	43,447	20,097	198,191	34.3	13.3	6.7
Algeria	93,647	30,614	5,974	3,147	867	13,554	7,072	63,033	32.7	10.7	7.6
Burundi (2004)	680	207	0	74	51	70	12	473	30.4	18.4	1.8
Cameroon	23,843	14,227	3,685	1,032	212	8,508	790	9,616	59.7	20.7	3.3
Eritrea (2004)	1,254	501	71	85	104	159	82	753	40.0	20.7	6.5
Ethiopia	26,820	7,914	1,308	1,091	2,224	1,056	2,235	18,906	29.5	17.2	8.3
Gambia (2004)	470	94	94	0	0	0	0	376	20.0	20.0	0.0
Ghana (2001)	7,122	2,951	916	0	362	1,177	496	4,171	41.4	17.9	7.0
Kenya (2000)	10,587	3,812	1,068	63	1,440	433	808	6,775	36.0	24.3	7.6
Lesotho (2003)	475	190	40	0	30	120	0	285	40.0	14.7	0.0
Madagascar	7,442	1,889	642	153	73	991	30	5,553	25.4	11.7	0.4
Mauritius	2,339	1,061	186	119	32	210	514	1,278	45.4	14.4	22.0
Morocco	29,579	9,443	2,233	832	347	4,448	1,583	20,136	31.9	11.5	5.4
Mozambique (2005)	3,615	1,157	85	192	181	537	162	2,458	32.0	12.7	4.5
Namibia (2003)	1,356	154	0	0	131	0	23	1,202	11.4	9.7	1.7
South Africa (2003)	81,133	26,031	4,100	4,549	1,376	10,475	5,531	55,102	32.1	12.4	6.8

Appendix table 2-35

First university degrees, by selected region and country/economy: 2006 or most recent year

Region/country/economy	Field of first university degree								Degrees in (%)		
	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
Swaziland	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[a]	3,858,956	1,164,140	151,998	176,150	66,648	318,939	450,405	2,694,816	30.2	10.2	11.7
European Union	2,406,333	827,948	124,395	128,698	33,033	238,800	303,022	1,578,385	34.4	11.9	12.6
Austria	23,460	9,224	1,441	2,062	136	2,227	3,358	14,236	39.3	15.5	14.3
Belgium	25,143	9,760	1,384	1,284	411	3,086	3,595	15,383	38.8	12.2	14.3
Bulgaria (2005)	41,476	15,514	1,066	1,100	492	6,428	6,428	25,962	37.4	6.4	15.5
Czech Republic	45,226	16,254	1,582	2,145	1,824	2,217	8,486	28,972	35.9	12.3	18.8
Cyprus	966	352	66	144	0	141	1	614	36.4	21.7	0.1
Denmark	30,049	6,698	704	795	91	1,731	3,377	23,351	22.3	5.3	11.2
Estonia	7,140	2,296	400	404	216	585	691	4,844	32.2	14.3	9.7
Finland	37,948	13,756	1,073	2,023	799	1,914	7,947	24,192	36.2	10.3	20.9
France	285,238	100,524	19,075	16,134	2,737	23,169	39,409	184,714	35.2	13.3	13.8
Germany	267,597	95,101	16,952	21,656	2,367	19,919	34,207	172,496	35.5	15.3	12.8
Greece (2005)	40,703	17,232	3,946	3,282	744	5,241	4,019	23,471	42.3	19.6	9.9
Hungary	53,114	10,746	714	2,882	1,435	1,921	3,794	42,368	20.2	9.5	7.1
Latvia	23,133	5,639	311	792	189	2,937	1,410	17,494	24.4	5.6	6.1
Lithuania	29,844	9,293	685	1,582	360	2,482	4,184	20,551	31.1	8.8	14.0
Ireland (2004)	25,865	8,048	1,955	2,218	208	1,123	2,544	17,817	31.1	16.9	9.8
Italy	273,451	100,963	13,073	6,037	3,611	33,813	44,429	172,488	36.9	8.3	16.2
Netherlands	94,600	27,745	1,330	4,826	1,083	12,852	7,654	66,855	29.3	7.7	8.1
Poland	293,045	107,355	11,585	17,597	5,240	38,857	34,076	185,690	36.6	11.7	11.6
Portugal	50,666	19,311	2,494	3,288	724	5,652	7,153	31,355	38.1	12.8	14.1
Romania	160,540	49,227	4,682	2,499	2,777	15,228	24,041	111,313	30.7	6.2	15.0
Slovak Republic	30,516	8,720	1,073	1,206	891	1,382	4,168	21,796	28.6	10.4	13.7
Slovenia	7,685	2,473	196	182	137	1,217	741	5,212	32.2	6.7	9.6
Spain	192,178	63,201	7,770	10,641	3,511	12,750	28,529	128,977	32.9	11.4	14.8
Sweden	47,490	16,711	1,718	1,829	225	4,058	8,881	30,779	35.2	7.9	18.7
United Kingdom (2007)[e]	319,260	111,805	29,120	22,090	2,825	37,870	19,900	207,455	35.0	16.9	6.2
European Free Trade Association	54,095	14,898	2,070	2,183	341	4,991	5,313	39,197	27.5	8.5	9.8
Iceland	2,794	675	130	84	23	244	194	2,119	24.2	8.5	6.9
Norway	26,047	5,927	370	1,001	162	2,331	2,063	20,120	22.8	5.9	7.9
Switzerland	25,254	8,296	1,570	1,098	156	2,416	3,056	16,958	32.9	11.2	12.1
Other Europe	1,398,528	321,294	25,533	45,269	33,274	75,148	142,070	1,077,234	23.0	7.4	10.2
Albania (2003)	4,916	790	38	63	339	132	218	4,126	16.1	9.0	4.4
Armenia	13,296	877	0	0	162	0	715	12,419	6.6	1.2	5.4
Croatia	11,329	3,338	575	438	348	386	1,591	7,991	29.5	12.0	14.0
Georgia	28,129	6,808	1,130	306	808	118	4,446	21,321	24.2	8.0	15.8
Macedonia (2005)	5,330	1,439	272	174	168	117	708	3,891	27.0	11.5	13.3
Russia (2007)	1,335,528	308,042	23,518	44,288	31,449	74,395	134,392	1,027,486	23.1	7.4	10.1

Appendix table 2-35

First university degrees, by selected region and country/economy: 2006 or most recent year

Region/country/economy	Field of first university degree								Degrees in (%)		
	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
America[a]	3,141,948	867,147	140,289	134,688	36,749	335,931	219,490	2,274,801	27.6	9.9	7.0
North/Central America	2,167,794	670,077	113,256	103,995	23,934	289,312	139,580	1,497,717	30.9	11.1	6.4
Canada	176,910	58,908	9,807	7,896	987	27,849	12,369	118,002	33.3	10.6	7.0
Costa Rica	10,818	2,952	305	766	271	636	974	7,866	27.3	12.4	9.0
Cuba	100,345	4,172	481	415	476	1,115	1,685	96,173	4.2	1.4	1.7
El Salvador	10,300	2,018	159	321	118	493	927	8,282	19.6	5.8	9.0
Guatemala	5,865	1,388	98	0	106	374	810	4,477	23.7	3.5	13.8
Honduras (2003)	4,386	1,391	25	103	414	57	792	2,995	31.7	12.4	18.1
Mexico	339,340	117,304	8,837	30,268	4,143	21,801	52,255	222,036	34.6	12.7	15.4
Panama	16,908	3,086	195	916	112	322	1,541	13,822	18.3	7.2	9.1
United States	1,502,922	478,858	93,349	63,310	17,307	236,665	68,227	1,024,064	31.9	11.6	4.5
South America	974,154	197,070	27,033	30,693	12,815	46,619	79,910	777,084	20.2	7.2	8.2
Argentina (2005)	86,651	22,828	2,663	3,852	2,072	7,175	7,066	63,823	26.3	9.9	8.2
Bolivia (2000)	15,341	5,115	563	392	1,006	997	2,157	10,226	33.3	12.8	14.1
Brazil (2005)	677,154	111,480	21,916	22,321	6,871	28,419	31,953	565,674	16.5	7.5	4.7
Chile	48,010	18,896	1,139	1,606	1,612	7,267	7,272	29,114	39.4	9.1	15.1
Colombia	84,152	23,368	0	1,838	954	0	20,576	60,784	27.8	3.3	24.5
Guyana	748	195	30	9	19	92	45	553	26.1	7.8	6.0
Venezuela (2002)	54,650	13,324	492	436	155	1,948	10,293	41,326	24.4	2.0	18.8
Uruguay	7,448	1,864	230	239	126	721	548	5,584	25.0	8.0	7.4
Oceania[a]	203,319	58,786	13,072	15,329	1,383	14,706	14,296	144,533	28.9	14.6	7.0
Australia	171,582	49,836	10,982	13,215	1,072	12,210	12,357	121,746	29.0	14.7	7.2
New Zealand	31,737	8,950	2,090	2,114	311	2,496	1,939	22,787	28.2	14.2	6.1

NA = not available

[a]Includes only locations for which relatively recent data available.
[b]Japanese social science data also include business administration.
[c]Engineering data for 2003.
[d]Singapore data include social sciences in humanities (non-S&E).
[e]Includes former colleges and polytechnical institutions. Data for United Kingdom rounded to nearest 10. 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 2008); Canada—Statistics Canada, special tabulations (2009); China—National Bureau of Statistics of China, *China Statistical Yearbook, 2006* (Beijing); Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education (2009); Russia—State University Higher School of Economics, special tabulations (2009); Singapore—Ministry of Education, Education Statistics Digest: 2007; Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2006 (2006); United Kingdom—Higher Education Statistics Agency, special tabulations (2009); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 2-36

S&E first university degrees, by selected Western or Asian country/economy and field: 1998–2006

Country/economy and field	1998	1999	2000	2001	2002	2003	2004	2005	2006
Australia									
All fields	124,762	127,470	112,745	129,499	137,877	152,287	130,298	176,906	171,582
S&E fields	31,023	31,498	29,859	33,899	41,132	45,627	42,984	50,840	49,836
Physical/biological sciences	9,168	8,903	8,523	8,945	8,545	8,444	9,389	10,483	10,982
Mathematics/computer sciences	5,454	5,743	5,765	7,453	11,703	15,549	12,574	14,563	13,215
Agricultural sciences	1,354	1,291	1,116	1,364	1,120	1,200	1,246	1,132	1,072
Social/behavioral sciences	5,316	5,492	4,918	5,699	8,097	8,297	9,732	12,328	12,210
Engineering	9,731	10,069	9,537	10,438	11,667	12,137	10,043	12,334	12,357
Canada									
All fields	124,034	124,864	127,131	NA	NA	NA	137,296	149,910	176,910
S&E fields	51,783	52,837	53,350	NA	NA	NA	53,201	59,970	58,908
Physical/biological sciences	9,695	10,252	10,353	NA	NA	NA	9,894	9,750	9,807
Mathematics/computer sciences	4,905	4,994	5,424	NA	NA	NA	7,267	8,895	7,896
Agricultural sciences	1,009	1,076	1,236	NA	NA	NA	1,537	1,152	987
Social/behavioral sciences	27,107	27,185	26,660	NA	NA	NA	23,845	27,861	27,849
Engineering	9,067	9,330	9,677	NA	NA	NA	10,658	12,312	12,369
China									
All fields	404,666	440,935	495,624	567,839	655,763	929,598	1,196,290	1,465,786	1,726,674
S&E fields	296,723	322,769	359,478	337,352	384,529	533,582	672,463	796,430	911,846
Physical/biological sciences	40,213	42,351	49,214	63,517	72,526	103,409	134,164	163,076	194,807
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	16,525	17,453	19,154	19,005	22,462	29,758	34,078	35,419	36,740
Social/behavioral sciences	58,095	67,611	78,205	35,267	37,517	48,878	61,758	80,710	104,665
Engineering	181,890	195,354	212,905	219,563	252,024	351,537	442,463	517,225	575,634
France									
All fields	293,984	300,652	275,316	300,088	309,009	328,784	328,784	273,523	285,238
S&E fields	NA	NA	116,160	125,738	111,877	118,954	118,954	94,605	100,524
Physical/biological sciences	NA	NA	33,511	36,659	27,750	29,472	29,472	17,894	19,075
Mathematics/computer sciences	NA	NA	15,042	16,281	14,707	15,613	15,613	14,946	16,134
Agricultural sciences	NA	NA	2,257	2,379	306	327	327	2,193	2,737
Social/behavioral sciences	NA	NA	31,057	34,233	27,893	29,635	29,635	21,170	23,169
Engineering	37,250	37,519	34,293	36,186	41,221	43,907	43,907	38,402	39,409
Germany									
All fields	188,820	185,053	178,618	173,407	176,025	183,322	196,608	197,770	267,597
S&E fields	76,644	72,313	66,559	62,917	63,400	66,530	71,675	74,970	95,101
Physical/biological sciences	13,942	12,758	11,516	10,818	11,243	11,052	11,705	12,454	16,952
Mathematics/computer sciences	10,189	9,710	8,700	8,532	9,146	10,630	13,716	16,103	21,656
Agricultural sciences	3,793	2,047	2,140	2,051	2,106	2,424	2,575	2,321	2,367
Social/behavioral sciences	7,870	8,233	7,884	7,414	8,106	8,876	9,580	10,727	19,919
Engineering	40,850	39,565	36,319	34,102	32,799	33,548	34,099	33,365	34,207
Italy									
All fields	132,968	142,828	150,677	159,276	171,806	201,019	264,574	291,304	273,451
S&E fields	50,866	52,417	55,559	57,456	61,323	69,776	95,556	104,722	97,422
Physical/biological sciences	10,805	8,585	8,885	9,059	9,650	10,260	13,469	14,062	13,073
Mathematics/computer sciences	2,901	2,986	3,123	2,806	2,972	3,343	3,281	2,895	2,496
Agricultural sciences	1,218	1,355	1,345	1,468	1,835	2,529	3,340	3,725	3,611
Social/behavioral sciences	12,703	13,462	14,521	15,350	16,701	18,282	29,567	34,916	33,813
Engineering	23,239	26,029	27,685	28,773	30,165	35,362	45,899	49,124	44,429
Japan									
All fields	529,606	532,436	538,683	545,512	547,711	544,894	548,897	551,016	558,184
S&E fields	352,289	350,535	353,465	359,019	357,282	352,088	351,299	349,015	350,137
Physical/biological sciences	13,521	13,662	13,300	14,192	19,369	19,549	19,727	19,260	19,805
Mathematics/computer sciences	5,174	4,906	4,941	4,965	NA	NA	NA	NA	NA
Agricultural sciences	15,698	14,150	15,562	14,084	16,393	15,933	15,865	16,015	16,019
Social/behavioral sciences	215,385	214,377	216,506	221,300	217,838	215,205	217,276	215,809	217,638
Engineering	102,511	103,440	103,156	104,478	103,682	101,401	98,431	97,931	96,675

Appendix table 2-36

S&E first university degrees, by selected Western or Asian country/economy and field: 1998–2006

Country/economy and field	1998	1999	2000	2001	2002	2003	2004	2005	2006
Mexico									
All fields	214,794	273,719	287,019	296,485	321,799	280,589	276,690	309,266	339,340
S&E fields	NA	81,026	86,351	90,482	99,936	86,588	93,858	107,981	117,304
Physical/biological sciences	NA	5,856	6,194	6,251	7,695	6,885	7,093	8,150	8,837
Mathematics/computer sciences	NA	19,063	19,351	22,306	23,557	24,946	24,584	28,860	30,268
Agricultural sciences	NA	3,193	3,475	3,755	4,381	3,533	3,912	3,722	4,143
Social/behavioral sciences	NA	15,257	16,996	17,168	19,621	4,110	15,423	19,921	21,801
Engineering	49,156	37,657	40,335	41,002	44,682	47,114	42,846	47,328	52,255
Poland									
All fields	147,536	173,401	207,791	240,976	260,953	269,861	278,509	287,607	293,045
S&E fields	43,979	52,268	66,160	77,351	83,773	87,774	90,587	93,698	107,355
Physical/biological sciences	0	3,693	5,613	6,695	7,550	7,128	6,379	6,541	11,585
Mathematics/computer sciences	3,261	3,071	4,082	5,752	6,363	8,114	12,785	15,295	17,597
Agricultural sciences	4,283	4,722	4,481	4,848	5,252	4,869	4,759	5,114	5,240
Social/behavioral sciences	14,142	18,908	26,986	33,513	35,987	36,962	37,389	37,628	38,857
Engineering	22,293	21,874	24,998	26,543	28,621	30,701	29,275	29,120	34,076
South Korea									
All fields	196,566	204,390	214,498	239,702	244,852	258,126	267,058	268,833	270,546
S&E fields	91,909	91,999	96,859	111,060	113,097	115,770	119,338	117,921	116,231
Physical/biological sciences	12,581	12,807	13,427	13,915	12,864	17,035	15,811	14,093	14,237
Mathematics/computer sciences	8,447	9,238	9,299	14,510	13,591	10,131	14,287	14,494	15,321
Agricultural sciences	7,041	6,640	5,859	5,555	5,910	2,387	3,228	4,401	4,021
Social/behavioral sciences	9,848	10,420	11,766	14,764	15,790	15,717	15,638	14,131	14,051
Engineering	53,992	52,894	56,508	62,316	64,942	70,500	70,374	70,802	68,601
Spain									
All fields	207,898	224,692	207,578	211,349	211,979	209,373	202,435	195,946	192,178
S&E fields	59,466	70,158	65,813	70,643	70,828	70,693	67,316	64,889	63,201
Physical/biological sciences	9,838	10,706	10,908	10,959	10,405	9,930	8,872	8,188	7,770
Mathematics/computer sciences	4,371	5,466	4,739	4,359	4,865	4,770	4,401	4,279	3,511
Agricultural sciences	8,531	8,859	9,010	9,952	9,354	9,546	9,929	10,250	10,641
Social/behavioral sciences	13,142	17,514	13,975	15,079	15,410	14,303	13,326	13,310	12,750
Engineering	23,584	27,613	27,181	30,294	30,794	32,144	30,788	28,862	28,529
Taiwan									
All fields	85,802	87,421	100,171	117,430	146,166	176,044	192,854	210,763	219,919
S&E fields	32,258	34,722	39,804	48,624	61,540	72,540	79,283	85,891	89,573
Physical/biological sciences	3,375	3,165	3,448	3,684	3,982	4,294	4,550	4,953	5,425
Mathematics/computer sciences	6,376	6,701	8,043	9,391	12,252	15,791	18,546	21,284	23,224
Agricultural sciences	2,703	3,045	3,259	3,200	3,583	4,016	5,074	5,024	4,988
Social/behavioral sciences	5,452	5,173	5,489	5,762	6,277	6,492	7,002	7,760	7,971
Engineering	14,352	16,638	19,565	26,587	35,446	41,947	44,111	46,870	48,133
Turkey									
All fields	115,106	113,926	118,882	142,275	140,631	143,813	188,134	150,421	203,108
S&E fields	46,950	46,529	49,069	52,292	53,338	53,773	53,793	55,429	71,120
Physical/biological sciences	8,286	8,125	8,744	9,685	9,587	9,198	9,224	9,146	9,877
Mathematics/computer sciences	3,565	4,234	4,276	5,099	5,377	5,502	5,655	6,235	6,573
Agricultural sciences	4,516	5,145	4,913	4,737	5,201	4,524	4,298	4,267	4,455
Social/behavioral sciences	18,222	13,781	15,543	16,802	17,006	18,068	17,615	17,674	31,891
Engineering	12,361	15,244	15,593	15,969	16,167	16,481	17,001	18,107	18,324
United States									
All fields	1,198,938	NA	1,254,618	1,260,308	1,308,970	1,365,694	1,417,421	1,456,401	1,502,922
S&E fields	390,796	NA	398,602	400,435	415,983	442,755	458,658	470,214	478,858
Physical/biological sciences	86,718	NA	83,484	80,124	79,656	81,576	82,872	86,936	93,349
Mathematics/computer sciences	39,834	NA	49,233	55,034	61,960	70,789	73,703	69,404	63,310
Agricultural sciences	17,970	NA	18,245	17,465	17,359	17,703	17,058	17,120	17,307
Social/behavioral sciences	185,349	NA	188,153	188,598	196,403	208,898	220,345	230,602	236,665
Engineering	60,925	NA	59,487	59,214	60,605	63,789	64,680	66,152	68,227

Appendix table 2-36

S&E first university degrees, by selected Western or Asian country/economy and field: 1998–2006

Country/economy and field	1998	1999	2000	2001	2002	2003	2004	2005	2006
United Kingdom									
All fields	261,210	263,670	265,270	274,440	272,660	282,380	292,090	306,360	315,990
S&E fields	90,630	92,380	92,530	95,310	95,180	104,120	109,940	112,500	113,580
Physical/biological sciences	31,480	32,230	31,630	33,630	32,570	27,300	27,540	28,290	28,540
Mathematics/computer sciences	13,930	14,630	15,300	17,120	18,420	23,340	25,600	25,370	24,340
Agricultural sciences	2,760	2,860	2,340	2,910	2,970	2,710	3,070	2,920	2,820
Social/behavioral sciences	19,880	20,650	22,710	21,170	20,930	31,310	33,940	36,350	38,110
Engineering	22,570	22,010	20,550	20,490	20,280	19,460	19,780	19,580	19,770

NA = not available

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, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov; and others—Organisation for Economic Co-operation and Development, OECD.Stat Extracts, http://stats.oecd.org/Index.aspx.

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Appendix table 2-37

First university degrees, by field, sex, and region/country/economy: 2006 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	851,558	504,419	39,271	42,890	15,709	190,714	215,835	347,139
Bangladesh (2003)	119,532	51,103	13,861	4,709	1,223	30,532	778	68,429
Brunei	296	21	3	4	0	14	0	275
Cambodia	6,198	2,026	79	1,082	312	187	366	4,172
Japan[a]	318,812	252,561	14,274	NA	9,136	143,647	85,504	66,251
Kyrgyzstan	13,952	3,400	86	791	153	839	1,531	10,552
Laos	1,773	415	0	0	131	62	222	1,358
Mongolia	7,671	2,907	275	347	165	692	1,428	4,764
Philippines (2004)	142,102	49,250	0	11,254	0	4,728	33,268	92,852
South Korea	137,827	77,383	7,116	9,523	2,314	7,341	51,089	60,444
Taiwan	103,395	65,353	3,577	15,180	2,275	2,672	41,649	38,042
Middle East	324,762	130,803	15,151	16,293	12,814	29,230	57,315	193,959
Bahrain	582	146	5	53	0	11	77	436
Iran	96,287	48,289	5,714	2,975	7,994	6,717	24,889	47,998
Iraq (2004)	33,021	8,203	725	680	799	339	5,660	24,818
Israel	21,069	4,516	0	0	162	0	4,354	16,553
Jordan	18,610	8,983	923	3,328	515	893	3,324	9,627
Lebanon	11,060	4,257	438	900	56	786	2,077	6,803
Oman	3,664	1,069	197	472	77	103	220	2,595
Palestine	7,270	2,716	127	616	34	1,133	806	4,554
Saudi Arabia	23,538	8,005	1,979	3,335	179	643	1,869	15,533
Turkey	109,661	44,619	5,043	3,934	2,998	18,605	14,039	65,042
Africa	123,461	43,808	6,785	6,780	4,063	13,458	12,722	79,653
Algeria	34,723	12,335	1,529	1,755	389	4,269	4,393	22,388
Burundi (2004)	504	163	0	62	40	49	12	341
Eritrea (2004)	1,074	450	67	72	94	137	80	624
Ethiopia	22,566	6,897	1,180	911	1,973	857	1,976	15,669
Gambia (2004)	402	86	86	0	0	0	0	316
Madagascar	3,643	1,064	332	112	49	544	27	2,579
Mauritius	1,081	519	71	75	9	58	306	562
Morocco	16,243	5,880	1,370	598	285	2,525	1,102	10,363
Mozambique (2005)	2,522	899	65	166	130	388	150	1,623
South Africa	34,324	13,272	1,830	2,923	755	3,630	4,134	21,052
Swaziland	847	144	31	0	77	32	4	703
Uganda (2004)	5,532	2,099	224	106	262	969	538	3,433
Europe	763,465	360,411	48,337	74,723	11,191	59,640	166,530	403,054
Austria	11,113	5,726	657	1,658	74	719	2,618	5,387
Belgium	11,835	5,755	682	1,087	236	988	2,762	6,080
Denmark	11,131	4,181	311	654	39	788	2,389	6,950
Finland	13,876	8,863	430	1,267	388	546	6,232	5,013
France	128,194	59,635	9,083	12,253	1,382	7,137	29,780	68,559
Germany	115,983	56,757	7,861	13,865	1,394	7,172	26,465	59,226
Greece (2005)	15,182	8,434	1,976	1,986	423	1,665	2,384	6,748
Hungary	18,624	6,684	341	2,333	736	592	2,682	11,940
Iceland	866	339	56	69	16	75	123	527
Ireland (2004)	10,672	4,796	830	1,571	127	303	1,965	5,876
Italy	114,529	55,220	5,140	3,982	2,279	12,365	31,454	59,309
Netherlands	41,893	16,877	719	4,397	587	4,630	6,544	25,016
Norway	9,440	3,649	163	827	83	982	1,594	5,791
Portugal	16,827	9,476	852	2,119	291	1,576	4,638	7,351
Spain	75,973	36,290	2,911	7,736	2,058	4,222	19,363	39,683
Sweden	16,678	9,352	619	1,256	109	1,224	6,144	7,326
Switzerland	12,479	5,397	896	963	109	856	2,573	7,082
United Kingdom[b] (2007)	138,170	62,980	14,810	16,700	860	13,800	16,820	75,190

Appendix table 2-37

First university degrees, by field, sex, and region/country/economy: 2006 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
Central/Eastern Europe	272,307	120,461	8,310	20,112	6,963	22,080	62,996	151,846
Albania (2003)	1,387	363	7	18	164	21	153	1,024
Armenia	6,052	570	0	0	83	0	487	5,482
Bulgaria (2005)	17,017	7,530	384	565	252	2,327	4,002	9,487
Croatia	4,565	1,806	164	256	179	96	1,111	2,759
Czech Republic	19,977	10,513	631	1,703	784	701	6,694	9,464
Estonia	2,082	1,035	120	262	79	153	421	1,047
Georgia	13,573	4,256	401	126	579	72	3,078	9,317
Latvia	6,545	2,278	102	537	82	584	973	4,267
Lithuania	9,990	4,909	292	1,043	204	505	2,865	5,081
Macedonia (2005)	1,799	727	69	76	104	31	447	1,072
Poland	109,419	55,083	3,916	13,232	2,181	12,340	23,414	54,336
Romania	65,163	24,947	1,710	1,164	1,642	4,461	15,970	40,216
Slovak Republic	12,028	5,258	441	976	564	412	2,865	6,770
Slovenia	2,710	1,186	73	154	66	377	516	1,524
North/Central America	928,237	343,574	47,884	71,689	12,524	104,922	106,555	584,663
Belize (2004)	53	7	3	4	0	0	0	46
Canada	67,857	29,028	3,900	5,769	465	9,432	9,462	38,829
Costa Rica	4,192	1,764	133	528	166	223	714	2,428
Cuba	53,376	2,461	219	259	292	404	1,287	50,915
El Salvador	4,252	1,113	57	209	100	129	618	3,139
Guatemala	4,277	1,000	36	0	106	53	805	3,277
Mexico	152,349	68,482	3,754	17,953	2,914	6,043	37,818	83,867
Panama	5,322	1,690	87	471	83	87	962	3,632
United States	636,559	238,029	39,695	46,496	8,398	88,551	54,889	398,530
South America	346,418	96,760	10,529	20,514	7,413	14,106	44,198	249,658
Argentina (2005)	35,560	10,347	1,039	2,210	1,159	2,313	3,626	25,213
Brazil (2005)	246,137	60,092	8,849	16,117	4,697	8,302	22,127	186,045
Chile	22,695	11,127	562	1,154	891	3,261	5,259	11,568
Colombia	39,344	14,220	0	850	566	0	12,804	25,124
Guyana	220	84	9	4	16	19	36	136
Uruguay	2,462	890	70	179	84	211	346	1,572
Oceania	82,328	33,286	5,651	11,493	771	4,694	10,677	49,042
Australia	70,034	28,340	4,763	9,942	568	3,783	9,284	41,694
New Zealand	12,294	4,946	888	1,551	203	911	1,393	7,348
Female								
Asia	794,056	229,887	20,467	30,953	12,111	117,041	49,315	564,169
Bangladesh (2003)	60,726	23,741	5,044	889	246	17,470	92	36,985
Brunei	569	33	6	6	0	21	0	536
Cambodia	2,135	518	62	146	99	59	152	1,617
Japan[a]	239,372	97,576	5,531	NA	6,883	73,991	11,171	141,796
Kyrgyzstan	18,059	3,466	437	756	24	1,557	692	14,593
Laos	1,158	99	0	0	41	40	18	1,059
Mongolia	14,367	3,778	418	247	398	1,477	1,238	10,589
Philippines	208,427	37,440	0	15,067	0	10,417	11,956	170,987
South Korea	132,719	38,848	7,121	5,798	1,707	6,710	17,512	93,871
Taiwan	116,524	24,388	1,848	8,044	2,713	5,299	6,484	92,136
Middle East	356,333	103,424	28,340	15,136	6,908	36,796	16,244	252,909
Bahrain	1,534	387	55	102	0	173	57	1,147
Iran	113,411	38,933	10,837	4,943	4,275	11,058	7,820	74,478
Iraq (2004)	21,375	3,426	881	609	386	231	1,319	17,949
Israel	30,201	1,730	0	0	172	0	1,558	28,471
Jordan	20,118	6,181	3,556	751	469	1,405	0	13,937
Lebanon	13,636	4,337	846	453	39	2,355	644	9,299
Oman	5,008	835	328	203	57	209	38	4,173
Palestine	9,850	2,351	320	475	9	1,087	460	7,499
Saudi Arabia	47,753	18,743	6,683	4,961	44	6,992	63	29,010
Turkey	93,447	26,501	4,834	2,639	1,457	13,286	4,285	66,946

Appendix table 2-37

First university degrees, by field, sex, and region/country/economy: 2006 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
Africa	134,982	38,493	8,256	3,612	1,616	19,751	5,258	96,489
Algeria	58,924	18,279	4,445	1,392	478	9,285	2,679	40,645
Burundi (2004)	176	44	0	12	11	21	0	132
Eritrea (2004)	180	51	4	13	10	22	2	129
Ethiopia	4,254	1,017	128	180	251	199	259	3,237
Gambia (2004)	68	8	8	0	0	0	0	60
Madagascar	3,799	825	310	41	24	447	3	2,974
Mauritius	1,258	542	115	44	23	152	208	716
Morocco	13,336	3,563	863	234	62	1,923	481	9,773
Mozambique (2005)	1,093	258	20	26	51	149	12	835
South Africa	46,809	12,759	2,270	1,626	621	6,845	1,397	34,050
Swaziland	996	93	13	0	41	37	2	903
Uganda (2004)	4,089	1,054	80	44	44	671	215	3,035
Europe	1,057,392	265,307	56,472	28,517	10,062	112,677	57,579	792,085
Austria	12,347	3,498	784	404	62	1,508	740	8,849
Belgium	13,308	4,005	702	197	175	2,098	833	9,303
Denmark	18,918	2,517	393	141	52	943	988	16,401
Finland	24,072	4,893	643	756	411	1,368	1,715	19,179
France	157,044	40,889	9,992	3,881	1,355	16,032	9,629	116,155
Germany	151,614	38,344	9,091	7,791	973	12,747	7,742	113,270
Greece (2005)	25,521	8,798	1,970	1,296	321	3,576	1,635	16,723
Hungary	34,490	4,062	373	549	699	1,329	1,112	30,428
Iceland	1,928	336	74	15	7	169	71	1,592
Ireland (2004)	15,193	3,252	1,125	647	81	820	579	11,941
Italy	158,922	45,743	7,933	2,055	1,332	21,448	12,975	113,179
Netherlands	52,707	10,868	611	429	496	8,222	1,110	41,839
Norway	16,607	2,278	207	174	79	1,349	469	14,329
Portugal	33,839	9,835	1,642	1,169	433	4,076	2,515	24,004
Spain	116,205	26,911	4,859	2,905	1,453	8,528	9,166	89,294
Sweden	30,812	7,359	1,099	573	116	2,834	2,737	23,453
Switzerland	12,775	2,899	674	135	47	1,560	483	9,876
United Kingdom[b] (2007)	181,090	48,820	14,300	5,400	1,970	24,070	3,080	132,270
Central/Eastern Europe	429,298	109,562	15,285	8,376	6,988	50,006	28,907	319,736
Albania (2003)	3,529	427	31	45	175	111	65	3,102
Armenia	7,244	307	0	0	79	0	228	6,937
Bulgaria (2005)	24,459	7,984	682	535	240	4,101	2,426	16,475
Croatia	6,764	1,532	411	182	169	290	480	5,232
Czech Republic	25,249	5,741	951	442	1,040	1,516	1,792	19,508
Estonia	5,058	1,261	280	142	137	432	270	3,797
Georgia	14,556	2,552	729	180	229	46	1,368	12,004
Latvia	16,588	3,361	209	255	107	2,353	437	13,227
Lithuania	19,854	4,384	393	539	156	1,977	1,319	15,470
Macedonia (2005)	3,531	712	203	98	64	86	261	2,819
Poland	183,626	52,272	7,669	4,365	3,059	26,517	10,662	131,354
Romania	95,377	24,280	2,972	1,335	1,135	10,767	8,071	71,097
Slovak Republic	18,488	3,462	632	230	327	970	1,303	15,026
Slovenia	4,975	1,287	123	28	71	840	225	3,688
North/Central America	1,235,321	325,121	65,351	32,208	10,996	184,333	32,233	910,200
Belize	97	2	1	1	0	0	0	95
Canada	109,053	29,880	5,907	2,127	522	18,417	2,907	79,173
Costa Rica	6,626	1,188	172	238	105	413	260	5,438
Cuba	46,969	1,711	262	156	184	711	398	45,258
El Salvador	6,048	905	102	112	18	364	309	5,143
Guatemala	1,588	388	62	0	0	321	5	1,200
Mexico	186,991	48,822	5,083	12,315	1,229	15,758	14,437	138,169
Panama	11,586	1,396	108	445	29	235	579	10,190
United States	866,363	240,829	53,654	16,814	8,909	148,114	13,338	625,534

Appendix table 2-37

First university degrees, by field, sex, and region/country/economy: 2006 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
South America	557,745	81,871	15,449	9,351	4,241	29,568	23,262	475,874
Argentina (2005)	51,091	12,481	1,624	1,642	913	4,862	3,440	38,610
Brazil (2005)	431,017	51,388	13,067	6,204	2,174	20,117	9,826	379,629
Chile	25,315	7,769	577	452	721	4,006	2,013	17,546
Colombia	44,808	9,148	0	988	388	0	7,772	35,660
Guyana	528	111	21	5	3	73	9	417
Uruguay	4,986	974	160	60	42	510	202	4,012
Oceania	120,991	25,500	7,421	3,836	612	10,012	3,619	95,491
Australia	101,548	21,496	6,219	3,273	504	8,427	3,073	80,052
New Zealand	19,443	4,004	1,202	563	108	1,585	546	15,439

NA = not available

[a]Japanese social science data include business administration.
[b]Includes former colleges and polytechnical institutions. 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 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 (2009); Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education, special tabulations (2009); Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2006 (2006); United Kingdom—Higher Education Statistics Agency, special tabulations (2009); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-38

Earned S&E doctoral degrees, by selected region/country/economy and field: 2006 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	
All regions	338,485	173,891	62,882	10,959	10,752	33,719	55,579	164,594
Asia[a]	85,441	44,552	15,701	387	4,213	3,643	20,608	40,889
China	36,247	22,953	7,241	NA	1,544	2,038	12,130	13,294
India (2005)	17,898	7,537	5,549	NA	1,020	NA	968	10,361
Japan[b]	17,396	8,122	1,633	NA	1,321	973	4,195	9,274
Kyrgyzstan	566	311	89	18	4	124	76	255
Mongolia	111	52	15	1	11	9	16	59
Philippines (2004)	1,748	56	0	13	0	36	7	1,692
South Korea	8,657	3,779	817	173	214	308	2,267	4,878
Taiwan	2,614	1,643	319	182	92	111	939	971
Tajikistan	204	99	38	0	7	44	10	105
Middle East[a]	15,126	4,588	1,369	422	520	651	1,626	10,538
Iran	2,537	749	237	74	117	86	235	1,788
Iraq (2004)	5,056	1,335	285	86	132	38	794	3,721
Israel	1,210	742	389	76	36	143	98	468
Jordan	295	44	18	0	22	4	0	251
Lebanon	911	50	0	0	0	48	2	861
Oman	36	11	2	2	5	0	2	25
Saudi Arabia	2,487	472	139	86	28	94	125	2,015
Turkey	2,594	1,185	299	98	180	238	370	1,409
Africa[a]	6,020	3,185	1,687	378	152	688	280	2,835
Cameroon	888	597	374	54	0	153	16	291
Madagascar	439	232	121	6	38	45	22	207
Mauritius	12	11	7	0	3	1	0	1
Morocco	2,567	1,415	957	157	0	185	116	1,152
South Africa	1,100	559	206	40	54	151	108	541
Uganda (2004)	1,014	371	22	121	57	153	18	643
Europe[a]	151,953	78,279	28,388	6,231	3,638	17,384	22,638	73,674
European Union	104,947	52,373	21,625	5,574	2,396	8,192	14,586	52,574
European Free Trade Association	4,278	2,183	953	377	61	317	475	2,095
Armenia	382	69	55	0	6	0	8	313
Austria	2,158	1,135	370	106	31	195	433	1,023
Belgium	1,718	1,046	441	118	50	151	286	672
Bulgaria (2005)	528	228	79	10	32	22	85	300
Croatia	439	206	79	12	26	24	65	233
Czech Republic	2,023	1,230	358	125	109	120	518	793
Denmark	910	505	0	166	0	108	231	405
Estonia	143	81	34	13	4	13	17	62
Finland	1,898	1,062	306	110	40	189	417	836
France	9,818	6,770	3,903	886	26	932	1,023	3,048
Georgia	604	226	85	0	48	25	68	378
Germany	24,946	10,243	5,281	1,074	376	1,325	2,187	14,703
Greece (2005)	1,248	892	468	51	70	52	251	356
Hungary	1,012	366	146	35	41	92	52	646
Iceland	15	8	5	0	0	1	2	7
Ireland	979	155	0	0	0	0	155	824
Italy	9,604	5,613	2,155	380	421	830	1,827	3,991
Latvia	106	52	8	6	1	14	23	54
Lithuania	326	202	76	10	9	44	63	124
Macedonia (2005)	92	35	10	1	2	9	13	57
Netherlands	2,993	535	0	0	0	0	535	2,458
Norway	882	491	0	242	33	119	97	391
Poland	5,917	955	0	0	0	0	955	4,962
Portugal	5,342	3,065	884	629	89	742	721	2,277
Romania	3,180	1,404	281	0	591	92	440	1,776
Russia[c] (2007)	34,494	19,725	4,829	NA	812	8,052	6,032	14,769

Appendix table 2-38

Earned S&E doctoral degrees, by selected region/country/economy and field: 2006 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	
Slovak Republic	1,218	540	164	48	43	65	220	678
Slovenia	395	228	71	19	11	45	82	167
Spain	7,159	3,430	1,867	336	143	553	531	3,729
Sweden	3,781	2,331	593	262	59	278	1,139	1,450
Switzerland	3,381	1,684	948	135	28	197	376	1,697
Ukraine	6,717	3,462	752	267	287	765	1,391	3,255
United Kingdom[d]	16,520	9,760	3,980	1,160	320	2,100	2,200	6,750
America[a]	74,031	40,118	14,502	3,275	2,041	10,651	9,649	33,913
North/Central America	63,868	34,574	12,025	3,012	1,411	9,768	8,358	29,294
Canada	4,200	2,385	765	225	102	657	636	1,815
Costa Rica	30	16	4	0	3	9	0	14
Cuba	529	200	80	0	50	0	70	329
Mexico	2,800	1,521	452	74	219	526	250	1,279
United States	56,309	30,452	10,724	2,713	1,037	8,576	7,402	25,857
South America	10,163	5,544	2,477	263	630	883	1,291	4,619
Argentina (2005)	457	275	156	17	6	56	40	182
Brazil	9,366	4,994	2,182	218	611	791	1,192	4,372
Chile	294	249	139	10	9	36	55	45
Colombia	46	26	0	18	4	0	4	20
Oceania	5,914	3,169	1,235	266	188	702	778	2,745
Australia	5,276	2,821	1,059	233	178	624	727	2,455
New Zealand	638	348	176	33	10	78	51	290

NA = not available

[a]Includes only locations for which relatively recent data available.
[b]Includes thesis doctorates, called *ronbun hakase*, earned by employees in industry.
[c]For Russia, math is included with physical/biological sciences.
[d]Data rounded to nearest 10. 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 (2006); China—*China Statistical Yearbook 2005*; 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 (2007), and Division of Higher Education, special tabulations (2007); Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2006 (2006); United Kingdom—Higher Education Statistics Agency, special tabulations (2007); Russia—State University Higher School of Economics, special tabulations (2007); Brazil—Ministry of Science and Technology, Indicadores Nacionais de Ciência e Tecnologia, http://www.mct.gov.br/index.php/content/view/7787.html, accessed 26 January 2009; Canada—Statistics Canada, special tabulations (2007); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-39

Earned S&E doctoral degrees, by sex, selected region/country/economy, and field: 2006 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								
Kyrgyzstan	226	145	38	9	3	53	42	81
Mongolia	57	28	5	1	8	7	7	29
South Korea	6,281	3,126	613	122	177	217	1,997	3,155
Taiwan	1,974	1,415	249	159	62	69	876	559
Middle East								
Iran	1,837	646	187	67	107	73	212	1,191
Iraq (2004)	3,434	984	153	50	104	27	650	2,450
Israel	593	389	186	57	14	64	68	204
Morocco	1,768	949	606	127	0	121	95	819
Saudi Arabia	1,684	298	60	48	28	38	124	1,386
Turkey	1,545	739	184	61	105	152	237	806
Sub-Saharan Africa								
Madagascar	294	156	74	5	27	32	18	138
Mauritius	5	5	4	0	1	0	0	0
South Africa	625	337	115	20	33	79	90	288
Europe								
European Union	57,427	31,779	11,956	4,111	1,343	3,621	10,758	25,648
European Free Trade Association	2,604	1,457	616	278	33	149	381	1,147
Armenia	255	52	43	0	5	0	4	203
Austria	1,262	748	210	86	20	89	343	514
Belgium	1,062	683	242	92	39	97	213	379
Bulgaria (2005)	273	122	39	6	14	11	52	151
Croatia	226	104	32	6	18	8	40	122
Czech Republic	1,301	835	196	97	65	64	413	466
Denmark	513	340	0	109	0	58	173	173
Estonia	61	41	20	5	0	9	7	20
Finland	1,005	662	168	84	22	69	319	343
France	5,751	4,250	2,311	706	9	473	751	1,501
Georgia	487	190	62	0	42	25	61	297
Germany	14,662	6,957	3,280	881	229	676	1,891	7,705
Greece (2005)	804	632	319	40	55	29	189	172
Hungary	564	206	85	25	20	39	37	358
Iceland	7	3	2	0	0	1	0	4
Ireland	524	115	0	0	0	0	115	409
Italy	4,639	2,943	1,001	223	196	353	1,170	1,696
Latvia	52	28	4	5	0	6	13	24
Lithuania	135	83	27	5	3	10	38	52
Netherlands	1,836	426	0	0	0	0	426	1,410
Norway	525	322	0	167	15	65	75	203
Poland	2,986	723	0	0	0	0	723	2,263
Portugal	2,129	1,351	280	378	39	216	438	778
Romania	1,693	757	108	0	315	49	285	936
Slovak Republic	642	328	85	34	27	35	147	314
Slovenia	199	125	20	16	5	20	64	74
Spain	3,812	1,892	914	234	80	265	399	1,920
Sweden	2,142	1,542	337	205	35	153	812	600
Switzerland	2,072	1,132	614	111	18	83	306	940
United Kingdom[a]	9,380	5,990	2,310	880	170	900	1,740	3,380
America								
Canada	2,352	1,515	492	174	60	261	528	837
Chile	192	166	75	7	2	36	46	26
Colombia	31	16	0	11	3	0	2	15
Costa Rica	20	13	3	0	3	7	0	7

Earned S&E doctoral degrees, by sex, selected region/country/economy, and field: 2006 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	
Cuba	318	120	48	0	30	0	42	198
Mexico	1,666	944	263	52	163	267	199	722
United States	27,039	17,236	6,017	1,749	642	3,502	5,326	9,803
Oceania	3,136	1,884	681	209	112	286	596	1,252
Australia	2,817	1,694	590	185	104	262	553	1,123
New Zealand	319	190	91	24	8	24	43	129
Female								
Asia								
Kyrgyzstan	340	166	51	9	1	71	34	174
Mongolia	54	24	10	0	3	2	9	30
South Korea	2,376	653	204	51	37	91	270	1,723
Taiwan	640	228	70	23	30	42	63	412
Middle East								
Iran	700	103	50	7	10	13	23	597
Iraq	1,622	351	132	36	28	11	144	1,271
Israel	617	353	203	19	22	79	30	264
Morocco	799	466	351	30	0	64	21	333
Saudi Arabia	803	174	79	38	0	56	1	629
Turkey	1,049	446	115	37	75	86	133	603
Sub-Saharan Africa								
Madagascar	145	76	47	1	11	13	4	69
Mauritius	7	6	3	0	2	1	0	1
South Africa	475	222	91	20	21	72	18	253
Europe								
European Union	46,495	20,049	9,509	1,433	1,123	4,341	3,633	26,446
European Free Trade Association	1,674	726	337	99	28	168	94	948
Armenia	127	17	12	0	1	0	4	110
Austria	896	387	160	20	11	106	90	509
Belgium	656	363	199	26	11	54	73	293
Bulgaria (2005)	255	106	40	4	18	11	33	149
Croatia	213	102	47	6	8	16	25	111
Czech Republic	722	395	162	28	44	56	105	327
Denmark	397	165	0	57	0	50	58	232
Estonia	82	40	14	8	4	4	10	42
Finland	893	400	138	26	18	120	98	493
France	4,067	2,520	1,592	180	17	459	272	1,547
Georgia	117	36	23	0	6	0	7	81
Germany	10,284	3,286	2,001	193	147	649	296	6,998
Greece (2005)	444	260	149	11	15	23	62	184
Hungary	448	160	61	10	21	53	15	288
Iceland	8	5	3	0	0	0	2	3
Ireland	455	40	0	0	0	0	40	415
Italy	4,965	2,670	1,154	157	225	477	657	2,295
Latvia	54	24	4	1	1	8	10	30
Lithuania	191	119	49	5	6	34	25	72
Netherlands	1,157	109	0	0	0	0	109	1,048
Norway	357	169	0	75	18	54	22	188
Poland	2,931	232	0	0	0	0	232	2,699
Portugal	3,213	1,714	604	251	50	526	283	1,499
Romania	1,487	647	173	0	276	43	155	840
Slovak Republic	576	212	79	14	16	30	73	364
Slovenia	196	103	51	3	6	25	18	93
Spain	3,347	1,538	953	102	63	288	132	1,809
Sweden	1,639	789	256	57	24	125	327	850
Switzerland	1,309	552	334	24	10	114	70	757
United Kingdom	7,140	3,770	1,670	280	150	1,200	460	3,370

Appendix table 2-39

Earned S&E doctoral degrees, by sex, selected region/country/economy, and field: 2006 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	
America								
Canada	1,848	870	273	51	42	396	108	978
Chile	102	83	64	3	7	0	9	19
Colombia	15	10	0	7	1	0	2	5
Costa Rica	10	3	1	0	0	2	0	7
Cuba	211	80	32	0	20	0	28	131
Mexico	1,134	577	189	22	56	259	51	557
United States	25,816	11,325	4,100	552	362	5,089	1,222	14,491
Oceania								
Australia	2,459	1,127	469	48	74	362	174	1,332
New Zealand	319	158	85	9	2	54	8	161

[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 (2006); Japan—Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education (2006); Taiwan—Ministry of Education, Educational Statistics of the Republic of China: 2005 (2005); Germany—Federal Statistical Office, Prüfungen an Hochschulen 2004 (2005); United Kingdom—Higher Education Statistics Agency, special tabulations (2007); Canada—Statistics Canada, special tabulations (2007); and United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 2-40

S&E doctoral degrees, by selected Western industrialized country and field: 1998–2006

Country/field	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	1,901	1,843	1,790	1,871	2,125	2,197	2,443	2,228	2,158
All S&E	NA	886	913	983	1,049	995	1,107	1,129	1,135
Physical/biological sciences	NA	286	321	353	398	332	326	384	370
Mathematics/computer sciences	NA	69	91	52	100	108	118	108	106
Agricultural sciences	NA	33	30	37	46	38	42	40	31
Social/behavioral sciences	NA	119	131	141	160	195	224	192	195
Engineering	NA	379	340	400	345	322	397	405	433
France	10,218	10,173	9,903	10,404	10,404	8,420	8,420	9,578	9,818
All S&E	NA	7,862	6,577	6,890	6,890	5,585	5,585	6,464	6,770
Physical/biological sciences	NA	3,955	3,959	4,160	4,160	3,366	3,366	3,677	3,903
Mathematics/computer sciences	NA	1,003	800	829	828	676	676	756	886
Agricultural sciences	NA	127	22	23	23	18	18	35	26
Social/behavioral sciences	NA	1,588	876	922	922	746	746	1,055	932
Engineering	NA	1,189	920	956	957	779	779	941	1,023
Germany	24,890	24,545	25,780	24,796	23,838	23,043	23,138	25,952	24,946
All S&E	10,832	10,967	11,306	10,694	10,016	9,751	9,554	10,866	10,243
Physical/biological sciences	6,478	6,190	6,414	5,888	5,398	5,113	5,107	5,697	5,281
Mathematics/computer sciences	845	971	964	943	882	975	918	994	1,074
Agricultural sciences	503	388	380	371	334	363	418	438	376
Social/behavioral sciences	849	1,022	1,106	1,159	1,031	1,087	1,004	1,392	1,325
Engineering	2,157	2,396	2,442	2,333	2,371	2,213	2,107	2,345	2,187
Italy	3,463	3,463	3,557	4,044	3,977	4,456	6,351	8,466	9,604
All S&E	1,764	1,764	1,731	2,100	1,958	2,674	3,834	4,966	5,613
Physical/biological sciences	22	22	55	821	818	1,109	1,650	1,999	2,155
Mathematics/computer sciences	770	770	704	0	0	198	281	338	380
Agricultural sciences	118	118	163	350	342	220	276	387	421
Social/behavioral sciences	85	85	92	121	60	294	450	703	830
Engineering	769	769	717	808	738	853	1,177	1,539	1,827
Spain	5,931	6,307	6,007	6,453	6,905	7,479	8,168	6,902	7,159
All S&E	2,590	2,923	2,730	2,937	3,162	3,446	3,672	3,303	3,430
Physical/biological sciences	1,517	1,565	1,438	1,534	1,686	1,701	1,856	1,646	1,867
Mathematics/computer sciences	253	265	323	308	383	430	393	316	336
Agricultural sciences	129	185	144	121	141	179	186	171	143
Social/behavioral sciences	229	206	417	436	477	591	634	542	553
Engineering	462	702	408	538	475	545	603	628	531
Sweden	2,725	2,916	3,049	3,388	3,517	3,558	3,834	2,778	3,781
All S&E	1,753	1,777	1,848	1,960	2,099	2,163	2,385	1,468	2,331
Physical/biological sciences	502	525	540	604	638	653	689	461	593
Mathematics/computer sciences	222	144	149	142	162	217	255	121	262
Agricultural sciences	118	71	65	59	85	42	49	49	59
Social/behavioral sciences	280	239	253	244	287	294	296	211	278
Engineering	631	798	841	911	927	957	1,096	626	1,139
Switzerland	2,826	2,860	2,733	2,745	2,800	2,742	2,952	3,303	3,381
All S&E	1,294	1,228	1,223	1,241	1,284	1,184	1,282	1,527	1,684
Physical/biological sciences	761	661	722	650	676	653	697	852	948
Mathematics/computer sciences	116	156	129	145	148	98	94	127	135
Agricultural sciences	34	50	40	50	38	39	32	31	28
Social/behavioral sciences	94	109	72	74	100	117	140	177	197
Engineering	289	252	260	322	322	277	319	340	376
United Kingdom[a]	10,990	11,340	11,550	14,120	14,210	14,870	15,260	15,780	16,516
All S&E	7,270	7,390	7,180	8,520	8,520	8,810	9,150	9,390	9,761
Physical/biological sciences	3,670	3,670	3,570	4,310	4,380	3,780	3,960	4,040	3,977
Mathematics/computer sciences	570	680	660	770	760	750	880	960	1,162
Agricultural sciences	390	330	270	270	340	300	320	310	315
Social/behavioral sciences	810	910	970	1,170	1,180	1,970	1,950	2,070	2,102
Engineering	1,840	1,810	1,710	2,010	1,860	2,020	2,040	2,020	2,204

Appendix table 2-40

S&E doctoral degrees, by selected Western industrialized country and field: 1998–2006

Country/field	1998	1999	2000	2001	2002	2003	2004	2005	2006
United States	46,114	NA	44,947	45,068	44,311	46,177	48,560	52,855	56,309
All S&E	26,783	NA	25,423	25,453	24,254	25,425	26,573	28,561	30,452
Physical/biological sciences	9,611	NA	9,015	8,738	8,405	9,134	9,376	10,117	10,724
Mathematics/computer sciences	2,082	NA	1,858	1,769	1,677	1,825	1,975	2,301	2,713
Agricultural sciences	1,064	NA	984	934	969	1,060	1,016	1,004	1,037
Social/behavioral sciences	8,041	NA	8,182	8,451	8,007	8,124	8,275	8,591	8,576
Engineering	5,985	NA	5,384	5,561	5,196	5,282	5,931	6,548	7,402

NA = not available

[a]Data rounded to nearest 10.

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 (2009); United States—National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR), http://webcaspar.nsf.gov.

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Appendix table 2-41

S&E doctoral degrees, by selected Asian country/economy and field: 1993–2006

Country/economy and field	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
China	2,114	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
All S&E	1,894	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
Physical/biological sciences	528	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
Mathematics/computer sciences	103	139	187	264	334	350	417	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	92	125	182	256	328	416	444	462	536	626	756	977	1,093	1,544
Social/behavioral sciences	102	170	198	234	325	446	513	514	621	837	1,204	1,309	1,617	2,038
Engineering	1,069	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
India	9,070	9,923	9,070	10,397	10,408	11,066	10,951	11,296	11,544	11,974	13,733	17,853	17,898	NA
All S&E	4,320	4,679	4,000	5,153	4,764	5,609	5,317	5,395	5,394	5,527	6,318	7,636	7,537	NA
Physical/biological sciences	3,386	3,467	2,950	3,861	3,498	3,894	3,836	3,885	3,727	3,955	4,497	5,612	5,549	NA
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	611	883	715	918	968	971	785	787	889	838	1,042	1,142	1,020	NA
Social/behavioral sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Engineering	323	329	335	374	298	744	696	723	778	734	779	882	968	NA
Japan[a]	11,576	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
All S&E	4,438	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
Physical/biological sciences	1,009	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
Mathematics/computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Agricultural sciences	824	894	956	1,108	1,043	1,094	1,100	1,147	1,241	1,248	1,258	1,348	1,257	1,321
Social/behavioral sciences	243	241	276	358	388	420	506	563	610	656	751	808	943	973
Engineering	2,362	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
South Korea	3,583	3,999	4,462	4,723	4,999	5,586	5,586	6,143	6,208	6,690	7,172	7,946	8,449	8,657
All S&E	1,421	1,650	1,920	2,046	2,189	2,260	2,607	2,865	2,956	3,225	3,192	3,531	3,653	3,779
Physical/biological sciences	244	296	358	391	427	433	438	614	581	590	711	788	737	817
Mathematics/computer sciences	124	145	169	178	187	161	188	247	282	258	222	232	148	173
Agricultural sciences	172	196	223	199	178	180	230	242	260	288	169	203	228	214
Social/behavioral sciences	222	227	232	236	240	240	168	108	195	190	222	268	267	308
Engineering	659	786	938	1,042	1,157	1,246	1,583	1,654	1,638	1,899	1,868	2,040	2,273	2,267
Taiwan	701	808	848	1,053	1,187	1,282	1,307	1,455	1,463	1,501	1,759	1,964	2,165	2,614
All S&E	513	592	650	783	839	907	901	970	970	966	1,167	1,291	1,385	1,643
Physical/biological sciences	97	115	115	154	163	172	159	143	144	166	202	206	270	319
Mathematics/computer sciences	45	49	55	63	88	93	119	106	107	107	127	136	166	182
Agricultural sciences	48	60	63	65	79	78	76	87	90	93	93	116	83	92
Social/behavioral sciences	36	56	44	66	76	87	65	108	108	72	89	111	108	111
Engineering	287	312	373	435	433	477	482	526	521	528	656	722	758	939

NA = not available

[a]Japanese data include thesis doctorates, called *ronbun hakase,* earned by employees in industry. In Japanese higher education data, mathematics included in natural sciences and computer sciences 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 2-42

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
2000	10,780	23,518	75,766	32,319	19,172	2,283	96,668	8,597	3,867	95,553
2005	11,384	24,639	88,077	34,554	21,041	2,510	100,374	7,542	3,731	104,612
2010	11,576	23,525	98,991	34,846	22,621	2,683	116,330	6,611	3,212	113,071
2015	10,987	17,355	108,216	34,770	23,352	2,848	102,061	6,071	3,398	121,070
2020	10,770	13,886	118,208	35,312	22,631	2,911	94,445	6,132	3,049	122,269
2025	10,536	13,949	131,224	35,688	23,230	2,939	83,937	5,780	2,427	122,647
2030	10,158	14,422	144,169	35,665	24,070	2,957	83,771	5,392	2,219	122,973
2035	9,968	13,908	154,827	35,129	24,610	3,004	86,623	4,884	2,059	121,858
2040	10,076	12,750	162,617	34,417	24,601	3,087	86,920	4,493	1,980	118,901
2045	10,147	11,393	168,516	33,663	24,348	3,157	84,284	4,320	1,935	113,859
2050	10,145	10,549	173,669	32,785	24,365	3,179	79,111	4,265	1,787	107,710

SOURCES: United Nations Secretariat, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision, http://esa.un.org/unpp, accessed 8 September 2008.

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Appendix table 2-43

Foreign S&E student enrollment in UK universities, by enrollment level, place of origin, and field: 2001–02 and 2006–07

Academic year/enrollment level/ place of origin	All S&E fields	Physical/biological/ agricultural sciences	Mathematics/ computer sciences	Social/behavioral sciences	Engineering
2001-02					
All undergraduates	430,600	143,520	108,130	83,950	95,010
All foreign	41,970	8,720	8,750	8,160	16,350
Greece	7,630	1,420	1,200	1,480	3,520
China	3,060	390	1,160	570	940
Malaysia	2,960	120	500	220	2,120
France	2,210	490	330	330	1,060
Hong Kong	2,200	410	620	340	820
Irish Republic	2,140	990	280	200	680
Germany	1,800	510	280	670	340
United States	800	420	90	210	90
India	790	80	260	100	360
Japan	590	170	90	250	80
Other	17,810	3,710	3,960	3,800	6,340
Foreign (%)	9.7	6.1	8.1	9.7	17.2
All graduates	124,530	40,840	24,580	27,770	31,340
All foreign	43,980	10,290	8,640	11,320	13,730
Greece	6,050	1,230	1,060	1,090	2,670
China	3,510	440	1,400	460	1,220
India	2,060	350	890	270	550
United States	1,860	470	160	1,040	190
France	1,850	630	190	300	730
Germany	1,740	510	300	480	460
Malaysia	1,730	180	350	130	1,070
Irish Republic	1,290	540	210	240	300
Japan	1,020	180	60	700	80
Hong Kong	670	90	150	190	250
Other	22,210	5,680	3,870	6,440	6,220
Foreign (%)	35.3	25.2	35.2	40.8	43.8
2006-07					
All undergraduates	532,530	155,190	111,450	166,070	99,820
All foreign	57,560	9,950	11,610	15,940	20,060
China	7,700	870	2,420	2,050	2,350
Malaysia	3,210	350	430	320	2,110
France	3,090	570	470	650	1,400
Irish Republic	2,680	880	200	570	1,030
Greece	2,590	290	520	520	1,270
Hong Kong	2,550	510	520	810	710
Germany	2,310	560	350	910	500
Cyprus	2,250	470	730	490	560
India	1,940	240	380	260	1,060
Nigeria	1,920	200	460	400	850
Other	27,320	5,000	5,140	8,970	8,210
Foreign (%)	10.8	6.4	10.4	9.6	20.1
All graduates	160,370	41,420	29,260	48,930	40,760
All foreign	72,360	14,700	15,570	18,990	23,090
China	9,850	1,200	2,710	2,050	3,890
India	7,980	1,470	2,810	590	3,110
Greece	4,720	780	950	1,170	1,830
United States	3,150	630	240	1,990	280
Nigeria	3,080	620	790	460	1,220
Pakistan	3,020	300	1,150	290	1,280
Germany	2,630	710	440	900	580
France	2,400	670	350	410	980
Irish Republic	2,010	710	190	630	480
Malaysia	1,870	320	320	170	1,060
Other	31,620	7,300	5,640	10,320	8,370
Foreign (%)	45.1	35.5	53.2	38.8	56.7

UK = United Kingdom

NOTES: Academic year 2002 is enrollment between 1 August 2001 and 31 July 2002. Academic year 2006 is enrollment between 1 August 2005 and 31 July 2006. 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 (2007).

Science and Engineering Indicators 2010

Appendix table 2-44

Foreign S&E student enrollment in Japanese universities, by enrollment level, place of origin, and field: 2001 and 2008

Year/enrollment level/ place of origin	S&E field					
	All S&E	Physical/biological sciences	Agricultural sciences	Social/behavioral sciences	Engineering	Non-S&E
2001						
All undergraduates	1,606,727	88,711	62,450	988,554	467,012	880,406
Foreign	25,968	440	598	20,379	4,551	18,541
China	8,430	73	140	7,332	885	7,059
South Korea	6,602	175	144	5,124	1,159	5,833
Malaysia	1,151	11	28	306	806	224
Thailand	159	8	9	83	59	196
Vietnam	129	5	4	71	49	100
Indonesia	122	4	5	51	62	135
United States	42	1	1	39	1	790
Brazil	42	3	6	14	19	119
Bangladesh	39	0	1	18	20	50
Australia	35	0	0	34	1	235
Other	9,217	160	260	7,307	1,490	3,800
Foreign (%)	1.1	0.3	0.5	1.4	0.7	2
All graduates	128,896	18,855	18,798	25,076	66,167	62,229
Master's	105,142	12,897	7,576	23,563	61,106	45,655
Doctorate	29,450	6,302	4,131	6,751	12,266	36,075
Foreign	15,614	1,075	1,945	6,240	6,354	9,626
China	6,099	348	661	2,624	2,466	5,289
South Korea	2,160	137	224	939	860	2,249
Indonesia	663	60	174	88	341	179
Bangladesh	410	72	142	20	176	239
Thailand	423	12	88	97	226	209
Malaysia	216	6	19	90	101	74
Philippines	166	24	61	39	42	119
Vietnam	168	12	32	46	78	66
Sri Lanka	132	13	28	21	70	38
India	98	12	24	16	46	49
Other	5,079	379	492	2,260	1,948	1,115
Foreign (%)	9.6	4.8	9.4	18.0	7.9	16.1
2008						
All undergraduates	1,469,992	82,637	74,902	901,770	410,683	1,050,601
Foreign	40,595	628	581	32,733	6,653	28,461
China	27,546	350	305	23,495	3,396	15,390
South Korea	7,770	190	112	6,180	1,288	6,897
Malaysia	1,173	23	14	138	998	160
Vietnam	924	16	23	584	301	340
Thailand	605	6	39	394	166	355
Mongolia	423	2	11	364	46	166
Indonesia	304	6	11	208	79	202
Nepal	206	1	10	170	25	112
Myanmar	186	1	0	167	18	122
Sri Lanka	135	0	1	105	29	98
Other	1,323	33	55	928	307	4,619
Foreign (%)	2.8	0.8	0.8	3.6	1.6	2.7

Appendix table 2-44

Foreign S&E student enrollment in Japanese universities, by enrollment level, place of origin, and field: 2001 and 2008

Year/enrollment level/ place of origin	S&E field					
	All S&E	Physical/biological sciences	Agricultural sciences	Social/behavioral sciences	Engineering	Non-S&E
All graduates	137,357	19,049	13,221	26,055	79,032	102,093
Master's	106,861	13,736	9,108	18,740	65,277	58,358
Doctorate	30,496	5,313	4,113	7,315	13,755	43,735
Foreign	19,051	952	2,078	8,655	7,366	14,640
China	10,343	375	779	5,833	3,356	8,202
South Korea	2,119	94	172	884	969	2,155
Indonesia	696	62	112	176	346	368
Vietnam	692	36	103	198	355	240
Thailand	571	29	148	128	266	328
Bangladesh	551	67	161	88	235	258
Malaysia	385	16	26	75	268	135
Philippines	233	15	50	82	86	126
Myanmar	206	17	51	77	61	108
Nepal	194	17	31	57	89	94
Other	3,061	224	445	1,057	1,335	2,626
Foreign (%)	13.9	5.0	15.7	33.2	9.3	14.3

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.

SOURCE: Government of Japan, Ministry of Education, Culture, Sports, Science and Technology, Monbusho Survey of Education.

Science and Engineering Indicators 2010

Appendix table 2-45

S&E student enrollment in Canadian universities, by enrollment level, top place of origin, and field: 1995–96 and 2005–06

Year/enrollment level/place of origin	All S&E fields	Physical/ biological sciences	Mathematics/ computer sciences	Agricultural sciences	Social/ behavioral sciences	Engineering
1995–96						
Undergraduates	275,680	64,130	26,400	11,270	125,360	48,510
Foreign	9,310	1,630	1,760	190	3,230	2,510
Hong Kong	1,770	180	560	30	670	340
United States	950	320	50	20	430	130
Malaysia	620	60	120	10	120	300
France	530	90	40	20	220	160
Lebanon	300	40	80	0	40	140
Morocco	280	40	70	0	40	140
Haiti	200	20	50	10	80	40
Japan	180	30	10	10	110	20
Singapore	180	20	40	0	90	40
Tunisia	180	20	30	0	50	80
Other	4,120	820	720	80	1,380	1,130
Foreign (%)	3.4	2.5	6.6	1.7	2.6	5.2
Graduates	45,310	11,730	4,380	2,690	15,080	11,420
Foreign	7,690	2,060	970	550	1,790	2,320
China	1,190	410	200	70	120	390
France	580	180	30	40	210	120
Iran	560	90	40	40	40	350
United States	550	170	50	20	230	80
India	430	70	70	30	30	220
Morocco	310	100	70	20	40	90
Tunisia	190	30	50	10	40	60
Algeria	180	50	30	10	20	80
Brazil	140	50	20	20	30	40
Germany	140	50	20	10	30	20
Other	3,430	860	400	290	1,010	870
Foreign (%)	17.0	17.5	22.2	20.4	11.9	20.3
2005–06						
Undergraduates	337,970	79,870	27,170	10,800	155,180	64,950
Foreign	21,210	3,530	3,050	450	8,080	6,100
China	3,790	490	950	70	1,430	860
United States	2,580	590	150	130	1,400	310
France	1,190	170	100	30	630	260
Morocco	1,040	90	160	10	160	630
South Korea	630	210	80	10	230	100
India	570	90	100	10	100	280
Hong Kong	490	90	80	10	200	110
Pakistan	460	60	90	0	130	180
Lebanon	430	80	70	0	80	210
Tunisia	340	40	80	10	50	170
Other	9,690	1,640	1,190	190	3,680	3,000
Foreign (%)	6.3	4.4	11.2	4.2	5.2	9.4
Graduates	66,130	16,380	7,330	4,180	20,350	17,890
Foreign	13,060	2,650	1,850	690	2,830	5,040
China	2,400	440	550	50	330	1,030
France	1,440	490	110	110	400	330
Iran	910	110	110	20	30	650
United States	800	220	100	40	310	140
India	590	90	90	30	60	320
Morocco	510	80	100	30	80	230
Algeria	410	60	90	20	30	220
Tunisia	350	50	90	10	80	130
Romania	350	80	50	20	80	120
Mexico	320	50	20	20	90	120
Other	4,980	990	550	350	1,340	1,760
Foreign (%)	19.8	16.2	25.3	16.5	13.9	28.2

NOTES: 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 (2009).

Science and Engineering Indicators 2010

Appendix table 3-1

Occupation of employed S&E degree holders: 2006

(Percent distribution)

Degree and occupation group	One degree in field	Highest degee: In field[a]	Doctorate in field	Master's in field	Bachelor's in field
All S&E degree holders (*n*)	13,752,000	10,156,000	699,000	2,022,000	7,415,000
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	31.2	38.7	74.9	51.8	31.6
Same S&E occupation as S&E field of degree	na	29.8	63.6	30.8	23.5
Other S&E occupations	na	8.9	11.2	21.0	8.1
S&E-related occupations	16.3	11.3	8.5	10.6	11.7
Non-S&E occupations	52.5	50.0	16.6	37.6	56.7
Biological/agricultural/environmental life sciences degree holders (*n*)	2,514,000	1,555,000	195,000	210,000	1,151,000
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	23.0	30.8	71.0	45.0	21.4
Biological/agricultural/environmental life scientists	15.0	22.2	63.9	33.4	13.2
Other S&E occupations	8.0	8.6	7.1	11.6	8.2
S&E-related occupations	40.4	24.7	15.2	24.4	26.3
Non-S&E occupations	36.6	44.5	13.8	30.6	52.3
Computer and mathematical sciences degree holders (*n*)	1,910,000	1,586,000	52,000	411,000	1,123,000
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	55.1	58.9	83.7	66.5	55.0
Computer and mathematical scientists	50.6	55.4	76.7	62.5	51.8
Other S&E occupations	4.6	3.5	7.0	4.0	3.2
S&E-related occupations	13.4	11.9	4.6	11.0	12.5
Non-S&E occupations	31.5	29.2	11.7	22.5	32.5
Physical sciences degree holders (*n*)	1,057,000	688,000	138,000	132,000	419,000
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	46.9	54.6	77.3	63.2	44.5
Physical scientists	23.9	34.0	55.6	42.1	24.3
Other S&E occupations	23.0	20.6	21.7	21.1	20.2
S&E-related occupations	21.2	13.0	7.7	16.0	13.7
Non-S&E occupations	31.9	32.4	15.0	20.8	41.8
Social sciences degree holders (*n*)	5,790,000	3,890,000	188,000	694,000	2,988,000
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	11.3	13.7	71.8	23.6	7.3
Social scientists	6.5	8.6	66.4	18.7	2.1
Other S&E occupations	4.7	5.1	5.4	4.9	5.2
S&E-related occupations	9.1	7.4	4.3	8.2	7.4
Non-S&E occupations	79.7	78.9	23.9	68.2	85.3
Engineering degree holders (*n*)	3,042,000	2,437,000	127,000	575,000	1,735,000
All occupations	100.0	100.0	100.0	100.0	100.0
S&E occupations	61.4	66.0	79.0	75.2	62.0
Engineers	44.8	50.7	62.4	54.1	48.7
Other S&E occupations	16.6	15.3	16.6	21.1	13.3
S&E-related occupations	9.2	8.0	7.1	6.8	8.5
Non-S&E occupations	29.5	26.0	13.9	18.0	29.5

na = not applicable because individuals may hold degrees in more than one field

[a]Includes professional degrees not broken out separately.

NOTES: All numbers rounded to the nearest thousand. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2006), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-2

Bureau of Labor Statistics projections of occupational employment: 2006–16

(Thousands)

Occupation	BLS National Employment Matrix 2006 estimate	BLS projected 2016 employment	Job openings from growth and net replacements, 2006–16	10-year growth in total employment (%)	10-year job openings as percent of 2006 employment
All occupations	150,620	166,220	50,732	10.4	33.7
All S&E	5,187	6,296	2,280	21.4	43.9
Computer and mathematical scientists	2,859	3,694	1,466	29.2	51.3
Computer and information scientists, research	25	31	12	21.5	48.1
Computer software engineers, applications	507	733	300	44.6	59.1
Computer software engineers, systems software	350	449	150	28.2	42.8
Computer support specialists	552	624	242	12.9	43.8
Computer systems analysts	504	650	280	29.0	55.5
Database administrators	119	154	47	28.6	39.2
Network and computer systems administrators	309	393	154	27.0	49.8
Network systems and data communications analysts	262	402	193	53.4	73.8
Computer specialists, all other	136	157	57	15.1	41.6
Mathematicians	3	3	1	10.2	34.9
Operations research analysts	58	65	18	10.6	30.7
Statisticians	22	24	9	8.5	39.7
Mathematical scientists, all other	10	13	5	21.3	46.1
Engineers	1,512	1,671	505	10.6	33.4
Aerospace engineers	90	99	27	10.2	30.0
Agricultural engineers	3	3	1	8.6	31.3
Biomedical engineers	14	17	6	21.1	43.9
Chemical engineers	30	33	10	7.9	33.3
Civil engineers	256	302	114	18.0	44.3
Computer hardware engineers	79	82	28	4.6	35.3
Electrical engineers	153	163	45	6.3	29.5
Electronics engineers, except computer	138	143	37	3.7	26.9
Environmental engineers	54	68	30	25.4	54.8
Health and safety engineers, except mining safety engineers and inspectors	25	28	9	9.6	33.7
Industrial engineers	201	242	89	20.3	44.4
Marine engineers and naval architects	9	10	3	10.9	37.3
Materials engineers	22	22	6	4.0	27.3
Mechanical engineers	226	235	58	4.2	25.8
Mining and geological engineers, including mining safety engineers	7	8	2	10.0	32.7
Nuclear engineers	15	16	5	7.2	30.0
Petroleum engineers	17	18	5	5.2	31.0
Engineers, all other	170	180	29	5.5	17.3
Life scientists	258	292	103	12.8	40.0
Animal scientists	5	6	2	9.9	40.4
Food scientists and technologists	12	13	5	10.4	40.9
Soil and plant scientists	16	17	6	8.4	39.0
Biochemists and biophysicists	20	23	7	15.9	36.2
Microbiologists	17	19	5	11.2	31.5
Zoologists and wildlife biologists	20	22	6	8.7	29.0
Biological scientists, all other	29	30	7	3.7	24.0
Conservation scientists	20	21	7	5.3	34.8
Foresters	13	14	5	5.2	34.6
Epidemiologists	5	5	2	13.6	44.6
Medical scientists, except epidemiologists	87	105	45	20.2	51.2
Life scientists, all other	14	16	6	15.3	46.3
Physical scientists	267	309	109	15.7	41.0
Astronomers	2	2	0	5.5	29.9
Physicists	17	18	5	6.8	31.2
Atmospheric and space scientists	9	10	3	10.6	35.0
Chemists	84	91	30	9.1	35.6
Materials scientists	10	11	3	8.7	35.1
Environmental scientists and specialists, including health	83	104	42	25.1	50.9

Appendix table 3-2
Bureau of Labor Statistics projections of occupational employment: 2006–16
(Thousands)

Occupation	BLS National Employment Matrix 2006 estimate	BLS projected 2016 employment	Job openings from growth and net replacements, 2006–16	10-year growth in total employment (%)	10-year job openings as percent of 2006 employment
Geoscientists, except hydrologists and geographers	31	38	15	21.9	47.7
Hydrologists	8	10	4	24.3	50.2
All other physical scientists	24	25	6	6.2	25.3
Social scientists	291	330	96	13.3	32.9
Economists	15	16	5	7.5	36.9
Market research analysts	234	281	63	20.1	26.8
Survey researchers	27	31	6	15.9	22.7
Clinical, counseling, and school psychologists	152	176	47	15.8	31.1
Industrial-organizational psychologists	2	2	1	21.3	36.6
Psychologists, all other	12	13	3	7.9	23.2
Sociologists	4	4	1	10.0	26.6
Urban and regional planners	34	39	15	14.5	44.0
Anthropologists and archeologists	6	6	3	15.0	46.9
Political scientists	5	5	2	5.3	37.3
Social scientists and related workers, all other	36	38	13	4.7	36.6
Selected other occupations					
Science and engineering managers	513	616	200	20.1	39.0
Engineering managers	187	201	51	7.3	27.5
Natural sciences managers	41	45	14	11.4	33.3
Computer and information systems managers	264	307	86	16.4	32.5
Science and engineering technicians	864	939	299	8.8	34.7
Agricultural and food science technicians	26	28	6	6.6	22.3
Biological technicians	79	91	41	16.0	51.7
Chemical technicians	61	65	24	5.8	39.2
Geological and petroleum technicians	12	13	5	8.6	46.4
Nuclear technicians	7	7	3	6.7	41.8
Social science research assistants	18	20	9	12.4	50.4
Environmental science and protection technicians, including health	37	47	24	28.0	66.0
Forensic science technicians	13	17	9	30.7	68.8
Forest and conservation technicians	34	33	13	-2.0	38.0
Life, physical, and social science technicians, all other	66	73	32	9.9	47.9
Aerospace engineering and operations technicians	9	9	3	10.4	29.9
Civil engineering technicians	91	100	27	10.2	29.7
Electrical and electronic engineering technicians	170	177	39	3.6	23.1
Electro-mechanical technicians	16	16	3	2.7	22.2
Environmental engineering technicians	21	26	9	24.8	44.3
Industrial engineering technicians	75	82	22	9.9	29.5
Mechanical engineering technicians	48	51	12	6.4	25.9
Engineering technicians, except drafters, all other	82	83	18	2.0	21.5
Mathematical technicians	1	1	0	7.9	32.6
Postsecondary teachers	1,672	2,054	662	22.9	
Health diagnosing and treating practitioners	7,198	8,620	2,785	19.8	38.7
Chiropractors	53	60	13	14.4	25.3
Dentists	161	176	46	9.1	28.7
Dentists, general	136	149	39	9.2	28.8
Oral and maxillofacial surgeons	8	8	2	9.1	28.6
Orthodontists	9	10	3	9.2	28.8
Prosthodontists	1	1	0	10.7	30.3
Dentists, all other specialists	7	7	2	6.8	26.4
Dietitians and nutritionists	57	62	19	8.6	33.9
Optometrists	33	36	9	11.3	28.4
Pharmacists	243	296	95	21.7	39.0
Physicians and surgeons	633	723	204	14.2	32.3
Physician assistants	66	83	27	27.0	40.8
Podiatrists	12	13	5	9.5	43.4

Appendix table 3-2

Bureau of Labor Statistics projections of occupational employment: 2006–16

(Thousands)

Occupation	BLS National Employment Matrix 2006 estimate	BLS projected 2016 employment	Job openings from growth and net replacements, 2006–16	10-year growth in total employment (%)	10-year job openings as percent of 2006 employment
Registered nurses	2,505	3,092	1,001	23.5	40.0
Audiologists	12	13	3	9.8	21.3
Occupational therapists	99	122	37	23.1	37.8
Physical therapists	173	220	68	27.1	39.1
Radiation therapists	15	18	6	24.8	39.8
Recreational therapists	25	26	5	3.7	18.7
Respiratory therapists	102	126	38	22.6	37.3
Speech-language pathologists	110	121	33	10.6	29.9
Therapists, all other	35	38	8	10.0	21.9
Veterinarians	62	84	34	35.0	54.6
Health diagnosing and treating practitioners, all other	65	73	19	11.8	28.9
Lawyers	761	844	228	11.0	29.9

BLS = Bureau of Labor Statistics

NOTES: Estimates of current and projected employment for 2006–16 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, 2006–2016 (2007).

Science and Engineering Indicators 2010

Appendix table 3-3

Primary reason for scientists and engineers to participate in work-related training: 2006

Reason	Participated in training	Percent distribution
All reasons	12,696,000	100
To improve skills or knowledge in current occupational field	7,050,000	56
To increase opportunities for promotion/advancement in current occupational field	779,000	6
For licensure/certification in current occupational field	2,604,000	21
To facilitate change to different occupational field	169,000	1
Required or expected by employer	1,739,000	14
For leisure or personal interest	307,000	2
Other reason	49,000	*

* = rounds to zero

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 or 2006. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2006), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-4

Scientists and engineers participating in work-related training, by sex: 2006

Sex	All employed	Participated in training	Percent
All scientists and engineers	18,927,000	12,696,000	67
Female	8,244,000	5,937,000	72
Male	10,683,000	6,760,000	63

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 2006. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2006), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-5

Scientists and engineers participating in work-related training, by employer size: 2006

Employer size (number of employees)	All employed	Participated in training	Percent
All employers	18,927,000	12,696,000	67
≤10	2,851,000	1,643,000	58
11–24	1,072,000	633,000	59
25–99	1,864,000	1,152,000	62
100–499	2,746,000	1,865,000	68
500–999	1,314,000	948,000	72
1,000–4,999	2,849,000	2,052,000	72
5,000–24,999	2,664,000	1,905,000	72
≥25,000	3,566,000	2,499,000	70

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 2006. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2006), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-6

Patenting indicators on scientists and engineers, by broad field and level of highest degree: 1998–2003

Indicator	All fields				S&E fields				S&E-related fields				Non-S&E fields			
	All degrees[a]	Bachelor's	Master's	Doctorate	All degrees[a]	Bachelor's	Master's	Doctorate	All degrees[a]	Bachelor's	Master's	Doctorate	All degrees[a]	Bachelor's	Master's	Doctorate
Scientists and engineers	21,576,000	12,730,000	5,951,000	1,025,000	11,825,000	8,674,000	2,336,000	795,000	5,193,000	2,818,000	1,088,000	69,000	4,558,000	1,237,000	2,526,000	160,000
Patent applicants	562,000	233,000	174,000	133,000	441,000	198,000	117,000	125,000	52,000	19,000	11,000	5,000	69,000	15,000	46,000	2,000
Patent activity																
Rate (%)	2.6	1.8	2.9	12.9	3.7	2.3	5.0	15.7	1.0	0.7	1.0	7.5	1.5	1.2	1.8	1.3
Share (%)	100.0	41.4	30.9	23.6	78.4	35.2	20.9	22.3	9.3	3.4	1.9	0.9	12.3	2.7	8.2	0.4
Patent grantees	361,000	145,000	108,000	94,000	283,000	123,000	70,000	89,000	35,000	13,000	7,000	3,000	44,000	8,000	30,000	2,000
Patent commercializers	232,000	102,000	72,000	50,000	179,000	86,000	46,000	47,000	21,000	9,000	5,000	2,000	32,000	7,000	21,000	2,000
Grantee's commercialization success rate (%)	64.3	70.7	66.3	52.9	63.3	70.1	64.9	52.4	61.2	71.2	62.2	47.7	72.2	78.9	70.7	85.9
Average number																
Applications	3.20	2.70	2.90	4.80	3.50	2.80	3.10	5.00	2.20	2.10	2.30	2.40	2.30	1.80	2.50	2.10
Patents granted	2.80	2.50	2.70	3.60	3.00	2.70	2.90	3.60	1.90	1.70	2.10	2.80	1.90	1.40	2.10	4.10
Commercialized products, processes or licenses	2.30	2.10	2.60	2.60	2.50	2.30	2.90	2.90	1.60	1.60	1.90	2.30	1.80	1.10	2.10	1.90
Number of patents																
Applied for	1,807,000	618,000	502,000	637,000	1,532,000	548,000	364,000	620,000	116,000	41,000	24,000	13,000	159,000	28,000	114,000	4,000
Granted	1,012,000	362,000	286,000	340,000	860,000	329,000	207,000	324,000	67,000	21,000	16,000	9,000	85,000	12,000	63,000	7,000
Commercialized	542,000	217,000	185,000	129,000	449,000	195,000	132,000	134,000	35,000	15,000	9,000	4,000	57,000	7,000	45,000	3,000
Patent commercialization success rate (%)	53.5	59.9	64.8	38.0	52.3	59.3	63.5	41.4	52.5	68.2	57.0	39.0	67.4	61.4	71.2	39.3

[a] Does not add to sum of columns because total includes professional degrees not broken out separately; also does not include individuals who never worked.

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. For classification of degrees by S&E, S&E-related, and non-S&E, see http://sestat.nsf.gov/docs/ed03maj.html. For classification of occupations by S&E, S&E-related, and non-S&E, see http://sestat.nsf.gov/docs/occ03maj.html. Patenting indicators cover period from October 1998 to 2003 survey period (October 2003 to fall 2004). All patenting indicators presented originally developed with earlier SESTAT data and defined in detail in R. Morgan, C. Kruytbosch, and N. Kannankutty, Patenting and invention activity of U.S. scientists and engineers in the academic sector: Comparisons to industry, *Journal of Technology Transfer* 26:173–83 (2001).

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2003), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-7

Patenting indicators on scientists and engineers, by sector of employment: 1998–2003

		Education sector			Government sector			Business/industry sector			
Indicator	All sectors[a]	All institutions	4-year institutions	2-year and precollege institutions	All government	Federal	State/local	All business/ industry	For-profit[b]	Nonprofit	Not working
Scientists and engineers	21,576,000	3,401,000	1,505,000	1,896,000	2,142,000	803,000	1,339,000	12,477,000	10,918,000	1,559,000	3,555,000
Patent applicants	562,000	57,000	51,000	7,000	19,000	14,000	5,000	439,000	431,000	8,000	46,000
Patent activity											
Rate (%)	2.6	1.7	3.4	0.4	0.9	1.7	0.4	3.5	6.0	0.5	1.3
Share (%)	100.0	10.2	9.0	1.2	3.4	2.5	0.9	78.2	76.7	1.5	8.2
Patent grantees	361,000	32,000	29,000	3,000	12,000	8,000	4,000	283,000	277,000	6,000	33,000
Patent commercializers	232,000	14,000	13,000	2,000	3,000	3,000	<1,000	193,000	191,000	3,000	21,000
Grantee's commercialization success rate (%)	64.3	44.8	43.8	55.2	28.3	37.0	11.3	68.4	68.8	48.2	61.8
Average number											
Applications	3.20	2.50	2.60	1.70	3.60	2.50	6.60	3.30	3.30	2.90	3.10
Patents granted	2.80	2.30	2.30	2.00	4.40	2.70	7.80	2.80	2.80	2.40	3.00
Commercialized products, processes or licenses	2.30	2.20	2.20	1.90	2.00	2.00	2.30	2.40	2.40	1.90	2.30
Number of patents											
Applied for	1,807,000	142,000	131,000	11,000	69,000	35,000	35,000	1,455,000	1,430,000	24,000	140,000
Granted	1,012,000	74,000	68,000	6,000	54,000	22,000	33,000	784,000	770,000	14,000	99,000
Commercialized	542,000	31,000	28,000	3,000	7,000	6,000	1,000	456,000	450,000	5,000	48,000
Patent commercialization success rate (%)	53.5	42.5	41.7	52.0	13.0	27.5	3.4	58.1	58.4	38.7	48.0

[a]Does not include 72,000 individuals who never worked.
[b]Includes those who are self-employed.

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. For classification of degrees by S&E, S&E-related, and non-S&E, see http://sestat.nsf.gov/docs/ed03maj.html. For classification of occupations by S&E, S&E-related, and non-S&E, see http://sestat.nsf.gov/docs/occ03maj.html. Patenting indicators cover period from October 1998 to 2003 survey period (October 2003 to fall 2004). All patenting indicators presented originally developed with earlier SESTAT data and defined in detail in R. Morgan, C. Kruytbosch, and N. Kannankutty, Patenting and invention activity of U.S. scientists and engineers in the academic sector: Comparisons to industry, *Journal of Technology Transfer* 26:173–83 (2001).

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2003), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-8

Patenting indicators on scientists and engineers, by field of highest degree: 1998–2003

Indicator	All fields[a]	Sciences: All sciences	Sciences: Biological/ agricultural/ environmental life sciences	Sciences: Computer/ mathematical sciences	Sciences: Physical sciences	Sciences: Social sciences	Engineering	S&E-related fields	Non-S&E fields
Scientists and engineers	21,576,000	8,999,000	1,841,000	1,692,000	871,000	4,595,000	2,826,000	5,193,000	4,558,000
Patent applicants	562,000	205,000	54,000	56,000	69,000	26,000	236,000	52,000	69,000
Patent activity									
Rate (%)	2.6	2.3	2.9	3.3	8.0	0.6	8.3	1.0	1.5
Share (%)	100.0	36.5	9.6	10.0	12.4	4.6	41.9	9.3	12.3
Patent grantees	361,000	127,000	34,000	28,000	49,000	16,000	155,000	35,000	43,000
Patent commercializers	232,000	72,000	16,000	19,000	30,000	8,000	107,000	21,000	32,000
Grantee's commercialization success rate (%)	64.3	56.6	46.1	67.5	59.8	49.7	68.8	61.2	73.6
Average number									
Applications	3.20	3.40	3.10	2.70	4.60	2.50	3.50	2.20	2.30
Patents granted	2.80	2.90	2.60	2.10	3.60	2.90	3.10	1.90	2.00
Commercialized products, processes or licenses	2.30	2.20	2.50	2.00	2.30	1.40	2.80	1.60	1.80
Number of patents									
Applied for	1,807,000	699,000	166,000	149,000	319,000	65,000	833,000	116,000	159,000
Granted	1,012,000	375,000	89,000	60,000	178,000	48,000	485,000	67,000	85,000
Commercialized	542,000	155,000	38,000	37,000	68,000	11,000	294,000	35,000	57,000
Patent commercialization success rate (%)	53.5	41.4	43.1	62.4	38.4	22.8	60.7	52.5	67.4

[a]Does not include 72,000 individuals who never worked.

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. For classification of degrees by S&E, S&E-related, and non-S&E, see http://sestat.nsf.gov/docs/ed03maj.html. For classification of occupations by S&E, S&E-related, and non-S&E, see http://sestat.nsf.gov/docs/occ03maj.html. Patenting indicators cover period from October 1998 to 2003 survey period (October 2003 to fall 2004). All patenting indicators presented originally developed with earlier SESTAT data and defined in detail in R. Morgan, C. Kruytbosch, and N. Kannankutty, Patenting and invention activity of U.S. scientists and engineers in the academic sector: Comparisons to industry, *Journal of Technology Transfer* 26:173–83 (2001).

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2003), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-9

Federal scientists and engineers compared with all S&E occupations, by age and sex: 2005 and 2006

	Federal scientists and engineers, 2005			All S&E occupations, 2006		
Age (years)	All employed	Female	Male	All employed	Female	Male
All activities	210,000[a]	52,000	158,000	5,024,000	1,310,000	3,714,000
<35	32,000	11,000	20,000	1,404,000	437,000	968,000
35–39	22,000	7,000	15,000	753,000	198,000	555,000
40–44	35,000	10,000	26,000	802,000	214,000	587,000
45–49	39,000	10,000	29,000	705,000	172,000	533,000
50–54	36,000	8,000	28,000	592,000	147,000	445,000
55–59	28,000	4,000	23,000	418,000	84,000	334,000
60–64	13,000	2,000	11,000	220,000	40,000	179,000
≥65	6,000	1,000	5,000	129,000	17,000	112,000

[a] Includes individuals who did not report sex.

NOTES: Office of Personnel Management (OPM) occupation series data used to classify federal workers into S&E occupations as defined by National Science Foundation, Division of Science Resources Statistics (NSF/SRS) (see table 3-1). Detail may not add to total because of rounding.

SOURCES: OPM and Defense Manpower Data Center, special tabulations (2005); and NSF/SRS, Scientists and Engineers Statistical Data System (SESTAT) (2006), http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 3-10
U.S. residents with S&E as highest degree receiving degrees from non-U.S. institutions, by degree level and place of birth: 2003

Degree level/place of birth	Individuals (*n*)	Highest degree from outside United States (%)
All degree levels		
U.S. born	9,641,000	0.5
All foreign born	2,239,000	40.4
India	361,000	56.5
China	245,000	24.9
Philippines	132,000	66.2
Former Soviet Union	110,000	72.9
Canada	98,000	41.6
United Kingdom	93,000	60.1
Taiwan	86,000	20.7
Germany	80,000	20.6
South Korea	78,000	29.4
Vietnam	65,000	7.6
Mexico	63,000	43.3
Iran	60,000	15.5
Japan	45,000	32.9
Cuba	33,000	32.6
Poland	32,000	64.9
Pakistan	32,000	50.2
France	23,000	47.5
Peru	22,000	54.0
Columbia	21,000	37.7
Jamaica	20,000	11.1
Egypt	19,000	58.9
Nigeria	18,000	19.9
Ireland	16,000	44.7
Bangladesh	15,000	39.8
Italy	15,000	19.3
Romania	15,000	52.2
Argentina	14,000	43.3
Venezuela	13,000	25.3
Thailand	13,000	27.4
Brazil	13,000	49.8
Israel	13,000	32.0
Malaysia	12,000	15.1
Turkey	12,000	32.2
Greece	12,000	18.2
Lebanon	12,000	12.2
Dominican Republic	11,000	30.3
Ecuador	10,000	33.0
Spain	10,000	20.4
Netherlands	9,000	58.6
Haiti	9,000	39.2
South Africa	8,000	53.5
Australia	8,000	33.5
Bulgaria	8,000	89.9
Trinidad/Tobago	8,000	7.0
Surinam	8,000	38.8
Indonesia	7,000	16.2
Panama	7,000	1.1
Hungary	7,000	26.7
Sri Lanka	7,000	12.5
Ghana	7,000	22.7
Chile	7,000	28.0
Kenya	7,000	39.9
El Salvador	7,000	17.8
Iraq	6,000	64.5

Appendix table 3-10
U.S. residents with S&E as highest degree receiving degrees from non-U.S. institutions, by degree level and place of birth: 2003

Degree level/place of birth	Individuals (*n*)	Highest degree from outside United States (%)
Burma	6,000	57.5
Ethiopia	6,000	27.0
Costa Rica	5,000	6.5
Guatemala	5,000	9.1
Afghanistan	5,000	65.0
Belgium	5,000	45.6
Sweden	5,000	32.2
All other foreign born	143,000	65.6
Bachelor's		
U.S. born	7,394,000	0.3
All foreign born	1,322,000	45.7
India	166,000	79.6
Philippines	121,000	70.4
China	82,000	40.7
Canada	74,000	40.7
United Kingdom	58,000	58.7
Former Soviet Union	57,000	68.2
Vietnam	55,000	7.6
South Korea	55,000	35.9
Germany	53,000	16.2
Mexico	49,000	40.4
Taiwan	34,000	40.3
Iran	34,000	17.9
Japan	33,000	34.4
Cuba	23,000	34.8
Pakistan	19,000	54.6
Peru	17,000	59.7
Jamaica	15,000	9.8
Columbia	14,000	43.8
Poland	14,000	50.5
France	12,000	37.1
Egypt	12,000	80.8
Venezuela	11,000	27.4
Nigeria	11,000	17.8
Bangladesh	10,000	40.7
Italy	10,000	5.9
Dominican Republic	9,000	32.5
Ireland	9,000	52.5
Israel	8,000	39.9
Thailand	8,000	43.6
Ecuador	8,000	37.7
Malaysia	8,000	20.7
Brazil	7,000	55.2
Argentina	7,000	47.4
Surinam	7,000	41.7
Haiti	7,000	45.3
Romania	6,000	33.4
Lebanon	6,000	9.5
Greece	6,000	22.8
Spain	6,000	20.6
Turkey	6,000	39.4
El Salvador	6,000	21.4
South Africa	6,000	60.6
Australia	6,000	37.1
Indonesia	5,000	11.7
Kenya	5,000	47.3
Panama	5,000	0.0

Appendix table 3-10
U.S. residents with S&E as highest degree receiving degrees from non-U.S. institutions, by degree level and place of birth: 2003

Degree level/place of birth	Individuals (*n*)	Highest degree from outside United States (%)
Sri Lanka	5,000	16.1
Trinidad/Tobago	5,000	11.3
Netherlands	5,000	51.3
All other foreign born	130,000	37.4
Master's		
U.S. born	1,709,000	1.1
All foreign born	639,000	31.5
India	156,000	37.5
China	103,000	14.0
Taiwan	40,000	9.7
Former Soviet Union	37,000	76.6
Iran	20,000	9.5
Germany	16,000	19.7
United Kingdom	16,000	47.9
South Korea	16,000	18.1
Poland	15,000	79.2
Mexico	12,000	56.1
Canada	12,000	40.8
Pakistan	10,000	48.4
Philippines	9,000	19.8
Cuba	8,000	30.3
Vietnam	8,000	5.7
France	7,000	59.3
Japan	6,000	20.5
Romania	6,000	78.8
Ireland	5,000	26.2
Nigeria	5,000	12.3
Columbia	5,000	23.8
Peru	5,000	39.5
Bangladesh	5,000	26.0
All other foreign born	115,000	10.2
Doctorate		
U.S. born	520,500	0.9
All foreign born	275,500	36.0
China	59,500	21.9
India	38,900	34.4
United Kingdom	18,600	75.9
Former Soviet Union	16,200	80.6
Canada	12,100	48.8
Taiwan	11,600	1.2
Germany	10,100	45.1
South Korea	7,600	7.2
Iran	5,800	22.9
Japan	5,100	39.4
France	3,700	59.2
Other Africa	3,400	41.2
Poland	3,400	60.4
Italy	3,200	59.4
Egypt	3,100	20.6
Cameroon	3,100	22.3
Pakistan	2,800	28.4
Turkey	2,700	11.7
Mexico	2,600	42.3
Greece	2,400	16.4
Romania	2,300	32.0
Nigeria	2,100	48.8
Argentina	2,100	39.4

Appendix table 3-10
U.S. residents with S&E as highest degree receiving degrees from non-U.S. institutions, by degree level and place of birth: 2003

Degree level/place of birth	Individuals (*n*)	Highest degree from outside United States (%)
Brazil	2,000	46.3
Hungary	2,000	37.7
Israel	2,000	35.3
Philippines	1,900	20.5
Yugoslavia	1,700	24.1
Austria	1,700	66.0
Ireland	1,700	62.9
Ghana	1,700	51.9
Spain	1,600	38.8
Vietnam	1,600	16.3
Netherlands	1,500	58.3
Columbia	1,400	26.0
Australia	1,400	50.5
Lebanon	1,300	6.6
Bulgaria	1,200	60.4
Belgium	1,100	42.2
Sri Lanka	1,100	6.1
Cuba	1,000	12.0
South Africa	1,000	39.8
Malaysia	1,000	21.0
Czechoslovakia	1,000	39.6
Bangladesh	900	97.1
Switzerland	800	45.7
Indonesia	800	27.5
Surinam	700	11.6
Thailand	600	0.0
Palestine	600	0.0
Kenya	600	11.5
Nepal	600	0.0
Jamaica	600	0.0
Chile	500	13.0
Jordan	500	0.0
Cyprus	500	9.9
Peru	500	0.0
Ethiopia	500	12.7
Haiti	500	61.4
Sweden	500	0.0
All other foreign born	12,200	26.4

NOTES: Data do not include individuals with foreign degrees only who were not in United States in 2000. Doctorate-level data rounded to hundreds, reflecting lower sample weights than for individuals with other degrees. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Scientists and Engineers Statistical Data System (SESTAT) (2003) http://sestat.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 4-1

Gross domestic product and implicit price deflators: 1953–2008

	Calendar year			Fiscal year		
	GDP ($billions)			GDP ($billions)		
Year	Current	2000 constant	GDP price deflator[a]	Current	2000 constant	GDP price deflator[a]
1953	379.4	2,079.5	0.18240	372.9	2,044.0	0.18250
1954	380.4	2,065.4	0.18434	377.3	2,044.6	0.18460
1955	414.8	2,212.8	0.18709	394.6	2,119.9	0.18620
1956	437.5	2,255.8	0.19360	427.2	2,236.2	0.19110
1957	461.1	2,301.1	0.20039	450.3	2,271.6	0.19830
1958	467.2	2,279.2	0.20512	460.5	2,254.8	0.20430
1959	506.6	2,441.3	0.20754	491.5	2,369.5	0.20750
1960	526.4	2,501.8	0.21044	517.9	2,467.0	0.21000
1961	544.7	2,560.0	0.21281	530.8	2,492.8	0.21300
1962	585.6	2,715.2	0.21572	567.6	2,636.0	0.21540
1963	617.7	2,834.0	0.21801	598.7	2,746.0	0.21810
1964	663.6	2,998.6	0.22134	640.4	2,902.6	0.22070
1965	719.1	3,191.1	0.22538	687.1	3,061.6	0.22450
1966	787.8	3,399.1	0.23180	752.9	3,284.6	0.22930
1967	832.6	3,484.6	0.23897	811.8	3,430.8	0.23670
1968	910.0	3,652.7	0.24916	866.6	3,536.9	0.24510
1969	984.6	3,765.4	0.26153	948.6	3,702.4	0.25630
1970	1,038.5	3,771.9	0.27538	1,012.2	3,746.0	0.27030
1971	1,127.1	3,898.6	0.28916	1,079.9	3,806.4	0.28380
1972	1,238.3	4,105.0	0.30171	1,178.3	3,966.0	0.29720
1973	1,382.7	4,341.5	0.31854	1,307.6	4,215.4	0.31030
1974	1,500.0	4,319.6	0.34721	1,439.3	4,327.6	0.33270
1975	1,638.3	4,311.2	0.38007	1,560.7	4,250.5	0.36730
1976	1,825.3	4,540.9	0.40202	1,736.5	4,411.1	0.39380
1977	2,030.9	4,750.5	0.42758	1,974.3	4,665.6	0.42330
1978	2,294.7	5,015.0	0.45762	2,217.0	4,908.7	0.45180
1979	2,563.3	5,173.4	0.49553	2,500.7	5,124.0	0.48820
1980	2,789.5	5,161.7	0.54062	2,726.7	5,136.7	0.53100
1981	3,128.4	5,291.7	0.59128	3,054.7	5,241.4	0.58300
1982	3,255.0	5,189.3	0.62738	3,227.6	5,183.3	0.62290
1983	3,536.7	5,423.8	0.65214	3,440.7	5,291.9	0.65040
1984	3,933.2	5,813.6	0.67664	3,840.2	5,696.1	0.67440
1985	4,220.3	6,053.7	0.69724	4,141.5	5,949.8	0.69630
1986	4,462.8	6,263.6	0.71269	4,412.4	6,194.9	0.71250
1987	4,739.5	6,475.1	0.73204	4,647.1	6,358.4	0.73110
1988	5,103.8	6,742.7	0.75706	5,008.6	6,644.0	0.75410
1989	5,484.4	6,981.4	0.78569	5,400.5	6,896.0	0.78340
1990	5,803.1	7,112.5	0.81614	5,735.4	7,061.3	0.81250
1991	5,995.9	7,100.5	0.84457	5,935.1	7,042.8	0.84300
1992	6,337.7	7,336.6	0.86402	6,239.9	7,223.0	0.86420
1993	6,657.4	7,532.7	0.88390	6,575.5	7,445.3	0.88380
1994	7,072.2	7,835.5	0.90265	6,961.3	7,714.8	0.90280
1995	7,397.7	8,031.7	0.92115	7,325.8	7,948.2	0.92180
1996	7,816.9	8,328.9	0.93859	7,694.1	8,194.5	0.93950
1997	8,304.3	8,703.5	0.95415	8,182.4	8,564.8	0.95590
1998	8,747.0	9,066.9	0.96475	8,627.9	8,918.5	0.96750
1999	9,268.4	9,470.4	0.97868	9,125.3	9,311.0	0.98020

Appendix table 4-1

Gross domestic product and implicit price deflators: 1953–2008

	Calendar year			Fiscal year		
	GDP ($billions)			GDP ($billions)		
Year	Current	2000 constant	GDP price deflator[a]	Current	2000 constant	GDP price deflator[a]
2000	9,817.0	9,817.0	1.00000	9,708.4	9,708.4	1.00000
2001	10,128.0	9,890.7	1.02399	10,059.8	9,827.9	1.02360
2002	10,469.6	10,048.9	1.04187	10,378.4	9,948.6	1.04320
2003	10,960.8	10,301.1	1.06404	10,803.7	10,151.0	1.06430
2004	11,685.9	10,675.7	1.09463	11,503.7	10,534.5	1.09200
2005	12,421.9	10,989.5	1.13034	12,234.9	10,856.2	1.12700
2006	13,178.4	11,294.9	1.16676	13,009.9	11,165.4	1.16520
2007	13,807.6	11,523.9	1.19817	13,642.3	11,396.1	1.19710
2008	14,264.6	11,652.0	1.22422	14,222.3	11,604.4	1.22560

GDP = gross domestic product

[a]2000 = 1.000

SOURCE: Calendar year figures from Bureau of Economic Analysis, Survey of Current Business, 26 March 2009. Fiscal year figures from the Office of Management and Budget, Budget of the United States Government for Fiscal Year 2010, 11 May 2009, Table 10.1.

Science and Engineering Indicators 2010

Appendix table 4-2

Purchasing power parity, market exchange rate, and market exchange rate/purchasing power parity ratios, by selected countries: 1981–2007

(Foreign currency/U.S. dollars)

Year	Canada	China	France	Germany[a]	Italy	Japan	South Korea	Russian Federation	United Kingdom
					PPP				
1981	1.170	1.712	0.863	1.058	0.423	218.425	415.888	NA	0.500
1982	1.196	1.611	0.910	1.043	0.469	210.288	418.154	NA	0.506
1983	1.213	1.566	0.959	1.032	0.519	207.072	427.228	NA	0.514
1984	1.207	1.583	0.992	1.014	0.554	205.954	436.491	NA	0.518
1985	1.208	1.692	1.015	1.005	0.587	204.437	443.676	NA	0.531
1986	1.217	1.731	1.046	1.012	0.617	203.317	457.911	NA	0.537
1987	1.239	1.770	1.046	0.998	0.637	198.418	470.788	NA	0.551
1988	1.252	1.919	1.042	0.981	0.656	193.302	489.799	NA	0.566
1989	1.261	2.011	1.037	0.972	0.672	190.535	498.958	0.000	0.586
1990	1.252	2.046	1.025	0.968	0.701	187.853	530.911	0.000	0.608
1991	1.246	2.110	1.016	0.964	0.728	186.840	567.686	0.001	0.626
1992	1.234	2.226	1.014	0.989	0.743	185.611	597.202	0.016	0.636
1993	1.224	2.532	1.007	1.003	0.755	182.404	620.857	0.158	0.639
1994	1.212	2.990	0.999	1.006	0.766	178.801	655.673	0.629	0.635
1995	1.215	3.333	0.992	1.004	0.788	174.344	690.037	1.504	0.639
1996	1.211	3.481	0.987	0.992	0.808	170.116	711.810	2.151	0.641
1997	1.206	3.476	0.974	0.990	0.816	168.323	732.439	2.435	0.635
1998	1.187	3.408	0.967	0.988	0.808	166.524	766.562	2.854	0.645
1999	1.191	3.317	0.960	0.975	0.818	162.036	754.893	4.851	0.653
2000	1.233	3.314	0.940	0.968	0.818	154.943	748.823	6.537	0.637
2001	1.218	3.302	0.918	0.955	0.807	149.438	757.077	7.435	0.626
2002	1.229	3.264	0.905	0.942	0.845	143.774	769.772	8.449	0.628
2003	1.228	3.280	0.937	0.917	0.853	139.688	795.551	9.423	0.640
2004	1.230	3.410	0.939	0.895	0.872	134.326	794.155	11.009	0.632
2005	1.214	3.448	0.923	0.893	0.875	129.552	788.920	12.736	0.649
2006	1.204	3.461	0.913	0.882	0.868	124.465	762.021	14.329	0.652
2007	1.209	NA	0.908	0.883	0.866	120.311	751.448	14.772	0.666
					MER				
1981	1.199	NA	0.828	1.156	0.587	220.540	681.030	NA	0.498
1982	1.234	NA	1.002	1.241	0.699	249.080	731.080	NA	0.572
1983	1.232	NA	1.162	1.305	0.784	237.510	775.750	NA	0.660
1984	1.295	NA	1.332	1.455	0.907	237.520	805.980	NA	0.752
1985	1.365	NA	1.370	1.505	0.986	238.540	870.020	NA	0.779
1986	1.390	NA	1.056	1.110	0.770	168.520	881.450	NA	0.682
1987	1.326	NA	0.916	0.919	0.669	144.640	822.570	NA	0.612
1988	1.231	NA	0.908	0.898	0.672	128.150	731.470	NA	0.562
1989	1.184	NA	0.973	0.961	0.709	137.960	671.460	NA	0.611
1990	1.167	4.783	0.830	0.826	0.619	144.792	707.764	NA	0.563
1991	1.146	5.323	0.860	0.849	0.641	134.707	733.353	0.001	0.567
1992	1.209	5.515	0.807	0.798	0.636	126.651	780.651	0.143	0.570
1993	1.290	5.762	0.863	0.845	0.813	111.198	802.671	0.992	0.667
1994	1.366	8.619	0.846	0.830	0.833	102.208	803.446	2.191	0.653
1995	1.372	8.351	0.761	0.733	0.841	94.060	771.273	4.559	0.634
1996	1.363	8.314	0.780	0.769	0.797	108.779	804.453	5.121	0.641
1997	1.385	8.290	0.890	0.887	0.880	120.991	951.289	5.785	0.611
1998	1.483	8.279	0.899	0.900	0.897	130.905	1401.440	9.705	0.604
1999	1.486	8.278	0.939	0.939	0.939	113.907	1188.820	24.620	0.618

Appendix table 4-2

Purchasing power parity, market exchange rate, and market exchange rate/purchasing power parity ratios, by selected countries: 1981–2007

(Foreign currency/U.S. dollars)

Year	Canada	China	France	Germany[a]	Italy	Japan	South Korea	Russian Federation	United Kingdom
2000	1.485	8.279	1.085	1.085	1.085	107.765	1130.960	28.129	0.661
2001	1.549	8.277	1.118	1.118	1.118	121.529	1290.990	29.169	0.695
2002	1.569	8.277	1.063	1.063	1.063	125.388	1251.090	31.349	0.667
2003	1.401	8.277	0.886	0.886	0.886	115.933	1191.610	30.692	0.612
2004	1.301	8.277	0.805	0.805	0.805	108.193	1145.320	28.814	0.546
2005	1.212	8.194	0.804	0.804	0.804	110.218	1024.120	28.284	0.550
2006	1.134	7.973	0.797	0.797	0.797	116.299	954.791	27.191	0.543
2007	1.074	7.608	0.731	0.731	0.731	117.754	929.257	25.581	0.500
					MER/PPP				
1981	1.025	NA	0.961	1.092	1.388	1.010	1.638	NA	0.996
1982	1.032	NA	1.100	1.189	1.490	1.184	1.748	NA	1.130
1983	1.016	NA	1.211	1.265	1.511	1.147	1.816	NA	1.283
1984	1.073	NA	1.343	1.435	1.638	1.153	1.846	NA	1.451
1985	1.131	NA	1.349	1.498	1.680	1.167	1.961	NA	1.467
1986	1.142	NA	1.010	1.097	1.248	0.829	1.925	NA	1.269
1987	1.070	NA	0.876	0.921	1.051	0.729	1.747	NA	1.111
1988	0.983	NA	0.871	0.915	1.024	0.663	1.493	NA	0.993
1989	0.939	NA	0.938	0.989	1.055	0.724	1.346	NA	1.042
1990	0.932	2.337	0.810	0.854	0.883	0.771	1.333	NA	0.927
1991	0.920	2.523	0.847	0.880	0.880	0.721	1.292	0.554	0.906
1992	0.980	2.478	0.796	0.807	0.856	0.682	1.307	8.733	0.895
1993	1.054	2.276	0.858	0.843	1.077	0.610	1.293	6.290	1.044
1994	1.127	2.882	0.847	0.825	1.088	0.572	1.225	3.484	1.028
1995	1.130	2.506	0.767	0.730	1.068	0.540	1.118	3.032	0.991
1996	1.126	2.388	0.790	0.776	0.986	0.639	1.130	2.380	1.001
1997	1.148	2.385	0.914	0.896	1.078	0.719	1.299	2.376	0.963
1998	1.249	2.429	0.930	0.911	1.110	0.786	1.828	3.400	0.936
1999	1.248	2.495	0.978	0.963	1.147	0.703	1.575	5.076	0.947
2000	1.204	2.498	1.154	1.121	1.327	0.696	1.510	4.303	1.038
2001	1.272	2.507	1.217	1.170	1.384	0.813	1.705	3.923	1.109
2002	1.277	2.536	1.174	1.128	1.257	0.872	1.625	3.711	1.063
2003	1.141	2.524	0.945	0.966	1.038	0.830	1.498	3.257	0.956
2004	1.058	2.427	0.858	0.900	0.924	0.805	1.442	2.617	0.865
2005	0.998	2.377	0.872	0.901	0.919	0.851	1.298	2.221	0.848
2006	0.942	2.303	0.873	0.903	0.918	0.934	1.253	1.898	0.834
2007	0.888	NA	0.805	0.827	0.843	0.979	1.237	1.732	0.751

NA = not available

MER = market exchange rate; PPP = purchasing power parity

[a]Data for 1981–90 for West Germany.

SOURCE: Organisation for Economic Co-operation and Development, Main Science and Technology Indicators (2008/2).

Science and Engineering Indicators 2010

Appendix table 4-3

U.S. R&D expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	All performers	Federal	Industry			Industry FFRDCs[a]	U&C[b]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[c]
	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

Appendix table 4-3

U.S. R&D expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	All performers	Federal	Industry			Industry FFRDCs[a]	U&C[b]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[c]
	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
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
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		226,402	17,362	167,102	22,086	145,016	2,078	26,181	15,174	1,972	1,950	5,163	1,922	5,559	7,276	3,281	880	3,116	843
1999		244,922	17,851	182,090	20,496	161,594	2,039	28,176	16,264	2,098	2,082	5,619	2,112	5,652	8,121	3,761	984	3,377	993
2000		267,298	17,917	199,961	17,117	182,844	2,001	30,705	17,727	2,247	2,174	6,232	2,326	5,742	9,506	4,447	1,118	3,941	1,465
2001		277,366	20,426	202,017	16,899	185,118	2,020	33,743	19,784	2,397	2,190	6,827	2,546	6,225	10,743	5,289	1,132	4,322	2,192
2002		276,022	21,499	193,868	16,401	177,467	2,263	37,215	22,395	2,557	2,160	7,344	2,758	7,102	11,756	5,731	1,084	4,941	2,319
2003		288,324	22,752	200,724	17,798	182,926	2,458	40,484	25,129	2,742	2,129	7,650	2,833	7,301	12,111	5,686	1,118	5,307	2,494
2004		299,201	22,844	208,301	20,266	188,035	2,485	43,128	27,173	2,883	2,190	7,937	2,946	7,659	12,140	5,695	1,151	5,294	2,644
2005		322,104	24,470	226,159	21,909	204,250	2,601	45,197	28,260	2,922	2,323	8,579	3,113	7,817	13,032	5,932	1,253	5,846	2,828
2006		347,046	25,556	247,669	24,304	223,365	3,122	46,983	28,815	3,021	2,515	9,307	3,325	7,306	13,469	5,992	1,374	6,103	2,941
2007		372,527	25,858	269,267	26,585	242,682	4,839	49,021	29,328	3,249	2,748	9,993	3,703	5,892	14,341	5,954	1,497	6,890	3,308
2008 (preliminary)		397,616	27,000	289,105	25,795	263,310	5,031	51,163	30,177	3,453	2,908	10,600	4,024	6,023	15,606	5,982	1,629	7,995	3,688
		2000 constant $millions																	
1953		28,289	5,565	19,901	7,840	12,061	NA	1,494	817	217	112	200	148	718	611	315	143	154	NA
1954		30,468	5,221	22,079	9,493	12,585	NA	1,633	892	241	127	214	157	871	665	328	168	168	NA
1955		33,573	5,199	24,143	10,995	13,149	657	1,828	1,021	267	144	224	171	1,000	700	342	187	171	45
1956		43,905	5,839	32,397	15,470	16,927	1,720	2,020	1,142	292	163	238	186	1,121	752	364	191	196	57
1957		49,445	6,474	36,549	19,602	16,947	2,031	2,161	1,205	319	182	255	200	1,330	831	392	185	255	70
1958		53,213	7,345	39,323	21,626	17,697	1,575	2,394	1,365	351	190	271	217	1,538	951	463	185	302	88
1959		60,179	8,100	44,329	25,137	19,191	2,014	2,824	1,713	388	190	294	239	1,682	1,125	600	202	323	106
1960		65,155	8,557	47,672	26,630	21,042	2,267	3,348	2,150	428	190	318	261	1,830	1,255	703	228	323	228
1961		68,438	9,338	48,649	26,714	21,935	2,608	3,917	2,615	472	188	350	291	2,068	1,429	794	230	404	430
1962		72,484	10,141	51,164	27,851	23,313	1,975	4,601	3,182	519	188	389	322	2,318	1,683	927	250	505	603
1963		80,359	11,736	56,034	31,448	24,586	1,899	5,403	3,846	573	186	440	358	2,658	1,871	1,073	252	546	757
1964		86,305	13,397	58,955	32,787	26,168	2,092	6,210	4,495	621	183	513	398	2,842	1,884	1,129	248	506	926
1965		89,858	14,004	61,283	32,687	28,596	1,655	7,075	5,178	663	184	603	446	2,793	2,094	1,269	275	550	954

Appendix table 4-3

U.S. R&D expenditures, by performing sector and funding source: 1953–2008

	Performing sector:	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
1966		95,219	14,270	65,544	34,413	31,130	1,531	7,843	5,759	690	194	710	490	2,811	2,314	1,417	302	595	906
1967		97,696	14,414	66,812	33,251	33,561	1,753	8,516	6,237	703	216	835	525	2,912	2,348	1,431	310	607	942
1968		98,997	14,036	68,285	32,690	35,596	1,666	8,777	6,365	740	231	885	556	2,898	2,392	1,461	325	606	943
1969		99,399	14,493	68,229	30,540	37,690	1,774	8,718	6,208	795	231	891	593	2,795	2,453	1,482	356	616	937
1970		95,400	15,084	63,890	26,531	37,359	1,718	8,779	6,121	861	238	939	621	2,638	2,457	1,487	345	625	835
1971		93,207	15,247	61,658	24,813	36,845	1,698	8,871	6,085	906	249	1,001	629	2,540	2,450	1,475	339	636	744
1972		95,258	15,497	62,988	24,756	38,232	1,816	9,138	6,264	935	262	1,032	645	2,602	2,554	1,563	335	656	663
1973		97,167	15,183	64,997	23,859	41,138	1,711	9,270	6,305	947	281	1,077	661	2,640	2,769	1,777	330	662	596
1974		96,077	14,782	64,051	21,808	42,242	1,866	9,261	6,221	922	300	1,130	688	2,667	2,845	1,839	329	678	605
1975		93,855	14,632	61,725	20,728	40,998	1,913	9,392	6,315	916	310	1,135	716	2,807	2,793	1,776	327	690	592
1976		98,092	14,652	64,940	21,569	43,371	2,214	9,697	6,515	918	326	1,194	745	3,148	2,832	1,769	336	727	609
1977		101,356	14,527	67,503	22,272	45,231	2,250	10,164	6,765	921	361	1,330	787	3,432	2,838	1,731	344	762	643
1978		106,462	15,214	70,412	22,086	48,326	2,364	10,916	7,274	968	397	1,484	794	3,871	2,958	1,814	350	794	727
1979		111,757	15,077	74,793	22,913	51,880	2,349	11,532	7,765	972	433	1,584	778	4,062	3,157	1,988	351	818	787
1980		116,947	14,485	79,960	23,588	56,372	2,362	11,940	8,018	959	487	1,701	775	4,265	3,068	1,882	350	836	867
1981		122,264	14,552	85,281	25,364	59,917	2,342	11,982	7,897	983	531	1,788	783	4,201	3,018	1,817	349	852	886
1982		128,707	15,144	91,119	27,194	63,925	2,365	12,118	7,776	990	579	1,923	850	4,054	3,052	1,800	357	895	854
1983		137,930	16,606	97,652	29,281	68,372	2,430	12,652	7,989	1,009	662	2,080	912	4,355	3,336	2,002	374	960	897
1984		151,105	17,610	107,976	32,007	75,969	2,570	13,528	8,494	1,066	765	2,238	966	4,793	3,711	2,287	392	1,031	916
1985		164,464	18,778	118,146	36,333	81,813	2,672	14,783	9,162	1,195	904	2,500	1,023	5,186	3,959	2,429	414	1,116	939
1986		168,725	18,949	120,574	36,481	84,093	2,653	16,192	9,861	1,360	1,045	2,832	1,094	5,574	4,023	2,365	441	1,217	759
1987		172,614	18,562	123,163	39,283	83,879	2,725	17,495	10,611	1,454	1,135	3,090	1,204	5,857	4,116	2,328	467	1,321	696
1988		176,843	18,944	125,344	37,277	88,067	2,803	18,785	11,350	1,539	1,232	3,338	1,325	6,051	4,243	2,328	491	1,424	673
1989		180,594	19,385	127,098	33,549	93,550	2,794	19,898	11,858	1,622	1,350	3,630	1,439	6,053	4,669	2,624	515	1,530	696
1990		186,234	19,202	131,600	31,615	99,985	2,846	20,755	12,178	1,714	1,428	3,904	1,530	5,996	5,055	2,874	539	1,642	779
1991		190,482	18,056	135,779	28,529	107,250	2,696	21,557	12,630	1,755	1,470	4,094	1,608	6,063	5,508	3,172	567	1,769	824
1992		191,373	18,348	135,132	25,889	109,243	2,723	22,439	13,342	1,765	1,527	4,130	1,675	6,087	5,778	3,247	603	1,928	865
1993		187,499	18,702	130,597	23,582	107,015	2,223	23,186	13,924	1,762	1,574	4,196	1,732	5,984	5,959	3,217	641	2,101	847
1994		187,455	18,119	130,053	22,446	107,606	2,439	23,937	14,397	1,797	1,613	4,363	1,766	5,865	6,202	3,225	683	2,294	840
1995		199,344	18,351	140,943	22,991	117,953	2,468	24,553	14,755	1,901	1,680	4,462	1,755	5,827	6,326	3,091	729	2,506	877
1996		210,258	17,670	151,686	22,753	128,933	2,447	25,269	15,005	1,983	1,781	4,726	1,774	5,748	6,616	3,096	778	2,742	822
1997		222,347	17,627	162,877	22,845	140,031	2,232	26,080	15,228	2,015	1,895	5,071	1,872	5,725	6,945	3,159	848	2,938	860
1998		234,674	17,997	173,208	22,893	150,315	2,154	27,137	15,729	2,044	2,021	5,352	1,992	5,762	7,542	3,401	912	3,230	874
1999		250,257	18,240	186,056	20,942	165,114	2,084	28,789	16,618	2,144	2,127	5,742	2,158	5,775	8,298	3,843	1,006	3,450	1,014
2000		267,298	17,917	199,961	17,117	182,844	2,001	30,705	17,727	2,247	2,174	6,232	2,326	5,742	9,506	4,447	1,118	3,941	1,465

Appendix table 4-3

U.S. R&D expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	All performers	Federal	Industry			Industry FFRDCs[a]	U&C[b]						U&C FFRDCs	Other nonprofit				Nonprofit FFRDCs[c]
	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
2001		270,868	19,948	197,284	16,503	180,781	1,973	32,953	19,321	2,341	2,138	6,667	2,486	6,080	10,491	5,165	1,106	4,220	2,140
2002		264,929	20,635	186,077	15,742	170,335	2,172	35,719	21,495	2,455	2,073	7,049	2,647	6,817	11,284	5,501	1,040	4,743	2,226
2003		270,971	21,383	188,643	16,727	171,916	2,310	38,047	23,617	2,577	2,001	7,190	2,662	6,861	11,382	5,344	1,051	4,988	2,344
2004		273,335	20,869	190,294	18,514	171,780	2,270	39,400	24,824	2,634	2,001	7,251	2,691	6,997	11,090	5,203	1,051	4,836	2,415
2005		284,962	21,648	200,081	19,383	180,698	2,301	39,986	25,001	2,585	2,055	7,589	2,754	6,916	11,529	5,248	1,109	5,172	2,502
2006		297,444	21,904	212,271	20,830	191,440	2,676	40,268	24,696	2,589	2,155	7,977	2,850	6,262	11,544	5,135	1,178	5,231	2,521
2007		310,913	21,582	224,732	22,188	202,544	4,039	40,913	24,477	2,711	2,294	8,341	3,091	4,918	11,969	4,969	1,250	5,750	2,761
2008 (preliminary)		324,791	22,055	236,155	21,071	215,084	4,109	41,792	24,650	2,821	2,375	8,658	3,287	4,920	12,748	4,887	1,330	6,531	3,012

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, 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 2008, $1,700 million in total passthrough funds and $1,530 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, figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-4

U.S. basic research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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

Appendix table 4-4

U.S. basic research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
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
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		35,341	3,003	5,853	1,002	4,851	568	19,365	11,941	1,330	1,315	3,483	1,296	2,660	3,679	1,461	489	1,730	213
1999		38,887	3,347	6,645	1,108	5,537	557	21,022	12,892	1,432	1,421	3,835	1,442	2,765	4,155	1,734	546	1,875	397
2000		42,667	3,765	7,040	925	6,115	547	22,917	13,966	1,550	1,499	4,298	1,604	2,874	4,908	2,099	621	2,188	616
2001		47,617	4,260	8,053	754	7,299	552	25,240	15,553	1,663	1,519	4,737	1,767	3,104	5,492	2,464	629	2,399	915
2002		51,174	4,511	7,547	888	6,659	534	27,970	17,724	1,768	1,494	5,077	1,907	3,714	5,920	2,575	602	2,744	979
2003		54,375	4,664	8,330	1,386	6,944	299	30,023	19,658	1,850	1,438	5,165	1,913	3,747	6,282	2,714	621	2,947	1,029
2004		55,868	4,697	7,835	1,072	6,763	175	31,994	21,154	1,958	1,488	5,392	2,002	3,730	6,366	2,788	639	2,939	1,070
2005		59,462	4,770	8,667	1,108	7,559	136	34,044	22,198	2,043	1,625	6,000	2,177	3,820	6,844	2,903	696	3,246	1,181
2006		61,038	4,716	8,384	1,444	6,940	652	35,700	22,736	2,155	1,795	6,641	2,373	3,344	7,001	2,849	763	3,389	1,242
2007		65,988	4,600	11,268	2,780	8,488	2,232	37,323	23,070	2,351	1,989	7,233	2,680	1,750	7,466	2,809	831	3,826	1,350
2008 (preliminary)		69,146	4,734	11,907	2,697	9,209	2,287	38,822	23,608	2,503	2,108	7,685	2,918	1,736	8,229	2,885	904	4,439	1,432
		2000 constant $millions																	
1953		2,519	556	828	104	724	NA	674	447	36	71	33	88	197	263	148	49	66	NA
1954		2,758	521	901	125	776	NA	800	523	52	81	46	98	239	298	168	60	71	NA
1955		3,095	521	1,010	144	866	NA	959	623	74	91	62	110	267	337	192	69	75	NA
1956		3,709	586	1,307	191	1,116	NA	1,136	736	98	101	80	121	300	380	214	77	88	NA
1957		4,060	619	1,352	205	1,148	NA	1,300	831	124	112	98	135	357	432	242	75	115	NA
1958		4,600	726	1,438	210	1,229	NA	1,521	985	151	117	117	151	414	500	285	78	137	NA
1959		5,238	793	1,542	347	1,195	NA	1,870	1,265	181	116	137	171	455	578	347	87	145	NA
1960		6,111	872	1,787	375	1,411	NA	2,302	1,618	214	116	159	195	504	646	404	100	143	NA
1961		7,103	1,078	1,856	381	1,475	NA	2,808	2,028	252	117	187	223	590	771	493	103	174	NA
1962		8,455	1,168	2,262	663	1,599	NA	3,414	2,529	295	116	222	253	684	927	603	111	213	NA
1963		9,701	1,305	2,394	674	1,720	NA	4,167	3,160	344	112	264	287	803	1,032	688	115	229	NA
1964		10,825	1,532	2,291	556	1,735	190	4,836	3,721	381	113	315	307	901	1,075	750	113	212	NA
1965		11,820	1,662	2,498	697	1,801	129	5,415	4,186	419	118	382	311	965	1,151	792	129	231	NA

Appendix table 4-4

U.S. basic research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
1966		12,640	1,769	2,558	613	1,946	134	5,953	4,599	447	125	459	324	1,029	1,197	809	138	250	NA
1967		13,255	1,814	2,490	703	1,787	142	6,501	4,969	476	140	568	347	1,101	1,207	810	142	255	NA
1968		13,550	1,934	2,436	582	1,854	140	6,745	5,077	525	151	627	365	1,106	1,188	787	148	253	NA
1969		13,347	2,085	2,222	470	1,751	141	6,705	4,923	584	151	654	392	1,040	1,155	734	164	256	NA
1970		13,051	2,041	2,055	443	1,612	131	6,736	4,802	651	156	710	416	960	1,128	706	160	261	NA
1971		12,866	2,010	1,926	349	1,577	114	6,806	4,788	670	171	740	437	871	1,138	716	156	266	NA
1972		12,761	1,997	1,836	302	1,535	129	6,753	4,763	648	182	716	444	895	1,150	716	156	278	NA
1973		12,870	2,047	1,868	301	1,567	113	6,602	4,673	616	184	701	429	1,077	1,163	727	154	283	NA
1974		12,991	2,058	1,872	328	1,544	141	6,571	4,634	587	190	720	439	1,194	1,155	706	155	294	NA
1975		12,825	1,999	1,781	274	1,508	139	6,524	4,652	559	188	693	431	1,251	1,131	671	156	304	NA
1976		13,365	2,114	1,866	289	1,577	172	6,653	4,786	542	187	705	434	1,383	1,178	690	162	325	NA
1977		14,052	2,205	1,955	316	1,639	175	6,938	4,944	542	208	782	462	1,559	1,219	705	168	346	NA
1978		15,206	2,282	2,056	341	1,715	205	7,377	5,242	568	233	870	464	1,979	1,306	768	172	366	NA
1979		15,814	2,245	2,127	325	1,802	210	7,724	5,487	577	257	941	462	2,118	1,390	832	175	383	NA
1980		16,175	2,242	2,229	314	1,914	222	7,982	5,661	568	288	1,006	459	2,158	1,343	769	176	397	NA
1981		16,333	2,271	2,498	277	2,221	232	8,011	5,634	572	309	1,041	456	2,172	1,136	547	177	411	15
1982		16,976	2,425	2,831	403	2,428	204	8,115	5,538	587	343	1,142	505	2,178	1,210	588	184	438	14
1983		18,217	2,657	3,229	531	2,699	179	8,461	5,656	607	398	1,251	549	2,355	1,323	653	194	476	12
1984		19,703	2,773	3,653	502	3,151	201	9,081	6,039	644	462	1,352	584	2,525	1,455	730	206	519	14
1985		21,152	2,793	3,917	513	3,403	188	10,074	6,605	738	558	1,542	631	2,571	1,592	803	219	569	18
1986		24,069	2,842	5,514	609	4,905	164	11,144	7,186	850	653	1,771	684	2,687	1,698	833	236	629	18
1987		25,246	2,797	5,711	817	4,895	194	11,807	7,549	900	702	1,912	745	2,850	1,867	923	252	692	20
1988		26,136	2,795	5,499	867	4,632	445	12,342	7,842	932	746	2,021	802	3,001	2,023	999	268	756	31
1989		27,862	2,938	6,132	1,255	4,877	507	13,006	8,174	975	811	2,182	865	3,018	2,201	1,095	283	823	59
1990		28,217	2,841	5,672	1,065	4,607	611	13,632	8,440	1,038	864	2,364	926	3,026	2,355	1,160	300	895	79
1991		32,134	2,816	8,733	1,481	7,252	546	14,281	8,789	1,080	904	2,519	989	3,146	2,521	1,227	318	976	91
1992		31,948	2,799	7,555	824	6,731	549	14,941	9,326	1,089	942	2,549	1,034	3,318	2,708	1,289	341	1,078	77
1993		32,518	2,965	7,271	527	6,744	557	15,438	9,773	1,078	963	2,566	1,059	3,341	2,864	1,309	366	1,189	82
1994		32,849	2,821	7,217	483	6,734	557	15,954	10,124	1,098	986	2,666	1,079	3,250	2,967	1,259	394	1,314	83
1995		32,145	2,920	6,046	206	5,839	575	16,443	10,458	1,161	1,026	2,726	1,072	2,933	3,147	1,270	424	1,453	82
1996		34,945	2,855	7,989	693	7,296	754	17,091	10,752	1,224	1,100	2,919	1,096	2,776	3,395	1,330	456	1,609	84
1997		38,695	2,878	10,266	1,078	9,187	655	18,502	11,449	1,308	1,232	3,295	1,217	2,800	3,482	1,380	471	1,631	113
1998		36,633	3,112	6,067	1,039	5,028	589	20,073	12,377	1,379	1,363	3,610	1,344	2,757	3,814	1,514	507	1,793	221
1999		39,735	3,420	6,789	1,132	5,658	570	21,480	13,173	1,463	1,452	3,919	1,473	2,825	4,246	1,772	558	1,916	405
2000		42,667	3,765	7,040	925	6,115	547	22,917	13,966	1,550	1,499	4,298	1,604	2,874	4,908	2,099	621	2,188	616

Appendix table 4-4

U.S. basic research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
2001		46,501	4,161	7,864	736	7,128	539	24,648	15,189	1,624	1,484	4,626	1,725	3,031	5,364	2,406	614	2,343	894
2002		49,118	4,329	7,244	852	6,391	513	26,846	17,012	1,697	1,434	4,873	1,830	3,564	5,682	2,471	578	2,633	940
2003		51,102	4,384	7,829	1,303	6,526	281	28,216	18,475	1,739	1,351	4,854	1,798	3,521	5,904	2,551	584	2,769	967
2004		51,038	4,291	7,158	979	6,178	160	29,228	19,325	1,789	1,359	4,926	1,829	3,408	5,816	2,547	584	2,685	978
2005		52,605	4,220	7,668	980	6,687	120	30,118	19,639	1,807	1,437	5,308	1,926	3,379	6,055	2,568	616	2,872	1,045
2006		52,314	4,042	7,186	1,238	5,948	559	30,598	19,487	1,847	1,538	5,692	2,034	2,866	6,000	2,442	654	2,904	1,064
2007		55,074	3,839	9,404	2,320	7,084	1,863	31,150	19,254	1,962	1,660	6,036	2,237	1,460	6,231	2,344	694	3,193	1,127
2008 (preliminary)		56,482	3,867	9,726	2,203	7,523	1,868	31,712	19,284	2,045	1,722	6,277	2,383	1,418	6,721	2,357	739	3,626	1,170

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 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, figures for federal support to industry include 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, figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-5

U.S. applied research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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

Appendix table 4-5

U.S. applied research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
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
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		46,348	5,146	32,208	2,632	29,576	230	5,197	2,260	526	520	1,378	513	1,372	2,073	1,060	223	790	123
1999		52,006	5,530	36,638	2,817	33,821	274	5,778	2,677	546	542	1,463	550	1,251	2,405	1,300	249	856	130
2000		56,826	6,105	39,176	2,682	36,494	269	6,617	3,315	572	553	1,585	592	1,329	3,113	1,831	283	999	217
2001		64,583	7,052	44,012	3,603	40,409	935	7,236	3,732	602	550	1,713	639	1,485	3,532	2,150	287	1,095	332
2002		50,814	7,487	28,533	2,452	26,081	1,103	7,902	4,151	647	546	1,859	698	1,685	3,794	2,267	275	1,252	309
2003		61,563	7,672	37,334	4,473	32,861	1,434	8,889	4,798	731	567	2,038	755	1,756	4,115	2,487	283	1,345	363
2004		70,095	7,455	45,432	4,775	40,657	1,509	9,335	5,140	759	576	2,087	774	1,920	4,081	2,448	292	1,342	362
2005		70,215	7,557	45,284	5,289	39,995	1,492	9,333	5,158	721	573	2,114	768	1,912	4,231	2,432	318	1,482	405
2006		76,426	7,435	51,173	6,140	45,033	1,331	9,557	5,290	710	590	2,186	781	1,874	4,487	2,592	348	1,547	570
2007		83,206	7,303	57,570	8,945	48,625	937	10,003	5,542	736	623	2,264	839	1,586	4,722	2,596	379	1,746	1,086
2008 (preliminary)		88,578	7,573	61,437	8,679	52,758	1,067	10,556	5,824	779	656	2,390	908	1,644	4,985	2,546	413	2,026	1,315
		2000 constant $millions																	
1953		7,067	1,902	3,980	1,579	2,401	NA	732	323	165	36	153	55	260	192	77	60	55	NA
1954		7,475	1,787	4,416	1,747	2,669	NA	740	323	171	41	152	54	315	217	87	71	60	NA
1955		8,090	1,780	4,960	1,967	2,993	NA	756	337	173	45	145	56	363	230	96	75	59	NA
1956		9,956	1,996	6,550	2,448	4,101	NA	754	336	171	52	139	57	405	251	106	72	72	NA
1957		12,044	2,223	8,334	3,383	4,950	NA	731	314	169	57	135	55	469	287	117	70	100	NA
1958		13,446	2,516	9,316	3,773	5,543	NA	739	319	172	59	133	56	539	336	146	68	122	NA
1959		14,164	2,778	9,593	3,917	5,676	NA	805	373	178	60	135	58	581	407	205	72	130	NA
1960		14,565	2,920	9,642	3,958	5,683	NA	881	442	184	62	137	57	611	511	297	81	133	NA
1961		14,675	3,139	9,290	3,816	5,474	NA	933	486	188	61	139	59	681	632	388	80	164	NA
1962		17,140	3,284	11,353	4,687	6,666	NA	1,001	549	188	63	141	60	753	749	452	88	209	NA
1963		17,726	3,711	11,270	4,619	6,651	NA	1,053	585	193	64	148	62	853	839	527	87	225	NA
1964		18,980	4,276	11,467	4,419	7,048	280	1,154	642	204	61	169	79	917	886	587	86	212	NA
1965		19,405	4,408	11,589	4,401	7,188	204	1,347	779	206	58	187	118	912	945	621	93	231	NA

Appendix table 4-5

U.S. applied research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
1966		20,071	4,366	12,036	4,254	7,783	229	1,514	897	203	60	209	145	919	1,007	658	104	246	NA
1967		20,287	4,471	11,851	4,113	7,737	347	1,626	994	191	65	225	151	942	1,050	695	105	251	NA
1968		20,617	4,461	12,189	3,837	8,352	349	1,625	1,001	185	64	221	155	885	1,108	747	112	249	NA
1969		20,855	4,700	12,205	3,518	8,687	363	1,594	981	184	61	206	163	814	1,178	803	122	252	NA
1970		20,889	4,844	12,092	3,457	8,635	352	1,636	1,015	186	64	203	169	773	1,191	817	120	254	NA
1971		20,172	4,686	11,578	3,137	8,442	232	1,726	1,058	209	64	232	163	745	1,205	832	118	256	NA
1972		20,374	4,753	11,292	2,801	8,492	355	2,050	1,294	246	68	271	171	742	1,182	804	116	262	NA
1973		20,893	4,795	11,663	2,772	8,891	345	2,274	1,411	275	82	314	193	636	1,180	807	113	261	NA
1974		21,152	4,759	12,004	2,606	9,398	346	2,285	1,372	277	91	340	206	549	1,209	835	111	262	NA
1975		21,288	5,030	11,658	2,607	9,051	366	2,457	1,446	298	101	370	242	576	1,201	829	109	263	NA
1976		22,328	5,145	12,300	2,570	9,731	415	2,592	1,481	317	111	412	271	653	1,223	840	111	272	NA
1977		22,598	4,866	12,685	2,603	10,082	496	2,632	1,463	314	119	454	282	695	1,223	830	112	281	NA
1978		23,391	4,899	13,253	2,611	10,642	514	2,724	1,477	330	132	506	279	708	1,293	893	113	287	NA
1979		24,412	4,874	14,076	2,634	11,442	505	2,861	1,600	326	144	531	260	726	1,371	969	112	291	NA
1980		25,368	4,709	15,122	3,006	12,116	509	3,001	1,687	321	163	570	259	779	1,249	847	110	292	NA
1981		27,617	4,620	17,591	3,454	14,137	504	3,012	1,611	337	182	613	268	714	1,062	661	108	292	115
1982		29,038	4,466	19,057	4,133	14,924	585	3,052	1,604	331	193	641	283	690	1,045	634	109	301	145
1983		31,125	4,587	20,721	4,948	15,773	635	3,244	1,721	330	217	679	298	726	1,094	664	113	317	119
1984		33,180	4,376	22,491	5,434	17,056	808	3,446	1,812	346	248	726	313	811	1,130	678	117	334	119
1985		36,430	4,496	25,278	6,765	18,513	904	3,625	1,859	375	284	785	321	831	1,179	702	122	355	118
1986		38,221	4,496	26,843	5,681	21,162	883	3,900	1,954	418	321	871	336	777	1,216	709	128	379	106
1987		38,182	4,598	26,214	5,515	20,700	851	4,397	2,244	455	355	966	377	726	1,295	758	133	403	101
1988		39,003	4,441	26,916	5,080	21,836	490	4,992	2,587	498	399	1,080	429	722	1,355	791	138	426	87
1989		41,081	4,539	28,404	5,503	22,901	476	5,330	2,700	530	442	1,188	471	767	1,475	884	143	448	89
1990		42,758	4,475	29,896	7,311	22,584	473	5,398	2,623	555	462	1,263	495	844	1,573	955	147	470	100
1991		45,741	4,847	31,984	6,616	25,368	513	5,459	2,642	554	464	1,292	507	1,097	1,739	1,090	153	496	102
1992		43,906	5,019	29,698	5,180	24,518	587	5,651	2,795	554	479	1,296	526	1,088	1,768	1,080	160	528	94
1993		42,180	5,474	27,436	4,859	22,577	492	5,825	2,876	561	501	1,336	551	1,089	1,747	1,018	167	562	116
1994		40,567	5,523	25,467	4,006	21,461	557	5,971	2,929	573	514	1,391	563	1,087	1,838	1,063	176	599	123
1995		44,440	5,376	29,223	3,435	25,788	581	6,143	3,017	607	536	1,424	560	1,140	1,837	1,014	184	639	140
1996		45,995	5,191	30,908	3,878	27,030	246	6,270	3,051	622	558	1,481	557	1,353	1,898	1,022	193	682	130
1997		48,792	5,237	33,988	2,775	31,213	223	5,788	2,673	579	544	1,456	537	1,402	2,019	1,059	215	745	135
1998		48,041	5,334	33,385	2,728	30,657	238	5,387	2,342	546	539	1,428	532	1,422	2,148	1,099	231	818	128
1999		53,138	5,650	37,436	2,878	34,558	280	5,904	2,735	558	554	1,495	562	1,278	2,457	1,328	255	874	132
2000		56,826	6,105	39,176	2,682	36,494	269	6,617	3,315	572	553	1,585	592	1,329	3,113	1,831	283	999	217

Appendix table 4-5

U.S. applied research expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
2001		63,070	6,887	42,981	3,519	39,462	913	7,066	3,645	587	537	1,673	624	1,450	3,449	2,100	280	1,070	324
2002		48,771	7,187	27,386	2,353	25,033	1,059	7,584	3,984	621	524	1,784	670	1,618	3,641	2,176	264	1,202	296
2003		57,858	7,210	35,087	4,204	30,883	1,348	8,354	4,509	687	533	1,916	709	1,651	3,868	2,337	266	1,264	341
2004		64,035	6,810	41,504	4,362	37,142	1,379	8,528	4,696	693	526	1,906	707	1,754	3,728	2,236	266	1,226	331
2005		62,118	6,686	40,062	4,679	35,383	1,320	8,257	4,563	638	507	1,870	679	1,692	3,743	2,151	281	1,311	358
2006		65,503	6,372	43,859	5,262	38,597	1,140	8,191	4,534	608	506	1,874	669	1,606	3,846	2,221	299	1,326	489
2007		69,444	6,095	48,048	7,466	40,583	782	8,348	4,625	614	520	1,889	700	1,324	3,941	2,167	317	1,457	906
2008 (preliminary)		72,355	6,186	50,185	7,090	43,095	872	8,623	4,757	636	536	1,953	741	1,343	4,072	2,080	337	1,655	1,074

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 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, figures for federal support to industry include 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, figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports are available at http://www.nsf.gov/statistics/.

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Appendix table 4-6

U.S. development expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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

Appendix table 4-6

U.S. development expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector:	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
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
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		144,712	9,214	129,041	18,452	110,589	1,280	1,619	974	116	114	302	113	1,527	1,525	760	168	596	507
1999		154,029	8,974	138,807	16,571	122,236	1,208	1,376	695	120	119	321	121	1,636	1,561	727	188	646	467
2000		167,805	8,047	153,745	13,510	140,235	1,185	1,172	447	125	121	348	130	1,539	1,485	517	214	754	632
2001		165,167	9,114	149,952	12,542	137,410	534	1,268	499	132	121	376	140	1,637	1,718	675	217	827	945
2002		174,034	9,501	157,788	13,061	144,727	625	1,343	520	142	120	408	153	1,703	2,042	890	207	945	1,031
2003		172,386	10,416	155,060	11,939	143,121	725	1,571	673	161	124	447	166	1,798	1,714	485	214	1,015	1,102
2004		173,238	10,692	155,034	14,419	140,615	801	1,799	878	167	126	458	170	2,008	1,692	459	220	1,013	1,212
2005		192,427	12,142	172,208	15,512	156,696	974	1,820	904	158	126	464	169	2,085	1,957	598	240	1,119	1,242
2006		209,582	13,406	188,112	16,720	171,392	1,139	1,726	789	156	130	480	171	2,088	1,981	551	263	1,168	1,129
2007		223,333	13,955	200,429	14,860	185,569	1,670	1,695	716	162	137	497	184	2,556	2,154	549	286	1,318	872
2008 (preliminary)		239,891	14,693	215,761	14,419	201,342	1,676	1,785	746	171	144	525	199	2,643	2,392	551	312	1,530	941
		2000 constant $millions																	
1953		18,703	3,106	15,093	6,157	8,936	NA	88	47	16	5	14	5	260	156	90	33	33	NA
1954		20,256	2,913	16,763	7,622	9,141	NA	92	46	19	5	17	5	317	171	95	38	38	NA
1955		22,390	2,900	18,831	9,541	9,290	NA	112	61	20	8	17	5	369	179	99	43	37	NA
1956		30,240	3,257	26,260	14,551	11,710	NA	129	70	23	10	19	8	416	178	101	41	36	NA
1957		33,340	3,630	28,894	18,045	10,849	NA	130	60	26	12	21	10	504	182	102	40	40	NA
1958		35,167	4,102	30,143	19,218	10,925	NA	134	61	28	15	21	10	585	202	119	39	44	NA
1959		40,778	4,529	35,208	22,887	12,321	NA	149	75	29	14	22	10	646	246	154	43	48	NA
1960		44,478	4,764	38,510	24,563	13,947	NA	164	90	30	12	22	10	715	326	230	48	48	NA
1961		46,659	5,120	40,111	25,126	14,985	NA	176	101	32	9	24	9	796	456	343	47	66	NA
1962		46,887	5,688	39,523	24,476	15,047	NA	185	104	36	9	27	9	881	610	475	51	83	NA
1963		52,931	6,720	44,269	28,054	16,215	NA	183	101	36	9	28	9	1,002	757	615	50	92	NA
1964		56,501	7,590	45,197	27,812	17,385	1,622	219	133	36	9	30	11	1,023	849	718	50	81	NA
1965		58,634	7,935	47,196	27,589	19,607	1,322	313	213	38	9	35	18	916	952	810	53	89	NA

Appendix table 4-6

U.S. development expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector: / Funding source:	All performers / All sources	Federal / Federal	Industry[a] / Total	Industry[a] / Federal[b]	Industry[a] / Industry[e]	Industry FFRDCs[b] / Total	U&C[c] / Total	U&C[c] / Federal	U&C[c] / Other government[f]	U&C[c] / Industry	U&C[c] / U&C	U&C[c] / Other nonprofit	U&C FFRDCs / Total	Other nonprofit / Total	Other nonprofit / Federal[d]	Other nonprofit / Industry	Other nonprofit / Other nonprofit	Nonprofit FFRDCs[d] / Total
1966		62,509	8,136	50,949	29,547	21,402	1,169	375	263	40	9	42	22	863	1,016	856	60	99	NA
1967		64,157	8,131	52,471	28,435	24,036	1,264	389	274	36	10	42	27	870	1,032	868	63	100	NA
1968		64,832	7,642	53,660	28,271	25,389	1,176	407	287	31	16	37	36	907	1,039	871	64	104	NA
1969		65,196	7,707	53,803	26,551	27,251	1,269	419	304	27	19	30	38	941	1,057	881	69	107	NA
1970		61,460	8,199	49,742	22,631	27,112	1,235	407	303	23	18	26	36	904	973	799	65	109	NA
1971		60,169	8,551	48,153	21,327	26,826	1,352	339	239	27	14	30	29	923	851	671	66	114	NA
1972		62,123	8,748	49,859	21,653	28,206	1,332	335	207	41	12	45	30	965	885	706	63	116	NA
1973		63,404	8,342	51,466	20,785	30,681	1,253	394	221	55	16	63	39	928	1,022	840	63	119	NA
1974		61,935	7,965	50,174	18,873	31,301	1,380	405	215	58	19	71	43	925	1,087	903	62	122	NA
1975		59,741	7,604	48,286	17,847	30,439	1,408	411	217	58	21	72	42	980	1,053	868	62	123	NA
1976		62,398	7,392	50,774	18,711	32,063	1,627	453	248	60	29	77	40	1,112	1,041	848	63	130	NA
1977		64,707	7,456	52,863	19,353	33,510	1,579	594	358	65	34	94	43	1,177	1,039	840	64	135	NA
1978		67,864	8,034	55,102	19,134	35,969	1,645	815	555	70	32	107	51	1,184	1,085	880	65	140	NA
1979		71,530	7,959	58,590	19,954	38,635	1,635	947	679	69	31	113	56	1,218	1,182	974	65	144	NA
1980		75,404	7,533	62,610	20,267	42,342	1,631	958	669	70	36	125	57	1,329	1,343	1,132	64	147	NA
1981		78,314	7,662	65,192	21,633	43,560	1,607	960	653	74	40	135	59	1,316	820	608	63	149	756
1982		82,692	8,253	69,231	22,658	46,573	1,576	951	634	73	42	141	62	1,187	798	577	64	156	696
1983		88,588	9,362	73,702	23,802	49,900	1,616	947	612	72	48	149	65	1,275	919	686	67	166	766
1984		98,222	10,461	81,832	26,070	55,762	1,561	1,001	643	76	54	159	69	1,457	1,127	879	70	178	784
1985		106,881	11,489	88,951	29,055	59,896	1,581	1,085	697	82	62	172	71	1,784	1,189	924	73	192	803
1986		106,435	11,611	88,216	30,191	58,025	1,607	1,147	720	92	71	191	74	2,110	1,109	823	78	208	635
1987		109,186	11,168	91,237	32,952	58,285	1,680	1,290	818	100	78	212	83	2,281	954	647	82	225	575
1988		111,704	11,709	92,929	31,330	61,599	1,868	1,450	922	109	88	237	94	2,328	865	538	85	242	555
1989		111,651	11,907	92,562	26,790	65,771	1,811	1,562	984	116	97	261	103	2,268	993	645	89	259	548
1990		115,259	11,886	96,033	23,239	72,794	1,762	1,724	1,115	122	101	277	109	2,126	1,128	758	92	277	601
1991		112,607	10,393	95,061	20,432	74,630	1,638	1,816	1,198	122	102	284	111	1,819	1,249	855	97	297	631
1992		115,519	10,529	97,879	19,885	77,994	1,588	1,848	1,221	122	105	285	115	1,680	1,302	877	102	322	693
1993		112,802	10,263	95,890	18,195	77,694	1,174	1,923	1,275	123	110	293	121	1,554	1,348	890	108	350	650
1994		114,040	9,775	97,369	17,957	79,412	1,325	2,012	1,344	126	113	305	124	1,527	1,397	903	114	381	634
1995		122,758	10,055	105,674	19,350	86,325	1,311	1,967	1,280	133	118	313	123	1,754	1,342	807	121	414	655
1996		129,319	9,624	112,789	18,183	94,607	1,447	1,909	1,202	137	123	325	122	1,619	1,322	743	128	451	608
1997		134,860	9,513	118,623	18,992	99,631	1,354	1,790	1,106	127	119	320	118	1,524	1,444	720	162	562	613
1998		150,000	9,551	133,756	19,126	114,630	1,327	1,678	1,009	120	118	313	117	1,583	1,580	788	175	618	526
1999		157,384	9,170	141,831	16,932	124,899	1,234	1,406	710	123	122	328	123	1,672	1,595	743	192	660	477
2000		167,805	8,047	153,745	13,510	140,235	1,185	1,172	447	125	121	348	130	1,539	1,485	517	214	754	632

Appendix table 4-6

U.S. development expenditures, by performing sector and funding source: 1953–2008

Year	Performing sector: / Funding source:	All performers / All sources	Federal / Federal	Industry[a] / Total	Industry[a] / Federal[b]	Industry[a] / Industry[e]	Industry FFRDCs[b] / Total	U&C[c] / Total	U&C[c] / Federal	U&C[c] / Other government[f]	U&C[c] / Industry	U&C[c] / U&C	U&C[c] / Other nonprofit	U&C FFRDCs / Total	Other nonprofit / Total	Other nonprofit / Federal[d]	Other nonprofit / Industry	Other nonprofit / Other nonprofit	Nonprofit FFRDCs[d] / Total
2001		161,297	8,900	146,439	12,248	134,191	521	1,238	487	129	118	367	137	1,598	1,678	659	212	807	923
2002		167,040	9,119	151,447	12,536	138,911	600	1,289	499	136	115	392	147	1,635	1,960	854	199	907	989
2003		162,011	9,789	145,728	11,220	134,507	682	1,477	633	151	117	420	156	1,690	1,611	455	201	954	1,036
2004		158,262	9,768	141,631	13,172	128,459	732	1,644	802	152	115	418	155	1,835	1,546	419	201	925	1,107
2005		170,239	10,742	152,351	13,723	138,627	861	1,611	800	140	111	411	149	1,845	1,731	529	212	990	1,098
2006		179,627	11,490	161,226	14,330	146,896	976	1,479	676	134	111	411	147	1,790	1,698	472	225	1,001	968
2007		186,395	11,647	167,279	12,402	154,877	1,394	1,415	598	135	114	415	154	2,133	1,798	459	239	1,100	728
2008 (preliminary)		195,954	12,002	176,244	11,778	164,466	1,369	1,458	609	140	118	429	163	2,159	1,954	450	255	1,250	768

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 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, figures for federal support to industry include 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, figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-7

U.S. R&D expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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

Appendix table 4-7

U.S. R&D expenditures, by funding source and performing sector: 1953–2008

Year	Funding source: / Performing sector:	All sources / All performers	Federal								Industry				U&C	Other nonprofit			Other government[a]
			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]
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
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		226,402	66,383	17,362	22,086	2,078	15,174	5,559	3,281	843	147,846	145,016	1,950	880	5,163	5,038	3,116	1,922	1,972
1999		244,922	67,055	17,851	20,496	2,039	16,264	5,652	3,761	993	164,660	161,594	2,082	984	5,619	5,489	3,377	2,112	2,098
2000		267,298	66,417	17,917	17,117	2,001	17,727	5,742	4,447	1,465	186,136	182,844	2,174	1,118	6,232	6,267	3,941	2,326	2,247
2001		277,366	72,836	20,426	16,899	2,020	19,784	6,225	5,289	2,192	188,440	185,118	2,190	1,132	6,827	6,867	4,322	2,546	2,397
2002		276,022	77,710	21,499	16,401	2,263	22,395	7,102	5,731	2,319	180,711	177,467	2,160	1,084	7,344	7,700	4,941	2,758	2,557
2003		288,324	83,618	22,752	17,798	2,458	25,129	7,301	5,686	2,494	186,174	182,926	2,129	1,118	7,650	8,140	5,307	2,833	2,742
2004		299,201	88,766	22,844	20,266	2,485	27,173	7,659	5,695	2,644	191,376	188,035	2,190	1,151	7,937	8,239	5,294	2,946	2,883
2005		322,104	93,817	24,470	21,909	2,601	28,260	7,817	5,932	2,828	207,826	204,250	2,323	1,253	8,579	8,960	5,846	3,113	2,922
2006		347,046	98,036	25,556	24,304	3,122	28,815	7,306	5,992	2,941	227,254	223,365	2,515	1,374	9,307	9,429	6,103	3,325	3,021
2007		372,527	101,764	25,858	26,585	4,839	29,328	5,892	5,954	3,308	246,927	242,682	2,748	1,497	9,993	10,593	6,890	3,703	3,249
2008 (preliminary)		397,616	103,696	27,000	25,795	5,031	30,177	6,023	5,982	3,688	267,847	263,310	2,908	1,629	10,600	12,020	7,995	4,024	3,453
		2000 constant $millions																	
1953		28,289	15,255	5,565	7,840	NA	817	718	315	0	12,316	12,061	112	143	200	302	154	148	217
1954		30,468	16,806	5,221	9,493	NA	892	871	328	0	12,881	12,585	127	168	214	325	168	157	241
1955		33,573	19,259	5,199	10,995	657	1,021	1,000	342	45	13,480	13,149	144	187	224	342	171	171	267
1956		43,905	25,713	5,839	15,470	1,720	1,142	1,121	364	57	17,280	16,927	163	191	238	382	196	186	292
1957		49,445	31,103	6,474	19,602	2,031	1,205	1,330	392	70	17,314	16,947	182	185	255	454	255	200	319
1958		53,213	34,000	7,345	21,626	1,575	1,365	1,538	463	88	18,072	17,697	190	185	271	519	302	217	351
1959		60,179	39,352	8,100	25,137	2,014	1,713	1,682	600	106	19,584	19,191	190	202	294	561	323	239	388
1960		65,155	42,364	8,557	26,630	2,267	2,150	1,830	703	228	21,460	21,042	190	228	318	584	323	261	428
1961		68,438	44,567	9,338	26,714	2,608	2,615	2,068	794	430	22,353	21,935	188	230	350	695	404	291	472
1962		72,484	46,997	10,141	27,851	1,975	3,182	2,318	927	603	23,751	23,313	188	250	389	827	505	322	519
1963		80,359	53,417	11,736	31,448	1,899	3,846	2,658	1,073	757	25,024	24,586	186	252	440	904	546	358	573
1964		86,305	57,668	13,397	32,787	2,092	4,495	2,842	1,129	926	26,599	26,168	183	248	513	904	506	398	621
1965		89,858	58,540	14,004	32,687	1,655	5,178	2,793	1,269	954	29,055	28,596	184	275	603	996	550	446	663

Appendix table 4-7

U.S. R&D expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
1966		95,219	61,107	14,270	34,413	1,531	5,759	2,811	1,417	906	31,626	31,130	194	302	710	1,085	595	490	690
1967		97,696	60,940	14,414	33,251	1,753	6,237	2,912	1,431	942	34,086	33,561	216	310	835	1,132	607	525	703
1968		98,997	60,058	14,036	32,690	1,666	6,365	2,898	1,461	943	36,151	35,596	231	325	885	1,162	606	556	740
1969		99,399	58,228	14,493	30,540	1,774	6,208	2,795	1,482	937	38,277	37,690	231	356	891	1,208	616	593	795
1970		95,400	54,413	15,084	26,531	1,718	6,121	2,638	1,487	835	37,942	37,359	238	345	939	1,246	625	621	861
1971		93,207	52,601	15,247	24,813	1,698	6,085	2,540	1,475	744	37,433	36,845	249	339	1,001	1,266	636	629	906
1972		95,258	53,161	15,497	24,756	1,816	6,264	2,602	1,563	663	38,829	38,232	262	335	1,032	1,301	656	645	935
1973		97,167	52,072	15,183	23,859	1,711	6,305	2,640	1,777	596	41,748	41,138	281	330	1,077	1,323	662	661	947
1974		96,077	49,788	14,782	21,808	1,866	6,221	2,667	1,839	605	42,871	42,242	300	329	1,130	1,366	678	688	922
1975		93,855	48,763	14,632	20,728	1,913	6,315	2,807	1,776	592	41,635	40,998	310	327	1,135	1,406	690	716	916
1976		98,092	50,474	14,652	21,569	2,214	6,515	3,148	1,769	609	44,033	43,371	326	336	1,194	1,472	727	745	918
1977		101,356	51,619	14,527	22,272	2,250	6,765	3,432	1,731	643	45,937	45,231	361	344	1,330	1,549	762	787	921
1978		106,462	53,349	15,214	22,086	2,364	7,274	3,871	1,814	727	49,073	48,326	397	350	1,484	1,589	794	794	968
1979		111,757	54,941	15,077	22,913	2,349	7,765	4,062	1,988	787	52,664	51,880	433	351	1,584	1,596	818	778	972
1980		116,947	55,466	14,485	23,588	2,362	8,018	4,265	1,882	867	57,210	56,372	487	350	1,701	1,611	836	775	959
1981		122,264	57,061	14,552	25,364	2,342	7,897	4,201	1,817	886	60,797	59,917	531	349	1,788	1,635	852	783	983
1982		128,707	59,188	15,144	27,194	2,365	7,776	4,054	1,800	854	64,861	63,925	579	357	1,923	1,745	895	850	990
1983		137,930	63,561	16,606	29,281	2,430	7,989	4,355	2,002	897	69,408	68,372	662	374	2,080	1,872	960	912	1,009
1984		151,105	68,678	17,610	32,007	2,570	8,494	4,793	2,287	916	77,127	75,969	765	392	2,238	1,997	1,031	966	1,066
1985		164,464	75,499	18,778	36,333	2,672	9,162	5,186	2,429	939	83,130	81,813	904	414	2,500	2,139	1,116	1,023	1,195
1986		168,725	76,642	18,949	36,481	2,653	9,861	5,574	2,365	759	85,579	84,093	1,045	441	2,832	2,312	1,217	1,094	1,360
1987		172,614	80,063	18,562	39,283	2,725	10,611	5,857	2,328	696	85,481	83,879	1,135	467	3,090	2,525	1,321	1,204	1,454
1988		176,843	79,427	18,944	37,277	2,803	11,350	6,051	2,328	673	89,791	88,067	1,232	491	3,338	2,749	1,424	1,325	1,539
1989		180,594	76,959	19,385	33,549	2,794	11,858	6,053	2,624	696	95,414	93,550	1,350	515	3,630	2,969	1,530	1,439	1,622
1990		186,234	75,490	19,202	31,615	2,846	12,178	5,996	2,874	779	101,953	99,985	1,428	539	3,904	3,172	1,642	1,530	1,714
1991		190,482	71,969	18,056	28,529	2,696	12,630	6,063	3,172	824	109,287	107,250	1,470	567	4,094	3,377	1,769	1,608	1,755
1992		191,373	70,501	18,348	25,889	2,723	13,342	6,087	3,247	865	111,373	109,243	1,527	603	4,130	3,603	1,928	1,675	1,765
1993		187,499	68,478	18,702	23,582	2,223	13,924	5,984	3,217	847	109,231	107,015	1,574	641	4,196	3,833	2,101	1,732	1,762
1994		187,455	67,332	18,119	22,446	2,439	14,397	5,865	3,225	840	109,903	107,606	1,613	683	4,363	4,060	2,294	1,766	1,797
1995		199,344	68,359	18,351	22,991	2,468	14,755	5,827	3,091	877	120,361	117,953	1,680	729	4,462	4,261	2,506	1,755	1,901
1996		210,258	67,542	17,670	22,753	2,447	15,005	5,748	3,096	822	131,492	128,933	1,781	778	4,726	4,516	2,742	1,774	1,983
1997		222,347	67,677	17,627	22,845	2,232	15,228	5,725	3,159	860	142,774	140,031	1,895	848	5,071	4,811	2,938	1,872	2,015
1998		234,674	68,809	17,997	22,893	2,154	15,729	5,762	3,401	874	153,248	150,315	2,021	912	5,352	5,222	3,230	1,992	2,044
1999		250,257	68,516	18,240	20,942	2,084	16,618	5,775	3,843	1,014	168,247	165,114	2,127	1,006	5,742	5,609	3,450	2,158	2,144
2000		267,298	66,417	17,917	17,117	2,001	17,727	5,742	4,447	1,465	186,136	182,844	2,174	1,118	6,232	6,267	3,941	2,326	2,247

Appendix table 4-7

U.S. R&D expenditures, by funding source and performing sector: 1953–2008

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performing sector:	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]
2001		270,868	71,129	19,948	16,503	1,973	19,321	6,080	5,165	2,140	184,025	180,781	2,138	1,106	6,667	6,706	4,220	2,486	2,341
2002		264,929	74,587	20,635	15,742	2,172	21,495	6,817	5,501	2,226	173,449	170,335	2,073	1,040	7,049	7,390	4,743	2,647	2,455
2003		270,971	78,585	21,383	16,727	2,310	23,617	6,861	5,344	2,344	174,969	171,916	2,001	1,051	7,190	7,650	4,988	2,662	2,577
2004		273,335	81,092	20,869	18,514	2,270	24,824	6,997	5,203	2,415	174,831	171,780	2,001	1,051	7,251	7,527	4,836	2,691	2,634
2005		284,962	82,999	21,648	19,383	2,301	25,001	6,916	5,248	2,502	183,862	180,698	2,055	1,109	7,589	7,926	5,172	2,754	2,585
2006		297,444	84,024	21,904	20,830	2,676	24,696	6,262	5,135	2,521	194,773	191,440	2,155	1,178	7,977	8,081	5,231	2,850	2,589
2007		310,913	84,933	21,582	22,188	4,039	24,477	4,918	4,969	2,761	206,087	202,544	2,294	1,250	8,341	8,841	5,750	3,091	2,711
2008 (preliminary)		324,791	84,704	22,055	21,071	4,109	24,650	4,920	4,887	3,012	218,790	215,084	2,375	1,330	8,658	9,818	6,531	3,287	2,821

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, figures for federal support to industry include 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 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 2008, $1,700 million in total passthrough funds and $1,531 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, 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-8

U.S. basic research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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

Appendix table 4-8

U.S. basic research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
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
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		35,341	20,847	3,003	1,002	568	11,941	2,660	1,461	213	6,655	4,851	1,315	489	3,483	3,026	1,730	1,296	1,330
1999		38,887	22,799	3,347	1,108	557	12,892	2,765	1,734	397	7,504	5,537	1,421	546	3,835	3,317	1,875	1,442	1,432
2000		42,667	24,791	3,765	925	547	13,966	2,874	2,099	616	8,235	6,115	1,499	621	4,298	3,793	2,188	1,604	1,550
2001		47,617	27,603	4,260	754	552	15,553	3,104	2,464	915	9,447	7,299	1,519	629	4,737	4,166	2,399	1,767	1,663
2002		51,174	30,924	4,511	888	534	17,724	3,714	2,575	979	8,755	6,659	1,494	602	5,077	4,651	2,744	1,907	1,768
2003		54,375	33,497	4,664	1,386	299	19,658	3,747	2,714	1,029	9,003	6,944	1,438	621	5,165	4,859	2,947	1,913	1,850
2004		55,868	34,686	4,697	1,072	175	21,154	3,730	2,788	1,070	8,890	6,763	1,488	639	5,392	4,941	2,939	2,002	1,958
2005		59,462	36,115	4,770	1,108	136	22,198	3,820	2,903	1,181	9,880	7,559	1,625	696	6,000	5,423	3,246	2,177	2,043
2006		61,038	36,983	4,716	1,444	652	22,736	3,344	2,849	1,242	9,498	6,940	1,795	763	6,641	5,762	3,389	2,373	2,155
2007		65,988	38,590	4,600	2,780	2,232	23,070	1,750	2,809	1,350	11,308	8,488	1,989	831	7,233	6,506	3,826	2,680	2,351
2008 (preliminary)		69,146	39,379	4,734	2,697	2,287	23,608	1,736	2,885	1,432	12,222	9,209	2,108	904	7,685	7,357	4,439	2,918	2,503
		2000 constant $millions																	
1953		2,519	1,453	556	104	NA	447	197	148	NA	844	724	71	49	33	154	66	88	36
1954		2,758	1,576	521	125	NA	523	239	168	NA	917	776	81	60	46	168	71	98	52
1955		3,095	1,748	521	144	NA	623	267	192	NA	1,026	866	91	69	62	184	75	110	74
1956		3,709	2,027	586	191	NA	736	300	214	NA	1,294	1,116	101	77	80	209	88	121	98
1957		4,060	2,253	619	205	NA	831	357	242	NA	1,335	1,148	112	75	98	250	115	135	124
1958		4,600	2,620	726	210	NA	985	414	285	NA	1,424	1,229	117	78	117	288	137	151	151
1959		5,238	3,207	793	347	NA	1,265	455	347	NA	1,397	1,195	116	87	137	316	145	171	181
1960		6,111	3,773	872	375	NA	1,618	504	404	NA	1,628	1,411	116	100	159	337	143	195	214
1961		7,103	4,570	1,078	381	NA	2,028	590	493	NA	1,696	1,475	117	103	187	397	174	223	252
1962		8,455	5,646	1,168	663	NA	2,529	684	603	NA	1,826	1,599	116	111	222	466	213	253	295
1963		9,701	6,630	1,305	674	NA	3,160	803	688	NA	1,947	1,720	112	115	264	516	229	287	344
1964		10,825	7,649	1,532	556	190	3,721	901	750	NA	1,961	1,735	113	113	315	520	212	307	381
1965		11,820	8,430	1,662	697	129	4,186	965	792	NA	2,048	1,801	118	129	382	541	231	311	419

Appendix table 4-8

U.S. basic research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
1966		12,640	8,952	1,769	613	134	4,599	1,029	809	NA	2,209	1,946	125	138	459	574	250	324	447
1967		13,255	9,539	1,814	703	142	4,969	1,101	810	NA	2,069	1,787	140	142	568	603	255	347	476
1968		13,550	9,626	1,934	582	140	5,077	1,106	787	NA	2,153	1,854	151	148	627	618	253	365	525
1969		13,347	9,394	2,085	470	141	4,923	1,040	734	NA	2,067	1,751	151	164	654	648	256	392	584
1970		13,051	9,084	2,041	443	131	4,802	960	706	NA	1,928	1,612	156	160	710	677	261	416	651
1971		12,866	8,849	2,010	349	114	4,788	871	716	NA	1,904	1,577	171	156	740	704	266	437	670
1972		12,761	8,802	1,997	302	129	4,763	895	716	NA	1,873	1,535	182	156	716	723	278	444	648
1973		12,870	8,938	2,047	301	113	4,673	1,077	727	NA	1,904	1,567	184	154	701	711	283	429	616
1974		12,991	9,061	2,058	328	141	4,634	1,194	706	NA	1,889	1,544	190	155	720	733	294	439	587
1975		12,825	8,986	1,999	274	139	4,652	1,251	671	NA	1,852	1,508	188	156	693	735	304	431	559
1976		13,365	9,434	2,114	289	172	4,786	1,383	690	NA	1,926	1,577	187	162	705	759	325	434	542
1977		14,052	9,904	2,205	316	175	4,944	1,559	705	NA	2,015	1,639	208	168	782	808	346	462	542
1978		15,206	10,817	2,282	341	205	5,242	1,979	768	NA	2,120	1,715	233	172	870	831	366	464	568
1979		15,814	11,217	2,245	325	210	5,487	2,118	832	NA	2,235	1,802	257	175	941	845	383	462	577
1980		16,175	11,367	2,242	314	222	5,661	2,158	769	NA	2,379	1,914	288	176	1,006	856	397	459	568
1981		16,333	11,148	2,271	277	232	5,634	2,172	547	15	2,707	2,221	309	177	1,041	866	411	456	572
1982		16,976	11,351	2,425	403	204	5,538	2,178	588	14	2,955	2,428	343	184	1,142	943	438	505	587
1983		18,217	12,042	2,657	531	179	5,656	2,355	653	12	3,291	2,699	398	194	1,251	1,025	476	549	607
1984		19,703	12,786	2,773	502	201	6,039	2,525	730	14	3,819	3,151	462	206	1,352	1,103	519	584	644
1985		21,152	13,492	2,793	513	188	6,605	2,571	803	18	4,180	3,403	558	219	1,542	1,200	569	631	738
1986		24,069	14,340	2,842	609	164	7,186	2,687	833	18	5,795	4,905	653	236	1,771	1,314	629	684	850
1987		25,246	15,149	2,797	817	194	7,549	2,850	923	20	5,849	4,895	702	252	1,912	1,437	692	745	900
1988		26,136	15,979	2,795	867	445	7,842	3,001	999	31	5,646	4,632	746	268	2,021	1,558	756	802	932
1989		27,862	17,045	2,938	1,255	507	8,174	3,018	1,095	59	5,972	4,877	811	283	2,182	1,688	823	865	975
1990		28,217	17,223	2,841	1,065	611	8,440	3,026	1,160	79	5,771	4,607	864	300	2,364	1,821	895	926	1,038
1991		32,134	18,096	2,816	1,481	546	8,789	3,146	1,227	91	8,475	7,252	904	318	2,519	1,966	976	989	1,080
1992		31,948	18,183	2,799	824	549	9,326	3,318	1,289	77	8,015	6,731	942	341	2,549	2,112	1,078	1,034	1,089
1993		32,518	18,553	2,965	527	557	9,773	3,341	1,309	82	8,073	6,744	963	366	2,566	2,248	1,189	1,059	1,078
1994		32,849	18,578	2,821	483	557	10,124	3,250	1,259	83	8,113	6,734	986	394	2,666	2,393	1,314	1,079	1,098
1995		32,145	18,444	2,920	206	575	10,458	2,933	1,270	82	7,289	5,839	1,026	424	2,726	2,525	1,453	1,072	1,161
1996		34,945	19,245	2,855	693	754	10,752	2,776	1,330	84	8,852	7,296	1,100	456	2,919	2,705	1,609	1,096	1,224
1997		38,695	20,353	2,878	1,078	655	11,449	2,800	1,380	113	10,890	9,187	1,232	471	3,295	2,849	1,631	1,217	1,308
1998		36,633	21,609	3,112	1,039	589	12,377	2,757	1,514	221	6,898	5,028	1,363	507	3,610	3,137	1,793	1,344	1,379
1999		39,735	23,296	3,420	1,132	570	13,173	2,825	1,772	405	7,668	5,658	1,452	558	3,919	3,389	1,916	1,473	1,463
2000		42,667	24,791	3,765	925	547	13,966	2,874	2,099	616	8,235	6,115	1,499	621	4,298	3,793	2,188	1,604	1,550

Appendix table 4-8

U.S. basic research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
2001		46,501	26,956	4,161	736	539	15,189	3,031	2,406	894	9,226	7,128	1,484	614	4,626	4,069	2,343	1,725	1,624
2002		49,118	29,681	4,329	852	513	17,012	3,564	2,471	940	8,403	6,391	1,434	578	4,873	4,464	2,633	1,830	1,697
2003		51,102	31,481	4,384	1,303	281	18,475	3,521	2,551	967	8,461	6,526	1,351	584	4,854	4,567	2,769	1,798	1,739
2004		51,038	31,688	4,291	979	160	19,325	3,408	2,547	978	8,121	6,178	1,359	584	4,926	4,514	2,685	1,829	1,789
2005		52,605	31,951	4,220	980	120	19,639	3,379	2,568	1,045	8,740	6,687	1,437	616	5,308	4,798	2,872	1,926	1,807
2006		52,314	31,697	4,042	1,238	559	19,487	2,866	2,442	1,064	8,140	5,948	1,538	654	5,692	4,938	2,904	2,034	1,847
2007		55,074	32,208	3,839	2,320	1,863	19,254	1,460	2,344	1,127	9,438	7,084	1,660	694	6,036	5,430	3,193	2,237	1,962
2008 (preliminary)		56,482	32,167	3,867	2,203	1,868	19,284	1,418	2,357	1,170	9,984	7,523	1,722	739	6,277	6,009	3,626	2,383	2,045

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]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, figures for federal support to industry include 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, figures for federal support to industry include 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; figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007 (forthcoming); Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-9

U.S. applied research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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

Appendix table 4-9

U.S. applied research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
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
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		46,348	12,822	5,146	2,632	230	2,260	1,372	1,060	123	30,319	29,576	520	223	1,378	1,303	790	513	526
1999		52,006	13,978	5,530	2,817	274	2,677	1,251	1,300	130	34,613	33,821	542	249	1,463	1,405	856	550	546
2000		56,826	15,748	6,105	2,682	269	3,315	1,329	1,831	217	37,330	36,494	553	283	1,585	1,591	999	592	572
2001		64,583	19,288	7,052	3,603	935	3,732	1,485	2,150	332	41,246	40,409	550	287	1,713	1,734	1,095	639	602
2002		50,814	19,455	7,487	2,452	1,103	4,151	1,685	2,267	309	26,902	26,081	546	275	1,859	1,950	1,252	698	647
2003		61,563	22,983	7,672	4,473	1,434	4,798	1,756	2,487	363	33,711	32,861	567	283	2,038	2,100	1,345	755	731
2004		70,095	23,609	7,455	4,775	1,509	5,140	1,920	2,448	362	41,524	40,657	576	292	2,087	2,116	1,342	774	759
2005		70,215	24,245	7,557	5,289	1,492	5,158	1,912	2,432	405	40,885	39,995	573	318	2,114	2,249	1,482	768	721
2006		76,426	25,231	7,435	6,140	1,331	5,290	1,874	2,592	570	45,972	45,033	590	348	2,186	2,328	1,547	781	710
2007		83,206	27,994	7,303	8,945	937	5,542	1,586	2,596	1,086	49,627	48,625	623	379	2,264	2,585	1,746	839	736
2008 (preliminary)		88,578	28,649	7,573	8,679	1,067	5,824	1,644	2,546	1,315	53,827	52,758	656	413	2,390	2,934	2,026	908	779
		2000 constant $millions																	
1953		7,067	4,142	1,902	1,579	NA	323	260	77	NA	2,497	2,401	36	60	153	110	55	55	165
1954		7,475	4,258	1,787	1,747	NA	323	315	87	NA	2,780	2,669	41	71	152	114	60	54	171
1955		8,090	4,543	1,780	1,967	NA	337	363	96	NA	3,113	2,993	45	75	145	115	59	56	173
1956		9,956	5,292	1,996	2,448	NA	336	405	106	NA	4,225	4,101	52	72	139	129	72	57	171
1957		12,044	6,507	2,223	3,383	NA	314	469	117	NA	5,078	4,950	57	70	135	155	100	55	169
1958		13,446	7,293	2,516	3,773	NA	319	539	146	NA	5,670	5,543	59	68	133	178	122	56	172
1959		14,164	7,854	2,778	3,917	NA	373	581	205	NA	5,809	5,676	60	72	135	188	130	58	178
1960		14,565	8,228	2,920	3,958	NA	442	611	297	NA	5,826	5,683	62	81	137	190	133	57	184
1961		14,675	8,510	3,139	3,816	NA	486	681	388	NA	5,615	5,474	61	80	139	223	164	59	188
1962		17,140	9,726	3,284	4,687	NA	549	753	452	NA	6,817	6,666	63	88	141	269	209	60	188
1963		17,726	10,295	3,711	4,619	NA	585	853	527	NA	6,802	6,651	64	87	148	287	225	62	193
1964		18,980	11,121	4,276	4,419	280	642	917	587	NA	7,195	7,048	61	86	169	291	212	79	204
1965		19,405	11,325	4,408	4,401	204	779	912	621	NA	7,339	7,188	58	93	187	348	231	118	206

Appendix table 4-9

U.S. applied research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
1966		20,071	11,322	4,366	4,254	229	897	919	658	NA	7,947	7,783	60	104	209	390	246	145	203
1967		20,287	11,562	4,471	4,113	347	994	942	695	NA	7,907	7,737	65	105	225	402	251	151	191
1968		20,617	11,280	4,461	3,837	349	1,001	885	747	NA	8,529	8,352	64	112	221	403	249	155	185
1969		20,855	11,179	4,700	3,518	363	981	814	803	NA	8,871	8,687	61	122	206	415	252	163	184
1970		20,889	11,259	4,844	3,457	352	1,015	773	817	NA	8,819	8,635	64	120	203	423	254	169	186
1971		20,172	10,690	4,686	3,137	232	1,058	745	832	NA	8,623	8,442	64	118	232	418	256	163	209
1972		20,374	10,748	4,753	2,801	355	1,294	742	804	NA	8,676	8,492	68	116	271	433	262	171	246
1973		20,893	10,766	4,795	2,772	345	1,411	636	807	NA	9,085	8,891	82	113	314	454	261	193	275
1974		21,152	10,467	4,759	2,606	346	1,372	549	835	NA	9,600	9,398	91	111	340	468	262	206	277
1975		21,288	10,854	5,030	2,607	366	1,446	576	829	NA	9,262	9,051	101	109	370	505	263	242	298
1976		22,328	11,104	5,145	2,570	415	1,481	653	840	NA	9,953	9,731	111	111	412	544	272	271	317
1977		22,598	10,953	4,866	2,603	496	1,463	695	830	NA	10,314	10,082	119	112	454	563	281	282	314
1978		23,391	11,101	4,899	2,611	514	1,477	708	893	NA	10,887	10,642	132	113	506	566	287	279	330
1979		24,412	11,306	4,874	2,634	505	1,600	726	969	NA	11,698	11,442	144	112	531	551	291	260	326
1980		25,368	11,537	4,709	3,006	509	1,687	779	847	NA	12,389	12,116	163	110	570	551	292	259	321
1981		27,617	11,679	4,620	3,454	504	1,611	714	661	115	14,427	14,137	182	108	613	561	292	268	337
1982		29,038	12,256	4,466	4,133	585	1,604	690	634	145	15,226	14,924	193	109	641	585	301	283	331
1983		31,125	13,399	4,587	4,948	635	1,721	726	664	119	16,102	15,773	217	113	679	615	317	298	330
1984		33,180	14,039	4,376	5,434	808	1,812	811	678	119	17,421	17,056	248	117	726	648	334	313	346
1985		36,430	15,676	4,496	6,765	904	1,859	831	702	118	18,918	18,513	284	122	785	676	355	321	375
1986		38,221	14,606	4,496	5,681	883	1,954	777	709	106	21,611	21,162	321	128	871	716	379	336	418
1987		38,182	14,793	4,598	5,515	851	2,244	726	758	101	21,188	20,700	355	133	966	780	403	377	455
1988		39,003	14,198	4,441	5,080	490	2,587	722	791	87	22,373	21,836	399	138	1,080	855	426	429	498
1989		41,081	14,959	4,539	5,503	476	2,700	767	884	89	23,485	22,901	442	143	1,188	919	448	471	530
1990		42,758	16,780	4,475	7,311	473	2,623	844	955	100	23,194	22,584	462	147	1,263	966	470	495	555
1991		45,741	16,908	4,847	6,616	513	2,642	1,097	1,090	102	25,984	25,368	464	153	1,292	1,003	496	507	554
1992		43,906	15,844	5,019	5,180	587	2,795	1,088	1,080	94	25,157	24,518	479	160	1,296	1,054	528	526	554
1993		42,180	15,923	5,474	4,859	492	2,876	1,089	1,018	116	23,246	22,577	501	167	1,336	1,114	562	551	561
1994		40,567	15,288	5,523	4,006	557	2,929	1,087	1,063	123	22,151	21,461	514	176	1,391	1,163	599	563	573
1995		44,440	14,702	5,376	3,435	581	3,017	1,140	1,014	140	26,509	25,788	536	184	1,424	1,199	639	560	607
1996		45,995	14,871	5,191	3,878	246	3,051	1,353	1,022	130	27,782	27,030	558	193	1,481	1,239	682	557	622
1997		48,792	13,503	5,237	2,775	223	2,673	1,402	1,059	135	31,972	31,213	544	215	1,456	1,282	745	537	579
1998		48,041	13,291	5,334	2,728	238	2,342	1,422	1,099	128	31,427	30,657	539	231	1,428	1,350	818	532	546
1999		53,138	14,283	5,650	2,878	280	2,735	1,278	1,328	132	35,367	34,558	554	255	1,495	1,436	874	562	558
2000		56,826	15,748	6,105	2,682	269	3,315	1,329	1,831	217	37,330	36,494	553	283	1,585	1,591	999	592	572

Appendix table 4-9

U.S. applied research expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
2001		63,070	18,837	6,887	3,519	913	3,645	1,450	2,100	324	40,279	39,462	537	280	1,673	1,693	1,070	624	587
2002		48,771	18,673	7,187	2,353	1,059	3,984	1,618	2,176	296	25,821	25,033	524	264	1,784	1,872	1,202	670	621
2003		57,858	21,599	7,210	4,204	1,348	4,509	1,651	2,337	341	31,682	30,883	533	266	1,916	1,973	1,264	709	687
2004		64,035	21,568	6,810	4,362	1,379	4,696	1,754	2,236	331	37,934	37,142	526	266	1,906	1,933	1,226	707	693
2005		62,118	21,450	6,686	4,679	1,320	4,563	1,692	2,151	358	36,171	35,383	507	281	1,870	1,990	1,311	679	638
2006		65,503	21,625	6,372	5,262	1,140	4,534	1,606	2,221	489	39,401	38,597	506	299	1,874	1,995	1,326	669	608
2007		69,444	23,364	6,095	7,466	782	4,625	1,324	2,167	906	41,419	40,583	520	317	1,889	2,157	1,457	700	614
2008 (preliminary)		72,355	23,401	6,186	7,090	872	4,757	1,343	2,080	1,074	43,968	43,095	536	337	1,953	2,396	1,655	741	636

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]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, figures for federal support to industry include 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, figures for federal support to industry include 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; figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-10

U.S. development expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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

Appendix table 4-10

U.S. development expenditures, by funding source and performing sector: 1953–2008

Year	Funding source: / Performing sector:	All sources / All performers	Federal								Industry				U&C	Other nonprofit			Other government[a]
			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]
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
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		144,712	32,714	9,214	18,452	1,280	974	1,527	760	507	110,872	110,589	114	168	302	709	596	113	116
1999		154,029	30,278	8,974	16,571	1,208	695	1,636	727	467	122,543	122,236	119	188	321	767	646	121	120
2000		167,805	25,877	8,047	13,510	1,185	447	1,539	517	632	140,570	140,235	121	214	348	884	754	130	125
2001		165,167	25,944	9,114	12,542	534	499	1,637	675	945	137,747	137,410	121	217	376	967	827	140	132
2002		174,034	27,331	9,501	13,061	625	520	1,703	890	1,031	145,054	144,727	120	207	408	1,099	945	153	142
2003		172,386	27,138	10,416	11,939	725	673	1,798	485	1,102	143,459	143,121	124	214	447	1,181	1,015	166	161
2004		173,238	30,470	10,692	14,419	801	878	2,008	459	1,212	140,961	140,615	126	220	458	1,183	1,013	170	167
2005		192,427	33,457	12,142	15,512	974	904	2,085	598	1,242	157,061	156,696	126	240	464	1,287	1,119	169	158
2006		209,582	35,822	13,406	16,720	1,139	789	2,088	551	1,129	171,785	171,392	130	263	480	1,339	1,168	171	156
2007		223,333	35,180	13,955	14,860	1,670	716	2,556	549	872	185,992	185,569	137	286	497	1,502	1,318	184	162
2008 (preliminary)		239,891	35,669	14,693	14,419	1,676	746	2,643	551	941	201,798	201,342	144	312	525	1,729	1,530	199	171
		2000 constant $millions																	
1953		18,703	9,660	3,106	6,157	NA	47	260	90	NA	8,975	8,936	5	33	14	38	33	5	16
1954		20,256	10,993	2,913	7,622	NA	46	317	95	NA	9,184	9,141	5	38	17	43	38	5	19
1955		22,390	12,970	2,900	9,541	NA	61	369	99	NA	9,340	9,290	8	43	17	43	37	5	20
1956		30,240	18,394	3,257	14,551	NA	70	416	101	NA	11,761	11,710	10	41	19	44	36	8	23
1957		33,340	22,341	3,630	18,045	NA	60	504	102	NA	10,901	10,849	12	40	21	50	40	10	26
1958		35,167	24,086	4,102	19,218	NA	61	585	119	NA	10,979	10,925	15	39	21	54	44	10	28
1959		40,778	28,291	4,529	22,887	NA	75	646	154	NA	12,378	12,321	14	43	22	58	48	10	29
1960		44,478	30,363	4,764	24,563	NA	90	715	230	NA	14,006	13,947	12	48	22	57	48	10	30
1961		46,659	31,486	5,120	25,126	NA	101	796	343	NA	15,042	14,985	9	47	24	75	66	9	32
1962		46,887	31,624	5,688	24,476	NA	104	881	475	NA	15,108	15,047	9	51	27	93	83	9	36
1963		52,931	36,491	6,720	28,054	NA	101	1,002	615	NA	16,274	16,215	9	50	28	101	92	9	36
1964		56,501	38,899	7,590	27,812	1,622	133	1,023	718	NA	17,444	17,385	9	50	30	93	81	11	36
1965		58,634	38,786	7,935	27,589	1,322	213	916	810	NA	19,669	19,607	9	53	35	106	89	18	38

Appendix table 4-10

U.S. development expenditures, by funding source and performing sector: 1953–2008

	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
Year	Performing sector:	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]
1966		62,509	40,835	8,136	29,547	1,169	263	863	856	NA	21,471	21,402	9	60	42	121	99	22	40
1967		64,157	39,842	8,131	28,435	1,264	274	870	868	NA	24,110	24,036	10	63	42	128	100	27	36
1968		64,832	39,154	7,642	28,271	1,176	287	907	871	NA	25,470	25,389	16	64	37	140	104	36	31
1969		65,196	37,654	7,707	26,551	1,269	304	941	881	NA	27,339	27,251	19	69	30	145	107	38	27
1970		61,460	34,071	8,199	22,631	1,235	303	904	799	NA	27,195	27,112	18	65	26	145	109	36	23
1971		60,169	33,063	8,551	21,327	1,352	239	923	671	NA	26,906	26,826	14	66	30	144	114	29	27
1972		62,123	33,611	8,748	21,653	1,332	207	965	706	NA	28,280	28,206	12	63	45	146	116	30	41
1973		63,404	32,369	8,342	20,785	1,253	221	928	840	NA	30,759	30,681	16	63	63	159	119	39	55
1974		61,935	30,260	7,965	18,873	1,380	215	925	903	NA	31,382	31,301	19	62	71	165	122	43	58
1975		59,741	28,923	7,604	17,847	1,408	217	980	868	NA	30,522	30,439	21	62	72	165	123	42	58
1976		62,398	29,937	7,392	18,711	1,627	248	1,112	848	NA	32,155	32,063	29	63	77	169	130	40	60
1977		64,707	30,762	7,456	19,353	1,579	358	1,177	840	NA	33,607	33,510	34	64	94	179	135	43	65
1978		67,864	31,430	8,034	19,134	1,645	555	1,184	880	NA	36,065	35,969	32	65	107	192	140	51	70
1979		71,530	32,418	7,959	19,954	1,635	679	1,218	974	NA	38,731	38,635	31	65	113	200	144	56	69
1980		75,404	32,563	7,533	20,267	1,631	669	1,329	1,132	NA	42,442	42,342	36	64	125	203	147	57	70
1981		78,314	34,234	7,662	21,633	1,607	653	1,316	608	756	43,663	43,560	40	63	135	208	149	59	74
1982		82,692	35,581	8,253	22,658	1,576	634	1,187	577	696	46,680	46,573	42	64	141	218	156	62	73
1983		88,588	38,119	9,362	23,802	1,616	612	1,275	686	766	50,015	49,900	48	67	149	232	166	65	72
1984		98,222	41,854	10,461	26,070	1,561	643	1,457	879	784	55,887	55,762	54	70	159	247	178	69	76
1985		106,881	46,332	11,489	29,055	1,581	697	1,784	924	803	60,032	59,896	62	73	172	262	192	71	82
1986		106,435	47,697	11,611	30,191	1,607	720	2,110	823	635	58,173	58,025	71	78	191	282	208	74	92
1987		109,186	50,121	11,168	32,952	1,680	818	2,281	647	575	58,445	58,285	78	82	212	308	225	83	100
1988		111,704	49,250	11,709	31,330	1,868	922	2,328	538	555	61,772	61,599	88	85	237	336	242	94	109
1989		111,651	44,954	11,907	26,790	1,811	984	2,268	645	548	65,957	65,771	97	89	261	362	259	103	116
1990		115,259	41,486	11,886	23,239	1,762	1,115	2,126	758	601	72,988	72,794	101	92	277	386	277	109	122
1991		112,607	36,966	10,393	20,432	1,638	1,198	1,819	855	631	74,828	74,630	102	97	284	408	297	111	122
1992		115,519	36,474	10,529	19,885	1,588	1,221	1,680	877	693	78,201	77,994	105	102	285	438	322	115	122
1993		112,802	34,002	10,263	18,195	1,174	1,275	1,554	890	650	77,912	77,694	110	108	293	471	350	121	123
1994		114,040	33,465	9,775	17,957	1,325	1,344	1,527	903	634	79,639	79,412	113	114	305	504	381	124	126
1995		122,758	35,213	10,055	19,350	1,311	1,280	1,754	807	655	86,563	86,325	118	121	313	537	414	123	133
1996		129,319	33,426	9,624	18,183	1,447	1,202	1,619	743	608	94,857	94,607	123	128	325	573	451	122	137
1997		134,860	33,821	9,513	18,992	1,354	1,106	1,524	720	613	99,913	99,631	119	162	320	680	562	118	127
1998		150,000	33,909	9,551	19,126	1,327	1,009	1,583	788	526	114,923	114,630	118	175	313	735	618	117	120
1999		157,384	30,937	9,170	16,932	1,234	710	1,672	743	477	125,213	124,899	122	192	328	783	660	123	123
2000		167,805	25,877	8,047	13,510	1,185	447	1,539	517	632	140,570	140,235	121	214	348	884	754	130	125

Appendix table 4-10

U.S. development expenditures, by funding source and performing sector: 1953–2008

Year	Funding source:	All sources	Federal								Industry				U&C	Other nonprofit			Other government[a]
	Performing sector:	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]
2001		161,297	25,336	8,900	12,248	521	487	1,598	659	923	134,520	134,191	118	212	367	944	807	137	129
2002		167,040	26,233	9,119	12,536	600	499	1,635	854	989	139,225	138,911	115	199	392	1,055	907	147	136
2003		162,011	25,505	9,789	11,220	682	633	1,690	455	1,036	134,825	134,507	117	201	420	1,110	954	156	151
2004		158,262	27,836	9,768	13,172	732	802	1,835	419	1,107	128,775	128,459	115	201	418	1,081	925	155	152
2005		170,239	29,599	10,742	13,723	861	800	1,845	529	1,098	138,951	138,627	111	212	411	1,139	990	149	140
2006		179,627	30,702	11,490	14,330	976	676	1,790	472	968	147,232	146,896	111	225	411	1,148	1,001	147	134
2007		186,395	29,361	11,647	12,402	1,394	598	2,133	459	728	155,230	154,877	114	239	415	1,254	1,100	154	135
2008 (preliminary)		195,954	29,136	12,002	11,778	1,369	609	2,159	450	768	164,838	164,466	118	255	429	1,412	1,250	163	140

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]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, figures for federal support to industry include 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, figures for federal support to industry include 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; figures for federal support to other nonprofit institutions include 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 nonprofit sector. R&D expenditures of FFRDCs 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, 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. In June 2006, Los Alamos National Laboratory became industry administered; previously, U&C administered. Tracks of R&D expenditures from 2006 to 2007 for both industry- and U&C-administered FFRDCs reflect this shift.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Research and Development in Industry 2007; Academic Research and Development Expenditures: FY 2008; Federal Funds for Research and Development: FY 2007–09; and Research and Development Funding and Performance by Nonprofit Organizations: FY 1996–97. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-11

Total (federal plus company and other) funds for industrial R&D performance in United States, by industry and company size: 2003–07

(Millions of dollars)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
All industries	21–23, 31–33, 42, 44–81	200,724	208,301	226,159	247,669	269,267
Manufacturing industries	31–33	120,858	147,288	158,190	171,814	187,477
Food	311	D	2,254	2,716	2,720	D
Beverage and tobacco products	312	173	555 i	539 i	547 i	217
Textiles, apparel, and leather	313–16	D	570	816	594	806
Wood products	321	D	D	D	195	D
Paper, printing, and support activities	322, 323	D	D	D	D	D
Petroleum and coal products	324	D	1,603	D	1,432	D
Chemicals	325	23,001	D	42,995	46,329	D
Basic chemicals	3251	2,061	2,393	2,277	2,152	3,234
Resin, synthetic rubber, fibers, and filament	3252	2,406	2,096	2,294	1,975	963
Pharmaceuticals and medicines	3254	D	31,477	34,839	38,901	D
Other chemicals	Other 325	D	D	3,584	3,300	3,601
Plastics and rubber products	326	1,764	D	1,760	2,245	D
Nonmetallic mineral products	327	474	787	894	1,014	1,125
Primary metals	331	530	727	631	651	896
Fabricated metal products	332	1,374	1,512	1,375	1,499	1,709
Machinery	333	6,304	6,579	8,531	9,848	9,865
Computer and electronic products	334	39,001	48,296	D	56,773	58,599
Computers and peripheral equipment	3341	2,587	5,734	4,955	D	D
Communications equipment	3342	9,198	D	D	D	11,654
Semiconductor and other electronic components	3344	12,635	D	18,724	18,888	18,683
Navigational, measuring, electromedical, and control instruments	3345	14,014	15,214	15,204	18,300	20,438
Other computer and electronic products	Other 334	566	1,148	997	D	D
Electrical equipment, appliances, and components	335	2,073	2,664	2,424	2,281	2,708
Transportation equipment	336	31,747	D	D	D	D
Motor vehicles, trailers, and parts	3361–63	D	15,677	D	D	D
Aerospace products and parts	3364	13,205	13,086	15,005	16,367	18,436
Other transportation equipment	Other 336	D	D	D	D	D
Furniture and related products	337	D	408	400	D	582
Miscellaneous manufacturing	339	7,455	4,388	5,143	5,150	6,410
Medical equipment and supplies	3391	6,386	3,343	4,374	4,098	5,176
Other miscellaneous manufacturing	Other 339	1,069	1,045	769	1,052	1,234
Nonmanufacturing industries	21–23, 42, 44–81	79,866	61,013	67,969	75,855	81,790
Mining, extraction, and support activities	21	D	D	D	D	1,445
Utilities	22	D	202	210	248	235
Construction	23	333	1,481	D	1,379	D
Wholesale trade	42	25,092	D	D	2,072	2,294
Retail trade	44, 45	1,488	1,596	D	D	2,530
Transportation and warehousing	48, 49	272	D	D	D	D
Information	51	D	22,593	23,836	26,883	D
Publishing	511	D	D	17,747	D	20,900
Newspaper, periodical, book, and database	5111	665	D	821	D	D
Software	5112	D	D	16,926	D	D
Broadcasting and telecommunications	513	1,663	2,215	NA	NA	NA
Telecommunications	5133	1,625	2,052	NA	NA	NA
Other broadcasting and telecommunications	Other 513	38	163	NA	NA	NA
Telecommunications	517	NA	NA	2,539	D	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	NA	NA	2,358	D	D
Satellite telecommunications	5174	NA	NA	13	D	D
Other telecommunications	Other 517	NA	NA	168	D	D
Internet service providers, Web search portals, and data processing services	518	NA	NA	3,337	4,029	D
Internet service providers and Web search portals	5181	NA	NA	1,042	D	2,351
Data processing, hosting, and related services	5182	NA	NA	2,295	D	D
Other information	Other 51	D	D	213	732	593
Finance, insurance, and real estate	52, 53	1,455	1,708	3,030	1,969	2,021

Appendix table 4-11

Total (federal plus company and other) funds for industrial R&D performance in United States, by industry and company size: 2003–07

(Millions of dollars)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
Professional, scientific, and technical services	54	27,967	28,709	32,021	38,049	40,533
Architectural, engineering, and related services	5413	5,159	4,265	4,687	6,579	5,882
Computer systems design and related services	5415	9,032	11,575	13,592	14,841	14,407
Scientific R&D services	5417	12,460	11,355	12,299	14,525	16,849
Other professional, scientific, and technical services	Other 54	1,316	1,514	1,444	2,105	3,394
Management of companies and enterprises[a]	55	67	NA	NA	NA	NA
Health care services	621–23	717	500	989	992	1,280
Other nonmanufacturing	56, 61, 624, 71, 72, 81	1,679	1,595	2,137	1,479	1,857
Company size (employees)						
All companies	na	200,724	208,301	226,159	247,669	269,267
5–24	na	5,578	6,295	7,373	7,207	10,854
25–49	na	6,449	5,906	7,488	D	7,884
50–99	na	4,829	6,456	7,144	9,064	10,068
100–249	na	9,559	11,045	10,327	13,306	13,354
250–499	na	9,536	8,380	8,149	D	8,258
500–999	na	10,383	10,821	13,992	13,360	14,279
1,000–4,999	na	30,484	31,475	34,969	37,866	41,103
5,000–9,999	na	15,434	18,191	18,170	20,434	22,673
10,000–24,999	na	26,817	31,208	33,564	37,865	45,946
25,000 or more	na	81,654	78,523	84,983	92,925	94,848

D = suppressed to avoid disclosure of confidential information; i = imputation of >50%; NA = not available; na = not applicable

NAICS = North American Industry Classification System (1997 revision used to classify 2003–04 statistics; 2002 revision used for post-2004 statistics)

[a]Estimate for management of companies and enterprises (NAICS 55), shown separately for 2003, included in other manufacturing for years after 2003.

NOTES: R&D is industrial R&D performed within company facilities funded from all sources. Funds are company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from federal government. Excluded are R&D not performed within company (e.g., R&D contracted out to other organizations) and R&D not performed within 50 United States or District of Columbia (e.g., R&D performed outside United States by foreign subsidiaries or other foreign organizations). For more technical information, see http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-12

Company and other nonfederal funds for industrial R&D performance in United States, by industry and company size: 2003–07

(Millions of dollars)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
All industries	21–23, 31–33, 42, 44–81	182,926	188,035	204,250	223,365	242,682
Manufacturing industries	31–33	107,725	131,887	142,555	155,230	169,307
Food	311	1,987	2,249	2,710	2,716	2,722
Beverage and tobacco products	312	173	555 i	539 i	547 i	217
Textiles, apparel, and leather	313–16	309	568	811	583	796
Wood products	321	138	152	218	192	202
Paper, printing, and support activities	322, 323	2,909	2,308	2,451	2,793	2,596
Petroleum and coal products	324	1,308	1,595	1,442	1,431	1,718
Chemicals	325	22,693	39,070	42,826	46,119	55,319
Basic chemicals	3251	1,991	2,312	2,179	2,054	3,158
Resin, synthetic rubber, fibers, and filament	3252	2,390	2,080	2,280	1,963	951
Pharmaceuticals and medicines	3254	15,949	31,444	34,798	38,813	47,624
Other chemicals	Other 325	2,364	3,234	3,569	3,288	3,587
Plastics and rubber products	326	1,729	1,879	1,747	2,217	2,072
Nonmetallic mineral products	327	470	783	889	936	1,112
Primary metals	331	518	705	609	638	886
Fabricated metal products	332	1,329	1,465	1,323	1,432	1,594
Machinery	333	6,224	6,473	8,422	9,743	9,796
Computer and electronic products	334	32,495	40,691	42,463	48,251	49,760
Computers and peripheral equipment	3341	2,561	5,707	4,902	7,289	6,869
Communications equipment	3342	8,932	8,433	9,660	10,911	11,435
Semiconductor and other electronic components	3344	12,607	17,524	18,602	18,534	18,315
Navigational, measuring, electromedical, and control instruments	3345	7,834	7,882	8,325	10,440	12,262
Other computer and electronic products	Other 334	560	1,144	974	1,076	879
Electrical equipment, appliances, and components	335	2,002	2,622	2,322	2,215	2,617
Transportation equipment	336	25,757	26,019	28,321	30,010	30,974
Motor vehicles, trailers, and parts	3361–63	16,874	15,610	16,025	16,562	16,034
Aerospace products and parts	3364	7,849	9,224	10,928	11,995	13,397
Other transportation equipment	Other 336	1,034	1,185	1,368	1,453	1,543
Furniture and related products	337	275	406	400	371	581
Miscellaneous manufacturing	339	7,408	4,348	5,061	5,036	6,344
Medical equipment and supplies	3391	6,370	3,313	4,343	3,998	5,116
Other miscellaneous manufacturing	Other 339	1,038	1,035	718	1,038	1,228
Nonmanufacturing industries	21–23, 42, 44–81	75,201	56,148	61,695	68,135	73,375
Mining, extraction, and support activities	21	750	714	669	1,123	1,436
Utilities	22	128	176	180	214	200
Construction	23	254	1,466	1,248	1,368	386
Wholesale trade	42	24,970	1,540	2,144	2,054	2,277
Retail trade	44, 45	1,462	1,596	1,285	1,372	2,517
Transportation and warehousing	48, 49	272	347	312	277	166
Information	51	19,811	22,285	23,617	26,748	28,767
Publishing	511	15,760	D	17,687	19,946	20,878
Newspaper, periodical, book, and database	5111	665	D	794	992	1,245
Software	5112	15,095	16,510	16,893	18,953	19,634
Broadcasting and telecommunications	513	1,663	2,215	NA	NA	NA
Telecommunications	5133	1,625	2,052	NA	NA	NA
Other broadcasting and telecommunications	Other 513	38	163	NA	NA	NA
Telecommunications	517	NA	NA	2,539	2,135	3,107
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	NA	NA	2,358	1,688	2,320
Satellite telecommunications	5174	NA	NA	13	D	D
Other telecommunications	Other 517	NA	NA	168 i	D	D
Internet service providers, Web search portals, and data processing services	518	NA	NA	3,178	3,936	4,190
Internet service providers and Web search portals	5181	NA	NA	1,042	D	2,351
Data processing, hosting, and related services	5182	NA	NA	2,136	D	1,838
Other information	Other 51	2,388	D	213	731	593
Finance, insurance, and real estate	52, 53	1,455	1,708	3,030	1,969	2,021

Appendix table 4-12

Company and other nonfederal funds for industrial R&D performance in United States, by industry and company size: 2003–07

(Millions of dollars)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
Professional, scientific, and technical services	54	23,730	24,245	26,181	30,611	32,924
Architectural, engineering, and related services	5413	3,261	2,295	2,448	4,866	3,997
Computer systems design and related services	5415	8,613	11,197	13,046	13,830	13,603
Scientific R&D services	5417	10,574	9,383	9,473	10,030	12,017
Other professional, scientific, and technical services	Other 54	1,283	1,370	1,214	1,885	3,307
Management of companies and enterprises[a]	55	67 i	NA	NA	NA	NA
Health care services	621–23	681	495	981	955	1,274
Other nonmanufacturing	56, 61, 624, 71, 72, 81	1,619	1,576	2,047	1,445	1,406
Company size (employees)						
All companies	na	182,926	188,035	204,250	223,365	242,682
5–24	na	4,824	5,610	6,297	6,087	9,183
25–49	na	5,540	5,293	6,813	6,465	7,269
50–99	na	4,271	5,849	6,498	8,360	9,308
100–249	na	8,924	9,987	9,375	12,101	12,090
250–499	na	8,869	7,832	7,738	7,944	7,702
500–999	na	9,624	10,060	13,097	12,482	13,617
1,000–4,999	na	29,396	30,982	33,605	36,019	39,816
5,000–9,999	na	14,333	16,173	17,550	19,776	21,157
10,000–24,999	na	25,551	29,647	31,646	36,049	44,016
25,000 or more	na	71,595	66,600	71,631	78,082	78,523

na = not applicable; NA = not available; i = imputation of >50%; D = suppressed to avoid disclosure of confidential information

NAICS = North American Industry Classification System (1997 revision used to classify 2003–04 statistics; 2002 revision used for post-2004 statistics)

[a]Estimates for management of companies and enterprises (NAICS 55), shown separately for 2003, included in other manufacturing for years after 2003.

NOTES: R&D is industrial R&D performed within company facilities funded from all sources. Funds are company's own; funds from outside organizations, such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from federal government. Excluded are R&D not performed within company (e.g., R&D contracted out to other organizations) and R&D not performed within 50 United States or District of Columbia (e.g., R&D performed outside United States by foreign subsidiaries or other foreign organizations). For more technical information, see http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-13

Federal funds for industrial R&D performance in United States, by industry and company size: 2003–07

(Millions of dollars)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
All industries	21–23, 31–33, 42, 44–81	17,798	20,266	21,909	24,304	26,585
Manufacturing industries	31–33	13,133	15,401	15,635	16,584	18,170
Food	311	D	5	6	4	D
Beverage and tobacco products	312	0	0	0	0	0
Textiles, apparel, and leather	313–16	D	3	5	11	10
Wood products	321	D	D	D	2	D
Paper, printing, and support activities	322, 323	D	D	D	D	D
Petroleum and coal products	324	D	9	D	1	D
Chemicals	325	307	D	169	211	D
Basic chemicals	3251	70	80	98	98	76
Resin, synthetic rubber, fibers, and filament	3252	16	16	15	13	12
Pharmaceuticals and medicines	3254	D	33	41	88	D
Other chemicals	Other 325	D	D	15	12	14
Plastics and rubber products	326	35	D	12	27	D
Nonmetallic mineral products	327	4	5	6	78	13
Primary metals	331	12	21	22 i	13	10
Fabricated metal products	332	45	47	52	67 i	115
Machinery	333	80	105	109	106	69
Computer and electronic products	334	6,506	7,605	D	8,522	8,838
Computers and peripheral equipment	3341	27 i	27	53	D	D
Communications equipment	3342	266	D	D	D	219
Semiconductor and other electronic components	3344	28	D	122	354	368
Navigational, measuring, electromedical, and control instruments	3345	6,180	7,332	6,879	7,860	8,176
Other computer and electronic products	Other 334	6	3	23	D	D
Electrical equipment, appliances, and components	335	71	42	103	66	90
Transportation equipment	336	5,990	D	D	D	D
Motor vehicles, trailers, and parts	3361–63	D	67	D	D	D
Aerospace products and parts	3364	5,356	3,862	4,076	4,372	5,040
Other transportation equipment	Other 336	D	D	D	D	D
Furniture and related products	337	D	2	*	D	1
Miscellaneous manufacturing	339	47	39	82	114	66
Medical equipment and supplies	3391	17	30	31	101	60
Other miscellaneous manufacturing	Other 339	31	10	51	14	6
Nonmanufacturing industries	21–23, 42, 44–81	4,665	4,865	6,274	7,719	8,415
Mining, extraction, and support activities	21	D	D	D	D	9
Utilities	22	D	26	30	34	35
Construction	23	79	15	D	12	D
Wholesale trade	42	122	D	D	18	16
Retail trade	44, 45	26	0	D	D	12
Transportation and warehousing	48, 49	*	D	D	D	D
Information	51	D	307	219	136	D
Publishing	511	D	D	60	D	22
Newspaper, periodical, book, and database	5111	*	D	27	D	D
Software	5112	D	D	33	D	D
Broadcasting and telecommunications	513	0	0	0	NA	NA
Telecommunications	5133	0	0	0	NA	NA
Other broadcasting and telecommunications	Other 513	0	0	0	NA	NA
Telecommunications	517	NA	NA	0	D	D
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	NA	NA	0	D	D
Satellite telecommunications	5174	NA	NA	0	0	0
Other telecommunications	Other 517	NA	NA	0	0	0
Internet service providers, Web search portals, and data processing services	518	NA	NA	159	93	D
Internet service providers and Web search portals	5181	NA	NA	0	0	0
Data processing, hosting, and related services	5182	NA	NA	159	93	D
Other information	Other 51	D	D	0	*	0
Finance, insurance, and real estate	52, 53	0	0	0	0	0

Appendix table 4-13

Federal funds for industrial R&D performance in United States, by industry and company size: 2003–07

(Millions of dollars)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
Professional, scientific, and technical services	54	4,237	4,464	5,839	7,438	7,608
Architectural, engineering, and related services	5413	1,898	1,970	2,239	1,714	1,885
Computer systems design and related services	5415	419	378	545	1,011	804
Scientific R&D services	5417	1,886	1,972	2,826	4,495	4,831
Other professional, scientific, and technical services	Other 54	34	144	229	219	87
Management of companies and enterprises[a]	55	0	NA	NA	NA	NA
Health care services	621–23	36	5	7	37	7
Other nonmanufacturing	56, 61, 624, 71, 72, 81	60 i	19	90	34	450
Company size (employees)						
All companies	na	17,798	20,266	21,909	24,304	26,585
5–24	na	754	685	1,076	1,121	1,671
25–49	na	910	612	675	D	615
50–99	na	559	608	646	704	760
100–249	na	636	1,058	951	1,206	1,264
250–499	na	668	547	411	D	556
500–999	na	759	762	895	878	662
1,000–4,999	na	1,088	493	1,364	1,847	1,287
5,000–9,999	na	1,101	2,018	620	657	1,516
10,000–24,999	na	1,266	1,561	1,918	1,816	1,930
25,000 or more	na	10,059	11,923	13,352	14,843	16,325

D = suppressed to avoid disclosure of confidential information; i = imputation of >50%; * = ≤$500,000; NA = not available; na= not applicable

NAICS = North American Industry Classification System (1997 revision used to classify 2003–04 statistics; 2002 revision used for post-2004 statistics)

[a]Estimates for management of companies and enterprises (NAICS 55), shown separately for 2003, included in other manufacturing for years after 2003.

NOTES: R&D is industrial R&D performed within company facilities funded by federal government. Excluded are R&D not performed within company (e.g., R&D contracted out to other organizations) and R&D not performed within 50 United States or District of Columbia (e.g., R&D performed outside United States by foreign subsidiaries or other foreign organizations). Totals exclude R&D at industry-administered federally funded research and development centers. For more technical information, see http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-14

Company and other (nonfederal) R&D fund share of net sales in R&D-performing companies, by industry and company size: 2003–07

(Percent)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
All industries	21–23, 31–33, 42, 44–81	3.2	3.4	3.3	3.4	3.5
Manufacturing industries	31–33	3.1	3.4	3.6	3.6	3.7
Food	311	0.6	0.6	0.7	0.7	0.7
Beverage and tobacco products	312	0.5	1.3 i	1.4 i	1.3 i	0.4
Textiles, apparel, and leather	313–16	1.0	1.2	1.6	1.4	1.7
Wood products	321	0.7	0.4	0.8	0.7	0.8
Paper, printing, and support activities	322, 323	1.1	1.5	1.5	1.2	1.3
Petroleum and coal products	324	0.3	0.4	0.4	0.3	0.3
Chemicals	325	5.6	6.6	6.9	7.5	7.9
Basic chemicals	3251	2.7	2.1	2.0	1.7	2.2
Resin, synthetic rubber, fibers, and filament	3252	3.6	3.1	1.7	2.2	1.9
Pharmaceuticals and medicines	3254	8.3	10.0	12.7	13.5	12.7
Other chemicals	Other 325	3.2	3.1	3.3	2.9	2.8
Plastics and rubber products	326	2.1	1.6	1.9	1.9	1.5
Nonmetallic mineral products	327	1.0	1.8	1.8	1.9	1.8
Primary metals	331	0.7	0.7	0.5	0.5	0.6
Fabricated metal products	332	1.5	1.4	0.8	1.4	1.6
Machinery	333	4.2	3.6	3.6	3.6	3.7
Computer and electronic products	334	9.3	8.0	9.0	9.2	8.4
Computers and peripheral equipment	3341	5.8	4.7	5.4	6.3	5.1
Communications equipment	3342	12.7	9.5	14.0	13.6	14.7
Semiconductor and other electronic components	3344	11.1	10.8	10.6	11.0	12.0
Navigational, measuring, electromedical, and control instruments	3345	7.2	7.1	7.0	7.5	6.1
Other computer and electronic products	Other 334	5.8	5.1	5.6	5.5	3.9
Electrical equipment, appliances, and components	335	2.2	2.7	2.3	2.5	3.0
Transportation equipment	336	2.7	2.7	3.0	2.9	3.1
Motor vehicles, trailers, and parts	3361–63	2.4	2.4	2.5	2.4	2.4
Aerospace products and parts	3364	3.5	4.0	4.8	4.9	5.1
Other transportation equipment	Other 336	2.7	1.6	1.6	1.6	1.8
Furniture and related products	337	0.8	0.8	0.8	0.7	1.2
Miscellaneous manufacturing	339	5.6	4.9	6.1	4.9	3.1
Medical equipment and supplies	3391	6.3	5.8	7.7	5.6	3.0
Other miscellaneous manufacturing	Other 339	3.2	3.2	2.7	3.5	3.7
Nonmanufacturing industries	21–23, 42, 44–81	3.3	3.2	2.9	2.9	3.0
Mining, extraction, and support activities	21	3.3	2.4	2.0	0.7	0.9
Utilities	22	0.1	0.1	0.1	0.1	0.1
Construction	23	1.2	2.6	2.2	2.3	0.9
Wholesale trade	42	3.6	2.2	2.0	2.0	1.9
Retail trade	44, 45	0.8	0.8	0.6	0.6	0.9
Transportation and warehousing	48, 49	0.4	0.5	0.4	0.3	0.2
Information	51	5.7	5.0	5.3	5.2	5.1
Publishing	511	17.9	19.1	17.1	16.8	16.2
Newspaper, periodical, book, and database	5111	2.8	4.0	3.0	4.1	4.4
Software	5112	23.4	23.3	21.9	19.9	19.6
Broadcasting and telecommunications	513	0.8	0.8	NA	NA	NA
Telecommunications	5133	0.8	D	NA	NA	NA
Other broadcasting and telecommunications	Other 513	4.3	D	NA	NA	NA
Telecommunications	517	NA	NA	1.0	0.7	0.9
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	NA	NA	1.1	0.7	0.9
Satellite telecommunications	5174	NA	NA	3.4	D	D
Other telecommunications	Other 517	NA	NA	0.5 i	D	D
Internet service providers, Web search portals, and data processing services	518	NA	NA	8.7	9.4	9.6
Internet service providers and Web search portals	5181	NA	NA	9.0	D	13.4
Data processing, hosting, and related services	5182	NA	NA	8.6	D	7.0
Other information	Other 51	5.0	4.4	0.5	1.6	1.3
Finance, insurance, and real estate	52, 53	0.3	0.4	0.5	0.4	0.4

Appendix table 4-14

Company and other (nonfederal) R&D fund share of net sales in R&D-performing companies, by industry and company size: 2003–07

(Percent)

Industry/size of company	NAICS code	2003	2004	2005	2006	2007
Professional, scientific, and technical services	54	10.2	13.0	10.0	7.6	9.5
Architectural, engineering, and related services	5413	7.8	6.6	4.9	10.7	8.1
Computer systems design and related services	5415	9.8	11.7	9.6	4.9	6.6
Scientific R&D services	5417	16.5 i	29.6	27.4	24.2	30.0
Other professional, scientific, and technical services	Other 54	3.3	5.8	3.0	5.7	6.4
Management of companies and enterprises[a]	55	4.1 i	NA	NA	NA	NA
Health care services	621–23	2.2	1.8	3.9	3.3	4.5
Other nonmanufacturing	56, 61, 624, 71, 72, 81	4.9	3.9	2.7	1.8	2.3
Company size (employees)						
All companies	na	3.2	3.4	3.3	3.4	3.5
5–24	na	2.2	5.0 i	8.7	11.8	13.3
25–49	na	2.9	11.5	8.7	11.4	15.0
50–99	na	3.9	5.8	7.8	9.2	8.8
100–249	na	1.7	5.5	6.0	7.0	6.9
250–499	na	6.6	5.1	4.9	5.0	4.2
500–999	na	5.8	4.6	4.4	4.1	4.3
1,000–4,999	na	4.1	3.7	3.5	3.4	4.1
5,000–9,999	na	2.6	2.8	2.5	3.3	2.9
10,000–24,999	na	2.8	3.0	3.1	2.7	3.3
25,000 or more	na	3.2	2.8	2.8	2.8	2.5

i = imputation of >50%; NA = not available; D = suppressed to avoid disclosure of confidential information; na = not applicable

NAICS = North American Industry Classification System (1997 revision used to classify 2003–04 statistics; 2002 revision used for post-2004 statistics)

[a]Estimate for management of companies and enterprises (NAICS 55), shown separately for 2003, included in other manufacturing for years after 2003.

NOTES: R&D is industrial R&D performed within company facilities funded by federal government. Excluded are R&D not performed within company (e.g., R&D contracted out to other organizations) and R&D not performed within 50 United States or District of Columbia (e.g., R&D performed outside United States by foreign subsidiaries or other foreign organizations). Totals exclude R&D at industry-administered federally funded research and development centers. For more technical information, see http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-15

R&D expenditures, by state, funding source, and performing sector: 2007

(Millions of current dollars)

State	Funding source: / Performing sector:	All R&D	R&D rank	Federal	FFRDCs			Industry			U&C[a]						Other nonprofit institutions	State, internal[b]
				Federal	Total	Federal	Non-federal[b]	Total	Federal	Industry[c]	Total	Federal	Other government	Industry	U&C	Nonprofit	Federal[d]	Total
U.S. total[e]		372,527	na	25,858	14,039	NA	NA	269,267	26,585	242,682	49,021	29,328	3,249	2,748	9,993	3,703	5,954	NA
States total[e]		359,739	na	24,589	13,807	13,383	424	265,919	25,627	238,346	49,422	30,357	3,133	2,674	9,736	3,522	5,693	309
Alabama		3,289	27	823	0	0	0	1,771	928	844	655	438	13	26	152	26	36	4
Alaska		311	49	70	0	0	0	58	12	46	160	100	2	9	41	7	15	8
Arizona		5,006	20	290	54	47	7	3,846	393	3,453	783	397	37	46	260	42	27	7
Arkansas		632	44	42	0	0	0	339	18	321	240	111	53	16	42	19	10	*
California		77,608	1	1,703	3,946	3,810	136	64,187	4,817	59,370	6,734	4,040	284	357	1,293	759	1,028	11
Colorado		6,828	17	320	335	316	19	5,223	179	5,044	873	695	19	40	85	33	70	7
Connecticut		10,228	11	30	0	0	0	9,444	1,763	7,681	691	484	13	23	91	80	49	14
Delaware		1,607	33	3	0	0	0	1,472	17	1,455	126	89	6	5	22	4	4	2
District of Columbia		3,862	24	2,854	6	6	0	379	205	173	333	252	5	10	29	37	289	2
Florida		7,158	16	941	0	0	0	4,569	1,257	3,312	1,558	819	165	98	401	74	82	9
Georgia		4,425	22	195	0	0	0	2,788	150	2,637	1,389	759	70	65	412	83	53	*
Hawaii		592	45	69	0	0	0	218	97	121	274	216	16	22	16	5	23	8
Idaho		1,115	35	25	248	236	13	726	13	712	114	68	25	5	14	2	1	1
Illinois		14,287	8	125	827	782	45	11,362	218	11,145	1,867	1,113	71	66	497	120	88	18
Indiana		5,980	18	109	0	0	0	4,939	314	4,625	894	401	57	88	281	68	2	36
Iowa		1,882	31	51	25	25	0	1,202	15	1,187	587	322	57	28	150	29	16	*
Kansas		1,697	32	13	0	0	0	1,304	22	1,282	376	183	46	8	123	17	2	2
Kentucky		1,406	34	9	0	0	0	890	15	875	503	246	56	13	140	48	2	1
Louisiana		1,073	37	82	0	0	0	373	38	335	604	278	105	15	144	62	10	4
Maine		485	47	6	0	0	0	265	19	247	137	66	8	3	54	7	77	*
Maryland		14,130	9	7,345	340	340	0	3,665	1,064	2,601	2,542	1,901	54	73	358	156	222	17
Massachusetts		24,557	2	964	618	614	4	19,488	6,249	13,238	2,172	1,672	17	152	152	178	1,314	1
Michigan		17,402	5	113	0	0	0	15,736	264	15,472	1,510	916	65	69	383	78	43	1
Minnesota		7,533	15	57	0	0	0	6,636	254	6,383	637	344	58	31	109	96	200	3
Mississippi		838	41	144	0	0	0	279	59	219	411	268	32	12	92	6	3	1
Missouri		3,754	25	48	0	0	0	2,736	101	2,635	941	633	36	18	198	57	19	10
Montana		859	40	537	0	0	0	134	36	98	179	115	23	6	32	2	8	1
Nebraska		900	39	41	0	0	0	489	28	461	365	150	10	24	151	30	5	*
Nevada		794	42	30	0	0	0	567	53	514	192	142	9	2	35	4	5	*
New Hampshire		2,146	30	22	0	0	0	1,814	D	D	307	209	9	12	59	18	2	*
New Jersey		19,552	3	695	76	75	0	17,892	523	17,369	865	453	56	38	237	79	23	2
New Mexico		5,663	19	544	4,078	4,003	74	568	277	290	410	294	22	11	78	5	62	1
New York		15,939	6	160	510	491	19	10,916	582	10,334	3,964	2,445	257	184	779	299	357	32
North Carolina		9,204	14	363	0	0	0	6,829	218	6,611	1,885	1,152	146	256	273	58	99	27
North Dakota		327	48	28	0	0	0	126	3	124	169	90	35	8	30	5	3	1

Appendix table 4-15

R&D expenditures, by state, funding source, and performing sector: 2007

(Millions of current dollars)

State	Funding source: / Performing sector:	All R&D	R&D rank	Federal	FFRDCs			Industry			U&C[a]						Other nonprofit institutions	State, internal[b]
				Federal	Total	Federal	Non-federal[b]	Total	Federal	Industry[c]	Total	Federal	Other government	Industry	U&C	Nonprofit	Federal[d]	Total
Ohio		10,041	12	788	0	0	0	7,265	744	6,521	1,807	1,061	178	173	295	100	180	*
Oklahoma		921	38	65	0	0	0	527	44	483	299	136	45	20	84	15	30	*
Oregon		4,333	23	84	0	0	0	3,629	41	3,588	575	409	46	23	68	29	43	3
Pennsylvania		13,510	10	218	81	68	13	10,387	274	10,113	2,438	1,691	120	183	306	139	383	4
Rhode Island		1,081	36	365	0	0	0	411	26	385	230	149	8	7	63	4	75	*
South Carolina		2,291	29	114	115	115	0	1,426	111	1,315	569	255	45	28	218	23	40	27
South Dakota		240	50	18	0	0	0	132	D	D	82	51	14	2	5	10	5	3
Tennessee		3,659	26	89	1,084	1,032	52	1,638	129	1,510	761	515	53	24	128	41	87	1
Texas		17,853	4	374	17	17	*	13,889	1,165	12,724	3,417	1,842	431	203	577	364	151	5
Utah		2,337	28	154	0	0	0	1,764	468	1,295	415	283	25	18	69	19	3	1
Vermont		534	46	4	0	0	0	413	43	370	115	92	*	3	16	4	2	1
Virginia		9,473	13	3,098	468	457	12	4,840	2,051	2,789	971	580	128	40	174	49	87	8
Washington		15,061	7	202	852	823	28	12,687	189	12,499	981	706	47	72	126	30	327	12
West Virginia		650	43	111	129	128	1	233	46	187	167	93	7	6	60	2	7	2
Wisconsin		4,555	21	48	0	0	0	3,411	92	3,319	1,067	611	40	31	290	95	24	5
Wyoming		129	51	8	0	0	0	37	3	34	80	26	6	2	43	3	*	5
Other and unknown[f]		3,347	na	0	0	0	0	3,347	107	3,240	0	0	0	0	0	0	0	na

na = not applicable; NA = not availalble; * = <$0.5 million; D = suppressed to avoid disclosure of confidential information

FFRDC = federally funded research and development center; 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 national level, funds passed through to educational subrecipients account for 3.5% of total R&D expenditures reported by universities and colleges in FY 2007.

[b]Nonfederal sources of R&D expenditures reported by FFRDCs in FY 2007 included state and local governments ($32 million), industry ($173 million), FFRDC institutional funds ($51 million), and other sources ($168 million).

[c]Industry sources of industry R&D expenditures include all nonfederal sources of industry R&D expenditures.

[d]Other sources of support for nonprofit institutions are unavailable by state. For 2007, total nonprofit performance is estimated at $14.3 billion. Industry provided an estimated $1.5 billion to nonprofit sector, and nonprofit institutions provided an estimated $6.9 billion.

[e]Sum of state totals differ from U.S. sector totals for five 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; state agency intramural R&D data are not included in U.S. sector total; and state-level R&D data are not converted from fiscal years to calendar years.

[f]Other and unknown is reported data that could not be assigned to 1 of 50 states or the District of Columbia.

NOTE: Industry R&D data is for calendar years; the other R&D data is for fiscal years, but are used here as approximations to calendar-year data.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development, 2007; Survey of Research and Development Expenditures at Universities and Colleges, FY 2008; Survey of Federal Funds for Research and Development, FY 2007–09; and Survey of State Research and Development Expenditures, FY 2007.

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Appendix table 4-16

Total R&D and gross domestic product, by state: 2007

Rank/state	R&D (current $millions)	GDP (current $millions)	R&D/GDP (%)	Rank in R&D/GDP	U.S. R&D (%)	Cumulative percent
1 California	77,608	1,801,762	4.31	7	21.6	21.6
2 Massachusetts	24,557	352,178	6.97	2	6.8	28.4
3 New Jersey	19,552	461,295	4.24	8	5.4	33.8
4 Texas	17,853	1,148,531	1.55	30	5.0	38.8
5 Michigan	17,402	379,934	4.58	6	4.8	43.6
6 New York	15,939	1,105,020	1.44	35	4.4	48.1
7 Washington	15,061	310,279	4.85	4	4.2	52.3
8 Illinois	14,287	617,409	2.31	20	4.0	56.2
9 Maryland	14,130	264,426	5.34	3	3.9	60.2
10 Pennsylvania	13,510	533,212	2.53	15	3.8	63.9
11 Connecticut	10,228	212,252	4.82	5	2.8	66.8
12 Ohio	10,041	462,506	2.17	23	2.8	69.5
13 Virginia	9,473	384,132	2.47	17	2.6	72.2
14 North Carolina	9,204	390,467	2.36	19	2.6	74.7
15 Minnesota	7,533	252,472	2.98	11	2.1	76.8
16 Florida	7,158	741,861	0.96	41	2.0	78.8
17 Colorado	6,828	235,848	2.90	12	1.9	80.7
18 Indiana	5,980	249,229	2.40	18	1.7	82.4
19 New Mexico	5,663	75,192	7.53	1	1.6	84.0
20 Arizona	5,006	245,952	2.04	26	1.4	85.3
21 Wisconsin	4,555	233,406	1.95	28	1.3	86.6
22 Georgia	4,425	391,241	1.13	37	1.2	87.8
23 Oregon	4,333	158,268	2.74	13	1.2	89.0
24 District of Columbia	3,862	92,516	4.17	9	1.1	90.1
25 Missouri	3,754	229,027	1.64	29	1.0	91.2
26 Tennessee	3,659	245,162	1.49	32	1.0	92.2
27 Alabama	3,289	164,524	2.00	27	0.9	93.1
28 Utah	2,337	105,574	2.21	22	0.6	93.7
29 South Carolina	2,291	151,703	1.51	31	0.6	94.4
30 New Hampshire	2,146	57,820	3.71	10	0.6	95.0
31 Iowa	1,882	129,911	1.45	33	0.5	95.5
32 Kansas	1,697	116,986	1.45	34	0.5	96.0
33 Delaware	1,607	61,545	2.61	14	0.4	96.4
34 Kentucky	1,406	152,099	0.92	44	0.4	96.8
35 Idaho	1,115	52,110	2.14	25	0.3	97.1
36 Rhode Island	1,081	46,699	2.32	21	0.3	97.4
37 Louisiana	1,073	207,407	0.52	50	0.3	97.7
38 Oklahoma	921	136,374	0.68	46	0.3	98.0
39 Nebraska	900	80,360	1.12	38	0.3	98.2
40 Montana	859	34,266	2.51	16	0.2	98.5
41 Mississippi	838	87,652	0.96	42	0.2	98.7
42 Nevada	794	129,314	0.61	49	0.2	98.9
43 West Virginia	650	57,877	1.12	39	0.2	99.1
44 Arkansas	632	95,116	0.66	48	0.2	99.3
45 Hawaii	592	62,019	0.95	43	0.2	99.4
46 Vermont	534	24,627	2.17	24	0.1	99.6
47 Maine	485	48,021	1.01	40	0.1	99.7
48 North Dakota	327	28,518	1.15	36	0.1	99.8
49 Alaska	311	44,887	0.69	45	0.1	99.9
50 South Dakota	240	35,211	0.68	47	0.1	100.0
51 Wyoming	129	31,544	0.41	51	*	100.0

* = <0.05%

GDP = gross dometic product

NOTE: U.S. total R&D expenditure for 2007 is estimated to be $372.5 billion; $359.7 billion could be allocated to the states and District of Columbia.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development, 2007; Survey of Research and Development Expenditures at Universities and Colleges, FY 2008; Survey of Federal Funds for Research and Development, FY 2007–09; Survey of State Research and Development Expenditures, FY 2007. State GDP data are from the U.S. Bureau of Economic Analysis, http://www.bea.gov/regional/gsp, accessed 28 July 2009.

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Appendix table 4-17

Federal R&D budget authority, by budget function: FY 1980–2008

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 (preliminary)	137,972	81,050	56,922	29,634	9,233	2,374	7,915	2,008	1,340	1,852	567	255	891	420	51	355	27	0
	Constant FY 2000 $millions																	
1980	56,006	28,147	27,859	6,957	5,156	6,785	2,322	1,881	1,670	1,102	881	235	237	190	224	85	89	41
1981	57,864	31,583	26,281	6,640	5,336	6,005	2,298	1,820	1,491	1,130	511	274	245	182	178	58	74	38
1982	57,979	35,431	22,548	6,211	4,148	4,835	2,182	1,549	1,270	1,113	366	265	223	167	101	50	51	16
1983	59,606	38,339	21,267	6,608	3,281	3,964	2,309	1,464	1,347	1,145	291	272	241	165	68	57	49	9
1984	65,560	43,427	22,134	7,086	3,410	3,827	2,485	1,428	1,542	1,130	297	285	323	163	68	36	39	12

Appendix table 4-17

Federal R&D budget authority, by budget function: FY 1980–2008

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
1985	71,646	48,396	23,250	7,781	3,914	3,431	2,674	1,521	1,479	1,201	316	302	277	164	72	67	30	24
1986	74,735	51,826	22,909	7,811	4,062	3,208	2,629	1,491	1,287	1,144	348	296	257	156	124	58	20	20
1987	78,059	53,552	24,507	8,967	4,648	2,808	2,793	1,550	1,242	1,124	365	305	294	150	135	67	34	23
1988	78,380	53,175	25,205	9,383	4,884	2,819	2,864	1,538	1,188	1,170	378	297	259	162	143	68	30	23
1989	79,289	51,879	27,410	9,922	5,814	3,088	3,029	1,602	1,358	1,158	443	356	271	163	94	57	34	19
1990	78,500	49,138	29,361	10,225	7,095	3,355	2,966	1,706	1,286	1,169	460	462	266	172	82	54	41	21
1991	78,171	46,652	31,518	10,944	7,724	3,503	3,126	1,877	1,460	1,248	514	448	260	211	104	60	36	5
1992	79,146	46,382	32,764	11,635	7,804	3,586	3,077	1,953	1,762	1,336	422	429	283	222	147	59	43	5
1993	79,072	46,672	32,400	11,632	7,907	3,029	3,045	2,039	1,927	1,303	394	432	283	249	64	55	41	*
1994	75,688	41,830	33,858	12,177	8,212	3,182	3,004	2,284	2,091	1,321	413	281	294	421	75	51	50	0
1995	74,627	40,360	34,267	12,375	8,588	3,085	3,031	2,157	1,989	1,295	400	311	279	570	76	64	47	1
1996	73,495	40,235	33,260	12,631	8,349	2,683	3,029	1,918	1,911	1,252	352	268	276	460	53	60	17	2
1997	74,959	41,418	33,541	13,255	8,206	2,481	3,080	1,973	1,867	1,258	390	199	279	428	50	62	9	2
1998	76,040	41,161	34,880	14,032	8,473	980	4,506	1,917	1,895	1,291	459	168	607	411	43	74	19	2
1999	79,205	42,140	37,065	15,867	8,412	1,154	4,785	1,879	1,760	1,314	411	194	657	441	60	90	39	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	84,756	44,659	40,097	20,279	5,985	1,284	5,342	2,048	1,602	1,619	402	246	702	419	53	86	29	3
2002	93,581	50,821	42,761	22,584	6,010	1,272	5,515	2,071	1,762	1,539	394	267	725	448	48	87	35	3
2003	105,745	59,239	46,506	24,915	6,911	1,318	5,759	2,021	1,756	1,605	404	253	768	435	45	281	36	0
2004	111,600	63,730	47,870	25,871	6,971	1,230	5,921	1,985	1,706	1,603	420	242	793	416	43	626	43	0
2005	112,335	65,703	46,632	25,576	6,477	1,150	5,830	1,924	1,639	1,615	417	226	658	375	40	673	31	0
2006	112,963	66,973	45,990	24,714	7,041	1,026	5,742	1,819	1,468	1,604	425	219	660	335	47	865	23	0
2007	115,351	68,726	46,625	24,610	7,538	1,581	6,523	1,617	1,137	1,551	448	205	684	358	41	308	23	0
2008 (preliminary)	112,575	66,131	46,444	24,179	7,533	1,937	6,458	1,638	1,093	1,511	463	208	727	343	42	290	22	0

* = ≤$500,000

NOTES: Data for 1980–2007 actual budget authority; data for 2008 are preliminary estimates. See appendix table 4-1 for fiscal year gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars. In FY 2004, Department of Homeland Security changed its R&D portfolio to reclassify funding in general science and basic research and in agriculture as administration of justice. In FY 2000, National Aeronautics and Space Administration 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 Department of Health and Human Services classified all of its previous development activities as basic research or applied research, which resulted in 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.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Federal R&D Funding by Budget Function: FY 2007—09. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

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Appendix table 4-18

Federal basic research budget authority, by budget function: FY 2000–08

Budget function	2000	2001	2002	2003	2004	2005	2006	2007	2008
	Current $millions								
All functions	19,470	21,376	23,848	25,323	26,529	27,678	27,336	28,166	28,694
Health	10,099	11,642	12,957	14,162	14,850	15,826	15,532	15,637	15,883
General science	4,722	5,187	5,561	5,907	6,198	6,238	6,406	6,887	7,024
Space research/technology	1,616	1,695	1,912	2,206	2,473	2,486	2,299	2,318	2,311
Energy	36	40	45	40	32	31	8	7	19
National defense	1,184	1,303	1,404	1,409	1,380	1,508	1,490	1,533	1,641
Agriculture	651	749	762	824	780	789	805	821	798
Transportation	542	17	17	23	20	65	0	2	3
Natural resources/environment	146	215	471	185	201	195	195	260	265
Education, training, employment/social services	107	112	115	125	125	130	131	149	153
Commerce/housing credit	39	50	56	53	46	53	66	92	94
Veterans benefits/services	266	289	465	327	347	297	318	335	361
Administration of justice	20	27	30	42	58	42	68	106	125
International affairs	42	50	53	18	18	18	18	18	18
Community/regional development	0	0	0	1	0	0	0	0	0
General government	0	0	0	0	0	0	0	0	0
Income security	0	0	0	0	0	0	0	0	0
	FY 2000 constant $millions								
All functions	19,470	20,875	22,890	23,799	24,236	24,486	23,429	23,508	23,439
Health	10,099	11,369	12,436	13,310	13,566	14,001	13,312	13,051	12,974
General science	4,722	5,065	5,338	5,551	5,662	5,519	5,490	5,748	5,738
Space research/technology	1,616	1,655	1,835	2,073	2,259	2,199	1,970	1,935	1,888
Energy	36	39	43	38	29	27	7	6	16
National defense	1,184	1,272	1,348	1,324	1,261	1,334	1,277	1,279	1,340
Agriculture	651	731	731	774	713	698	690	685	652
Transportation	542	17	16	22	18	58	0	2	2
Natural resources/environment	146	210	452	174	184	173	167	217	216
Education, training, employment/social services	107	109	110	117	114	115	112	124	125
Commerce/housing credit	39	49	54	50	42	47	57	77	77
Veterans benefits/services	266	282	446	307	317	263	273	280	295
Administration of justice	20	26	29	39	53	37	58	88	102
International affairs	42	49	51	17	16	16	15	15	15
Community/regional development	0	0	0	1	0	0	0	0	0
General government	0	0	0	0	0	0	0	0	0
Income security	0	0	0	0	0	0	0	0	0

NOTES: Data for 1980–2007 actual budget authority; data for 2008 preliminary estimates. See appendix table 4-1 for fiscal year gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars. In FY 2004, Department of Homeland Security changed its R&D portfolio to reclassify funding in general science and basic research and in agriculture as administration of justice. In FY 2000, National Aeronautics and Space Administration transferred funding for space station program from R&D to R&D plant; this change reflected budget authority for space research and technology. In FY 2000, National Institutes of Health in Department of Health and Human Services classified all of its previous development activities as basic research or applied research, which resulted in an increase in health basic research. In FY 1998, many Department of Energy programs were reclassified from energy to general science and basic research, and 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.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Federal R&D Funding by Budget Function: FY 2007–09. All NSF/SRS reports available at http://www.nsf.gov/statistics/.

Science and Engineering Indicators 2010

Appendix table 4-19

Federal obligations for research and development, by character of work and R&D plant: FY 1955–2008

Fiscal year	Total	Total R&D	Basic research	Applied research	Development	R&D plant
	Current FY $thousands					
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	77,356,165	72,863,318	19,569,849	18,900,781	34,392,688	4,492,847
2001	84,003,042	79,933,214	21,958,136	22,755,600	35,219,478	4,069,828
2002	90,157,711	85,852,968	23,668,345	24,338,366	37,846,257	4,304,743
2003	97,927,856	93,661,338	24,751,441	26,320,402	42,589,495	4,266,518
2004	105,370,666	101,376,514	26,120,663	27,237,148	48,018,703	3,994,152
2005	112,994,648	109,223,521	27,140,335	26,597,910	55,485,276	3,771,127
2006	112,270,585	110,145,803	26,584,592	26,951,058	56,610,153	2,124,782

Appendix table 4-19

Federal obligations for research and development, by character of work and R&D plant: FY 1955–2008

Fiscal year	Total	Total R&D	Basic research	Applied research	Development	R&D plant
2007	115,922,493	113,754,108	26,865,786	27,227,779	59,660,543	2,168,385
2008 (preliminary)	116,476,299	114,624,895	27,558,569	27,538,346	59,527,980	1,851,404
	Constant FY $thousands					
1955	12,093,953	10,980,628	698,539	NA	NA	1,113,324
1956	17,095,254	15,636,855	1,080,277	3,377,844	11,178,734	1,458,399
1957	22,134,327	19,828,548	1,322,985	3,339,380	15,166,183	2,305,779
1958	24,013,779	22,367,704	1,637,509	3,642,996	17,087,200	1,646,074
1959	34,325,831	32,257,880	2,245,692	4,213,359	25,798,829	2,067,952
1960	38,476,262	35,960,695	2,811,305	6,105,405	27,043,986	2,515,567
1961	45,103,394	42,528,746	3,824,005	7,809,535	30,895,207	2,574,648
1962	51,388,389	47,771,342	4,578,988	9,370,850	33,821,504	3,617,047
1963	62,645,021	57,288,450	5,280,848	10,803,072	41,204,530	5,356,570
1964	69,433,031	64,455,614	5,903,942	11,651,346	46,900,326	4,977,417
1965	70,137,425	65,096,878	6,394,071	12,524,548	46,178,258	5,040,548
1966	70,556,651	66,813,493	6,886,965	13,436,834	46,489,695	3,743,157
1967	72,451,145	69,831,428	7,798,255	11,768,243	50,264,930	2,619,717
1968	67,421,616	64,958,009	7,509,433	11,997,144	45,451,432	2,463,607
1969	63,635,973	61,025,704	7,587,877	10,534,986	42,902,840	2,610,269
1970	58,688,069	56,747,825	7,125,076	11,005,882	38,616,866	1,940,244
1971	56,919,507	54,765,722	6,977,241	11,074,806	36,713,675	2,153,784
1972	57,530,118	55,504,357	7,358,469	11,308,072	36,837,816	2,025,760
1973	56,637,080	54,141,647	7,193,058	10,794,144	36,154,444	2,495,433
1974	54,633,174	52,329,811	7,176,679	11,384,307	33,768,825	2,303,363
1975	54,069,012	51,834,517	7,047,174	11,274,928	33,512,415	2,234,495
1976	54,891,778	52,767,034	7,027,562	12,320,665	33,418,807	2,124,744
1977	58,628,814	55,398,953	7,698,181	12,415,485	35,285,287	3,229,861
1978	60,072,707	57,204,819	8,186,375	13,076,923	35,941,521	2,867,888
1979	60,673,079	57,650,844	8,588,007	12,991,274	36,071,563	3,022,235
1980	59,107,524	56,177,838	8,802,554	13,038,083	34,337,202	2,929,685
1981	59,330,419	56,782,031	8,647,161	12,301,003	35,833,866	2,548,388
1982	60,719,799	58,488,664	8,800,136	12,105,603	37,582,925	2,231,135
1983	61,514,502	59,519,583	9,625,048	12,289,966	37,604,569	1,994,919
1984	65,261,194	62,611,010	10,479,477	11,731,041	40,400,492	2,650,184
1985	72,067,168	69,452,197	11,228,898	11,941,317	46,281,982	2,614,971
1986	74,317,447	72,157,704	11,442,914	11,718,067	48,996,723	2,159,743
1987	78,101,020	75,576,109	12,231,466	12,307,613	51,037,029	2,524,912
1988	78,008,901	75,281,030	12,562,814	12,168,846	50,549,370	2,727,870
1989	81,148,334	78,384,585	13,533,330	12,973,602	51,877,653	2,763,749
1990	81,023,002	78,227,041	13,889,961	12,722,180	51,614,901	2,795,961
1991	76,094,841	72,710,738	14,437,478	13,994,760	44,278,499	3,384,103
1992	79,353,372	75,899,780	14,452,516	13,886,524	47,560,741	3,453,592
1993	79,672,660	76,164,319	15,160,807	15,265,191	45,738,321	3,508,341
1994	76,928,197	74,474,291	14,979,482	15,382,956	44,111,853	2,453,906
1995	76,418,892	73,971,358	15,054,275	15,792,325	43,124,758	2,447,534
1996	73,868,189	72,009,630	15,395,460	14,684,118	41,930,051	1,858,560
1997	75,063,741	73,048,205	15,631,229	15,088,814	42,328,162	2,015,536
1998	76,396,887	74,522,712	16,137,480	15,823,521	42,561,711	1,874,175
1999	78,949,569	76,862,499	17,796,014	16,408,754	42,657,731	2,087,070
2000	77,356,165	72,863,318	19,569,849	18,900,781	34,392,688	4,492,847
2001	82,066,278	78,090,283	21,451,872	22,230,950	34,407,462	3,975,995
2002	86,424,186	82,297,707	22,688,214	23,330,489	36,279,004	4,126,479
2003	92,011,516	88,002,760	23,256,075	24,730,247	40,016,438	4,008,755

Appendix table 4-19

Federal obligations for research and development, by character of work and R&D plant: FY 1955–2008

Fiscal year	Total	Total R&D	Basic research	Applied research	Development	R&D plant
2004	96,493,284	92,835,636	23,920,021	24,942,443	43,973,171	3,657,648
2005	100,261,445	96,915,280	24,081,930	23,600,630	49,232,720	3,346,164
2006	96,353,060	94,529,525	22,815,475	23,129,985	48,584,065	1,823,534
2007	96,836,098	95,024,733	22,442,391	22,744,782	49,837,560	1,811,365
2008 (preliminary)	95,036,145	93,525,534	22,485,778	22,469,277	48,570,480	1,510,610

NA = not available; data collected for this table not recorded at that level in that fiscal year

NOTES: 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 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 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, Division of Science Resources Statistics, Survey of Federal Funds for Research and Development: FY 2007–09.

Science and Engineering Indicators 2010

Appendix table 4-20

Estimated federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: FY 2008

(Millions of current dollars)

Agency	All federal obligations	Federal intramural	Industrial firms	FFRDCs administered by industry	U&C	FFRDCs administered by U&C	Other nonprofits	FFRDCs administered by nonprofits	State and local government	Foreign
Total R&D and R&D plant										
All agencies	116,476.3	27,312.0	46,358.2	3,940.9	26,013.3	3,636.6	6,014.0	2,242.3	340.2	618.9
Department of Agriculture	2,424.7	1,564.5	17.6	0.0	799.8	0.0	26.7	0.0	13.2	3.0
Department of Commerce	1,204.8	936.7	68.5	0.0	192.4	0.3	4.4	0.7	1.6	0.2
Department of Defense	58,731.9	15,087.9	38,667.8	698.1	2,450.1	393.0	522.8	678.7	6.0	227.7
Department of Energy	8,779.1	679.2	1,192.6	2,737.4	851.6	1,708.7	169.5	1,435.6	2.6	1.9
Department of Health and Human Services	29,844.4	5,444.8	1,789.6	416.5	17,127.9	65.1	4,392.8	45.4	212.6	349.7
Department of Homeland Security	1,043.0	262.1	449.1	77.1	65.5	72.1	53.8	60.9	0.1	2.4
Department of the Interior	632.9	532.3	23.8	0.0	47.4	0.0	4.5	0.0	23.7	1.3
Department of Transportation	904.2	250.4	431.2	1.8	60.2	11.8	94.0	3.4	50.1	1.3
Environmental Protection Agency	556.5	406.8	64.6	0.0	66.6	0.0	17.1	0.0	0.8	0.6
National Aeronautics and Space Administration	6,324.5	1,198.1	3,327.6	0.0	544.2	1,102.1	144.7	1.3	0.1	6.4
National Science Foundation	4,509.1	60.2	204.9	0.0	3,538.8	278.8	377.2	6.3	20.3	22.4
All other agencies	1,521.0	889.1	120.9	10.0	268.8	4.7	206.4	10.1	9.1	2.0
R&D										
All agencies	114,624.9	26,827.7	46,046.2	3,874.9	25,709.2	3,278.7	5,918.7	2,017.1	340.2	612.3
Department of Agriculture	2,357.1	1,496.9	17.6	0.0	799.8	0.0	26.7	0.0	13.2	3.0
Department of Commerce	1,061.7	830.2	68.5	*	155.8	0.3	4.4	0.7	1.6	0.2
Department of Defense	58,676.2	15,066.4	38,633.7	698.1	2,450.1	393.0	522.8	678.7	6.0	227.5
Department of Energy	8,212.0	677.7	1,111.9	2,681.2	848.5	1,486.7	169.5	1,231.9	2.6	1.9
Department of Health and Human Services	29,656.9	5,287.0	1,789.6	416.5	17,100.6	65.1	4,390.4	45.4	212.6	349.7
Department of Homeland Security	847.4	225.0	382.8	67.3	48.3	40.9	41.5	39.4	0.1	2.0
Department of the Interior	625.0	532.3	15.9	0.0	47.4	0.0	4.5	0.0	23.7	1.3
Department of Transportation	885.1	250.4	412.1	1.8	60.2	11.8	94.0	3.4	50.1	1.3
Environmental Protection Agency	556.5	406.8	64.6	0.0	66.6	0.0	17.1	0.0	0.8	0.6
National Aeronautics and Space Administration	6,243.4	1,198.1	3,273.3	0.0	544.2	1,075.3	144.7	1.3	0.1	6.4
National Science Foundation	4,031.5	16.4	155.4	0.0	3,319.0	200.9	296.7	6.3	20.3	16.4
All other agencies	1,472.1	840.5	120.8	10.0	268.7	4.7	206.4	10.0	9.1	2.0
Basic research										
All agencies	27,558.6	4,681.8	1,898.5	349.4	14,487.4	2,010.0	2,853.3	943.6	103.2	231.5
Department of Agriculture	990.0	624.1	0.7	0.0	347.9	0.0	11.4	0.0	4.6	1.4
Department of Commerce	107.9	92.2	5.1	0.0	9.6	*	0.3	0.3	0.3	0.1
Department of Defense	1,510.3	381.5	216.9	0.5	808.3	2.5	70.4	4.3	0.0	25.9
Department of Energy	3,243.1	55.1	155.0	117.3	625.5	1,356.6	27.1	905.4	0.0	1.3
Department of Health and Human Services	15,989.0	2,785.2	899.9	231.7	9,375.5	36.1	2,374.3	24.4	75.7	186.2
Department of Homeland Security	191.0	57.3	66.9	0.0	34.4	3.8	19.1	7.6	0.0	1.9
Department of the Interior	43.4	39.1	0.1	0.0	2.0	0.0	0.0	0.0	2.2	0.0
Department of Transportation	2.6	1.8	0.5	0.0	0.1	0.0	0.2	0.0	0.0	0.0
Environmental Protection Agency	96.9	70.8	11.3	0.0	11.6	0.0	3.0	0.0	0.1	0.1
National Aeronautics and Space Administration	1,297.6	194.6	466.1	0.0	175.4	410.1	50.2	0.0	0.0	1.3
National Science Foundation	3,691.7	15.1	76.1	0.0	3,086.2	200.9	278.2	1.5	20.3	13.3
All other agencies	394.9	364.9	0.1	0.0	10.9	0.0	19.1	0.0	0.0	0.0
Applied research										
All agencies	27,538.3	7,480.5	4,550.4	2,109.6	9,959.0	233.9	2,515.4	289.2	199.3	201.1
Department of Agriculture	1,197.4	715.6	16.9	*	441.0	0.0	14.1	0.0	8.4	1.4
Department of Commerce	860.8	685.4	37.4	0.0	132.5	0.3	3.8	0.4	1.0	0.1

Appendix table 4-20

Estimated federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: FY 2008

(Millions of current dollars)

Agency	All federal obligations	Federal intramural	Industrial firms	FFRDCs administered by industry	U&C	FFRDCs administered by U&C	Other nonprofits	FFRDCs administered by nonprofits	State and local government	Foreign
Department of Defense	5,345.3	1,595.5	2,530.2	33.5	843.1	75.1	187.1	53.8	0.0	27.0
Department of Energy	2,916.5	366.6	187.3	1,873.9	178.0	74.5	52.3	183.9	0.0	0.0
Department of Health and Human Services	13,594.1	2,466.4	889.7	184.8	7,718.6	28.9	1,992.1	19.5	130.8	163.5
Department of Homeland Security	77.3	27.9	13.2	5.5	2.4	9.0	4.1	14.9	0.1	0.1
Department of the Interior	513.2	439.9	10.4	0.0	42.1	0.0	2.5	0.0	17.1	1.3
Department of Transportation	637.6	214.8	255.7	1.8	48.3	11.8	63.9	1.5	39.3	0.3
Environmental Protection Agency	378.8	276.9	44.0	0.0	45.3	0.0	11.6	0.0	0.5	0.4
National Aeronautics and Space Administration	828.7	292.4	386.8	0.0	98.3	29.5	19.2	0.6	0.0	1.9
National Science Foundation	339.8	1.3	79.3	0.0	232.8	0.0	18.5	4.7	0.1	3.1
All other agencies	848.8	397.8	99.6	9.9	176.6	4.8	146.1	9.9	2.0	1.9
Development										
All agencies	59,528.0	14,665.4	39,597.3	1,415.9	1,262.8	1,034.8	550.0	784.3	37.7	179.8
Department of Agriculture	169.7	157.2	0.0	0.0	10.9	0.0	1.2	0.0	0.1	0.2
Department of Commerce	92.9	52.6	26.0	0.0	13.7	0.0	0.3	0.0	0.3	0.0
Department of Defense	51,820.6	13,089.4	35,886.5	664.1	798.7	315.3	265.4	620.5	6.0	174.6
Department of Energy	2,052.3	256.0	769.7	690.0	44.9	55.7	90.1	142.7	2.6	0.6
Department of Health and Human Services	73.8	35.5	0.0	0.0	6.5	0.0	24.1	1.6	6.1	0.0
Department of Homeland Security	579.1	139.7	302.8	61.8	11.5	28.1	18.3	16.9	0.0	0.0
Department of the Interior	68.4	53.3	5.4	0.0	3.3	0.0	2.0	0.0	4.5	0.0
Department of Transportation	244.9	33.8	155.9	0.0	11.8	0.0	29.8	1.8	10.7	1.0
Environmental Protection Agency	80.8	59.1	9.4	0.0	9.7	0.0	2.5	0.0	0.1	0.1
National Aeronautics and Space Administration	4,117.1	711.1	2,420.4	0.0	270.6	635.7	75.3	0.7	0.1	3.2
National Science Foundation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All other agencies	228.3	77.7	21.2	0.0	81.2	0.0	41.1	0.0	7.2	0.0
R&D plant										
All agencies	1,851.4	484.3	312.0	66.0	304.1	357.9	95.3	225.2	0.0	6.6
Department of Agriculture	67.6	67.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Commerce	143.1	106.5	0.0	0.0	36.6	0.0	0.0	0.0	0.0	0.0
Department of Defense	55.7	21.5	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Department of Energy	567.1	1.5	80.7	56.2	3.1	222.0	0.0	203.7	0.0	0.0
Department of Health and Human Services	187.5	157.8	0.0	0.0	27.3	0.0	2.4	0.0	0.0	0.0
Department of Homeland Security	195.6	37.1	66.3	9.8	17.2	31.2	12.3	21.5	0.0	0.4
Department of the Interior	7.9	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Department of Transportation	19.1	0.0	19.1	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	81.1	0.0	54.3	0.0	0.0	26.8	0.0	0.0	0.0	0.0
National Science Foundation	477.6	43.8	49.5	0.0	219.8	77.9	80.5	0.0	0.0	6.0
All other agencies	48.9	48.6	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0

* = <$0.05 million

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

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

SOURCE: National Science Foundation, Division of Science Resources Statistics, Federal Funds for Research and Development: FY 2007–09 (forthcoming).

Science and Engineering Indicators 2010

Appendix table 4-21

Discrepancy in U.S. performer-reported and agency-reported federal R&D: 1980–2007

(Billions of dollars)

	All performers			Industrial performers[a]		
Year	Performer reported	Agency reported	Difference	Performer reported	Agency reported	Difference
1980	30.0	29.8	0.2	12.8	13.0	-0.2
1981	33.7	33.1	0.6	15.0	14.9	0.1
1982	37.1	36.4	0.7	17.1	17.2	-0.1
1983	41.5	38.7	2.8	19.1	17.0	2.1
1984	46.5	42.2	4.3	21.7	18.6	3.1
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	28.5	-2.1
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	29.7	-7.3
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	66.4	72.9	-6.5	17.1	27.7	-10.6
2001	72.8	79.9	-7.1	16.9	27.0	-10.1
2002	77.7	85.9	-8.1	16.4	29.5	-13.1
2003	83.6	93.7	-10.0	17.8	33.9	-16.1
2004	88.8	101.4	-12.6	20.3	39.2	-18.9
2005	93.8	109.2	-15.4	21.9	44.1	-22.2
2006	98.1	110.1	-12.1	24.3	44.2	-19.8
2007	101.1	113.8	-12.6	26.6	44.3	-17.7

[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, Division of Science Resources Statistics, *National Patterns of R&D Resources* (annual series); and Federal Funds for Research and Development: FY 2007–09.

Science and Engineering Indicators 2010

Appendix table 4-22

R&D expenditures at federally funded research and development centers: FY 2007

(Thousands of dollars)

FFRDC	All expenditures	Federal	Sponsoring agency	Location
All FFRDCs	13,820,767	13,396,861	na	na
University-administered FFRDCs	5,855,193	5,654,952	na	na
Ames Laboratory	25,254	25,254	DOE	Ames, IA
Argonne National Laboratory	489,684	445,096	DOE	Argonne, IL
AUI National Radio Astronomy Observatory	129,000	128,158	NSF	Green Bank, WV
Fermi National Accelerator Laboratory	337,306	336,927	DOE	Batavia, IL
Jet Propulsion Laboratory	1,717,203	1,717,203	NASA	Pasadena, CA
Lawrence Berkeley National Laboratory	503,775	443,273	DOE	Berkeley, CA
Lawrence Livermore National Laboratory	1,353,980	1,298,044	DOE	Livermore, CA
Massachusetts Institute of Technology Lincoln Laboratory	618,011	613,858	DOD, Department of the Air Force	Lexington, MA
National Astronomy and Ionosphere Center	13,591	13,375	NSF	Arecibo, PR
National Center for Atmospheric Research	144,293	132,375	NSF	Boulder, CO
National Optical Astronomy Observatory	53,608	46,624	NSF	Tucson, AZ
Plasma Physics Laboratory	75,720	75,488	DOE	Princeton, NJ
Software Engineering Institute	80,566	67,657	DOD, Office of the Secretary of Defense	Pittsburgh, PA
Stanford Linear Accelerator Center	231,960	231,960	DOE	Stanford, CA
Thomas Jefferson National Accelerator Facility	81,242	79,660	DOE	Newport News, VA
Industry-administered FFRDCs	4,780,586	4,693,399	na	na
Idaho National Laboratory	248,322	235,506	DOE	Idaho Falls, ID
Los Alamos National Laboratory	2,046,260	2,029,056	DOE	Los Alamos, NM
NCI Frederick Cancer R&D Center	339,800	339,800	NIH	Frederick, MD
Sandia National Laboratory	2,031,309	1,974,142	DOE	Albuquerque, NM
Savannah River Technology Center	114,895	114,895	DOE	Aiken, SC
Nonprofit-administered FFRDCs	3,184,988	3,048,510	na	na
Aerospace Corporation	36,490	16,930	DOD, Department of the Air Force	El Segundo, CA
Arroyo Center	25,195	25,195	DOD, Department of the Army	Santa Monica, CA
Brookhaven National Laboratory	510,212	491,138	DOE	Upton, NY
C3I FFRDC	46,368	46,368	DOD, Office of the Secretary of Defense	Bedford, MA/McLean, VA
Center for Advanced Aviation System Development	7,290	7,290	FAA	McLean, VA
Center for Naval Analyses	99,993	89,721	DOD, Department of the Navy	Alexandria, VA
Center for Nuclear Waste Regulatory Analyses	17,007	16,519	NRC	San Antonio, TX
Homeland Security Institute	25,370	25,370	Department of Homeland Security	Arlington, VA
Institute for Defense Analyses Communications and Computing	59,500	59,500	National Security Agency	Alexandria, VA
Institute for Defense Analyses Studies and Analyses	141,500	141,500	DOD, Office of the Secretary of Defense	Alexandria, VA
Internal Revenue Service FFRDC	7,101	7,101	IRS	McLean, VA
National Defense Research Institute	38,152	38,152	DOD, Office of the Secretary of Defense	Santa Monica, CA
National Renewable Energy Research Laboratory	190,874	183,812	DOE	Golden, CO
Oak Ridge National Laboratory	1,083,509	1,031,919	DOE	Oak Ridge, TN
Pacific Northwest National Laboratory	851,512	823,080	DOE	Richland, WA
Project Air Force	39,315	39,315	DOD, Department of the Air Force	Santa Monica, CA
Science and Technology Policy Institute	5,600	5,600	NSF	Washington, DC

na = not applicable

DOD = Department of Defense; DOE = Department of Energy; 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; NRC = Nuclear Regulatory Commission; NSF = National Science Foundation

NOTE: More information about FFRDCs on NSF Web site, http://www.nsf.gov/statistics/nsf09303/tables/tab86.xl, accessed 3 June 2009.

SOURCE: NSF, Division of Science Resources Statistics, Academic Research and Development Expenditures: FY 2007 (2008).

Science and Engineering Indicators 2010

Appendix table 4-23

Estimated federal obligations for research, by agency and S&E field: FY 2008

(Thousands of current dollars)

Agency	All federal obligations	Environmental sciences	Life sciences	Mathematics and computer sciences	Physical sciences	Psychology	Social sciences	Other sciences, nec	Engineering
All agencies	55,096,915	3,315,093	29,674,682	3,285,318	5,249,262	1,860,724	1,071,138	1,287,303	9,353,395
Agency for International Development	137,816	2,465	94,754	0	0	0	34,509	6,088	0
Appalachian Regional Commission	705	0	0	0	0	0	705	0	0
Broadcasting Board of Governors	0	0	0	0	0	0	0	0	0
Department of Agriculture	2,187,430	11,612	1,828,107	9,397	100,383	0	188,180	0	49,751
Department of Commerce	968,745	438,015	72,036	78,289	187,379	357	15,499	11,005	166,165
Department of Defense	6,855,613	401,091	712,068	1,187,492	736,016	54,529	12,057	93,554	3,658,806
Department of Education	205,630	0	19,609	0	0	4,980	168,085	0	12,956
Department of Energy	6,159,680	301,947	340,300	921,253	2,369,155	0	0	1,650	2,225,375
Department of Health and Human Services	29,583,112	392,280	24,913,867	191,707	329,131	1,709,219	271,572	651,785	1,123,551
Department of Homeland Security	268,300	722	86,338	11,374	50,400	5,846	14,247	41,341	58,032
Department of Housing and Urban Development	10,739	0	0	0	0	0	10,571	82	86
Department of Justice	19,632	0	0	0	0	0	19,632	0	0
Department of Labor	35,161	0	0	0	0	0	31,380	3,781	0
Department of State	4,164	0	0	0	0	0	4,164	0	0
Department of the Interior	556,635	346,060	184,453	9,837	1,231	0	6,273	285	8,496
Department of the Treasury	67,306	0	0	0	5,304	0	0	62,002	0
Department of Transportation	640,151	52,493	15,854	14,860	1,444	21,769	14,975	88,881	429,875
Department of Veterans Affairs	456,559	0	385,351	0	0	50,648	0	0	20,560
Environmental Protection Agency	475,729	170,301	221,482	11,362	12,980	0	2,188	0	57,416
Federal Communications Commission	7,206	0	0	525	1,050	0	2,136	0	3,495
Federal Trade Commission	1,824	0	0	0	0	0	1,824	0	0
Library of Congress	608	0	0	0	608	0	0	0	0
National Aeronautics and Space Administration	2,126,331	496,179	120,059	35,625	591,441	7,776	399	110,390	764,462
National Archives and Records Administration	4,620	50	0	4,500	70	0	0	0	0
National Science Foundation	4,031,450	695,678	619,748	809,097	804,454	5,600	162,537	215,219	719,117
Nuclear Regulatory Commission	55,252	0	0	0	0	0	0	0	55,252
Smithsonian Institution	148,000	6,200	60,656	0	58,216	0	21,688	1,240	0
Social Security Administration	88,517	0	0	0	0	0	88,517	0	0

nec = not elsewhere classified

NOTE: Research includes basic research and applied research.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Federal Funds for Research and Development: FY 2007–09.

Science and Engineering Indicators 2010

Appendix table 4-24

Federal obligations for research, by detailed S&E field: FY 1986–2008

(Millions of constant FY 2000 dollars)

Field	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
All fields	23,168.7	24,547.2	24,739.8	26,515.7	26,621.0	28,441.7	28,349.1	30,447.7	30,378.3	30,850.2	30,097.8	30,737.7	31,963.9
Engineering	5,249.3	5,344.8	5,248.3	5,672.3	5,203.7	5,867.3	5,761.1	6,226.9	6,072.5	6,193.4	6,050.4	5,956.2	6,094.0
Aeronautical	1,088.9	1,108.8	1,063.6	1,260.1	1,141.4	1,205.9	1,012.4	1,350.8	1,355.0	1,354.4	1,330.7	1,415.9	1,650.2
Astronautical	739.8	854.6	763.3	865.0	715.1	775.0	729.7	559.3	553.1	592.9	560.8	624.2	652.4
Chemical	345.1	295.3	342.4	181.6	297.8	361.1	344.4	278.0	264.0	267.0	229.1	246.0	196.5
Civil	284.9	279.7	285.1	293.4	391.1	361.9	382.2	285.3	308.0	368.2	319.7	288.5	252.3
Electrical	946.8	1,075.9	969.8	1,076.6	788.0	866.1	878.6	998.1	822.1	820.6	713.3	651.3	660.8
Mechanical	332.0	319.5	319.4	328.7	330.3	398.1	390.3	528.7	419.0	447.5	313.1	266.5	258.0
Metallurgy and materials	624.8	495.3	605.8	665.3	682.7	843.3	841.8	787.7	943.6	884.6	1,053.3	900.9	815.7
Engineering nec	886.9	915.8	899.1	1,001.7	857.3	1,055.9	1,181.6	1,439.0	1,407.7	1,458.2	1,530.5	1,563.0	1,608.0
Environmental sciences	2,080.3	2,068.3	2,131.7	2,264.2	2,676.7	2,551.0	2,555.4	2,953.6	3,145.4	3,096.9	3,216.1	3,188.0	3,165.1
Atmospheric sciences	731.9	756.5	779.7	750.8	952.2	952.5	888.2	1,114.3	1,213.5	1,232.1	1,156.3	1,218.7	1,214.0
Geological sciences	623.2	604.4	585.8	693.1	813.9	864.7	851.6	903.4	928.7	920.4	835.3	724.1	623.6
Oceanography	603.3	584.8	610.7	628.1	640.3	473.0	531.2	529.2	550.6	441.9	611.7	625.6	578.7
Environmental sciences nec	121.9	122.5	155.3	192.2	270.2	260.8	284.5	406.7	452.7	502.7	612.8	619.5	748.8
Life sciences	9,075.7	10,044.9	10,246.7	10,847.5	10,871.0	11,417.8	11,471.9	12,197.1	12,505.8	12,814.5	12,849.0	13,253.0	14,014.3
Biological and agricultural	5,421.2	5,963.5	6,066.7	6,410.1	6,375.5	6,642.7	6,521.2	6,860.9	6,763.6	6,946.5	7,061.1	6,849.8	7,312.1
Agricultural sciences	847.7	775.7	783.6	854.3	851.2	807.3	795.8	807.2	805.9	727.3	656.1	671.3	788.5
Biological sciences, excluding environmental	4,202.7	4,791.6	4,883.9	5,086.2	5,102.7	5,289.8	5,133.9	5,423.5	5,259.5	5,343.9	5,655.3	5,568.8	5,898.8
Environmental biology	370.8	396.2	399.3	469.6	421.4	545.5	591.5	630.1	698.1	875.5	749.8	609.7	624.9
Medical sciences	3,313.9	3,646.1	3,901.3	4,114.8	4,164.3	4,106.1	4,525.9	4,987.0	5,388.4	5,394.6	5,296.9	5,791.3	6,198.3
Life sciences nec	340.6	435.4	278.7	322.5	331.3	669.0	424.8	349.1	353.9	473.4	491.1	611.9	503.8
Mathematics and computer sciences	864.0	876.5	852.8	939.0	1,035.1	1,072.4	1,343.1	1,387.5	1,442.5	1,713.3	1,673.8	1,749.9	1,898.7
Computer sciences	424.6	407.5	388.3	465.6	692.0	694.1	893.4	935.4	920.1	1,100.0	1,192.6	1,323.8	1,445.8
Mathematics	259.0	279.8	289.0	301.5	297.1	270.1	368.9	329.3	379.4	280.6	271.1	315.7	345.4
Mathematics and computer sciences nec	180.4	189.2	175.5	172.1	45.9	108.1	80.9	122.9	143.1	332.6	210.1	110.4	107.5
Physical sciences	4,308.9	4,450.4	4,400.5	4,731.2	4,689.2	5,025.7	5,138.6	5,012.6	4,713.9	4,641.8	4,178.2	4,343.1	4,351.5
Astronomy	657.3	714.5	624.5	692.0	735.3	749.6	855.5	777.1	828.5	829.5	776.4	810.9	756.9
Chemistry	930.0	930.8	932.7	999.3	937.8	983.0	1,037.4	954.7	969.0	936.9	938.4	885.3	846.6
Physics	2,535.4	2,536.2	2,620.3	2,797.5	2,776.2	2,920.2	2,984.4	2,987.4	2,707.5	2,659.5	2,120.8	2,164.2	2,203.6
Physical sciences nec	186.2	269.0	223.0	242.5	240.1	373.0	261.3	293.5	208.7	216.1	342.5	482.5	544.4
Psychology	468.9	505.6	517.1	538.5	552.3	572.4	345.1	623.5	607.8	675.5	559.1	570.9	610.9
Biological aspects	126.5	134.5	139.7	155.5	160.8	166.4	40.1	42.1	53.3	63.8	66.9	60.5	43.0
Social aspects	201.5	211.4	198.2	191.4	218.5	234.4	116.8	152.5	129.4	169.6	88.8	101.2	100.8
Psychological sciences nec	141.0	159.7	179.3	191.4	173.0	171.8	188.2	428.8	424.9	442.1	403.4	409.2	467.1

Appendix table 4-24

Federal obligations for research, by detailed S&E field: FY 1986–2008

(Millions of constant FY 2000 dollars)

Field	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Social sciences	583.4	656.8	644.4	703.6	775.6	863.0	798.4	764.2	717.5	736.4	697.2	728.8	833.3
Anthropology	19.1	20.8	19.0	17.7	17.7	19.0	16.3	15.5	18.0	23.5	19.5	22.0	18.8
Economics	184.3	203.2	211.6	213.0	242.8	222.4	244.9	231.8	214.2	224.0	206.8	214.8	238.3
Political science	16.3	15.5	16.2	17.2	16.1	20.2	26.2	33.1	28.1	24.2	17.8	14.8	20.9
Sociology	94.1	101.3	108.5	120.2	143.1	218.3	93.4	86.8	75.5	51.9	43.9	27.1	104.2
Social sciences nec	269.6	316.1	289.2	335.6	355.9	383.2	417.6	396.9	381.7	412.6	409.2	450.3	451.1
Other sciences nec	538.1	599.7	698.4	819.3	817.1	1,072.0	935.6	1,282.3	1,173.0	978.4	874.1	947.6	996.2

Field	1999	2000	2001	2002	2003	2004	2005	2006	2007	Preliminary 2008	Average growth rate (%) 1986–2007	Average growth rate (%) 1986–2008
All fields	34,209.9	38,470.6	43,945.4	46,271.9	48,235.3	49,174.5	48,032.2	45,945.5	45,187.2	44,955.1	3.2	3.2
Engineering	6,390.9	6,346.4	8,056.2	7,975.9	7,938.3	8,171.3	7,644.7	7,448.3	7,509.6	7,631.7	1.7	1.8
Aeronautical	1,642.5	1,463.9	2,388.3	2,079.2	1,636.0	1,512.2	1,140.8	1,054.9	776.2	NA	-1.6	NA
Astronautical	633.2	515.0	739.8	733.3	663.5	612.8	441.6	408.8	284.9	NA	-4.4	NA
Chemical	207.3	196.5	195.6	194.3	309.7	293.8	253.7	252.8	295.5	NA	-0.7	NA
Civil	335.2	239.2	283.4	291.8	320.7	304.4	249.6	302.7	385.5	NA	1.5	NA
Electrical	712.9	744.8	874.4	779.5	897.2	821.1	923.8	888.7	858.3	NA	-0.5	NA
Mechanical	245.3	289.3	313.7	256.3	281.8	278.2	289.3	255.9	281.7	NA	-0.8	NA
Metallurgy and materials	804.0	918.1	1,062.2	964.3	1,023.5	955.9	1,058.4	1,072.7	1,236.1	NA	3.3	NA
Engineering nec	1,810.4	1,979.6	2,198.6	2,677.2	2,805.8	3,393.0	3,287.7	3,211.8	3,391.4	NA	6.6	NA
Environmental sciences	3,158.3	3,328.8	3,195.8	3,294.8	3,533.1	3,448.3	3,130.7	2,944.2	2,648.5	2,704.9	1.2	1.3
Atmospheric sciences	1,200.4	1,104.3	1,094.5	1,121.5	1,189.5	1,160.9	1,059.3	1,001.5	805.8	NA	0.5	NA
Geological sciences	673.6	639.2	662.2	650.5	684.7	649.3	602.0	561.2	532.9	NA	-0.7	NA
Oceanography	670.0	673.0	669.4	756.2	799.1	745.7	689.6	640.1	658.1	NA	0.4	NA
Environmental sciences nec	614.3	912.2	769.8	766.5	859.7	892.5	779.9	741.5	651.7	NA	8.3	NA
Life sciences	15,736.4	17,964.7	22,661.1	24,556.2	26,229.8	25,554.6	25,141.2	23,968.2	24,612.4	24,212.4	4.9	4.8
Biological and agricultural	8,211.5	12,375.0	13,873.8	15,735.2	19,273.9	13,684.6	13,536.7	13,290.1	13,638.2	NA	4.5	NA
Agricultural sciences	866.7	895.0	990.4	1,009.7	987.9	1,001.6	978.0	951.0	951.8	NA	0.6	NA
Biological sciences, excluding environmental	6,609.4	10,740.0	12,167.3	13,974.6	17,608.1	12,065.5	11,933.9	11,749.8	12,053.9	NA	5.1	NA
Environmental biology	735.3	740.0	716.3	750.8	678.0	617.5	624.8	589.3	632.6	NA	2.6	NA
Medical sciences	6,939.6	4,463.8	6,472.0	6,195.1	5,818.2	10,044.3	9,708.7	9,090.4	9,014.1	NA	4.9	NA
Life sciences nec	585.3	1,125.9	2,315.2	2,626.0	1,137.7	1,825.7	1,895.7	1,587.6	1,960.2	NA	8.7	NA
Mathematics and computer sciences	2,020.9	2,205.6	2,565.7	2,535.6	2,524.1	2,718.2	2,666.6	2,415.8	2,460.7	2,680.6	5.1	5.5
Computer sciences	1,547.0	1,659.6	1,988.0	1,969.4	1,938.8	1,976.7	1,928.1	1,706.0	1,735.6	NA	6.9	NA
Mathematics	352.3	432.9	389.6	387.5	427.7	569.4	613.7	574.3	591.9	NA	4.0	NA
Mathematics and computer sciences nec	121.6	113.1	188.1	178.8	157.4	172.1	124.9	135.5	133.1	NA	-1.4	NA
Physical sciences	4,149.0	4,788.0	4,521.7	4,803.1	4,742.7	4,802.5	4,910.4	4,592.4	4,290.4	4,283.0	0.0	0.0
Astronomy	773.3	880.3	746.2	724.3	823.4	848.6	790.9	680.1	547.9	NA	-0.9	NA
Chemistry	831.5	1,225.6	1,007.3	1,139.0	1,074.7	1,097.6	1,070.3	966.7	960.5	NA	0.2	NA
Physics	2,267.1	2,405.4	2,419.4	2,526.7	2,361.3	2,394.9	2,718.4	2,576.2	2,455.3	NA	-0.2	NA
Physical sciences nec	276.9	276.7	348.8	413.1	483.3	461.5	330.7	369.4	326.7	NA	2.7	NA

Appendix table 4-24

Federal obligations for research, by detailed S&E field: FY 1986–2008

(Millions of constant FY 2000 dollars)

Field	1999	2000	2001	2002	2003	2004	2005	2006	2007	Preliminary 2008	Average growth rate (%) 1986–2007	Average growth rate (%) 1986–2008
Psychology	645.5	1,626.7	729.2	873.2	1,043.1	1,709.5	1,690.9	1,499.6	1,535.3	1,518.2	5.8	5.8
Biological aspects	18.4	8.2	13.4	10.2	21.9	5.5	2.1	2.6	3.2	NA	-16.1	NA
Social aspects	68.0	56.0	58.8	50.6	47.8	47.6	41.7	35.1	30.7	NA	-8.6	NA
Psychological sciences nec	559.1	1,562.5	657.0	812.3	973.4	1,656.3	1,647.1	1,461.9	1,501.4	NA	11.9	NA
Social sciences	872.3	1,050.4	991.3	947.5	968.8	1,004.2	980.6	964.6	958.3	874.0	2.4	1.9
Anthropology	18.7	15.9	15.3	15.8	13.7	13.8	16.1	13.0	13.4	NA	-1.7	NA
Economics	221.0	249.5	230.1	219.1	221.5	188.6	193.0	173.9	208.9	NA	0.6	NA
Political science	20.6	22.6	19.2	17.7	17.5	17.2	29.2	38.3	34.5	NA	3.6	NA
Sociology	85.5	90.6	93.9	92.6	117.8	110.7	62.7	123.7	181.8	NA	3.2	NA
Social sciences nec	526.5	671.8	632.9	602.1	598.4	673.9	679.7	615.7	519.7	NA	3.2	NA
Other sciences nec	1,236.8	1,160.2	1,224.4	1,285.8	1,255.5	1,766.1	1,867.1	2,112.4	1,172.1	1,050.3	3.8	3.2

nec = not elsewhere classified; NA = not available

NOTES: Detail may not add to total because of rounding. Figures for FY 2008 are preliminary.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Federal Funds for Research and Development: FY 2007–09.

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Appendix table 4-25

Federal research and experimentation tax credit claims, by selected NAICS industry: 2001–05

Industry	NAICS code	Tax credit claims (current US$thousands)				
		2001	2002	2003	2004	2005
All industries	11, 21–23, 31–33, 42, 44–81	6,355,803	5,655,666	5,488,337	5,554,011	6,363,476
Manufacturing	31–33	4,208,607	3,787,025	3,797,439	3,845,792	4,529,302
Food	311	33,716	30,971	49,120	50,836	71,132
Beverage and tobacco products	312	12,115	19,204	3,114	5,129	9,952
Textiles, apparel, and leather	313–16	7,787	12,286	12,091	11,179	7,944
Wood products	321	1,974	2,073	1,735	1,736	2,163
Paper, printing, and support activities	322, 323	59,463	64,289	68,927	55,476	49,864
Petroleum and coal products	324	34,959	36,257	39,400	21,545	28,506
Chemicals	325	999,405	949,115	1,001,644	989,278	1,147,292
Pharmaceuticals and medicines	3254	805,558	777,856	736,269	757,626	915,201
Plastics and rubber products	326	18,884	24,218	21,245	22,596	24,796
Nonmetallic mineral products	327	9,735	9,516	9,670	8,587	9,770
Primary metals	331	6,010	8,096	8,077	7,756	10,282
Fabricated metal products	332	24,243	27,912	59,387	66,597	66,794
Machinery	333	154,210	148,668	134,808	182,417	194,382
Computer and electronic products	334	1,677,194	1,152,788	1,168,467	1,490,633	1,647,471
Computers and peripheral equipment	3341	487,777	380,276	386,140	312,726	304,176
Communications equipment	3342	433,269	220,147	212,289	213,885	285,865
Semiconductor and other electronic components	3344	567,390	411,723	461,353	841,903	917,103
Navigational, measuring, electromedical, and control instruments	3345	138,872	100,472	72,156	84,895	102,219
Electrical equipment, appliances, and components	335	180,985	163,536	117,260	122,723	188,450
Transportation equipment	336	785,699	957,277	896,992	581,824	825,671
Motor vehicles, trailers, and parts	3361–63	638,560	590,750	649,790	458,674	680,488
Aerospace products and parts	3364	130,821	348,498	220,374	105,060	129,979
Furniture and related products	337	8,899	10,374	6,610	10,788	18,593
Miscellaneous manufacturing	339	193,330	170,444	198,891	216,693	226,240
Medical equipment and supplies	3391	155,124	146,312	171,825	181,375	198,289
Nonmanufacturing	11, 21–23, 42, 44–81	2,147,196	1,868,642	1,690,898	1,708,219	1,834,174
Information	51	1,001,296	801,073	633,275	599,795	636,462
Publishing	511	623,170	493,094	357,528	275,870	285,544
Software	5112	603,049	477,847	336,344	261,122	273,545
Broadcasting and telecommunications	515–517	184,987	171,659	159,731	180,412	201,791
Finance, insurance, and real estate	52, 53	126,025	96,250	99,507	112,798	129,052
Professional, scientific, and technical services	54	649,801	576,581	549,141	609,019	651,093
Architectural, engineering, and related services	5413	43,499	28,175	23,408	33,804	42,384
Computer systems design and related services	5415	231,064	177,596	156,691	147,257	170,262
Scientific R&D services	5417	307,839	320,343	315,495	376,084	378,617
Management of companies and enterprises	55	82,295	100,337	94,894	92,007	94,833
Other nonmanufacturing		287,780	294,400	314,081	294,600	322,734

NAICS = North American Industry Classification System

NOTE: Data are for C corporations and exclude Internal Revenue Service forms 1120S (S corporations), 1120-REIT (Real Estate Investment Trusts), and 1120-RIC (Regulated Investment Companies).

SOURCE: Internal Revenue Service, Statistics of Income program, special tabulations.

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Appendix table 4-26

Federal research and experimentation tax credit: Number of corporate tax returns claiming credit, by NAICS industry: 2001–05

Industry	NAICS code	Corporate tax returns (number)				
		2001	2002	2003	2004	2005
All industries	11, 21–23, 31–33, 42, 44–81	10,389	10,254	10,369	10,244	11,290
Manufacturing	31–33	4,766	4,750	4,623	4,686	4,921
Food	311	132	135	121	135	162
Beverage and tobacco products	312	10	10	10	10	10
Textiles, apparel, and leather	313–16	31	30	39	38	30
Wood products	321	31	23	16	14	15
Paper, printing, and support activities	322, 323	78	97	86	86	104
Petroleum and coal products	324	30	28	29	27	19 e
Chemicals	325	650	634	593	600	536
Pharmaceuticals and medicines	3254	297	275	267	314	264
Plastics and rubber products	326	118	97	116	123	168
Nonmetallic mineral products	327	27	29	42	37	58
Primary metals	331	43	43	44	39	78
Fabricated metal products	332	260	220	273	287	338
Machinery	333	425	388	344	505	474
Computer and electronic products	334	1,604	1,663	1,565	1,429	1,343
Computers and peripheral equipment	3341	346	320	256	265	279
Communications equipment	3342	345	312	287	234	235
Semiconductor and other electronic components	3344	552	564	482	492	494
Navigational, measuring, electromedical, and control instruments	3345	209	318	408	331	272
Electrical equipment, appliances, and components	335	411	536	516	497	768
Transportation equipment	336	186	191	201	192	242
Motor vehicles, trailers, and parts	3361–63	83	117	130	133	158
Aerospace products and parts	3364	53	46	44	43	65
Furniture and related products	337	32	60	20	21	39
Miscellaneous manufacturing	339	699	566	608	645	538
Medical equipment and supplies	3391	431	353	380	428	376
Nonmanufacturing	11, 21–23, 42, 44–81	5623	5,504	5,746	5,558	6,369
Information	51	1502	1,242	1,149	977	1,076
Publishing	511	975	835	761	689	592
Software	5112	952	816	442	656	565
Broadcasting and telecommunications	515–517	179	203	167	144	229
Finance, insurance, and real estate	52, 53	124	208	206	150	157
Professional, scientific, and technical services	54	2887	2,900	3,446	3,304	3,335
Architectural, engineering, and related services	5413	136	98	326	377	415
Computer systems design and related services	5415	1,204	1,230	1,340	1,219	1,215
Scientific R&D services	5417	1,190	1,200	1,276	1,435	1,431
Management of companies and enterprises	55	52	55	50	70	326
Other nonmanufacturing		1,058	1,099	895	1,057	1,475

e = estimate should be used with caution because of the small number of returns on which it was based

NAICS = North American Industry Classification System

NOTE: Data are for C corporations and exclude Internal Revenue Service forms 1120S (S corporations), 1120-REIT (Real Estate Investment Trusts), and 1120-RIC (Regulated Investment Companies).

SOURCE: Internal Revenue Service, Statistics of Income program, special tabulations.

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Appendix table 4-27

Gross expenditures for R&D and R&D as share of gross domestic product, by selected country: 1981–2007

Year	Unted States	Japan	China	Germany	France	South Korea	United Kingdom	Russian Federation	Canada	Italy
					Constant 2000 US$billions					
1981	123.2	42.9	NA	30.0	19.1	NA	21.4	NA	6.3	8.5
1982	129.5	45.9	NA	30.7	20.4	NA	NA	NA	6.8	8.8
1983	138.8	49.4	NA	31.3	21.1	NA	20.8	NA	6.9	9.3
1984	152.2	52.8	NA	32.2	22.3	NA	NA	NA	7.5	10.2
1985	165.4	58.4	NA	35.3	23.3	NA	22.5	NA	8.1	11.7
1986	169.3	59.5	NA	36.5	23.7	NA	23.6	NA	8.5	12.1
1987	173.1	63.5	NA	38.6	24.7	NA	24.0	NA	8.5	13.2
1988	177.3	68.3	NA	39.8	25.8	NA	24.5	NA	8.8	14.0
1989	181.0	74.4	NA	41.1	27.4	NA	25.2	NA	9.5	14.7
1990	186.7	80.5	NA	41.6	29.2	NA	25.3	35.6	9.9	15.6
1991	191.1	82.4	8.5	44.8	29.6	8.6	24.0	25.6	10.1	15.0
1992	191.9	81.5	9.9	43.7	30.1	9.6	23.5	10.0	10.5	14.7
1993	188.0	79.5	10.6	42.0	30.4	11.1	24.5	9.5	11.1	13.8
1994	187.9	78.7	10.8	41.4	30.3	13.3	25.0	9.1	12.0	13.2
1995	199.9	83.7	10.9	42.2	30.5	14.8	24.9	8.8	12.1	12.9
1996	210.8	89.2	11.8	42.7	30.6	16.2	24.6	9.6	12.0	13.2
1997	222.9	92.6	14.8	44.4	30.2	17.3	24.5	10.5	12.5	14.0
1998	235.2	95.0	16.3	46.0	30.6	15.2	25.1	9.1	13.8	14.5
1999	250.9	95.3	20.5	49.4	31.8	16.0	26.9	10.1	14.9	14.4
2000	268.1	98.8	27.0	52.3	32.9	18.5	27.8	11.7	16.7	15.2
2001	271.7	101.6	30.9	53.1	34.3	20.8	28.1	13.8	18.5	16.1
2002	265.9	103.2	37.7	53.7	35.2	21.7	28.7	15.3	18.7	16.8
2003	272.3	105.8	43.5	54.2	34.6	23.3	28.8	16.9	19.0	16.5
2004	274.8	107.6	52.0	54.1	35.1	26.4	28.6	16.3	20.0	16.6
2005	286.5	115.1	60.7	54.5	34.9	28.8	29.9	16.1	20.3	16.6
2006	298.8	120.3	70.2	57.3	35.7	32.7	31.2	17.4	20.2	17.6
2007	307.8	124.6	87.1	58.8	36.1	37.0	32.9	21.1	19.7	NA
					R&D/GDP (%)					
1981	2.34	2.14	NA	2.35	1.90	NA	2.38	NA	1.22	0.86
1982	2.51	2.23	NA	2.42	1.99	NA	NA	NA	1.37	0.88
1983	2.58	2.36	NA	2.43	2.03	NA	2.19	NA	1.34	0.93
1984	2.64	2.44	NA	2.43	2.12	NA	NA	NA	1.38	0.99
1985	2.75	2.58	NA	2.60	2.17	NA	2.24	NA	1.42	1.10
1986	2.72	2.55	NA	2.63	2.15	NA	2.25	NA	1.46	1.11
1987	2.69	2.62	NA	2.74	2.19	NA	2.19	NA	1.41	1.16
1988	2.65	2.64	NA	2.73	2.19	NA	2.13	NA	1.38	1.19
1989	2.61	2.73	NA	2.71	2.23	NA	2.14	NA	1.45	1.21
1990	2.65	2.81	NA	2.61	2.32	NA	2.14	2.03	1.51	1.25
1991	2.71	2.78	0.73	2.47	2.32	1.84	2.06	1.43	1.57	1.19
1992	2.64	2.72	0.74	2.35	2.33	1.94	2.01	0.74	1.62	1.15
1993	2.52	2.65	0.70	2.28	2.38	2.12	2.04	0.77	1.68	1.10
1994	2.42	2.60	0.64	2.18	2.32	2.32	2.00	0.84	1.73	1.02
1995	2.51	2.71	0.57	2.19	2.29	2.37	1.94	0.85	1.70	0.97
1996	2.55	2.81	0.57	2.19	2.27	2.42	1.86	0.97	1.65	0.99
1997	2.58	2.87	0.64	2.24	2.19	2.48	1.80	1.04	1.66	1.03
1998	2.61	3.00	0.65	2.27	2.14	2.34	1.79	0.95	1.76	1.05
1999	2.66	3.02	0.76	2.40	2.16	2.25	1.86	1.00	1.80	1.02
2000	2.75	3.04	0.90	2.45	2.15	2.39	1.85	1.05	1.91	1.05
2001	2.76	3.12	0.95	2.46	2.20	2.59	1.82	1.18	2.09	1.09
2002	2.66	3.17	1.07	2.49	2.23	2.53	1.82	1.25	2.04	1.13
2003	2.66	3.20	1.13	2.52	2.17	2.63	1.75	1.28	2.04	1.11

Appendix table 4-27

Gross expenditures for R&D and R&D as share of gross domestic product, by selected country: 1981–2007

Year	Unted States	Japan	China	Germany	France	South Korea	United Kingdom	Russian Federation	Canada	Italy
2004	2.59	3.17	1.23	2.49	2.15	2.85	1.69	1.15	2.08	1.10
2005	2.62	3.32	1.33	2.48	2.10	2.98	1.73	1.07	2.05	1.09
2006	2.66	3.40	1.42	2.54	2.10	3.22	1.76	1.07	1.98	1.13
2007	2.68	3.44	1.49	2.54	2.08	3.47	1.79	1.12	1.88	NA

NA = not available

GDP = gross domestic product

NOTES: Conversions of foreign currencies to U.S. dollars calculated with each country's GDP implicit price deflator and Organisation for Economic Co-operation and Development's (OECD) purchasing power parity exchange rates. Data for United States reflect international standards for calculating gross expenditures on R&D, which differ slightly from National Science Foundation protocol. Data for Japan from 1996 onward may not be consistent with earlier data because of changes in methodology. Data for Germany, 1981–90, are for West Germany.

SOURCE: OECD, Main Science and Technology Indicators (2009/1).

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Appendix table 4-28

Nondefense gross expenditures on R&D and nondefense R&D as share of gross domestic product, for selected countries: 1981–2007

Year	United States	Japan	China	Germany	France	South Korea	United Kingdom	Russian Federation	Canada	Italy
					Constant 2000 US$billions					
1981	92	43	NA	29	15	NA	17	NA	6	8
1982	93	45	NA	29	17	NA	NA	NA	7	9
1983	97	49	NA	30	17	NA	16	NA	7	9
1984	106	53	NA	30	18	NA	NA	NA	7	9
1985	114	58	NA	34	19	NA	18	NA	8	11
1986	116	59	NA	35	20	NA	19	NA	8	12
1987	118	63	NA	37	20	NA	20	NA	8	13
1988	123	67	NA	38	21	NA	21	NA	8	14
1989	130	74	NA	39	22	NA	19	NA	9	15
1990	139	80	NA	40	24	NA	20	21	10	15
1991	148	81	NA	43	24	NA	20	NA	10	15
1992	150	81	NA	42	25	NA	20	NA	10	15
1993	147	79	NA	41	26	NA	21	NA	11	14
1994	151	78	NA	40	26	NA	21	NA	12	13
1995	162	89	NA	41	26	14	21	6	12	13
1996	174	88	NA	41	27	NA	21	NA	12	13
1997	185	92	NA	43	27	17	21	NA	12	14
1998	198	94	NA	45	28	14	21	7	13	15
1999	214	94	NA	48	29	16	23	NA	15	14
2000	232	98	NA	51	30	17	24	9	17	15
2001	234	101	NA	52	32	19	25	NA	19	16
2002	225	102	NA	53	32	21	26	11	18	17
2003	227	105	NA	54	32	23	26	NA	NA	16
2004	228	106	NA	53	32	25	25	NA	NA	16
2005	237	114	NA	53	32	28	27	NA	NA	17
2006	248	119	NA	56	33	32	28	NA	NA	NA
2007	260	123	NA	NA	NA	NA	NA	NA	NA	NA
					R&D/GDP (%)					
1981	1.74	2.13	NA	2.30	1.53	0.00	1.90	NA	1.18	0.80
1982	1.80	2.21	NA	2.30	1.61	0.00	0.00	NA	1.32	0.90
1983	1.81	2.34	NA	2.30	1.65	0.00	1.70	NA	1.28	0.90
1984	1.84	2.43	NA	2.30	1.73	0.00	0.00	NA	1.32	0.90
1985	1.89	2.56	NA	2.50	1.77	0.00	1.80	NA	1.36	1.00
1986	1.86	2.53	NA	2.50	1.78	0.00	1.80	NA	1.38	1.10
1987	1.83	2.60	NA	2.60	1.78	0.00	1.80	NA	1.34	1.15
1988	1.84	2.60	NA	2.60	1.77	0.00	1.80	NA	1.31	1.18
1989	1.88	2.71	NA	2.60	1.82	0.00	1.65	NA	1.39	1.20
1990	1.97	2.79	NA	2.50	1.88	0.00	1.68	1.20	1.50	1.24
1991	2.10	2.75	NA	2.37	1.90	0.00	1.69	NA	1.50	1.18
1992	2.07	2.70	NA	2.27	1.94	0.00	1.67	NA	1.60	1.14
1993	1.97	2.62	NA	2.21	2.01	0.00	1.72	NA	1.60	1.09
1994	1.94	2.57	NA	2.11	1.97	0.00	1.69	NA	1.70	1.01
1995	2.04	2.89	NA	2.12	1.98	2.26	1.64	0.60	1.70	0.97
1996	2.10	2.77	NA	2.12	1.99	0.00	1.58	NA	1.60	0.98
1997	2.14	2.84	NA	2.17	1.98	2.37	1.53	NA	1.60	1.02
1998	2.20	2.98	NA	2.21	1.96	2.22	1.52	0.74	1.70	1.05
1999	2.27	2.99	NA	2.34	1.98	2.18	1.58	NA	1.80	1.02
2000	2.38	3.02	NA	2.41	1.97	2.26	1.57	0.80	1.90	1.04
2001	2.38	3.09	NA	2.42	2.03	2.43	1.61	NA	2.10	1.08
2002	2.25	3.14	NA	2.46	2.05	2.42	1.63	0.88	2.00	1.12
2003	2.22	3.17	NA	2.49	1.99	2.55	1.59	NA	NA	1.10

Appendix table 4-28

Nondefense gross expenditures on R&D and nondefense R&D as share of gross domestic product, for selected countries: 1981–2007

Year	United States	Japan	China	Germany	France	South Korea	United Kingdom	Russian Federation	Canada	Italy
2004	2.15	3.13	NA	2.45	1.98	2.75	1.50	NA	NA	1.09
2005	2.17	3.29	NA	2.40	1.92	2.91	1.54	NA	NA	1.09
2006	2.21	3.36	NA	2.50	1.94	3.15	1.60	NA	NA	NA
2007	2.26	3.40	NA	NA	NA	NA	NA	NA	NA	NA

NA = not available

GDP = gross domestic product

NOTES: Conversions of foreign currencies to U.S. dollars calculated with each country's GDP implicit price deflator and with Organisation for Economic Co-operation and Development's (OECD) purchasing power parity exchange rates. Data for United States reflect international standards for calculating gross expenditures on R&D, which differ slightly from National Science Foundation (NSF) protocol. Data for Japan, 1996 onward, may not be consistent with earlier data because of changes in methodology. Data for Germany, 1981–90, are for West Germany. Nondefense R&D/GDP ratios obtained directly from OECD reports, or for following countries and years, estimated by NSF from OECD data: Germany, 1981–90; United Kingdom, 1981, 1983, 1985–88; Canada, 1990 onward; and Italy, 1981–86.

SOURCES: OECD, Main Science and Technology Indicators (2009/1).

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Appendix table 4-29

Gross expenditures on R&D, by performing sector and funding source, for selected countries: Most recent year

(Millions of 2000 constant PPP dollars)

	Source of R&D funds						
Country/R&D performer	All sources	Business	Government	Higher education	Private nonprofit	Abroad	Performers (% distribution)
United States (2007)	307,780	204,486	85,339	8,234	9,721	NA	100.0
Business	221,316	200,911	20,405	0	0	NA	71.9
Government	32,837	0	32,837	0	0	NA	10.7
Higher education	40,820	2,336	27,285	8,234	2,966	NA	13.3
Private nonprofit	12,807	1,239	4,813	0	6,755	NA	4.2
Sources (% distribution)	100.0	66.4	27.7	2.7	3.2	NA	na
Japan (2006)	120,368	92,767	19,481	6,874	821	425	100.0
Business	92,871	91,472	941	8	80	368	77.2
Government	9,968	67	9,824	13	29	35	8.3
Higher education	15,280	449	7,829	6,850	146	6	12.7
Private nonprofit	2,250	779	887	3	565	15	1.9
Sources (% distribution)	100.0	77.1	16.2	5.7	0.7	0.4	na
China (2006)	70,636	47,326	18,577	NA	NA	636	100.0
Business	50,222	NA	NA	NA	NA	NA	71.1
Government	13,915	NA	NA	NA	NA	NA	19.7
Higher education	6,499	NA	NA	NA	NA	NA	9.2
Private nonprofit	2,967	NA	NA	NA	NA	NA	4.2
Sources (% distribution)	100.0	67.0	26.3	NA	NA	0.9	na
Germany (2006)	57,309	39,009	15,907	0	205	2,187	100.0
Business	40,055	36,857	1,805	0	68	1,325	69.9
Government	7,939	830	6,502	0	137	471	13.9
Higher education	9,314	1,322	7,600	0	0	392	16.3
Private nonprofit	0	0	0	0	0	0	0.0
Sources (% distribution)	100.0	68.1	27.8	0.0	0.4	3.8	na
France (2006)	35,678	18,708	13,709	477	302	2,482	100.0
Business	22,507	18,053	2,509	2	7	1,936	63.1
Government	5,886	476	5,066	21	15	308	16.5
Higher education	6,850	119	6,052	445	39	194	19.2
Private nonprofit	434	60	81	9	241	44	1.2
Sources (% distribution)	100.0	52.4	38.4	1.3	0.8	7.0	na
South Korea (2006)	32,738	24,699	7,553	272	114	99	100.0
Business	25,293	23,987	1,200	10	11	85	77.3
Government	3,784	172	3,591	6	10	6	11.6
Higher education	3,259	447	2,513	257	34	8	10.0
Private nonprofit	402	93	249	*	60	*	1.2
Sources (% distribution)	100.0	75.4	23.1	0.8	0.3	0.3	na
United Kingdom (2006)	31,139	14,074	9,924	391	1,444	5,306	100.0
Business	19,199	13,330	1,452	0	3	4,414	61.7
Government	3,112	278	2,590	30	86	128	10.0
Higher education	8,135	389	5,612	350	1,108	675	26.1
Private nonprofit	695	77	270	11	247	90	2.2
Sources (% distribution)	100.0	45.2	31.9	1.3	4.6	17.0	na

Appendix table 4-29

Gross expenditures on R&D, by performing sector and funding source, for selected countries: Most recent year

(Millions of 2000 constant PPP dollars)

	Source of R&D funds						
Country/R&D performer	All sources	Business	Government	Higher education	Private nonprofit	Abroad	Performers (% distribution)
Russian Federation (2007)	21,147	6,227	13,242	130	22	1,527	100.0
Business	13,585	4,978	7,509	35	9	1,053	64.2
Government	6,154	818	4,895	5	1	435	29.1
Higher education	1,338	414	794	90	4	36	6.3
Private nonprofit	71	17	44	*	8	2	0.3
Sources (% distribution)	100.0	29.4	62.6	0.6	0.1	7.2	na
Canada (2007)	19,759	9,435	6,484	1,477	579	1,785	100.0
Business	10,753	8,777	291	0	0	1,685	54.4
Government	1,815	50	1,764	0	0	1	9.2
Higher education	7,112	601	4,394	1,477	554	87	36.0
Private nonprofit	79	8	35	0	25	12	0.4
Sources (% distribution)	100.0	47.8	32.8	7.5	2.9	9.0	na
Italy (2006)	17,603	7,116	8,506	10	519	1,453	100.0
Business	8,587	6,886	694	3	6	998	48.8
Government	3,030	123	2,628	4	59	215	17.2
Higher education	5,327	65	5,003	0	55	204	30.3
Private nonprofit	659	41	180	2	400	36	3.7
Sources (% distribution)	100.0	40.4	48.3	0.1	2.9	8.3	na

na = not applicable; NA = not available; * = <$0.5 million

PPP = purchasing power parity

NOTES: Top 10 R&D-performing countries. Conversions of foreign currencies to U.S. dollars calculated with each country's gross domestic product implicit price deflator and with Organisation for Economic Co-operation and Development's (OECD) PPP exchange rates. U.S. data reflect OECD methodology for calculating gross expenditures on R&D. Percents may not add to 100% because of rounding.

SOURCE: OECD, special tabulations, February 2009.

Science and Engineering Indicators 2010

Appendix table 4-30

Government budget appropriations or outlays, by selected country and socioeconomic objective: Most recent year

Socioeconomic objective	United States (2008)	Japan (2008)	Germany (2008)	France (2008)	South Korea (2006)	United Kindgom (2005)	Russia (2007)	Canada (2006)
	2000 constant US PPP $millions							
All objectives	116,663	25,352	18,542	13,101	8,654	12,922	7,562	5,848
Defense	66,058	1,307	1,111	3,635	1,371	3,657	NA	234
Nondefense	50,605	24,045	17,539	9,272	6,968	8,528	2,454	5,395
Health	25,854	1,037	840	916	591	1,819	193	968
Environment	596	235	602	348	400	228	12	255
Agriculture	1,947	934	523	241	674	395	86	463
Exploration and exploitation of Earth	833	467	318	116	191	345	NA	110
Industrial production and technology	427	1,861	2,267	1,103	2,474	136	760	722
Transport, telecommunication and other infrastructures	1,161	1,042	314	124	136	102	108	153
Energy	2,015	3,485	679	765	493	30	141	301
Exploration and exploitation of space	9,565	1,784	892	1,153	400	278	1,017	240
General advancement of knowledge: R&D financed from GUF[a]	na	8,613	7,236	3,587	na	2,796	na	1,652
General advancement of knowledge: R&D financed from other sources than GUF	7,163	4,361	3,165	589	1,607	2,399	NA	530
Education	405	60	175	NA	NA	NA	112	NA
Culture, recreation, religion and mass media	16	82	202	NA	NA	NA	18	NA
Political and social systems, structures and processes	622	84	324	331	NA	NA	8	NA
	Percent							
Share of all objectives								
Defense	56.6	5.2	6.0	27.7	15.8	28.3	NA	4.0
Nondefense	43.4	94.8	94.6	70.8	80.5	66.0	32.5	92.3
Health	51.1	4.3	4.8	9.9	8.5	21.3	7.9	17.9
Environment	1.2	1.0	3.4	3.8	5.7	2.7	0.5	4.7
Agriculture	3.8	3.9	3.0	2.6	9.7	4.6	3.5	8.6
Exploration and exploitation of Earth	1.6	1.9	1.8	1.3	2.7	4.1	NA	2.0
Industrial production and technology	0.8	7.7	12.9	11.9	35.5	1.6	31.0	13.4
Transport, telecommunication and other infrastructures	2.3	4.3	1.8	1.3	2.0	1.2	4.4	2.8
Energy	4.0	14.5	3.9	8.3	7.1	0.3	5.8	5.6
Exploration and exploitation of space	18.9	7.4	5.1	12.4	5.7	3.3	41.4	4.5
General advancement of knowledge: R&D financed from GUF[a]	na	35.8	41.3	38.7	na	32.8	na	30.6
General advancement of knowledge: R&D financed from other sources than GUF	14.2	18.1	18.0	6.3	23.1	28.1	NA	9.8
Education	0.8	0.3	1.0	NA	NA	NA	4.6	NA
Culture, recreation, religion and mass media	0.0	0.3	1.2	NA	NA	NA	0.7	NA
Political and social systems, structures and processes	1.2	0.3	1.8	3.6	NA	NA	0.3	NA

na = not applicable; NA = not available

GUF = general university funds; PPP = purchasing power parity

[a] United States, Russian Federation, and South Korea do not have a category equivalent to GUF.

NOTES: U.S. data based on budget authority. Socioeconomic objective categories are new NABS 2007 classifications (Nomenclature for the Analysis and Comparison of Scientific Budgets and Programmes). Conversions of foreign currencies to U.S. dollars based on PPP 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: Organisation for Econommic Co-operation and Development, special tabulations (2009); and Main Science and Technology Indicators (2008/2).

Science and Engineering Indicators 2010

Appendix table 4-31

Share of business expenditures for R&D, by industry and selected country/economy: 2005–07

(Percent)

Industry	ISIC	Australia (2006)	Belgium (2006)	Canada (2006)	Czech Republic (2007)	Denmark (2006)	Finland (2007)	France (2006)	Germany (2006)	Ireland (2005)	Italy (2007)	Japan (2006)	South Korea (2006)	Netherlands (2006)
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
Manfacturing	15–37	33.4	76.8	60.3	61.0	65.1	83.8	86.4	90.0	66.9	70.7	89.9	90.1	74.7
Food products, beverages, and tobacco	15–16	3.2	3.2	1.0	0.6	3.7	1.5	2.1	0.7	4.6	1.2	2.5	1.4	3.6
Textiles, textile products, leather, and footwear	17–19	0.2	1.2	0.5	0.9	0.1	0.2	0.7	0.5	0.2	1.1	0.4	0.4	0.3
Wood, paper, printing, and publishing	20–22	2.7	0.6	8.2	0.1	0.9	2.7	0.3	0.4	0.8	0.5	0.8	0.2	0.8
Chemical, rubber, plastics, and fuel products	23–25	5.8	39.1	11.0	7.2	34.3	9.5	23.4	19.1	23.3	12.2	18.1	9.9	25.5
Coke, refined petrolelum products, and nuclear fuel	23	0.8	0.7	1.0	0.0	0.0	0.9	0.9	0.2	0.0	0.0	0.4	0.7	0.1
Chemicals and chemical products	24	4.4	36.0	9.7	5.3	32.6	6.9	19.2	17.2	22.7	10.0	15.3	7.6	24.6
Chemicals excluding pharmaceuticals	24 (minus 2423)	2.0	11.7	1.0	2.0	3.9	2.3	5.4	8.3	2.5	4.4	6.5	5.5	14.6
Pharmaceuticals	2423	2.4	24.3	8.7	3.3	28.8	4.6	13.8	8.9	20.2	5.7	8.8	2.2	10.1
Rubber and plastics products	25	0.6	2.4	0.3	1.8	1.6	1.7	3.3	1.7	0.6	2.1	2.3	1.5	0.8
Other nonmetallic mineral products	26	0.8	1.3	0.4	1.3	0.2	0.5	1.2	0.6	1.8	0.7	1.1	0.6	0.4
Basic metals	27	4.1	3.3	1.6	1.2	0.2	0.9	1.2	1.0	0.2	0.5	2.4	1.5	1.3
Fabricated metal products (excluding machinery and equipment)	28	1.1	1.6	1.2	1.1	0.6	2.1	0.9	1.2	0.9	0.9	0.8	0.6	0.9
Machinery and equipment, instruments, and transportation equipment	29–35	15.3	25.9	35.0	48.3	25.0	65.6	55.6	66.1	34.4	52.9	63.0	75.2	41.5
Machinery and equipment nec	29	2.0	5.5	3.4	8.6	8.6	6.7	4.9	10.3	3.6	10.9	8.4	5.0	10.7
Computers, office and accounting machines	30	0.4	0.5	2.4	0.1	0.4	0.1	0.7	1.3	5.8	0.5	13.1	1.5	2.0
Electrical machinery and apparatus nec	31	0.4	2.8	0.8	3.2	4.8	4.7	4.1	3.0	2.5	2.4	8.3	2.2	1.3
Communication, TV, and radio equipment	32	1.8	9.8	16.6	3.5	4.1	50.5	10.9	8.5	12.6	10.6	11.4	47.9	21.8
Instruments, watches, and clocks	33	3.5	2.9	1.5	5.0	6.7	2.4	6.3	7.2	9.3	4.8	4.3	1.3	2.8
Motor vehicles	34	5.3	2.5	3.9	23.2	0.2	0.3	17.6	30.1	0.3	11.5	16.7	15.1	1.9
Other transportation equipment	35	1.9	1.9	6.4	4.7	0.2	0.9	11.1	5.6	0.2	12.2	0.8	2.0	1.0
Building and repairing ships and boats	351	0.4	0.1	NA	0.0	NA	0.2	0.4	0.1	0.0	0.2	0.1	1.1	0.2
Aircraft and spacecraft	353	1.0	1.7	6.1	3.2	NA	0.4	10.1	5.0	0.2	10.8	0.4	0.8	0.7
Railroad and other transportation equipment nec	352+359	0.5	0.1	NA	1.5	NA	0.4	0.6	0.5	0.0	1.2	0.3	0.2	0.1
Furniture, manufacturing nec	36	0.2	0.5	1.4	0.3	0.3	0.8	0.9	0.4	0.6	0.7	1.0	0.2	0.4
Recycling	37	0.0	0.1	NA	0.0	NA	0.1	0.0	0.0	0.0	0.0	NA	0.0	0.0
Electricity, gas, and water	40–41	0.7	0.3	1.3	0.2	0.1	0.7	1.6	0.2	0.0	1.1	0.5	1.0	0.5
Construction	45	3.4	1.0	0.3	1.0	0.1	1.1	0.4	0.1	0.0	0.2	0.9	1.8	0.5
Services	50–99	40.5	16.2	35.8	36.6	33.5	14.0	9.5	9.4	32.9	26.3	8.5	7.1	21.9
Wholesale and retail trade, repairs	50–52	7.4	1.6	5.3	2.2	2.4	0.1	NA	0.2	0.1	3.2	0.2	0.2	4.8
Hotels and restaurants	55	NA	0.1	NA	0.0	NA	NA	NA	0.0	0.0	0.0	NA	0.0	NA
Transport and storage	60–63	NA	3.8	5.7	1.4	1.8	4.4	3.4	0.7	1.1	3.0	0.2	1.4	1.6
Post and telecommunications	64	5.2	2.8	NA	1.4	1.2	NA	3.2	NA	1.0	2.4	NA	1.0	1.1
Financial intermediation	65–67	8.3	0.7	2.8	5.1	3.7	NA	NA	0.5	1.5	2.8	0.0	0.0	1.0
Real estate, renting, and business activities	70–74	16.9	9.4	19.4	26.1	25.5	NA	6.0	8.1	30.1	16.8	8.1	5.3	14.3
Computer and related activities	72	6.5	5.1	7.3	8.3	20.3	6.9	4.6	4.0	29.6	4.7	2.0	3.5	5.8
Software consultancy and supply	722	6.3	2.8	7.1	6.2	19.6	NA	4.1	3.8	26.7	4.4	NA	3.1	5.0
Other computer and related activities nec	72 (minus 722)	0.2	2.3	0.2	2.1	0.7	NA	0.4	0.1	2.9	0.2	NA	0.4	0.8
R&D	73	4.6	0.0	7.7	13.8	0.0	NA	0.1	2.7	0.0	9.0	5.8	0.3	4.8
Other business activities	74	5.6	4.3	4.2	3.9	5.3	1.5	1.3	1.4	0.4	3.1	0.4	1.4	3.7
Community, social, and personal services	75–99	NA	0.6	2.6	1.8	0.1	1.2	0.1	0.0	0.2	0.5	NA	0.2	0.2
All other industries	NA	22.0	5.7	2.3	1.2	1.2	0.4	2.1	0.3	0.2	1.7	0.2	0.0	2.4

Appendix table 4-31

Share of business expenditures for R&D, by industry and selected country/economy: 2005–07

(Percent)

Industry	ISIC	Norway (2007)	Poland (2006)	Spain (2006)	Sweden (2007)	United Kingdom (2006)	United States (2007)	Chile (2004)	China (2000)	Israel (2006)	Russian Federation (2007)	Singapore (2006)	South Africa (2005)	Taiwan (2006)
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
Manfacturing	15–37	44.8	58.4	61.0	83.0	75.5	69.6	25.3	84.6	37.6	19.7	67.2	39.4	92.0
Food products, beverages, and tobacco	15–16	4.0	2.4	3.2	0.6	2.2	1.1	7.4	3.1	0.1	0.0	0.4	2.3	0.8
Textiles, textile products, leather, and footwear	17–19	0.3	1.1	1.9	0.3	0.1	0.3	1.1	2.5	0.7	0.0	0.0	0.2	1.7
Wood, paper, printing, and publishing	20–22	1.8	0.8	1.1	1.8	0.4	1.0	1.9	1.4	0.0	0.0	0.0	1.7	0.2
Chemical, rubber, plastics, and fuel products	23–25	7.6	17.4	17.5	14.9	35.0	22.0	4.8	16.9	5.3	1.0	9.9	15.6	6.1
Coke, refined petrolelum products, and nuclear fuel	23	0.0	1.9	0.9	0.2	2.1	0.6	0.1	2.2	0.0	0.1	0.0	NA	0.6
Chemicals and chemical products	24	7.2	14.0	14.9	14.0	32.3	20.5	3.7	12.7	4.7	0.8	9.7	NA	4.4
Chemicals excluding pharmaceuticals	24 (minus 2423)	4.7	3.8	4.1	1.5	4.7	2.9	NA	8.3	NA	0.7	2.0	NA	3.3
Pharmaceuticals	2423	2.5	10.2	10.8	12.5	27.6	17.7	NA	4.4	NA	0.1	7.7	NA	1.1
Rubber and plastics products	25	0.4	1.5	1.6	0.7	0.6	0.8	0.9	2.0	0.6	0.1	0.1	NA	1.1
Other nonmetallic mineral products	26	0.5	0.8	1.9	0.3	0.3	0.4	0.6	2.4	0.2	0.0	0.1	1.1	0.3
Basic metals	27	2.3	1.1	1.5	1.8	0.3	0.3	4.4	6.9	0.8	0.4	0.1	2.0	1.1
Fabricated metal products (excluding machinery and equipment)	28	1.1	0.9	2.2	1.1	0.5	0.6	2.6	1.6	NA	0.1	5.8	NA	0.5
Machinery and equipment, instruments, and transportation equipment	29–35	26.5	32.9	30.7	61.2	36.5	36.1	2.0	49.2	30.4	18.2	50.8	15.9	80.5
Machinery and equipment nec	29	9.5	7.2	5.9	9.0	5.6	0.3	1.7	10.0	3.1	2.5	3.3	4.3	3.4
Computers, office and accounting machines	30	0.0	0.3	0.9	1.0	0.2	2.6	0.0	3.0	NA	0.2	0.0	NA	15.0
Electrical machinery and apparatus nec	31	3.1	5.2	3.4	2.0	3.0	1.0	0.2	7.8	0.6	0.7	1.0	1.8	2.6
Communication, TV, and radio equipment	32	4.2	2.3	2.4	21.6	5.3	11.3	0.0	17.1	15.6	4.9	41.0	3.1	52.1
Instruments, watches, and clocks	33	5.4	1.6	1.8	5.4	3.1	7.6	0.0	2.2	11.2	1.1	2.2	1.6	2.8
Motor vehicles	34	1.6	8.7	7.8	18.5	5.3	6.0	0.0	5.0	NA	0.7	2.1	5.1	3.0
Other transportation equipment	35	2.7	7.6	8.4	3.7	13.9	7.4	0.1	4.1	NA	8.1	1.1	NA	1.7
Building and repairing ships and boats	351	2.4	0.7	0.9	0.1	0.9	NA	NA	0.8	NA	2.0	0.3	NA	0.0
Aircraft and spacecraft	353	0.2	4.7	6.6	3.2	12.8	6.8	NA	2.3	NA	5.7	0.6	NA	0.0
Railroad and other transportation equipment nec	352+359	0.0	2.2	0.9	0.4	0.2	NA	NA	1.0	NA	0.5	0.1	NA	1.7
Furniture, manufacturing nec	36	0.6	0.8	0.8	1.0	0.2	0.2	0.5	0.6	NA	0.0	0.1	0.6	0.8
Recycling	37	0.1	0.1	0.1	NA	0.0	NA	0.0	NA	NA	0.0	0.0	0.0	0.0
Electricity, gas, and water	40–41	1.8	2.4	0.9	0.8	0.1	0.6	0.5	2.3	0.4	0.5	0.0	12.9	0.4
Construction	45	1.2	2.3	3.0	0.2	0.3	0.1	1.7	1.1	0.0	0.1	0.0	0.1	0.1
Services	50–99	40.0	29.7	33.2	15.3	23.2	29.6	43.5	6.6	62.0	72.0	32.7	36.4	7.5
Wholesale and retail trade, repairs	50–52	3.6	1.2	3.0	0.1	0.4	1.8	0.6	0.2	NA	0.0	7.6	4.5	0.2
Hotels and restaurants	55	0.0	0.0	0.2	0.0	NA	NA	0.0	NA	NA	0.0	0.0	NA	0.0
Transport and storage	60–63	3.6	4.5	9.7	3.2	7.9	0.1	15.5	2.1	NA	0.2	0.5	5.3	1.6
Post and telecommunications	64	3.1	3.0	8.7	2.9	7.7	1.2	NA	1.6	NA	0.2	0.3	NA	1.5
Financial intermediation	65–67	4.8	0.9	2.1	0.9	3.6	0.8	8.5	NA	NA	0.0	2.9	23.0	0.6

Appendix table 4-31

Share of business expenditures for R&D, by industry and selected country/economy: 2005–07

(Percent)

Industry	ISIC	Norway (2007)	Poland (2006)	Spain (2006)	Sweden (2007)	United Kingdom (2006)	United States (2007)	Chile (2004)	China (2000)	Israel (2006)	Russian Federation (2007)	Singapore (2006)	South Africa (2005)	Taiwan (2006)
Real estate, renting, and business activities	70–74	28.0	20.0	15.1	8.9	10.9	NA	15.0	4.1	61.9	70.0	20.8	NA	3.9
Computer and related activities	72	15.7	6.1	6.9	4.9	9.5	12.6	NA	3.2	25.5	0.4	3.8	NA	3.1
Software consultancy and supply	722	14.1	5.8	6.4	3.1	NA	7.3	NA	2.7	NA	0.3	0.5	NA	NA
Other computer and related activities nec	72 (minus 722)	1.6	0.3	0.5	1.9	NA	1.8	NA	0.5	NA	0.1	3.2	NA	NA
R&D	73	4.1	13.5	1.1	3.2	1.0	6.3	NA	0.3	36.4	67.7	12.4	NA	0.4
Other business activities	74	8.3	0.5	6.6	0.7	0.4	3.4	NA	0.6	NA	1.9	4.6	NA	0.4
Community, social, and personal services	75–99	0.0	3.1	3.0	2.1	0.4	NA	3.9	0.2	NA	1.7	0.8	3.6	1.1
All other industries	NA	12.2	7.2	1.9	0.7	0.9	0.1	29.0	5.4	0.0	7.7	0.1	11.2	0.0

NA = not available; nec = not elsewhere classified

ISIC = International Standard Industrial Classification

NOTES: Data are for years in parentheses. Because Organisation for Economic Co-operation and Development (OECD) and National Science Foundation (NSF) analysts adjust country data to achieve internationally comparable estimates, these data may differ from individual countries' survey estimates. Detail may not add to total because of rounding.

SOURCES: OECD, ANBERD database, http://www.oecd.org/document/17/0,3343,en_2649_34445_1822033_1_1_1_1,00.html, accessed 15 June 2009; and NSF Survey of Industrial Research and Development (2007).

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Appendix table 4-32

R&D expenditures by majority-owned affiliates of foreign companies in United States, by country/region of ultimate beneficial owner: 1997–2006

(Millions of current U.S. dollars)

R&D expenditure	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All countries	17,216	22,375	24,027	26,180	26,463	27,507	29,803	30,083	31,099	34,257
Canada	1,668	2,352	2,385	3,693	2,136	1,599	1,380	1,459	1,553	1,586
Europe	12,327	16,425	18,055	18,634	19,973	20,532	22,518	22,825	23,389	25,803
Austria	6	9	13	11	16	15	16	9	7	8
Belgium	D	D	175	167	108	87	117	137	136	285
Denmark	97	127	D	D	D	114	100	160	319	392
Finland	D	D	166	157	601	544	D	D	D	D
France	1,783	1,881	2,434	2,596	2,662	2,860	3,777	3,800	3,099	3,335
Germany	2,923	5,381	6,135	5,603	5,686	5,863	5,976	5,916	6,519	6,742
Ireland	D	56	D	D	D	369	D	266	247	209
Italy	D	D	294	D	D	261	225	230	262	350
Luxembourg	*	1	10	19	35	D	D	12	6	8
Netherlands	990	964	1,296	1,421	1,660	1,696	1,612	1,319	1,470	1,562
Norway	D	18	61	45	70	53	44	D	68	15
Spain	D	D	D	D	26	D	44	D	D	D
Sweden	687	713	428	373	465	270	261	270	272	303
Switzerland	2,369	3,076	3,008	2,922	3,107	2,920	3,791	4,185	4,289	5,039
United Kingdom	2,984	3,720	3,678	4,632	4,819	5,427	5,723	5,807	5,994	6,801
Other	*	1	1	3	3	5	6	6	D	32
Latin America/OWH	373	396	564	735	1,126	1,066	D	D	D	D
South and Central America	D	D	92	D	112	D	D	D	D	D
Brazil	*	*	*	*	*	0	0	0	0	* e
Mexico	D	55	D	D	D	45	14 e	17 e	18 e	18 e
Panama	D	D	D	53	D	D	D	D	D	D
Venezuela	3	0	0	0	0	0	0	*	*	0
Other	*	*	*	*	*	2	*	3	3	3
Other OWH	D	D	472	D	1,014	D	1,180	1,069	1,121	1,273
Bahamas	0	0	0	0	0	*	* e	* e	* e	* e
Bermuda	D	D	D	D	D	D	853	873	909	959
Netherlands Antilles	D	D	D	D	D	D	D	D	D	D
Islands	1	1	1	D	D	D	D	D	D	D
Other	0	0	0	0	0	*	* e	D	D	D
Africa	D	D	D	D	36	33	31	36	35	35
South Africa	D	D	D	D	36	33	31	36	35	35
Other	0	0	0	0	0	0	0	0	0	0
Middle East	103	132	D	D	177	175	D	D	D	D
Israel	95	117	D	102	99	89	106	123	135	193
Kuwait	*	0	3	0	0	0	0	0	0	0
Lebanon	*	*	*	*	*	*	*	*	*	*
Saudi Arabia	1	7	9	10	11	D	D	D	D	D
United Arab Emirates	*	0	0	0	0	0	0	0	0	0
Other	7	8	7	D	66	D	71 e	41	42	29
Asia/Pacific	2,642	2,961	2,820	2,864	2,946	3,413	3,763	3,763	4,067	4,589
Australia	D	D	32	34	33	36	43 e	42	90	127
China	D	9	D	D	D	18	5	14	D	9 e
Hong Kong	4	1	1	*	D	D	D	D	62	75
India	5	5	*	0	0	0	* e	0	0	0
Japan	2,036	2,584	2,535	2,644	2,719	3,159	3,470	3,414	3,576	3,995
Malaysia	10	9	9	9	10	D	D	D	D	D
New Zealand	D	1	2	2	3	1	1	0	0	0
Singapore	D	16	13	9	1	D	18	20 e	25	42 e
South Korea	D	D	D	D	D	D	D	D	D	D
Taiwan	78	73	68	47	43	83	102 e	102 e	122	111 e

Appendix table 4-32

R&D expenditures by majority-owned affiliates of foreign companies in United States, by country/region of ultimate beneficial owner: 1997–2006

(Millions of current U.S. dollars)

R&D expenditure	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Other	*	*	0	0	0	0	1	1	*	D
United States	D	D	55	62	69	689	D	D	692	683 e
Addenda										
European Union	9,902	13,326	14,980	15,659	16,787	17,554	18,676	18,570	18,991	20,717
OPEC	10	16	19	17	18	18	D	D	D	D

* = ≤$500,000; D = suppressed to avoid disclosure of confidential informtion; e = >50% of value for data cell estimated to account for data not reported by respondents

OPEC = Organization of the Petroleum Exporting Countries; OWH = other Western Hemisphere

NOTES: Preliminary estimates for 2006. 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. 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 8 May 2009.

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Appendix table 4-33

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 1997–2006

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All industries	na	17,216	22,375	24,027	26,180	26,463	27,507	29,803	30,083	31,099	34,257
Manufacturing	31–33	14,270	18,788	19,991	20,990	20,054	20,128	20,988	20,587	21,506	25,035
Food	311	239	224	205	200	197	368	166	440	498	466
Beverages and tobacco products	312	D	52	37	36	35	80	D	61	43	50
Textiles, apparel, and leather products	313	D	41	43	33	35	D	30	27	37	38 e
Paper	322	104	102	98	98	81	75	67	64	64	52
Printing and related support activities	323	34	42	76	54	43	39	50	2 e	2	3 e
Petroleum and coal products	324	272	479	D	D	D	D	D	D	D	D
Chemicals	325	6,754	7,770	7,679	7,341	7,563	7,610	9,957	9,922	9,888	12,750
Basic chemicals	3251	617	623	832	D	D	608	589	655	513	603
Resins and synthetic rubber, fibers, and filaments	3252	D	287	D	149	272	331	311	131	78	66
Pharmaceuticals and medicines	3254	5,304	6,381	6,191	5,943	6,124	6,373	8,505	8,678	8,710	11,513
Soap, cleaning compounds, and toilet preparations	3256	D	D	D	D	D	74	304	96	99	108
Other	na	260	D	204	238	219	224	248	361	489	460
Plastics and rubber products	326	331	349	372	301	305	275	423	374	342	371
Nonmetallic mineral products	327	214	146	172	199	206	204	198	207	219	216
Primary and fabricated metals	na	263	246	210	280	232	254	194	247	270	262
Primary metals	331	60	65	61	67	D	46	28	80	90	57
Fabricated metal products	332	203	181	149	213	D	208	165	167	181	205
Machinery	333	721	677	898	1,748	D	1,681	1,572	1,638	1,552	789
Agriculture, construction, and mining machinery	3331	103	69	290	237	201	387	361	258	243	326
Industrial machinery	3332	83	90	D	119	D	192	223 e	322	114	128
Other	na	535	518	D	1,392	1,408	1,103	988	1,058	1,195	336
Computers and electronic products	334	3,413	4,487	5,031	6,152	4,867	4,985	3,340	2,690	2,847	3,072
Computers and peripheral equipment	3341	120	324	D	D	104	D	145	159 e	D	D
Communications equipment	3342	2,243	3,045	3,431	4,607	2,998	2,055	1,403	630	570	602
Semiconductors and other electronic components	3344	586	635	917	1,003	1,077	D	444	495	547	407
Navigational, measuring, and other instruments	3345	D	D	D	366	675	1,734	1,278	1,307 e	1,453	1,759
Other	na	NA	NA	NA	NA	NA	42	70	99 e	D	D
Electrical equipment, appliances, and components	335	781	885	1,195	823	875	380	336	D	D	1,329
Transportation equipment	336	641	2,762	3,204	3,344	3,193	3,302	3,669	3,707	4,244	4,198
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	500	2,555	D	3,082	2,910	3,041	3,386	3,279	3,663	3,539
Other	na	141	207	D	262	283	261	283	428	581	659
Other	na	NA	NA	NA	NA	NA	708	681	798	855	D
Wholesale trade	42	D	D	D	D	D	4,855	6,030	6,674	6,529	5,935
Motor vehicles and motor vehicle parts and supplies	4231	325	315	237	283	D	337	466	533	347	381
Electrical goods	4236	328	476	368	533	1,148	1,079	1,554	2,191	2,128	2,220
Petroleum and petroleum products	4247	D	D	D	D	D	D	D	D	D	D
Other	na	NA	NA	NA	NA	NA	D	D	D	D	D
Retail trade	44-45	3	D	D	D	D	D	D	D	D	16
Food and beverage stores	445	*	*	0	0	0	*	* e	0	*	0
Other	na	3	D	D	D	D	D	D	D	D	16

Appendix table 4-33

R&D performed by majority-owned affiliates of foreign companies in United States, by NAICS industry of affiliate: 1997–2006

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Information	51	260	329	548	790	D	803	852	986	1,009	967
Publishing industries	511	D	D	D	D	D	763	632	692	645	616
Motion picture and sound recording industries	512	5	1	*	*	*	3	1	* e	* e	* e
Telecommunications[a]	517	7	6	D	D	13	11	9	D	D	D
Other	na	NA	NA	NA	NA	NA	26	210	D	D	D
Finance (except depository institutions) and insurance	52	12	D	D	D	D	D	13 e	9 e	6 e	8 e
Finance, except depository institutions	na	12	D	D	D	D	D	12 e	9 e	6 e	8 e
Insurance carriers and related activities	524	0	2	4	1	1	6	1	0	*	* e
Real estate and rental and leasing	53	1	12	D	D	D	9	9	6	11	D
Real estate	531	*	8	*	*	*	1	* e	* e	* e	* e
Rental and leasing (except real estate)	532	1	4	D	D	D	8	8	6	11	D
Professional, scientific, and technical services	54	597	685	836	828	804	1,119	1,379	1,436	1,590	1,879
Architectural, engineering, and related services	5413	12	13	36	18	13	86	75	80	166	204 e
Computer systems design and related services	5415	281	333	315	314	204	171	278	219	153	220 e
Management, scientific, and technical consulting	5416	*	*	0	0	D	3	3 e	0	*	* e
Other	na	303	339	485	495	D	859	1,023	1,137	1,271	1,455
Other industries	na	D	506	453	407	426	D	D	D	D	D
Agriculture, forestry, fishing, and hunting	11	71	75	89	90	91	82	82	41	62	41
Mining	21	D	254	221	213	D	D	333	199	208	246
Utilities	22	11	18	D	D	D	3	5	0	0	*
Construction	23	9	D	49	D	D	D	7	6	5 e	7
Transportation and warehousing	48–49	D	18	19	7	6	3	0	D	D	D
Management of nonbank companies and enterprises	55	D	D	D	D	D	*	* e	1	1	1
Administration, support, and waste management	56	0	1	*	D	30	3	4	*	*	* e
Health care and social assistance	62	D	D	D	D	D	D	D	33	51	21
Accommodation and food services	72	*	*	*	*	*	*	0	*	0	0
Miscellaneous services	na	*	3	7	D	D	D	*	D	D	D

na = not applicable; NA = not available; * = ≤$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

NAICS = North American Industry Classification System

[a]Data for 1997–2001 not fully comparable with later data. NAICS code for telecommunications was 5133 for 1997–2001 data. The 2002 NAICS code 517 for this industry adds "cable and other program distribution" (formerly 513220). See http://www.census.gov/eos/www/naics/.

NOTES: Data are preliminary estimates for 2006. Data for R&D performance of majority-owned (>50%) nonbank U.S. affiliates of foreign parent companies. From 1997 to 2001, data based on 1997 NAICs; 2002 forward based on 2002 NAICs. 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. 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 8 May 2009.

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Appendix table 4-34

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by country/economy/region: 1997–2006

(Millions of current U.S. dollars)

Country/economy/region	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
All countries	14,593	14,664	18,144	20,457	19,702	21,063	22,793	25,840	27,653	28,484
Canada	1,823	1,750	1,681	2,332	2,131	2,274	2,444	2,729	2,433	2,503
Europe	10,003	10,387	12,217	12,870	12,060	13,453	14,890	16,874	18,805	18,628
Austria	77	85	82	D	62	52	34	131	191	208
Belgium	310	320	375	412	407	502	463	373	920	948
Czech Republic	NA	NA	6	18	3	11	18	19	65	77
Denmark	D	D	57	65	D	D	60	147	140	145
Finland	51	61	59	78	77	72	102	118	187	112
France	1,281	1,328	1,452	1,465	1,411	1,690	1,777	1,821	2,248	1,447
Germany	2,940	3,022	3,377	3,115	3,280	3,598	3,907	4,184	4,609	4,919
Greece	7	7	6	11	12	15	16	8	29	37
Hungary	NA	NA	13	35	17	19	15	38	31	37
Ireland	320	363	251	465	537	D	583	815	820	848
Italy	569	584	504	592	541	548	625	707	580	689
Luxembourg	D	D	D	D	D	D	91	D	D	268
Netherlands	480	384	374	369	475	419	513	442	392	486
Norway	23	18	26	19	38	35	21	32	100	42
Poland	NA	NA	34	22	13	29	37	D	54	80
Portugal	30	34	14	20	19	29	21	9	16	24
Russia	NA	NA	1	1	*	2	1	17	28	82
Spain	181	184	D	213	181	209	290	344	257	256
Sweden	405	445	1,036	1,341	813	1,317	1,398	1,451	1,652	1,536
Switzerland	230	223	231	286	392	392	523	760	878	933
Turkey	6	6	6	9	11	13	17	15	27	35
United Kingdom	2,843	3,065	4,000	4,111	3,642	3,856	4,368	5,361	5,406	5,378
Other	NA	NA	1	7	7	9	8	16	D	41
Latin America/OWH	663	748	613	663	562	785	680	726	841	865
South America	523	547	366	335	288	389	370	405	453	632
Argentina	43	56	26	38	43	24	22	25	21	30
Brazil	437	446	288	253	199	305	316	350	405	571
Chile	7	6	4	11	8	6	9	11	7	8
Colombia	12	11	6	10	11	10	7	5	6	7
Ecuador	1	1	*	*	*	*	*	*	1	*
Peru	11	11	2	2	2	2	2	2	4	3
Venezuela	11	14	40	22	24	42	12	12	7	12
Other	1	2	*	*	2	1	1	1	1	0
Central America	131	198	240	321	252	287	D	320	D	D
Costa Rica	4	6	2	D	4	7	6	8	9	9
Honduras	*	0	0	0	0	0	0	1	0	0
Mexico	126	191	238	303	248	280	D	D	D	D
Panama	1	1	*	*	*	*	*	*	*	*
Other	NA	NA	*	D	*	*	*	D	*	*
OWH	8	4	6	6	22	108	D	1	D	D
Barbados	NA	NA	*	*	0	D	D	0	0	0
Bermuda	NA	NA	1	1	2	2	0	0	0	2
Dominican Republic	0	*	1	1	1	D	1	*	*	*
United Kingdom Caribbean Islands	8	3	4	4	D	D	D	0	D	0
Other	NA	NA	0	*	D	2	1	1	D	D
Africa	26	35	18	25	29	29	31	28	40	65
Egypt	1	2	3	3	4	5	4	2	4	5
Nigeria	*	*	0	1	*	*	0	*	0	*
South Africa	22	30	14	21	24	D	24	23	31	52
Other	2	3	1	*	1	D	3	2	4	8
Middle East	208	141	389	630	726	736	687	875	770	847
Israel	208	141	389	630	726	736	687	872	767	846
Saudi Arabia	*	*	*	*	*	0	0	*	*	*
United Arab Emirates	*	*	0	0	0	0	*	2	3	1
Other	0	0	0	0	0	0	0	0	0	0

Appendix table 4-34

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by country/economy/region: 1997–2006

(Millions of current U.S. dollars)

Country/economy/region	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Asia/Pacific	1,869	1,603	3,226	3,936	4,194	3,786	4,062	4,608	4,764	5,575
Australia	369	290	294	349	286	310	420	474	556	596
China	35	52	319	506	D	645	565	575	668	804
Hong Kong	82	66	214	D	289	D	227	213	98	105
India	22	23	20	D	D	75	81	113	327	310
Indonesia	5	4	1	2	3	3	4	5	4	11
Japan	1,089	962	1,523	1,630	1,507	1,541	1,649	1,627	1,717	1,739
Malaysia	32	30	161	218	D	D	251	161	201	249
New Zealand	18	15	9	8	10	6	9	25	35	38
Philippines	12	10	31	40	48	50	52	44	27	21
Singapore	73	62	426	551	755	398	514	704	576	850
South Korea	41	29	101	143	157	169	202	277	456	729
Taiwan	84	55	122	143	139	69	64	365	68	74
Thailand	5	4	7	13	18	19	24	24	31	47
Other	1	1	*	*	*	1	*	*	*	1
Addenda										
European Union	9,691	10,058	11,900	12,472	11,578	12,941	14,249	16,048	17,768	17,524
OPEC	18	19	42	25	27	45	17	20	14	24

NA = not available; * = ≤$500,000; D = suppressed to avoid disclosure of confidential information

OPEC = Organization of the Petroleum Exporting Countries; OWH = other Western Hemisphere

NOTES: Preliminary estimates for 2006. 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.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 8 May 2009.

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Appendix table 4-35

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by selected NAICS industry of affiliate: 1999–2006

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003	2004	2005	2006
All industries	na	18,144	20,457	19,702	21,063	22,793	25,840	27,653	28,484
Mining	21	8	16	10	12	11	12	13	17
Oil and gas extraction	211	4	10	5	8	5	4	3	11
Other	na	4	6	4	4	6	8	9	6
Utilities	22	*	2	1	1	2	4	5	8
Manufacturing	31–33	16,388	18,455	17,383	18,736	19,819	22,400	23,508	23,638
Food	311	367	279	321	341	420	627	358	437
Beverages and tobacco products	312	32	34	12	D	8	23	18	19
Textiles, apparel, and leather products	313	37	34	32	56	61	68	44	69
Wood products	321	2	2	*	1	8	5	6	5
Paper	322	265	88	75	81	73	88	63	63
Printing and related support activities	323	3	3	2	2	9	11	12	6
Petroleum and coal products	324	66	63	37	D	44	45	25	27
Chemicals	325	4,340	4,609	4,503	5,141	5,528	5,629	6,589	6,166
Basic chemicals	3251	106	156	143	117	115	135	142	169
Resins and synthetic rubber, fibers, and filaments	3252	173	196	189	218	215	235	237	262
Pharmaceuticals and medicines	3254	3,578	3,882	3,762	4,230	4,630	4,770	5,665	5,165
Soap, cleaning compounds, and toilet preparations	3256	135	87	66	265	181	106	151	126
Other	na	348	289	343	311	386	382	393	445
Plastics and rubber products	326	216	304	261	316	290	201	358	389
Nonmetallic mineral products	327	38	49	57	66	54	378	50	43
Primary and fabricated metals	na	151	184	153	180	228	167	303	320
Primary metals	331	27	23	32	32	35	41	53	60
Fabricated metal products	332	124	161	121	148	193	127	250	260
Machinery	333	748	772	743	634	783	781	938	1,128
Agriculture, construction, and mining machinery	3331	168	188	179	173	220	245	315	336
Industrial machinery	3332	216	255	237	128	131	93	108	256
Other	na	364	329	327	334	433	443	515	536
Computers and electronic products	334	3,773	5,440	5,697	4,975	4,796	5,076	4,822	4,874
Computers and peripheral equipment	3341	356	342	384	388	402	472	211	153
Communications equipment	3342	2,403	3,853	4,061	3,131	2,987	2,757	1,961	2,076
Audio and video equipment	3343	146	D	D	67	67	D	D	D
Semiconductors and other electronic components	3344	644	854	811	1,043	949	1,271	1,928	1,865
Navigational, measuring, and other instruments	3345	224	316	381	346	391	517	546	589
Magnetic and optical media	3346	0	D	D	0	0	D	D	D
Electrical equipment, appliances, and components	335	214	310	339	425	498	533	623	651
Transportation equipment	336	5,669	5,765	4,690	5,964	6,455	7,926	8,021	8,342
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	5,385	5,463	4,321	5,553	5,928	7,362	7,471	7,750
Other	na	284	303	369	410	527	564	550	592
Furniture and related products	337	D	48	D	57	27	43	18	23
Miscellaneous manufacturing	339	D	471	D	432	535	798	1,261	1,076
Wholesale trade	42	515	553	739	610	692	796	931	1,017
Professional and commercial equipment and supplies	4234	272	225	315	233	295	312	327	425
Petroleum and petroleum products	4247	D	8	6	1	2	2	2	2
Drugs and druggists' sundries	4242	NA	NA	NA	NA	NA	57	65	89
Other	na	NA	NA	NA	NA	NA	426	536	501

Appendix table 4-35

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by selected NAICS industry of affiliate: 1999–2006

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003	2004	2005	2006
Information	51	161	410	410	591	818	576	689	1,014
Publishing industries	511	D	381	389	556	773	547	612	944
Motion picture and sound recording industries	512	*	1	1	*	*	0	*	*
Information services and data processing services[a]	514	D	16	17	24	29	na	na	na
Internet, data processing, and other information services[a]	518	na	na	na	na	na	23	D	65
Finance (except depository institutions) and insurance	52	1	3	D	14	1	2	5	4
Finance, except depository institutions	na	0	2	D	13	1	2	4	4
Securities, commodity contracts, and other intermediation and related activities	523	0	1	D	13	*	2	4	4
Other finance, except depository institutions	na	0	1	0	0	*	0	*	*
Insurance carriers and related activities	524	1	1	1	1	0	*	1	*
Professional, scientific, and technical services	54	1,040	930	1,062	1,019	1,351	1,986	2,371	2,688
Architectural, engineering, and related services	5413	D	73	75	120	51	D	61	73
Computer systems design and related services	5415	305	347	395	447	532	731	1,218	1,326
Management, scientific, and technical consulting	5416	D	28	24	23	26	D	14	15
Advertising and related services	5418	0	6	4	1	2	2	2	2
Other	na	519	475	564	428	741	1,114	1,076	1,272
Other industries	na	31	89	D	80	98	65	132	97
Agriculture, forestry, fishing, and hunting	11	5	D	D	D	D	D	9	D
Construction	23	*	*	*	0	*	7	2	7
Retail trade	44–45	1	6	D	D	8	4	16	15
Transportation and warehousing	48–49	0	*	3	1	*	0	*	*
Real estate and rental and leasing	53	1	2	2	2	2	*	1	1
Real estate	531	0	0	0	0	0	0	0	0
Rental and leasing (except real estate)	532	1	2	2	2	2	*	1	1
Management of nonbank companies and enterprises	55	16	50	52	42	D	D	60	6
Administration, support, and waste management	56	0	1	2	6	4	6	33	D
Health care and social assistance	62	*	*	*	*	*	0	0	0
Accommodation and food services	72	*	2	2	3	3	*	3	3
Accommodation	721	0	0	0	0	0	0	0	0
Food services and drinking places	722	*	2	2	3	3	*	3	3
Miscellaneous services	na	8	D	6	5	6	7	7	8

na = not applicable; NA = not available; * = ≤$500,000; D = suppressed to avoid disclosure of confidential information

NAICS = North American Industry Classification System

[a]NAICS 518 code created by 2002 version of NAICS and implemented by United States Direct Investment Abroad survey in 2004 benchmark survey. NAICS 514 simultaneosly discontinued. The latter included Internet service providers and other information services, but also included other services now assigned to other NAICS 51 industries. Likewise, 518 incorporates Internet-related portions previously counted in other 51 industries. In sum, data after 2004 not fully comparable with previous data for some industries under NAICS 51. See http://www.census.gov/epcd/naics02/.

NOTES: Preliminary estimates for 2006. Data for majority-owned (>50%) nonbank foreign affiliates of nonbank U.S. parents. From 1999 to 2003, data based on 1997 NAICs; 2004 forward based on 2002 NAICS. 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.

SOURCE: Bureau of Economic Analysis, Survey of U.S. Direct Investment Abroad (annual series), http://www.bea.gov/international/index.htm#omc, accessed 8 May 2009.

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Appendix table 4-36

R&D performed in United States by U.S. multinational company parent companies, by NAICS industry: 1999–2006

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003	2004	2005	2006
All industries	na	126,291	135,467	143,017	136,977	139,884	164,189	177,598	187,813
Mining	21	212	329	411	274	472	D	403	296
Oil and gas extraction	211	53	46	49	33	25	D	D	8
Other	na	159	284	362	241	447	418	D	288
Utilities	22	81	108	59	53	60	26	31	29
Manufacturing	31–33	104,842	109,744	115,118	110,062	112,681	129,246	143,335	151,974
Food	311	934	890	914	1370	1,367	1,636	1,311	1,684
Beverages and tobacco products	312	501	467	469	D	448	125	502	492
Textiles, apparel, and leather products	313	275	248	125	D	85	85	195	208
Wood products	321	31	D	D	78	84	96	113	121
Paper	322	1,478	1,498	1,358	1,376	1,325	1,375	1,408	1,594
Printing and related support activities	323	129	148	D	157	174	132	96	51
Petroleum and coal products	324	990	977	1,002	1,153	1,266	1,327	2,155	2,316
Chemicals	325	28,198	29,212	31,927	32,273	35,500	41,459	45,004	44,914
Basic chemicals	3251	1,627	1,569	1,742	1,456	1,502	1,464	1,381	1,555
Resins and synthetic rubber, fibers, and filaments	3252	2,784	2,963	2,972	2,530	2,553	2,557	2,510	2,417
Pharmaceuticals and medicines	3254	18,382	20,591	23,169	24,279	26,471	32,507	36,352	36,163
Soap, cleaning compounds, and toilet preparations	3256	1,957	2,249	2,153	1,768	2,683	2,612	2,510	2,710
Other	na	3,449	1,841	1,892	2,239	2,292	2,318	2,252	2,070
Plastics and rubber products	326	1,031	955	929	937	978	870	1,079	1,207
Nonmetallic mineral products	327	371	406	339	373	435	377	389	406
Primary and fabricated metals	na	1,320	1,417	1,038	1,340	1,412	1,513	1,165	1,184
Primary metals	331	760	818	484	498	501	487	544	531
Fabricated metal products	332	560	600	554	841	911	1,026	621	653
Machinery	333	5,252	7,196	8,561	8,405	5,431	4,968	5,492	5,893
Agriculture, construction, and mining machinery	3331	1,340	1,343	1,484	1,733	1,700	1,770	1,955	2,361
Industrial machinery	3332	1,250	1,607	1,579	1,583	1,469	1,066	1,210	2,031
Other	na	2,662	4,247	5,497	5,088	2,263	2,132	2,327	1,500
Computers and electronic products	334	30,298	35,616	38,356	33,948	33,255	34,187	36,560	41,727
Computers and peripheral equipment	3341	5,659	6,952	7,727	7,065	7,064	7,176	7,015	8,080
Communications equipment	3342	13,276	14,614	14,526	11,497	10,359	9,253	9,255	11,178
Audio and video equipment	3343	407	436	359	D	D	315	360	D
Semiconductors and other electronic components	3344	8,997	10,252	11,114	10,620	11,508	13,021	15,020	16,390
Navigational, measuring, and other instruments	3345	1,579	2,960	4,158	4,244	3,824	D	4,807	5,597
Magnetic and optical media	3346	381	402	473	D	D	D	103	D
Electrical equipment, appliances, and components	335	2,958	2,511	2,008	1,729	1,350	1,679	1,618	2,748
Transportation equipment	336	29,162	25,834	25,147	23,167	25,565	35,580	41,692	42,850
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	17,513	16,223	18,183	16,535	17,251	15,264	18,687	18,272
Other	na	11,649	9,611	6,964	6,632	8,314	20,316	23,005	24,578
Furniture and related products	337	90	D	128	130	116	133	217	184
Miscellaneous manufacturing	339	1,826	2,176	2,570	3,067	3,890	3,703	4,341	4,397
Wholesale trade	42	4,000	3,755	4,032	2,798	2,850	D	5,072	5,068
Professional and commercial equipment and supplies	4234	2,635	2,404	2,489	1,388	1,164	D	1,650	1,634
Petroleum and petroleum products	4247	D	231	238	218	195	D	D	D
Drugs and druggists' sundries	4242	NA	NA	NA	NA	NA	287	D	D
Other		NA	NA	NA	NA	NA	3,028	2,889	2,920

Appendix table 4-36

R&D performed in United States by U.S. multinational company parent companies, by NAICS industry: 1999–2006

(Millions of current U.S. dollars)

Industry/sector	NAICS code	1999	2000	2001	2002	2003	2004	2005	2006
Information	51	6,763	8,251	9,514	9,679	9,933	14,657	13,161	14,264
Publishing industries	511	4,050	5,510	6,452	6,718	7,202	11,029	9,504	10,329
Motion picture and sound recording industries	512	D	12	12	27	30	18	D	D
Information serivces and data processing services[a]	514	D	1,909	2,254	2,308	2,259	na	na	na
Internet, data processing, and other information services[a]	518	na	na	na	na	na	3,023	3,197	3,557
Finance (except depository institutions) and insurance	52	315	510	617	560	369	221	228	198
Finance, except depository institutions	na	240	458	477	430	249	103	146	164
Securities, commodity contracts, and other intermediation and related activities	523	D	254	D	290	126	D	D	D
Other finance, except depository institutions	na	D	204	D	140	123	D	D	D
Insurance carriers and related activities	524	75	52	141	130	120	118	82	34
Professional, scientific, and technical services	54	8,522	10,042	10,348	10,479	10,560	13,216	13,750	14,282
Architectural, engineering, and related services	5413	49	24	18	D	D	154	D	148
Computer systems design and related services	5415	7,453	8,359	8,929	8,917	8,920	8,983	9,133	9,005
Management, scientific, and technical consulting	5416	D	D	D	533	554	132	115	D
Advertising and related services	5418	D	D	D	D	D	D	D	D
Other	na	716	874	802	978	982	D	4,323	5,001
Other industries	na	1,556	2,729	2,918	3,073	2,958	1,523	1,617	1,702
Agriculture, forestry, fishing, and hunting	11	2	2	D	D	D	39	46	48
Construction	23	D	D	D	D	D	3	4	4
Retail trade	44–45	D	D	D	D	D	D	D	D
Transportation and warehousing	48–49	26	8	12	5	1	1	D	D
Real estate and rental and leasing	53	D	6	7	D	5	D	D	D
Real estate	531	0	0	0	0	0	0	0	0
Rental and leasing (except real estate)	532	D	6	7	D	5	D	D	D
Management of nonbank companies and enterprises	55	0	0	0	D	0	D	0	0
Administration, support, and waste management	56	6	D	D	D	D	D	D	D
Health care and social assistance	62	D	30	32	31	32	24	D	D
Accommodation and food services	72	25	31	42	29	37	9	D	D
Accommodation	721	0	0	0	0	0	0	0	0
Food services and drinking places	722	25	31	42	29	37	9	D	D
Miscellaneous services	na	15	16	17	128	143	174	189	248

na = not applicable; NA = not available; D = suppressed to avoid disclosure of confidential information

NAICS = North American Industry Classification System

[a]NAICS 518 created by 2002 version of NAICS and implemented by U.S. Direct Investment Abroad survey in 2004 benchmark survey. NAICS 514 simultaneously discontinued. The latter included Internet service providers and other information services but also included other services now assigned to other NAICS 51 industries. Likewise, 518 incorporates Internet-related portions of other 51 industries. In sum, data for details under 51 not fully comparable starting with 2004. See http://www.census.gov/epcd/naics02/, accessed 8 May 2009.

NOTES: Preliminary estimates for 2006. From 1999 to 2003, data based on 1997 NAICs; 2004 forward based on 2002 NAICS. Data on U.S. parents' R&D expenditures for 2004 forward not fully comparable with data for earlier years because of improvements in statistical coverage. Improvements resulted from comprehensive information on parent R&D activities obtained in Bureau of Economic Analysis 2004 Benchmark Survey of U.S. Direct Investment Abroad and from new information obtained through ongoing inter-agency statistical project (NSF InfoBrief 07-310). 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 8 May 2009.

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Appendix table 4-37

Company and other nonfederal funds for industrial R&D performed abroad, by industrial sector: 1987–2007

(Millions of current U.S. dollars)

Year	All industrial R&D	Manufacturing	Nonmanufacturing
1987	5,226	5,162	64
1988	6,208	6,062	146
1989	6,706	6,450	256
1990	7,952	7,537	415
1991	9,147	8,369	778
1992	10,063	9,228	835
1993	9,565	7,795	1,770
1994	9,395	7,895	1,500
1995	13,052	10,846	2,206
1996	14,050	11,540	2,510
1997	13,107	11,743	1,364
1998	16,008	12,658	3,350
1999	16,765	12,354	4,411
2000	17,463	12,252	5,211
2001	17,869	10,998	6,871
2002	24,868	17,093	7,775
2003	28,768	17,509	11,259
2004	31,393	26,293	5,100
2005	31,025	25,221	5,804
2006	29,774	22,513	7,260
2007	47,973	35,898	12,074

NOTES: Data for industrial R&D performed outside 50 U.S. states and District of Columbia funded by U.S. R&D-performing companies and other sources except federal government. Starting with 1999 survey, estimates based on North American Industry Classification System. In prior years, estimates based on Standard Industrial Classification System.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-38

Company and other nonfederal funds for industrial R&D performed abroad, by NAICS industry: 2003–07

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2003	2004	2005	2006	2007
All industries	21–23, 31–33, 42, 44–81	28,768	31,393	31,025	29,774	47,973
Manufacturing industries	31–33	17,509	26,293	25,221	22,513	35,898
Food	311	278	377	488	436	325
Beverage and tobacco products	312	D	D	D	D	D
Textiles, apparel, and leather	313–16	31	63	89	78	92
Wood products	321	7	1	D	8	6
Paper, printing, and support activities	322, 323	694	620 i	84	50	54
Petroleum and coal products	324	20	25	18	D	D
Chemicals	325	4,492	8,893	8,133	7,538	16,140
Basic chemicals	3251	230	436	287	D	548
Resin, synthetic rubber, fibers, and filament	3252	385	411	385	D	111
Pharmaceuticals and medicines	3254	3,751	7,654	6,872	6,531	15,009
Other chemicals	Other 325	126	392	589	386	472
Plastics and rubber products	326	234	343	306	356	345
Nonmetallic mineral products	327	27	52	64	48	79
Primary metals	331	19	16	8	6	75
Fabricated metal products	332	311	328	174	158	123
Machinery	333	772	861	1,138	1,300	1,237
Computer and electronic products	334	2,927	7,520	8,767	6,222	9,863
Computers and peripheral equipment	3341	172	3,842	3,695	1,647	2,595
Communications equipment	3342	983	900	1,039	1,143	D
Semiconductor and other electronic components	3344	1,006	1,594	2,471	2,311	3,777
Navigational, measuring, electromedical, and control instruments	3345	758	1,000	1,392 i	909	1,856
Other computer and electronic products	Other 334	9	184	170	213	D
Electrical equipment, appliances, and components	335	306	409	369	268	378
Transportation equipment	336	5,314	6,302	4,989	5,450	6,368
Motor vehicles, trailers, and parts	3361–63	4,680	5,429	3,969	4,271	4,977
Aerospace products and parts	3364	624	D	1,014	1,157	1,267
Other transportation equipment	Other 336	9	D	6 i	22	124
Furniture and related products	337	D	D	4	5	12
Miscellaneous manufacturing	339	2,076	480	582	590	756
Medical equipment and supplies	3391	1,963	375	497	468	583
Other miscellaneous manufacturing	Other 339	113	105	85	122	173
Nonmanufacturing industries	21–23, 42, 44–81	11,258	5,100	5,804	7,260	12,074
Mining, extraction, and support activities	21	46	50	53	85	108
Utilities	22	D	5	10	D	D
Construction	23	D	13	D	D	9 i
Wholesale trade	42	7,521	140	476	247	333
Retail trade	44, 45	299	26	110	85	374
Transportation and warehousing	48, 49	D	D	D	D	D
Information	51	2,074	2,591	2,853	3,794	5,646
Publishing	511	1,359	1,867	1,983	2,625	4,316
Newspaper, periodical, book, and database	5111	24	28 i	29	38	48
Software	5112	1,336	1,840	1,954	2,587	4,268

Appendix table 4-38

Company and other nonfederal funds for industrial R&D performed abroad, by NAICS industry: 2003–07

(Millions of current U.S. dollars)

Industry/sector	NAICS code	2003	2004	2005	2006	2007
Broadcasting and telecommunications	513	D	29	NA	NA	NA
Telecommunications	5133	D	D	NA	NA	NA
Other broadcasting and telecommunications	Other 513	0	D	NA	NA	NA
Telecommunications	517	NA	NA	156	166	192
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	NA	NA	156	D	159
Satellite telecommunications	5174	NA	NA	0	0	0
Other telecommunications	Other 517	NA	NA	0	D	33
Internet service providers, Web search portals, and data processing services	518	NA	NA	699	980	1,134
Internet service providers and Web search portals	5181	NA	NA	49	D	279
Data processing, hosting, and related services	5182	NA	NA	649	D	855
Other information	Other 51	D	695	15	24	4
Finance, insurance, and real estate	52, 53	72	76	87	53	84
Professional, scientific, and technical services	54	1,145	1,993	1,951	2,705	5,224
Architectural, engineering, and related services	5413	98	459	138	406	250
Computer systems design and related services	5415	592	908	1,311	1,572	2,220
Scientific R&D services	5417	449	572	485	707	2,689
Other professional, scientific, and technical services	Other 54	5	55 i	16	19	64
Management of companies and enterprises[a]	55	D	NA	NA	NA	NA
Health care services	621–23	3	D	11	12	D
Other nonmanufacturing	56, 61, 624, 71, 72, 81	76	204	246	278	289 i

NA = not available; D = suppressed to avoid disclosure of confidential information; i = imputation of >50%

NAICS = North American Industry Classification System (1997 revision used to classify 2003–04 statistics; 2002 revision used for post-2004 statistics)

[a]Estimates for management of companies and enterprises (NAICS 55), shown separately for 2003, included in other manufacturing for years after 2003.

NOTE: Data for industrial R&D performed outside 50 U.S. states and District of Columbia funded by U.S. R&D-performing companies and other sources except federal government.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-39

Company-funded and -performed R&D expenditures and R&D contracted out to other organizations in United States: 1993–2007

(Millions of dollars)

Sector	Company funded and performed	Contracted out	Ratio (%)
All industries			
1993	94,591	3,462	3.7
1994	97,131	3,618	3.7
1995	108,652	5,177	4.8
1996	121,015	5,833	4.8
1997	133,611	6,000	4.5
1998	145,016	6,710	4.6
1999	161,594	9,240	5.7
2000	182,844	NA	NA
2001	185,118	8,723	4.7
2002	177,467	7,846	4.4
2003	182,926	10,236	5.6
2004	188,035	12,385	6.6
2005	204,250	11,742	5.7
2006	223,365	12,378	5.5
2007	242,682	19,040	7.8
Manufacturing			
1993	69,901	2,339	3.3
1994	73,375	2,450	3.3
1995	81,236	3,812	4.7
1996	91,845	4,293	4.7
1997	101,202	4,143	4.1
1998	102,211	4,641	4.5
1999	101,283	4,080	4.0
2000	113,173	4,794	4.2
2001	112,733	3,957	3.5
2002	101,344	4,428	4.4
2003	107,725	5,212	4.8
2004	131,887	8,642	6.6
2005	142,555	8,926	6.3
2006	155,230	8,795	5.7
2007	169,307	14,453	8.5

NA = not available

NOTES: R&D expenditure data for industrial R&D performed outside company facilities but funded by company. Funds also include nonfederal sources such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded is company-funded R&D not performed within the 50 U.S. states or District of Columbia.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-40

R&D expenditures contracted out in United States, by NAICS industry: 2005–07

(Millions of dollars)

Industry	NAICS code	2005	2006	2007
All industries	21–23, 31–33, 42, 44–81	11,742	12,378	19,040
Manufacturing	31–33	8,926	8,795	14,453
Food	311	154	228	261
Beverage and tobacco products	312	D	16	22
Textiles, apparel, and leather	313–16	10	6	4
Wood products	321	10	D	D
Paper, printing, and support activities	322, 323	163	D	21
Petroleum and coal products	324	128	D	D
Chemicals	325	4,918	4,831	10,375
Basic chemicals	3251	58	39	62
Resin, synthetic rubber, fibers, and filament	3252	73	12	28
Pharmaceuticals and medicines	3254	4,587	4,604	10,054
Other chemicals	other 325	200	176	231
Plastics and rubber products	326	41	56	54
Nonmetallic mineral products	327	D	4	5
Primary metals	331	55	7	D
Fabricated metal products	332	26	25	D
Machinery	333	327	252	295
Computer and electronic products	334	1,209	1,288	972
Computers and peripheral equipment	3341	169	169	168
Communications equipment	3342	137	239	147
Semiconductor and other electronic components	3344	235	208	184
Navigational, measuring, electromedical, and control instruments	3345	655	659	462
Other computer and electronic products	other 334	12	12	10
Electrical equipment, appliances, and components	335	37	40	75
Transportation equipment	336	1,629	1,448	1,747
Motor vehicles, trailers, and parts	3361–63	1,159	1,005	1,166
Aerospace products and parts	3364	450	419	447
Other transportation equipment	other 336	20	23	134
Furniture and related products	337	D	D	7
Miscellaneous manufacturing	339	203	494	458
Medical equipment and supplies	3391	177	189	430
Other miscellaneous manufacturing	other 339	26	304	27
Nonmanufacturing	21–23, 42, 44–81	2,816	3,583	4,588
Mining, extraction, and support activities	21	44	200	260
Utilities	22	128	102	128
Construction	23	D	D	D
Wholesale trade	42	182	229	201
Retail trade	44, 45	85	152	84
Transportation and warehousing	48, 49	D	D	23
Information	51	558	658	833
Publishing	511	211	246	235
Newspaper, periodical, book, and directory	5111	32	46	34
Software	5112	178	199	201
Telecommunications	517	D	181	258
Wired and wireless (except satellite) telecommunications carriers	5171, 5172	D	D	D
Satellite telecommunications	5174	8	D	0
Other telecommunications	other 517	D	79	D
Internet service providers, Web search portals, and data processing services	518	194	D	290
Internet service providers and Web search portals	5181	D	D	D
Data processing, hosting, and related services	5182	D	D	D
Other information	other 51	D	D	50
Finance, insurance, and real estate	52, 53	225	427	376

Appendix table 4-40

R&D expenditures contracted out in United States, by NAICS industry: 2005–07

(Millions of dollars)

Industry	NAICS code	2005	2006	2007
Professional, scientific, and technical services	54	1,437	1,675	2,620
Architectural, engineering, and related services	5413	51	85	40
Computer systems design and related services	5415	269	285	394
Scientific R&D services	5417	1,077	1,272	1,654
Other professional, scientific, and technical services	other 54	39	34	532
Health care services	621–23	D	26	D
Other nonmanufacturing[a]	55, 56, 61, 624, 71, 72, 81	D	95	20

D = suppressed to avoid disclosure of confidential information

NAICS = North American Industry Classification System

[a]Estimates for management of companies and enterprises (NAICS 55), formerly shown separately, now included in other nonmanufacturing.

NOTES: Method used to assign industry classifications has changed; industry-specific estimates not directly comparable with those for years prior to 2004. Detail does not add to total because of rounding or suppression. R&D expenditures for industrial R&D performed outside company facilities but funded by company. Funds also include nonfederal sources such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded is company-funded R&D not performed within the 50 U.S. states or District of Columbia. For definitions and more information about year-to-year comparability of statistics, see technical notes and survey methodology.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Industrial Research and Development (annual series), http://www.nsf.gov/statistics/srvyindustry/, accessed 8 May 2009.

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Appendix table 4-41

U.S. trade in research, development, and testing services, by affiliation and by selected region/country: 2006–07

(Millions of dollars)

Region/country	2006			2007		
	Exports	Imports	Trade balance	Exports	Imports	Trade balance
Total	12,821	9,429	3,392	14,698	11,437	3,261
By affiliation						
Unaffiliated	1,655	2,702	-1,047	2,012	3,073	-1,061
Affiliated	11,165	6,726	4,439	12,686	8,364	4,322
By U.S. parents from their foreign affiliates	4,335	4,753	-418	6,256	6,007	249
By U.S. affiliates from their foreign parent groups[a]	6,830	1,973	4,857	6,429	2,357	4,072
By region/country						
Canada	576	843	-267	515	1,007	-492
Europe	7,784	6,098	1,686	9,237	7,101	2,136
Belgium-Luxembourg	147	306	-159	233	306	-73
France	370	526	-156	394	644	-250
Germany	844	799	45	930	973	-43
Ireland	1,032	245	787	1,936	361	1,575
Italy	108	174	-66	126	149	-23
Netherlands	1,238	852	386	1,276	981	295
Norway	95	41	54	133	36	97
Spain	26	94	-68	46	131	-85
Sweden	D	101	NA	D	113	NA
Switzerland	1,091	265	826	1,506	323	1,183
United Kingdom	960	2,350	-1,390	1,023	2,616	-1,593
Other	D	346	NA	D	469	NA
Latin America/OWH	1,652	245	1,407	2,189	367	1,822
South and Central America	127	213	-86	130	322	-192
Argentina	16	32	-16	13	33	-20
Brazil	20	54	-34	34	53	-19
Chile	2	5	-3	1	5	-4
Mexico	58	91	-33	51	195	-144
Venezuela	17	3	14	16	2	14
Other	14	27	-13	16	34	-18
OWH	1,525	32	1,493	2,059	45	2,014
Bermuda	723	2	721	985	*	NA
Other	802	30	772	1,074	45	1,029
Africa	118	203	-85	181	208	-27
South Africa	11	33	-22	10	37	-27
Other	106	169	-63	171	171	0
Middle East	111	587	-476	140	720	-580
Israel	46	557	-511	68	713	-645
Saudi Arabia	7	1	6	20	4	16
Other	57	30	27	51	3	48
Asia/Pacific	2,532	1,453	1,079	2,386	2,033	353
Australia	62	156	-94	70	226	-156
China	31	87	-56	34	191	-157
Hong Kong	15	29	-14	20	36	-16
India	63	372	-309	51	607	-556
Indonesia	D	12	NA	D	15	NA
Japan	2,045	531	1,514	1,798	636	1,162
Korea	57	61	-4	50	77	-27
Malaysia	9	37	-28	7	22	-15
New Zealand	3	5	-2	4	6	-2
Philippines	5	17	-12	4	25	-21

Appendix table 4-41

U.S. trade in research, development, and testing services, by affiliation and by selected region/country: 2006–07

(Millions of dollars)

Region/country	2006			2007		
	Exports	Imports	Trade balance	Exports	Imports	Trade balance
Singapore	178	38	140	268	62	206
Taiwan	25	50	-25	19	103	-84
Thailand	17	8	9	24	10	14
Other	D	50	NA	D	17	NA
Addenda						
European Union[b]	6,544	5,636	908	7,529	6,575	954

NA = not available; * = ≤$500,000; D = suppressed to avoid disclosure of confidential information

OWH = other Western Hemisphere

[a]In addition to transactions with its foreign parent, U.S. affiliate's exports and imports include transactions with other members of its foreign parent group.
[b]European Union included 15 countries in 1995–2003, 25 countries in 2004–06, and 27 countries in 2007.

SOURCE: Bureau of Economic Analysis, U.S. International Services, http://www.bea.gov/international/intlserv.htm, accessed 8 May 2009.

Science and Engineering Indicators 2010

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Worldwide	178	181	245	237	319	405	450	449	500	510	385	331	473	519	556	661	602	549	535	496	473	602	521	688	730	815	898
Equity	79	98	105	110	109	155	141	148	187	268	106	74	99	130	74	80	84	67	56	67	48	56	43	49	49	64	64
Nonequity	99	83	140	127	210	250	309	301	313	242	279	257	374	389	482	581	518	482	479	429	425	546	478	639	681	751	834
Information technologies	45	51	84	94	140	146	165	162	188	182	193	182	220	211	239	304	265	218	251	217	167	166	139	214	227	160	206
Equity	19	27	38	38	46	43	51	46	47	67	28	33	28	32	16	18	30	18	18	23	16	21	18	24	19	27	29
Nonequity	26	24	46	56	94	103	114	116	141	115	165	149	192	179	223	286	235	200	233	194	151	145	121	190	208	133	177
Biotechnology	31	37	53	41	64	111	101	109	94	66	45	36	97	123	159	164	174	181	147	189	200	354	332	368	389	481	526
Equity	4	10	9	12	11	34	13	24	15	17	20	8	18	25	21	13	17	18	10	16	12	13	10	8	5	11	13
Nonequity	27	27	44	29	53	77	88	85	79	49	25	28	79	98	138	151	157	163	137	173	188	341	322	360	384	470	513
New materials	8	23	23	32	27	50	85	61	60	46	33	21	35	57	33	42	35	28	34	22	22	22	21	22	21	37	34
Equity	6	17	18	17	14	19	35	17	29	25	19	8	16	26	3	11	8	5	3	7	2	7	5	1	3	4	7
Nonequity	2	6	5	15	13	31	50	44	31	21	14	13	19	31	30	31	27	23	31	15	20	15	16	21	18	33	27
Aerospace/defense	21	6	11	9	28	13	24	22	23	39	52	38	49	33	35	46	43	39	35	10	10	24	12	21	29	39	42
Equity	1	0	4	2	3	1	3	1	4	14	16	8	11	6	13	16	9	7	9	1	1	4	0	1	3	5	6
Nonequity	20	6	7	7	25	12	21	21	19	25	36	30	38	27	22	30	34	32	26	9	9	20	12	20	26	34	36
Automotive	14	6	9	8	8	20	22	22	45	48	12	3	4	15	24	25	36	42	32	35	47	22	22	42	25	38	37
Equity	6	1	5	5	2	10	11	14	32	37	6	1	0	2	3	4	11	11	14	13	10	12	10	9	10	11	6
Nonequity	8	5	4	3	6	10	11	8	13	11	6	2	4	13	21	21	25	31	18	22	37	10	12	33	15	27	31
Chemistry	33	25	23	24	25	34	18	32	46	62	43	33	38	61	45	59	28	57	73	35	38	24	10	25	48	34	25
Equity	30	21	14	20	20	30	14	29	36	54	21	13	21	27	16	15	9	11	7	8	6	3	2	3	5	6	5
Nonequity	3	4	9	4	5	4	4	3	10	8	22	20	17	34	29	44	19	46	66	27	32	21	8	22	43	28	20
U.S. owned worldwide																											
Total	116	118	175	156	221	221	264	295	342	321	278	268	363	409	446	518	483	444	436	407	380	445	336	489	526	564	605
Equity	51	69	76	82	76	85	90	86	116	133	57	56	61	75	43	33	50	45	32	39	36	25	19	21	19	21	31
Nonequity	65	49	99	74	145	136	174	209	226	188	221	212	302	334	403	485	433	399	404	368	344	420	317	468	507	543	574
Information technologies	29	34	61	66	94	83	98	125	139	129	154	152	180	183	213	267	228	180	217	183	132	116	90	148	169	105	138
Equity	13	17	29	32	29	25	31	31	27	36	17	26	17	20	10	8	19	15	13	11	10	4	9	9	6	8	15
Nonequity	16	17	32	34	65	58	67	94	112	93	137	126	163	163	203	259	209	165	204	172	122	112	81	139	163	97	123
Biotechnology	24	27	45	27	51	64	75	77	62	46	28	33	76	108	124	127	139	161	120	164	165	273	219	274	277	358	360
Equity	2	9	7	7	8	17	9	16	11	7	8	7	13	18	15	6	10	13	5	11	10	7	6	4	3	4	7
Nonequity	22	18	38	20	43	47	66	61	51	39	20	26	63	90	109	121	129	148	115	153	155	266	213	270	274	354	353
New materials	4	14	13	18	13	17	36	30	36	27	25	16	25	38	27	30	26	21	21	17	18	14	16	18	16	25	17
Equity	4	12	11	12	10	10	21	9	19	13	13	6	11	13	3	7	4	3	2	4	2	2	3	1	1	2	3
Nonequity	0	2	2	6	3	7	15	21	17	14	12	10	14	25	24	23	22	18	19	13	16	12	13	17	15	23	14
Aerospace/defense	14	3	8	4	19	7	10	13	16	22	35	25	32	17	16	27	30	21	27	8	9	18	8	14	23	20	27
Equity	0	0	3	1	2	0	2	1	2	6	8	5	5	2	4	6	5	1	3	0	0	2	0	0	0	2	2
Nonequity	14	3	5	3	17	7	8	12	14	16	27	20	27	15	12	21	25	20	24	8	9	16	8	14	23	18	25
Automotive	6	2	4	5	4	11	12	16	35	32	8	2	1	10	16	15	24	29	19	20	34	16	13	24	18	22	21
Equity	4	1	3	3	1	7	8	11	27	22	4	1	0	1	2	2	6	8	7	9	6	7	5	4	5	5	3
Nonequity	2	1	1	2	3	4	4	5	8	10	4	1	1	9	14	13	18	21	12	11	28	9	8	20	13	17	18

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Chemistry	20	17	14	14	17	19	9	11	25	36	24	24	24	45	32	41	15	50	55	24	29	17	6	20	36	14	17
Equity	19	16	8	13	13	16	7	9	17	29	10	9	13	16	9	5	4	8	5	4	6	1	1	1	3	1	1
Nonequity	1	1	6	1	4	3	2	2	8	7	14	15	11	29	23	36	11	42	50	20	23	16	5	19	33	13	16
Europe owned worldwide																											
Total	89	87	122	100	151	218	218	221	242	286	180	150	228	232	250	297	241	229	244	192	225	281	274	285	307	366	420
Equity	40	48	55	40	52	76	76	91	107	172	70	42	63	86	50	53	44	40	38	40	25	36	19	22	14	29	20
Nonequity	49	39	67	60	99	142	142	130	135	114	110	108	165	146	200	244	197	189	206	152	200	245	255	263	293	337	400
Information technologies	17	26	49	28	65	83	91	73	85	88	69	65	84	67	64	88	66	78	84	58	77	66	61	72	64	62	75
Equity	8	16	22	8	24	21	29	28	33	41	17	15	18	17	8	11	13	9	10	10	5	12	7	9	6	11	7
Nonequity	9	10	27	20	41	62	62	45	52	47	52	50	66	50	56	77	53	69	74	48	72	54	54	63	58	51	68
Biotechnology	15	13	15	20	24	61	33	53	47	38	27	18	60	52	93	98	99	75	81	83	91	170	177	178	197	217	280
Equity	3	4	4	6	3	20	5	11	6	13	14	5	13	15	14	7	11	12	7	11	5	11	2	3	1	2	4
Nonequity	12	9	11	14	21	41	28	42	41	25	13	13	47	37	79	91	88	63	74	72	86	159	175	175	196	215	276
New materials	8	14	14	20	14	20	32	21	24	28	19	9	14	38	15	22	11	13	20	7	8	11	9	6	8	17	12
Equity	6	10	12	12	6	10	19	11	15	18	11	5	8	22	1	7	3	2	3	2	0	4	2	1	1	2	2
Nonequity	2	4	2	8	8	10	13	10	9	10	8	4	6	16	14	15	8	11	17	5	8	7	7	5	7	15	10
Aerospace/defense	11	3	7	6	17	9	15	12	12	26	29	24	34	27	27	29	22	28	20	4	3	17	10	10	12	23	23
Equity	1	0	2	1	3	1	1	0	3	9	13	6	10	6	12	12	7	6	6	1	0	2	0	1	3	3	3
Nonequity	10	3	5	5	14	8	14	12	9	17	16	18	24	21	15	17	15	22	14	3	3	15	10	9	9	20	20
Automotive	11	4	6	4	6	10	12	8	16	21	4	0	0	6	12	13	17	18	17	25	25	12	12	17	11	21	15
Equity	4	0	2	2	2	3	5	4	10	16	2	0	0	2	1	3	5	6	8	10	7	9	5	6	2	6	2
Nonequity	7	4	4	2	4	7	7	4	6	5	2	0	0	4	11	10	12	12	9	15	18	3	7	11	9	15	13
Chemistry	15	13	13	10	12	17	12	24	29	36	28	23	21	33	26	42	22	27	47	22	29	10	4	8	22	23	13
Equity	12	9	10	8	9	13	9	22	23	33	14	9	11	19	12	11	8	7	7	5	5	1	1	0	2	2	4
Nonequity	3	4	3	2	3	4	3	2	6	3	14	14	10	14	14	31	14	20	40	17	24	9	3	8	20	21	9
Japan owned worldwide																											
Total	38	59	79	81	91	120	142	120	100	105	67	70	70	79	72	85	87	54	58	72	53	74	84	106	100	108	133
Equity	18	36	31	37	31	55	53	46	44	78	27	18	19	17	6	9	13	5	6	16	10	16	14	16	19	15	22
Nonequity	20	23	48	44	60	65	89	74	56	27	40	52	51	62	66	76	74	49	52	56	43	58	70	90	81	93	111
Information technologies	13	14	29	37	48	31	41	31	31	31	35	46	34	42	40	44	46	28	32	43	31	42	35	50	45	28	51
Equity	7	8	8	13	12	16	18	10	7	19	9	11	5	6	4	3	5	3	1	10	6	10	7	10	6	6	12
Nonequity	6	6	21	24	36	15	23	21	24	12	26	35	29	36	36	41	41	25	31	33	25	32	28	40	39	22	39
Biotechnology	7	11	16	10	11	29	31	25	10	11	6	3	8	15	11	15	19	13	11	18	9	17	41	28	32	54	53
Equity	1	1	1	4	2	6	6	8	1	4	3	0	4	4	0	0	1	1	0	2	2	0	3	2	1	4	4
Nonequity	6	10	15	6	9	23	25	17	9	7	3	3	4	11	11	15	18	12	11	16	7	17	38	26	31	50	49
New materials	0	6	6	11	14	30	45	32	22	12	9	6	8	6	5	10	5	4	9	6	6	6	6	3	3	8	10
Equity	0	5	5	6	7	9	17	6	9	7	7	2	4	2	0	2	3	0	1	3	0	3	3	0	2	2	4
Nonequity	0	1	1	5	7	21	28	26	13	5	2	4	4	4	5	8	2	4	8	3	6	3	3	3	1	6	6
Aerospace/defense	6	1	0	1	1	0	4	1	0	2	3	6	1	0	0	1	2	2	1	1	3	2	0	2	1	1	0
Equity	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Nonequity	6	1	0	1	1	0	3	1	0	2	3	6	1	0	0	1	2	2	1	1	2	1	0	2	1	1	0

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Automotive	2	3	3	3	2	10	10	11	18	24	2	2	3	7	6	5	7	2	6	5	9	4	4	9	7	6	6
Equity	1	1	3	2	0	5	5	8	13	23	1	1	0	1	1	1	3	0	3	2	2	4	3	1	6	1	2
Nonequity	1	2	0	1	2	5	5	3	5	1	1	1	3	6	5	4	4	2	3	3	7	0	1	8	1	5	4
Chemistry	7	8	9	12	8	13	5	14	11	15	11	5	9	8	5	6	5	8	4	3	1	5	2	5	5	6	3
Equity	7	7	5	9	7	13	5	12	8	15	6	3	5	4	0	3	2	1	0	1	0	2	1	2	1	3	0
Nonequity	0	1	4	3	1	0	0	2	3	0	5	2	4	4	5	3	3	7	4	2	1	3	1	3	4	3	3
NT owned worldwide																											
Total	18	17	23	16	23	34	21	31	59	58	31	8	36	43	48	66	77	65	36	54	67	85	88	143	130	179	196
Equity	12	14	12	13	15	27	14	23	39	45	12	1	16	22	14	13	20	10	10	7	5	10	14	22	20	35	29
Nonequity	6	3	11	3	8	7	7	8	20	13	19	7	20	21	34	53	57	55	26	47	62	75	74	121	110	144	167
Information technologies	0	2	9	5	7	7	6	7	19	18	11	4	12	12	18	32	41	29	18	28	26	33	28	59	52	52	58
Equity	0	2	6	4	4	3	3	4	10	12	0	0	4	6	4	4	11	1	2	2	3	4	5	13	9	14	14
Nonequity	0	0	3	1	3	4	3	3	9	6	11	4	8	6	14	28	30	28	16	26	23	29	23	46	43	38	44
Biotechnology	3	4	4	1	3	4	1	5	7	3	10	0	10	9	11	12	18	14	6	15	22	49	53	49	50	75	96
Equity	0	2	0	0	3	4	0	2	3	1	6	0	2	4	3	1	6	2	2	1	2	3	4	3	2	6	4
Nonequity	3	2	4	1	0	0	1	3	4	2	4	0	8	5	8	11	12	12	4	14	20	46	49	46	48	69	92
New materials	0	3	3	0	1	2	4	4	8	3	4	1	3	3	2	3	6	2	2	2	3	3	1	7	3	8	4
Equity	0	3	2	0	0	2	2	4	5	2	2	0	3	3	1	2	2	2	0	0	0	1	0	0	0	1	2
Nonequity	0	0	1	0	1	0	2	0	3	1	2	1	0	0	1	1	4	0	2	2	3	2	1	7	3	7	2
Aerospace/defense	1	0	1	1	1	3	1	1	2	3	2	3	4	5	6	8	7	8	5	1	0	2	1	3	7	9	9
Equity	0	0	0	0	0	0	0	0	0	3	1	0	2	2	2	2	1	1	1	1	0	1	0	0	1	2	4
Nonequity	1	0	1	1	1	3	1	1	2	0	1	3	2	3	4	6	6	7	4	0	0	1	1	3	6	7	5
Automotive	1	0	1	1	1	3	1	2	9	6	0	0	0	0	3	2	3	7	5	2	9	2	5	16	8	12	17
Equity	1	0	1	1	0	3	1	2	8	6	0	0	0	0	0	1	1	1	4	1	0	2	1	4	5	7	4
Nonequity	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	1	2	6	1	1	9	0	4	12	3	5	13
Chemistry	10	8	2	3	5	9	1	6	12	13	2	1	7	9	6	6	2	4	3	5	3	0	1	4	7	10	4
Equity	10	7	1	3	4	9	1	6	11	12	2	1	5	6	5	5	1	3	1	2	0	0	0	1	1	3	2
Nonequity	0	1	1	0	1	0	0	0	1	1	0	0	2	3	1	1	1	1	2	3	3	0	1	3	6	7	2
U.S.-only owned																											
Total	44	39	45	59	84	77	108	123	146	118	139	123	175	211	225	259	243	240	230	202	167	210	135	220	246	259	249
Equity	17	14	17	25	25	22	18	20	24	21	17	21	21	25	14	16	21	18	11	11	12	7	5	4	8	6	7
Nonequity	27	25	28	34	59	55	90	103	122	97	122	102	154	186	211	243	222	222	219	191	155	203	130	216	238	253	242
Information technologies	18	16	8	30	34	35	43	58	68	59	86	78	102	104	130	156	134	99	132	96	49	49	31	58	85	45	51
Equity	6	6	6	14	10	8	6	7	4	5	5	10	7	8	4	3	8	5	7	4	4	3	1	2	3	4	3
Nonequity	12	10	2	16	24	27	37	51	64	54	81	68	95	96	126	153	126	94	125	92	45	46	30	56	82	41	48
Biotechnology	6	11	21	11	27	25	38	33	34	20	11	16	27	53	53	51	51	84	56	79	87	134	94	135	132	175	149
Equity	0	4	4	2	4	8	2	6	5	3	3	3	2	3	4	5	2	4	2	3	4	1	2	1	2	1	1
Nonequity	6	7	17	9	23	17	36	27	29	17	8	13	25	50	49	46	49	80	54	76	83	133	92	134	130	174	148
New materials	0	2	4	4	4	4	12	10	12	7	7	7	13	17	11	13	15	12	10	8	8	5	6	8	7	7	10
Equity	0	1	2	0	4	2	4	1	4	2	4	3	4	4	1	3	2	3	0	2	2	0	0	0	0	0	0
Nonequity	0	1	2	4	0	2	8	9	8	5	3	4	9	13	10	10	13	9	10	6	6	5	6	8	7	7	10

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Aerospace/defense	4	2	3	1	9	4	5	9	11	9	19	7	13	6	5	10	13	8	10	5	4	4	1	7	11	10	14
Equity	0	0	2	1	0	0	1	1	1	3	3	2	1	0	1	2	1	1	2	0	0	0	0	0	0	1	1
Nonequity	4	2	1	0	9	4	4	8	10	6	16	5	12	6	4	8	12	7	8	5	4	4	1	7	11	9	13
Automotive	1	1	0	1	0	1	3	5	6	6	6	1	1	4	8	6	12	18	9	6	12	8	4	8	3	5	7
Equity	1	0	0	0	0	0	2	3	3	1	3	0	0	0	2	0	3	4	2	1	2	1	2	1	1	0	1
Nonequity	0	1	0	1	0	1	1	2	3	5	3	1	1	4	6	6	9	14	7	5	10	7	2	7	2	5	6
Chemistry	5	1	1	4	6	2	4	2	5	11	9	8	10	21	14	13	3	22	24	9	9	11	5	9	18	3	9
Equity	5	1	0	3	5	2	3	2	4	6	3	3	6	4	1	2	0	2	0	1	1	1	1	0	1	0	1
Nonequity	0	0	1	1	1	0	1	0	1	5	6	5	4	17	13	11	3	20	24	8	8	10	4	9	17	3	8
U.S.-Europe owned																											
Total	36	37	65	41	74	80	96	113	108	115	86	93	127	137	158	173	149	134	159	131	149	151	127	147	158	185	207
Equity	15	24	29	18	27	25	40	40	45	52	25	25	27	35	22	11	17	18	18	22	17	13	5	4	3	4	5
Nonequity	21	13	36	23	47	55	56	73	63	63	61	68	100	102	136	162	132	116	141	109	132	138	122	143	155	181	202
Information technologies	5	12	30	11	28	27	35	44	43	39	37	39	49	46	49	59	39	46	59	40	50	34	34	36	31	28	33
Equity	3	7	15	3	11	6	15	16	17	13	7	9	8	7	5	3	5	6	6	4	2	1	4	0	1	3	2
Nonequity	2	5	15	8	17	21	20	28	26	26	30	30	41	39	44	56	34	40	53	36	48	33	30	36	30	25	31
Biotechnology	9	6	10	9	15	22	23	31	18	18	12	15	39	38	59	64	69	56	55	64	60	95	76	98	100	124	147
Equity	1	3	2	2	2	6	4	6	2	3	3	4	8	9	8	0	4	7	3	7	4	5	0	1	0	0	2
Nonequity	8	3	8	7	13	16	19	25	16	15	9	11	31	29	51	64	65	49	52	57	56	90	76	97	100	124	145
New materials	4	6	5	8	4	6	12	10	10	11	11	5	5	20	11	13	6	6	9	6	6	6	8	4	6	7	1
Equity	4	5	5	7	2	3	10	4	7	6	5	3	4	9	1	4	1	0	2	1	0	2	2	1	1	0	0
Nonequity	0	1	0	1	2	3	2	6	3	5	6	2	1	11	10	9	5	6	7	5	6	4	6	3	5	7	1
Aerospace/defense	5	1	4	3	9	3	4	4	5	9	14	11	17	11	9	11	11	10	12	2	3	12	6	5	7	7	9
Equity	0	0	1	0	2	0	0	0	1	1	5	3	4	2	3	3	4	0	0	0	0	1	0	0	0	0	0
Nonequity	5	1	3	3	7	3	4	4	4	8	9	8	13	9	6	8	7	10	12	2	3	11	6	5	7	7	9
Automotive	3	0	1	2	3	6	5	4	9	8	1	0	0	4	6	6	8	7	7	11	13	6	5	5	8	11	6
Equity	2	0	0	1	1	3	3	3	6	4	1	0	0	1	0	1	1	3	3	6	3	4	1	1	0	1	0
Nonequity	1	0	1	1	2	3	2	1	3	4	0	0	0	3	6	5	7	4	4	5	10	2	4	4	8	10	6
Chemistry	3	6	6	2	6	7	3	4	10	13	10	14	7	19	14	24	10	20	29	12	20	5	1	5	15	8	6
Equity	2	5	4	2	4	4	2	3	6	11	4	5	3	9	5	1	3	4	5	2	5	0	0	0	2	0	0
Nonequity	1	1	2	0	2	3	1	1	4	2	6	9	4	10	9	23	7	16	24	10	15	5	1	5	13	8	6
U.S.-Japan owned																											
Total	24	31	51	47	51	51	49	50	60	66	35	46	41	45	40	47	48	38	31	41	27	34	34	41	51	47	54
Equity	11	21	22	30	16	28	24	20	30	45	10	9	7	7	1	2	2	5	0	3	4	1	5	4	3	4	6
Nonequity	13	10	29	17	35	23	25	30	30	21	25	37	34	38	39	45	46	33	31	38	23	33	29	37	48	43	48
Information technologies	6	5	18	22	30	17	18	20	19	22	23	32	22	29	23	29	30	19	17	26	15	16	12	21	24	13	21
Equity	4	3	5	12	7	10	9	6	2	13	5	7	2	4	0	0	1	3	0	2	2	0	2	3	1	0	3
Nonequity	2	2	13	10	23	7	9	14	17	9	18	25	20	25	23	29	29	16	17	24	13	16	10	18	23	13	18
Biotechnology	6	8	12	7	7	15	14	10	6	6	2	2	5	10	7	6	12	13	7	12	7	13	21	11	20	23	23
Equity	1	1	1	3	0	1	3	3	1	0	1	0	2	3	0	0	0	1	0	0	1	0	2	0	0	1	1
Nonequity	5	7	11	4	7	14	11	7	5	6	1	2	3	7	7	6	12	12	7	12	6	13	19	11	20	22	22

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
New materials	0	3	2	6	4	6	9	8	9	8	4	3	6	1	3	4	0	3	2	2	3	2	2	3	1	6	4
Equity	0	3	2	5	4	4	6	2	6	5	2	0	2	0	0	0	0	0	0	1	0	0	1	0	0	2	2
Nonequity	0	0	0	1	0	2	3	6	3	3	2	3	4	1	3	4	0	3	2	1	3	2	1	3	1	4	2
Aerospace/defense	5	0	0	0	0	0	1	0	0	2	1	5	0	0	0	1	1	1	1	1	2	1	0	0	1	1	0
Equity	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
Nonequity	5	0	0	0	0	0	0	0	0	2	1	5	0	0	0	1	1	1	1	1	2	1	0	0	1	1	0
Automotive	1	1	2	1	1	2	4	7	13	16	1	1	0	2	2	2	3	0	1	2	4	0	2	3	2	2	0
Equity	0	1	2	1	0	2	3	5	12	15	0	1	0	0	0	1	1	0	0	1	1	0	2	0	2	1	0
Nonequity	1	0	0	0	1	0	1	2	1	1	1	0	0	2	2	1	2	0	1	1	3	0	0	3	0	1	0
Chemistry	6	5	5	6	4	7	2	5	7	8	4	1	2	2	0	3	1	6	2	2	0	1	0	2	0	2	2
Equity	6	5	3	6	3	7	2	4	5	8	2	0	0	0	0	1	0	1	0	1	0	0	0	0	0	1	0
Nonequity	0	0	2	0	1	0	0	1	2	0	2	1	2	2	0	2	1	5	2	1	0	1	0	2	0	1	2
U.S.-NT owned																											
Total	12	11	14	9	12	13	11	9	28	22	18	6	20	16	23	39	43	32	16	33	37	50	40	81	71	73	95
Equity	8	10	8	9	8	10	8	6	17	15	5	1	6	8	6	4	10	4	3	3	3	4	4	9	5	7	13
Nonequity	4	1	6	0	4	3	3	3	11	7	13	5	14	8	17	35	33	28	13	30	34	46	36	72	66	66	82
Information technologies	0	1	5	3	2	4	2	3	9	9	8	3	7	4	11	23	25	16	9	21	18	17	13	33	29	19	33
Equity	0	1	3	3	1	1	1	2	4	5	0	0	0	1	1	2	5	1	0	1	2	0	2	4	1	1	7
Nonequity	0	0	2	0	1	3	1	1	5	4	8	3	7	3	10	21	20	15	9	20	16	17	11	29	28	18	26
Biotechnology	3	2	2	0	2	2	0	3	4	2	3	0	5	7	5	6	7	8	2	9	11	31	28	30	25	36	41
Equity	0	1	0	0	2	2	0	1	3	1	1	0	1	3	3	1	4	1	0	1	1	1	2	2	1	2	3
Nonequity	3	1	2	0	0	0	0	2	1	1	2	0	4	4	2	5	3	7	2	8	10	30	26	28	24	34	38
New materials	0	3	2	0	1	1	3	2	5	1	3	1	1	0	2	0	5	0	0	1	1	1	0	3	2	5	2
Equity	0	3	2	0	0	1	1	2	2	0	2	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1
Nonequity	0	0	0	0	1	0	2	0	3	1	1	1	0	0	1	0	4	0	0	1	1	1	0	3	2	5	1
Aerospace/defense	0	0	1	0	1	0	0	0	0	2	1	2	2	0	2	5	5	2	4	0	0	1	1	2	4	2	4
Equity	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	1	1
Nonequity	0	0	1	0	1	0	0	0	0	0	1	2	2	0	2	4	5	2	3	0	0	0	1	2	4	1	3
Automotive	1	0	1	1	0	2	0	0	7	2	0	0	0	0	0	1	1	4	2	1	5	2	2	8	5	4	8
Equity	1	0	1	1	0	2	0	0	6	2	0	0	0	0	0	0	1	1	2	1	0	2	0	2	2	3	2
Nonequity	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	0	0	5	0	2	6	3	1	6
Chemistry	6	5	2	2	1	3	0	0	3	4	1	1	5	3	4	1	1	2	0	1	0	0	0	4	3	1	0
Equity	6	5	1	2	1	3	0	0	2	4	1	1	4	3	3	1	1	1	0	0	0	0	0	1	0	0	0
Nonequity	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	0	0	0	3	3	1	0
Europe-only owned																											
Total	42	30	35	40	50	96	85	68	90	126	63	37	66	54	59	83	55	60	56	42	43	86	94	82	105	97	131
Equity	17	11	17	17	14	28	17	24	36	84	25	9	17	32	20	32	14	16	13	11	5	11	8	5	4	7	7
Nonequity	25	19	18	23	36	68	68	44	54	42	38	28	49	22	39	51	41	44	43	31	38	75	86	77	101	90	124
Information technologies	9	7	9	11	24	46	40	22	28	36	24	15	23	10	6	16	9	19	11	12	15	12	13	17	16	13	20
Equity	3	4	4	4	10	10	9	9	9	19	7	3	4	5	1	6	1	3	2	3	2	4	2	1	1	3	2
Nonequity	6	3	5	7	14	36	31	13	19	17	17	12	19	5	5	10	8	16	9	9	13	8	11	16	15	10	18

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Biotechnology	6	5	3	10	9	31	9	17	26	14	7	2	13	8	25	24	18	14	19	15	22	59	71	60	77	57	88
Equity	2	0	2	4	1	10	1	3	4	6	5	1	2	5	6	7	4	4	3	3	0	4	2	1	0	0	2
Nonequity	4	5	1	6	8	21	8	14	22	8	2	1	11	3	19	17	14	10	16	12	22	55	69	59	77	57	86
New materials	4	6	5	9	4	8	13	5	8	13	2	2	7	11	4	3	4	4	5	1	0	3	1	0	2	8	9
Equity	2	3	4	4	1	3	3	2	4	8	1	0	2	8	0	0	1	0	0	1	0	2	0	0	0	1	1
Nonequity	2	3	1	5	3	5	10	3	4	5	1	2	5	3	4	3	3	4	5	0	0	1	1	0	2	7	8
Aerospace/defense	5	2	3	3	8	3	10	7	5	16	14	11	14	11	15	16	10	11	7	1	0	4	4	4	3	12	10
Equity	1	0	1	1	1	1	1	0	2	7	7	3	4	2	7	9	3	5	6	0	0	1	0	1	2	2	1
Nonequity	4	2	2	2	7	2	9	7	3	9	7	8	10	9	8	7	7	6	1	1	0	3	4	3	1	10	9
Automotive	7	2	4	1	2	1	3	2	4	7	3	0	0	0	3	6	7	9	8	11	5	2	4	5	2	5	4
Equity	1	0	1	1	1	0	0	0	3	6	1	0	0	0	0	1	3	3	4	3	3	1	3	2	1	2	0
Nonequity	6	2	3	0	1	1	3	2	1	1	2	0	0	0	3	5	4	6	4	8	2	1	1	3	1	3	4
Chemistry	8	3	5	3	1	4	5	7	8	13	11	5	5	6	6	10	8	3	13	6	5	3	1	2	4	7	3
Equity	6	2	4	3	1	3	3	7	7	13	6	1	2	5	5	4	3	1	1	2	0	0	0	0	0	0	2
Nonequity	2	1	1	0	0	1	2	0	1	0	5	4	3	1	1	6	5	2	12	4	5	3	1	2	4	7	1
Europe-Japan owned																											
Total	7	16	17	17	19	28	30	25	19	24	20	18	21	22	16	22	18	9	18	10	14	23	19	21	15	25	23
Equity	5	10	8	3	7	13	14	15	7	20	13	8	10	8	2	3	5	0	4	4	2	8	1	3	1	4	2
Nonequity	2	6	9	14	12	15	16	10	12	4	7	10	11	14	14	19	13	9	14	6	12	15	18	18	14	21	21
Information technologies	3	6	8	5	9	7	13	4	7	7	6	10	8	8	7	8	7	4	9	4	8	14	5	8	5	4	8
Equity	2	4	2	0	1	3	3	1	2	4	3	3	2	2	1	1	1	0	1	2	1	5	0	2	0	1	1
Nonequity	1	2	6	5	8	4	10	3	5	3	3	7	6	6	6	7	6	4	8	2	7	9	5	6	5	3	7
Biotechnology	0	1	1	1	0	7	1	5	1	5	2	1	3	4	3	6	6	0	4	2	1	2	11	8	6	14	10
Equity	0	0	0	0	0	3	0	2	0	4	1	0	2	0	0	0	1	0	0	1	0	0	0	0	0	2	0
Nonequity	0	1	1	1	0	4	1	3	1	1	1	1	1	4	3	6	5	0	4	1	1	2	11	8	6	12	10
New materials	0	2	3	3	6	5	7	4	3	2	5	2	1	4	0	3	1	1	5	0	1	1	0	0	0	0	0
Equity	0	2	3	1	3	3	6	3	1	2	5	2	1	2	0	1	1	0	1	0	0	0	0	0	0	0	0
Nonequity	0	0	0	2	3	2	1	1	2	0	0	0	0	2	0	2	0	1	4	0	1	1	0	0	0	0	0
Aerospace/defense	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Automotive	1	2	1	1	0	3	3	2	2	5	0	0	0	2	2	0	1	1	2	3	4	4	1	2	1	2	2
Equity	1	0	1	0	0	0	1	1	0	5	0	0	0	1	1	0	1	0	1	1	1	4	0	1	1	0	1
Nonequity	0	2	0	1	0	3	2	1	2	0	0	0	0	1	1	0	0	1	1	2	3	0	1	1	0	2	1
Chemistry	1	2	2	4	2	4	3	8	3	4	6	4	7	4	4	3	4	2	2	1	1	2	1	1	2	2	0
Equity	1	1	2	2	2	4	3	7	2	4	3	3	5	3	0	2	2	0	0	0	0	1	1	0	0	0	0
Nonequity	0	1	0	2	0	0	0	1	1	0	3	1	2	1	4	1	2	2	2	1	1	1	0	1	2	2	0
Europe-NT owned																											
Total	4	4	5	2	8	14	7	15	25	21	11	2	14	19	17	19	19	26	11	9	19	21	34	35	29	59	59
Equity	3	3	1	2	4	10	5	12	19	16	7	0	9	11	6	7	8	6	3	3	1	4	5	10	6	14	6
Nonequity	1	1	4	0	4	4	2	3	6	5	4	2	5	8	11	12	11	20	8	6	18	17	29	25	23	45	53

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Information technologies	0	1	2	1	4	3	3	3	7	6	2	1	4	3	2	5	11	9	5	2	4	6	9	11	12	17	14
Equity	0	1	1	1	2	2	2	2	5	5	0	0	4	3	1	1	6	0	1	1	0	2	1	6	4	4	2
Nonequity	0	0	1	0	2	1	1	1	2	1	2	1	0	0	1	4	5	9	4	1	4	4	8	5	8	13	12
Biotechnology	0	1	1	0	0	1	0	0	2	1	6	0	5	2	6	4	6	5	3	2	8	14	19	12	14	22	35
Equity	0	1	0	0	0	1	0	0	0	0	5	0	1	1	0	0	2	1	1	0	1	2	0	1	1	0	0
Nonequity	0	0	1	0	0	0	0	0	2	1	1	0	4	1	6	4	4	4	2	2	7	12	19	11	13	22	35
New materials	0	0	1	0	0	1	0	2	3	2	1	0	1	3	0	3	0	2	1	0	1	1	0	2	0	2	2
Equity	0	0	0	0	0	1	0	2	3	2	0	0	1	3	0	2	0	2	0	0	0	0	0	0	0	1	1
Nonequity	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	1	0	2	0	1	1
Aerospace/defense	0	0	0	0	0	3	1	1	2	1	1	1	2	5	3	2	1	6	1	1	0	1	0	1	2	4	4
Equity	0	0	0	0	0	0	0	0	0	1	1	0	2	2	2	0	0	1	0	1	0	0	0	0	1	1	2
Nonequity	0	0	0	0	0	3	1	1	2	0	0	1	0	3	1	2	1	5	1	0	0	1	0	1	1	3	2
Automotive	0	0	0	0	1	0	1	0	1	1	0	0	0	0	1	1	1	1	0	0	3	0	2	5	0	3	3
Equity	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	1	2	0	3	1
Nonequity	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	3	0	1	3	0	0	2
Chemistry	3	2	0	1	3	2	1	5	8	6	1	0	2	4	2	5	0	2	3	3	3	0	1	0	1	6	4
Equity	3	1	0	1	2	2	1	5	8	5	1	0	1	2	2	4	0	2	1	1	0	0	0	0	0	2	2
Nonequity	0	1	0	0	1	0	0	0	0	1	0	0	1	2	0	1	0	0	2	2	3	0	1	0	1	4	2
Japan-only owned																											
Total	7	11	9	17	18	39	61	39	18	3	11	6	7	7	10	11	12	3	5	16	6	13	24	34	25	23	38
Equity	2	4	0	4	5	12	14	6	6	1	4	1	1	1	1	3	5	0	0	9	3	6	5	7	10	4	8
Nonequity	5	7	9	13	13	27	47	33	12	2	7	5	6	6	9	8	7	3	5	7	3	7	19	27	15	19	30
Information technologies	4	3	2	10	8	7	10	7	4	1	6	4	4	2	6	4	5	2	5	11	4	8	16	15	14	5	15
Equity	1	1	0	1	3	3	6	3	3	1	1	1	1	0	1	1	3	0	0	6	2	4	4	3	4	2	4
Nonequity	3	2	2	9	5	4	4	4	1	0	5	3	3	2	5	3	2	2	5	5	2	4	12	12	10	3	11
Biotechnology	1	2	2	2	3	7	15	8	2	0	1	0	0	1	1	1	0	0	0	2	1	2	6	7	4	13	13
Equity	0	0	0	1	1	2	3	2	0	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	1	1	3
Nonequity	1	2	2	1	2	5	12	6	2	0	0	0	0	0	1	1	0	0	0	1	0	2	6	5	3	12	10
New materials	0	1	1	2	4	19	28	20	10	2	0	1	0	1	2	3	3	0	1	3	1	2	3	0	2	1	6
Equity	0	0	0	0	0	2	4	1	2	0	0	0	0	0	0	1	1	0	0	2	0	2	2	0	2	0	2
Nonequity	0	1	1	2	4	17	24	19	8	2	0	1	0	1	2	2	2	0	1	1	1	0	1	0	0	1	4
Aerospace/defense	0	1	0	1	1	0	3	1	0	0	2	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Nonequity	0	1	0	1	1	0	3	1	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0
Automotive	0	0	0	1	1	4	3	0	2	0	1	1	3	3	0	3	2	0	0	0	0	0	1	3	1	1	1
Equity	0	0	0	1	0	2	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
Nonequity	0	0	0	0	1	2	2	0	2	0	0	1	3	3	0	3	1	0	0	0	0	0	0	3	1	1	1
Chemistry	0	0	2	2	1	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	2	1	2	2	2	1
Equity	0	0	0	1	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	1	2	0
Nonequity	0	0	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0	1

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Japan-NT owned																											
Total	0	1	2	0	3	2	2	6	3	12	1	0	1	5	6	5	9	4	4	5	6	4	7	10	9	13	18
Equity	0	1	1	0	3	2	1	5	1	12	0	0	1	1	2	1	1	0	2	0	1	1	3	2	5	3	6
Nonequity	0	0	1	0	0	0	1	1	2	0	1	0	0	4	4	4	8	4	2	5	5	3	4	8	4	10	12
Information technologies	0	0	1	0	1	0	0	0	1	1	0	0	0	3	4	3	4	3	1	2	4	4	2	6	2	6	7
Equity	0	0	1	0	1	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	1	1	1	2	1	3	4
Nonequity	0	0	0	0	0	0	0	0	1	0	0	0	0	3	2	2	4	3	1	2	3	3	1	4	1	3	3
Biotechnology	0	0	1	0	1	0	1	2	1	0	1	0	0	0	0	2	1	0	0	2	0	0	3	2	2	4	7
Equity	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Nonequity	0	0	1	0	0	0	1	1	1	0	1	0	0	0	0	2	1	0	0	2	0	0	2	2	2	4	7
New materials	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1	1	0	0	1	0
Equity	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0
Nonequity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	0
Aerospace/defense	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Automotive	0	0	0	0	0	1	0	2	1	3	0	0	0	0	2	0	1	1	3	0	1	0	0	1	3	1	3
Equity	0	0	0	0	0	1	0	2	1	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	1
Nonequity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	1	0	1	0	0	1	0	1	2
Chemistry	0	1	0	0	1	1	0	1	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0
Equity	0	1	0	0	1	1	0	1	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
NT-only owned																											
Total	2	1	2	5	0	5	1	1	3	3	1	0	1	3	2	3	6	3	5	7	5	10	7	17	21	34	24
Equity	1	0	2	2	0	5	0	0	2	2	0	0	0	2	0	1	1	0	2	1	0	1	2	1	4	11	4
Nonequity	1	1	0	3	0	0	1	1	1	1	1	0	1	1	2	2	5	3	3	6	5	9	5	16	17	23	20
Information technologies	0	0	1	1	0	0	1	1	2	2	1	0	1	2	1	1	1	1	3	3	0	6	4	9	9	10	4
Equity	0	0	1	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	1	0	0	1	1	1	3	6	1
Nonequity	0	0	0	1	0	0	1	1	1	1	1	0	1	0	1	1	1	1	2	3	0	5	3	8	6	4	3
Biotechnology	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	1	1	2	3	4	3	5	9	13	13
Equity	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	4	1
Nonequity	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	2	3	4	2	5	9	9	12
New materials	0	0	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
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonequity	0	0	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
Aerospace/defense	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	3	1
Equity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
Nonequity	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3	0

Appendix table 4-42

Industrial technology alliances classified by country of ultimate parent company, by technology and type (equity/nonequity): 1980–2006

Technology alliances	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Automotive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	2	0	4	3
Equity	0	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
Nonequity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	2	0	3	3
Chemistry	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	3	0
Equity	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0
Nonequity	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

NT = nontriad; country or region other than United States, Europe, or Japan

NOTES: Data are annual counts of new technology alliances formed by domestic and multinational companies worldwide. Alliances may be classified in more than one technology. Biotechnology includes biotechnological pharmaceuticals. Chemistry excludes biotechnology and includes nonbiotechnological pharmaceuticals. Country assignment based on headquarters of ultimate parent company of alliance members, not on location of members. Total alliances is sum of following exclusive ownership categories: U.S. only, U.S.-Europe, U.S.-Japan, U.S.-NT, Europe only, Europe-Japan, Europe-NT, Japan only, Japan-NT, and NT only. Special groupings: U.S. owned worldwide = sum of U.S. only, U.S.-Europe, U.S.-Japan, and U.S.-NT; Europe owned worldwide = sum of Europe only, U.S.-Europe, Europe-Japan, and Europe-NT; Japan owned worldwide = sum of Japan only, U.S.-Japan, Europe-Japan, and Japan-NT; NT owned worldwide = sum of NT only, U.S.-NT, Japan-NT, and Europe-NT.

SOURCE: Cooperative Agreements and Technology Indicators (CATI) database, special tabulations.

Science and Engineering Indicators 2010

Appendix table 4-43

Federal technology transfer activity indicators for U.S. agencies with federal laboratories: FY 2001–07

Agency	2001	2002	2003	2004	2005	2006	2007
Invention disclosures and patenting							
All 10 agencies							
Inventions disclosed	3,962	4,149	5,106	5,454	4,771	5,193	4,486
Patent applications filed	2,175	2,130	2,318	1,768	1,745	1,912	1,824
Patents issued	1,610	1,511	1,631	1,391	1,012	1,284	1,406
USDA							
Inventions disclosed	118	151	121	142	125	105	126
Patent applications filed	83	90	60	81	88	83	114
Patents issued	64	53	64	50	27	39	37
DOC							
Inventions disclosed	26	17	21	25	21	14	32
Patent applications filed	12	12	5	12	12	5	7
Patents issued	21	20	9	12	10	7	4
DOD							
Inventions disclosed	1,005	1,122	1,332	1,369	534	1,056	838
Patent applications filed	809	829	810	517	354	691	597
Patents issued	619	617	619	426	191	472	425
DOE							
Inventions disclosed	1,527	1,498	1,469	1,617	1,776	1,694	1,575
Patent applications filed	792	711	866	661	812	726	693
Patents issued	605	551	627	520	467	438	441
EPA							
Inventions disclosed	17	16	14	18	12	12	16
Patent applications filed	14	14	23	12	13	13	15
Patents issued	12	9	8	11	9	10	10
HHS							
Inventions disclosed	434	431	472	461	452	442	447
Patent applications filed	255	262	279	216	230	166	261
Patents issued	119	116	136	167	154	164	379
DOI							
Inventions disclosed	6	14	9	6	4	5	7
Patent applications filed	17	12	8	6	3	2	5
Patents issued	7	13	5	9	9	5	6
NASA							
Inventions disclosed	696	775	1,485	1,612	1,678	1,705	1,268
Patent applications filed	152	166	231	207	202	196	105
Patents issued	159	128	155	189	133	144	93
DOT							
Inventions disclosed	2	0	0	0	4	3	2
Patent applications filed	3	0	0	2	5	3	2
Patents issued	0	0	0	0	2	0	3
VA							
Inventions disclosed	131	125	183	204	165	157	175
Patent applications filed	38	34	36	54	26	27	25
Patents issued	4	4	8	7	10	5	8
Licensing							
All 10 agencies							
All licenses, total active in FY	4,391	6,063	6,497	7,567	9,577	10,186	10,347
Invention licenses	3,140	3,588	3,747	3,804	4,236	4,163	3,935
Other intellectual property licenses	1,254	2,475	2,771	3,775	5,341	6,023	6,405
USDA							
All licenses, total active in FY	255	267	270	296	320	332	339
Invention licenses	255	267	270	296	320	332	339
Other intellectual property licenses	0	0	0	0	0	0	0

Appendix table 4-43

Federal technology transfer activity indicators for U.S. agencies with federal laboratories: FY 2001–07

Agency	2001	2002	2003	2004	2005	2006	2007
DOC							
All licenses, total active in FY	40	41	101	125	133	111	217
Invention licenses	40	41	101	125	133	111	222
Other intellectual property licenses	0	0	0	0	0	0	0
DOD							
All licenses, total active in FY	285	471	364	369	412	444	460
Invention licenses	283	350	361	364	406	438	460
Other intellectual property licenses	5	121	3	5	6	6	35
DOE							
All licenses, total active in FY	2,005	3,459	3,687	4,345	5,677	5,916	5,842
Invention licenses	1,162	1,327	1,223	1,362	1,535	1,420	1,354
Other intellectual property licenses	843	2,132	2,464	2,983	4,142	4,496	4,488
EPA							
All licenses, total active in FY	16	23	32	38	39	35	38
Invention licenses	16	23	32	38	39	35	38
Other intellectual property licenses	0	0	0	0	0	0	0
HHS							
All licenses, total active in FY	1,367	1,356	1,423	1,424	1,532	1,535	1,418
Invention licenses	1,007	1,213	1,350	1,173	1,237	1,213	915
Other intellectual property licenses	360	143	82	251	295	322	460
DOI							
All licenses, total active in FY	8	8	11	13	20	21	15
Invention licenses	8	8	10	12	19	20	15
Other intellectual property licenses	0	0	1	1	1	1	0
NASA							
All licenses, total active in FY	328	357	521	861	1,338	1,675	1,883
Invention licenses	292	290	312	338	441	477	461
Other intellectual property licenses	36	67	209	523	897	1,198	1,422
DOT							
All licenses, total active in FY	1	0	0	1	5	5	5
Invention licenses	1	0	0	1	5	5	5
Other intellectual property licenses	0	0	0	0	0	0	0
VA							
All licenses, total active in FY	86	81	88	95	101	112	130
Invention licenses	76	69	88	95	101	112	130
Other intellectual property licenses	10	12	12	12	0	0	0
Colllaborative R&D relationships							
All 10 agencies							
CRADAs, total active in FY	3,676	5,377	5,603	6,016	5,949	7,271	7,327
Traditional CRADAs	2,837	2,858	2,316	2,937	3,319	3,036	3,117
Other collaborative R&D relationships	NA	NA	8,162	7,454	11,767	9,738	9,445
USDA							
CRADAs, total active in FY	219	225	229	205	199	195	230
Traditional CRADAs	217	222	212	185	171	163	184
Other collaborative R&D relationships	NA	NA	2,769	1,166	5,028	3,477	4,084
DOC							
CRADAs, total active in FY	247	1,883	1,903	1,969	1,904	3,008	2,778
Traditional CRADAs	188	139	92	67	80	149	154
Other collaborative R&D relationships	1,575	1,694	1,814	2,301	2,714	2,769	2,695
DOD							
CRADAs, total active in FY	1,965	1,913	2,134	2,833	2,736	2,999	2,971
Traditional CRADAs	1,418	1,376	1,523	2,425	2,262	2,424	2,383
Other collaborative R&D relationships	0	0	0	0	0	0	0

Appendix table 4-43

Federal technology transfer activity indicators for U.S. agencies with federal laboratories: FY 2001–07

Agency	2001	2002	2003	2004	2005	2006	2007
DOE							
CRADAs, total active in FY	558	680	661	610	644	631	697
Traditional CRADAs	558	680	661	610	644	631	697
Other collaborative R&D relationships	0	0	0	0	0	0	0
EPA							
CRADAs, total active in FY	48	59	91	104	107	94	84
Traditional CRADAs	45	55	77	82	95	83	67
Other collaborative R&D relationships	0	0	0	0	0	0	0
HHS							
CRADAs, total active in FY	498	470	427	220	215	164	285
Traditional CRADAs	289	261	254	119	117	92	206
Other collaborative R&D relationships	0	0	0	0	0	0	0
DOI							
CRADAs, total active in FY	56	52	51	61	70	82	170
Traditional CRADAs	41	42	51	45	49	31	20
Other collaborative R&D relationships	0	0	0	0	0	0	0
NASA							
CRADAs, total active in FY	1	1	0	0	1	1	1
Traditional CRADAs	1	1	0	0	1	1	1
Other collaborative R&D relationships	1,053	2,659	3,579	3,987	4,025	3,492	2,666
DOT							
CRADAs, total active in FY	82	92	96	0	57	59	36
Traditional CRADAs	78	80	96	0	55	59	36
Other collaborative R&D relationships	0	0	0	0	0	0	0
VA							
CRADAs, total active in FY	2	2	11	14	16	38	75
Traditional CRADAs	2	2	11	14	15	34	66
Other collaborative R&D relationships	0	0	0	0	0	0	0

NA = not available

CRADA = Cooperative Research and Development Agreement; 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 = U.S. Department of Agriculture; VA = Department of Veterans Affairs

NOTES: Department of Homeland Security expected to provide technology transfer statistics starting in FY 2008. Invention licenses refers to inventions that are/could be patented. Other intellectual property refers to intellectual property protected through mechanisms other than patent, e.g., copyright. Total CRADAs refers to all agreements executed under CRADA authority (15 U.S.C 3710a). Traditional CRADAs are collaborative R&D partnerships between a federal laboratory 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. The data are as published in the National Institute of Standards and Technology report; for some variables the components do not add to the published totals.

SOURCES: For FY 2003–07: National Institute of Standards and Technology, Federal Laboratory Technology Transfer, Fiscal Year 2007, Summary Report to the President and the Congress (2009), http://patapsco.nist.gov/ts/220/external/Federal_Lab_Tech_Transfer_Report_Congress_2007.pdf, accessed 8 May 2009. For FY 2001–02: Department of Commerce, Office of the Secretary, Summary Report on Federal Laboratory Technology Transfer: FY 2003 Activity Metrics and Outcomes, 2004 Report to the President and the Congress (2004), http://patapsco.nist.gov/ts/220/external/tech%20transfer/summary%20report%20fy2003.pdf, accessed 8 May 2009.

Science and Engineering Indicators 2010

Appendix table 4-44

SBIR and STTR awards, by type of award: FY 1983–2006

	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	3,835	2,026	5,861	644	234	878

NA = not available

SBIR = Small Business Innovation Research program; STTR = Small Business Technology Transfer program

SOURCE: Small Business Administration, 2006 SBIR Annual Report and 2006 STTR Annual Report.

Science and Engineering Indicators 2010

Appendix table 4-45

SBIR award funding, by type of award and federal agency: FY 1983–2006

(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	6	9	7

NA = not available; * = ≤$500,000

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.

NOTES: Agency obligations based on information from Small Business Administration (SBA). Data do not necessarily contain subsequent-year revisions and may not add to total.

SOURCE: SBA, SBIR Annual Report (annual series).

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Appendix table 4-46

Small Business Technology Transfer Program award funding, by type of award and federal agency: FY 1994–2006

(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

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 TechnologyTransfer (STTR) competition in FY 2006. STTR data for DHS incomplete.

NOTES: Agency obligations based on information from Small Business Administration (SBA). Data do not necessarily contain subsequent-year revisions and may not add to total.

SOURCE: SBA, Small Business Technology Transfer Program Annual Report (annual series).

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Appendix table 4-47

Advanced Technology Program projects, number of participants, and funding: FY 1990–2007

					Project funding (current $millions)						
						ATP			Industry		
Fiscal year	Projects	SA	JV	Participants	Total	All	To JV	To SA	All	From JV	From SA
1990	11	6	5	35	98	46	38	8	52	45	7
1991	28	18	10	83	202	93	65	28	109	83	26
1992	21	18	3	32	97	48	19	29	49	19	30
1993	29	24	5	50	118	60	19	41	58	20	38
1994	88	50	38	211	640	309	216	93	331	233	98
1995	103	62	41	318	827	414	304	110	413	340	73
1996	8	6	2	12	37	19	9	10	18	10	8
1997	64	49	15	101	304	162	75	87	142	81	61
1998	79	52	27	168	460	235	143	92	225	157	68
1999	37	26	11	57	212	110	61	49	102	64	38
2000	54	39	15	95	274	144	70	74	130	74	56
2001	59	46	13	88	286	164	79	85	122	81	41
2002	61	51	10	79	289	156	59	97	133	61	72
2003	67	55	12	104	257	154	49	105	103	51	52
2004	59	48	11	78	270	155	62	93	115	66	49
2005	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0
2007	56	47	9	70	243	139	47	92	104	50	54

ATP = Advanced Technology Program; JV = joint ventures; SA = single applicants

NOTES: For multiyear projects, total funding attributed to year award made. Participants include SAs, JV leaders, and JV members and exclude subcontractors and informal collaborators. Beginning in 2000, funding and number of awards based on year recipient received funding, not on competition year. ATP program succeeded by new Technology Innovation Program established by the 2007 America COMPETES Act (Public Law 110–69), signed 9 August 2007. See appendix table 4-48.

SOURCE: National Institute of Standards and Technology, Advanced Technology Program, special tabulations.

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Appendix table 4-48

Technology Innovation Program summary data: FY 2008

Participants and awards	Number
Participants	31
Small businesses	12
Medium-sized businesses	5
Universities	11
Other	3
Awards	9
JV, by type of JV lead	7
Small businesses	1
Medium-sized businesses	2
Universities	4
Single applicants	2
Small businesses	2
Medium-sized businesses	0
Universities	0
Awards funding	**Current $millions**
Total project funding	89
TIP share	43
To joint ventures	38
Led by small businesses	4
Led by medium-sized businesses	10
Led by universities	24
To single applicants	5
Small businesses	5
Medium-sized businesses	0
Universities	0
Industry cost-share	46
From joint ventures	42
Led by small businesses	6
Led by medium-sized businesses	10
Led by universities	26
From single applicants	4
Small businesses	4
Medium-sized businesses	0
Universities	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.

Science and Engineering Indicators 2010

Appendix table 4-49

Hollings Manufacturing Extension Partnership, federal obligations: FY 1988–2008

(Millions of current dollars)

Fiscal year	Federal obligations
1988	0.4
1989	5.6
1990	11.2
1991	13.7
1992	18.0
1993	14.2
1994	35.1
1995	40.5
1996	113.0
1997	98.1
1998	114.1
1999	127.9
2000	103.3
2001	105.9
2002	108.2
2003	111.1
2004	46.5
2005	101.9
2006	111.3
2007	106.8
2008	91.0

SOURCE: National Institute of Standards and Technology, Hollings Manufacturing Extension Partnership, special tabulations.

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Appendix table 5-1

Academic R&D expenditures directed to basic research, applied research, and development: 1970–2008

(Percent distribution)

Year	All academic R&D	Basic research	Applied research	Development
1970	100.0	76.7	18.7	4.6
1971	100.0	76.7	19.5	3.8
1972	100.0	73.9	22.5	3.7
1973	100.0	71.2	24.6	4.3
1974	100.0	71.0	24.7	4.4
1975	100.0	69.5	26.2	4.4
1976	100.0	68.6	26.7	4.7
1977	100.0	68.3	25.9	5.8
1978	100.0	67.6	25.0	7.5
1979	100.0	67.0	24.8	8.2
1980	100.0	66.8	25.1	8.0
1981	100.0	66.9	25.1	8.0
1982	100.0	67.0	25.2	7.9
1983	100.0	66.9	25.6	7.5
1984	100.0	67.1	25.5	7.4
1985	100.0	68.1	24.5	7.3
1986	100.0	68.8	24.1	7.1
1987	100.0	67.5	25.1	7.4
1988	100.0	65.7	26.6	7.7
1989	100.0	65.4	26.8	7.8
1990	100.0	65.7	26.0	8.3
1991	100.0	66.3	25.3	8.4
1992	100.0	66.6	25.2	8.2
1993	100.0	66.6	25.1	8.3
1994	100.0	66.6	24.9	8.4
1995	100.0	67.0	25.0	8.0
1996	100.0	67.6	24.8	7.6
1997	100.0	70.9	22.2	6.9
1998	100.0	74.0	19.8	6.2
1999	100.0	74.6	20.5	4.9
2000	100.0	74.6	21.5	3.8
2001	100.0	74.8	21.4	3.8
2002	100.0	75.2	21.2	3.6
2003	100.0	74.2	22.0	3.9
2004	100.0	74.2	21.6	4.2
2005	100.0	75.3	20.7	4.0
2006	100.0	76.0	20.3	3.7
2007	100.0	76.1	20.4	3.5
2008 preliminary	100.0	75.9	20.6	3.5

NOTES: Expenditure levels for academic R&D refer to calendar years and are based on fiscal year data approximations. Because of changes in estimation procedures, character-of-work data before FY 1998 not comparable with that of later years. See appendix tables 4-3, 4-4, 4-5, and 4-6.

SOURCE: National Science Foundation, Division of Science Resources Statistics, *National Patterns of R&D Resources* (annual series, preliminary data for 2008).

Science and Engineering Indicators 2010

Appendix table 5-2
Support for academic R&D, by sector: 1972–2008

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	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	30,129	2,962	2,402	9,062	3,196
2007	49,554	30,458	3,143	2,680	9,748	3,525
2008	51,909	31,231	3,418	2,870	10,435	3,954
	2000 constant $millions					
1972	8,849	6,040	905	249	1,026	629
1973	9,294	6,397	951	271	1,025	651
1974	9,083	6,108	926	286	1,106	658
1975	9,281	6,229	904	308	1,135	705
1976	9,469	6,379	924	312	1,133	724
1977	9,608	6,440	884	328	1,214	742
1978	10,237	6,771	916	376	1,379	795
1979	10,991	7,370	967	395	1,506	754
1980	11,418	7,718	925	444	1,573	759
1981	11,744	7,840	937	499	1,722	746
1982	11,758	7,655	989	541	1,784	788
1983	12,119	7,671	962	598	2,002	886
1984	12,782	8,053	1,023	704	2,092	909
1985	13,912	8,709	1,080	804	2,322	997
1986	15,338	9,420	1,284	982	2,623	1,027
1987	16,623	10,044	1,399	1,081	2,965	1,133
1988	17,853	10,865	1,467	1,156	3,124	1,240
1989	19,121	11,479	1,562	1,269	3,444	1,367

Appendix table 5-2
Support for academic R&D, by sector: 1972–2008

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
1990	20,049	11,865	1,630	1,387	3,700	1,466
1991	20,865	12,145	1,749	1,428	3,994	1,550
1992	21,779	12,838	1,725	1,480	4,106	1,630
1993	22,578	13,532	1,764	1,539	4,061	1,681
1994	23,300	14,016	1,722	1,576	4,240	1,745
1995	24,061	14,468	1,833	1,615	4,391	1,751
1996	24,540	14,739	1,929	1,709	4,441	1,723
1997	25,505	14,982	1,998	1,817	4,916	1,791
1998	26,736	15,668	2,010	1,952	5,172	1,934
1999	28,100	16,437	2,063	2,074	5,491	2,035
2000	30,084	17,548	2,200	2,156	5,925	2,255
2001	32,067	18,800	2,267	2,168	6,462	2,370
2002	34,897	20,967	2,402	2,100	6,839	2,589
2003	37,677	23,274	2,487	2,031	7,201	2,684
2004	39,614	25,315	2,636	1,950	7,100	2,612
2005	40,638	25,917	2,609	2,033	7,335	2,744
2006	40,981	25,857	2,542	2,061	7,777	2,743
2007	41,395	25,443	2,626	2,239	8,143	2,945
2008	42,354	25,482	2,789	2,342	8,514	3,226
			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	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

Appendix table 5-2
Support for academic R&D, by sector: 1972–2008

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
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
2007	100.0	61.5	6.3	5.4	19.7	7.1
2008	100.0	60.2	6.6	5.5	20.1	7.6

NOTE: See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

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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	25,252	2,319	765	553	16,569	3,266	723	1,057
2008 (preliminary)	25,709	2,450	849	544	16,806	3,319	800	941
2009 (preliminary)	25,724	2,104	944	540	16,797	3,901	539	899
	2000 constant $millions							
1970	5,461	799	370	485	1,916	844	240	803
1971	5,796	743	331	472	2,125	941	254	930
1972	6,406	730	286	400	2,544	1,218	293	932
1973	6,178	657	267	358	2,452	1,205	303	931
1974	6,655	592	283	298	3,087	1,169	286	938
1975	6,564	553	359	294	2,932	1,184	294	947
1976	6,480	609	368	302	3,009	1,110	305	780
1977	6,863	645	444	279	3,097	1,207	331	860
1978	7,470	848	531	281	3,305	1,189	412	903

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
1979	7,966	897	533	285	3,851	1,264	410	727
1980	8,028	932	537	298	3,789	1,290	407	776
1981	7,660	983	515	293	3,604	1,204	417	645
1982	7,393	1,066	445	299	3,436	1,148	409	592
1983	7,635	1,113	457	291	3,678	1,204	423	470
1984	8,225	1,231	476	302	4,026	1,305	387	497
1985	9,105	1,350	513	340	4,535	1,439	421	506
1986	9,206	1,541	484	356	4,552	1,392	385	498
1987	10,036	1,391	528	402	5,339	1,499	383	494
1988	10,381	1,420	538	448	5,568	1,516	404	485
1989	11,070	1,518	580	554	5,827	1,601	419	573
1990	11,247	1,493	615	580	5,882	1,626	428	622
1991	12,063	1,367	737	633	6,549	1,703	458	617
1992	11,885	1,623	741	678	5,860	1,782	507	694
1993	12,682	1,828	660	695	6,617	1,767	490	626
1994	13,067	1,886	626	710	6,858	1,861	486	639
1995	12,940	1,724	644	768	6,803	1,881	472	648
1996	12,749	1,540	640	708	7,046	1,852	400	563
1997	13,138	1,407	610	752	7,383	1,903	461	622
1998	13,830	1,467	644	813	7,819	1,938	429	720
1999	15,261	1,504	643	803	8,938	2,118	502	754
2000	16,821	1,606	668	845	10,087	2,265	554	796
2001	19,136	2,232	726	920	11,262	2,440	637	917
2002	20,408	2,127	730	1,030	12,521	2,584	567	848
2003	21,322	1,817	742	1,030	13,483	2,798	602	849
2004	22,134	1,864	782	1,072	13,905	2,859	598	1,053
2005	22,043	1,945	737	974	13,893	2,726	630	1,138
2006	20,886	1,799	736	837	13,293	2,671	624	926
2007	21,094	1,937	639	462	13,841	2,728	604	883
2008 (preliminary)	20,977	1,999	693	444	13,712	2,708	653	768
2009 (preliminary)	20,687	1,692	759	434	13,508	3,137	433	723
	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

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
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
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	9.2	3.0	2.2	65.6	12.9	2.9	4.2
2008 (preliminary)	100.0	9.5	3.3	2.1	65.4	12.9	3.1	3.7
2009 (preliminary)	100.0	8.2	3.7	2.1	65.3	15.2	2.1	3.5

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]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 2000 dollars.

SOURCES: NSF, Division of Science Resources Statistics, Federal Funds for Research and Development: FY 2007, 2008, and 2009 (forthcoming); 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.

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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	25,252	2,319	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	1,285	803	46	269	0	0	16
2008 (preliminary)							
All R&D	25,709	2,450	849	544	16,806	3,319	800
Basic	14,487	808	626	175	9,349	3,086	348
Applied	9,959	843	178	98	7,457	233	441
Development	1,263	799	45	271	0	0	11
2009 (preliminary)							
All R&D	25,724	2,104	944	540	16,797	3,901	539
Basic	15,033	871	713	177	9,336	3,612	226
Applied	9,607	635	177	75	7,460	289	308
Development	1,083	598	54	288	0	0	5
	Percent distribution						
2007							
All R&D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Basic	56.3	35.0	75.3	32.5	55.5	92.6	42.0
Applied	38.6	30.4	18.7	18.8	44.5	7.4	55.6
Development	5.1	34.6	6.0	48.6	0.0	0.0	2.2
2008 (preliminary)							
All R&D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Basic	56.3	33.0	73.7	32.2	55.6	93.0	43.5
Applied	38.7	34.4	21.0	18.0	44.4	7.0	55.1
Development	4.9	32.6	5.3	49.8	0.0	0.0	1.4
2009 (preliminary)							
All R&D	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Basic	58.4	41.4	75.5	32.8	55.6	92.6	41.9
Applied	37.3	30.2	18.8	13.9	44.4	7.4	57.1
Development	4.2	28.4	5.7	53.3	0.0	0.0	0.9

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

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Federal Funds for Research and Development: FY 2007, 2008, and 2009 (forthcoming).

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Appendix table 5-5

Federal and nonfederal R&D expenditures at academic institutions, by field and source of funds: 2008

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	51,909	100.0	31,231	100.0	20,678	100.0
Science	43,952	84.7	26,526	84.9	17,426	84.3
Computer sciences	1,468	2.8	1,031	3.3	438	2.1
Environmental sciences	2,800	5.4	1,826	5.8	974	4.7
Atmospheric sciences	422	0.8	337	1.1	85	0.4
Earth sciences	956	1.8	603	1.9	353	1.7
Oceanography	1,051	2.0	684	2.2	367	1.8
Environmental sciences nec	371	0.7	202	0.6	169	0.8
Life sciences	31,215	60.1	18,664	59.8	12,552	60.7
Agricultural sciences	2,994	5.8	864	2.8	2,131	10.3
Biological sciences	9,769	18.8	6,358	20.4	3,411	16.5
Medical sciences	17,271	33.3	10,757	34.4	6,514	31.5
Life sciences nec	1,180	2.3	685	2.2	495	2.4
Mathematical sciences	621	1.2	445	1.4	175	0.8
Physical sciences	3,933	7.6	2,739	8.8	1,194	5.8
Astronomy	537	1.0	351	1.1	186	0.9
Chemistry	1,486	2.9	988	3.2	498	2.4
Physics	1,604	3.1	1,211	3.9	393	1.9
Physical sciences nec	307	0.6	190	0.6	117	0.6
Psychology	929	1.8	637	2.0	292	1.4
Social sciences	1,940	3.7	810	2.6	1,130	5.5
Economics	398	0.8	128	0.4	271	1.3
Political science	337	0.6	124	0.4	213	1.0
Sociology	403	0.8	202	0.6	201	1.0
Social sciences nec	801	1.5	356	1.1	445	2.2
Sciences nec	1,046	2.0	373	1.2	672	3.2
Engineering	7,957	15.3	4,705	15.1	3,251	15.7
Aeronautical/astronautical	538	1.0	387	1.2	151	0.7
Bioengineering/biomedical	604	1.2	364	1.2	240	1.2
Chemical	658	1.3	343	1.1	315	1.5
Civil	922	1.8	385	1.2	537	2.6
Electrical	1,708	3.3	1,112	3.6	596	2.9
Mechanical	1,159	2.2	730	2.3	430	2.1
Metallurgical/materials	643	1.2	374	1.2	269	1.3
Engineering nec	1,725	3.3	1,013	3.2	712	3.4

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, Division of Science Resources Statistics, Academic Research and Development Expenditures: FY 2008.

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Appendix table 5-6

Expenditures for academic R&D, by field: Selected years, 1975–2008

Field	1975	1980	1985	1990	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	Current $millions															
All fields	3,409	6,063	9,687	16,290	24,380	25,867	27,544	30,084	32,824	36,405	40,100	43,258	45,799	47,751	49,554	51,909
Computer sciences	46	124	281	515	710	747	861	877	956	1,126	1,305	1,404	1,406	1,438	1,421	1,468
Environmental sciences	255	508	705	1,069	1,533	1,625	1,692	1,766	1,829	2,018	2,195	2,353	2,555	2,602	2,724	2,800
Atmospheric sciences	NA	76	108	173	246	269	288	288	302	341	396	415	460	508	492	422
Earth sciences	NA	188	254	355	450	514	546	563	555	640	724	828	920	897	909	956
Oceanography	NA	176	258	377	537	546	604	633	673	718	770	779	812	840	996	1,051
Environmental sciences nec	255	68	86	164	301	296	254	282	300	318	305	332	363	358	327	371
Life sciences	1,901	3,218	5,279	8,726	13,593	14,599	15,632	17,471	19,230	21,439	23,757	25,949	27,605	28,804	29,838	31,215
Agricultural sciences	384	676	999	1,349	1,966	1,996	2,036	2,177	2,322	2,450	2,555	2,695	2,657	2,797	2,916	2,994
Biological sciences	630	1,028	1,781	2,859	4,185	4,586	5,041	5,621	5,957	6,603	7,385	8,152	8,844	9,049	9,229	9,769
Medical sciences	811	1,423	2,318	4,154	6,908	7,472	8,003	8,987	10,191	11,488	12,779	14,037	14,878	15,806	16,562	17,271
Life sciences nec	75	91	181	363	534	545	552	686	760	898	1,038	1,064	1,226	1,152	1,131	1,180
Mathematical sciences	40	78	128	222	290	311	314	342	360	388	428	449	495	533	573	621
Physical sciences	350	677	1,148	1,807	2,372	2,484	2,606	2,713	2,806	3,017	3,277	3,547	3,704	3,813	3,859	3,933
Astronomy	27	59	96	170	288	303	385	386	378	402	392	420	454	470	463	537
Chemistry	121	244	422	648	821	877	920	962	1,009	1,129	1,226	1,318	1,372	1,414	1,461	1,486
Physics	174	323	551	842	1,059	1,079	1,149	1,208	1,241	1,287	1,418	1,522	1,597	1,611	1,616	1,604
Physical sciences nec	29	52	80	147	204	226	153	158	178	199	240	286	280	318	320	307
Psychology	80	110	158	253	397	445	465	517	583	673	770	783	826	875	872	929
Social sciences	256	339	383	703	1,126	1,132	1,252	1,300	1,444	1,597	1,675	1,676	1,685	1,706	1,798	1,940
Economics	56	91	118	201	261	261	266	255	272	284	313	317	325	340	349	398
Political science	29	54	59	115	176	176	200	230	255	283	304	308	324	316	348	337
Sociology	69	87	75	132	258	253	272	301	328	375	368	355	370	400	397	403
Social sciences nec	102	107	131	255	432	442	514	513	588	654	689	695	667	650	703	801
Sciences nec	100	146	186	337	520	455	459	543	594	623	697	782	778	888	943	1,046
Engineering	381	862	1,418	2,657	3,840	4,071	4,263	4,557	5,022	5,525	5,997	6,315	6,746	7,093	7,525	7,957
Aeronautical/astronautical	NA	53	81	164	247	250	262	259	342	346	406	437	445	385	471	538
Bioengineering/biomedical	NA	NA	NA	NA	77	102	137	174	213	282	314	370	420	477	540	604
Chemical	NA	61	116	218	317	327	349	376	414	431	453	493	506	560	601	658
Civil	NA	83	153	284	472	495	529	601	664	717	776	789	788	858	869	922
Electrical	NA	183	337	663	942	1,043	1,017	1,118	1,164	1,306	1,401	1,438	1,582	1,615	1,632	1,708
Mechanical	NA	140	208	391	518	568	625	633	687	780	821	875	936	1,048	1,129	1,159
Metallurgical/materials	NA	NA	NA	274	389	391	384	399	453	468	548	565	612	643	634	643
Engineering nec	381	341	523	663	878	894	960	998	1,085	1,195	1,278	1,348	1,456	1,507	1,650	1,725

Appendix table 5-6

Expenditures for academic R&D, by field: Selected years, 1975–2008

Field	1975	1980	1985	1990	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	2000 constant $millions															
All fields	9,280	11,418	13,912	20,049	25,505	26,736	28,100	30,084	32,067	34,898	37,678	39,613	40,638	40,981	41,395	42,354
Computer sciences	124	234	403	633	742	772	879	877	934	1,079	1,226	1,286	1,248	1,234	1,187	1,198
Environmental sciences	694	957	1,013	1,316	1,604	1,679	1,726	1,766	1,787	1,934	2,062	2,155	2,267	2,233	2,275	2,285
Atmospheric sciences	NA	143	155	213	257	278	294	288	295	327	372	380	408	436	411	344
Earth sciences	NA	354	364	436	471	531	557	563	542	614	680	758	816	770	759	780
Oceanography	NA	332	370	464	561	564	616	633	657	688	723	713	720	721	832	858
Environmental sciences nec	694	128	123	202	315	306	259	282	293	305	286	304	322	307	273	303
Life sciences	5,175	6,060	7,582	10,740	14,220	15,089	15,948	17,471	18,786	20,551	22,322	23,763	24,494	24,720	24,925	25,469
Agricultural sciences	1,045	1,273	1,435	1,661	2,057	2,063	2,077	2,177	2,269	2,349	2,401	2,468	2,358	2,400	2,436	2,443
Biological sciences	1,716	1,936	2,558	3,519	4,378	4,740	5,143	5,621	5,819	6,329	6,938	7,466	7,847	7,766	7,709	7,971
Medical sciences	2,209	2,680	3,329	5,113	7,227	7,723	8,165	8,987	9,956	11,012	12,007	12,854	13,201	13,565	13,835	14,092
Life sciences nec	205	171	260	447	559	563	563	686	743	861	976	975	1,088	989	945	963
Mathematical sciences	108	147	183	273	303	321	320	342	352	372	402	411	439	457	479	507
Physical sciences	954	1,276	1,649	2,225	2,481	2,568	2,659	2,713	2,741	2,892	3,079	3,248	3,287	3,272	3,224	3,209
Astronomy	72	110	138	210	301	313	392	386	370	386	368	385	403	403	387	438
Chemistry	329	459	605	798	859	906	939	962	985	1,082	1,152	1,207	1,217	1,214	1,220	1,212
Physics	472	608	791	1,036	1,108	1,115	1,173	1,208	1,212	1,234	1,333	1,394	1,417	1,383	1,350	1,309
Physical sciences nec	80	98	115	181	214	233	156	158	174	190	226	262	248	273	267	250
Psychology	219	207	227	311	415	460	474	517	570	645	723	717	733	751	728	758
Social sciences	697	638	550	865	1,178	1,170	1,278	1,300	1,411	1,530	1,573	1,535	1,495	1,464	1,502	1,583
Economics	152	171	170	247	273	270	272	255	266	272	295	290	288	292	292	325
Political science	80	103	85	142	184	181	204	230	249	271	286	282	287	271	291	275
Sociology	187	164	107	162	269	262	277	301	321	360	346	325	328	343	332	329
Social sciences nec	278	201	188	314	452	457	524	513	575	627	647	637	592	558	587	654
Sciences nec	272	275	268	415	545	470	468	543	580	597	655	716	690	762	788	853
Engineering	1,037	1,623	2,036	3,270	4,017	4,207	4,349	4,557	4,906	5,296	5,635	5,783	5,986	6,087	6,286	6,492
Aeronautical/astronautical	NA	100	116	201	259	259	267	259	334	332	381	400	395	330	393	439
Bioengineering/biomedical	NA	NA	NA	NA	80	105	139	174	208	270	295	339	373	409	451	493
Chemical	NA	114	167	269	331	338	356	376	405	413	426	451	449	481	502	537
Civil	NA	157	220	350	494	512	540	601	649	687	729	722	699	736	726	752
Electrical	NA	345	485	816	986	1,078	1,038	1,118	1,137	1,252	1,317	1,317	1,404	1,386	1,363	1,394
Mechanical	NA	264	298	481	542	587	638	633	671	748	771	801	831	899	943	946
Metallurgical/materials	NA	NA	NA	337	407	405	392	399	442	449	515	518	543	552	530	525
Engineering nec	1,037	643	751	816	919	924	979	998	1,060	1,146	1,201	1,234	1,292	1,293	1,378	1,407

Appendix table 5-6

Expenditures for academic R&D, by field: Selected years, 1975–2008

Field	1975	1980	1985	1990	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	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
Computer sciences	1.3	2.0	2.9	3.2	2.9	2.9	3.1	2.9	2.9	3.1	3.3	3.2	3.1	3.0	2.9	2.8
Environmental sciences	7.5	8.4	7.3	6.6	6.3	6.3	6.1	5.9	5.6	5.5	5.5	5.4	5.6	5.4	5.5	5.4
Atmospheric sciences	NA	1.3	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	1.0	1.0	1.0	1.1	1.0	0.8
Earth sciences	NA	3.1	2.6	2.2	1.8	2.0	2.0	1.9	1.7	1.8	1.8	1.9	2.0	1.9	1.8	1.8
Oceanography	NA	2.9	2.7	2.3	2.2	2.1	2.2	2.1	2.0	2.0	1.9	1.8	1.8	1.8	2.0	2.0
Environmental sciences nec	7.5	1.1	0.9	1.0	1.2	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7
Life sciences	55.8	53.1	54.5	53.6	55.8	56.4	56.8	58.1	58.6	58.9	59.2	60.0	60.3	60.3	60.2	60.1
Agricultural sciences	11.3	11.1	10.3	8.3	8.1	7.7	7.4	7.2	7.1	6.7	6.4	6.2	5.8	5.9	5.9	5.8
Biological sciences	18.5	17.0	18.4	17.6	17.2	17.7	18.3	18.7	18.1	18.1	18.4	18.8	19.3	19.0	18.6	18.8
Medical sciences	23.8	23.5	23.9	25.5	28.3	28.9	29.1	29.9	31.0	31.6	31.9	32.4	32.5	33.1	33.4	33.3
Life sciences nec	2.2	1.5	1.9	2.2	2.2	2.1	2.0	2.3	2.3	2.5	2.6	2.5	2.7	2.4	2.3	2.3
Mathematical sciences	1.2	1.3	1.3	1.4	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.2	1.2
Physical sciences	10.3	11.2	11.9	11.1	9.7	9.6	9.5	9.0	8.5	8.3	8.2	8.2	8.1	8.0	7.8	7.6
Astronomy	0.8	1.0	1.0	1.0	1.2	1.2	1.4	1.3	1.2	1.1	1.0	1.0	1.0	1.0	0.9	1.0
Chemistry	3.5	4.0	4.4	4.0	3.4	3.4	3.3	3.2	3.1	3.1	3.1	3.0	3.0	3.0	2.9	2.9
Physics	5.1	5.3	5.7	5.2	4.3	4.2	4.2	4.0	3.8	3.5	3.5	3.5	3.5	3.4	3.3	3.1
Physical sciences nec	0.9	0.9	0.8	0.9	0.8	0.9	0.6	0.5	0.5	0.5	0.6	0.7	0.6	0.7	0.6	0.6
Psychology	2.4	1.8	1.6	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
Social sciences	7.5	5.6	4.0	4.3	4.6	4.4	4.5	4.3	4.4	4.4	4.2	3.9	3.7	3.6	3.6	3.7
Economics	1.6	1.5	1.2	1.2	1.1	1.0	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.8
Political science	0.9	0.9	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6
Sociology	2.0	1.4	0.8	0.8	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.8
Social sciences nec	3.0	1.8	1.4	1.6	1.8	1.7	1.9	1.7	1.8	1.8	1.7	1.6	1.5	1.4	1.4	1.5
Sciences nec	2.9	2.4	1.9	2.1	2.1	1.8	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.9	1.9	2.0
Engineering	11.2	14.2	14.6	16.3	15.7	15.7	15.5	15.1	15.3	15.2	15.0	14.6	14.7	14.9	15.2	15.3
Aeronautical/astronautical	NA	0.9	0.8	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	0.8	1.0	1.0
Bioengineering/biomedical	NA	NA	NA	NA	0.3	0.4	0.5	0.6	0.6	0.8	0.8	0.9	0.9	1.0	1.1	1.2
Chemical	NA	1.0	1.2	1.3	1.3	1.3	1.3	1.2	1.3	1.2	1.1	1.1	1.1	1.2	1.2	1.3
Civil	NA	1.4	1.6	1.7	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.8	1.7	1.8	1.8	1.8
Electrical	NA	3.0	3.5	4.1	3.9	4.0	3.7	3.7	3.5	3.6	3.5	3.3	3.5	3.4	3.3	3.3
Mechanical	NA	2.3	2.1	2.4	2.1	2.2	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.2	2.3	2.2
Metallurgical/materials	NA	NA	NA	1.7	1.6	1.5	1.4	1.3	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.2
Engineering nec	11.2	5.6	5.4	4.1	3.6	3.5	3.5	3.3	3.3	3.3	3.2	3.1	3.2	3.2	3.3	3.3

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 2000 dollars.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

Science and Engineering Indicators 2010

Appendix table 5-7

Federally financed academic R&D expenditures, by S&E field and agency: FY 2008

Field	All agencies	DOD	DOE	HHS	NASA	NSF	USDA	Other
	Current $millions							
All fields	31,231	3,077	1,134	17,508	1,061	3,768	893	2,868
Computer sciences	1,031	302	34	55	21	437	3	115
Environmental sciences	1,826	166	90	60	243	628	77	532
Atmospheric sciences	337	24	17	1	101	91	4	90
Earth sciences	603	42	58	10	107	199	54	130
Oceanography	684	78	5	14	20	290	6	253
Environmental sciences nec	202	22	10	35	15	48	12	59
Life sciences	18,664	523	140	15,530	93	579	722	968
Agricultural sciences	864	13	25	68	11	82	483	168
Biological sciences	6,358	157	66	5,142	41	429	188	291
Medical sciences	10,757	326	42	9,788	38	46	30	435
Life sciences nec	685	27	7	532	3	21	21	74
Mathematical sciences	445	48	13	114	5	210	4	25
Physical sciences	2,739	344	415	483	389	806	7	183
Astronomy	351	13	8	1	195	76	0	35
Chemistry	988	109	71	430	13	278	5	63
Physics	1,211	182	321	34	142	399	2	68
Physical sciences nec	190	40	14	18	39	53	0	16
Psychology	637	31	3	475	9	52	1	59
Social sciences	810	64	20	294	9	130	37	250
Economics	128	4	4	25	1	21	23	49
Political science	124	18	3	37	0	19	3	44
Sociology	202	5	0	127	0	32	4	32
Social sciences nec	356	37	13	106	7	58	8	124
Sciences nec	373	97	16	59	13	86	3	79
Engineering	4,705	1,502	402	437	278	835	39	652
Aeronautical/astronautical	387	173	9	3	86	13	0	42
Bioengineering/biomedical	364	43	8	243	4	35	7	23
Chemical	343	75	61	54	7	92	6	35
Civil	385	51	28	10	13	88	5	188
Electrical	1,112	498	36	44	32	251	0	76
Mechanical	730	245	113	30	33	113	2	77
Metallurgical/materials	374	166	50	10	8	89	2	48
Engineering nec	1,013	251	96	44	94	153	17	162
	Percent distribution							
All fields	100.0	9.9	3.6	56.1	3.4	12.1	2.9	9.2
Computer sciences	100.0	29.3	3.3	5.3	2.0	42.4	0.3	11.2
Environmental sciences	100.0	9.1	4.9	3.3	13.3	34.4	4.2	29.1
Atmospheric sciences	100.0	7.1	5.0	0.3	30.0	27.0	1.2	26.7
Earth sciences	100.0	7.0	9.6	1.7	17.7	33.0	9.0	21.6
Oceanography	100.0	11.4	0.7	2.0	2.9	42.4	0.9	37.0
Environmental sciences nec	100.0	10.9	5.0	17.3	7.4	23.8	5.9	29.2
Life sciences	100.0	2.8	0.8	83.2	0.5	3.1	3.9	5.2
Agricultural sciences	100.0	1.5	2.9	7.9	1.3	9.5	55.9	19.4
Biological sciences	100.0	2.5	1.0	80.9	0.6	6.7	3.0	4.6
Medical sciences	100.0	3.0	0.4	91.0	0.4	0.4	0.3	4.0
Life sciences nec	100.0	3.9	1.0	77.7	0.4	3.1	3.1	10.8
Mathematical sciences	100.0	10.8	2.9	25.6	1.1	47.2	0.9	5.6

Appendix table 5-7

Federally financed academic R&D expenditures, by S&E field and agency: FY 2008

Field	All agencies	DOD	DOE	HHS	NASA	NSF	USDA	Other
Physical sciences	100.0	12.6	15.2	17.6	14.2	29.4	0.3	6.7
Astronomy	100.0	3.7	2.3	0.3	55.6	21.7	0.0	10.0
Chemistry	100.0	11.0	7.2	43.5	1.3	28.1	0.5	6.4
Physics	100.0	15.0	26.5	2.8	11.7	32.9	0.2	5.6
Physical sciences nec	100.0	21.1	7.4	9.5	20.5	27.9	0.0	8.4
Psychology	100.0	4.9	0.5	74.6	1.4	8.2	0.2	9.3
Social sciences	100.0	7.9	2.5	36.3	1.1	16.0	4.6	30.9
Economics	100.0	3.1	3.1	19.5	0.8	16.4	18.0	38.3
Political science	100.0	14.5	2.4	29.8	0.0	15.3	2.4	35.5
Sociology	100.0	2.5	0.0	62.9	0.0	15.8	2.0	15.8
Social sciences nec	100.0	10.4	3.7	29.8	2.0	16.3	2.2	34.8
Sciences nec	100.0	2.1	4.3	15.8	3.5	23.1	0.8	21.2
Engineering	100.0	31.9	8.5	9.3	5.9	17.7	0.8	13.9
Aeronautical/astronautical	100.0	44.7	2.3	0.8	22.2	3.4	0.0	10.9
Bioengineering/biomedical	100.0	11.8	2.2	66.8	1.1	9.6	1.9	6.3
Chemical	100.0	21.9	17.8	15.7	2.0	26.8	1.7	10.2
Civil	100.0	13.2	7.3	2.6	3.4	22.9	1.3	48.8
Electrical	100.0	44.8	3.2	4.0	2.9	22.6	0.0	6.8
Mechanical	100.0	33.6	15.5	4.1	4.5	15.5	0.3	10.5
Metallurgical/materials	100.0	44.4	13.4	2.7	2.1	23.8	0.5	12.8
Engineering nec	100.0	24.8	9.5	4.3	9.3	15.1	1.7	16.0

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, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

Science and Engineering Indicators 2010

Appendix table 5-8
Academic R&D funds provided by federal government, by field: Selected years, 1975–2008
(Percent)

Field	1975	1980	1985	1990	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All fields	67.1	67.6	62.6	59.2	58.7	58.6	58.5	58.3	58.6	60.1	61.8	63.9	63.8	63.1	61.5	60.2
Computer sciences	74.3	70.4	69.7	66.5	71.4	68.8	67.7	66.6	67.4	68.4	71.8	73.0	72.7	70.7	71.5	70.2
Environmental sciences	70.8	73.1	67.2	63.7	66.1	66.3	65.2	64.3	64.9	64.0	65.9	67.8	67.7	68.0	67.3	65.2
Atmospheric sciences	NA	84.1	79.8	75.7	76.0	77.9	77.5	77.5	77.3	73.4	75.2	77.4	78.7	80.1	78.3	79.8
Earth sciences	NA	69.7	60.7	57.7	59.8	60.8	58.9	58.9	59.3	57.8	60.8	64.8	67.0	66.0	65.7	63.1
Oceanography	NA	77.6	72.7	69.6	66.2	66.4	67.1	66.7	66.8	67.6	69.8	70.2	67.2	66.8	67.5	65.1
Environmental sciences nec	70.8	59.1	53.9	50.8	66.9	65.1	60.1	55.8	58.5	58.3	56.2	57.7	57.0	58.4	54.4	54.5
Life sciences	65.1	64.9	60.4	58.3	57.1	57.1	57.3	57.6	58.3	60.0	61.7	64.2	64.1	63.5	61.5	59.8
Agricultural sciences	29.4	30.9	29.4	26.2	27.9	26.7	26.8	26.6	26.6	28.1	29.9	32.2	31.8	31.6	30.8	28.8
Biological sciences	72.5	74.0	67.9	64.5	64.2	64.1	64.0	65.1	65.0	67.0	68.0	70.5	70.1	69.0	67.1	65.1
Medical sciences	75.6	74.4	68.0	64.3	61.2	61.0	60.8	60.6	61.4	62.7	64.5	66.9	66.5	66.0	63.9	62.3
Life sciences nec	71.8	67.3	60.0	59.1	56.9	55.5	58.2	56.8	59.3	59.7	60.3	62.7	61.4	61.8	59.9	58.0
Mathematical sciences	78.6	78.4	75.9	72.6	69.8	69.0	67.0	67.3	67.3	69.2	68.9	70.9	70.0	70.4	71.3	71.8
Physical sciences	81.4	81.9	77.5	72.8	71.0	70.9	71.5	70.6	70.3	70.7	71.9	72.4	72.2	70.8	69.6	69.7
Astronomy	73.4	75.6	67.0	66.1	63.7	62.2	70.9	71.8	68.7	69.0	69.3	68.8	68.4	67.5	65.2	65.4
Chemistry	76.8	77.7	74.2	68.7	67.2	67.0	67.1	65.6	65.5	65.3	66.9	69.9	69.4	68.4	66.8	66.5
Physics	86.4	86.8	82.2	77.5	75.9	75.8	75.6	74.7	74.7	75.8	76.7	76.8	76.8	75.4	75.5	75.5
Physical sciences nec	77.7	78.7	75.1	71.8	71.0	74.7	68.7	66.9	70.7	71.4	73.7	66.2	65.1	62.4	58.8	61.9
Psychology	76.8	73.3	66.9	64.8	68.5	67.2	66.7	67.9	68.4	70.7	71.9	75.0	74.0	71.9	69.2	68.6
Social sciences	55.2	53.8	40.1	32.2	36.3	37.6	37.7	37.8	38.0	38.7	39.9	41.6	41.4	41.8	42.2	41.7
Economics	48.2	48.8	37.0	27.1	34.4	35.3	33.8	34.9	33.0	35.1	34.0	34.4	33.6	35.4	35.6	32.0
Political science	41.8	43.4	33.1	22.0	29.5	30.3	27.0	27.3	28.9	28.2	31.9	36.6	34.9	33.8	38.7	36.7
Sociology	65.5	65.0	53.5	45.5	46.9	47.1	45.0	45.5	45.3	47.5	48.8	51.2	52.3	54.1	52.0	50.2
Social sciences nec	55.9	54.1	38.5	33.9	33.9	36.5	40.1	39.3	40.1	39.7	41.4	42.2	42.4	41.4	41.7	44.4
Sciences nec	57.2	53.6	49.3	41.3	41.3	39.2	35.4	35.2	32.8	36.4	35.4	35.2	38.8	38.4	36.1	35.7
Engineering	68.1	68.6	61.2	57.4	58.8	57.8	57.4	56.6	56.8	58.5	60.3	61.9	61.3	60.7	59.3	59.1
Aeronautical/astronautical	NA	79.5	76.4	77.7	74.2	68.5	70.6	70.9	75.3	72.3	76.3	76.5	75.3	74.7	72.2	71.9
Bioengineering/biomedical	NA	NA	NA	NA	61.9	55.5	52.9	52.3	56.9	59.4	60.8	63.7	60.8	61.8	59.5	60.2
Chemical	NA	64.4	55.6	50.6	52.4	51.8	51.6	52.3	51.8	53.4	54.7	54.4	58.4	57.1	53.8	52.1
Civil	NA	64.0	51.5	41.1	42.5	39.8	41.0	39.4	39.9	41.9	42.1	44.1	42.9	39.0	41.5	41.7
Electrical	NA	75.7	67.7	65.1	66.2	66.4	64.0	62.7	62.4	62.8	66.1	67.5	66.2	66.6	65.1	65.1
Mechanical	NA	67.0	64.6	61.0	62.3	61.8	62.1	60.6	60.6	65.1	64.9	67.2	67.0	65.4	61.8	62.9
Metallurgical/materials	NA	NA	NA	50.9	57.2	56.6	56.8	56.8	53.2	56.2	57.2	62.3	60.3	60.0	59.6	58.1
Engineering nec	68.1	65.7	57.3	54.6	55.8	55.4	55.9	56.4	56.4	58.1	60.0	60.2	59.4	61.2	59.3	58.7

NA = not available; nec = not elsewhere classified

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

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Appendix table 5-9

Sources of R&D funds at private and public institutions: 1988, 1998, and 2008

Source of funds	All institutions		Private institutions		Public institutions	
	Amount (current $millions)	Percent distribution	Amount (current $millions)	Percent distribution	Amount (current $millions)	Percent distribution
1988						
All sources	13,463	100.0	4,693	100.0	8,770	100.0
Federal government	8,193	60.9	3,480	74.2	4,713	53.7
State/local government	1,106	8.2	111	2.4	996	11.4
Industry	872	6.5	326	6.9	547	6.2
Academic institutions	2,356	17.5	400	8.5	1,956	22.3
Other	935	6.9	376	8.0	559	6.4
1998						
All sources	25,867	100.0	8,382	100.0	17,485	100.0
Federal government	15,159	58.6	6,083	72.6	9,077	51.9
State/local government	1,945	7.5	171	2.0	1,774	10.1
Industry	1,889	7.3	609	7.3	1,280	7.3
Academic institutions	5,004	19.3	788	9.4	4,216	24.1
Other	1,871	7.2	732	8.7	1,138	6.5
2008						
All sources	51,909	100.0	16,617	100.0	35,292	100.0
Federal government	31,231	60.2	11,896	71.6	19,335	54.8
State/local government	3,418	6.6	374	2.3	3,044	8.6
Industry	2,870	5.5	919	5.5	1,951	5.5
Academic institutions	10,435	20.1	1,970	11.9	8,465	24.0
Other	3,954	7.6	1,458	8.8	2,496	7.1

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

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

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Appendix table 5-10

Top 100 academic institutions in R&D expenditures, by source of funds: 2008

(Millions of current dollars)

Rank	Rank/academic institution	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
All institutions		51,909	31,231	3,418	2,870	10,435	3,954
1	Johns Hopkins University, The[a] (private)	1,681	1,425	7	39	87	123
2	University of California–San Francisco (public)	885	473	28	46	158	180
3	University of Wisconsin–Madison (public)	882	474	37	21	270	79
4	University of Michigan, all campuses (public)	876	593	5	41	193	45
5	University of California–Los Angeles (public)	871	472	23	47	186	144
6	University of California–San Diego (public)	842	491	31	50	141	129
7	Duke University (private)	767	451	19	152	91	53
8	University of Washington (public)	765	614	11	74	41	25
9	University of Pennsylvania (private)	708	482	17	51	61	97
10	Ohio State University, all campuses (public)	703	335	99	128	103	38
	Total, top 10	8,980	5,810	277	649	1,331	913
11	Pennsylvania State University, all campuses (public)	701	407	68	99	126	2
12	Stanford University (private)	688	509	14	60	53	52
13	University of Minnesota, all campuses (public)	683	364	62	29	123	104
14	Massachusetts Institute of Technology (private)	660	495	1	87	11	66
15	Cornell University, all campuses (private)	654	359	75	26	123	71
16	University of California–Davis (public)	643	269	56	34	215	69
17	University of Pittsburgh, all campuses (public)	596	456	15	12	83	29
18	University of California–Berkeley (public)	592	249	44	42	168	89
19	University of Florida (public)	584	231	111	32	175	35
20	Texas A&M University (public)	582	246	124	43	157	12
	Total, top 20	15,363	9,395	847	1,113	2,565	1,442
21	Washington University in St. Louis (private)	564	394	15	14	89	52
22	University of Texas M.D. Anderson Cancer Center (public)	559	195	149	41	100	74
23	Columbia University in the City of New York (private)	549	461	10	13	48	17
24	University of Arizona (public)	546	278	31	11	187	38
25	University of Colorado, all campuses (public)	536	437	6	18	44	30
26	University of North Carolina–Chapel Hill (public)	526	373	24	10	119	*
27	Georgia Institute of Technology, all campuses (public)	522	281	16	56	168	2
28	University of Southern California (private)	520	349	7	58	106	*
29	University of Illinois at Urbana-Champaign (public)	501	267	37	21	162	15
30	University of Texas at Austin (public)	493	324	20	43	81	25
	Total, top 30	20,679	12,754	1,162	1,398	3,669	1,695
31	Yale University (private)	487	375	4	13	23	72
32	Northwestern University (private)	484	265	4	15	152	48
33	Harvard University (private)	453	383	2	14	*	53
34	Baylor College of Medicine (private)	449	262	4	20	68	95
35	Emory University (private)	441	291	7	10	56	77
36	Purdue University, all campuses (public)	430	177	50	64	138	2
37	Vanderbilt University (private)	423	331	*	7	58	25
38	Case Western Reserve University (private)	416	305	14	5	58	34
39	Indiana University, all campuses (public)	412	187	7	22	133	64
40	University of Alabama at Birmingham, The (public)	405	303	*	10	68	23
	Total, top 40	25,079	15,633	1,254	1,578	4,423	2,188
41	University of Maryland at College Park (public)	395	236	26	11	109	12
42	Louisiana State University, all campuses (public)	391	150	89	19	109	24
43	University of Texas Southwestern Medical Center Dallas (public)	390	201	49	23	35	82
44	University of Maryland at Baltimore (public)	379	169	18	41	103	48
45	University of Rochester (private)	375	276	11	27	39	22
46	Virginia Polytechnic Institute and State University (public)	373	136	100	20	96	21
47	North Carolina State University (public)	366	131	113	41	80	*
48	Scripps Research Institute, The (private)	366	266	2	23	56	20
49	University of Chicago (private)	357	285	8	7	30	28
50	Michigan State University (public)	357	153	47	11	129	17
	Total, top 50	28,828	17,636	1,717	1,801	5,209	2,462

Appendix table 5-10

Top 100 academic institutions in R&D expenditures, by source of funds: 2008

(Millions of current dollars)

Rank/academic institution		All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
51	University of Georgia (public)	350	103	43	5	188	11
52	University of Nebraska, all campuses (public)	349	136	9	16	158	30
53	University of Cincinnati, all campuses (public)	344	221	20	8	77	18
54	SUNY at Buffalo, all campuses (public)	338	158	17	21	97	46
55	University of Kentucky, all campuses (public)	337	155	48	9	99	26
56	University of Illinois at Chicago (public)	335	197	12	9	95	23
57	University of California–Irvine (public)	325	178	17	17	69	44
58	Rutgers, the State University of New Jersey, all campuses (public)	323	140	36	12	102	32
59	New York University (private)	311	199	6	7	40	58
60	Oregon Health & Science University (public)	301	232	5	17	25	23
	Total, top 60	32,141	19,355	1,930	1,922	6,159	2,773
61	Mt. Sinai School of Medicine (private)	296	253	2	14	7	20
62	Colorado State University (public)	295	209	13	18	44	11
63	University of Iowa (public)	294	230	9	6	33	16
64	University of South Florida (public)	278	170	29	23	57	0
65	Washington State University (public)	277	98	49	7	111	13
66	California Institute of Technology (private)	273	244	2	5	7	15
67	University of Hawaii at Manoa (public)	272	195	18	27	28	5
68	SUNY at Albany (public)	270	109	56	26	46	34
69	Arizona State University (public)	260	126	23	16	84	11
70	University of Virginia, all campuses (public)	258	219	1	6	19	12
	Total, top 70	34,914	21,208	2,132	2,070	6,595	2,910
71	Boston University (private)	255	235	1	6	*	13
72	University of Utah (public)	254	172	1	14	51	15
73	SUNY at Stony Brook, all campuses (public)	253	106	30	5	104	7
74	University of Tennessee, all campuses (public)	250	120	48	17	50	14
75	Wayne State University (public)	249	116	10	13	75	35
76	Rockefeller University (private)	248	82	*	2	147	16
77	University of Missouri–Columbia (public)	245	108	16	2	108	11
78	University of Miami (private)	242	166	5	25	16	30
79	University of Medicine and Dentistry of New Jersey (public)	230	122	12	17	54	25
80	University of Connecticut, all campuses (public)	226	120	10	10	68	18
	Total, top 80	37,366	22,555	2,265	2,181	7,268	3,094
81	Iowa State University (public)	224	103	44	13	57	7
82	University of Kansas, all campuses (public)	215	122	6	3	75	9
83	Mississippi State University (public)	211	105	34	9	63	*
84	Carnegie Mellon University (private)	211	171	4	15	14	7
85	University of California–Santa Barbara (public)	204	112	4	16	41	31
86	University of Texas Health Science Center San Antonio (public)	201	122	5	6	50	19
87	Wake Forest University (private)	200	146	19	14	7	13
88	University of New Mexico main campus (public)	198	135	4	7	48	3
89	Yeshiva University (private)	197	144	*	2	40	12
90	University of Texas Health Science Center Houston (public)	197	129	15	8	27	19
	Total, top 90	39,424	23,844	2,400	2,274	7,690	3,214

Appendix table 5-10

Top 100 academic institutions in R&D expenditures, by source of funds: 2008

(Millions of current dollars)

Rank/academic institution		All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
91	Clemson University (public)	195	57	24	14	97	4
92	Princeton University (private)	195	125	1	6	52	11
93	University of Oklahoma, all campuses (public)	192	92	18	14	56	13
94	Medical University of South Carolina (public)	189	102	1	13	67	6
95	Oregon State University (public)	188	114	38	3	30	3
96	Dartmouth College (private)	187	121	5	6	40	15
97	Florida State University (public)	182	111	10	1	52	9
98	University of Texas Medical Branch (public)	180	122	7	6	29	16
99	University of Massachusetts–Worcester	179	145	1	15	3	15
100	University of South Carolina, all campuses (public)	172	99	2	3	53	15
	Total, top 100	41,283	24,932	2,507	2,355	8,169	3,321

* = <$500,000

[a]The Johns Hopkins University includes Applied Physics Laboratory, with $845 million in total R&D expenditures and $789 million in federally financed R&D expenditures.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

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Appendix table 5-11

Top 50 academic institutions in non-S&E R&D expenditures, by non-S&E field: 2008

(Millions of current dollars)

Rank/institution		All non-S&E fields	Education	Business and management	Humanities	Other
All institutions		2,241	880	325	254	783
1	Purdue University, all campuses (public)	65	8	14	2	41
2	University of South Florida (public)	64	30	9	2	24
3	University of Wisconsin–Madison (public)	63	5	38	11	9
4	University of Texas at Austin (public)	60	26	6	1	27
5	Harvard University (private)	53	8	*	1	44
6	University of Florida (public)	49	5	2	2	39
7	Oregon State University (public)	45	1	*	*	44
8	University of Michigan, all campuses (public)	39	18	11	2	8
9	University of Central Florida (public)	39	22	11	*	6
10	Michigan State University (public)	35	19	4	2	10
	Total, top 10	512	142	95	23	252
11	Northwestern University (private)	35	5	22	1	6
12	University of California–Los Angeles (public)	33	18	7	5	3
13	University of Pennsylvania (private)	32	12	8	4	9
14	University of Washington (public)	31	13	*	3	15
15	Florida State University (public)	29	24	2	1	3
16	University of California–Berkeley (public)	29	12	4	4	9
17	University of California–Santa Cruz (public)	27	24	*	2	1
18	New York University (private)	26	10	2	1	14
19	Indiana University, all campuses (public)	26	7	5	*	13
20	Brown University (private)	25	7	1	13	4
	Total, top 20	805	274	146	57	329
21	George Washington University (private)	25	19	1	2	2
22	Ohio State University, all campuses (public)	24	16	*	1	6
23	University of Alaska–Fairbanks, all campuses	23	1	3	1	18
24	Virginia Commonwealth University (public)	23	16	*	*	6
25	Massachusetts Institute of Technology (private)	22	5	14	2	2
26	Vanderbilt University (private)	22	17	*	1	4
27	Texas A&M University (public)	22	16	5	1	1
28	Emory University (private)	22	1	2	5	14
29	University of Southern Maine (public)	22	4	3	*	15
30	Old Dominion University (public)	21	12	4	2	3
	Total, top 30	1,031	381	178	72	400
31	University of Southern California (private)	21	5	1	4	11
32	University of Georgia (public)	19	10	*	3	7
33	University of Kentucky, all campuses (public)	19	5	2	1	12
34	University of Minnesota, all campuses (public)	18	10	*	2	6
35	University of Illinois at Urbana-Champaign (public)	17	5	2	2	8
36	Southern Illinois University–Edwardsville (public)	17	14	1	*	2
37	Georgia State University (public)	17	6	3	1	7
38	University of Nebraska, all campuses (public)	16	3	4	6	4
39	University of Colorado, all campuses (public)	16	7	1	*	7
40	Pennsylvania State University, all campuses (public)	16	7	6	1	2
	Total, top 40	1,207	453	198	92	466

Appendix table 5-11

Top 50 academic institutions in non-S&E R&D expenditures, by non-S&E field: 2008

(Millions of current dollars)

Rank/institution		All non-S&E fields	Education	Business and management	Humanities	Other
41	University of Louisville (public)	15	3	1	*	11
42	University of Cincinnati, all campuses (public)	15	5	1	4	5
43	Arizona State University (public)	14	6	1	3	4
44	San Jose State University (public)	14	2	2	1	9
45	University of Memphis, The (public)	13	8	2	2	1
46	Wichita State University (public)	13	5	1	*	7
47	University of Oklahoma, all campuses (public)	13	7	1	1	4
48	University of Arkansas, main campus (public)	13	5	1	2	4
49	Rutgers, the State University of New Jersey, all campuses (public)	12	8	1	*	3
50	University of Kansas, all campuses (public)	12	9	*	1	1
	Total, top 50	1,341	511	209	106	515

* = <$500,000

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

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Appendix table 5-12
Expenditures for academic R&D passed through to and received by subrecipients: FY 2000–08
(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	3,281	1,485	1,530
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	3,494	1,700	1,295	3,867	1,700	1,879
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	2,913	1,350	1,318
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	3,038	1,531	1,084	3,482	1,557	1,655

NOTES: Total should be viewed as undercount because small percentage of institutions do not have systems in place to provide data on passthrough funding and data 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, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

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Appendix table 5-13

Current expenditures for research equipment at academic institutions, by field: Selected years, 1985–2008

Field	1985	1990	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
							Current $millions								
All fields	672	1,013	1,240	1,290	1,295	1,327	1,437	1,513	1,702	1,819	1,893	1,879	1,828	1,836	1,899
Computer sciences	35	48	77	71	63	63	56	65	101	99	105	72	70	74	85
Environmental sciences	48	72	83	94	102	100	100	88	132	121	126	123	123	139	145
Atmospheric sciences	8	11	14	15	15	14	12	12	15	18	20	26	34	34	27
Earth sciences	18	27	27	35	37	35	37	29	33	42	43	44	35	36	39
Oceanography	16	20	28	31	33	37	34	34	74	50	41	40	44	62	69
Environmental sciences nec	5	13	15	13	17	13	17	11	11	11	22	13	10	7	9
Life sciences	283	420	464	479	496	557	630	689	737	819	836	825	757	748	820
Agricultural sciences	52	54	63	70	76	72	77	83	72	78	79	72	75	79	104
Biological sciences	105	171	192	196	191	245	269	284	296	337	348	326	301	272	308
Medical sciences	114	177	187	198	213	221	263	303	339	371	376	378	343	351	374
Life sciences nec	12	19	22	15	16	19	21	20	29	33	34	49	37	46	34
Mathematical sciences	6	10	14	15	14	12	10	12	10	8	8	9	9	9	8
Physical sciences	142	191	240	244	254	249	250	241	275	298	338	325	329	310	301
Astronomy	7	13	22	26	25	29	25	15	19	19	25	23	20	29	27
Chemistry	54	73	81	90	91	102	104	101	122	119	117	113	121	113	113
Physics	71	91	115	109	122	106	110	113	122	139	160	159	153	143	135
Physical sciences nec	10	14	22	19	16	11	13	13	12	20	36	30	34	25	25
Psychology	9	11	12	13	13	12	14	14	19	23	18	15	18	14	15
Social sciences	10	15	27	24	22	18	19	17	17	18	14	18	12	18	20
Economics	3	4	7	5	4	4	3	2	2	3	2	2	2	1	2
Political science	1	1	3	3	3	2	2	2	2	2	2	2	1	1	1
Sociology	2	3	4	4	4	3	3	3	4	3	2	3	2	3	2
Social sciences nec	4	7	12	11	11	9	11	9	9	9	8	11	7	13	15
Sciences nec	15	25	51	49	33	32	51	55	48	49	54	53	67	94	71
Engineering	124	220	272	301	298	286	306	333	364	385	394	439	443	428	434
Aeronautical/astronautical	7	13	17	19	19	22	20	23	24	22	21	20	22	22	34
Bioengineering/biomedical	NA	NA	NA	4	6	8	14	15	18	20	19	29	25	27	28
Chemical	11	18	22	23	28	27	26	31	30	32	55	37	39	37	39
Civil	10	20	22	28	21	23	29	32	43	31	34	29	27	28	31
Electrical	33	58	68	83	82	70	72	79	79	86	81	91	94	93	89
Mechanical	17	32	42	46	51	51	54	48	54	55	55	76	84	74	76
Metallurgical/materials	NA	27	28	36	29	28	30	49	41	61	38	51	54	54	51
Engineering nec	46	51	73	62	60	57	61	55	74	78	91	106	98	92	86
							2000 constant $millions								
All fields	965	1,247	1,345	1,349	1,339	1,354	1,437	1,478	1,632	1,709	1,733	1,667	1,569	1,534	1,549
Computer sciences	51	59	83	75	66	64	56	63	97	93	96	64	60	62	69
Environmental sciences	69	89	90	98	105	102	100	86	126	114	115	109	106	116	118
Atmospheric sciences	12	14	15	16	15	15	12	12	14	17	18	23	29	28	22
Earth sciences	26	34	29	37	39	35	37	29	31	40	39	39	30	30	32
Oceanography	23	25	30	32	34	38	34	34	71	47	38	35	38	52	56
Environmental sciences nec	7	16	16	13	17	14	17	11	10	11	20	12	9	6	7
Life sciences	406	517	503	501	512	568	630	673	707	769	766	732	650	625	669
Agricultural sciences	74	66	69	73	79	74	77	81	69	74	72	64	64	66	85
Biological sciences	151	210	208	205	197	250	269	277	284	317	318	289	258	227	251
Medical sciences	164	218	203	207	220	225	263	296	325	348	344	335	294	293	305
Life sciences nec	17	23	24	16	16	19	21	20	28	31	31	43	32	38	28

Appendix table 5-13

Current expenditures for research equipment at academic institutions, by field: Selected years, 1985–2008

Field	1985	1990	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Mathematical sciences	9	13	16	16	15	12	10	11	10	7	7	8	8	8	7
Physical sciences	204	235	260	255	263	254	250	236	264	280	309	288	282	259	246
Astronomy	10	16	24	28	26	29	25	14	18	18	23	20	17	24	22
Chemistry	78	90	88	94	94	104	104	98	117	112	107	100	104	94	92
Physics	102	112	124	114	126	109	110	110	117	131	146	141	131	119	110
Physical sciences nec	14	17	23	20	16	12	13	12	12	19	33	27	29	21	20
Psychology	12	13	13	14	14	12	14	14	18	21	16	13	15	12	12
Social sciences	14	18	29	25	23	18	19	16	16	17	13	16	10	15	16
Economics	4	5	8	6	4	4	3	2	2	3	2	2	2	1	2
Political science	2	2	3	3	3	2	2	2	2	2	2	2	1	1	1
Sociology	3	4	5	5	4	3	3	3	4	3	2	3	2	3	2
Social sciences nec	6	8	13	12	11	9	11	9	8	9	8	10	6	11	12
Sciences nec	21	31	55	51	34	33	51	53	46	46	49	47	58	79	58
Engineering	179	271	295	315	308	291	306	325	348	362	361	390	380	358	354
Aeronautical/astronautical	9	16	18	20	20	22	20	23	23	21	20	18	19	18	28
Bioengineering/biomedical	NA	NA	NA	4	6	8	14	15	17	19	17	26	21	23	23
Chemical	16	22	24	24	29	28	26	30	29	30	50	33	33	31	32
Civil	15	25	24	29	22	24	29	32	41	29	31	26	23	23	25
Electrical	47	72	74	87	85	71	72	77	76	81	74	81	81	78	73
Mechanical	25	40	45	48	53	52	54	47	52	52	51	67	72	62	62
Metallurgical/materials	NA	33	30	38	30	29	30	48	39	57	35	45	46	45	42
Engineering nec	66	63	80	65	62	58	61	54	71	73	83	94	84	77	70
	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	100	100
Computer sciences	5.3	4.7	6.2	5.5	4.9	4.8	3.9	4.3	5.9	5.4	5.5	3.8	3.8	4.0	4.5
Environmental sciences	7.1	7.1	6.7	7.3	7.8	7.5	6.9	5.8	7.8	6.7	6.6	6.5	6.7	7.6	7.6
Atmospheric sciences	1.2	1.1	1.1	1.2	1.1	1.1	0.8	0.8	0.9	1.0	1.1	1.4	1.9	1.9	1.4
Earth sciences	2.7	2.7	2.2	2.7	2.9	2.6	2.6	1.9	1.9	2.3	2.3	2.3	1.9	2.0	2.1
Oceanography	2.4	2.0	2.2	2.4	2.5	2.8	2.3	2.3	4.3	2.8	2.2	2.1	2.4	3.4	3.6
Environmental sciences nec	0.8	1.3	1.2	1.0	1.3	1.0	1.2	0.7	0.6	0.6	1.1	0.7	0.5	0.4	0.5
Life sciences	42.1	41.5	37.4	37.1	38.3	41.9	43.9	45.6	43.3	45.0	44.2	43.9	41.4	40.7	43.2
Agricultural sciences	7.7	5.3	5.1	5.4	5.9	5.5	5.4	5.5	4.2	4.3	4.2	3.8	4.1	4.3	5.5
Biological sciences	15.6	16.9	15.4	15.2	14.7	18.4	18.7	18.8	17.4	18.5	18.4	17.3	16.5	14.8	16.2
Medical sciences	17.0	17.5	15.1	15.4	16.4	16.6	18.3	20.0	19.9	20.4	19.9	20.1	18.8	19.1	19.7
Life sciences nec	1.7	1.9	1.8	1.2	1.2	1.4	1.5	1.3	1.7	1.8	1.8	2.6	2.0	2.5	1.8
Mathematical sciences	0.9	1.0	1.2	1.2	1.1	0.9	0.7	0.8	0.6	0.4	0.4	0.5	0.5	0.5	0.4
Physical sciences	21.1	18.9	19.4	18.9	19.6	18.7	17.4	15.9	16.2	16.4	17.9	17.3	18.0	16.9	15.9
Astronomy	1.0	1.3	1.8	2.1	2.0	2.2	1.7	1.0	1.1	1.0	1.3	1.2	1.1	1.6	1.4
Chemistry	8.0	7.2	6.6	7.0	7.0	7.7	7.2	6.7	7.2	6.6	6.2	6.0	6.6	6.2	6.0
Physics	10.6	9.0	9.2	8.4	9.4	8.0	7.6	7.5	7.1	7.6	8.4	8.5	8.4	7.8	7.1
Physical sciences nec	1.4	1.4	1.7	1.5	1.2	0.9	0.9	0.8	0.7	1.1	1.9	1.6	1.9	1.4	1.3
Psychology	1.3	1.1	1.0	1.0	1.0	0.9	1.0	1.0	1.1	1.2	0.9	0.8	1.0	0.8	0.8
Social sciences	1.5	1.5	2.1	1.9	1.7	1.3	1.3	1.1	1.0	1.0	0.8	1.0	0.7	1.0	1.1
Economics	0.4	0.4	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Political science	0.2	0.1	0.3	0.3	0.3	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	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1
Social sciences nec	0.6	0.7	1.0	0.9	0.8	0.6	0.8	0.6	0.5	0.5	0.4	0.6	0.4	0.7	0.8
Sciences nec	2.2	2.5	4.1	3.8	2.5	2.4	3.5	3.6	2.8	2.7	2.8	2.8	3.7	5.1	3.7

Appendix table 5-13

Current expenditures for research equipment at academic institutions, by field: Selected years, 1985–2008

Field	1985	1990	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Engineering	18.5	21.7	22.0	23.3	23.0	21.5	21.3	22.0	21.4	21.2	20.8	23.4	24.2	23.3	22.9
Aeronautical/astronautical	1.0	1.2	1.3	1.5	1.5	1.6	1.4	1.5	1.4	1.2	1.1	1.1	1.2	1.2	1.8
Bioengineering/biomedical	NA	NA	NA	0.3	0.5	0.6	0.9	1.0	1.1	1.1	1.0	1.5	1.4	1.5	1.5
Chemical	1.7	1.8	1.8	1.8	2.2	2.1	1.8	2.0	1.8	1.8	2.9	2.0	2.1	2.0	2.1
Civil	1.6	2.0	1.8	2.1	1.7	1.8	2.0	2.1	2.5	1.7	1.8	1.5	1.5	1.5	1.6
Electrical	4.9	5.8	5.5	6.4	6.4	5.3	5.0	5.2	4.7	4.7	4.3	4.8	5.1	5.1	4.7
Mechanical	2.6	3.2	3.4	3.5	3.9	3.8	3.8	3.2	3.2	3.0	2.9	4.0	4.6	4.0	4.0
Metallurgical/materials	NA	2.7	2.3	2.8	2.2	2.1	2.1	3.3	2.4	3.4	2.0	2.7	3.0	2.9	2.7
Engineering nec	6.8	5.1	5.9	4.8	4.7	4.3	4.3	3.6	4.4	4.3	4.8	5.6	5.4	5.0	4.5

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 2000 dollars. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

Science and Engineering Indicators 2010

Appendix table 5-14
Federal share of current funding for research equipment at academic institutions, by field: Selected years, 1985–2008
(Percent)

Field	1985	1990	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All fields	64.4	59.9	59.3	58.6	59.7	58.2	56.3	55.5	59.0	63.3	62.0	62.6	59.6	58.2	56.7
Computer sciences	83.0	65.8	63.5	68.9	70.4	69.0	60.4	64.0	73.7	83.3	80.5	78.9	73.4	70.2	79.3
Environmental sciences	67.7	65.9	69.9	73.2	67.8	67.4	63.9	61.4	61.5	73.0	74.3	77.0	73.2	74.5	70.4
Atmospheric sciences	84.2	76.8	71.5	74.5	81.0	78.7	79.0	74.0	75.9	80.5	80.3	88.4	87.7	86.3	84.9
Earth sciences	56.4	56.8	63.0	70.2	66.4	59.3	50.9	55.3	58.2	61.7	67.0	67.6	63.9	64.3	53.7
Oceanography	74.2	75.1	76.5	76.3	70.8	72.1	74.4	63.4	61.5	81.2	79.5	79.0	68.4	75.6	75.7
Environmental sciences nec	60.7	61.4	68.5	72.3	53.8	63.0	60.8	56.8	51.5	67.2	73.2	80.4	77.9	61.6	58.9
Life sciences	55.6	53.2	48.6	50.2	50.9	49.9	52.7	52.6	55.5	59.9	60.7	61.7	56.3	53.3	48.8
Agricultural sciences	29.1	28.3	31.9	31.6	32.0	33.3	28.0	28.3	29.8	40.5	39.5	42.5	36.2	30.6	27.2
Biological sciences	67.3	60.2	55.9	55.7	56.5	57.0	60.2	58.7	59.5	63.8	63.3	62.6	59.6	56.2	53.1
Medical sciences	57.4	54.3	48.3	51.4	53.2	48.3	53.1	53.7	58.3	61.2	62.7	66.4	57.6	53.9	50.6
Life sciences nec	49.1	50.6	34.6	48.3	43.1	41.2	43.9	49.3	45.5	51.3	60.9	48.0	58.2	71.0	56.9
Mathematical sciences	82.1	65.7	65.5	59.2	70.5	64.3	67.1	51.9	66.5	71.2	72.7	75.2	68.9	74.5	68.5
Physical sciences	79.8	75.3	74.6	70.8	73.9	74.8	70.0	66.9	70.2	73.1	68.2	69.5	67.1	69.5	70.0
Astronomy	69.3	63.1	61.5	65.1	81.6	86.5	83.4	83.1	80.6	74.4	79.5	77.3	82.0	84.3	77.6
Chemistry	76.6	71.4	70.0	65.4	67.0	67.3	61.4	57.8	62.0	65.0	66.2	70.9	65.0	64.4	62.5
Physics	84.5	81.1	81.7	76.1	76.4	79.7	76.8	71.9	76.5	78.8	71.5	73.2	73.0	76.2	78.9
Physical sciences nec	70.9	69.5	67.6	73.8	81.5	67.1	55.2	76.3	72.8	81.2	52.6	39.2	40.1	37.2	47.6
Psychology	71.5	63.8	63.3	62.5	62.4	65.3	64.0	62.8	70.8	74.1	71.7	63.2	68.5	61.2	58.3
Social sciences	40.1	32.4	39.5	37.0	39.7	38.0	32.3	36.8	36.5	45.0	44.4	39.0	38.7	59.2	62.0
Economics	35.6	27.2	38.9	31.2	34.3	37.3	54.3	40.1	36.7	56.9	35.6	42.0	33.0	41.0	36.2
Political science	32.1	24.4	36.8	35.9	46.9	31.8	36.7	35.6	21.3	51.0	72.2	56.9	54.7	50.8	31.3
Sociology	53.5	43.2	46.7	43.3	47.5	42.3	44.6	35.3	42.8	50.6	47.9	39.7	29.1	52.7	60.7
Social sciences nec	39.1	32.8	38.0	37.6	36.6	38.0	22.0	36.6	37.4	37.9	39.2	35.6	40.9	63.0	68.7
Science nec	46.1	45.9	63.6	63.0	46.5	25.8	24.8	38.3	18.2	19.3	20.0	25.6	32.5	26.1	30.8
Engineering	62.9	58.9	60.4	56.0	59.6	58.5	55.1	53.4	58.5	60.4	56.3	57.6	57.7	57.7	57.0
Aeronautical/astronautical	75.0	81.1	77.5	70.2	69.0	70.6	63.7	71.3	79.0	83.4	71.9	67.0	62.0	65.1	71.6
Bioengineering/biomedical	NA	NA	NA	53.1	42.3	46.7	43.1	47.4	52.7	57.8	53.0	43.5	46.1	50.2	53.1
Chemical	58.7	46.1	58.8	55.0	55.5	49.1	52.3	51.7	55.2	55.7	32.4	53.9	57.7	50.8	46.7
Civil	58.5	58.7	44.2	43.6	43.1	49.1	35.2	39.1	59.1	60.7	61.0	58.1	46.1	48.6	52.9
Electrical	68.5	61.8	61.7	61.5	66.7	65.3	61.8	58.4	59.9	67.7	69.1	66.7	66.5	67.0	63.8
Mechanical	65.1	56.8	63.7	62.7	64.2	63.7	64.9	59.2	63.6	69.1	65.8	69.7	77.8	72.4	62.1
Metallurgical/materials	NA	66.5	50.5	51.4	59.4	60.9	60.9	45.1	53.2	45.8	65.1	66.1	58.3	65.1	61.3
Engineering nec	58.5	52.2	62.7	47.9	52.7	49.5	46.3	52.2	51.9	53.6	45.1	40.3	36.9	37.9	44.6

NA = not available; nec = not elsewhere classified

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges: FY 2008.

Science and Engineering Indicators 2010

Appendix table 5-15

Full-time faculty with S&E doctorates employed in academia, by tenure status and degree field: 1979–2006

(Thousands)

Tenure status and degree field	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006
All tenure statuses														
All fields	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
Physical sciences	23.5	24.3	24.1	25.4	26.3	26.2	26.2	25.8	25.6	26.5	27.3	27.4	28.4	27.8
Mathematics	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	14.0
Computer sciences	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
Life sciences	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
Psychology	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
Social sciences	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	39.9
Engineering	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
Tenured														
All fields	90.7	100.2	106.6	108.8	109.5	114.0	121.5	116.4	114.7	118.2	122.2	120.4	124.1	122.5
Physical sciences	17.5	18.7	18.9	19.2	18.9	18.8	19.6	18.7	18.2	18.3	18.5	18.4	18.9	18.1
Mathematics	8.2	8.8	9.1	9.4	9.6	9.8	11.3	11.0	10.2	10.6	10.4	9.7	10.3	10.1
Computer sciences	S	S	S	0.1	0.2	0.3	0.8	0.7	1.3	1.4	1.9	2.0	2.5	2.8
Life sciences	24.3	26.9	29.6	30.2	30.0	30.8	33.4	31.4	32.1	32.3	34.3	34.4	35.6	35.8
Psychology	9.1	10.6	11.7	12.0	12.1	12.9	13.8	12.6	12.8	13.4	13.6	13.7	13.6	13.6
Social sciences	21.2	24.1	25.3	25.7	25.8	27.9	28.7	28.0	26.4	27.1	28.8	27.1	28.1	27.1
Engineering	10.4	11.1	11.9	12.3	12.9	13.5	14.0	14.0	13.6	15.1	14.8	15.0	15.0	15.0
Not tenured, on track														
All fields	25.8	29.1	26.7	33.0	31.1	32.1	36.5	36.9	36.4	36.2	37.1	39.0	41.9	45.6
Physical sciences	3.7	3.5	2.8	4.1	3.8	3.9	4.6	4.5	4.5	4.6	5.3	5.2	5.5	5.9
Mathematics	2.1	2.3	2.2	2.4	2.2	2.3	2.3	2.5	2.1	2.0	1.8	1.9	2.9	3.2
Computer sciences	S	0.2	0.3	0.5	0.6	0.9	1.0	1.4	1.4	1.3	1.1	1.1	1.4	1.7
Life sciences	7.8	9.3	8.7	10.2	9.7	9.7	11.4	11.6	12.2	13.0	13.5	13.8	14.7	15.5
Psychology	3.2	3.3	3.3	3.7	3.5	3.7	4.1	3.7	4.0	3.6	4.0	4.1	4.2	5.2
Social sciences	6.5	7.4	6.3	7.4	7.1	7.1	8.1	8.7	7.7	7.3	7.2	8.3	8.5	8.9
Engineering	2.5	2.9	3.1	4.5	4.2	4.6	5.0	4.5	4.6	4.4	4.3	4.6	4.7	5.3
Not tenured, not on track														
All fields	14.7	12.7	15.1	15.1	23.9	23.6	15.1	19.2	20.3	24.0	24.7	28.1	28.9	29.0
Physical sciences	2.3	2.0	2.4	2.2	3.6	3.4	1.9	2.6	2.9	3.5	3.6	3.8	4.0	3.8
Mathematics	1.1	0.7	1.0	0.9	1.2	1.5	0.7	1.2	0.7	1.0	1.0	0.9	1.0	0.7
Computer sciences	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.3	0.2	0.3	0.3	0.3	0.3	0.4
Life sciences	5.2	4.7	5.2	5.1	8.4	8.8	6.4	7.8	8.5	9.9	10.4	12.2	13.4	13.3
Psychology	2.0	2.5	2.3	2.7	3.6	3.6	2.9	3.1	3.2	3.8	4.3	4.8	4.2	4.9
Social sciences	2.6	2.2	2.8	3.1	4.7	4.1	2.2	2.5	3.0	3.3	3.2	3.8	3.5	3.8
Engineering	1.5	0.6	1.4	1.1	2.2	2.1	1.0	1.7	1.8	2.1	2.0	2.2	2.6	2.0

S = data suppressed for reasons of confidentiality and/or reliability

NOTES: 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. Physical sciences include earth, atmospheric, and ocean sciences. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-16

S&E doctorate holders employed in academia reporting research as primary or secondary work activity, by type of position, sex, and degree field: 1973–2006

(Thousands)

Position, sex, and degree field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006
All positions																	
Both sexes, all fields	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
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
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
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
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
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
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	32.8
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
Male, all fields	75.7	82.1	76.5	79.8	87.3	89.7	97.4	120.4	124.3	126.8	119.5	118.7	124.8	124.8	125.1	128.0	126.4
Physical sciences	17.9	18.8	18.2	17.1	18.2	18.0	19.9	23.0	23.5	23.7	22.6	22.7	23.7	23.7	23.3	24.2	22.2
Mathematics	6.5	7.0	6.4	6.4	6.3	6.7	7.0	8.8	9.3	9.8	8.6	8.2	8.7	8.3	8.3	8.8	9.3
Computer sciences	NA	NA	NA	0.1	0.3	0.3	0.5	0.9	1.1	1.4	1.7	1.9	1.9	2.1	2.0	3.2	3.1
Life sciences	23.2	25.4	24.8	27.4	31.0	31.4	33.1	38.7	39.9	40.2	38.3	38.4	40.2	41.8	42.0	42.3	42.0
Psychology	6.2	6.9	6.1	6.4	7.5	7.8	7.6	9.8	9.4	10.4	9.1	9.1	9.3	9.3	9.6	10.0	9.7
Social sciences	13.0	14.9	12.1	12.7	14.7	14.6	17.1	23.0	24.0	24.1	22.5	21.0	21.3	21.7	21.3	21.5	21.4
Engineering	9.0	9.0	8.8	9.7	9.3	10.9	12.1	16.3	17.1	17.3	16.8	17.3	19.6	17.9	18.5	18.0	18.8
Female, all fields	6.5	8.5	8.6	10.2	13.5	15.0	17.8	23.6	27.2	29.7	30.7	34.9	39.9	43.3	47.4	51.3	57.3
Physical sciences	0.9	0.9	1.0	1.1	1.3	1.3	1.5	1.9	2.3	2.2	2.5	3.1	3.7	3.5	4.0	4.0	4.7
Mathematics	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.8	0.9	1.0	0.9	1.1	1.4	1.6	1.5	1.9	2.1
Computer sciences	NA	NA	NA	S	S	S	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.5	0.7	0.9
Life sciences	2.8	3.5	3.8	4.7	6.1	6.9	8.3	10.2	11.9	13.1	13.5	15.5	17.7	19.0	21.1	23.3	24.7
Psychology	1.1	1.6	1.5	1.9	2.5	2.8	3.1	4.5	4.9	5.3	5.9	6.4	6.9	7.9	8.6	9.1	10.8
Social sciences	1.3	2.0	1.7	2.0	2.9	3.1	3.8	5.5	6.5	7.0	6.8	7.1	8.5	9.2	10.1	10.0	11.4
Engineering	0.0	0.1	0.1	0.1	0.2	0.2	0.4	0.5	0.6	0.9	0.8	1.3	1.3	1.6	1.7	2.3	2.7
Full-time faculty																	
Both sexes, all fields	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
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
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
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
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
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
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
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

Appendix table 5-16

S&E doctorate holders employed in academia reporting research as primary or secondary work activity, by type of position, sex, and degree field: 1973–2006

(Thousands)

Position, sex, and degree field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006
Male, all fields	67.5	72.8	66.0	67.4	74.9	77.0	83.1	104.3	106.4	109.3	100.1	97.5	99.9	99.9	100.4	101.3	96.5
Physical sciences	14.7	15.4	14.4	13.4	14.4	14.4	15.4	18.6	18.6	18.8	16.6	16.1	16.6	16.6	16.6	17.5	15.6
Mathematics	6.3	6.7	6.0	6.0	6.0	6.4	6.7	8.3	8.9	9.3	8.3	7.5	7.9	7.2	7.1	7.8	7.8
Computer sciences	NA	NA	NA	S	0.2	0.3	0.4	0.7	1.0	1.3	1.5	1.8	1.8	1.9	1.8	2.7	2.8
Life sciences	20.1	21.9	20.7	22.1	25.3	25.9	27.0	31.8	31.5	32.5	30.2	29.8	30.7	31.4	31.5	31.5	30.3
Psychology	5.8	6.3	5.5	5.3	6.3	6.7	6.7	8.8	8.6	9.5	8.1	8.3	8.1	8.2	8.4	8.3	7.7
Social sciences	12.5	14.2	11.4	11.8	14.0	13.4	15.8	21.3	22.6	22.3	20.9	19.5	19.0	19.7	19.6	18.8	18.2
Engineering	8.2	8.3	8.0	8.8	8.6	10.0	11.1	14.8	15.2	15.4	14.5	14.6	15.8	14.9	15.4	14.7	14.1
Female, all fields	4.5	6.1	5.7	6.7	9.0	9.9	12.0	17.1	19.4	22.2	21.6	24.1	27.1	29.3	32.9	36.0	38.7
Physical sciences	0.5	0.5	0.5	0.5	0.7	0.7	0.9	1.2	1.4	1.3	1.4	1.8	2.2	2.0	2.5	2.6	2.8
Mathematics	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.8	0.9	0.9	0.8	0.8	1.0	1.4	1.2	1.5	1.8
Computer sciences	NA	NA	NA	S	S	S	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.4	0.6	0.8
Life sciences	1.7	2.2	2.2	2.6	3.4	3.7	4.8	6.4	7.5	8.5	8.3	9.7	10.6	11.1	13.1	14.9	14.8
Psychology	0.9	1.2	1.2	1.3	1.7	2.1	2.3	3.4	3.7	4.4	4.4	4.7	5.2	5.7	6.2	6.4	7.4
Social sciences	1.1	1.7	1.4	1.7	2.5	2.6	3.0	4.8	5.3	6.0	5.7	5.8	6.9	7.5	8.2	8.4	9.2
Engineering	0.0	0.1	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.8	0.6	0.9	0.9	1.0	1.3	1.7	1.8

NA = not available; S = data suppressed for reasons of reliability

NOTES: 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. Total excludes those employed part time because they are students or retired. Research includes basic or applied research, development, or design. Physical sciences include earth, atmospheric, and ocean sciences. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-17
Characteristics of full-time doctoral research faculty: 1973–2006
(Percent)

Characteristic	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006
All full-time doctoral research faculty *(n)*	72,000	78,900	71,600	74,100	83,800	86,900	95,100	121,400	125,800	131,400	121,700	121,700	127,000	129,200	133,300	137,300	135,100
Race/ethnicity																	
White	91.5	91.4	90.1	89.6	89.8	89.2	88.4	88.0	87.2	86.8	85.0	84.6	83.5	83.0	81.7	78.6	78.8
Asian	4.3	4.2	5.0	7.0	7.0	7.4	8.3	8.3	8.6	8.4	10.1	9.9	10.8	11.0	11.6	13.7	13.5
Black	0.8	0.8	0.9	0.9	0.9	1.2	1.1	1.3	1.5	2.0	2.0	2.5	2.5	2.6	2.9	3.5	3.4
Hispanic	0.7	0.9	1.0	1.6	1.7	1.5	1.4	1.8	2.1	2.3	2.3	2.6	2.9	3.0	3.4	3.4	3.5
American Indian/Alaska Native	0.2	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.7	0.8
Other/unknown	2.5	2.4	2.7	0.5	0.3	0.2	0.3	0.2	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.2	0.1
Sex																	
Female	6.3	7.7	7.9	9.0	10.7	11.4	12.6	14.1	15.4	16.9	17.7	19.9	21.3	22.7	24.7	26.2	28.6
Male	93.7	92.3	92.1	91.0	89.3	88.6	87.4	85.9	84.6	83.1	82.3	80.1	78.7	77.3	75.3	73.8	71.4
Citizenship																	
U.S. citizen	95.4	96.4	95.4	93.0	95.0	93.8	92.9	93.5	92.9	91.3	91.1	91.5	91.0	90.3	91.0	90.4	89.8
Non-U.S. citizen, permanent resident	4.4	3.6	4.6	6.8	4.2	5.2	6.0	5.8	6.1	7.6	7.6	7.6	8.1	8.4	7.2	7.0	7.6
Non-U.S. citizen, temporary resident	0.0	0.0	0.0	0.0	0.8	0.9	1.1	0.6	1.0	1.1	1.4	0.9	0.9	1.3	1.7	2.7	2.6
Field of doctorate																	
Physical sciences	21.0	20.2	20.7	18.8	18.0	17.3	17.1	16.2	15.8	15.3	14.8	14.7	14.8	14.5	14.3	14.6	13.7
Mathematics and statistics	9.1	9.0	8.9	8.6	7.7	7.9	7.7	7.5	7.8	7.8	7.5	6.9	7.0	6.6	6.2	6.8	7.1
Computer and information sciences	NA	NA	NA	0.1	0.3	0.4	0.5	0.6	0.9	1.2	1.5	1.8	1.8	1.8	1.7	2.4	2.7
Life sciences	30.3	30.6	31.9	33.4	34.3	34.1	33.5	31.5	31.0	31.2	31.6	32.4	32.5	32.9	33.4	33.8	33.4
Psychology	9.2	9.5	9.4	9.0	9.6	10.1	9.5	10.0	9.7	10.6	10.3	10.6	10.5	10.8	11.0	10.7	11.2
Social sciences	18.9	20.2	18.0	18.2	19.7	18.4	19.7	21.5	22.2	21.6	21.9	20.8	20.3	21.1	20.9	19.8	20.3
Engineering	11.4	10.5	11.2	12.0	10.5	11.7	12.0	12.5	12.5	12.3	12.4	12.7	13.1	12.3	12.5	11.9	11.7
Years since doctorate																	
1–3	18.7	15.2	12.1	10.4	9.6	8.9	8.8	7.5	7.5	9.1	7.8	6.7	6.8	5.8	7.1	7.6	6.9
4–7	27.6	27.7	25.7	21.4	20.5	17.6	16.7	15.5	15.1	15.3	15.7	15.7	14.6	15.1	13.7	15.0	14.5
8–11	17.8	19.9	21.4	22.1	20.1	18.2	17.4	15.0	15.1	14.4	14.6	15.2	14.4	15.2	14.8	14.6	14.6
≥12	36.0	37.2	40.8	46.1	49.8	55.3	57.2	61.9	62.3	61.3	61.9	62.4	64.2	63.9	64.4	62.7	64.0
Tenure status																	
Tenured	NA	NA	NA	65.2	65.1	67.7	64.6	64.1	64.3	68.0	64.6	64.8	65.2	64.4	62.9	62.3	60.8
On tenure track but not tenured	NA	NA	NA	23.1	25.3	22.8	25.7	22.0	22.2	24.1	24.6	24.6	22.7	23.3	24.0	24.3	26.1
Not on tenure track	NA	NA	NA	11.8	9.5	9.5	9.6	13.9	13.5	7.9	10.8	10.6	12.1	12.3	13.0	13.4	13.1

NA = not available

NOTES: 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. Research faculty includes those reporting basic or applied research, development, or design as primary or secondary work activity. Asian includes Pacific Islander through 1999 but excludes in 2001–06. Physical sciences include earth, atmospheric, and ocean sciences. Detail may not add to total because of rounding. Total includes a small number of unknown citizenship in some years not reported separately.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-18

S&E doctorate holders employed in academia reporting research as primary or secondary work activity, by type of position, race/ethnicity, and degree field: 1973–2006

(Thousands)

Position, race/ethnicity, and degree field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006
All positions, all races/ethnicities																	
All fields	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
Physical sciences	18.8	19.8	19.2	18.2	19.5	19.3	21.4	24.9	25.7	25.8	25.0	25.8	27.4	27.2	27.3	28.2	26.9
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
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
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
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
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	32.8
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
White																	
All fields	74.8	82.1	75.9	80.1	89.5	92.5	100.9	125.4	130.9	134.5	125.3	126.2	134.1	135.7	137.9	137.9	138.9
Physical sciences	16.8	17.8	16.9	16.1	17.2	16.9	18.4	21.5	22.0	22.3	20.4	20.8	22.1	22.1	22.2	22.5	21.2
Mathematics	6.2	6.8	6.1	6.1	6.1	6.3	6.6	8.4	8.7	9.1	7.8	7.5	8.0	7.8	7.5	8.0	8.2
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.5	0.8	1.0	1.1	1.2	1.5	1.5	1.7	1.7	2.4	2.3
Life sciences	23.9	26.2	25.8	28.6	32.9	34.1	36.7	43.2	45.5	46.8	44.2	45.3	47.7	48.8	49.8	50.1	49.6
Psychology	7.0	8.2	7.3	7.9	9.3	10.0	10.1	13.2	13.3	14.6	13.7	14.1	14.4	15.2	16.0	16.4	17.6
Social sciences	13.2	15.4	12.5	13.5	15.9	16.0	18.8	25.2	26.9	26.8	25.4	23.8	25.1	25.8	25.8	25.2	26.5
Engineering	7.8	7.8	7.4	7.8	8.0	9.0	9.8	13.2	13.4	14.0	12.6	13.1	15.3	14.2	14.9	13.2	13.4
Asian																	
All fields	4.0	4.6	5.1	7.0	8.0	8.7	10.4	13.1	14.3	14.8	17.5	18.8	21.5	22.0	23.0	27.8	30.5
Physical sciences	1.0	1.1	1.3	1.5	1.6	1.8	2.3	2.6	2.7	2.5	3.6	3.9	4.0	3.9	3.7	4.3	4.3
Mathematics	0.3	0.4	0.4	0.5	0.5	0.7	0.7	1.0	1.1	1.3	1.3	1.3	1.6	1.5	1.7	2.0	2.3
Computer sciences	NA	NA	NA	S	0.1	0.1	0.1	0.1	0.3	0.5	0.7	0.8	0.8	0.8	0.7	1.3	1.5
Life sciences	1.1	1.5	1.6	2.4	3.1	3.1	3.5	4.0	4.3	4.6	5.5	5.9	7.4	8.6	9.7	11.1	12.1
Psychology	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.6	0.7	1.0
Social sciences	0.6	0.6	0.6	0.6	1.1	0.9	1.2	1.7	1.8	2.2	1.8	2.1	2.5	2.6	2.7	3.0	2.8
Engineering	0.9	0.9	1.0	1.8	1.4	1.9	2.4	3.2	3.7	3.4	4.2	4.4	4.7	4.1	4.0	5.4	6.6
Underrepresented minority																	
All fields	1.4	1.8	1.9	2.6	3.0	3.3	3.6	5.2	6.2	6.9	7.1	8.5	9.1	10.4	11.6	13.4	14.0
Physical sciences	0.3	0.3	0.3	0.4	0.6	0.6	0.6	0.7	0.9	0.9	1.1	1.0	1.3	1.2	1.4	1.3	1.4
Mathematics	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.6	0.5	0.5	0.6	0.7	0.9
Computer sciences	NA	NA	NA	S	S	S	S	S	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Life sciences	0.5	0.7	0.8	1.0	1.0	1.1	1.1	1.6	1.9	1.9	1.9	2.6	2.9	3.4	3.6	4.4	4.9
Psychology	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.6	0.6	0.7	0.9	1.1	1.2	1.4	1.6	1.9	1.8
Social sciences	0.2	0.4	0.3	0.6	0.7	0.8	0.9	1.5	1.8	2.1	2.0	2.1	2.3	2.5	2.9	3.3	3.4
Engineering	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.4	0.7	0.7	0.9	0.9	1.2	1.3	1.6	1.4

Appendix table 5-18

S&E doctorate holders employed in academia reporting research as primary or secondary work activity, by type of position, race/ethnicity, and degree field: 1973–2006

(Thousands)

Position, race/ethnicity, and degree field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2006
Full-time faculty, all races/ethnicities																	
All fields	72.0	78.9	71.6	74.1	83.8	86.9	95.1	121.4	125.8	131.4	121.7	121.7	127.0	129.2	133.3	137.3	135.1
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	18.9	18.7	19.1	20.1	18.4
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	8.2	9.3	9.6
Computer sciences	NA	NA	NA	S	0.2	0.3	0.5	0.8	1.2	1.6	1.8	2.2	2.2	2.4	2.3	3.3	3.6
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
Psychology	6.6	7.5	6.7	6.6	8.0	8.8	9.0	12.1	12.2	13.9	12.6	12.9	13.3	13.9	14.6	14.7	15.1
Social sciences	13.6	15.9	12.9	13.5	16.5	16.0	18.8	26.1	27.9	28.3	26.6	25.3	25.8	27.2	27.8	27.2	27.4
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
White																	
All fields	65.9	72.1	64.6	66.4	75.2	77.6	84.1	106.8	109.7	114.1	103.5	102.9	106.1	107.3	108.9	107.8	106.5
Physical sciences	13.7	14.5	13.3	12.6	13.7	13.4	14.4	17.4	17.6	17.8	15.2	15.3	15.8	15.7	16.0	16.6	15.4
Mathematics	6.0	6.5	5.7	5.6	5.7	6.0	6.3	7.9	8.3	8.7	7.5	6.8	7.0	6.9	6.3	6.9	7.0
Computer sciences	NA	NA	NA	S	0.2	0.2	0.4	0.6	0.9	1.1	1.0	1.3	1.4	1.5	1.5	2.0	2.1
Life sciences	20.3	22.2	20.9	22.3	25.9	26.8	28.6	34.2	34.9	36.7	33.8	34.6	35.8	36.3	37.2	36.9	35.8
Psychology	6.4	7.2	6.3	6.4	7.6	8.4	8.5	11.3	11.3	13.0	11.5	11.9	12.0	12.4	13.0	12.9	13.1
Social sciences	12.5	14.6	11.8	12.4	14.8	14.3	16.9	23.1	24.5	24.3	23.1	21.5	21.6	22.7	23.0	21.9	22.5
Engineering	7.1	7.2	6.7	7.1	7.3	8.4	9.1	12.2	12.2	12.6	11.3	11.5	12.4	11.7	12.1	10.6	10.6
Asian																	
All fields	3.1	3.3	3.6	5.2	5.8	6.4	7.9	10.1	10.9	11.1	12.2	12.0	13.7	14.1	15.4	18.8	18.2
Physical sciences	0.6	0.6	0.8	0.9	0.8	1.2	1.4	1.7	1.6	1.5	2.0	1.8	2.0	2.1	2.0	2.5	2.1
Mathematics	0.3	0.3	0.3	0.5	0.5	0.7	0.7	0.9	1.1	1.2	1.3	1.2	1.4	1.2	1.5	1.7	1.9
Computer sciences	NA	NA	NA	S	S	0.1	0.1	0.1	0.2	0.5	0.7	0.7	0.7	0.7	0.7	1.2	1.3
Life sciences	0.8	0.9	1.0	1.5	1.9	1.9	2.3	2.7	2.7	2.7	3.2	3.0	3.4	4.2	5.0	6.2	6.0
Psychology	S	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6
Social sciences	0.6	0.6	0.5	0.5	1.0	0.9	1.1	1.6	1.8	2.0	1.7	1.9	2.2	2.3	2.4	2.4	2.2
Engineering	0.8	0.7	0.9	1.6	1.3	1.5	2.1	2.7	3.1	2.8	3.3	3.2	3.5	3.3	3.4	4.3	4.1
Underrepresented minority																	
All fields	1.2	1.6	1.6	2.2	2.5	2.8	2.8	4.3	5.0	6.1	5.8	6.7	7.2	7.7	8.9	10.4	10.3
Physical sciences	0.3	0.3	0.2	0.4	0.4	0.4	0.4	0.6	0.7	0.8	0.8	0.7	0.9	0.9	1.1	0.9	0.9
Mathematics	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.7
Computer sciences	NA	NA	NA	NA	S	S	S	S	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Life sciences	0.4	0.6	0.6	0.8	0.9	0.8	0.8	1.2	1.4	1.5	1.4	1.9	2.0	2.0	2.4	3.3	3.3
Psychology	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.5	0.5	0.6	0.7	0.7	0.9	1.1	1.3	1.3	1.3
Social sciences	0.2	0.4	0.3	0.5	0.7	0.8	0.8	1.4	1.6	2.0	1.9	1.9	2.0	2.2	2.4	2.8	2.7
Engineering	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.4	0.7	0.6	0.8	0.8	0.9	1.1	1.4	1.1

NA = not available; S = data suppressed for reasons of confidentiality and/or reliability

NOTES: 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. Total excludes those employed part time because they are students or retired. Underrepresented minority includes blacks, Hispanics, and American Indians/Alaska Natives. Asian includes Pacific Islander through 1999, but excludes in 2001–06. Total includes unknown race/ethnicity not shown separately. Physical sciences include earth, atmospheric, and ocean sciences. Research includes basic or applied research, development, or design. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-19
S&E doctorate holders employed in academia, by type of position, work activity, and citizenship: 2006
(Thousands)

Position and degree field	All positions				Research as primary or secondary work activity			
			Foreign born				Foreign born	
	All doctorate holders	Native-born U.S. citizen	Naturalized U.S. citizen	Noncitizen	All doctorate holders	Native-born U.S. citizen	Naturalized U.S. citizen	Noncitizen
All positions	272.8	210.1	31.3	31.4	183.7	134.2	22.8	26.6
Physical sciences	39.6	30.1	4.4	5.1	26.9	19.8	2.9	4.2
Mathematics and statistics	17.3	11.7	2.5	3.1	11.4	6.8	1.7	2.8
Computer and information sciences	5.8	3.2	1.1	1.4	4.1	1.9	0.9	1.3
Life sciences	95.5	75.2	10.1	10.2	66.7	49.8	8.0	8.9
Psychology	35.0	32.3	1.5	1.2	20.5	18.6	0.9	1.0
Social sciences	50.1	41.0	4.7	4.3	32.8	26.3	3.1	3.3
Engineering	29.6	16.6	7.0	6.0	21.4	11.1	5.3	5.0
Full-time faculty	197.1	156.8	23.8	16.4	135.1	103.2	18.1	13.8
Physical sciences	27.8	22.6	3.3	1.9	18.4	14.6	2.3	1.5
Mathematics and statistics	14.0	9.6	2.2	2.3	9.6	5.9	1.7	2.1
Computer and information sciences	4.9	2.6	1.0	1.3	3.6	1.6	0.9	1.1
Life sciences	64.5	53.7	7.1	3.7	45.1	36.0	5.8	3.2
Psychology	23.7	22.1	0.9	0.8	15.1	13.8	0.6	0.7
Social sciences	39.9	32.9	3.5	3.4	27.4	22.3	2.4	2.7
Engineering	22.3	13.4	5.8	3.1	15.8	8.9	4.4	2.5
Postdocs	23.3	12.3	1.3	9.7	21.7	11.5	1.1	9.2
Physical sciences	3.9	2.0	0.1	1.9	3.7	2.0	0.1	1.7
Mathematics and statistics	1.0	0.4	S	0.5	0.9	0.3	S	0.5
Computer and information sciences	0.1	S	S	0.1	0.1	S	S	0.1
Life sciences	12.8	7.1	0.8	4.9	11.9	6.6	0.7	4.7
Psychology	1.7	1.4	0.2	0.1	1.4	1.2	0.1	0.1
Social sciences	0.9	0.6	0.1	0.2	0.8	0.5	0.1	0.2
Engineering	3.0	0.8	0.2	2.0	2.9	0.8	0.2	1.9
Other positions	52.4	41.0	6.2	5.2	26.8	19.6	3.6	3.7
Physical sciences	7.9	5.6	1.1	1.3	4.8	3.2	0.6	1.0
Mathematics and statistics	2.3	1.7	0.3	0.3	0.9	0.6	0.1	0.2
Computer and information sciences	0.8	0.6	0.1	0.1	0.4	0.2	0.1	0.1
Life sciences	18.2	14.4	2.2	1.6	9.7	7.1	1.5	1.1
Psychology	9.6	8.8	0.5	0.3	4.0	3.6	0.1	0.2
Social sciences	9.3	7.5	1.1	0.7	4.5	3.5	0.6	0.5
Engineering	4.3	2.4	1.0	0.9	2.7	1.4	0.7	0.6

S = data suppressed for reasons of confidentiality and/or reliability

NOTES: 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 nonfaculty appointments such as research associates, adjunct appointments, lecturers, administrative positions, and part-time appointments 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. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-20

S&E doctorate holders and full-time faculty with federal support, by degree field and Carnegie classification of employer: 2006

(Percent)

Position and degree 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	Associates-granting colleges	Other specialized institutions	Unknown/not classified Carnegie group
All S&E doctorate holders employed in academic institutions	46.9	64.1	49.9	27.6	21.4	21.5	70.0	13.0	29.3	37.3
Physical sciences	56.4	78.7	69.8	38.5	29.5	29.0	55.1	13.2	38.5	49.1
Mathematics	34.7	58.7	29.0	14.0	16.6	18.5	66.7	11.8	S	26.2
Computer sciences	44.0	69.4	57.4	18.3	16.2	24.4	S	S	S	34.8
Life sciences	58.0	69.6	59.7	39.2	28.0	33.4	72.1	18.1	48.3	44.8
Psychology	36.5	55.3	36.7	20.8	17.3	18.4	72.3	10.1	15.7	28.7
Social sciences	23.2	36.9	23.1	16.7	12.3	9.5	56.5	9.1	13.1	21.9
Engineering	58.7	71.3	63.7	42.7	29.5	21.6	66.5	S	S	34.1
Full-time faculty	45.8	66.3	49.4	27.4	21.6	22.0	73.3	12.0	28.7	35.0
Physical sciences	53.9	84.2	67.8	36.2	29.8	28.0	58.9	16.8	S	46.4
Mathematics	34.4	63.1	28.9	15.8	16.7	18.8	71.8	S	S	30.5
Computer sciences	43.4	72.0	56.0	19.5	16.7	25.9	S	S	S	50.6
Life sciences	57.6	72.5	59.5	40.2	28.3	34.5	74.5	17.1	50.3	40.9
Psychology	37.4	60.6	38.1	16.8	17.8	19.4	79.3	S	S	23.4
Social sciences	23.7	39.1	24.3	17.6	12.3	9.3	66.4	S	19.7	22.0
Engineering	57.8	72.1	64.3	44.9	29.0	20.4	47.2	S	S	36.5

S = data suppressed for reasons of confidentiality and/or reliability

NOTES: 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. Total excludes those employed part time because they are students or retired. Physical sciences include earth, atmospheric, and ocean 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://www.carnegiefoundation.org/classifications/index.asp, accessed 28 April 2009.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-21
S&E doctorate holders employed in academia reporting working in teams, by position, type of teamwork, place of birth, and degree field: 2006
(Percent)

Place of birth, position, and type of teamwork	All fields	Physical sciences	Mathematics and statistics	Computer and information sciences	Life sciences	Psychology	Social sciences	Engineering
All S&E doctorate holders								
S&E doctorate holders employed in academia *(n)*	272,800	39,600	17,300	5,800	95,500	35,000	50,100	29,600
Work with an immediate work group or team	69.8	74.0	49.9	71.8	79.3	69.7	50.5	77.7
Work with others in the same organization but not the same group or team	73.0	69.9	63.0	75.5	76.0	77.2	70.6	72.0
Work with individuals in other organizations in the U.S.	54.6	55.7	46.7	59.5	55.1	51.3	54.3	59.8
Work with individuals in other countries	26.5	29.6	24.0	30.3	25.6	20.6	29.4	28.3
Full-time research faculty *(n)*	197,100	27,800	14,000	4,900	64,500	23,700	39,900	22,300
Work with an immediate work group or team	68.6	72.0	49.2	70.7	79.8	69.2	50.0	76.6
Work with others in the same organization but not the same group or team	75.3	72.0	64.8	77.0	79.9	79.3	71.3	75.5
Work with individuals in other organizations in the U.S.	57.5	56.0	48.3	58.4	59.8	55.1	56.1	63.7
Work with individuals in other countries	29.1	30.6	25.8	32.5	28.3	25.0	30.8	32.5
Born in United States								
S&E doctorate holders employed in academia *(n)*	206,700	29,800	11,400	3,100	74,000	31,800	40,200	16,400
Work with an immediate work group or team	69.2	72.1	49.7	70.5	78.2	69.7	52.2	77.4
Work with others in the same organization but not the same group or team	75.2	72.7	63.2	73.9	79.1	77.9	70.8	77.0
Work with individuals in other organizations in the U.S.	55.2	57.1	44.8	54.8	57.1	50.6	54.0	61.9
Work with individuals in other countries	25.8	30.6	19.4	25.6	26.0	19.5	27.4	29.2
Full-time research faculty *(n)*	154,400	22,300	9,300	2,600	52,900	21,900	32,200	13,200
Work with an immediate work group or team	68.6	70.4	49.8	70.2	78.7	68.8	52.2	77.5
Work with others in the same organization but not the same group or team	76.6	73.6	64.5	74.7	81.4	80.1	71.5	78.4
Work with individuals in other organizations in the U.S.	57.1	56.1	46.0	52.7	60.4	54.2	55.0	64.8
Work with individuals in other countries	27.8	30.2	21.0	28.4	28.0	23.8	28.4	32.4
Foreign born								
S&E doctorate holders employed in academia *(n)*	66,100	9,800	5,900	2,600	21,500	3,100	9,900	13,300
Work with an immediate work group or team	71.8	79.8	50.2	73.2	83.2	70.6	43.6	78.2
Work with others in the same organization but not the same group or team	66.0	61.5	62.6	77.3	65.4	69.8	69.9	65.8
Work with individuals in other organizations in the U.S.	52.9	51.3	50.2	65.2	48.1	58.0	55.7	57.2
Work with individuals in other countries	28.7	26.5	32.8	36.0	24.2	31.6	37.4	27.1
Full-time research faculty *(n)*	42,600	5,500	4,700	2,400	11,600	1,800	7,600	9,100
Work with an immediate work group or team	68.8	78.6	47.9	71.2	84.7	73.5	40.9	75.4
Work with others in the same organization but not the same group or team	70.6	65.7	65.3	79.6	73.0	69.5	70.3	71.2
Work with individuals in other organizations in the U.S.	59.0	55.7	52.7	64.7	57.2	66.3	60.8	62.0
Work with individuals in other countries	34.1	32.1	35.5	36.9	30.0	39.3	40.7	32.7

NOTES: 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. Total excludes those employed part time because they are students or retired. Physical sciences include earth, atmospheric, and ocean sciences. Research includes basic or applied research, development, or design. Individuals could select more than one response for teamwork. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-22

S&E doctorate holders employed in academia reporting international collaboration, by type of position, means of collaboration, and degree field: 2006

(Percent)

Place of birth, position, and means of collaboration	All fields	Physical sciences	Mathematics and statistics	Computer and information sciences	Life sciences	Psychology	Social sciences	Engineering
All S&E doctorate holders								
S&E doctorate holders employed in academia *(n)*	72,300	11,700	4,100	1,700	24,400	7,200	14,700	8,400
Telephone or e-mail	97.9	98.3	97.7	96.9	97.9	95.8	98.5	98.4
Travel abroad	49.5	52.5	49.8	52.9	43.2	39.0	56.2	59.6
Foreign collaborator travelled here	54.1	59.5	54.4	50.4	55.3	49.8	47.2	59.8
Web-based or virtual technology	39.5	42.2	35.5	58.0	34.6	37.0	44.7	41.3
Full-time research faculty *(n)*	57,400	8,500	3,600	1,600	18,300	5,900	12,300	7,300
Telephone or e-mail	98.3	98.5	97.8	96.6	98.2	97.3	98.8	98.6
Travel abroad	52.1	56.4	51.5	55.6	46.2	40.2	58.4	60.9
Foreign collaborator travelled here	54.1	60.8	55.7	49.7	55.7	51.2	46.1	58.4
Web-based or virtual technology	38.4	40.2	34.7	56.3	35.0	34.6	41.9	40.2
Born in United States								
S&E doctorate holders employed in academia *(n)*	53,400	9,100	2,200	800	19,200	6,200	11,000	4,800
Telephone or e-mail	98.0	98.1	99.8	93.1	98.0	95.6	98.7	99.1
Travel abroad	46.7	52.7	40.5	55.9	41.3	37.7	53.4	54.6
Foreign collaborator travelled here	53.7	57.7	54.3	54.7	55.8	51.3	46.7	56.3
Web-based or virtual technology	38.1	43.3	38.6	64.7	32.8	34.8	43.5	36.8
Full-time research faculty *(n)*	42,900	6,700	2,000	700	14,800	5,200	9,200	4,300
Telephone or e-mail	98.3	98.6	99.7	92.6	98.0	96.9	99.1	99.0
Travel abroad	48.7	56.3	40.9	61.8	42.8	39.5	55.3	55.8
Foreign collaborator travelled here	53.7	58.5	57.2	57.4	55.9	51.8	45.6	55.6
Web-based or virtual technology	36.8	40.8	37.1	61.1	33.5	33.7	39.8	35.1
Born abroad								
S&E doctorate holders employed in academia *(n)*	19,000	2,600	1,900	900	5,200	1,000	3,700	3,600
Telephone or e-mail	97.7	98.9	95.4	100.0	97.4	97.2	97.9	97.5
Travel abroad	57.2	51.8	60.3	50.3	50.4	47.0	64.5	66.2
Foreign collaborator travelled here	55.4	65.8	54.4	46.7	53.3	40.1	48.9	64.6
Web-based or virtual technology	43.4	38.4	32.0	52.3	40.9	51.1	48.3	47.2
Full-time research faculty *(n)*	14,600	1,800	1,700	900	3,500	700	3,100	3,000
Telephone or e-mail	98.2	98.4	95.6	100.0	99.0	100.0	98.0	98.0
Travel abroad	62.2	56.8	64.1	50.3	60.5	44.9	67.6	68.2
Foreign collaborator travelled here	55.3	69.4	54.0	43.3	54.6	47.0	47.5	62.4
Web-based or virtual technology	43.2	37.9	31.9	52.4	41.5	40.7	48.0	47.5

NOTES: 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. Total excludes those employed part time because they are students or retired. Research includes basic or applied research, development, or design. Physical sciences include earth, atmospheric, and ocean sciences. Individuals could select more than one means of collaboration. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-23

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
- Cambodia
- Laos
- Maldives
- Mongolia
- Myanmar
- 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: Thomson Reuters, Science Citation Index and Social Sciences Citation Index, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics.

Science and Engineering Indicators 2010

Appendix table 5-24
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, Division of Science Resources Statistics, Integrated Science and Engineering Resources Data System (WebCASPAR) database system, http://webcaspar.nsf.gov.

Science and Engineering Indicators 2010

Appendix table 5-25

S&E articles in all fields, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	564,644.7	581,760.0	588,488.0	602,430.0	610,203.0	630,452.0	629,355.0	638,381.0	661,723.6	688,644.0	710,174.0	740,270.0	758,142.0
United States	193,336.9	193,161.2	189,751.9	190,431.4	188,004.1	192,743.0	190,592.6	190,496.1	196,431.6	202,084.3	205,516.3	209,237.2	209,694.7
European Union	195,896.6	203,948.0	208,899.6	214,764.3	217,185.6	222,687.6	220,407.2	221,720.5	224,844.7	230,478.6	235,089.4	242,790.9	245,851.6
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	4,612.3	4,825.2
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	6,301.8	6,625.4	6,847.0	6,734.4	7,070.8
Bulgaria	958.6	954.1	985.4	929.0	867.3	909.3	746.1	814.8	774.7	807.8	766.5	766.4	801.4
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
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	3,564.9	3,688.7
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	5,047.0	5,118.9	5,235.8
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
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	4,898.4	5,018.7	4,813.4	5,088.0	4,988.6
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	30,301.9	29,891.2	30,334.6	31,213.8	30,740.4
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	42,228.3	43,009.8	44,185.0	44,538.2	44,407.9
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	4,291.5	4,873.4	4,980.4
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
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	1,680.7	1,935.4	2,120.4	2,302.3	2,487.4
Italy	17,880.5	19,233.8	19,401.6	20,056.0	20,327.1	21,409.4	22,089.9	22,482.6	23,764.5	24,759.1	24,658.6	25,791.9	26,544.0
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
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	456.1
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
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
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	12,657.7	13,240.7	13,891.0	13,989.2	14,209.7
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	6,853.6	7,231.1	7,136.0
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	3,626.5	3,424.2
Romania	678.0	823.5	916.9	847.0	917.2	970.9	926.9	965.2	874.9	938.0	887.3	1,012.8	1,252.0
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
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	1,279.8
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	18,345.3	19,523.8	20,980.7
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	9,852.6	10,016.1	10,103.0	9,914.3
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	45,228.1	45,489.6	45,650.5	46,741.0	47,121.3
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	19,005.1	21,426.5	22,358.8	23,480.4	24,469.8
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6	14.7
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	3,650.2	3,896.2	4,078.9

Appendix table 5-25

S&E articles in all fields, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	435.3	1,057.0
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	849.3	395.3	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	8,133.7	8,674.1	8,766.4	9,233.1	9,190.1
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	7,816.1	8,180.5	8,637.7
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
Yugoslavia	504.3	563.1	594.5	606.6	562.7	541.6	499.7	479.7	584.2	772.1	NA	NA	NA
Other former USSR	22,870.8	22,536.8	21,927.2	20,919.1	20,919.6	20,881.9	19,160.0	19,333.4	18,473.3	18,255.7	17,834.5	16,734.8	16,993.1
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
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
Belarus	650.2	567.8	596.3	583.4	578.6	572.3	501.7	492.3	520.6	496.8	490.6	446.7	411.5
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
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
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
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
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	15,146.0	14,920.8	14,424.5	13,560.8	13,952.7
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
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
Ukraine	2,516.0	2,420.2	2,265.2	2,283.9	2,354.9	2,267.6	2,237.0	2,182.8	1,992.4	2,011.5	2,104.5	1,908.3	1,846.9
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
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	126,599.5	136,624.4	146,036.5	158,938.0	167,388.6
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	49,574.6	56,805.8
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	55,501.9	54,455.8	52,895.7
Asia-8	20,052.9	22,413.4	23,845.3	26,176.2	28,567.8	30,888.5	33,683.2	35,842.7	39,568.2	44,202.2	47,734.2	53,548.1	56,123.2
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	12,461.2	13,368.7	14,635.3	16,741.3	18,193.7
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
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
Philippines	144.7	157.8	170.4	171.4	175.8	184.6	141.2	181.5	183.6	163.1	177.9	179.8	194.8
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	3,792.3
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	16,395.7	17,909.9	18,467.2
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
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
Other Asia	739.4	666.2	664.9	674.5	760.4	764.5	782.2	836.6	1,035.1	1,041.2	1,196.9	1,359.5	1,563.9
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
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
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
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
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
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
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
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	21.4

Appendix table 5-25

S&E articles in all fields, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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	124.5
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
Near East/North Africa	9,476.2	9,488.7	9,989.0	10,228.7	10,408.3	11,136.3	11,429.8	11,934.6	12,862.5	13,264.9	13,852.6	15,182.5	16,593.4
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
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
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
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
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
Israel	5,740.7	5,750.7	6,047.4	6,020.3	5,928.8	6,289.8	6,231.5	6,381.0	6,523.9	6,461.0	6,319.5	6,555.3	6,622.5
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
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
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
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
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	377.6
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
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
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
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
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	757.1
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
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
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	18,225.4	19,712.3	20,437.6	21,735.6	23,334.0
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
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	2,919.3	2,981.6	3,058.4	3,263.8	3,362.1
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
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
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
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
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	10,799.3	11,884.9
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	1,740.2
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	489.3
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
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
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
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
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
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

Appendix table 5-25

S&E articles in all fields, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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	4,222.9
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
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
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
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
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
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
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
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
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
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
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	497.2
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
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	4,948.4
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-25

S&E articles in all fields, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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	261.7
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
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
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
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
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
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
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
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
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
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
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	427.4
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
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
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
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
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
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
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	2,804.6
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
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
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
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
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	164.3
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
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
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	41,334.6	42,699.4	44,864.7	47,554.7	48,868.4
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	15,971.9	17,214.9	17,830.6
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	23,552.3	24,231.3	25,857.4	27,202.0	27,799.5
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
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
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
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
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
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	2,986.2	3,081.8	3,172.7
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	0.1
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
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
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

Appendix table 5-25

S&E articles in all fields, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-26

S&E articles in agricultural sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	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

Appendix table 5-26

S&E articles in agricultural sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7	38.4
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.8	13.3	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
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
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
Yugoslavia	4.1	5.0	11.5	6.2	5.0	6.2	3.5	6.3	5.5	12.0	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Asia-8	358.4	386.8	428.5	485.5	574.5	638.1	606.3	733.2	757.7	804.1	905.0	1,055.0	1,367.4
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
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
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
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
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
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
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
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
Other Asia	37.5	29.9	43.8	53.1	45.1	49.2	51.9	46.5	76.2	69.6	80.3	78.8	127.1
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
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
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
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
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
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
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
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

Appendix table 5-26

S&E articles in agricultural sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-26

S&E articles in agricultural sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-26

S&E articles in agricultural sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-26

S&E articles in agricultural sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-27

S&E articles in astronomy, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.5
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

Appendix table 5-27

S&E articles in astronomy, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2	11.9
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.3	4.4	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
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
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
Yugoslavia	6.8	11.3	5.8	13.2	6.6	3.8	10.1	9.2	13.9	13.8	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Asia-8	134.4	165.9	166.2	165.0	184.5	206.5	222.0	220.5	219.7	206.6	237.5	284.0	304.2
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
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
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
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
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
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
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
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
Other Asia	1.5	0.5	1.3	4.0	0.8	1.0	1.0	0.3	0.5	1.7	0.7	5.2	1.8
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
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
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
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
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
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
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
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

Appendix table 5-27

S&E articles in astronomy, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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 *
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-27

S&E articles in astronomy, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-27

S&E articles in astronomy, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-27

S&E articles in astronomy, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

* = 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-28

S&E articles in biological sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	142,594.0	142,686.0	141,961.0	145,690.0	144,593.0	147,108.0	144,550.0	146,214.0	149,357.7	154,584.0	156,291.0	157,408.0	159,163.0
United States	53,997.8	52,975.5	51,842.1	51,788.1	50,857.2	52,179.6	51,503.6	51,178.0	51,528.6	53,575.1	53,121.1	52,639.0	52,545.0
European Union	48,918.5	49,291.8	49,108.7	50,449.8	50,042.9	50,439.6	49,232.1	49,611.4	49,894.3	50,517.4	51,030.3	50,731.9	50,554.5
Austria	780.6	868.4	895.7	901.8	944.9	884.7	982.5	981.4	958.9	1,043.4	1,007.1	980.3	1,002.3
Belgium	1,481.4	1,503.9	1,479.4	1,456.5	1,495.5	1,413.3	1,430.5	1,449.0	1,491.4	1,580.1	1,639.0	1,510.7	1,544.9
Bulgaria	167.8	164.9	209.0	161.6	162.0	182.7	140.2	151.7	140.4	145.7	136.9	123.1	136.9
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
Czech Republic	440.9	488.3	531.7	545.4	603.4	601.8	629.3	688.7	733.7	793.0	797.8	808.6	891.2
Denmark	1,205.7	1,183.8	1,297.7	1,292.1	1,305.0	1,394.6	1,365.3	1,315.5	1,393.4	1,404.9	1,294.5	1,321.2	1,302.4
Estonia	49.1	61.0	55.4	80.4	92.5	93.0	87.9	83.7	81.3	100.8	129.3	123.0	132.1
Finland	1,049.5	1,124.5	1,052.7	1,206.5	1,248.3	1,269.2	1,276.4	1,243.1	1,245.5	1,269.9	1,223.9	1,255.1	1,226.7
France	7,666.9	7,914.2	7,691.6	7,738.1	7,607.8	7,539.1	7,211.8	7,032.7	6,878.9	6,795.9	6,780.4	6,612.3	6,525.2
Germany	8,554.7	8,672.5	8,963.4	9,483.8	9,287.5	9,304.4	9,083.2	9,029.1	8,871.7	9,111.9	9,389.7	9,139.2	9,095.2
Greece	342.3	344.6	378.7	448.8	389.8	539.8	507.9	562.5	567.5	621.1	711.8	791.5	742.1
Hungary	381.6	362.7	438.0	518.2	500.2	500.4	503.7	526.3	549.5	593.0	585.1	625.8	559.3
Ireland	300.1	323.1	299.8	354.9	372.1	352.3	355.3	366.3	373.7	401.2	462.0	462.6	513.1
Italy	4,240.3	4,395.8	4,388.6	4,388.4	4,354.3	4,501.9	4,392.0	4,564.8	4,774.9	4,876.7	4,947.4	5,096.2	5,074.2
Latvia	27.0	22.1	26.5	22.1	24.6	20.0	24.2	31.0	19.7	24.9	17.4	19.4	21.5
Lithuania	32.5	22.5	33.3	31.2	40.2	31.5	56.8	48.0	62.0	51.9	62.1	63.0	59.5
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
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
Netherlands	3,323.0	3,207.2	3,059.9	3,043.0	3,000.9	2,958.0	2,827.6	2,956.7	2,869.5	2,950.8	2,987.0	2,863.5	2,900.1
Poland	631.0	689.4	672.6	704.0	741.4	834.0	803.7	914.8	1,088.9	1,001.9	1,142.3	1,242.7	1,174.4
Portugal	226.3	242.1	266.1	248.9	340.8	413.8	431.1	466.6	564.5	576.2	574.0	666.1	666.5
Romania	42.3	48.9	43.3	54.3	42.4	48.1	44.3	40.2	51.3	50.9	43.1	51.2	62.2
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	225.2
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	221.4
Spain	3,001.9	3,191.3	3,229.8	3,306.5	3,536.1	3,437.4	3,546.5	3,737.9	3,843.3	3,818.3	4,121.9	4,182.2	4,231.6
Sweden	2,724.6	2,574.9	2,543.2	2,707.9	2,652.7	2,568.8	2,661.7	2,564.8	2,553.9	2,482.6	2,481.0	2,444.1	2,360.9
United Kingdom	11,920.7	11,576.2	11,206.9	11,393.6	10,889.6	11,063.9	10,480.8	10,468.3	10,375.7	10,408.5	10,084.2	9,916.1	9,847.7
Other Western Europe	3,107.4	3,212.6	3,282.1	3,404.0	3,519.0	3,577.8	3,569.7	3,725.6	3,905.7	4,208.4	4,328.3	4,488.5	4,401.3
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
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
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
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
Iceland	29.8	20.7	28.5	45.4	35.6	32.4	38.7	39.2	50.6	51.4	53.3	41.6	51.5
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	1.4

Appendix table 5-28

S&E articles in biological sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Norway	611.6	601.3	685.9	708.0	709.7	748.1	791.0	746.1	730.2	760.7	797.1	842.2	831.8
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69.7	153.1
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	165.3	68.8	NA
Switzerland	2,023.5	2,102.1	2,080.8	2,077.9	2,158.2	2,156.5	2,032.4	2,044.0	1,998.3	2,107.9	2,054.6	2,130.4	2,071.6
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	1,108.0
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
Yugoslavia	100.7	97.9	72.4	101.6	97.2	92.8	80.7	71.3	99.5	135.2	NA	NA	NA
Other former USSR	3,733.9	3,792.3	3,616.2	3,450.4	3,554.1	2,603.3	1,668.6	1,886.4	1,911.6	1,869.8	1,760.9	1,348.0	1,318.6
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
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
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
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
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
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
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
Russia	3,350.1	3,418.8	3,237.5	3,130.3	3,246.4	2,367.1	1,490.4	1,654.4	1,704.6	1,655.5	1,570.0	1,189.1	1,154.1
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
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
Ukraine	175.4	166.8	190.5	170.0	151.6	96.2	80.1	124.8	105.6	104.5	84.6	71.2	86.5
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
Asia	16,485.3	16,997.7	17,425.7	19,387.1	19,594.6	20,692.8	20,807.3	21,423.6	23,057.6	24,812.7	26,092.3	27,499.4	28,819.6
China	893.2	1,166.2	1,220.3	1,911.2	2,030.9	2,224.9	2,604.3	2,825.6	3,688.9	4,489.6	5,539.8	6,832.8	7,944.6
Japan	11,793.0	11,786.8	12,048.4	12,726.8	12,560.5	13,090.4	12,485.9	12,399.7	12,326.4	12,322.6	11,982.3	11,509.4	11,336.9
Asia-8	3,627.1	3,912.2	3,991.7	4,583.2	4,805.3	5,225.9	5,539.8	6,026.5	6,813.1	7,763.4	8,322.7	8,866.7	9,263.6
India	1,873.6	1,903.4	1,867.6	1,963.6	2,035.3	1,979.4	2,121.2	2,254.7	2,519.4	2,633.9	2,822.9	3,036.4	3,199.3
Indonesia	43.3	45.7	38.3	51.1	49.9	59.6	48.9	56.1	47.1	55.7	57.0	61.0	58.0
Malaysia	79.5	86.1	74.7	76.3	90.3	91.9	87.0	93.9	93.0	114.9	129.4	118.2	125.0
Philippines	53.1	46.1	56.9	50.4	55.0	51.4	37.3	44.0	51.3	44.4	56.6	41.3	42.0
Singapore	196.5	176.9	197.4	216.9	256.3	291.6	275.4	340.3	386.3	475.5	530.4	547.8	544.3
South Korea	491.1	646.1	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
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	1,671.1
Thailand	123.3	118.1	116.6	165.8	167.1	193.0	197.4	235.1	287.8	332.9	344.5	393.9	466.8
Other Asia	172.0	132.5	165.3	165.9	198.0	151.6	177.2	171.8	229.2	237.1	247.5	290.5	274.5
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
Bangladesh	30.4	27.2	27.4	27.5	30.7	27.7	28.2	27.4	40.1	40.1	35.1	41.4	42.3
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
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
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
Laos	0.5	0.0	0.5	4.0	0.0	1.1	2.2	0.3	1.3	3.3	4.5	3.8	3.1

Appendix table 5-28

S&E articles in biological sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Mongolia	4.7	5.5	7.3	2.7	3.6	1.1	4.5	2.1	5.9	3.6	5.1	6.7	7.2
Myanmar	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
Nepal	8.9	7.5	11.0	5.9	11.8	9.6	13.1	10.3	15.7	17.4	16.6	24.1	18.8
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
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
Sri Lanka	30.6	19.8	20.3	22.9	31.2	23.1	23.4	33.3	42.2	35.0	37.5	32.2	25.5
Vietnam	12.9	19.1	21.1	21.9	26.8	23.0	35.4	26.6	32.8	36.6	40.9	52.4	45.0
Near East/North Africa	2,005.5	1,750.3	1,982.8	2,015.3	1,975.5	2,106.8	2,152.6	2,275.0	2,432.6	2,399.9	2,433.1	2,493.8	2,771.5
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
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
Egypt	190.2	154.6	149.0	178.1	181.5	175.9	187.2	207.8	217.0	195.2	198.4	197.0	196.2
Iran	77.0	44.0	66.8	74.5	77.0	101.9	121.5	160.6	247.7	275.8	356.8	397.7	606.7
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
Israel	1,372.6	1,202.8	1,372.8	1,351.4	1,310.4	1,456.5	1,403.6	1,479.5	1,477.4	1,465.5	1,385.8	1,387.0	1,403.4
Jordan	29.8	18.7	29.4	39.8	31.1	42.0	35.9	35.9	41.2	36.7	36.5	34.8	40.2
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
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
Libya	7.5	3.8	2.5	6.6	4.7	0.8	7.6	4.7	3.8	0.9	4.6	5.6	3.9
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	40.1
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
Qatar	2.0	5.8	3.0	6.2	1.5	1.6	3.0	0.3	1.5	6.1	2.9	5.5	4.3
Saudi Arabia	138.3	144.6	132.7	110.9	98.0	89.0	96.6	100.9	105.5	87.3	79.1	75.6	83.4
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
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
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
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
Central/South America	2,803.5	3,096.6	3,315.6	3,619.0	3,666.9	3,923.4	4,079.0	4,629.1	4,979.0	5,369.9	5,256.7	5,607.4	5,914.1
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3
Argentina	584.6	692.4	735.8	775.8	720.3	829.6	856.4	936.6	947.2	867.1	902.6	1,022.5	995.8
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
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
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
Bolivia	5.5	10.5	16.0	9.8	14.0	16.7	11.1	16.0	16.9	13.8	17.5	20.6	26.5
Brazil	1,035.1	1,168.8	1,292.3	1,463.9	1,609.8	1,692.1	1,732.5	2,125.3	2,288.0	2,638.2	2,455.6	2,772.0	2,919.6
Chile	231.8	194.2	211.4	221.9	230.3	210.0	223.0	258.6	276.0	315.9	334.5	288.9	352.7
Colombia	58.8	66.8	58.7	58.3	72.1	84.4	89.1	107.7	99.2	115.6	115.7	113.7	114.6
Costa Rica	31.6	45.8	40.2	40.0	32.4	38.1	48.2	41.9	51.0	47.7	58.7	33.7	50.8
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
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

Appendix table 5-28

S&E articles in biological sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Dominican Republic	1.0	5.6	3.1	2.8	1.1	3.3	2.0	1.4	2.4	2.5	0.3	1.3	1.1
Ecuador	10.7	9.5	12.4	10.0	6.1	12.9	6.9	14.4	15.0	19.1	16.1	15.0	26.9
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
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
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
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
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
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
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
Mexico	536.6	548.7	588.8	664.6	639.1	664.9	707.6	748.6	850.1	911.0	943.6	919.5	984.9
Nicaragua	1.6	2.3	4.2	1.0	3.3	2.5	0.8	0.5	2.5	3.7	5.1	3.4	4.0
Panama	28.8	21.9	28.7	25.0	31.9	25.4	37.2	38.2	34.3	43.0	35.5	39.1	54.2
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
Peru	27.4	27.3	24.7	25.6	15.6	24.7	31.0	32.7	41.9	34.9	41.4	43.7	62.1
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
St Lucia	0.0	0.0	1.0	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	0.0	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
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
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
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
Venezuela	108.1	142.5	136.7	138.3	131.0	137.3	140.6	139.0	136.8	137.2	133.2	123.0	138.5
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
Sub-Saharan Africa	1,169.8	1,160.8	1,157.3	1,208.5	1,179.0	1,251.6	1,257.2	1,275.5	1,262.4	1,278.7	1,330.2	1,380.9	1,473.0
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
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
Botswana	7.0	13.2	8.0	10.5	5.0	4.7	5.1	9.5	19.4	10.7	11.2	13.3	16.9
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
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
Cameroon	19.0	17.6	25.4	29.8	24.3	23.5	29.1	34.6	39.5	42.6	32.3	41.1	51.4
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
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
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
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
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
Congo (Kinshasa)	3.9	7.1	4.8	1.6	4.3	2.9	0.9	1.4	1.5	1.7	3.7	0.3	2.3
Côte d'Ivoire	16.2	14.4	13.8	12.9	15.9	17.4	15.6	13.9	22.8	18.2	16.5	16.0	17.8
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
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
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
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

Appendix table 5-28

S&E articles in biological sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
Kenya	108.0	92.2	94.7	94.1	71.8	81.2	91.1	101.9	96.2	89.8	90.0	106.1	104.0
Lesotho	0.0	0.0	0.0	0.0	2.0	2.5	1.2	1.0	0.3	0.0	0.0	0.0	0.0
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
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	24.5
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
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
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
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
Mozambique	2.0	1.9	0.5	4.1	2.6	2.4	3.7	4.3	2.9	3.3	11.0	4.2	5.5
Namibia	6.7	9.4	7.0	10.7	5.8	9.1	12.7	9.0	12.5	7.8	14.5	10.0	5.6
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
Nigeria	82.4	93.4	92.7	89.0	94.5	110.3	85.1	89.4	95.8	79.9	70.9	76.9	89.6
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
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
Senegal	33.7	24.7	23.5	24.2	31.1	27.2	20.8	16.8	23.6	28.2	34.4	21.1	25.9
Seychelles	3.1	1.8	1.3	0.7	0.3	1.3	2.5	0.3	3.8	1.0	0.5	1.6	2.3
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
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
South Africa	690.3	675.3	672.5	692.2	675.9	725.2	734.9	713.9	666.8	698.1	751.8	762.1	762.0
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
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
Tanzania	28.0	29.1	22.0	31.3	24.8	28.2	22.2	34.4	24.5	30.1	31.6	37.1	40.3
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
Uganda	15.8	12.5	18.9	21.2	24.8	28.2	31.0	24.3	33.9	62.0	33.8	40.8	95.4
Zambia	7.9	4.8	7.7	7.4	4.7	5.9	8.9	7.9	8.1	8.0	9.1	13.5	12.2
Zimbabwe	29.0	35.8	37.2	36.9	36.8	31.6	32.4	37.4	31.4	17.4	20.3	18.9	31.7
Other	10,372.3	10,408.5	10,230.5	10,367.8	10,204.0	10,333.2	10,279.8	10,209.3	10,385.8	10,551.9	10,937.9	11,219.2	11,365.2
Australia	3,571.6	3,580.4	3,666.7	3,806.5	3,833.2	3,769.3	3,862.0	3,800.9	3,800.9	3,916.4	3,946.9	4,130.0	4,119.4
Canada	6,083.5	6,090.3	5,840.2	5,782.2	5,588.4	5,735.2	5,618.7	5,622.6	5,793.9	5,860.4	6,154.6	6,228.0	6,402.1
Fiji	2.1	2.8	1.5	1.5	1.5	0.8	3.3	6.7	2.4	3.2	4.8	6.5	4.7
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
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
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
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
New Zealand	699.7	724.2	711.1	768.0	767.3	816.5	778.8	765.9	772.8	760.8	821.2	845.7	828.6

Appendix table 5-28

S&E articles in biological sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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

* = 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-29

S&E articles in chemistry, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	81,405.0	87,684.0	89,742.0	93,693.0	95,684.0
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	15,292.9	15,941.9	16,197.4	16,593.8	15,775.7
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	27,438.1	28,810.7	29,010.8	29,306.4	29,593.2
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
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
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
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
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
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	354.6
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
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
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	3,967.0	3,966.9	3,981.8	4,066.4	4,095.2
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	5,411.1	5,723.9	5,741.1	5,717.5	5,728.0
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
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
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
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
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
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
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
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
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	1,034.1	1,114.6	1,172.3	1,071.1	990.2
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
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
Romania	270.0	276.8	346.0	332.0	347.5	329.3	335.4	349.4	303.5	294.0	312.6	324.4	361.2
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
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
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
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
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	3,961.4	3,739.2	3,941.3	3,729.5
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	2,206.5	2,577.7	2,618.8	2,679.4	2,805.3
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1	1.6
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

Appendix table 5-29

S&E articles in chemistry, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	67.6	209.7
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	144.8	73.2	NA
Switzerland	853.8	940.4	1,029.0	982.7	1,110.1	1,059.4	1,021.2	960.7	1,050.4	1,154.7	1,118.5	1,103.9	1,029.3
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
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
Yugoslavia	93.2	107.3	122.8	114.1	116.1	105.5	96.2	81.9	120.2	155.3	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
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
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
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
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
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
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
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
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
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
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
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
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
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	23,594.3	26,734.4	27,922.5	30,892.1	32,706.7
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
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	8,673.3	8,344.3	8,494.4
Asia-8	4,385.3	4,795.6	5,072.0	5,375.5	5,924.0	5,799.4	6,405.4	6,999.2	7,494.0	8,463.2	8,575.2	9,855.7	10,109.7
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	3,297.3	3,759.7	3,910.5	4,593.4	4,804.9
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
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
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
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
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	2,798.1
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
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
Other Asia	122.4	104.4	72.0	77.3	98.2	85.3	108.5	119.3	125.5	151.6	179.6	182.0	178.1
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
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
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
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
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
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
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
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

Appendix table 5-29

S&E articles in chemistry, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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
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	2,989.4
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
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
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
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
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
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	497.8
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-29

S&E articles in chemistry, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Trinidad andTobago	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-29

S&E articles in chemistry, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	3,498.1	3,717.1	3,656.2
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	1,141.3	1,209.2	1,184.8
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	2,177.4	2,342.8	2,277.6
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
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
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
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
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
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
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
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
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
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

Appendix table 5-29

S&E articles in chemistry, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-30

S&E articles in computer sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	7,557.0
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
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	2,237.5
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
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
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
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
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
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
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
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	59.1
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
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
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
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
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	36.8
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
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
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
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
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
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
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
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
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
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
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
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
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
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	394.5
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
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	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

Appendix table 5-30

S&E articles in computer sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	10.5
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.5	6.0	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
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
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
Yugoslavia	7.2	12.0	10.1	11.5	7.1	16.5	11.8	5.3	6.8	12.8	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
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
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
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
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
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
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
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
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
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
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
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
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
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	1,766.3
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
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
Asia-8	280.5	347.7	371.3	430.8	434.3	495.4	552.9	466.3	531.8	580.9	618.4	660.0	799.4
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
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
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
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
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	98.1
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
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
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
Other Asia	2.3	4.8	2.5	5.3	2.0	2.2	4.0	3.8	3.8	5.5	4.2	3.7	16.5
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
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
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
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
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
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
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
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

Appendix table 5-30

S&E articles in computer sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	0.0	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
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
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
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	1.3
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	119.4
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	5.5
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-30

S&E articles in computer sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-30

S&E articles in computer sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-30

S&E articles in computer sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-31

S&E articles in engineering, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.0	3.2
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

Appendix table 5-31

S&E articles in engineering, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	105.8	147.7
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	151.9	59.8	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
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
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
Yugoslavia	77.5	94.6	116.2	110.0	89.5	126.7	82.1	79.8	110.8	167.4	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Asia-8	3,196.5	3,566.5	3,883.2	4,278.2	4,865.9	5,729.8	6,204.3	6,387.0	7,443.8	8,388.0	9,470.2	10,694.0	10,701.5
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
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
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
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
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
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
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
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
Other Asia	50.2	40.7	49.4	52.7	57.9	74.8	57.2	63.7	75.3	87.2	115.8	134.7	165.9
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
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
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
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
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
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
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
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

Appendix table 5-31

S&E articles in engineering, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-31

S&E articles in engineering, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-31

S&E articles in engineering, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-31

S&E articles in engineering, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-32

S&E articles in geosciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	27,571.0	28,296.0	28,233.0	29,814.0	29,730.0	31,501.0	33,254.0	33,159.0	35,127.0	36,057.0	37,135.0	40,186.0	40,718.0
United States	9,837.5	9,863.9	9,402.9	9,881.3	9,504.1	9,883.4	10,202.7	10,054.5	10,722.1	10,619.5	10,724.8	11,390.5	11,540.5
European Union	8,830.7	9,239.4	9,471.9	10,260.6	10,371.2	10,748.7	11,066.4	11,101.3	11,507.5	11,481.8	12,092.4	12,880.5	12,996.0
Austria	144.9	139.9	128.0	140.7	169.9	161.8	212.9	186.6	196.2	212.8	171.9	195.5	207.5
Belgium	181.2	230.9	212.9	262.2	258.5	268.4	289.0	306.0	330.2	307.1	347.2	340.3	316.7
Bulgaria	27.7	27.7	21.7	26.4	30.8	28.5	30.6	33.8	30.1	29.6	37.3	26.9	36.6
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
Czech Republic	90.8	104.1	87.4	112.2	74.7	78.8	101.0	130.2	162.6	148.4	166.9	183.7	202.6
Denmark	273.0	310.9	312.6	339.5	331.2	381.6	358.1	399.7	377.3	326.9	343.5	368.2	345.3
Estonia	16.4	42.6	20.9	31.3	38.9	21.2	30.9	26.8	40.6	38.6	45.0	42.9	36.3
Finland	238.2	217.5	228.0	267.4	228.5	219.7	286.7	267.2	275.4	275.0	256.5	260.4	264.8
France	1,459.6	1,678.9	1,628.3	1,777.4	1,828.3	1,778.4	1,802.5	1,761.3	1,799.2	1,867.7	1,915.7	2,009.2	1,971.8
Germany	1,257.9	1,388.3	1,621.8	1,656.0	1,713.9	1,773.4	1,798.3	1,821.5	1,809.4	1,763.8	1,943.8	1,831.6	1,884.3
Greece	140.4	156.4	173.2	183.9	175.6	193.2	185.5	226.7	245.3	230.0	265.9	310.2	316.4
Hungary	62.6	64.9	58.5	77.3	61.3	53.7	54.8	62.2	89.8	76.3	75.4	76.9	88.2
Ireland	68.8	66.4	68.8	57.0	59.9	67.4	87.5	73.5	76.5	79.2	109.6	128.0	114.8
Italy	626.9	659.2	695.2	770.8	856.3	960.4	998.5	979.0	1,160.2	1,213.5	1,195.5	1,343.0	1,378.1
Latvia	1.5	10.3	0.8	4.0	7.0	5.4	6.4	3.5	5.9	6.0	4.4	2.6	3.8
Lithuania	4.7	3.0	2.5	6.4	7.7	7.0	11.0	11.3	7.8	28.2	10.3	19.6	14.8
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
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
Netherlands	587.8	536.5	581.5	626.1	561.3	559.2	561.2	614.7	562.0	587.0	632.6	623.8	602.0
Poland	137.8	130.7	143.8	141.6	136.7	131.1	182.2	168.9	201.3	194.1	236.8	241.6	264.6
Portugal	78.3	58.9	70.8	110.0	119.5	118.4	155.4	201.1	200.7	200.7	269.5	343.1	356.0
Romania	4.5	16.1	18.4	12.4	20.5	20.2	24.3	27.0	29.4	22.0	33.4	29.7	35.5
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	35.7
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	51.7
Spain	566.4	617.8	683.4	736.1	782.9	806.7	826.0	878.2	943.1	927.9	1,074.1	1,221.1	1,288.3
Sweden	438.7	488.8	370.8	457.5	435.2	417.6	498.0	431.7	470.8	505.6	469.6	537.1	491.8
United Kingdom	2,358.9	2,233.6	2,286.4	2,402.7	2,419.7	2,639.6	2,513.5	2,437.7	2,420.3	2,368.9	2,397.2	2,647.1	2,675.3
Other Western Europe	880.6	915.9	960.8	1,065.5	1,046.2	1,081.2	1,223.9	1,268.8	1,371.5	1,488.5	1,479.2	1,710.2	1,804.0
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
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
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
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
Iceland	34.5	25.5	28.6	31.0	22.1	37.7	31.2	40.9	39.0	32.8	45.8	53.2	53.5
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0
Norway	370.5	403.5	380.9	441.2	395.2	425.6	457.6	495.7	474.5	529.4	475.0	558.8	603.7

Appendix table 5-32

S&E articles in geosciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.9	35.3
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.3	10.3	NA
Switzerland	293.3	308.4	377.9	371.6	378.2	405.6	467.7	403.2	470.2	475.7	514.6	528.9	548.0
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
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
Yugoslavia	15.7	13.8	13.3	15.6	14.2	13.1	13.5	12.6	5.9	18.3	NA	NA	NA
Other former USSR	786.3	796.4	815.2	746.6	725.6	989.7	1,028.0	1,032.2	1,006.8	1,001.4	1,026.8	1,018.5	972.2
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
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
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
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
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
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
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
Russia	719.1	719.2	732.9	690.2	662.2	926.2	948.0	951.4	927.5	926.0	947.6	944.7	901.9
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
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
Ukraine	49.4	54.2	45.6	33.7	44.6	35.5	44.7	56.6	43.9	41.0	46.8	36.8	38.5
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
Asia	2,533.2	2,735.9	2,893.9	3,087.9	3,077.9	3,581.6	4,371.2	4,415.5	4,943.6	5,557.8	5,715.9	6,628.5	6,913.0
China	302.2	380.7	467.8	505.2	567.7	698.9	927.1	927.2	1,222.7	1,524.1	1,656.6	2,175.0	2,448.4
Japan	1,453.3	1,414.3	1,445.1	1,598.9	1,445.7	1,692.7	1,947.0	1,920.9	1,972.7	2,098.1	2,078.7	2,217.4	2,092.9
Asia-8	744.8	898.7	948.7	953.2	1,019.2	1,133.9	1,446.3	1,509.5	1,679.4	1,873.9	1,902.7	2,152.3	2,250.2
India	382.1	378.2	396.4	330.4	406.8	385.6	441.0	505.2	507.6	594.0	707.3	753.4	833.1
Indonesia	18.7	16.0	18.1	12.7	19.8	28.0	22.1	20.1	22.6	21.4	16.9	15.4	21.5
Malaysia	23.3	26.6	24.3	17.8	18.1	25.1	26.1	46.1	38.5	36.6	38.3	27.2	52.0
Philippines	23.2	40.2	37.4	38.3	41.7	41.2	28.0	27.9	32.9	27.6	19.0	25.5	31.6
Singapore	39.0	53.4	54.2	40.9	37.0	64.2	67.7	71.9	91.6	85.0	82.7	75.5	71.2
South Korea	64.3	105.0	121.0	155.6	146.8	210.4	343.3	373.9	415.6	527.9	468.9	527.3	517.8
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	620.0
Thailand	29.5	25.8	31.6	48.4	33.4	41.9	64.1	57.1	64.2	74.0	76.9	104.3	102.9
Other Asia	32.8	42.2	32.3	30.5	45.3	56.0	50.8	57.9	68.7	61.7	77.9	83.9	121.5
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Bangladesh	6.9	7.3	4.2	4.6	7.8	10.1	11.2	11.0	17.0	11.7	13.3	17.5	30.1
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
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
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
Laos	0.0	0.0	0.7	0.0	0.5	0.0	0.0	1.0	1.0	0.5	1.8	5.3	1.2
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
Mongolia	0.3	3.7	1.8	0.5	2.5	2.2	2.9	1.6	2.8	4.1	5.0	2.2	6.3

Appendix table 5-32

S&E articles in geosciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
Nepal	3.0	2.5	5.4	2.6	5.5	6.6	6.3	5.4	6.1	7.3	9.9	7.3	8.8
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
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
Sri Lanka	2.0	6.5	5.3	6.0	5.2	6.7	6.2	7.1	11.9	12.4	11.8	8.2	14.0
Vietnam	6.1	4.6	5.2	5.7	8.9	11.8	9.5	11.6	8.0	6.4	14.8	15.6	22.6
Near East/North Africa	389.2	382.7	404.5	389.0	391.4	447.7	458.0	404.7	469.2	497.3	513.4	657.0	637.1
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
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
Egypt	65.6	38.1	52.8	45.3	57.0	48.1	56.6	50.4	76.8	66.7	63.9	66.5	77.9
Iran	9.2	11.9	7.9	14.7	11.3	15.2	19.9	27.4	40.1	53.9	71.2	143.2	138.0
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
Israel	183.4	189.4	224.7	198.2	185.5	242.3	224.6	204.4	213.7	216.4	211.9	237.8	223.8
Jordan	11.0	12.2	11.0	15.6	17.4	16.8	26.0	12.2	17.3	19.9	19.3	17.1	21.1
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
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
Libya	2.2	1.0	0.2	1.3	0.2	1.5	1.0	1.7	0.8	1.6	1.6	2.3	0.8
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
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
Qatar	0.0	0.5	0.5	2.0	2.3	0.0	2.2	0.0	2.3	1.0	0.8	0.0	0.8
Saudi Arabia	38.4	27.7	28.5	20.5	15.8	21.0	16.8	16.0	16.8	22.1	15.9	25.8	17.8
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
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
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
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
Central/South America	518.2	591.0	605.9	738.6	817.0	925.5	980.7	1,099.7	1,157.1	1,311.6	1,323.5	1,451.5	1,446.9
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Argentina	99.2	121.5	131.9	158.1	140.0	158.4	155.4	201.6	196.6	223.1	248.5	255.9	281.3
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
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
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
Bolivia	5.0	2.2	0.9	4.0	8.9	2.6	4.5	4.9	8.2	5.2	9.5	7.4	8.5
Brazil	163.3	177.2	174.0	215.8	263.2	289.8	328.4	360.2	360.9	422.8	480.1	515.0	547.4
Chile	54.7	75.1	54.0	61.4	88.9	94.5	124.0	118.2	129.3	161.0	132.3	159.6	169.3
Colombia	8.1	5.0	22.2	9.2	12.2	18.3	19.8	26.4	14.4	15.4	16.5	38.2	19.0
Costa Rica	7.5	4.0	4.8	1.3	2.9	7.5	4.9	5.8	5.7	3.0	6.5	10.1	10.3
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
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
Dominican Republic	0.1	0.0	0.0	0.6	0.0	0.3	0.7	0.1	0.3	0.3	0.0	0.3	0.2
Ecuador	5.5	6.8	5.9	7.0	3.1	6.7	7.7	8.9	12.2	8.0	9.3	6.0	8.5
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

Appendix table 5-32

S&E articles in geosciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
Mexico	111.3	140.0	157.1	221.3	219.3	279.4	248.7	295.4	339.8	380.8	315.4	344.5	313.7
Nicaragua	0.0	0.8	0.5	1.8	1.3	1.0	1.7	1.5	1.3	2.8	1.4	2.1	1.7
Panama	2.5	5.7	6.7	3.8	2.5	3.7	6.3	4.6	6.8	6.4	5.7	5.9	5.6
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
Peru	4.1	2.8	4.0	3.0	4.3	5.1	8.0	10.7	8.0	14.8	10.9	18.7	12.8
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
St Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	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
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
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
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
Venezuela	26.7	23.2	25.4	24.5	29.6	29.4	28.3	22.7	23.4	26.7	40.0	34.7	20.8
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
Sub-Saharan Africa	342.9	331.6	332.2	281.3	342.3	307.2	347.7	364.5	340.5	375.0	350.5	408.3	402.3
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
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
Botswana	3.4	1.8	2.5	4.7	2.4	4.0	2.8	4.5	6.4	5.2	7.1	12.9	6.7
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
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
Cameroon	3.5	4.7	5.7	4.9	3.1	7.1	4.5	5.2	6.0	5.4	8.2	7.8	10.2
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
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
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
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
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
Congo (Kinshasa)	1.5	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Côte d'Ivoire	6.3	2.1	3.9	7.7	2.1	2.9	1.2	1.8	3.8	2.1	2.7	1.6	2.7
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
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
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
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
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
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
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
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

Appendix table 5-32

S&E articles in geosciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Kenya	13.1	15.2	11.7	10.4	15.1	14.9	26.5	21.1	21.1	13.1	20.9	16.2	24.1
Lesotho	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	1.0	0.0	0.2	0.1	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	0.3	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	1.9
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
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
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
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
Mozambique	1.0	0.0	1.0	0.8	1.7	2.2	4.0	1.9	0.8	3.1	5.8	3.8	2.3
Namibia	1.3	4.8	2.0	0.5	5.7	0.7	3.0	3.4	2.2	1.9	3.0	3.4	4.6
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
Nigeria	15.2	22.5	25.3	18.2	19.6	21.5	14.5	22.4	19.8	25.6	24.7	31.0	24.5
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
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
Senegal	0.5	3.7	6.0	1.0	6.4	5.5	3.7	4.9	6.2	4.6	7.4	5.9	2.8
Seychelles	1.5	2.5	0.2	1.0	0.0	0.8	0.3	0.5	0.0	0.4	0.6	0.7	0.9
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
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
South Africa	255.2	228.5	230.6	197.2	248.1	210.1	247.6	257.5	216.4	269.0	214.2	254.2	261.3
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
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
Tanzania	6.4	7.6	7.6	3.1	6.5	5.7	5.8	7.2	6.1	8.2	15.5	10.0	9.8
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
Uganda	0.6	3.0	1.1	2.2	2.5	3.5	3.5	1.3	7.5	3.8	4.3	5.9	6.3
Zambia	1.1	0.0	0.5	1.3	1.9	0.5	1.9	0.3	1.0	0.8	2.5	2.8	1.1
Zimbabwe	11.3	6.8	10.3	6.9	5.4	6.2	6.2	6.7	7.1	6.8	2.2	3.9	5.7
Other	3,452.4	3,439.3	3,345.7	3,363.2	3,454.3	3,536.0	3,575.4	3,417.8	3,608.6	3,724.2	3,908.4	4,041.1	4,006.0
Australia	1,094.1	1,060.6	1,077.8	1,231.0	1,233.0	1,315.2	1,374.5	1,211.5	1,378.3	1,431.3	1,468.9	1,502.2	1,575.6
Canada	2,094.8	2,090.9	1,930.8	1,798.1	1,867.5	1,900.7	1,819.8	1,863.9	1,825.1	1,937.8	2,067.2	2,167.3	2,071.3
Fiji	4.7	1.0	3.4	2.4	4.8	2.3	2.9	2.0	1.2	3.2	1.6	4.3	4.1
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
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
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
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
New Zealand	252.7	283.2	328.7	326.0	340.1	310.2	372.8	337.2	396.3	346.5	365.9	363.0	350.6
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
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
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
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

Appendix table 5-32

S&E articles in geosciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-33

S&E articles in mathematics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	9,304.0	9,782.0	10,701.0	10,922.0	11,977.0	13,988.0	14,093.0	13,591.0	14,483.0	14,770.0	14,890.0	16,478.0	17,387.0
United States	3,180.1	3,239.7	3,315.0	3,352.5	3,370.4	3,969.0	3,635.7	3,442.8	3,675.6	3,679.3	3,771.6	4,020.9	4,082.3
European Union	3,617.8	3,695.8	4,203.9	4,363.3	4,980.4	5,630.5	5,721.5	5,512.0	5,831.0	5,772.9	5,811.7	6,405.2	6,725.3
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
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
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
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
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
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
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
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
France	939.0	936.7	1,044.5	1,154.2	1,248.7	1,353.3	1,369.0	1,380.5	1,360.3	1,334.1	1,367.1	1,408.9	1,386.4
Germany	634.8	648.8	735.8	811.4	907.0	1,025.8	936.1	888.1	929.8	957.0	937.3	989.0	1,069.0
Greece	46.7	60.5	80.7	52.5	73.2	69.9	95.0	82.5	94.8	100.0	113.5	116.4	95.2
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
Ireland	20.6	25.6	28.5	34.7	34.9	49.8	41.0	32.1	34.0	42.4	42.5	59.4	49.3
Italy	340.0	333.6	438.1	404.8	470.0	562.4	638.3	638.8	660.8	650.0	665.5	755.0	791.7
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
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
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
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
Netherlands	158.5	145.5	145.9	142.3	129.9	178.2	162.9	139.5	189.7	154.1	161.2	163.3	161.7
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
Portugal	28.8	27.9	26.3	33.4	30.6	49.1	73.4	78.4	82.2	76.2	98.8	102.8	105.0
Romania	33.8	46.7	50.9	48.4	58.6	61.9	74.4	81.1	72.2	68.9	68.3	79.0	114.2
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
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
Spain	235.1	285.1	320.8	317.8	439.3	510.1	528.7	492.0	550.1	563.5	533.6	616.4	675.6
Sweden	92.8	92.0	100.3	118.2	132.4	137.6	130.0	130.2	145.1	158.8	155.3	179.9	170.5
United Kingdom	568.8	579.5	635.9	669.8	710.8	801.9	731.5	697.7	755.8	698.3	717.0	884.0	896.7
Other Western Europe	157.7	171.4	189.2	217.0	216.3	253.0	288.8	265.0	270.5	329.9	359.4	426.7	474.1
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
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
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
Croatia	9.7	13.0	14.3	19.3	9.5	21.0	20.4	15.2	9.2	17.2	20.5	28.0	24.8
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	1.0
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

Appendix table 5-33

S&E articles in mathematics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.5	53.2
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.9	20.4	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
Turkey	14.3	15.5	25.0	27.9	35.7	40.0	53.8	47.0	56.5	88.7	91.4	129.9	145.3
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
Yugoslavia	5.5	12.4	22.5	14.1	15.1	13.1	23.3	24.4	21.1	21.3	NA	NA	NA
Other former USSR	393.0	338.3	362.7	379.4	404.1	561.8	688.0	642.3	617.9	651.1	650.7	615.7	620.9
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
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
Belarus	12.4	7.7	10.7	13.0	16.0	14.8	18.3	9.5	12.4	11.8	13.3	14.2	15.9
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
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
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
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
Russia	322.0	273.4	294.0	295.8	302.7	458.3	563.0	538.0	508.3	536.7	532.5	473.3	480.7
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
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
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
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
Asia	881.9	1,140.6	1,337.2	1,356.2	1,592.5	2,006.0	2,177.5	2,105.6	2,423.8	2,579.1	2,501.6	3,028.5	3,454.9
China	294.3	361.8	456.9	480.4	554.7	711.4	817.5	853.6	1,033.4	1,191.9	1,200.3	1,503.8	1,851.8
Japan	313.4	412.6	464.2	436.8	561.1	664.5	761.8	625.1	721.5	700.7	616.8	707.6	705.5
Asia-8	249.2	340.3	384.9	417.7	457.2	594.5	568.7	600.4	636.8	660.9	640.0	778.9	848.3
India	87.6	103.2	124.4	114.8	132.4	154.0	128.3	148.3	149.7	168.3	150.1	177.0	206.4
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
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
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
Singapore	48.2	48.2	47.7	47.2	58.4	72.2	85.9	93.7	93.0	84.9	77.8	92.5	101.2
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
Taiwan	59.7	109.9	112.2	130.4	124.4	174.6	155.5	152.1	144.3	164.1	153.7	206.0	204.5
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
Other Asia	25.0	25.9	31.2	21.3	19.5	35.7	29.5	26.6	32.1	25.6	44.4	38.3	49.3
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
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
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
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
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
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
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
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

Appendix table 5-33

S&E articles in mathematics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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
Near East/North Africa	241.4	272.8	323.8	332.1	366.0	396.3	439.7	432.4	443.0	445.2	487.1	537.3	582.8
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
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
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
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
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
Israel	179.4	198.1	211.8	224.0	232.7	255.7	246.7	255.0	243.3	233.3	245.2	274.1	255.6
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
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
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
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
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
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
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
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
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
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
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
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
Central/South America	173.2	178.0	238.9	229.4	284.8	351.3	387.0	421.6	415.6	432.0	439.1	490.8	498.1
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
Argentina	17.7	28.2	30.7	20.8	44.2	59.2	59.8	61.9	51.1	58.8	53.5	73.1	73.4
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
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
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
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
Brazil	82.0	81.3	105.7	114.8	126.3	160.3	179.2	197.8	193.0	194.3	204.2	221.4	230.3
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
Colombia	4.8	1.8	1.2	3.3	3.7	5.7	9.0	7.3	8.7	5.2	6.2	12.6	11.2
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
Cuba	5.4	1.3	0.0	3.8	2.7	2.8	1.0	2.5	2.3	2.1	2.3	5.5	3.2
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
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
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
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

Appendix table 5-33

S&E articles in mathematics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
Mexico	22.3	31.7	39.7	35.8	53.2	55.2	67.7	72.3	74.2	88.8	92.8	80.4	82.8
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
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
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
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
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
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
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
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
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
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
Venezuela	15.3	11.5	17.9	11.7	15.2	23.3	23.7	19.5	15.4	18.3	17.7	12.2	11.9
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-33

S&E articles in mathematics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Other	618.4	710.8	692.9	644.3	696.8	761.9	693.3	711.1	752.2	832.4	812.0	889.7	860.2
Australia	181.7	224.4	242.9	217.6	239.0	274.7	239.3	218.6	217.0	256.3	237.5	241.8	238.8
Canada	406.6	452.2	409.0	382.6	420.4	437.5	402.9	433.7	488.3	526.5	528.6	591.4	573.1
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
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
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
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
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
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
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
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
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
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

Appendix table 5-33

S&E articles in mathematics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-34

S&E articles in medical sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	167,491.0	171,789.0	174,211.0
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	57,211.8	57,865.6	58,241.6
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	60,819.6	62,202.3	62,046.5
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
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	1,802.8
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
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
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
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	1,712.6
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
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
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	6,199.1	6,157.0	6,074.7
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	11,898.9	12,033.9	11,879.6
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	1,461.6
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
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
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	7,158.7	7,559.4	7,628.1
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
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
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
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
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	4,876.8	5,109.7	5,121.9
Poland	391.4	418.1	441.8	477.7	504.2	528.8	596.3	638.2	682.8	704.6	768.7	859.3	846.2
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
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
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
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	144.3
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	3,817.2
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	3,163.5	3,059.1	3,056.2
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	13,378.3	13,294.0	13,194.0
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	6,946.3	6,993.9	7,100.4
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.6	0.3
Norway	1,014.9	953.0	905.3	937.1	937.6	954.2	926.2	870.4	901.4	934.3	1,083.8	1,070.2	1,104.4

Appendix table 5-34

S&E articles in medical sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.6	157.8
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	121.4	64.2	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	2,364.4	2,533.5	2,540.2
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	3,157.4	3,005.8	3,024.5
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
Yugoslavia	86.6	90.4	92.2	85.3	84.1	57.8	79.4	63.7	76.9	108.9	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
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
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
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
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
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
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
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
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
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
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
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
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
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	22,639.9	23,461.5	24,633.4
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	4,769.3
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	11,943.9	11,256.0	11,244.9
Asia-8	2,552.2	2,979.5	3,256.3	3,721.0	4,087.3	4,629.4	4,917.4	5,209.7	5,818.5	6,351.3	7,305.8	7,991.8	8,379.3
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
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
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
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
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
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	2,590.9	2,900.0	3,259.1
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
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
Other Asia	136.2	116.6	130.0	131.7	137.0	150.0	126.1	150.9	167.7	205.7	196.0	243.5	240.0
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
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
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
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
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
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
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
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

Appendix table 5-34

S&E articles in medical sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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
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	2,988.7	3,228.6	3,317.9
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
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
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
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
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
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	1,835.7	1,817.4	1,762.2
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
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
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
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
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
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
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
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
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
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	107.7
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
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
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	4,798.0
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5
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
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
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
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
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
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	2,991.8
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
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
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
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
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
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
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
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

Appendix table 5-34

S&E articles in medical sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	1,050.5
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-34

S&E articles in medical sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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	59.8
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
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
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
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
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
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
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
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
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
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
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	108.9
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
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
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
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
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
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
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	489.6
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
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
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
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
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
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
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
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	11,479.4	12,085.5	12,375.7
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	4,711.6
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	6,578.6	6,806.0	6,962.1
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
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
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
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
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
New Zealand	605.5	623.5	647.5	662.1	702.3	679.8	645.2	638.4	571.3	644.6	663.2	650.1	690.8
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
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
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
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

Appendix table 5-34

S&E articles in medical sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-35

S&E articles in other life sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	8,691.0
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	4,105.6
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	2,149.1
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
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
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
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
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
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
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
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
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
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
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
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
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
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	93.8
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.3
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

Appendix table 5-35

S&E articles in other life sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	2.2
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0	0.0	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
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
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
Yugoslavia	0.8	2.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Asia-8	14.3	30.7	26.6	30.7	52.5	55.0	69.7	99.6	114.9	137.4	181.3	171.0	243.2
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
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
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
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
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
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
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
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
Other Asia	1.5	3.5	2.0	1.3	5.3	1.9	6.0	3.7	5.9	6.2	7.7	8.3	8.7
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
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
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
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
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
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
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
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

Appendix table 5-35

S&E articles in other life sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	0.0	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	0.3	0.3	1.0	0.5	0.2	0.0
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-35

S&E articles in other life sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-35

S&E articles in other life sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	1,126.3
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	535.2
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-35

S&E articles in other life sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-36

S&E articles in physics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	80,319.7	83,117.0	84,049.0	84,239.0	85,796.0	86,378.0	86,413.0	90,168.0	92,972.0	96,458.0	99,755.0	105,378.0	106,221.0
United States	19,373.4	18,886.9	17,970.8	18,087.2	17,727.4	17,404.1	17,214.3	17,586.3	18,076.4	18,701.5	19,781.3	20,058.7	19,456.2
European Union	28,388.8	29,643.2	30,217.1	30,068.9	30,812.5	31,021.4	30,185.4	31,745.1	31,319.5	32,547.5	32,113.9	33,776.8	32,919.8
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
Belgium	692.2	778.9	672.1	665.8	723.9	710.8	734.5	798.9	860.5	855.7	853.9	850.3	842.5
Bulgaria	207.2	225.7	226.2	206.8	185.2	193.2	149.0	183.9	136.8	171.5	154.5	148.2	172.0
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
Czech Republic	330.0	342.6	368.0	380.3	447.9	439.9	435.8	514.4	435.0	598.6	495.9	585.1	526.4
Denmark	461.3	491.3	502.8	488.8	458.5	491.1	468.5	469.6	455.0	432.2	444.2	445.3	456.1
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
Finland	351.2	379.1	387.4	386.9	384.5	408.0	435.7	437.0	479.7	486.4	464.6	509.4	524.9
France	4,719.1	4,951.9	5,188.3	5,001.5	5,162.9	5,252.4	5,006.0	5,172.8	4,987.3	5,078.4	5,045.1	5,474.8	5,138.0
Germany	7,082.8	7,397.7	7,502.1	7,790.7	7,426.7	7,285.1	7,082.1	7,351.5	7,024.5	7,107.6	7,211.7	7,438.5	7,161.9
Greece	300.4	301.6	354.0	359.1	396.2	414.4	446.7	465.0	428.2	451.3	471.6	561.0	620.7
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
Ireland	142.0	106.3	122.7	147.5	149.1	155.6	167.9	172.7	168.4	241.9	251.9	279.9	279.4
Italy	2,957.6	3,176.1	3,282.3	3,327.2	3,342.4	3,525.6	3,450.7	3,896.6	3,867.8	4,286.1	3,932.6	4,052.9	4,041.9
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
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
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
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
Netherlands	1,229.3	1,271.9	1,177.1	1,184.4	1,127.4	1,141.8	1,107.1	1,231.4	1,144.4	1,239.8	1,156.2	1,156.5	1,076.7
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	1,854.1	1,630.6
Portugal	148.3	165.1	203.1	226.9	336.2	311.6	368.9	367.6	418.7	429.2	409.3	493.4	495.8
Romania	197.5	301.8	277.9	260.9	296.8	305.4	281.5	286.0	276.5	286.7	253.9	304.0	322.6
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
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	210.6
Spain	1,474.4	1,613.9	1,676.5	1,706.4	1,854.3	1,752.4	1,834.4	1,896.6	1,925.6	2,127.2	2,166.3	2,305.1	2,472.2
Sweden	943.4	994.7	985.1	963.9	1,007.8	1,026.3	1,088.5	1,099.6	986.5	1,044.4	1,022.8	1,013.2	971.8
United Kingdom	4,636.2	4,576.3	4,664.5	4,410.9	4,813.0	4,675.4	4,257.1	4,370.3	4,383.7	4,418.9	4,531.7	4,634.0	4,578.8
Other Western Europe	1,781.3	1,896.0	1,955.5	1,926.0	1,943.5	1,873.9	1,811.8	1,977.0	2,131.4	2,289.1	2,374.5	2,498.4	2,684.9
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
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
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
Croatia	78.8	83.4	77.1	78.3	86.7	69.4	81.6	99.3	99.0	119.5	117.3	94.4	118.6
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.4	4.9

Appendix table 5-36

S&E articles in physics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71.8	193.2
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	162.3	70.8	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
Turkey	160.8	190.6	239.6	266.6	300.8	269.6	364.8	441.3	542.5	620.3	643.8	690.6	820.1
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
Yugoslavia	102.8	109.4	122.0	129.0	121.5	97.2	92.1	121.0	116.7	113.8	NA	NA	NA
Other former USSR	8,486.5	8,092.8	8,124.8	7,861.4	7,686.4	7,752.7	7,118.8	7,218.4	6,888.8	6,561.3	6,466.4	6,245.7	6,327.3
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
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
Belarus	324.2	256.1	268.7	256.7	241.5	224.0	211.1	200.9	230.6	194.5	230.0	183.4	192.5
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
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
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
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
Russia	6,627.0	6,341.2	6,514.8	6,233.9	6,118.8	6,174.9	5,573.0	5,718.0	5,407.0	5,209.1	5,017.7	4,946.5	4,912.1
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
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
Ukraine	1,094.1	1,112.7	971.8	1,005.3	991.7	1,002.2	1,053.1	962.2	895.4	850.9	909.8	814.8	915.2
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
Asia	15,796.0	17,967.6	18,858.5	19,070.3	20,461.6	21,086.8	22,600.7	23,721.3	26,374.8	27,727.2	30,002.1	33,180.8	34,999.6
China	2,987.6	3,184.4	3,756.4	3,761.5	3,936.4	4,500.1	5,035.0	5,374.7	7,151.9	8,394.8	10,375.3	12,077.5	13,659.2
Japan	8,683.9	10,166.8	10,142.2	9,927.9	10,750.9	10,678.1	10,929.0	11,243.0	11,705.5	10,950.5	10,716.5	10,914.7	10,420.6
Asia-8	4,024.7	4,516.8	4,868.2	5,283.2	5,664.5	5,791.3	6,510.3	6,954.6	7,321.7	8,235.0	8,723.5	9,946.1	10,612.5
India	1,854.0	2,004.7	1,884.1	1,957.3	1,869.8	1,910.6	1,993.0	2,156.8	2,239.6	2,285.5	2,664.6	2,973.8	3,201.9
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
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
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
Singapore	174.3	173.9	226.2	272.0	393.3	488.5	517.2	578.2	548.2	710.6	750.3	866.3	868.8
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
Taiwan	831.5	983.1	1,058.3	1,107.7	1,071.1	1,183.6	1,302.2	1,385.9	1,437.1	1,694.8	1,970.9	2,211.4	2,402.9
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
Other Asia	99.7	99.6	91.6	97.7	109.9	117.3	126.4	148.9	195.7	146.9	186.8	242.5	307.2
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
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
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
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
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
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

Appendix table 5-36

S&E articles in physics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
Myanmar	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
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
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
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
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
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
Near East/North Africa	1,387.0	1,444.2	1,537.3	1,568.1	1,614.3	1,676.9	1,677.6	1,875.9	1,968.3	2,009.6	2,174.4	2,325.2	2,562.2
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
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
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
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
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
Israel	920.0	962.8	981.0	1,020.3	985.4	939.7	895.4	981.4	1,011.3	943.0	925.0	955.5	1,035.1
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
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
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
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
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
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
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
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
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
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
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
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
Central/South America	1,760.4	1,907.9	2,195.4	2,578.0	2,648.8	2,659.7	3,005.6	3,025.5	3,081.3	3,395.3	3,290.4	3,476.2	3,451.9
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina	344.0	400.2	427.3	440.6	448.1	458.4	464.2	508.1	442.6	465.8	429.2	445.3	508.6
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
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
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
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
Brazil	779.5	820.2	1,007.6	1,199.5	1,252.7	1,210.3	1,512.2	1,491.4	1,460.8	1,862.1	1,649.6	1,712.4	1,768.4
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
Colombia	16.3	28.5	55.1	56.6	40.8	97.1	52.8	42.7	63.3	66.3	71.9	104.3	74.1
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
Cuba	30.4	33.9	32.8	36.9	38.2	57.4	43.2	39.1	48.7	34.5	50.2	46.3	36.8
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

Appendix table 5-36

S&E articles in physics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
Mexico	414.6	486.3	500.0	610.3	657.5	633.4	708.7	676.5	778.5	731.5	817.4	803.1	787.0
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
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
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
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
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
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
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
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
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
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
Venezuela	73.4	51.7	59.6	99.1	81.4	75.9	75.3	76.4	119.4	51.4	78.7	133.4	56.2
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-36

S&E articles in physics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Other	3,172.4	3,098.2	3,016.6	2,878.4	2,667.6	2,719.0	2,604.2	2,809.2	2,940.2	3,025.2	3,332.0	3,565.4	3,573.1
Australia	1,093.7	1,141.0	1,133.7	1,159.6	1,060.4	1,014.0	989.3	1,016.7	1,036.4	1,085.0	1,123.3	1,233.6	1,278.4
Canada	1,980.5	1,859.7	1,750.9	1,585.3	1,462.8	1,578.5	1,484.8	1,687.4	1,782.4	1,809.6	2,043.6	2,174.1	2,133.5
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
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
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
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
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
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

Appendix table 5-36

S&E articles in physics, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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

* = 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-37

S&E articles in psychology, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	19,663.0
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	8,946.0
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	510.7
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	0.0

Appendix table 5-37

S&E articles in psychology, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	32.0
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	1.2	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	208.5
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
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
Yugoslavia	0.0	2.4	3.3	2.0	3.5	4.0	3.0	0.9	2.1	2.9	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Asia-8	64.0	71.1	81.1	81.6	97.9	122.5	106.9	110.3	178.9	173.3	189.7	241.6	345.4
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
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
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
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
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
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
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
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
Other Asia	3.0	4.0	2.8	3.8	6.7	2.5	1.3	5.7	4.8	6.0	3.9	4.9	6.3
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
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
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
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
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
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

Appendix table 5-37

S&E articles in psychology, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
Myanmar	0.0	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	1.8	1.0	2.2	1.0	0.0	1.3	1.3	0.5	0.8	0.6	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	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
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
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
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	315.1
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
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
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
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
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
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	269.4
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-37

S&E articles in psychology, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-37

S&E articles in psychology, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	2,146.5
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
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	1,215.6
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
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
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
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
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
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

Appendix table 5-37

S&E articles in psychology, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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

* = 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-38

S&E articles in social sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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	22,324.0	22,881.0	24,068.0	26,156.0	29,531.0
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	10,105.1	10,237.6	10,376.6	10,725.6	11,332.4
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	7,157.1	7,510.7	8,141.3	9,044.2	10,582.5
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	175.7
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
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
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
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
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	254.4
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
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
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	760.2
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	1,306.5
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
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
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
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	538.0
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
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
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
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
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
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
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
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
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
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
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	757.3
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
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	3,131.6	3,106.7	3,375.4	3,727.8	4,066.9
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	1,153.6
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
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
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
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
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
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
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
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
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	1.5
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	316.3

Appendix table 5-38

S&E articles in social sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Serbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.7	12.0
Serbia and Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4	2.9	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
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
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
Yugoslavia	3.5	4.5	2.3	4.0	2.7	5.0	4.0	2.2	3.7	9.2	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
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
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
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
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
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
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
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
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
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
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
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
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
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	1,945.9
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
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
Asia-8	421.5	401.8	366.6	370.5	400.8	466.7	533.0	526.1	557.8	564.0	662.2	850.9	898.3
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
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
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
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
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
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	228.5
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
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
Other Asia	55.1	61.5	40.6	29.8	34.8	36.9	42.2	37.4	49.5	36.3	52.0	43.3	66.8
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
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
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
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
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
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
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
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

Appendix table 5-38

S&E articles in social sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Myanmar	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
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
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
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
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
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
Near East/North Africa	291.5	318.4	324.4	325.5	291.5	299.0	292.8	312.9	345.6	348.0	304.2	383.4	376.5
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
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
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
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
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
Israel	255.0	255.5	276.6	271.8	247.6	250.2	236.4	258.4	281.7	274.3	231.9	287.2	275.5
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
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
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
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
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
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
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
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
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
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
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
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
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	609.3
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
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
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
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
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
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
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
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	95.6
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
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
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
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
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
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
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

Appendix table 5-38

S&E articles in social sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Appendix table 5-38

S&E articles in social sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	2,113.7	2,107.7	2,241.8	2,453.2	2,894.6
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
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	1,246.2	1,223.5	1,238.6	1,320.8	1,529.9
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
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
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
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
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
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
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
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
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
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

Appendix table 5-38

S&E articles in social sciences, by region/country/economy: 1995–2007

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
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
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
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

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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-39

Internationally coauthored S&E articles, by selected country/economy pairs: 1998

Country/economy, 1998	World	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy
World	98,424	43,254	2,551	4,022	1,672	3,164	2,358	15,293	19,869	1,352	1,647	859	9,519
United States	43,254	na	645	928	343	964	649	3,774	5,940	400	489	211	3,030
Austria	2,551	645	na	79	106	105	67	275	911	71	81	18	241
Belgium	4,022	928	79	na	78	126	105	973	585	72	63	27	370
Czech Republic	1,672	343	106	78	na	55	48	251	428	41	30	8	159
Denmark	3,164	964	105	126	55	na	179	345	566	95	36	29	301
Finland	2,358	649	67	105	48	179	na	240	365	40	91	12	209
France	15,293	3,774	275	973	251	345	240	na	2,275	261	214	85	1,660
Germany	19,869	5,940	911	585	428	566	365	2,275	na	299	408	108	1,548
Greece	1,352	400	71	72	41	95	40	261	299	na	16	6	181
Hungary	1,647	489	81	63	30	36	91	214	408	16	na	10	182
Ireland	859	211	18	27	8	29	12	85	108	6	10	na	81
Italy	9,519	3,030	241	370	159	301	209	1,660	1,548	181	182	81	na
Netherlands	6,421	1,917	171	656	125	274	186	770	1,231	90	95	60	670
Poland	3,099	774	75	132	113	78	81	502	719	46	50	12	250
Portugal	1,010	202	33	60	32	61	34	221	140	43	15	14	111
Spain	5,852	1,455	133	259	83	228	166	1,229	822	112	81	46	781
Sweden	5,390	1,565	101	211	86	499	438	493	737	65	62	41	377
United Kingdom	18,360	5,428	326	607	213	632	323	2,069	2,516	354	232	340	1,533
Norway	1,808	526	60	71	43	253	156	206	274	56	18	20	140
Switzerland	5,850	1,825	243	233	115	199	161	1,053	1,607	141	131	28	857
Turkey	640	243	6	18	2	14	9	45	95	7	11	0	47
China	4,228	1,515	69	53	16	61	48	257	513	42	43	9	190
India	2,022	821	11	32	12	21	44	219	293	5	45	2	131
Japan	10,000	4,520	91	114	94	113	116	571	1,080	31	138	23	400
Singapore	586	168	1	12	0	4	4	11	13	1	1	3	4
South Korea	2,055	1,246	34	13	3	37	27	123	166	30	28	3	108
Taiwan	1,190	754	5	9	2	6	25	57	95	0	25	1	54
Russia	6,865	1,698	130	147	163	170	247	899	1,772	76	79	35	557
Israel	3,024	1,666	31	64	17	40	30	273	521	26	58	9	195
Argentina	1,157	406	12	12	6	15	16	127	127	6	4	1	67
Brazil	2,614	995	38	72	37	45	31	397	273	26	11	9	202
Mexico	1,537	684	12	27	14	17	7	175	99	3	7	8	54
South Africa	958	298	22	34	2	19	6	60	142	4	4	5	37
Australia	5,312	1,862	61	81	28	110	72	352	486	21	33	24	211
Canada	9,475	5,038	76	171	76	159	118	926	740	60	77	36	404
New Zealand	1,272	441	20	15	3	13	13	62	107	3	5	11	33

Appendix table 5-39

Internationally coauthored S&E articles, by selected country/economy pairs: 1998

Country/economy, 1998	World	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Switzerland	Turkey	China	India	Japan
World	98,424	6,421	3,099	1,010	5,852	5,390	18,360	1,808	5,850	640	4,228	2,022	10,000
United States	43,254	1,917	774	202	1,455	1,565	5,428	526	1,825	243	1,515	821	4,520
Austria	2,551	171	75	33	133	101	326	60	243	6	69	11	91
Belgium	4,022	656	132	60	259	211	607	71	233	18	53	32	114
Czech Republic	1,672	125	113	32	83	86	213	43	115	2	16	12	94
Denmark	3,164	274	78	61	228	499	632	253	199	14	61	21	113
Finland	2,358	186	81	34	166	438	323	156	161	9	48	44	116
France	15,293	770	502	221	1,229	493	2,069	206	1,053	45	257	219	571
Germany	19,869	1,231	719	140	822	737	2,516	274	1,607	95	513	293	1,080
Greece	1,352	90	46	43	112	65	354	56	141	7	42	5	31
Hungary	1,647	95	50	15	81	62	232	18	131	11	43	45	138
Ireland	859	60	12	14	46	41	340	20	28	0	9	2	23
Italy	9,519	670	250	111	781	377	1,533	140	857	47	190	131	400
Netherlands	6,421	na	145	105	405	372	1,256	150	424	26	116	62	295
Poland	3,099	145	na	31	132	189	353	54	152	9	28	42	180
Portugal	1,010	105	31	na	153	72	300	40	65	3	21	8	16
Spain	5,852	405	132	153	na	222	1,090	90	289	20	103	75	153
Sweden	5,390	372	189	72	222	na	810	406	242	16	91	47	284
United Kingdom	18,360	1,256	353	300	1,090	810	na	349	829	118	459	229	923
Norway	1,808	150	54	40	90	406	349	na	99	3	19	12	71
Switzerland	5,850	424	152	65	289	242	829	99	na	27	105	75	290
Turkey	640	26	9	3	20	16	118	3	27	na	3	6	29
China	4,228	116	28	21	103	91	459	19	105	3	na	85	657
India	2,022	62	42	8	75	47	229	12	75	6	85	na	194
Japan	10,000	295	180	16	153	284	923	71	290	29	657	194	na
Singapore	586	4	0	0	5	13	82	4	5	0	129	10	43
South Korea	2,055	54	46	0	80	21	120	3	69	4	152	68	415
Taiwan	1,190	37	3	3	30	11	75	2	52	1	136	38	157
Russia	6,865	327	297	51	278	377	629	122	323	36	98	87	449
Israel	3,024	120	56	7	93	52	296	15	129	18	23	19	152
Argentina	1,157	33	19	2	180	27	99	7	29	5	9	24	26
Brazil	2,614	76	59	72	160	67	334	36	65	6	35	52	92
Mexico	1,537	26	47	1	151	19	141	3	15	3	17	39	46
South Africa	958	33	25	2	17	19	208	7	25	1	12	16	40
Australia	5,312	183	55	10	101	185	1,078	56	157	6	239	85	393
Canada	9,475	302	131	23	215	254	1,031	77	297	31	269	92	565
New Zealand	1,272	42	9	1	7	39	243	12	25	0	35	10	75

Appendix table 5-39

Internationally coauthored S&E articles, by selected country/economy pairs: 1998

Country/economy, 1998	World	Singapore	South Korea	Taiwan	Russia	Israel	Argentina	Brazil	Mexico	South Africa	Australia	Canada	New Zealand
World	98,424	586	2,055	1,190	6,865	3,024	1,157	2,614	1,537	958	5,312	9,475	1,272
United States	43,254	168	1,246	754	1,698	1,666	406	995	684	298	1,862	5,038	441
Austria	2,551	1	34	5	130	31	12	38	12	22	61	76	20
Belgium	4,022	12	13	9	147	64	12	72	27	34	81	171	15
Czech Republic	1,672	0	3	2	163	17	6	37	14	2	28	76	3
Denmark	3,164	4	37	6	170	40	15	45	17	19	110	159	13
Finland	2,358	4	27	25	247	30	16	31	7	6	72	118	13
France	15,293	11	123	57	899	273	127	397	175	60	352	926	62
Germany	19,869	13	166	95	1,772	521	127	273	99	142	486	740	107
Greece	1,352	1	30	0	76	26	6	26	3	4	21	60	3
Hungary	1,647	1	28	25	79	58	4	11	7	4	33	77	5
Ireland	859	3	3	1	35	9	1	9	8	5	24	36	11
Italy	9,519	4	108	54	557	195	67	202	54	37	211	404	33
Netherlands	6,421	4	54	37	327	120	33	76	26	33	183	302	42
Poland	3,099	0	46	3	297	56	19	59	47	25	55	131	9
Portugal	1,010	0	0	3	51	7	2	72	1	2	10	23	1
Spain	5,852	5	80	30	278	93	180	160	151	17	101	215	7
Sweden	5,390	13	21	11	377	52	27	67	19	19	185	254	39
United Kingdom	18,360	82	120	75	629	296	99	334	141	208	1,078	1,031	243
Norway	1,808	4	3	2	122	15	7	36	3	7	56	77	12
Switzerland	5,850	5	69	52	323	129	29	65	15	25	157	297	25
Turkey	640	0	4	1	36	18	5	6	3	1	6	31	0
China	4,228	129	152	136	98	23	9	35	17	12	239	269	35
India	2,022	10	68	38	87	19	24	52	39	16	85	92	10
Japan	10,000	43	415	157	449	152	26	92	46	40	393	565	75
Singapore	586	na	3	27	5	5	1	1	0	4	61	25	9
South Korea	2,055	3	na	51	147	30	22	26	22	2	48	93	5
Taiwan	1,190	27	51	na	42	13	0	2	1	2	45	67	4
Russia	6,865	5	147	42	na	148	29	136	87	23	116	253	14
Israel	3,024	5	30	13	148	na	10	32	20	32	80	202	13
Argentina	1,157	1	22	0	29	10	na	133	54	9	22	54	2
Brazil	2,614	1	26	2	136	32	133	na	69	15	54	135	7
Mexico	1,537	0	22	1	87	20	54	69	na	9	26	82	2
South Africa	958	4	2	2	23	32	9	15	9	na	98	58	25
Australia	5,312	61	48	45	116	80	22	54	26	98	na	444	294
Canada	9,475	25	93	67	253	202	54	135	82	58	444	na	109
New Zealand	1,272	9	5	4	14	13	2	7	2	25	294	109	na

na = not applicable

NOTES: Each country in matrix accounts for more than 1% of internationally coauthored articles in 1998. 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.

SOURCES: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-40

Internationally coauthored S&E articles, by selected country/economy pairs: 2008

Country/economy, 2008	World	United States	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy
World	180,783	78,348	5,180	7,418	3,066	5,038	3,945	25,097	33,541	2,998	2,393	2,419	17,136
United States	78,348	na	1,268	1,811	714	1,520	1,069	6,521	9,950	1,000	658	706	5,563
Austria	5,180	1,268	na	251	182	154	149	657	1,915	125	194	67	663
Belgium	7,418	1,811	251	na	167	246	152	1,755	1,308	165	163	118	912
Czech Republic	3,066	714	182	167	na	96	110	552	831	96	116	95	362
Denmark	5,038	1,520	154	246	96	na	346	562	947	96	84	103	502
Finland	3,945	1,069	149	152	110	346	na	442	769	83	113	97	459
France	25,097	6,521	657	1,755	552	562	442	na	4,237	468	332	300	3,179
Germany	33,541	9,950	1,915	1,308	831	947	769	4,237	na	592	595	398	3,222
Greece	2,998	1,000	125	165	96	96	83	468	592	na	66	48	403
Hungary	2,393	658	194	163	116	84	113	332	595	66	na	39	318
Ireland	2,419	706	67	118	95	103	97	300	398	48	39	na	212
Italy	17,136	5,563	663	912	362	502	459	3,179	3,222	403	318	212	na
Netherlands	11,618	3,542	386	1,277	239	483	341	1,617	2,782	222	155	246	1,288
Poland	4,985	1,318	231	275	294	170	160	825	1,236	143	145	55	542
Portugal	3,225	649	108	148	86	92	85	500	464	77	48	35	310
Spain	13,786	3,742	405	710	212	402	338	2,333	2,265	350	191	185	2,136
Sweden	8,601	2,508	312	362	210	811	747	963	1,535	168	169	178	815
United Kingdom	33,948	10,867	758	1,460	511	1,097	899	4,096	5,439	716	362	930	3,337
Norway	3,715	1,100	122	140	77	428	260	467	587	74	48	46	382
Switzerland	10,728	3,389	573	533	222	292	285	1,908	3,283	163	134	156	1,403
Turkey	2,197	917	52	66	33	26	48	173	316	67	31	17	190
China	19,300	8,128	183	229	128	173	134	1,014	1,590	62	80	145	407
India	5,209	1,789	104	85	110	57	52	491	750	29	50	78	268
Japan	16,038	6,201	250	259	174	194	216	1,196	1,653	87	165	65	743
Singapore	2,903	881	24	21	10	37	19	111	146	10	6	5	74
South Korea	7,316	3,911	91	61	92	40	71	358	551	43	43	71	204
Taiwan	3,733	1,993	67	34	22	16	69	175	234	21	11	14	116
Russia	7,809	2,131	230	258	280	127	335	1,251	2,279	116	117	130	817
Israel	4,265	2,232	91	142	75	55	50	446	774	66	67	43	341
Argentina	2,383	832	32	54	69	28	18	277	284	17	30	56	187
Brazil	5,678	2,185	71	145	111	68	53	753	639	34	47	65	409
Mexico	3,043	1,364	27	82	70	13	20	374	316	28	16	63	199
South Africa	2,382	828	24	88	39	58	30	203	299	13	26	32	115
Australia	12,111	4,070	205	281	105	297	157	901	1,291	62	73	140	631
Canada	18,423	9,426	233	412	186	337	304	1,899	1,811	146	131	183	1,005
New Zealand	2,633	918	48	73	12	69	46	184	253	10	18	35	100

Appendix table 5-40

Internationally coauthored S&E articles, by selected country/economy pairs: 2008

Country/economy, 2008	World	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Switzerland	Turkey	China	India	Japan
World	180,783	11,618	4,985	3,225	13,786	8,601	33,948	3,715	10,728	2,197	19,300	5,209	16,038
United States	78,348	3,542	1,318	649	3,742	2,508	10,867	1,100	3,389	917	8,128	1,789	6,201
Austria	5,180	386	231	108	405	312	758	122	573	52	183	104	250
Belgium	7,418	1,277	275	148	710	362	1,460	140	533	66	229	85	259
Czech Republic	3,066	239	294	86	212	210	511	77	222	33	128	110	174
Denmark	5,038	483	170	92	402	811	1,097	428	292	26	173	57	194
Finland	3,945	341	160	85	338	747	899	260	285	48	134	52	216
France	25,097	1,617	825	500	2,333	963	4,096	467	1,908	173	1,014	491	1,196
Germany	33,541	2,782	1,236	464	2,265	1,535	5,439	587	3,283	316	1,590	750	1,653
Greece	2,998	222	143	77	350	168	716	74	163	67	62	29	87
Hungary	2,393	155	145	48	191	169	362	48	134	31	80	50	165
Ireland	2,419	246	55	35	185	178	930	46	156	17	145	78	65
Italy	17,136	1,288	542	310	2,136	815	3,337	382	1,403	190	407	268	743
Netherlands	11,618	na	271	228	1,045	729	2,765	390	774	112	460	172	434
Poland	4,985	271	na	111	384	296	716	113	331	66	165	139	312
Portugal	3,225	228	111	na	712	163	645	60	155	28	75	61	67
Spain	13,786	1,045	384	712	na	579	2,628	280	658	120	259	153	431
Sweden	8,601	729	296	163	579	na	1,726	700	494	53	512	156	379
United Kingdom	33,948	2,765	716	645	2,628	1,726	na	789	1,802	267	1,870	636	1,618
Norway	3,715	390	113	60	280	700	789	na	181	26	98	27	127
Switzerland	10,728	774	331	155	658	494	1,802	181	na	76	372	201	470
Turkey	2,197	112	66	28	120	53	267	26	76	na	48	39	89
China	19,300	460	165	75	259	512	1,870	98	372	48	na	356	2,358
India	5,209	172	139	61	153	156	636	27	201	39	356	na	516
Japan	16,038	434	312	67	431	379	1,618	127	470	89	2,358	516	na
Singapore	2,903	59	22	4	44	42	334	22	64	15	911	102	147
South Korea	7,316	167	140	24	124	127	494	31	220	34	913	461	1,235
Taiwan	3,733	33	78	11	88	37	261	18	129	19	701	200	549
Russia	7,809	455	447	110	472	397	995	220	469	52	355	219	622
Israel	4,265	206	102	48	238	89	485	38	208	71	156	83	188
Argentina	2,383	116	28	31	476	102	238	18	78	11	88	77	57
Brazil	5,678	239	81	273	469	179	704	47	168	26	148	150	167
Mexico	3,043	130	43	40	505	103	315	25	94	10	149	101	101
South Africa	2,382	162	71	42	99	112	597	66	111	15	98	91	72
Australia	12,111	550	184	76	419	367	2,573	163	466	49	1,469	277	685
Canada	18,423	804	241	106	715	512	2,588	360	690	99	1,434	279	906
New Zealand	2,633	105	21	15	70	67	631	53	58	10	130	20	126

Appendix table 5-40

Internationally coauthored S&E articles, by selected country/economy pairs: 2008

Country/economy, 2008	World	Singapore	South Korea	Taiwan	Russia	Israel	Argentina	Brazil	Mexico	South Africa	Australia	Canada	New Zealand
World	180,783	2,903	7,316	3,733	7,809	4,265	2,383	5,678	3,043	2,382	12,111	18,423	2,633
United States	78,348	881	3,911	1,993	2,131	2,232	832	2,185	1,364	828	4,070	9,426	918
Austria	5,180	24	91	67	230	91	32	71	27	24	205	233	48
Belgium	7,418	21	61	34	258	142	54	145	82	88	281	412	73
Czech Republic	3,066	10	92	22	280	75	69	111	70	39	105	186	12
Denmark	5,038	37	40	16	127	55	28	68	13	58	297	337	69
Finland	3,945	19	71	69	335	50	18	53	20	30	157	304	46
France	25,097	111	358	175	1,251	446	277	753	374	203	901	1,899	184
Germany	33,541	146	551	234	2,279	774	284	639	316	299	1,291	1,811	253
Greece	2,998	10	43	21	116	66	17	34	28	13	62	146	10
Hungary	2,393	6	43	11	117	67	30	47	16	26	73	131	18
Ireland	2,419	5	71	14	130	43	56	65	63	32	140	183	35
Italy	17,136	74	204	116	817	341	187	409	199	115	631	1,005	100
Netherlands	11,618	59	167	33	455	206	116	239	130	162	550	804	105
Poland	4,985	22	140	78	447	102	28	81	43	71	184	241	21
Portugal	3,225	4	24	11	110	48	31	273	40	42	76	106	15
Spain	13,786	44	124	88	472	238	476	469	505	99	419	715	70
Sweden	8,601	42	127	37	397	89	102	179	103	112	367	512	67
United Kingdom	33,948	334	494	261	995	485	238	704	315	597	2,573	2,588	631
Norway	3,715	22	31	18	220	38	18	47	25	66	163	360	53
Switzerland	10,728	64	220	129	469	208	78	168	94	111	466	690	58
Turkey	2,197	15	34	19	52	71	11	26	10	15	49	99	10
China	19,300	911	913	701	355	156	88	148	149	98	1,469	1,434	130
India	5,209	102	461	200	219	83	77	150	101	91	277	279	20
Japan	16,038	147	1,235	549	622	188	57	167	101	72	685	906	126
Singapore	2,903	na	94	104	27	15	11	18	9	4	331	150	47
South Korea	7,316	94	na	210	351	69	59	98	84	26	246	441	33
Taiwan	3,733	104	210	na	179	29	5	23	14	6	167	230	11
Russia	7,809	27	351	179	na	184	78	195	142	45	197	464	21
Israel	4,265	15	69	29	184	na	22	64	30	31	154	284	30
Argentina	2,383	11	59	5	78	22	na	398	150	23	84	185	23
Brazil	5,678	18	98	23	195	64	398	na	178	62	205	421	35
Mexico	3,043	9	84	14	142	30	150	178	na	29	94	285	24
South Africa	2,382	4	26	6	45	31	23	62	29	na	243	157	36
Australia	12,111	331	246	167	197	154	84	205	94	243	na	1,045	671
Canada	18,423	150	441	230	464	284	185	421	285	157	1,045	na	218
New Zealand	2,633	47	33	11	21	30	23	35	24	36	671	218	na

na = not applicable

NOTES: Each country in matrix accounts for more than 1% of internationally coauthored articles in 2008. 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.

SOURCES: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-41

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1998 and 2008

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
United States																		
1998	na	0.58	0.53	0.47	0.69	0.63	0.56	0.68	0.67	0.68	0.56	0.72	0.68	0.57	0.46	0.57	0.66	0.67
2008	na	0.56	0.56	0.54	0.70	0.63	0.60	0.68	0.77	0.63	0.67	0.75	0.70	0.61	0.46	0.63	0.67	0.74
Austria																		
1998	0.58	na	0.76	2.45	1.28	1.10	0.69	1.77	2.03	1.90	0.81	0.98	1.03	0.93	1.26	0.88	0.72	0.69
2008	0.56	na	1.18	2.07	1.07	1.32	0.91	1.99	1.46	2.83	0.97	1.35	1.16	1.62	1.17	1.03	1.27	0.78
Belgium																		
1998	0.53	0.76	na	1.14	0.97	1.09	1.56	0.72	1.30	0.94	0.77	0.95	2.50	1.04	1.45	1.08	0.96	0.81
2008	0.56	1.18	na	1.33	1.19	0.94	1.70	0.95	1.34	1.66	1.19	1.30	2.68	1.34	1.12	1.26	1.03	1.05
Czech Republic																		
1998	0.47	2.45	1.14	na	1.02	1.20	0.97	1.27	1.79	1.07	0.55	0.98	1.15	2.15	1.87	0.83	0.94	0.68
2008	0.54	2.07	1.33	na	1.12	1.64	1.30	1.46	1.89	2.86	2.32	1.25	1.21	3.48	1.57	0.91	1.44	0.89
Denmark																		
1998	0.69	1.28	0.97	1.02	na	2.36	0.70	0.89	2.19	0.68	1.05	0.98	1.33	0.78	1.88	1.21	2.88	1.07
2008	0.70	1.07	1.19	1.12	na	3.15	0.80	1.01	1.15	1.26	1.53	1.05	1.49	1.22	1.02	1.05	3.38	1.16
Finland																		
1998	0.63	1.10	1.09	1.20	2.36	na	0.66	0.77	1.23	2.31	0.58	0.92	1.21	1.09	1.41	1.18	3.39	0.73
2008	0.63	1.32	0.94	1.64	3.15	na	0.81	1.05	1.27	2.16	1.84	1.23	1.35	1.47	1.21	1.12	3.98	1.21
France																		
1998	0.56	0.69	1.56	0.97	0.70	0.66	na	0.74	1.24	0.84	0.64	1.12	0.77	1.04	1.41	1.35	0.59	0.73
2008	0.60	0.91	1.70	1.30	0.80	0.81	na	0.91	1.12	1.00	0.89	1.34	1.00	1.19	1.12	1.22	0.81	0.87
Germany																		
1998	0.68	1.77	0.72	1.27	0.89	0.77	0.74	na	1.10	1.23	0.62	0.81	0.95	1.15	0.69	0.70	0.68	0.68
2008	0.68	1.99	0.95	1.46	1.01	1.05	0.91	na	1.06	1.34	0.89	1.01	1.29	1.34	0.78	0.89	0.96	0.86
Greece																		
1998	0.67	2.03	1.30	1.79	2.19	1.23	1.24	1.10	na	0.71	0.51	1.38	1.02	1.08	3.10	1.39	0.88	1.40
2008	0.77	1.46	1.34	1.89	1.15	1.27	1.12	1.06	na	1.66	1.20	1.42	1.15	1.73	1.44	1.53	1.18	1.27
Hungary																		
1998	0.68	1.90	0.94	1.07	0.68	2.31	0.84	1.23	0.71	na	0.70	1.14	0.88	0.96	0.89	0.83	0.69	0.76
2008	0.63	2.83	1.66	2.86	1.26	2.16	1.00	1.34	1.66	na	1.22	1.40	1.01	2.20	1.12	1.05	1.48	0.81
Ireland																		
1998	0.56	0.81	0.77	0.55	1.05	0.58	0.64	0.62	0.51	0.70	na	0.97	1.07	0.44	1.59	0.90	0.87	2.12
2008	0.67	0.97	1.19	2.32	1.53	1.84	0.89	0.89	1.20	1.22	na	0.92	1.58	0.82	0.81	1.00	1.55	2.05
Italy																		
1998	0.72	0.98	0.95	0.98	0.98	0.92	1.12	0.81	1.38	1.14	0.97	na	1.08	0.83	1.14	1.38	0.72	0.86
2008	0.75	1.35	1.30	1.25	1.05	1.23	1.34	1.01	1.42	1.40	0.92	na	1.17	1.15	1.01	1.63	1.00	1.04
Netherlands																		
1998	0.68	1.03	2.50	1.15	1.33	1.21	0.77	0.95	1.02	0.88	1.07	1.08	na	0.72	1.59	1.06	1.06	1.05
2008	0.70	1.16	2.68	1.21	1.49	1.35	1.00	1.29	1.15	1.01	1.58	1.17	na	0.85	1.10	1.18	1.32	1.27
Poland																		
1998	0.57	0.93	1.04	2.15	0.78	1.09	1.04	1.15	1.08	0.96	0.44	0.83	0.72	na	0.97	0.72	1.11	0.61
2008	0.61	1.62	1.34	3.48	1.22	1.47	1.19	1.34	1.73	2.20	0.82	1.15	0.85	na	1.25	1.01	1.25	0.76

Appendix table 5-41

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1998 and 2008

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
Portugal																		
1998	0.46	1.26	1.45	1.87	1.88	1.41	1.41	0.69	3.10	0.89	1.59	1.14	1.59	0.97	na	2.55	1.30	1.59
2008	0.46	1.17	1.12	1.57	1.02	1.21	1.12	0.78	1.44	1.12	0.81	1.01	1.10	1.25	na	2.90	1.06	1.07
Spain																		
1998	0.57	0.88	1.08	0.83	1.21	1.18	1.35	0.70	1.39	0.83	0.90	1.38	1.06	0.72	2.55	na	0.69	1.00
2008	0.63	1.03	1.26	0.91	1.05	1.12	1.22	0.89	1.53	1.05	1.00	1.63	1.18	1.01	2.90	na	0.88	1.02
Sweden																		
1998	0.66	0.72	0.96	0.94	2.88	3.39	0.59	0.68	0.88	0.69	0.87	0.72	1.06	1.11	1.30	0.69	na	0.81
2008	0.67	1.27	1.03	1.44	3.38	3.98	0.81	0.96	1.18	1.48	1.55	1.00	1.32	1.25	1.06	0.88	na	1.07
United Kingdom																		
1998	0.67	0.69	0.81	0.68	1.07	0.73	0.73	0.68	1.40	0.76	2.12	0.86	1.05	0.61	1.59	1.00	0.81	na
2008	0.74	0.78	1.05	0.89	1.16	1.21	0.87	0.86	1.27	0.81	2.05	1.04	1.27	0.76	1.07	1.02	1.07	na
Norway																		
1998	0.66	1.28	0.96	1.40	4.35	3.60	0.73	0.75	2.25	0.59	1.27	0.80	1.27	0.95	2.16	0.84	4.10	1.03
2008	0.68	1.15	0.92	1.22	4.13	3.21	0.91	0.85	1.20	0.98	0.93	1.08	1.63	1.10	0.91	0.99	3.96	1.13
Switzerland																		
1998	0.71	1.60	0.97	1.16	1.06	1.15	1.16	1.36	1.75	1.34	0.55	1.51	1.11	0.83	1.08	0.83	0.76	0.76
2008	0.73	1.86	1.21	1.22	0.98	1.22	1.28	1.65	0.92	0.94	1.09	1.38	1.12	1.12	0.81	0.80	0.97	0.89
Turkey																		
1998	0.86	0.36	0.69	0.18	0.68	0.59	0.45	0.74	0.80	1.03	0.00	0.76	0.62	0.45	0.46	0.53	0.46	0.99
2008	0.96	0.83	0.73	0.89	0.42	1.00	0.57	0.78	1.84	1.07	0.58	0.91	0.79	1.09	0.71	0.72	0.51	0.65
China																		
1998	0.82	0.63	0.31	0.22	0.45	0.47	0.39	0.60	0.72	0.61	0.24	0.46	0.42	0.21	0.48	0.41	0.39	0.58
2008	0.97	0.33	0.29	0.39	0.32	0.32	0.38	0.44	0.19	0.31	0.56	0.22	0.37	0.31	0.22	0.18	0.56	0.52
India																		
1998	0.92	0.21	0.39	0.35	0.32	0.91	0.70	0.72	0.18	1.33	0.11	0.67	0.47	0.66	0.39	0.62	0.42	0.61
2008	0.79	0.70	0.40	1.25	0.39	0.46	0.68	0.78	0.34	0.73	1.12	0.54	0.51	0.97	0.66	0.39	0.63	0.65
Japan																		
1998	1.03	0.35	0.28	0.55	0.35	0.48	0.37	0.53	0.23	0.82	0.26	0.41	0.45	0.57	0.16	0.26	0.52	0.49
2008	0.89	0.54	0.39	0.64	0.43	0.62	0.54	0.56	0.33	0.78	0.30	0.49	0.42	0.71	0.23	0.35	0.50	0.54
Singapore																		
1998	0.65	0.07	0.50	0.00	0.21	0.28	0.12	0.11	0.12	0.10	0.59	0.07	0.10	0.00	0.00	0.14	0.41	0.75
2008	0.70	0.29	0.18	0.20	0.46	0.30	0.28	0.27	0.21	0.16	0.13	0.27	0.32	0.27	0.08	0.20	0.30	0.61
South Korea																		
1998	1.38	0.64	0.15	0.09	0.56	0.55	0.39	0.40	1.06	0.81	0.17	0.54	0.40	0.71	0.00	0.65	0.19	0.31
2008	1.23	0.43	0.20	0.74	0.20	0.44	0.35	0.41	0.35	0.44	0.73	0.29	0.36	0.69	0.18	0.22	0.36	0.36
Taiwan																		
1998	1.44	0.16	0.19	0.10	0.16	0.88	0.31	0.40	0.00	1.26	0.10	0.47	0.48	0.08	0.25	0.42	0.17	0.34
2008	1.23	0.63	0.22	0.35	0.15	0.85	0.34	0.34	0.34	0.22	0.28	0.33	0.14	0.76	0.17	0.31	0.21	0.37
Russia																		
1998	0.56	0.73	0.52	1.40	0.77	1.50	0.84	1.28	0.81	0.69	0.58	0.84	0.73	1.37	0.72	0.68	1.00	0.49
2008	0.63	1.03	0.81	2.11	0.58	1.97	1.15	1.57	0.90	1.13	1.24	1.10	0.91	2.08	0.79	0.79	1.07	0.68

Appendix table 5-41

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1998 and 2008

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
Israel																		
1998	1.25	0.40	0.52	0.33	0.41	0.41	0.58	0.85	0.63	1.15	0.34	0.67	0.61	0.59	0.23	0.52	0.31	0.52
2008	1.21	0.74	0.81	1.04	0.46	0.54	0.75	0.98	0.93	1.19	0.75	0.84	0.75	0.87	0.63	0.73	0.44	0.61
Argentina																		
1998	0.80	0.40	0.25	0.31	0.40	0.58	0.71	0.54	0.38	0.21	0.10	0.60	0.44	0.52	0.17	2.62	0.43	0.46
2008	0.81	0.47	0.55	1.71	0.42	0.35	0.84	0.64	0.43	0.95	1.76	0.83	0.76	0.43	0.73	2.62	0.90	0.53
Brazil																		
1998	0.87	0.56	0.67	0.83	0.54	0.50	0.98	0.52	0.72	0.25	0.39	0.80	0.45	0.72	2.68	1.03	0.47	0.68
2008	0.89	0.44	0.62	1.15	0.43	0.43	0.96	0.61	0.36	0.63	0.86	0.76	0.65	0.52	2.70	1.08	0.66	0.66
Mexico																		
1998	1.01	0.30	0.43	0.54	0.34	0.19	0.73	0.32	0.14	0.27	0.60	0.36	0.26	0.97	0.06	1.65	0.23	0.49
2008	1.03	0.31	0.66	1.36	0.15	0.30	0.89	0.56	0.55	0.40	1.55	0.69	0.66	0.51	0.74	2.18	0.71	0.55
South Africa																		
1998	0.71	0.89	0.87	0.12	0.62	0.26	0.40	0.73	0.30	0.25	0.60	0.40	0.53	0.83	0.20	0.30	0.36	1.16
2008	0.80	0.35	0.90	0.97	0.87	0.58	0.61	0.68	0.33	0.82	1.00	0.51	1.06	1.08	0.99	0.55	0.99	1.33
Australia																		
1998	0.80	0.44	0.37	0.31	0.64	0.57	0.43	0.45	0.29	0.37	0.52	0.41	0.53	0.33	0.18	0.32	0.64	1.09
2008	0.78	0.59	0.57	0.51	0.88	0.59	0.54	0.57	0.31	0.46	0.86	0.55	0.71	0.55	0.35	0.45	0.64	1.13
Canada																		
1998	1.21	0.31	0.44	0.47	0.52	0.52	0.63	0.39	0.46	0.49	0.44	0.44	0.49	0.44	0.24	0.38	0.49	0.58
2008	1.18	0.44	0.55	0.60	0.66	0.76	0.74	0.53	0.48	0.54	0.74	0.58	0.68	0.47	0.32	0.51	0.58	0.75
New Zealand																		
1998	0.79	0.61	0.29	0.14	0.32	0.43	0.31	0.42	0.17	0.23	0.99	0.27	0.51	0.22	0.08	0.09	0.56	1.02
2008	0.80	0.64	0.68	0.27	0.94	0.80	0.50	0.52	0.23	0.52	0.99	0.40	0.62	0.29	0.32	0.35	0.53	1.28

Appendix table 5-41

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1998 and 2008

Country/economy and year	Norway	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Israel	Argentina	Brazil	Mexico	South Africa	Australia	Canada	New Zealand
United States																		
1998	0.66	0.71	0.86	0.82	0.92	1.03	0.65	1.38	1.44	0.56	1.25	0.80	0.87	1.01	0.71	0.80	1.21	0.79
2008	0.68	0.73	0.96	0.97	0.79	0.89	0.70	1.23	1.23	0.63	1.21	0.81	0.89	1.03	0.80	0.78	1.18	0.80
Austria																		
1998	1.28	1.60	0.36	0.63	0.21	0.35	0.07	0.64	0.16	0.73	0.40	0.40	0.56	0.30	0.89	0.44	0.31	0.61
2008	1.15	1.86	0.83	0.33	0.70	0.54	0.29	0.43	0.63	1.03	0.74	0.47	0.44	0.31	0.35	0.59	0.44	0.64
Belgium																		
1998	0.96	0.97	0.69	0.31	0.39	0.28	0.50	0.15	0.19	0.52	0.52	0.25	0.67	0.43	0.87	0.37	0.44	0.29
2008	0.92	1.21	0.73	0.29	0.40	0.39	0.18	0.20	0.22	0.81	0.81	0.55	0.62	0.66	0.90	0.57	0.55	0.68
Czech Republic																		
1998	1.40	1.16	0.18	0.22	0.35	0.55	0.00	0.09	0.10	1.40	0.33	0.31	0.83	0.54	0.12	0.31	0.47	0.14
2008	1.22	1.22	0.89	0.39	1.25	0.64	0.20	0.74	0.35	2.11	1.04	1.71	1.15	1.36	0.97	0.51	0.60	0.27
Denmark																		
1998	4.35	1.06	0.68	0.45	0.32	0.35	0.21	0.56	0.16	0.77	0.41	0.40	0.54	0.34	0.62	0.64	0.52	0.32
2008	4.13	0.98	0.42	0.32	0.39	0.43	0.46	0.20	0.15	0.58	0.46	0.42	0.43	0.15	0.87	0.88	0.66	0.94
Finland																		
1998	3.60	1.15	0.59	0.47	0.91	0.48	0.28	0.55	0.88	1.50	0.41	0.58	0.50	0.19	0.26	0.57	0.52	0.43
2008	3.21	1.22	1.00	0.32	0.46	0.62	0.30	0.44	0.85	1.97	0.54	0.35	0.43	0.30	0.58	0.59	0.76	0.80
France																		
1998	0.73	1.16	0.45	0.39	0.70	0.37	0.12	0.39	0.31	0.84	0.58	0.71	0.98	0.73	0.40	0.43	0.63	0.31
2008	0.91	1.28	0.57	0.38	0.68	0.54	0.28	0.35	0.34	1.15	0.75	0.84	0.96	0.89	0.61	0.54	0.74	0.50
Germany																		
1998	0.75	1.36	0.74	0.60	0.72	0.53	0.11	0.40	0.40	1.28	0.85	0.54	0.52	0.32	0.73	0.45	0.39	0.42
2008	0.85	1.65	0.78	0.44	0.78	0.56	0.27	0.41	0.34	1.57	0.98	0.64	0.61	0.56	0.68	0.57	0.53	0.52
Greece																		
1998	2.25	1.75	0.80	0.72	0.18	0.23	0.12	1.06	0.00	0.81	0.63	0.38	0.72	0.14	0.30	0.29	0.46	0.17
2008	1.20	0.92	1.84	0.19	0.34	0.33	0.21	0.35	0.34	0.90	0.93	0.43	0.36	0.55	0.33	0.31	0.48	0.23
Hungary																		
1998	0.59	1.34	1.03	0.61	1.33	0.82	0.10	0.81	1.26	0.69	1.15	0.21	0.25	0.27	0.25	0.37	0.49	0.23
2008	0.98	0.94	1.07	0.31	0.73	0.78	0.16	0.44	0.22	1.13	1.19	0.95	0.63	0.40	0.82	0.46	0.54	0.52
Ireland																		
1998	1.27	0.55	0.00	0.24	0.11	0.26	0.59	0.17	0.10	0.58	0.34	0.10	0.39	0.60	0.60	0.52	0.44	0.99
2008	0.93	1.09	0.58	0.56	1.12	0.30	0.13	0.73	0.28	1.24	0.75	1.76	0.86	1.55	1.00	0.86	0.74	0.99
Italy																		
1998	0.80	1.51	0.76	0.46	0.67	0.41	0.07	0.54	0.47	0.84	0.67	0.60	0.80	0.36	0.40	0.41	0.44	0.27
2008	1.08	1.38	0.91	0.22	0.54	0.49	0.27	0.29	0.33	1.10	0.84	0.83	0.76	0.69	0.51	0.55	0.58	0.40
Netherlands																		
1998	1.27	1.11	0.62	0.42	0.47	0.45	0.10	0.40	0.48	0.73	0.61	0.44	0.45	0.26	0.53	0.53	0.49	0.51
2008	1.63	1.12	0.79	0.37	0.51	0.42	0.32	0.36	0.14	0.91	0.75	0.76	0.65	0.66	1.06	0.71	0.68	0.62
Poland																		
1998	0.95	0.83	0.45	0.21	0.66	0.57	0.00	0.71	0.08	1.37	0.59	0.52	0.72	0.97	0.83	0.33	0.44	0.22
2008	1.10	1.12	1.09	0.31	0.97	0.71	0.27	0.69	0.76	2.08	0.87	0.43	0.52	0.51	1.08	0.55	0.47	0.29

Appendix table 5-41

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1998 and 2008

Country/economy and year	Norway	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Israel	Argentina	Brazil	Mexico	South Africa	Australia	Canada	New Zealand
Portugal																		
1998	2.16	1.08	0.46	0.48	0.39	0.16	0.00	0.00	0.25	0.72	0.23	0.17	2.68	0.06	0.20	0.18	0.24	0.08
2008	0.91	0.81	0.71	0.22	0.66	0.23	0.08	0.18	0.17	0.79	0.63	0.73	2.70	0.74	0.99	0.35	0.32	0.32
Spain																		
1998	0.84	0.83	0.53	0.41	0.62	0.26	0.14	0.65	0.42	0.68	0.52	2.62	1.03	1.65	0.30	0.32	0.38	0.09
2008	0.99	0.80	0.72	0.18	0.39	0.35	0.20	0.22	0.31	0.79	0.73	2.62	1.08	2.18	0.55	0.45	0.51	0.35
Sweden																		
1998	4.10	0.76	0.46	0.39	0.42	0.52	0.41	0.19	0.17	1.00	0.31	0.43	0.47	0.23	0.36	0.64	0.49	0.56
2008	3.96	0.97	0.51	0.56	0.63	0.50	0.30	0.36	0.21	1.07	0.44	0.90	0.66	0.71	0.99	0.64	0.58	0.53
United Kingdom																		
1998	1.03	0.76	0.99	0.58	0.61	0.49	0.75	0.31	0.34	0.49	0.52	0.46	0.68	0.49	1.16	1.09	0.58	1.02
2008	1.13	0.89	0.65	0.52	0.65	0.54	0.61	0.36	0.37	0.68	0.61	0.53	0.66	0.55	1.33	1.13	0.75	1.28
Norway																		
1998	na	0.92	0.26	0.24	0.32	0.39	0.37	0.08	0.09	0.97	0.27	0.33	0.75	0.11	0.40	0.57	0.44	0.51
2008	na	0.82	0.58	0.25	0.25	0.39	0.37	0.21	0.23	1.37	0.43	0.37	0.40	0.40	1.35	0.65	0.95	0.98
Switzerland																		
1998	0.92	na	0.71	0.42	0.62	0.49	0.14	0.56	0.74	0.79	0.72	0.42	0.42	0.16	0.44	0.50	0.53	0.33
2008	0.82	na	0.58	0.32	0.65	0.49	0.37	0.51	0.58	1.01	0.82	0.55	0.50	0.52	0.79	0.65	0.63	0.37
Turkey																		
1998	0.26	0.71	na	0.11	0.46	0.45	0.00	0.30	0.13	0.81	0.92	0.66	0.35	0.30	0.16	0.17	0.50	0.00
2008	0.58	0.58	na	0.20	0.62	0.46	0.43	0.38	0.42	0.55	1.37	0.38	0.38	0.27	0.52	0.33	0.44	0.31
China																		
1998	0.24	0.42	0.11	na	0.98	1.53	5.12	1.72	2.66	0.33	0.18	0.18	0.31	0.26	0.29	1.05	0.66	0.64
2008	0.25	0.32	0.20	na	0.64	1.38	2.94	1.17	1.76	0.43	0.34	0.35	0.24	0.46	0.39	1.14	0.73	0.46
India																		
1998	0.32	0.62	0.46	0.98	na	0.94	0.83	1.61	1.55	0.62	0.31	1.01	0.97	1.24	0.81	0.78	0.47	0.38
2008	0.25	0.65	0.62	0.64	na	1.12	1.22	2.19	1.86	0.97	0.68	1.12	0.92	1.15	1.33	0.79	0.53	0.26
Japan																		
1998	0.39	0.49	0.45	1.53	0.94	na	0.72	1.99	1.30	0.64	0.49	0.22	0.35	0.29	0.41	0.73	0.59	0.58
2008	0.39	0.49	0.46	1.38	1.12	na	0.57	1.90	1.66	0.90	0.50	0.27	0.33	0.37	0.34	0.64	0.55	0.54
Singapore																		
1998	0.37	0.14	0.00	5.12	0.83	0.72	na	0.25	3.81	0.12	0.28	0.15	0.06	0.00	0.70	1.93	0.44	1.19
2008	0.37	0.37	0.43	2.94	1.22	0.57	na	0.80	1.73	0.22	0.22	0.29	0.20	0.18	0.10	1.70	0.51	1.11
South Korea																		
1998	0.08	0.56	0.30	1.72	1.61	1.99	0.25	na	2.05	1.03	0.48	0.91	0.48	0.69	0.10	0.43	0.47	0.19
2008	0.21	0.51	0.38	1.17	2.19	1.90	0.80	na	1.39	1.11	0.40	0.61	0.43	0.68	0.27	0.50	0.59	0.31
Taiwan																		
1998	0.09	0.74	0.13	2.66	1.55	1.30	3.81	2.05	na	0.51	0.36	0.00	0.06	0.05	0.17	0.70	0.58	0.26
2008	0.23	0.58	0.42	1.76	1.86	1.66	1.73	1.39	na	1.11	0.33	0.10	0.20	0.22	0.12	0.67	0.60	0.20
Russia																		
1998	0.97	0.79	0.81	0.33	0.62	0.64	0.12	1.03	0.51	na	0.70	0.36	0.75	0.81	0.34	0.31	0.38	0.16
2008	1.37	1.01	0.55	0.43	0.97	0.90	0.22	1.11	1.11	na	1.00	0.76	0.80	1.08	0.44	0.38	0.58	0.18

Appendix table 5-41

Indexes of internationally coauthored S&E articles, by selected country/economy pairs: 1998 and 2008

Country/economy and year	Norway	Switzerland	Turkey	China	India	Japan	Singapore	South Korea	Taiwan	Russia	Israel	Argentina	Brazil	Mexico	South Africa	Australia	Canada	New Zealand
Israel																		
1998	0.27	0.72	0.92	0.18	0.31	0.49	0.28	0.48	0.36	0.70	na	0.28	0.40	0.42	1.09	0.49	0.69	0.33
2008	0.43	0.82	1.37	0.34	0.68	0.50	0.22	0.40	0.33	1.00	na	0.39	0.48	0.42	0.55	0.54	0.65	0.48
Argentina																		
1998	0.33	0.42	0.66	0.18	1.01	0.22	0.15	0.91	0.00	0.36	0.28	na	4.33	2.99	0.80	0.35	0.48	0.13
2008	0.37	0.55	0.38	0.35	1.12	0.27	0.29	0.61	0.10	0.76	0.39	na	5.32	3.74	0.73	0.53	0.76	0.66
Brazil																		
1998	0.75	0.42	0.35	0.31	0.97	0.35	0.06	0.48	0.06	0.75	0.40	4.33	na	1.69	0.59	0.38	0.54	0.21
2008	0.40	0.50	0.38	0.24	0.92	0.33	0.20	0.43	0.20	0.80	0.48	5.32	na	1.86	0.83	0.54	0.73	0.42
Mexico																		
1998	0.11	0.16	0.30	0.26	1.24	0.29	0.00	0.69	0.05	0.81	0.42	2.99	1.69	na	0.60	0.31	0.55	0.10
2008	0.40	0.52	0.27	0.46	1.15	0.37	0.18	0.68	0.22	1.08	0.42	3.74	1.86	na	0.72	0.46	0.92	0.54
South Africa																		
1998	0.40	0.44	0.16	0.29	0.81	0.41	0.70	0.10	0.17	0.34	1.09	0.80	0.59	0.60	na	1.90	0.63	2.02
2008	1.35	0.79	0.52	0.39	1.33	0.34	0.10	0.27	0.12	0.44	0.55	0.73	0.83	0.72	na	1.52	0.65	1.04
Australia																		
1998	0.57	0.50	0.17	1.05	0.78	0.73	1.93	0.43	0.70	0.31	0.49	0.35	0.38	0.31	1.90	na	0.87	4.28
2008	0.65	0.65	0.33	1.14	0.79	0.64	1.70	0.50	0.67	0.38	0.54	0.53	0.54	0.46	1.52	na	0.85	3.80
Canada																		
1998	0.44	0.53	0.50	0.66	0.47	0.59	0.44	0.47	0.58	0.38	0.69	0.48	0.54	0.55	0.63	0.87	na	0.89
2008	0.95	0.63	0.44	0.73	0.53	0.55	0.51	0.59	0.60	0.58	0.65	0.76	0.73	0.92	0.65	0.85	na	0.81
New Zealand																		
1998	0.51	0.33	0.00	0.64	0.38	0.58	1.19	0.19	0.26	0.16	0.33	0.13	0.21	0.10	2.02	4.28	0.89	na
2008	0.98	0.37	0.31	0.46	0.26	0.54	1.11	0.31	0.20	0.18	0.48	0.66	0.42	0.54	1.04	3.80	0.81	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 region/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 omitted.

SOURCES: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-42

U.S. S&E articles, by field and sector: 1995–2008

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
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
Federal government	15,290	14,746	14,094	13,939	13,728	13,570	13,818	13,257	13,992	13,160	14,249	13,634	13,147	14,115
Industry	15,786	14,941	14,112	13,992	14,162	13,754	13,962	13,381	14,294	13,077	13,626	13,191	12,520	13,555
Academic	139,083	139,276	137,598	138,161	138,426	137,061	140,819	137,348	148,729	142,524	160,123	156,102	154,113	167,846
FFRDCs	5,485	5,205	5,238	5,104	5,228	5,050	5,264	4,879	5,727	5,359	6,006	5,651	5,387	5,692
Private nonprofit	15,370	15,201	15,032	15,023	15,360	15,654	16,081	15,308	16,441	15,872	17,269	16,710	16,626	18,150
State/local government	1,884	1,809	1,797	1,837	1,800	1,753	1,873	1,810	1,827	1,761	1,973	1,920	1,863	1,926
Joint sectors	204	202	212	161	277	253	260	284	283	319	339	289	238	267
Unknown sector	1,152	1,410	1,395	1,595	1,408	1,031	989	1,133	1,181	840	972	377	414	363
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
Federal government	1,024	845	908	859	893	814	886	844	885	827	953	869	772	868
Industry	2,666	2,405	2,342	2,358	2,408	2,312	2,282	2,225	2,383	1,914	2,093	2,053	1,903	1,975
Academic	7,858	7,434	7,292	7,448	7,817	7,420	8,204	8,261	8,925	8,786	10,119	10,294	10,130	11,130
FFRDCs	750	712	889	807	782	760	913	733	892	820	936	838	980	834
Private nonprofit	221	161	177	181	190	209	162	152	170	190	180	180	176	218
State/local government	45	33	37	35	96	33	33	163	93	60	87	84	57	93
Joint sectors	2	3	4	2	2	5	2	6	7	15	12	5	1	2
Unknown sector	70	108	111	125	124	84	78	92	113	60	76	25	29	20
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
Federal government	256	270	296	207	306	264	252	229	191	220	208	201	184	241
Industry	63	48	51	54	58	57	54	68	55	38	47	47	53	79
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	1,955
FFRDCs	246	287	235	183	264	271	274	282	270	303	308	310	311	313
Private nonprofit	160	186	161	120	171	176	170	234	168	200	196	193	179	180
State/local government	0	1	0	0 *	0 *	0 *	0	0	0	0 *	0	0	0 *	0
Joint sectors	129	145	145	101	198	169	179	205	196	205	213	196	162	194
Unknown sector	16	13	13	9	21	26	21	30	29	30	27	23	22	19
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
Federal government	766	764	698	650	607	614	655	647	673	669	704	633	599	629
Industry	2,438	2,357	2,031	1,849	1,955	1,817	1,759	1,828	2,123	2,101	1,947	1,947	1,793	1,861
Academic	10,732	11,031	10,668	10,914	10,849	10,997	10,855	10,565	11,824	11,183	13,133	12,523	11,761	12,839
FFRDCs	651	694	647	636	676	715	705	639	749	773	985	810	782	904
Private nonprofit	276	296	271	288	330	347	310	305	319	317	308	314	292	401
State/local government	25	27	29	27	27	35	25	21	26	24	22	25	17	24
Joint sectors	1	1	0 *	2	1	3	3	1	2	2	2	1	3	2
Unknown sector	26	47	33	49	46	33	31	37	48	42	37	14	21	23

Appendix table 5-42

U.S. S&E articles, by field and sector: 1995–2008

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Physics	19,709	18,906	18,048	17,966	18,074	16,897	17,385	17,301	18,657	17,653	20,551	19,797	18,212	20,701
Federal government	1,194	1,023	991	992	1,071	884	942	903	978	941	914	925	845	922
Industry	2,238	2,184	1,815	1,884	1,805	1,679	1,813	1,651	1,772	1,586	1,567	1,557	1,319	1,397
Academic	13,622	13,323	12,913	12,732	12,739	12,103	12,316	12,422	13,243	12,764	15,427	14,723	13,781	15,894
FFRDCs	2,380	2,078	2,042	2,093	2,174	1,993	2,077	2,053	2,392	2,127	2,370	2,335	2,030	2,210
Private nonprofit	184	206	172	136	161	165	155	178	181	152	191	198	184	216
State/local government	5	6	7	5	4	2	6	2	1	7	4	7	5	6
Joint sectors	26	24	30	27	38	30	31	32	34	36	38	28	26	32
Unknown sector	60	63	78	96	81	40	44	60	56	41	41	24	22	23
Geosciences	9,821	9,904	9,214	9,820	9,873	9,779	10,065	9,204	11,486	10,436	11,112	11,353	11,207	12,463
Federal government	1,514	1,478	1,291	1,411	1,404	1,398	1,400	1,355	1,622	1,426	1,503	1,482	1,483	1,682
Industry	683	612	638	617	639	554	660	560	576	560	564	591	603	635
Academic	6,397	6,601	6,168	6,518	6,550	6,586	6,702	6,156	7,827	7,183	7,764	8,017	7,847	8,692
FFRDCs	502	504	480	508	516	495	497	411	631	498	497	506	473	605
Private nonprofit	450	429	383	456	463	460	493	443	495	493	489	498	508	568
State/local government	208	189	174	208	206	217	255	217	257	223	223	228	262	252
Joint sectors	11	7	10	9	14	14	11	9	13	12	19	13	11	11
Unknown sector	57	82	69	92	81	55	46	52	65	40	52	18	20	18
Mathematics	3,190	3,272	3,051	3,483	3,561	3,758	3,657	3,556	3,760	3,562	3,922	3,930	3,810	4,477
Federal government	55	51	45	55	68	59	48	54	46	51	54	47	52	55
Industry	105	101	89	126	128	122	128	114	107	91	89	86	89	92
Academic	2,951	3,029	2,830	3,210	3,265	3,450	3,393	3,306	3,524	3,329	3,675	3,708	3,591	4,230
FFRDCs	33	47	41	41	41	70	39	39	42	54	63	57	48	65
Private nonprofit	38	36	37	43	46	50	45	36	29	32	33	29	22	30
State/local government	1	4	3	2	4	2	1	1	1	1	1	1	1	2
Joint sectors	0	0	0	0	0	0	0	0	0 *	0 *	0 *	1	0	0
Unknown sector	6	5	6	6	8	5	4	6	11	4	7	1	6	3
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
Federal government	41	44	50	49	61	41	42	41	35	34	42	40	56	35
Industry	399	390	433	445	448	481	461	443	409	343	366	376	321	352
Academic	1,398	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
FFRDCs	28	27	42	48	52	31	44	31	36	38	41	44	39	32
Private nonprofit	32	26	32	23	27	33	36	19	23	18	20	28	31	26
State/local government	1	1	1	1	1	1	1	0 *	2	0 *	1	2	1	1
Joint sectors	0	0	0	0	0	1	1	0 *	1	0 *	2	2	1	0
Unknown sector	15	22	21	23	22	13	16	11	12	10	6	5	6	5
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
Federal government	635	531	610	586	463	656	549	629	669	627	649	758	675	762
Industry	289	229	241	235	201	250	262	261	232	220	220	227	221	242
Academic	2,599	2,454	2,615	2,532	2,043	2,638	2,259	2,926	2,888	2,584	2,594	2,875	2,640	2,757
FFRDCs	19	17	16	12	8	12	8	9	21	11	17	18	21	12

Appendix table 5-42
U.S. S&E articles, by field and sector: 1995–2008

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Private nonprofit	55	49	52	38	40	45	48	46	53	48	50	55	42	54
State/local government	30	28	33	24	19	18	49	27	19	22	17	24	21	25
Joint sectors	0	0	0	0	0	1	1	2	0	3	2	2	0 *	0 *
Unknown sector	22	39	38	37	29	20	27	23	21	11	13	4	4	6
Biological sciences	54,076	53,301	51,718	52,076	51,443	50,997	52,696	50,108	52,981	51,502	55,502	51,783	51,865	53,403
Federal government	5,088	4,872	4,636	4,578	4,504	4,473	4,520	4,265	4,416	4,258	4,548	4,205	4,127	4,244
Industry	4,276	3,934	3,691	3,651	3,628	3,603	3,553	3,298	3,509	3,149	3,323	2,942	2,882	3,109
Academic	38,694	38,549	37,507	38,017	37,601	37,185	38,676	36,904	39,164	38,280	41,463	39,000	39,190	40,315
FFRDCs	649	625	632	567	552	544	551	540	538	584	622	588	537	547
Private nonprofit	4,643	4,600	4,544	4,503	4,458	4,518	4,699	4,420	4,632	4,550	4,797	4,475	4,516	4,612
State/local government	543	534	506	514	484	512	529	503	510	529	557	492	526	506
Joint sectors	14	10	7	8	8	10	17	9	10	24	20	17	11	10
Unknown sector	169	177	196	238	209	152	151	168	202	128	173	64	75	60
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
Federal government	3,891	4,035	3,798	3,860	3,640	3,627	3,782	3,546	3,767	3,509	3,839	3,652	3,558	3,768
Industry	2,126	2,131	2,187	2,264	2,365	2,380	2,487	2,486	2,684	2,660	2,894	2,865	2,872	3,181
Academic	36,546	36,009	36,909	36,819	36,961	36,261	37,205	35,956	39,324	37,536	42,342	40,336	40,868	43,979
FFRDCs	190	185	184	182	146	138	127	125	137	127	144	114	130	138
Private nonprofit	7,939	7,769	7,803	7,925	8,147	8,337	8,657	8,132	9,019	8,621	9,623	9,086	9,139	10,012
State/local government	815	746	771	788	777	750	805	708	762	736	908	843	805	812
Joint sectors	19	10	13	12	13	18	14	16	15	20	29	20	18	12
Unknown sector	418	520	481	552	502	377	361	413	419	332	351	134	144	115
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
Federal government	121	129	141	123	116	135	170	144	135	109	230	213	179	206
Industry	112	106	153	152	156	146	149	158	146	138	192	234	195	251
Academic	1,605	2,038	2,181	2,182	2,081	2,150	2,339	2,121	2,207	2,025	2,696	3,247	2,947	3,474
FFRDCs	2	0	1	0	0	1	1	1	2	0 *	1	0 *	0 *	0 *
Private nonprofit	375	372	375	366	386	383	368	405	366	351	444	650	550	676
State/local government	44	77	48	73	51	56	59	57	51	43	50	90	63	81
Joint sectors	0	0	0	0	1	0	1	1	1	1	1	1	0 *	1
Unknown sector	78	90	110	111	85	71	59	72	57	32	56	20	12	17
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
Federal government	224	280	248	224	240	237	221	218	218	183	216	232	212	288
Industry	171	191	169	145	168	164	183	149	140	132	173	139	125	185
Academic	6,859	7,117	7,053	6,754	6,849	6,576	6,867	6,794	7,058	6,637	7,600	7,902	7,821	9,169
FFRDCs	4	0	2	3	2	1	0	2	1	0	1	2	1	2
Private nonprofit	329	410	398	354	351	357	385	365	346	335	360	443	414	467
State/local government	109	114	114	106	84	70	69	66	58	71	63	82	65	78
Joint sectors	2	1	2	1	2	1	0	3	3	2	1	4	2	1
Unknown sector	133	144	145	150	110	94	84	93	67	50	68	17	24	20
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
Federal government	480	423	383	344	354	368	353	381	357	307	390	378	404	414
Industry	222	253	272	210	204	190	172	141	158	144	150	125	143	196

Appendix table 5-42

U.S. S&E articles, by field and sector: 1995–2008

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Academic	8,208	8,576	8,456	8,416	8,463	8,616	8,773	8,536	9,200	8,612	9,546	9,538	9,767	11,524
FFRDCs	32	29	26	25	16	20	27	14	16	23	19	28	36	30
Private nonprofit	667	661	630	588	590	575	550	572	640	565	579	561	574	688
State/local government	58	52	74	55	47	57	42	44	48	45	41	42	38	48
Joint sectors	0	1	0	0	0	1	1	1	0	0 *	1	1	2	2
Unknown sector	83	100	93	107	88	61	67	75	82	59	65	26	29	33

* = 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

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Appendix table 5-43
S&E articles, by field, citation percentile, and country/region of institutional author: 1998 and 2008

Field/percentile	Citations (*n*)	Articles(*n*)	U.S.	EU	Asia-8	China	Japan
			1994–96 articles cited by 1998 articles (% of world)				
All fields	na	1,702,969	34.0	34.6	3.6	1.6	8.5
99th	≥21	15,635	62.0	25.1	0.3	0.1	4.3
95th	9–20	63,794	52.9	30.7	0.6	0.2	5.5
90th	6–8	77,535	46.2	33.9	1.1	0.5	6.8
75th	3–5	239,827	40.2	36.0	1.9	0.8	7.9
50th	2	194,378	35.9	36.4	2.9	1.2	8.9
<50th	0–1	1,111,800	30.0	34.3	4.5	2.0	8.9
Engineering	na	122,502	30.2	30.0	7.9	3.1	12.1
99th	≥8	882	48.6	29.0	2.2	1.3	8.9
95th	4–7	4,778	39.2	33.0	4.2	1.4	11.3
90th	3	4,439	37.5	31.6	5.7	2.1	11.4
75th	2	9,916	33.0	32.8	6.9	2.2	12.3
50th	1	24,135	31.1	32.0	7.6	2.8	12.1
<50th	0	78,352	28.5	28.8	8.5	3.4	12.3
Astronomy	na	21,001	36.0	37.2	2.0	1.4	4.0
99th	≥18	190	59.2	27.5	0.3	0.3	2.9
95th	9–17	853	51.6	35.8	0.4	0.1	2.5
90th	7–8	670	51.0	33.2	0.5	0.2	2.7
75th	4–6	2,552	45.1	37.3	1.1	0.6	3.4
50th	2–3	4,282	41.6	36.5	1.5	0.9	4.0
<50th	0–1	12,454	29.9	37.9	2.6	1.9	4.3
Chemistry	na	209,804	21.3	38.0	6.5	2.8	11.0
99th	≥14	1,969	51.1	29.2	1.2	0.3	7.3
95th	7–13	8,328	39.2	36.3	2.1	1.0	10.6
90th	5–6	9,621	31.9	40.5	2.7	1.7	11.5
75th	3–4	23,721	27.1	41.3	4.5	2.3	12.2
50th	2	25,309	23.5	41.7	5.6	2.5	12.7
<50th	0–1	140,856	17.7	36.9	7.5	3.2	10.6
Physics	na	246,986	23.9	35.1	5.0	3.5	11.4
99th	≥15	2,219	47.7	30.9	1.2	0.4	7.8
95th	7–14	9,389	39.7	37.4	1.5	0.9	8.7
90th	5–6	9,533	33.9	39.4	2.3	1.4	9.9
75th	3–4	23,800	30.5	39.1	3.3	1.9	10.9
50th	1–2	76,996	25.0	37.7	4.7	3.0	12.2
<50th	0	125,049	19.6	32.4	6.1	4.6	11.4
Geosciences	na	81,081	35.6	31.8	2.9	1.0	5.3
99th	≥12	763	60.4	25.2	0.6	0.3	1.7
95th	7–11	2,632	52.0	27.3	0.5	0.2	2.7
90th	5–6	3,671	47.6	30.6	0.7	0.3	2.3
75th	3–4	9,545	42.9	32.1	1.1	0.6	3.4
50th	2	10,332	38.8	32.8	1.9	0.7	4.4
<50th	0–1	54,138	31.7	31.9	3.7	1.2	6.1
Mathematics	na	28,273	34.7	37.8	2.9	3.4	3.8
99th	≥7	201	61.6	23.3	1.0	0.7	0.5
95th	4–6	659	53.1	33.1	1.7	1.1	2.4
90th	3	790	43.5	35.5	2.4	2.3	3.5
75th	2	1,962	39.8	37.4	1.9	3.4	3.6
50th	1	5,491	37.7	38.6	2.3	3.0	3.6
<50th	0	19,170	32.0	38.0	3.3	3.6	4.0
Computer sciences	na	12,121	48.4	25.8	7.6	2.1	3.8
99th	≥7	80	63.9	25.1	1.3	0.0	1.3

Appendix table 5-43
S&E articles, by field, citation percentile, and country/region of institutional author: 1998 and 2008

Field/percentile	Citations (*n*)	Articles(*n*)	U.S.	EU	Asia-8	China	Japan
95th	4–6	287	57.4	22.2	4.0	1.0	3.0
90th	3	309	50.4	25.4	5.7	1.0	3.5
75th	2	800	53.2	25.6	6.0	1.4	2.9
50th	1	2,337	49.6	25.6	7.2	1.9	3.2
<50th	0	8,308	47.1	26.1	8.1	2.3	4.2
Agricultural sciences	na	34,231	31.9	29.7	3.3	0.4	8.9
99th	≥9	237	41.1	38.8	1.5	0.0	3.0
95th	5–8	1,159	38.6	34.0	1.1	0.1	6.5
90th	4	1,029	36.5	35.1	1.8	0.2	7.1
75th	2–3	5,755	35.5	32.6	2.1	0.3	8.8
50th	1	7,910	32.6	30.5	2.9	0.3	9.8
<50th	0	18,141	29.5	27.8	4.1	0.6	8.9
Biological sciences	na	424,940	37.7	34.2	2.6	0.6	8.3
99th	≥33	4,136	66.8	21.5	0.2	0.0 *	3.9
95th	14–32	15,237	59.9	26.3	0.3	0.1	4.7
90th	9–13	19,994	53.8	30.4	0.4	0.1	5.1
75th	5–8	47,386	47.4	33.4	0.9	0.2	6.5
50th	2–4	113,682	39.7	35.7	1.7	0.4	8.3
<50th	0–1	224,505	31.1	34.7	3.7	0.9	9.3
Medical sciences	na	410,852	37.6	37.5	1.9	0.7	7.8
99th	≥21	3,843	60.9	27.5	0.2	0.1	3.3
95th	10–20	14,346	54.0	31.1	0.4	0.2	4.9
90th	7–9	16,317	49.7	33.1	0.7	0.2	5.7
75th	4–6	44,189	45.4	35.4	0.9	0.4	6.7
50th	2–3	81,253	40.7	37.2	1.6	0.5	7.6
<50th	0–1	250,904	33.1	38.8	2.4	0.8	8.4
Other life sciences	na	11,847	62.2	21.6	0.5	0.3	0.5
99th	≥8	96	82.9	12.5	0.0	0.0	0.0
95th	5–7	256	72.3	17.1	0.2	0.4	0.0
90th	3–4	757	64.4	22.9	0.3	0.2	0.0 *
75th	2	1,076	62.4	22.1	0.2	0.3	0.6
50th	1	2,515	60.6	22.4	0.3	0.5	0.5
<50th	0	7,147	61.9	21.3	0.6	0.3	0.6
Psychology	na	40,930	56.9	23.6	0.5	0.5	1.9
99th	≥13	363	73.0	16.0	0.1	0.1	0.0 *
95th	7–12	1,254	67.2	19.2	0.2	0.1	0.3
90th	5–6	1,587	66.2	19.9	0.1	0.2	0.7
75th	3–4	4,054	62.3	22.2	0.1	0.3	1.0
50th	2	4,451	59.6	23.6	0.2	0.4	1.1
<50th	0–1	29,221	54.5	24.3	0.6	0.5	2.3
Social sciences	na	58,401	50.7	27.5	2.2	0.6	1.2
99th	≥8	442	74.3	19.5	0.5	0.1	0.2
95th	4–7	1,809	65.6	22.9	0.7	0.3	0.3
90th	3	1,755	61.1	25.6	0.6	0.3	0.3
75th	2	4,037	57.6	26.4	0.8	0.7	0.7
50th	1	10,477	54.4	26.4	1.5	0.6	1.1
<50th	0	39,881	47.7	28.3	2.7	0.7	1.4
			2004–06 articles cited by 2008 articles (% of world)				
All fields	na	2,127,730	28.9	33.1	6.8	5.9	7.8
99th	≥22	19,549	51.6	29.6	2.2	2.5	4.5
95th	10–21	84,072	44.1	32.5	3.3	3.6	5.2
90th	7–9	97,307	39.2	33.6	4.1	4.2	6.1
75th	4–6	264,720	34.7	34.7	5.1	4.7	6.7

Appendix table 5-43
S&E articles, by field, citation percentile, and country/region of institutional author: 1998 and 2008

Field/percentile	Citations (*n*)	Articles(*n*)	U.S.	EU	Asia-8	China	Japan
50th	2–3	464,352	30.2	34.4	6.3	5.3	7.6
<50th	0–1	1,197,730	24.8	32.4	7.9	6.7	8.5
Engineering	na	200,887	20.6	28.6	14.1	10.4	10.2
99th	≥13	1,941	38.1	25.1	10.6	10.6	5.8
95th	7–12	5,410	31.4	27.5	11.5	10.8	7.0
90th	5–6	6,898	27.2	30.2	11.5	10.6	7.5
75th	3–4	18,612	24.1	30.3	12.8	10.4	7.9
50th	1–2	65,016	20.8	29.9	13.8	10.0	9.5
<50th	0	103,010	18.6	27.4	14.9	10.6	11.5
Astronomy	na	26,172	32.9	39.3	2.8	3.3	4.3
99th	≥28	252	53.6	34.2	0.8	0.6	1.7
95th	14–27	923	47.3	37.7	0.8	1.0	2.4
90th	10–13	1,106	45.4	36.9	0.8	1.1	3.3
75th	5–9	4,232	39.7	40.1	1.4	2.1	3.5
50th	3–4	4,327	36.7	39.5	2.1	2.6	4.9
<50th	0–2	15,332	27.8	39.4	3.7	4.2	4.6
Chemistry	na	269,192	18.0	32.2	9.9	12.0	9.5
99th	≥22	2,611	38.4	32.8	5.7	8.1	6.9
95th	11–21	9,817	31.0	31.7	7.3	11.1	8.9
90th	8–10	10,678	27.7	31.6	8.2	10.8	9.9
75th	4–7	43,703	22.6	34.5	9.6	11.0	9.5
50th	2–3	61,876	18.5	34.9	10.2	10.9	9.9
<50th	0–1	140,507	14.3	30.5	10.3	13.0	9.4
Physics	na	298,203	19.5	32.5	8.9	10.2	10.9
99th	≥18	2,802	38.9	33.9	3.9	6.1	6.7
95th	9–17	9,749	31.9	36.2	5.4	7.1	7.6
90th	6–8	14,121	28.0	36.7	6.1	8.0	8.8
75th	3–5	45,068	23.8	35.5	7.6	9.1	9.8
50th	2	36,375	21.0	34.0	8.7	9.7	10.7
<50th	0–1	190,088	16.6	31.0	9.7	10.9	11.5
Geosciences	na	113,368	29.0	32.4	5.2	4.6	5.7
99th	≥15	1,129	47.3	28.4	1.7	4.5	2.1
95th	9–14	3,135	42.3	31.3	2.7	3.8	3.1
90th	6–8	6,375	37.3	33.2	3.2	3.8	3.4
75th	4–5	11,790	34.2	34.7	4.0	4.3	3.8
50th	2–3	28,083	30.7	34.2	4.4	4.2	5.2
<50th	0–1	62,856	25.5	31.2	6.2	5.0	6.8
Mathematics	na	45,605	25.0	39.2	4.5	8.5	4.4
99th	≥8	357	44.2	32.5	1.3	9.2	1.5
95th	4–7	1,828	35.6	38.2	2.7	9.1	2.5
90th	3	1,858	30.8	39.4	4.0	9.2	2.6
75th	2	4,191	29.2	40.0	3.6	9.5	3.3
50th	1	10,347	24.7	40.5	4.5	8.6	4.3
<50th	0	27,024	23.1	38.7	4.8	8.2	4.9
Computer sciences	na	19,924	35.6	30.3	9.4	7.6	3.0
99th	≥9	180	58.8	21.3	1.5	7.5	0.6
95th	5–8	511	40.3	28.0	7.1	9.7	2.3
90th	3–4	1,198	37.0	29.2	9.4	8.3	2.6
75th	2	1,811	37.2	29.1	10.0	7.8	2.3
50th	1	4,424	36.2	29.9	9.6	7.9	2.5
<50th	0	11,800	34.4	30.9	9.4	7.3	3.3
Agricultural sciences	na	46,096	24.0	34.1	6.3	3.3	7.6
99th	≥12	390	28.2	44.4	2.3	1.9	2.8
95th	7–11	1,507	25.2	42.1	5.3	3.1	4.1
90th	5–6	2,563	25.3	41.7	5.3	2.9	4.4

Appendix table 5-43
S&E articles, by field, citation percentile, and country/region of institutional author: 1998 and 2008

Field/percentile	Citations (*n*)	Articles(*n*)	U.S.	EU	Asia-8	China	Japan
75th	3–4	6,747	24.8	39.1	5.5	3.3	5.8
50th	2	7,008	23.8	36.4	6.5	3.3	7.3
<50th	0–1	27,881	23.6	31.1	6.7	3.4	8.7
Biological sciences	na	466,190	34.1	32.6	5.3	3.6	7.6
99th	≥29	4,613	56.7	27.0	1.2	0.7	4.8
95th	13–28	18,513	52.0	29.9	1.7	1.2	5.1
90th	9–12	22,072	46.5	32.8	2.4	1.6	5.2
75th	5–8	65,496	41.2	33.7	3.4	2.1	6.4
50th	3–4	81,552	36.4	33.6	4.6	3.0	7.3
<50th	0–2	273,944	29.1	32.2	6.5	4.4	8.5
Medical sciences	na	499,865	34.2	36.4	4.3	2.0	7.1
99th	≥23	4,615	55.0	30.9	1.0	0.6	2.6
95th	11–22	18,581	50.1	33.0	1.4	0.9	3.4
90th	8–10	19,808	45.8	34.2	2.2	1.2	4.5
75th	4–7	80,842	40.1	36.2	2.9	1.6	5.7
50th	2–3	115,397	35.2	36.4	4.0	2.0	6.9
<50th	0–1	260,622	29.5	37.0	5.3	2.2	8.1
Other life sciences	na	19,649	55.1	22.3	2.4	1.2	0.9
99th	≥10	187	65.7	19.6	0.4	0.5	0.0
95th	6–9	588	61.2	21.5	1.2	0.6	0.2
90th	5	446	55.1	25.8	1.9	1.0	0.6
75th	3–4	2,191	54.5	24.4	1.7	1.0	0.4
50th	2	2,685	51.9	24.7	2.5	1.3	0.3
<50th	0–1	13,552	55.4	21.4	2.6	1.2	1.1
Psychology	na	50,006	49.4	29.9	1.2	0.9	1.9
99th	≥18	424	66.3	23.8	0.0	0.1	0.1
95th	9–17	1,913	60.1	26.6	0.2	0.3	0.3
90th	7–8	1,707	57.4	28.1	0.5	0.5	0.7
75th	4–6	6,315	53.5	30.2	0.4	0.4	0.9
50th	2–3	11,360	50.0	30.6	1.0	0.7	1.3
<50th	0–1	28,287	46.8	29.9	1.6	1.1	2.6
Social sciences	na	72,573	43.1	33.6	2.8	1.3	1.4
99th	≥10	712	59.8	26.9	1.5	0.3	0.3
95th	6–9	1,944	56.2	29.8	1.1	0.9	0.2
90th	4–5	3,546	52.3	31.4	1.1	0.9	0.9
75th	2–3	11,048	46.7	33.6	1.9	1.2	0.9
50th	1	15,444	42.8	34.1	2.7	1.3	1.2
<50th	0	39,879	40.4	34.0	3.3	1.4	1.8

* = 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. See appendix table 5-23 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-44

Share of all S&E articles and top 1% of cited articles and index of highly cited articles by field and selected country/region: 1998 and 2008

(Percent)

	Share all articles					Share top 1% cited articles					Index of highly cited articles				
Field/citation period	U.S.	EU	Asia-8	China	Japan	U.S.	EU	Asia-8	China	Japan	U.S.	EU	Asia-8	China	Japan
All fields															
1998	34.0	34.6	3.6	1.6	8.5	62.0	25.1	0.3	0.1	4.3	1.83	0.73	0.08	0.07	0.50
2008	28.9	33.1	6.8	5.9	7.8	51.6	29.6	2.2	2.5	4.5	1.78	0.89	0.32	0.42	0.58
Engineering															
1998	30.2	30.0	7.9	3.1	12.1	48.6	29.0	2.2	1.3	8.9	1.61	0.97	0.27	0.41	0.73
2008	20.6	28.6	14.1	10.4	10.2	38.1	25.1	10.6	10.6	5.8	1.84	0.88	0.75	1.02	0.57
Astronomy															
1998	36.0	37.2	2.0	1.4	4.0	59.2	27.5	0.3	0.3	2.9	1.64	0.74	0.14	0.20	0.72
2008	32.9	39.3	2.8	3.3	4.3	53.6	34.2	0.8	0.6	1.7	1.63	0.87	0.29	0.19	0.40
Chemistry															
1998	21.3	38.0	6.5	2.8	11.0	51.1	29.2	1.2	0.3	7.3	2.40	0.77	0.19	0.12	0.67
2008	18.0	32.2	9.9	12.0	9.5	38.4	32.8	5.7	8.1	6.9	2.13	1.02	0.57	0.68	0.73
Physics															
1998	23.9	35.1	5.0	3.5	11.4	47.7	30.9	1.2	0.4	7.8	2.00	0.88	0.24	0.12	0.68
2008	19.5	32.5	8.9	10.2	10.9	38.9	33.9	3.9	6.1	6.7	2.00	1.04	0.44	0.60	0.62
Geosciences															
1998	35.6	31.8	2.9	1.0	5.3	60.4	25.2	0.6	0.3	1.7	1.70	0.79	0.19	0.29	0.32
2008	29.0	32.4	5.2	4.6	5.7	47.3	28.4	1.7	4.5	2.1	1.63	0.88	0.32	0.97	0.37
Mathematics															
1998	34.7	37.8	2.9	3.4	3.8	61.6	23.3	1.0	0.7	0.5	1.78	0.62	0.34	0.22	0.13
2008	25.0	39.2	4.5	8.5	4.4	44.2	32.5	1.3	9.2	1.5	1.76	0.83	0.30	1.08	0.35
Computer sciences															
1998	48.4	25.8	7.6	2.1	3.8	63.9	25.1	1.3	0.0	1.3	1.32	0.97	0.16	0.00	0.33
2008	35.6	30.3	9.4	7.6	3.0	58.8	21.3	1.5	7.5	0.6	1.65	0.70	0.16	0.99	0.19
Agricultural sciences															
1998	31.9	29.7	3.3	0.4	8.9	41.1	38.8	1.5	0.0	3.0	1.29	1.30	0.45	0.00	0.33
2008	24.0	34.1	6.3	3.3	7.6	28.2	44.4	2.3	1.9	2.8	1.18	1.30	0.36	0.56	0.37
Biological sciences															
1998	37.7	34.2	2.6	0.6	8.3	66.8	21.5	0.2	0.0 *	3.9	1.77	0.63	0.07	0.05	0.47
2008	34.1	32.6	5.3	3.6	7.6	56.7	27.0	1.2	0.7	4.8	1.66	0.83	0.23	0.20	0.63
Medical sciences															
1998	37.6	37.5	1.9	0.7	7.8	60.9	27.5	0.2	0.1	3.3	1.62	0.73	0.11	0.19	0.42
2008	34.2	36.4	4.3	2.0	7.1	55.0	30.9	1.0	0.6	2.6	1.61	0.85	0.22	0.29	0.37
Other life sciences															
1998	62.2	21.6	0.5	0.3	0.5	82.9	12.5	0.0	0.0	0.0	1.33	0.58	0.00	0.00	0.00
2008	55.1	22.3	2.4	1.2	0.9	65.7	19.6	0.4	0.5	0.0	1.19	0.88	0.16	0.45	0.00

Appendix table 5-44

Share of all S&E articles and top 1% of cited articles and index of highly cited articles by field and selected country/region: 1998 and 2008

(Percent)

	Share all articles					Share top 1% cited articles					Index of highly cited articles				
Field/citation period	U.S.	EU	Asia-8	China	Japan	U.S.	EU	Asia-8	China	Japan	U.S.	EU	Asia-8	China	Japan
Psychology															
1998	56.9	23.6	0.5	0.5	1.9	73.0	16.0	0.1	0.1	0.0 *	1.28	0.68	0.14	0.20	0.02
2008	49.4	29.9	1.2	0.9	1.9	66.3	23.8	0.0	0.1	0.1	1.34	0.80	0.00	0.14	0.06
Social sciences															
1998	50.7	27.5	2.2	0.6	1.2	74.3	19.5	0.5	0.1	0.2	1.46	0.71	0.23	0.12	0.19
2008	43.1	33.6	2.8	1.3	1.4	59.8	26.9	1.5	0.3	0.3	1.39	0.80	0.56	0.23	0.22

* = rounds to zero

EU = European Union

NOTES: Share of all articles based on 3-year period. 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 5-23 for countries/economies included in EU and Asia-8. Citation data based on year article entered database. Citation counts based on 3-year period with 2-year lag, e.g., citations for 1998 are references made in articles in 1998 data tape to articles in 1994–96 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: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-45

U.S. utility patent awards, by selected characteristics of patent owner: 1998–2008

Characteristic	1998–2008	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Patents granted	1,757,785	147,510	153,482	157,490	166,033	167,328	169,020	164,291	143,804	173,771	157,282	157,774
Patents granted to U.S. owners	947,448	83,842	87,499	88,428	91,038	89,677	90,223	86,476	76,619	92,029	81,568	80,049
Patents granted to U.S. nongovernment owners	800,819	67,223	70,671	72,230	75,787	75,361	76,545	74,174	66,182	80,141	71,628	70,877
Patents granted to U.S. universities	37,467	3,490	3,698	3,461	3,612	3,587	3,537	3,288	2,952	3,572	3,228	3,042
Top 200 R&D institutions in 2007	35,983	3,373	3,553	3,345	3,471	3,427	3,393	3,127	2,844	3,429	3,083	2,938
University of California	4,658	421	470	462	443	467	466	449	410	443	371	256
Massachusetts Institute of Technology	1,564	148	155	121	142	152	135	139	146	143	145	138
California Institute of Technology	1,289	95	103	108	128	117	144	136	112	123	117	106
University of Texas	1,176	115	116	101	101	109	110	115	101	118	100	90
Stanford University	1,088	83	92	111	91	112	87	84	96	106	95	131
Johns Hopkins University	970	86	110	89	87	97	81	101	80	99	69	71
University of Wisconsin	941	85	89	70	76	82	89	74	79	106	99	92
University of Michigan	770	55	58	75	59	57	75	76	86	81	68	80
University of Florida	661	60	55	68	59	47	64	45	70	83	63	47
Cornell University	640	73	70	53	72	40	64	45	46	65	55	57
Columbia University	636	59	59	59	63	47	65	53	60	57	58	56
University of Pennsylvania	540	80	64	38	55	49	32	35	47	49	43	48
Harvard University	514	64	49	44	42	52	45	45	31	43	47	52
University of Chicago	513	57	53	61	63	55	47	53	30	49	29	16
University of Washington	509	60	54	63	52	44	36	33	33	44	43	47
State University of New York	504	54	59	65	42	55	38	39	32	46	29	45
Georgia Institute of Technology	484	28	38	42	40	49	47	37	45	55	55	48
University of Minnesota	481	48	55	48	42	42	43	46	42	39	40	36
Michigan State University	473	60	54	44	40	50	50	29	25	36	37	48
University of North Carolina System	470	38	61	46	51	35	41	40	45	40	41	32
Pennsylvania State University	467	27	45	40	63	58	56	45	34	34	31	34
Duke University	455	38	42	47	59	43	47	29	27	52	35	36
Scripps Clinic and Research Foundation	451	62	46	38	60	36	32	23	31	42	35	46
University of Illinois	446	20	34	29	36	34	44	63	37	51	47	51
University of Maryland System	426	30	41	29	43	34	48	38	32	47	41	43
North Carolina State University	391	28	25	28	32	39	49	44	41	35	34	36
Princeton University	358	29	30	30	47	38	32	24	35	28	31	34
University of Southern California	355	20	16	21	33	36	32	38	36	41	40	42
University of Pittsburgh	346	35	41	40	45	22	30	29	19	28	24	33
Washington University	345	45	60	40	42	32	26	22	20	22	20	16
University of Utah	334	41	37	25	46	30	24	26	20	23	33	29
University of Alabama	333	36	44	28	34	30	47	43	20	20	20	11
New York University	329	27	31	26	37	24	26	27	19	35	49	28
Iowa State University	317	54	46	35	29	21	29	25	14	24	28	12
Rutgers University	313	28	35	33	22	43	28	22	18	34	24	26
University of Iowa	301	27	34	20	41	25	31	20	19	33	27	24

Appendix table 5-45

U.S. utility patent awards, by selected characteristics of patent owner: 1998–2008

Characteristic	1998–2008	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Yale University	301	38	32	32	34	30	31	21	31	21	21	10
Texas A&M University	291	26	25	21	27	37	22	30	25	28	30	20
Northwestern University	283	39	26	20	35	30	21	20	18	20	24	30
University of Massachusetts	283	29	59	28	24	18	21	21	13	21	21	28
Rockefeller University	277	37	36	43	28	34	15	20	11	24	7	22
Ohio State University	274	24	25	26	21	21	23	33	31	31	22	17
University of Kentucky	270	23	32	28	23	35	29	17	22	25	16	20
Purdue University	263	22	23	13	18	24	25	26	27	29	34	22
University of Central Florida	262	12	15	11	21	16	26	30	24	32	34	41
Emory University	251	36	28	25	21	31	23	18	17	20	15	17
University of Colorado	248	31	29	20	23	20	25	17	14	27	18	24
University of South Florida	248	19	20	20	16	19	12	30	18	32	28	34
University of Arkansas	242	10	31	20	30	19	29	17	19	27	22	18
Carnegie-Mellon University	237	26	27	33	13	19	25	25	9	30	16	14
Louisiana State University	236	35	17	22	34	20	20	13	17	19	17	22
University of Nebraska	230	26	25	28	18	25	20	20	14	20	16	18
Vanderbilt University	226	17	20	23	27	22	23	22	16	22	17	17
Virginia Polytechnic Institute	225	23	27	21	13	19	17	20	13	26	30	16
Thomas Jefferson University	220	30	30	27	39	30	22	13	10	6	9	4
Baylor College of Medicine	215	31	23	28	17	18	17	19	9	19	16	18
University of Rochester	199	19	7	15	16	20	19	15	18	28	20	22
University of Connecticut	192	11	19	14	9	14	17	11	19	32	23	23
Case Western Reserve University	180	15	29	20	21	26	15	12	11	14	7	10
University of New Mexico	179	16	17	23	17	21	18	16	15	10	11	15
University of Tennessee	175	10	15	21	24	35	10	9	8	16	15	12
University of Virginia	174	20	16	16	20	12	24	8	9	11	16	22
Boston University	170	19	20	21	20	15	16	10	10	10	15	14
University of Missouri	169	13	17	6	16	14	19	21	9	22	19	13
University of Georgia	165	23	12	20	22	23	16	9	15	6	9	10
Florida State University	157	14	9	14	7	21	18	15	17	17	17	8
Brown University	156	17	20	15	22	9	16	13	14	10	10	10
Indiana University	156	23	12	17	20	18	20	8	14	9	9	6
Oregon Health Sciences University	154	15	16	23	16	15	9	13	8	10	12	17
University of Oklahoma	154	10	16	19	20	9	13	4	6	22	23	12
William Marsh Rice University	153	2	2	2	6	11	6	22	20	32	24	26
Yeshiva University	149	14	10	17	18	15	13	19	10	16	7	10
Rensselaer Polytechnic Institute	135	4	5	9	8	6	15	15	14	19	27	13
Wayne State University	130	14	18	14	15	12	8	10	11	13	9	6
Tufts University	129	12	8	10	14	14	11	14	13	17	9	7
University of Medicine and Dentistry of New Jersey	129	17	11	7	15	7	15	11	5	20	12	9
Dartmouth College	122	12	10	11	8	9	10	11	7	18	16	10

Appendix table 5-45

U.S. utility patent awards, by selected characteristics of patent owner: 1998–2008

Characteristic	1998–2008	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Mt. Sinai School of Medicine	119	17	14	8	10	8	24	5	9	7	4	13
University of Cincinnati	117	6	8	17	17	14	9	9	10	11	8	8
University of Arizona	115	11	10	8	6	8	14	11	4	14	15	14
Clemson University	114	8	2	4	7	21	17	11	13	13	10	8
Auburn University	111	6	10	9	9	8	7	11	14	10	17	10
Georgetown University	109	11	8	14	8	10	13	12	3	11	10	9
Virginia Commonwealth University	103	6	18	21	11	10	12	4	2	6	8	5
Washington State University	103	8	12	15	15	8	8	8	8	6	4	11
Wake Forest University	101	9	9	12	12	8	9	13	3	10	10	6
University of Kansas	96	7	16	5	9	21	9	11	5	3	5	5
University of Hawaii	95	8	9	14	8	7	8	9	6	10	7	9
Oregon State University	88	10	5	4	8	9	9	11	7	9	9	7
Northeastern University	84	12	9	15	9	5	3	10	9	5	4	3
Colorado State University	79	11	7	12	5	14	7	5	4	3	5	6
Temple University	76	6	5	5	7	9	12	10	6	8	5	3
University of Delaware	76	6	2	5	5	9	7	9	6	5	10	12
University of Houston	76	5	4	11	10	6	13	3	7	3	6	8
City University of New York	75	8	7	5	6	9	8	6	4	5	9	8
Kansas State University	75	7	12	8	10	10	7	9	2	3	4	3
New Jersey Institute of Technology	71	6	8	9	4	6	5	7	0	8	7	11
Drexel University	67	6	4	4	6	10	4	7	4	4	8	10
Mississippi State University	67	3	6	5	5	9	5	6	7	8	7	6
Tulane University	67	9	6	7	9	8	7	2	0	4	6	9
University of Vermont	61	2	8	2	5	10	6	3	5	5	7	8
Arizona State University	57	1	4	4	5	6	6	2	8	9	6	6
University of Miami	57	5	4	4	4	7	10	4	4	3	8	4
St. Louis University	56	4	12	4	7	8	4	4	6	4	2	1
Texas Tech University	56	2	3	3	8	14	4	4	7	5	3	3
University of Dayton	52	7	7	5	5	6	2	4	1	5	7	3
Brandeis University	51	9	6	6	1	3	9	4	1	7	3	2
University of Toledo	51	6	6	8	6	4	3	5	3	4	2	4
University of South Carolina	50	1	4	1	6	4	8	7	3	8	4	4
Ohio University	49	8	4	7	3	3	6	3	3	4	6	2
University of Southern Mississippi	49	2	7	8	7	2	3	4	8	2	2	4
Oklahoma State University	48	2	5	3	2	5	3	8	7	3	6	4
University of Mississippi	47	1	3	6	3	5	3	3	5	3	4	11
Medical University of South Carolina	46	5	6	8	2	5	3	4	7	2	1	3
Michigan Technological University	45	1	2	3	3	4	2	5	8	5	8	4
University of Idaho	45	5	2	7	6	4	4	2	2	9	1	3
Medical College of Wisconsin	42	8	2	4	5	6	5	4	0	1	3	4
Utah State University	42	5	5	4	2	2	4	1	5	2	5	7

Appendix table 5-45

U.S. utility patent awards, by selected characteristics of patent owner: 1998–2008

Characteristic	1998–2008	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Georgia State University	40	5	4	6	3	3	3	2	2	2	6	4
University of Wyoming	38	5	4	0	2	4	3	3	3	4	9	1
George Mason University	36	1	2	0	0	4	4	3	3	5	8	6
West Virginia University	34	0	1	0	6	4	12	4	0	2	2	3
George Washington University	33	5	2	7	3	7	3	0	1	2	2	1
University of Notre Dame	33	4	0	1	3	4	1	2	6	1	7	4
Lehigh University	32	2	2	5	4	5	4	1	3	3	1	2
Montana State University	32	1	5	1	1	1	3	0	1	4	7	8
North Dakota State University	31	2	5	5	4	2	3	2	3	3	1	1
University of Louisville	31	0	2	0	0	1	3	4	3	5	7	6
Medical College of Georgia	30	1	0	2	0	13	1	2	2	3	4	2
Southern Illinois University	30	0	4	2	7	2	4	6	1	2	1	1
Syracuse University	29	9	4	3	0	2	1	1	1	3	1	4
University of Maine	26	0	1	2	2	1	2	5	1	5	2	5
University of Puerto Rico	26	1	0	2	6	2	7	1	0	3	2	2
Boston College	25	1	0	0	0	0	0	1	7	4	5	7
New Mexico State University	23	2	5	3	2	2	5	3	1	0	0	0
Loyola University of Chicago	22	2	4	3	4	1	3	1	1	0	1	2
University of Montana	20	2	3	1	3	0	2	0	4	2	0	3
San Diego State University	19	1	1	2	2	3	3	2	4	0	0	1
University of New Hampshire	19	0	0	1	3	3	1	2	3	2	2	2
Eastern Virginia Medical School	18	6	2	1	3	0	1	0	0	3	1	1
University of Oregon	18	2	2	2	2	1	0	2	1	2	1	3
New Mexico Institute of Mining and Technology	16	0	1	0	3	3	3	0	2	0	2	2
Old Dominion University	16	1	1	3	2	2	2	1	1	0	1	2
New York Medical College	14	2	2	2	1	2	3	0	1	1	0	0
College of William and Mary	11	0	0	1	0	1	1	2	1	0	4	1
Uniformed Services University of the Health Sciences	10	0	0	0	2	3	2	0	0	0	0	3
Woods Hole Oceanographic Institution	10	3	0	1	1	0	1	1	0	2	0	1
Wright State University	10	1	1	0	0	0	3	0	2	2	0	1
University of Nevada	9	0	1	2	1	1	0	1	0	0	0	3
Desert Research Institute	8	0	0	0	0	0	2	2	1	0	3	0
University of North Dakota	8	1	0	0	0	2	0	2	0	1	0	2
Florida International University	7	0	0	2	2	1	1	1	0	0	0	0
South Dakota State University	7	1	0	1	1	1	0	0	1	0	1	1
Rush University	5	0	0	0	0	0	1	0	0	3	0	1
Jackson State University	4	0	0	0	0	0	1	1	1	0	0	1
University of Alaska	4	0	0	1	0	2	0	1	0	0	0	0
Howard University	3	1	1	1	0	0	0	0	0	0	0	0
University of Louisiana	3	0	0	0	0	0	1	0	1	1	0	0
Meharry Medical College	2	0	0	0	0	0	0	0	0	1	0	1

Appendix table 5-45

U.S. utility patent awards, by selected characteristics of patent owner: 1998–2008

Characteristic	1998–2008	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
San Jose State University	2	0	1	0	0	0	0	0	1	0	0	0
University of Rhode Island	2	0	0	0	0	0	0	0	0	2	0	0
Wichita State University	2	0	0	0	0	2	0	0	0	0	0	0
University of Memphis	1	0	1	0	0	0	0	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 not shown here. Top 200 R&D academic institutions in 2007 ranked by sum of their patents from 1998 through 2008. Unlike previous versions of this table, data include all assignees on patent, not just first; therefore, patent counts in this table slightly higher than reported in previous years. Patents on whole-count basis, that is, each assignee on patent credited one count.

SOURCES: The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-46

U.S. university patents awarded, by technology area: 1988–2008

Technology area	1988–2008	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All university patents	54,446	804	1,245	1,219	1,388	1,620	1,732	1,905	2,041	2,345	2,680	3,490	3,698	3,461	3,612	3,587	3,537	3,288	2,952	3,572	3,228	3,042
Chemicals	10,213	142	263	242	254	343	353	362	405	421	512	652	658	625	677	701	634	612	525	671	573	588
Biotechnology	8,120	83	83	91	107	148	205	196	213	359	538	683	748	657	735	578	490	467	377	494	468	400
Pharmaceuticals	7,599	112	176	179	197	177	227	229	266	368	439	578	589	553	508	519	509	408	331	438	402	394
Computers and peripherals	2,634	24	63	42	46	54	70	84	90	106	111	184	141	134	170	144	173	172	168	226	212	220
Semiconductors and electronics	3,434	47	99	94	117	105	109	134	148	135	141	166	161	159	182	208	264	250	251	232	220	212
Telecommunications	2,057	29	45	39	45	58	63	71	93	71	58	110	103	104	107	116	103	143	133	204	173	189
Measurement and control equipment	2,668	61	95	70	74	80	79	112	91	127	109	128	135	140	129	151	160	183	151	200	205	188
Office equipment and cameras	1,311	27	27	25	30	29	26	30	23	28	42	56	69	85	73	99	88	96	106	122	124	106
Medical electronics	1,761	31	43	47	48	67	53	85	90	82	80	96	112	125	125	116	145	122	42	75	75	102
Agriculture	2,050	17	36	37	52	62	46	69	53	80	107	134	166	138	187	158	159	106	117	119	111	96
Medical equipment	2,183	60	61	88	74	81	67	88	88	105	108	147	164	132	118	147	157	122	111	98	83	84
Industrial process equipment	1,323	19	34	37	50	65	63	73	53	50	44	71	102	84	66	82	86	75	69	71	65	64
Miscellaneous manufacturing	1,343	17	27	36	39	59	50	63	65	46	59	81	72	93	84	83	76	82	85	77	87	62
Electrical appliances and components	1,157	19	28	11	31	32	35	43	49	49	51	53	66	54	58	68	76	98	95	97	83	61
Plastics, polymers, and rubber	1,647	19	26	44	54	85	89	66	87	97	76	86	110	103	101	99	118	92	71	84	79	61
Power generation and distribution	413	8	16	10	10	19	27	18	28	19	16	22	32	19	26	23	20	11	25	22	19	23
Fabricated metals	564	3	10	14	20	17	23	39	45	25	16	22	42	50	36	26	46	37	25	25	22	21
Industrial machinery and tools	596	13	17	17	15	19	23	22	16	29	30	38	41	29	33	41	51	33	27	47	37	18
Miscellaneous machinery	286	7	15	9	18	9	7	13	12	11	10	9	15	16	23	26	17	14	13	14	13	15
Motor vehicles and parts	184	5	4	6	5	4	5	7	9	8	7	14	11	11	13	7	14	7	13	10	12	12
Textiles and apparel	267	3	5	5	5	10	5	9	14	7	7	16	8	16	10	20	13	25	23	37	17	12
Food and tobacco	412	4	13	14	23	17	14	21	25	31	20	19	39	28	30	28	22	17	10	16	11	10
Oil and gas, mining	240	10	11	9	8	17	14	13	12	12	7	15	13	16	12	16	5	14	9	7	10	10
Aerospace and parts	93	3	0	0	3	3	4	1	2	5	5	2	9	6	5	9	5	5	6	6	7	7
Heating, ventilation, refrigeration	136	4	4	6	2	5	6	3	9	7	6	10	7	7	4	5	13	10	5	10	8	5
Primary metals	221	5	11	8	6	7	11	9	9	8	14	17	12	8	21	19	10	12	8	13	8	5
Glass, clay, and cement	311	5	17	15	19	17	23	12	14	14	20	18	14	16	19	19	18	16	11	12	8	4
Other transport	88	2	1	1	2	2	4	3	4	5	1	5	8	6	7	7	5	9	3	8	4	1
Wood and paper	113	4	3	2	10	5	4	6	3	5	8	9	8	4	8	13	5	7	3	1	4	1
Other	1,021	21	12	21	24	24	27	24	25	35	38	49	42	43	45	59	55	43	139	136	88	71
Not assigned	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

NOTES: Data include institutions affiliated with academic institutions, such as university and alumni organizations, foundations, and university associations. Universities vary in how patents 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 30 technology areas. If patent has more than one IPC, only primary IPC is considered in mapping.

SOURCES: The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-47

Academic patenting and licensing activities: 1991–2007

Activity indicator	1991 (98)	1992 (98)	1993 (117)	1994 (120)	1995 (127)	1996 (131)	1997 (132)	1998 (132)	1999 (139)	2000 (142)	2001 (139)	2002 (156)	2003 (165)	2004 (164)	2005 (158)	2006 (161)	2007 (161)
	Millions of dollars																
Net royalties[a]	NA	NA	195.0	217.4	239.1	290.1	391.1	517.3	583.0	1,012.0	753.9	868.9	866.8	924.8	1,588.1	1,322.2	1,898.8
Gross royalties[a]	130.0	172.4	242.3	265.9	299.1	365.2	482.8	613.6	675.5	1,108.9	868.3	997.8	1,033.6	1,088.4	1,775.0	1,511.6	2,098.8
Royalties paid to others	NA	NA	19.5	20.8	25.6	28.6	36.2	36.7	34.5	32.7	41.0	38.8	65.5	54.4	67.8	67.9	63.7
Unreimbursed legal fees expended	19.3	22.2	27.8	27.7	34.4	46.5	55.5	59.6	58.0	64.2	73.4	90.1	101.3	109.2	119.1	121.5	136.3
	Number																
Invention disclosures received	4,880	5,700	6,598	6,697	7,427	8,119	9,051	9,555	10,052	10,802	11,259	12,638	13,718	15,002	15,371	16,855	17,677
New U.S. patent applications filed	1,335	1,608	1,993	2,015	2,373	2,734	3,644	4,140	4,871	5,623	5,784	6,509	7,203	9,462	9,306	10,748	10,899
U.S. patents granted	NA	NA	1,307	1,596	1,550	1,776	2,239	2,681	3,079	3,272	3,179	3,109	3,450	3,268	2,944	2,895	3,291
Startup companies formed	NA	NA	NA	175	169	184	258	279	275	368	402	364	348	425	418	500	510
Revenue-generating licenses/options	2,210	2,809	3,413	3,560	4,272	4,958	5,659	6,006	6,663	7,562	7,715	8,490	8,976	9,543	10,251	10,733	12,467
New licenses/options executed[b]	1,079	1,461	1,737	2,049	2,142	2,209	2,707	3,078	3,295	3,569	3,300	3,660	3,855	4,087	4,201	4,192	4,419
Equity licenses/options	NA	NA	NA	NA	99	113	203	210	181	296	328	373	316	318	278	357	377

NA = not available

[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 Licensing Survey (various years).

Science and Engineering Indicators 2010

Appendix table 5-48

U.S. utility patents, utility patents citing S&E literature, cited articles, and total citations, by patent assignee sector and article sector: 1998–2008

Patent assignee sector and article sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All utility patents	147,485	153,459	157,472	166,023	167,318	169,009	164,286	143,801	173,770	157,282	157,773
Patents citing S&E literature, all assignee sectors	15,552	15,651	15,305	16,639	16,855	16,970	16,038	14,637	19,319	17,848	17,871
Foreign	4,434	4,495	4,409	4,986	5,135	5,236	5,156	4,693	6,331	5,805	6,039
United States	11,117	11,156	10,896	11,653	11,721	11,734	10,882	9,944	12,988	12,043	11,832
Government	280	254	165	169	178	169	190	158	187	175	199
Private	8,780	8,737	8,741	9,381	9,505	9,592	8,831	8,147	10,730	9,980	9,799
Academic	2,058	2,164	1,990	2,103	2,038	1,972	1,862	1,639	2,071	1,888	1,834
All cited articles, all sectors	52,262	54,251	54,410	59,708	60,244	62,393	55,505	52,369	65,749	59,925	61,597
Foreign	22,453	23,890	24,188	27,058	28,352	29,954	27,111	25,633	33,282	30,384	31,398
United States	29,809	30,361	30,222	32,650	31,892	32,439	28,394	26,736	32,467	29,541	30,199
Federal government	2,540	2,505	2,237	2,437	2,238	2,258	1,816	1,696	1,999	1,863	1,833
Private for-profit	5,351	5,341	5,429	5,657	5,757	5,837	5,311	4,987	5,851	5,284	5,195
Academic	18,292	18,862	18,900	20,537	20,050	20,265	17,839	16,859	20,701	18,827	19,581
FFRDCs	519	576	581	626	635	708	672	575	776	657	693
Private nonprofit	2,835	2,819	2,825	3,101	2,960	3,105	2,533	2,424	2,865	2,659	2,668
State/local government	158	142	129	155	140	144	107	107	157	130	120
Joint/unknown sectors	114	118	119	137	112	122	117	87	119	120	108
All citations, all sectors	93,827	94,129	91,858	100,511	100,997	103,245	89,097	83,104	111,265	111,832	113,199
Foreign	36,328	38,067	37,737	42,109	44,280	46,135	41,097	38,886	52,766	53,413	55,566
United States	57,499	56,061	54,121	58,402	56,717	57,110	48,000	44,218	58,499	58,419	57,633
Federal government	4,883	4,644	3,825	4,125	3,735	3,735	2,917	2,526	3,332	3,502	3,330
Private for-profit	11,409	11,166	11,159	11,759	11,723	11,779	10,125	9,130	11,976	11,285	10,579
Academic	33,624	33,066	32,303	34,963	33,609	34,063	28,929	27,253	36,231	36,605	36,609
FFRDCs	884	965	989	1,175	1,346	1,463	1,355	1,081	1,450	1,353	1,391
Private nonprofit	6,194	5,790	5,405	5,925	5,901	5,681	4,335	3,866	4,977	5,176	5,251
State/local government	287	225	211	227	220	190	147	154	242	196	190
Joint/unknown sectors	219	206	229	228	184	199	192	209	290	303	284

FFRDC = federally funded research and development center

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. Detail may not add to total because of rounding.

SOURCES: Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 5-49

Citation of U.S. S&E articles in U.S. patents, by cited field and cited sector: 1998–2008

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All fields, all sectors	93,827	94,129	91,858	100,511	100,997	103,245	89,097	83,104	111,265	111,832	113,199
Foreign	36,328	38,067	37,737	42,109	44,280	46,135	41,097	38,886	52,766	53,413	55,566
United States	57,499	56,061	54,121	58,402	56,717	57,110	48,000	44,218	58,499	58,419	57,633
Federal government	4,883	4,644	3,825	4,125	3,735	3,735	2,917	2,526	3,332	3,502	3,330
Industry	11,409	11,166	11,159	11,759	11,723	11,779	10,125	9,130	11,976	11,285	10,579
Academic	33,624	33,066	32,303	34,963	33,609	34,063	28,929	27,253	36,231	36,605	36,609
FFRDCs	884	965	989	1,175	1,346	1,463	1,355	1,081	1,450	1,353	1,391
Nonprofit	6,194	5,790	5,405	5,925	5,901	5,681	4,335	3,866	4,977	5,176	5,251
State/local government	287	225	211	227	220	190	147	154	242	196	190
Joint/unknown sectors	219	206	229	228	184	199	192	209	290	303	284
Engineering	4,142	4,133	4,734	5,237	5,599	6,204	6,944	6,959	9,087	8,688	8,663
Foreign	2,109	2,189	2,508	2,941	3,126	3,481	3,818	3,736	4,845	4,476	4,466
United States	2,033	1,944	2,226	2,296	2,474	2,723	3,126	3,223	4,242	4,212	4,197
Federal government	84	65	76	83	106	116	143	123	154	148	137
Industry	851	771	881	870	903	1,018	1,154	1,053	1,374	1,327	1,288
Academic	936	952	1,102	1,168	1,273	1,366	1,598	1,772	2,415	2,418	2,460
FFRDCs	74	82	101	104	122	138	160	149	150	147	138
Nonprofit	66	55	53	51	57	68	52	63	60	71	64
State/local government	1	0 *	0	2	1	3	1	0 *	1	0	2
Joint/unknown sectors	22	18	13	17	12	14	18	62	87	101	108
Astronomy	2	1	2	0	4	2	4	1	7	6	1
Foreign	2	1	0	0	1	1	2	1	1	4	1
United States	0	0	2	0	3	1	3	0	6	2	0
Federal government	0	0	0	0	0	0	1	0	0 *	0 *	0
Industry	0	0	0	0	0	1	1	0	1	0	0
Academic	0	0	2	0	3	0	1	0	4	2	0
FFRDCs	0	0	0	0	0	0	1	0	0 *	0	0
Nonprofit	0	0	0	0	0	0	0	0	0	0	0
State/local government	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
Chemistry	7,693	7,874	9,230	10,896	12,364	13,000	11,826	11,140	14,626	12,834	12,584
Foreign	3,974	4,135	4,648	5,408	6,495	6,755	6,140	5,893	7,681	6,658	6,756
United States	3,719	3,739	4,582	5,488	5,869	6,245	5,686	5,247	6,945	6,176	5,828
Federal government	155	176	167	139	135	164	125	123	183	209	150
Industry	983	1,091	1,179	1,560	1,700	1,644	1,336	1,153	1,522	1,365	1,202
Academic	2,342	2,192	2,913	3,285	3,385	3,756	3,562	3,416	4,564	3,974	3,933
FFRDCs	98	150	189	270	378	375	402	260	321	269	281
Nonprofit	128	113	120	221	253	294	242	273	303	327	246
State/local government	5	7	2	4	12	6	5	11	34	15	6

Appendix table 5-49

Citation of U.S. S&E articles in U.S. patents, by cited field and cited sector: 1998–2008

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Joint/unknown sectors	9	11	12	10	6	7	15	12	19	16	10
Physics	4,483	4,736	5,407	5,831	7,065	9,669	9,775	10,506	13,058	11,720	11,859
Foreign	1,874	2,082	2,327	2,837	3,752	5,301	5,419	5,758	7,166	6,311	6,398
United States	2,609	2,654	3,080	2,994	3,313	4,368	4,356	4,748	5,892	5,409	5,461
Federal government	113	112	122	137	157	208	186	220	272	216	208
Industry	1,147	1,117	1,289	1,103	1,201	1,410	1,342	1,259	1,392	1,319	1,202
Academic	1,119	1,184	1,419	1,484	1,681	2,342	2,492	2,970	3,770	3,474	3,532
FFRDCs	170	178	204	224	232	359	282	265	402	338	416
Nonprofit	50	56	33	38	33	39	32	19	37	44	92
State/local government	0	0	0	0	0	0	0	0	0	0 *	0
Joint/unknown sectors	11	9	13	8	9	10	22	15	19	16	12
Geosciences	256	298	303	263	355	371	436	332	398	287	388
Foreign	105	123	121	112	167	144	180	157	167	162	205
United States	151	175	181	151	188	227	256	175	231	125	183
Federal government	18	14	15	16	15	25	31	15	28	16	22
Industry	31	24	35	19	35	40	47	30	32	16	28
Academic	85	119	118	105	125	143	159	116	156	79	118
FFRDCs	8	6	7	4	5	7	12	8	8	8	5
Nonprofit	4	5	4	3	3	6	2	4	3	4	6
State/local government	2	5	0 *	2	5	3	5	2	4	2	3
Joint/unknown sectors	3	2	2	3	1	2	0 *	1	0 *	1	0 *
Mathematics	28	18	27	28	53	54	42	52	62	56	56
Foreign	10	4	9	8	19	17	22	15	24	19	17
United States	18	14	18	20	34	37	20	37	38	37	39
Federal government	0	0 *	0	1	0 *	1	1	1	1	0	3
Industry	4	2	3	4	1	9	1	3	4	5	3
Academic	13	10	11	12	30	26	18	32	27	31	28
FFRDCs	1	1	3	1	2	1	0	2	6	1	5
Nonprofit	1	0	0	2	1	0	0	0	1	0	0
State/local government	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
Computer sciences	1,068	981	979	966	959	885	1,087	1,258	2,067	1,776	2,190
Foreign	236	213	225	252	293	272	382	395	653	558	686
United States	832	768	754	714	666	613	705	863	1,414	1,218	1,504
Federal government	8	11	11	9	6	5	8	8	18	7	9
Industry	323	289	279	254	239	246	291	355	535	475	641
Academic	471	439	409	430	402	336	387	483	824	704	826
FFRDCs	12	12	17	9	9	13	12	8	15	6	9
Nonprofit	4	7	9	3	7	7	5	3	11	15	13
State/local government	0	0	3	0	0	3	0	0	0	0	0

Appendix table 5-49

Citation of U.S. S&E articles in U.S. patents, by cited field and cited sector: 1998–2008

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Joint/unknown sectors	13	10	25	9	4	2	3	6	10	11	8
Agricultural science	561	774	751	878	844	722	566	467	717	862	706
Foreign	283	353	389	443	439	362	287	263	374	414	366
United States	278	421	362	435	405	360	279	204	343	448	340
Federal government	41	50	50	110	93	90	68	59	90	92	60
Industry	37	69	61	72	55	38	55	34	85	65	62
Academic	189	292	244	244	245	227	150	107	160	276	207
FFRDCs	1	1	0	1	1	0	0	0	2	2	3
Nonprofit	6	6	4	7	10	4	3	2	3	9	3
State/local government	2	1	1	1	1	0	2	0	0	1	0 *
Joint/unknown sectors	2	2	1	1	0 *	2	1	2	3	3	5
Biological sciences	58,135	58,256	53,260	57,062	54,898	52,733	42,248	38,273	52,082	51,893	50,471
Foreign	20,671	21,818	20,446	21,976	21,618	21,020	17,397	16,106	22,468	22,459	22,746
United States	37,464	36,438	32,814	35,086	33,281	31,713	24,851	22,167	29,614	29,434	27,725
Federal government	3,538	3,283	2,576	2,721	2,355	2,308	1,803	1,422	1,916	2,020	1,925
Industry	7,003	6,757	6,307	6,698	6,487	6,255	5,043	4,430	5,900	5,494	4,926
Academic	21,752	21,599	19,543	20,943	19,769	18,731	14,726	13,482	18,019	18,199	17,300
FFRDCs	429	435	394	478	518	480	422	352	482	486	404
Nonprofit	4,487	4,148	3,794	4,030	3,962	3,732	2,689	2,324	3,077	3,046	2,996
State/local government	180	128	127	129	116	118	86	89	124	101	96
Joint/unknown sectors	76	87	74	87	74	89	83	68	96	87	77
Medical sciences	17,354	16,979	17,004	19,216	18,690	19,450	16,042	13,975	18,970	23,565	26,101
Foreign	7,027	7,116	7,014	8,083	8,311	8,742	7,391	6,521	9,309	12,293	13,859
United States	10,328	9,863	9,991	11,133	10,379	10,708	8,651	7,454	9,661	11,272	12,242
Federal government	922	930	806	905	865	817	548	554	667	790	806
Industry	1,020	1,037	1,110	1,170	1,086	1,090	840	785	1,116	1,209	1,218
Academic	6,672	6,247	6,468	7,232	6,628	7,060	5,792	4,814	6,219	7,384	8,122
FFRDCs	92	99	75	84	79	88	64	37	64	95	130
Nonprofit	1,444	1,399	1,374	1,564	1,566	1,525	1,308	1,171	1,466	1,654	1,822
State/local government	97	84	76	88	82	56	48	51	75	75	82
Joint/unknown sectors	82	67	82	90	73	70	52	42	55	66	62
Other life sciences	29	25	34	23	45	46	32	44	56	33	48
Foreign	14	12	13	11	16	13	17	13	31	16	22
United States	15	13	21	12	29	33	14	31	25	17	26
Federal government	1	1	1	2	1	0	0	1	1	1	4
Industry	5	3	7	3	7	6	10	18	6	4	3
Academic	8	8	9	4	14	25	3	10	11	8	17
FFRDCs	0	0	0	0	1	1	1	0	1	0	0
Nonprofit	0	1	3	2	5	0	0	1	5	3	2
State/local government	0	0	0	0	0 *	0	0	0	1	0	1

Appendix table 5-49

Citation of U.S. S&E articles in U.S. patents, by cited field and cited sector: 1998–2008

Field and sector	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Joint/unknown sectors	0	0	1	1	1	1	0	0	1	1	0 *
Psychology	64	44	104	97	106	98	86	85	107	90	97
Foreign	21	17	27	33	36	27	38	27	39	36	37
United States	43	27	77	64	70	71	48	58	68	54	60
Federal government	3	2	1	3	2	1	3	1	3	1	2
Industry	5	3	5	7	8	20	6	8	9	5	6
Academic	33	21	54	49	48	44	36	43	43	43	44
FFRDCs	0	0	0	1	0	0	0	0	0	0	0
Nonprofit	2	0	11	3	5	5	2	5	9	3	6
State/local government	0 *	0 *	2	2	2	0	0	0 *	3	1	1
Joint/unknown sectors	0	0	4	0 *	5	1	0 *	1	1	1	2
Social sciences	11	9	22	13	14	11	9	12	28	22	35
Foreign	2	3	8	5	6	3	5	2	8	7	6
United States	9	6	14	8	7	8	4	10	20	14	29
Federal government	1	0	0 *	0	0	0	0	0	1	1	5
Industry	1	1	2	0 *	1	2	0	3	0	0	0
Academic	5	4	11	7	5	5	4	7	19	11	23
FFRDCs	0	1	0	0	0	0	0	0	0	0	0
Nonprofit	1	0 *	1	0	0	1	0	0	0	2	0 *
State/local government	0	0	0	0	1	0	0	0	0 *	1	0
Joint/unknown sectors	1	0	0	1	0	0	0	0	0	0	0

* = rounds to zero

FFRDC = federally funded research and development center

NOTES: Citations are references to U.S. 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 sector, each sector 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 U.S. patents issued in 2002 to articles published in 1992–97. Detail may not add to total because of rounding.

SOURCES: U.S. Patent and Trademark Office; Thomson Reuters, SCI and SSCI, http://www.thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2010

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	2,864,923	3,455,851	4,041,278	4,565,774	4,897,564	5,436,522	5,817,181	6,412,167	6,704,442	7,110,858	7,869,766	8,157,983
United States	1,239,014	1,348,622	1,465,642	1,589,884	1,733,678	1,882,868	2,001,171	2,143,583	2,257,233	2,371,587	2,514,074	2,686,060
Asia-9	88,244	98,278	119,091	141,814	163,345	188,743	205,873	237,523	259,861	305,636	358,869	394,474
India	30,140	33,839	37,799	41,061	41,673	46,938	43,112	42,486	42,522	48,222	56,351	58,731
Indonesia	12,228	11,535	10,399	12,291	13,904	16,708	19,386	21,459	24,152	28,200	30,775	33,829
Malaysia	5,070	5,115	5,817	6,360	7,480	8,625	10,247	13,006	15,967	18,263	21,987	26,911
Philippines	3,286	3,339	3,749	4,344	5,089	5,741	6,312	7,241	7,673	9,038	11,017	12,977
Singapore	6,846	7,316	8,918	10,855	12,370	15,371	17,694	20,773	24,830	29,974	36,050	39,985
South Korea	16,368	19,470	25,672	36,398	46,751	53,288	61,343	68,584	77,221	93,921	121,322	132,384
Taiwan	8,649	10,435	14,877	19,251	26,528	29,402	31,790	38,894	41,896	48,332	53,768	59,476
Thailand	5,439	5,953	6,957	8,403	8,918	11,971	15,225	24,003	24,049	27,758	24,951	27,160
Vietnam	217	1,276	4,904	2,851	632	699	763	1,075	1,552	1,928	2,648	3,021
China and Hong Kong	60,075	62,081	68,197	83,964	105,052	95,119	103,518	123,643	150,481	147,206	173,668	201,392
China	49,286	49,364	52,480	64,757	83,234	70,152	73,589	87,598	108,299	97,268	122,642	144,471
Hong Kong	10,789	12,717	15,717	19,206	21,818	24,966	29,929	36,045	42,183	49,938	51,026	56,921
EU	758,269	1,046,956	1,298,050	1,454,238	1,489,771	1,858,421	1,951,254	2,152,794	2,032,396	2,135,897	2,451,220	2,543,354
Austria	15,279	22,299	28,640	30,993	30,995	38,494	40,652	46,332	47,353	49,820	59,633	58,212
Belgium	22,985	32,314	40,758	43,883	44,137	55,265	58,166	65,229	64,098	70,020	83,648	82,729
Bulgaria	3,684	4,173	6,017	4,962	4,618	3,980	2,247	2,104	2,916	2,557	1,905	2,400
Czech Republic	6,040	7,186	7,859	7,381	7,945	6,413	5,135	5,393	7,375	8,645	10,295	12,023
Denmark	14,752	20,513	26,755	29,286	29,200	35,725	36,302	40,209	38,895	42,822	49,255	50,060
Finland	11,007	14,843	19,245	22,449	24,608	31,418	30,145	26,980	21,551	25,159	32,012	32,299
France	150,961	216,163	263,770	286,946	293,177	363,679	365,975	409,009	394,567	412,123	476,653	481,845
Germany	185,906	260,435	326,996	358,075	359,615	452,265	477,924	554,049	554,550	584,225	689,446	683,376
Greece	7,657	8,841	10,672	12,465	13,125	16,427	17,316	19,150	18,369	19,231	23,006	23,666
Hungary	3,743	4,514	4,965	5,509	5,593	6,338	6,546	7,929	8,834	10,391	10,327	10,833
Ireland	4,721	7,253	8,509	9,690	9,907	12,361	12,979	14,983	14,571	15,923	20,939	22,830
Italy	101,073	144,237	180,471	203,745	210,119	275,324	293,541	310,814	254,407	252,184	266,446	306,696
Netherlands	34,831	49,808	62,351	66,506	64,926	79,808	83,842	94,605	93,921	101,257	122,766	124,383
Poland	10,642	11,131	9,669	10,446	12,475	9,176	12,244	15,801	14,407	17,574	22,665	26,855
Portugal	4,920	6,740	8,925	10,529	12,267	16,847	19,871	23,186	21,739	22,407	27,040	28,226
Romania	4,923	5,141	5,962	6,062	5,613	4,229	3,037	2,724	3,446	3,949	4,836	4,352
Slovakia	1,763	2,089	2,263	2,217	2,176	2,460	1,789	1,960	2,166	2,472	3,549	3,407
Spain	33,390	45,608	59,213	71,586	81,389	109,008	120,407	135,687	116,144	115,086	133,538	139,175
Sweden	21,300	29,803	36,510	42,016	44,585	54,685	56,770	57,381	58,224	61,736	70,084	80,608
United Kingdom	118,693	153,864	188,500	229,491	233,304	284,519	306,369	319,268	294,864	318,315	343,177	369,378
Japan	309,075	462,144	571,592	699,651	709,705	711,424	813,842	896,421	1,050,513	1,177,998	1,338,288	1,208,486

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	8,268,779	8,397,555	8,874,956	9,217,877	9,278,263	9,764,403	10,994,527	12,195,153	13,117,991	14,087,401	15,658,560
United States	2,902,994	3,115,999	3,339,098	3,590,041	3,726,587	3,864,274	4,078,719	4,335,338	4,664,718	4,991,965	5,296,853
Asia-9	400,233	321,169	377,356	411,859	399,964	450,344	499,825	561,076	632,833	716,927	824,599
India	66,121	68,953	76,351	78,376	84,513	90,986	107,083	122,091	141,179	159,677	201,549
Indonesia	34,997	14,651	20,704	22,213	20,566	25,771	31,323	34,379	38,503	49,551	58,438
Malaysia	27,404	20,251	23,298	24,035	23,293	23,768	25,185	27,768	29,456	32,455	35,984
Philippines	13,421	11,426	13,731	13,981	13,745	17,093	17,937	20,343	23,642	28,295	36,306
Singapore	41,696	33,620	34,671	39,162	35,790	37,360	38,765	44,116	44,798	50,859	60,231
South Korea	123,174	89,013	115,951	131,884	128,100	153,704	171,943	194,856	229,269	263,051	289,002
Taiwan	66,763	63,743	72,858	82,484	75,066	80,203	83,716	90,180	95,413	97,566	101,002
Thailand	23,447	16,231	16,350	16,086	15,038	17,329	19,132	21,959	24,356	28,465	33,981
Vietnam	3,209	3,281	3,443	3,638	3,853	4,130	4,740	5,384	6,216	7,007	8,106
China and Hong Kong	231,711	241,772	259,731	296,159	327,522	359,227	403,204	463,365	542,713	656,602	812,428
China	167,674	181,959	200,647	234,243	266,802	299,296	344,424	404,621	479,093	585,332	737,032
Hong Kong	64,036	59,814	59,085	61,916	60,720	59,931	58,780	58,744	63,620	71,270	75,396
EU	2,430,813	2,528,190	2,593,578	2,422,233	2,472,260	2,751,680	3,391,797	3,901,417	4,087,130	4,328,782	4,959,507
Austria	50,917	52,713	52,701	48,400	49,352	54,613	67,012	75,925	81,195	86,223	98,376
Belgium	75,005	77,872	79,808	73,578	75,162	82,607	102,004	118,463	124,314	132,190	151,780
Bulgaria	1,872	2,524	2,808	2,827	3,165	3,882	4,935	5,870	6,345	6,831	8,949
Czech Republic	10,879	12,362	11,981	11,270	12,845	16,673	20,630	23,794	27,234	30,907	38,283
Denmark	47,063	48,713	49,014	45,235	46,876	50,939	64,168	73,694	77,081	80,381	91,904
Finland	30,817	33,780	35,042	34,324	34,578	38,316	45,491	52,370	53,660	58,171	68,615
France	440,649	455,002	460,536	426,480	429,414	475,869	590,196	670,649	698,012	739,686	843,293
Germany	612,876	618,324	626,552	547,951	548,115	601,082	744,479	846,268	860,631	886,239	989,543
Greece	24,308	25,440	26,756	24,163	23,875	27,218	36,165	41,410	46,210	50,067	59,700
Hungary	10,672	10,933	11,295	11,358	12,990	16,914	22,391	26,964	30,053	30,791	35,469
Ireland	24,492	26,890	30,855	32,563	35,112	39,896	52,516	61,978	73,583	82,593	99,577
Italy	294,460	300,046	306,003	286,616	296,920	326,147	411,205	464,784	483,301	500,875	542,561
Netherlands	115,171	121,197	126,523	118,722	125,123	139,344	176,879	200,695	212,100	221,402	252,050
Poland	29,194	33,098	32,643	34,938	40,540	42,815	46,593	53,610	64,156	72,027	89,748
Portugal	27,299	28,609	30,068	28,185	29,947	33,206	41,073	47,607	50,038	53,479	60,282
Romania	4,581	6,661	5,996	6,161	6,810	8,083	10,044	13,240	17,617	22,094	29,658
Slovakia	4,166	4,164	3,568	3,693	3,767	4,846	6,367	7,758	9,324	10,825	13,876
Spain	128,725	135,828	138,926	131,390	141,066	159,882	206,010	240,765	259,497	283,982	340,681
Sweden	76,568	77,612	81,857	77,510	72,066	80,323	101,221	119,430	123,448	130,242	148,949
United Kingdom	421,098	456,423	480,645	476,870	484,539	549,023	642,418	756,144	789,333	849,776	996,213
Japan	1,121,427	1,028,163	1,188,297	1,313,147	1,166,192	1,136,626	1,247,068	1,342,507	1,341,792	1,250,340	1,233,834

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	36,648	39,074	47,338	51,998	49,733	45,841	41,549	48,707	49,711	54,448	64,859	70,797
Cameroon	1,135	1,499	1,597	1,472	1,362	1,149	1,114	1,125	1,136	689	783	1,084
Egypt	10,526	12,652	17,068	20,472	19,093	10,744	3,952	6,842	9,565	12,608	15,408	20,805
Kenya	1,536	1,821	2,061	2,200	2,208	2,282	2,221	1,989	1,316	1,628	2,329	1,889
Morocco	2,220	2,887	3,348	3,746	3,795	4,337	4,533	5,101	4,928	5,402	6,163	6,368
Nigeria	7,728	4,489	2,501	2,743	2,250	2,645	2,240	1,659	1,420	1,786	3,403	4,327
Senegal	413	619	775	826	800	966	956	1,051	995	631	766	787
South Africa	10,899	12,560	16,968	17,391	17,071	20,302	23,207	27,371	26,866	27,987	31,880	30,944
Tunisia	1,131	1,324	1,413	1,509	1,444	1,675	1,779	2,183	2,135	2,314	2,689	2,889
Zimbabwe	1,061	1,224	1,607	1,639	1,710	1,741	1,547	1,386	1,349	1,404	1,438	1,704
Central Europe/Asia	16,544	17,680	19,372	19,695	22,317	30,057	29,610	43,752	74,914	85,735	93,967	112,420
Russia	4,949	5,084	4,958	5,356	5,686	5,755	3,379	12,890	37,221	56,976	59,173	72,224
Turkey	11,027	12,039	13,859	13,778	16,049	23,681	25,845	27,651	31,278	21,786	28,299	31,545
Ukraine	567	558	554	561	583	621	387	3,211	6,416	6,973	6,495	8,651
Latin America	127,481	128,910	156,116	179,794	247,968	218,799	243,458	324,935	390,658	372,718	363,068	395,266
Argentina	17,547	21,824	22,176	24,554	14,120	29,533	42,793	55,177	53,488	58,806	61,753	62,915
Bolivia	789	574	663	631	623	619	672	733	786	837	931	1,079
Brazil	59,341	61,423	85,646	99,108	169,749	117,497	113,506	158,723	204,240	162,044	162,075	188,709
Chile	4,720	4,761	5,193	5,586	6,451	7,107	7,945	10,106	11,416	13,468	16,745	18,625
Colombia	7,257	6,794	7,068	7,670	7,814	7,778	8,455	11,874	13,977	18,079	21,857	24,986
Costa Rica	626	736	854	875	1,033	1,178	1,580	1,855	2,200	2,484	2,718	2,812
Ecuador	2,567	1,814	1,747	1,379	1,163	1,130	1,273	1,342	2,422	3,285	3,833	4,230
Honduras	877	973	1,072	1,184	1,342	743	699	790	789	747	858	852
Jamaica	415	535	623	711	811	838	688	664	932	992	1,012	1,251
Mexico	22,911	16,845	17,985	25,439	31,859	39,077	49,495	64,721	81,226	88,899	63,497	63,421
Panama	1,352	1,344	1,305	1,101	1,096	1,214	1,310	1,567	1,686	1,782	1,784	2,069
Peru	2,487	3,845	5,624	3,602	5,841	5,544	7,089	8,040	6,536	7,923	10,072	10,775
Uruguay	1,364	1,592	1,829	2,046	2,354	2,586	3,032	3,590	4,744	5,303	5,883	6,406
Venezuela	5,228	5,849	4,331	5,908	3,712	3,955	4,922	5,751	6,217	8,066	10,050	7,137
Middle East	44,843	41,980	43,707	43,705	47,691	47,403	51,523	56,623	58,489	56,987	71,268	75,695
Iran	5,423	5,417	5,994	6,606	6,267	5,792	6,177	6,657	6,332	6,736	6,933	7,260
Israel	7,000	8,210	10,660	13,159	13,495	15,474	16,890	18,446	19,072	21,106	34,431	38,432
Jordan	848	985	1,054	1,066	786	679	757	945	1,036	1,108	1,201	1,291
Kuwait	2,984	2,951	3,370	3,523	3,428	2,684	2,423	3,262	3,505	3,757	3,852	4,076
Saudi Arabia	28,587	24,416	22,628	19,351	23,714	22,774	25,278	27,312	28,545	24,281	24,850	24,635
Other	184,730	210,127	252,175	301,030	328,305	357,847	375,382	384,186	380,185	402,645	440,485	470,039
Australia	43,741	47,858	59,896	77,281	85,005	89,562	91,977	93,296	91,462	103,233	113,064	127,537
Bangladesh	1,734	1,877	2,212	2,458	2,768	2,952	3,219	3,419	3,724	4,060	4,498	4,853
Canada	84,610	91,392	105,880	125,476	140,520	152,607	163,910	162,265	157,827	155,396	160,465	167,765
New Zealand	5,048	6,787	9,068	10,846	10,173	10,474	10,357	9,680	10,383	12,373	15,162	17,238
Norway	12,469	16,843	21,790	24,012	23,519	26,831	27,235	30,257	27,784	29,162	33,984	35,539

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	74,773	76,048	73,890	74,944	71,349	66,387	81,253	96,113	110,657	120,794	139,616
Cameroon	1,004	1,061	1,051	926	982	1,127	1,221	1,411	1,507	1,539	1,829
Egypt	22,399	24,439	26,329	27,446	26,663	23,433	19,637	21,182	23,724	25,263	30,717
Kenya	2,175	2,355	2,098	1,884	2,188	2,467	2,959	3,215	3,605	4,217	5,531
Morocco	5,993	6,466	6,627	6,408	6,437	6,941	8,171	8,548	11,860	14,801	16,714
Nigeria	4,642	6,022	1,773	2,033	2,101	2,383	2,680	3,604	5,190	6,517	7,441
Senegal	722	769	811	767	1,021	1,166	1,485	1,498	1,555	1,787	2,107
South Africa	33,106	30,425	30,960	30,716	27,628	23,746	38,862	50,908	57,408	60,508	66,505
Tunisia	2,761	2,879	3,010	2,870	2,818	3,046	3,557	4,204	4,510	4,865	5,629
Zimbabwe	1,970	1,632	1,231	1,892	1,510	2,078	2,681	1,543	1,299	1,297	3,142
Central Europe/Asia	122,446	95,450	75,383	84,176	89,951	110,884	143,104	181,268	229,228	325,355	430,141
Russia	78,825	49,054	32,066	41,794	56,116	66,956	84,001	111,535	143,544	189,993	252,443
Turkey	34,136	38,978	38,365	37,596	27,444	36,310	49,427	55,828	68,421	113,852	147,607
Ukraine	9,486	7,418	4,953	4,786	6,390	7,618	9,676	13,905	17,264	21,510	30,091
Latin America	433,128	445,696	396,390	434,769	433,536	384,458	388,331	432,585	524,325	616,073	720,835
Argentina	66,822	69,666	70,430	70,965	71,915	23,126	24,994	29,127	35,911	44,598	53,002
Bolivia	1,267	1,462	1,592	1,504	1,406	1,301	1,244	1,259	1,309	1,441	1,625
Brazil	196,675	194,547	134,545	153,730	133,160	124,303	128,544	147,699	194,700	237,065	290,983
Chile	20,730	20,754	19,474	19,696	18,100	17,893	20,146	23,314	27,729	31,936	35,159
Colombia	28,761	26,560	22,473	20,183	20,483	20,343	19,572	23,741	29,001	30,633	39,187
Costa Rica	3,042	3,291	3,596	3,980	4,319	4,674	4,918	5,101	5,513	6,104	7,043
Ecuador	4,732	4,560	2,628	2,057	3,489	4,656	5,945	7,100	8,361	9,462	10,135
Honduras	1,001	1,193	1,277	1,499	1,672	1,770	1,897	2,042	2,244	2,577	2,985
Jamaica	1,427	1,543	1,615	1,659	1,669	1,786	1,801	1,808	1,955	2,104	2,259
Mexico	74,010	82,707	98,228	116,120	131,238	146,753	144,184	153,253	171,438	188,086	203,908
Panama	2,256	2,504	2,703	2,862	2,969	3,091	3,125	3,323	4,454	4,750	5,372
Peru	11,304	11,035	10,293	10,666	10,605	11,416	12,313	13,402	14,991	16,727	19,742
Uruguay	6,731	7,048	7,143	6,974	6,723	4,293	3,539	3,815	4,707	5,337	6,164
Venezuela	14,369	18,827	20,393	22,875	25,788	19,054	16,107	17,601	22,013	35,254	43,269
Middle East	79,877	83,866	84,315	93,747	98,350	103,688	109,313	122,849	136,945	150,985	174,375
Iran	7,767	9,210	7,831	10,170	13,189	18,434	19,911	24,282	29,422	34,078	44,078
Israel	39,186	41,272	41,707	46,992	46,971	44,832	44,597	49,262	52,525	55,887	63,803
Jordan	1,391	1,548	1,610	1,774	1,972	2,147	2,264	2,532	3,011	3,403	3,817
Kuwait	5,456	5,893	6,275	7,066	7,411	8,490	10,280	11,985	13,968	19,894	21,309
Saudi Arabia	26,077	25,944	26,892	27,746	28,806	29,786	32,263	34,789	38,018	37,723	41,368
Other	471,378	461,199	486,917	496,802	492,551	536,836	651,912	758,636	847,650	929,578	1,066,373
Australia	130,249	117,688	130,490	127,892	120,750	136,101	174,699	212,059	236,198	255,693	306,705
Bangladesh	5,067	5,194	5,480	5,642	5,694	5,954	6,450	6,907	7,204	7,561	8,493
Canada	174,080	171,267	183,035	200,589	201,535	207,715	246,346	281,908	318,737	357,800	399,607
New Zealand	17,519	14,907	15,601	13,908	14,049	16,902	22,869	27,993	31,067	30,727	36,974
Norway	35,628	36,382	37,898	36,051	38,197	45,654	56,019	63,773	71,771	76,641	91,495

Appendix table 6-1

Value added of knowledge- and technology-intensive industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	5,537	5,825	6,239	6,698	6,563	7,600	8,371	9,528	10,169	10,896	12,035	12,532
Sri Lanka	623	679	686	743	710	815	967	1,077	1,157	1,375	1,587	1,745
Switzerland	25,896	34,014	41,623	48,358	53,297	60,944	62,865	67,338	69,664	77,066	89,541	91,790
All others	5,074	4,851	4,781	5,159	5,750	6,061	6,482	7,324	8,016	9,085	10,149	11,040
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	12,338	12,587	12,097	13,435	12,680	14,414	16,342	19,730	23,791	27,334	30,020	
Sri Lanka	1,958	2,386	2,474	2,460	2,412	2,615	3,001	3,318	3,936	4,673	5,477	
Switzerland	82,658	87,701	85,993	81,741	81,039	89,839	105,931	118,818	122,718	130,096	141,414	
All others	11,881	13,088	13,850	15,084	16,195	17,642	20,255	24,129	32,227	39,052	46,188	

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 business, financial, and communications services; education; and health. High-technology manufacturing industries include aerospace, communications and semiconductors, computers and office machinery, pharmaceuticals, and scientific instruments and measuring equipment. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-2

Nominal GDP, by region/country/economy: 1992–2007

(Billions of current dollars)

Region/country/economy	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	24,538.5	24,905.5	26,726.1	29,669.9	30,290.3	30,192.0	29,955.0	31,028.8	31,969.0	31,741.7	32,987.4	37,117.3	41,821.3	45,179.3	48,863.3	54,583.8
United States	6,337.8	6,657.4	7,072.2	7,397.7	7,816.8	8,304.3	8,747.0	9,268.4	9,817.0	10,128.0	10,469.6	10,960.8	11,685.9	12,421.9	13,178.4	13,807.6
Asia-9	1,264.1	1,368.2	1,564.4	1,818.8	1,970.4	1,930.8	1,514.9	1,745.2	1,903.8	1,815.6	1,975.1	2,205.6	2,491.5	2,831.5	3,212.4	3,734.5
India	290.4	283.9	323.8	367.5	389.1	420.6	424.4	453.4	467.8	483.0	504.9	591.3	695.0	811.9	915.0	1,139.9
Indonesia	128.0	158.0	176.9	202.1	227.4	215.7	95.4	140.0	165.0	160.4	195.7	234.8	256.8	285.9	364.6	432.9
Malaysia	59.2	66.9	74.5	88.8	100.8	100.2	72.2	79.1	93.8	92.8	100.8	110.2	124.7	138.0	156.4	186.7
Philippines	53.0	54.4	64.1	74.1	82.8	82.3	65.2	76.2	75.9	71.2	76.8	79.6	86.9	98.8	117.6	144.1
Singapore	49.7	58.2	70.7	84.3	92.6	95.9	82.4	82.6	92.7	85.6	88.3	93.1	109.2	119.8	136.6	161.4
South Korea	343.9	377.5	441.4	539.1	581.3	538.2	360.1	464.4	533.4	482.6	548.9	608.3	680.3	791.3	888.2	969.5
Taiwan	218.6	231.0	252.3	273.8	289.3	299.9	276.0	298.7	321.3	291.8	297.7	306.0	331.7	356.5	366.5	383.9
Thailand	111.5	125.2	144.5	168.3	182.4	151.1	111.9	122.1	122.7	115.5	126.9	142.6	161.3	176.4	206.7	245.4
Vietnam	9.9	13.2	16.3	20.7	24.7	26.8	27.2	28.7	31.2	32.7	35.1	39.6	45.4	52.9	60.9	70.9
China and Hong Kong	587.1	733.2	694.8	872.2	1,015.1	1,129.0	1,186.4	1,246.5	1,367.6	1,491.4	1,617.7	1,799.5	2,097.5	2,413.9	2,848.2	3,487.8
China	483.0	613.2	559.2	727.9	856.1	952.7	1,019.5	1,083.3	1,198.5	1,324.8	1,453.9	1,641.0	1,931.6	2,236.1	2,658.2	3,280.6
Hong Kong	104.0	120.0	135.5	144.2	159.0	176.3	166.9	163.3	169.1	166.6	163.8	158.5	165.9	177.8	190.0	207.2
EU	8,144.5	7,426.0	7,904.9	9,102.7	9,293.7	8,758.3	9,056.0	9,061.0	8,400.5	8,509.3	9,295.7	11,323.4	13,023.7	13,586.6	14,490.6	16,691.9
Austria	194.5	189.6	203.1	239.9	233.9	207.2	212.1	211.2	191.1	190.8	206.3	252.5	288.9	303.6	323.3	371.1
Belgium	225.0	215.9	235.5	284.8	274.9	249.4	255.2	253.9	231.8	232.1	252.4	310.7	359.2	376.0	400.4	458.7
Bulgaria	8.6	10.8	9.7	13.1	9.9	10.4	12.7	13.0	12.6	13.6	15.6	20.0	24.3	26.6	31.7	39.5
Czech Republic	31.9	37.8	43.6	55.2	62.0	57.1	61.8	60.0	56.8	61.8	75.3	91.3	109.5	124.6	142.3	173.9
Denmark	150.2	140.6	153.6	182.0	184.4	170.4	173.7	173.9	159.9	160.5	174.3	213.1	244.9	257.6	274.2	310.3
Finland	110.2	87.2	104.5	130.6	128.5	123.3	130.2	130.8	121.7	125.4	135.8	165.0	189.3	195.5	209.8	246.2
France	1,371.1	1,290.7	1,363.5	1,571.2	1,574.3	1,424.2	1,472.3	1,457.3	1,328.5	1,342.3	1,462.0	1,805.2	2,060.3	2,141.7	2,271.8	2,591.9
Germany	2,059.8	2,002.0	2,144.7	2,523.0	2,439.6	2,162.7	2,182.0	2,139.7	1,899.0	1,897.0	2,024.8	2,450.1	2,738.1	2,782.2	2,916.3	3,323.3
Greece	111.8	104.6	112.2	131.6	139.2	135.9	136.6	140.6	127.1	131.1	148.7	193.7	230.2	246.7	268.8	313.6
Hungary	37.3	38.6	41.6	44.7	45.2	45.7	47.0	48.0	47.9	53.3	66.7	84.5	102.3	110.5	112.9	138.2
Ireland	54.4	51.0	55.5	67.3	74.0	81.1	88.1	96.4	96.3	104.8	122.8	157.7	185.2	201.5	222.7	261.1
Italy	1,264.5	1,021.2	1,054.3	1,126.8	1,259.1	1,192.9	1,215.7	1,200.3	1,097.4	1,119.3	1,221.7	1,511.0	1,727.7	1,775.1	1,860.4	2,103.0
Netherlands	336.2	327.5	351.2	419.0	418.0	386.5	404.0	411.8	384.8	401.4	438.8	539.3	610.5	637.9	678.1	776.7
Poland	84.4	86.0	99.1	139.1	156.7	157.2	172.9	167.8	171.4	190.4	198.2	216.9	253.4	303.9	341.6	425.0
Portugal	102.9	90.9	95.3	113.0	117.6	112.0	118.5	121.7	112.6	115.9	127.8	156.7	179.1	185.3	195.2	223.3
Romania	19.6	26.4	30.1	35.5	35.3	35.3	42.1	35.6	37.1	40.2	45.8	59.5	75.6	98.8	122.7	166.0
Slovakia	11.7	13.4	15.5	19.6	21.1	21.4	22.4	20.4	20.3	21.1	24.5	33.3	42.2	47.9	55.9	75.0
Spain	612.7	509.7	515.3	596.8	622.4	572.7	600.8	618.5	580.3	610.2	687.9	885.4	1,045.3	1,129.1	1,233.7	1,439.0
Sweden	264.9	202.1	217.5	253.6	276.0	252.2	252.9	256.8	245.3	225.4	249.2	311.6	357.5	365.8	393.7	453.7
United Kingdom	1,093.0	980.1	1,059.3	1,156.3	1,221.4	1,360.8	1,455.1	1,503.1	1,478.6	1,472.8	1,617.1	1,866.0	2,200.1	2,276.5	2,435.3	2,802.6
Japan	3,794.0	4,353.9	4,759.9	5,245.8	4,637.7	4,261.2	3,855.1	4,380.6	4,669.1	4,097.5	3,924.5	4,232.2	4,609.2	4,557.5	4,362.1	4,379.0
Africa	281.7	279.9	299.3	382.4	432.0	446.9	445.4	354.0	368.7	347.8	338.4	411.6	495.0	568.9	637.4	733.6
Cameroon	12.1	11.1	6.2	8.7	9.5	9.0	9.4	9.8	9.3	9.7	10.9	13.7	16.3	17.3	18.7	21.7
Egypt	41.9	46.9	51.7	60.1	67.6	75.6	84.8	90.6	98.0	90.3	84.2	71.4	78.3	93.2	107.7	129.7

Appendix table 6-2

Nominal GDP, by region/country/economy: 1992–2007

(Billions of current dollars)

Region/country/economy	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Kenya	8.2	5.8	7.1	9.1	12.0	13.1	14.1	12.9	12.7	13.0	13.1	15.0	16.2	19.1	22.8	29.5
Morocco	28.5	26.8	30.4	33.0	36.6	33.4	40.0	39.8	37.1	37.8	40.5	49.8	56.4	59.0	65.4	74.8
Nigeria	31.8	31.8	41.6	90.3	129.0	134.3	131.7	36.0	49.0	48.0	46.7	58.3	72.0	97.6	122.3	147.7
Senegal	6.6	5.9	4.0	4.9	5.1	4.7	5.0	5.1	4.7	4.9	5.3	6.8	7.9	8.6	9.3	10.9
South Africa	130.5	130.4	135.8	151.1	143.8	148.8	134.2	133.1	133.0	118.6	111.1	166.7	216.3	242.7	257.9	283.4
Tunisia	15.5	14.6	15.6	18.0	19.6	18.9	19.8	20.8	19.4	20.0	21.0	25.0	28.3	29.0	30.9	35.1
Zimbabwe	6.7	6.6	6.9	7.2	8.7	9.0	6.3	6.0	5.6	2.5	3.2	4.7	4.1	4.1	4.1	2.4
Central Europe/Asia	316.5	460.1	491.3	577.1	680.3	710.4	575.0	473.2	557.3	539.6	619.3	784.6	1,048.0	1,332.5	1,624.0	2,083.6
Russia	85.6	184.8	278.9	312.5	391.8	405.0	263.9	194.2	259.5	306.6	345.5	431.7	591.7	763.7	988.6	1,287.7
Turkey	213.9	242.5	175.6	227.6	243.9	255.2	269.3	248.0	266.7	195.0	231.5	303.1	391.5	482.3	528.7	654.2
Ukraine	17.0	32.7	36.8	37.0	44.6	50.2	41.9	31.0	31.1	38.0	42.3	49.9	64.8	86.5	106.7	141.7
Latin America	1,259.5	1,390.5	1,584.9	1,723.5	1,865.4	2,035.0	2,033.0	1,805.6	1,991.6	1,929.4	1,718.6	1,787.0	2,073.3	2,516.9	2,988.5	3,507.9
Argentina	209.3	235.2	257.6	256.6	267.9	288.6	295.9	283.8	280.4	264.8	102.4	128.2	152.5	183.0	213.5	260.7
Bolivia	5.6	5.7	6.0	6.7	7.4	7.9	8.5	8.3	8.4	8.1	7.9	8.1	8.8	9.6	11.5	13.1
Brazil	390.6	438.3	546.2	769.0	839.7	871.2	843.8	586.9	644.5	552.3	505.7	552.5	663.5	881.7	1,072.7	1,313.3
Chile	46.3	49.2	56.3	72.1	75.8	82.9	79.5	73.1	75.4	68.7	67.3	74.2	95.7	118.3	146.6	164.2
Colombia	58.7	68.0	89.8	103.9	109.1	119.8	110.6	97.0	94.1	92.9	92.9	91.7	113.8	144.5	162.2	206.3
Costa Rica	8.6	9.6	10.6	11.7	11.9	12.8	14.1	15.8	16.0	16.4	16.9	17.5	18.6	19.9	22.5	26.2
Ecuador	12.1	14.3	16.6	17.9	19.0	19.8	19.7	14.2	15.9	21.2	24.9	28.6	32.6	36.5	40.9	43.6
Honduras	4.1	4.2	4.1	4.7	4.9	5.6	6.3	6.5	7.2	7.7	7.9	8.2	8.9	9.8	10.8	12.3
Jamaica	3.8	4.8	4.9	5.8	6.5	7.5	8.7	7.8	8.0	8.2	8.5	8.2	8.9	9.8	10.4	10.9
Mexico	398.0	441.6	461.9	314.1	364.8	439.8	461.3	526.9	636.4	681.4	710.2	699.6	759.2	847.1	948.3	1,022.7
Panama	7.3	7.9	8.5	8.7	9.3	10.1	10.9	11.5	11.6	11.8	12.3	12.9	14.2	15.5	17.1	20.0
Peru	40.5	34.9	44.8	53.7	56.0	59.2	56.8	51.6	53.4	54.0	56.8	61.4	69.7	79.5	92.3	107.1
Uruguay	14.2	16.6	19.3	21.3	22.7	24.0	25.4	24.0	22.8	18.6	12.3	11.2	13.2	16.6	19.4	23.1
Venezuela	60.4	60.0	58.4	77.4	70.5	85.8	91.3	98.2	117.5	123.4	92.8	84.6	113.6	145.1	220.3	284.3
Middle East	355.3	291.9	291.8	314.7	352.7	372.4	353.3	365.6	425.8	431.9	482.2	525.9	610.2	731.5	839.1	959.6
Iran	129.0	64.6	52.3	42.6	52.0	62.2	64.3	56.2	67.5	83.4	134.1	135.4	163.2	189.3	222.9	286.1
Israel	65.0	65.8	74.3	95.9	104.8	107.9	109.3	110.1	123.7	121.7	111.8	117.8	125.8	133.2	143.8	164.0
Jordan	5.3	5.6	6.2	6.7	6.9	7.2	7.9	8.1	8.5	9.0	9.6	10.2	11.4	12.6	14.1	15.8
Kuwait	19.9	24.0	24.9	27.2	31.5	30.4	25.9	30.1	37.7	34.9	38.1	47.9	59.4	80.8	101.6	112.0
Saudi Arabia	136.1	132.0	134.1	142.3	157.5	164.8	145.8	161.0	188.4	183.0	188.6	214.6	250.3	315.6	356.6	381.7
All others	1,907.8	1,660.6	1,739.0	1,867.5	1,837.0	1,823.2	1,764.5	1,875.3	1,999.8	1,968.3	2,041.3	2,495.5	2,992.0	3,406.3	3,767.6	4,058.5

EU = European Union; GDP = gross domestic product

NOTES: World GDP data from World Bank. GDP data by region/country/economy from IHS Global Insight. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCES: World Bank, Key Development Data and Statistics, http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1192694~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html, accessed 1 September 2009; and IHS Global Insight, Global Economy database (2009).

Science and Engineering Indicators 2010

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	1,579,868	1,924,095	2,265,494	2,593,936	2,803,540	3,081,575	3,275,649	3,660,747	3,876,891	4,095,614	4,544,517	4,747,910
United States	691,221	765,467	826,673	911,904	994,629	1,083,383	1,135,938	1,226,719	1,301,413	1,368,339	1,464,248	1,589,443
Asia-9	50,354	55,247	65,792	80,087	96,353	109,054	119,716	135,182	150,724	176,281	209,254	230,204
India	17,568	19,849	22,514	24,708	25,134	27,436	26,369	25,816	27,153	30,561	36,288	36,977
Indonesia	6,908	6,513	5,902	6,899	8,144	10,123	12,149	13,488	15,389	17,972	19,647	21,146
Malaysia	3,223	3,567	3,849	4,245	4,719	5,296	6,059	7,678	9,748	10,743	12,780	15,546
Philippines	2,458	2,491	2,768	3,126	3,606	3,922	4,183	4,686	4,931	5,812	6,845	8,036
Singapore	4,433	4,300	4,955	5,894	7,150	8,195	9,475	11,128	13,294	16,016	18,645	20,998
South Korea	7,698	9,094	12,350	18,207	24,223	27,539	33,176	37,869	41,565	49,324	63,606	72,366
Taiwan	5,435	6,224	8,853	11,966	17,780	19,202	20,037	24,979	26,764	31,603	33,911	36,175
Thailand	2,594	2,995	3,697	4,593	5,460	7,171	8,043	9,225	11,450	13,691	16,036	17,296
Vietnam	37	214	904	450	137	169	225	314	430	558	1,495	1,664
China and Hong Kong	29,956	32,633	38,145	48,733	59,422	54,010	58,712	72,443	89,092	87,702	104,462	122,195
China	22,909	24,232	27,471	35,448	48,817	41,606	42,913	52,293	64,897	59,555	77,489	91,265
Hong Kong	7,047	8,401	10,674	13,284	10,606	12,404	15,799	20,151	24,195	28,147	26,973	30,930
EU	401,877	565,594	706,207	795,357	815,717	1,025,088	1,073,002	1,180,105	1,121,227	1,173,251	1,344,623	1,404,602
Austria	7,282	10,648	13,835	15,231	15,571	19,365	20,694	23,713	24,630	25,728	30,803	30,268
Belgium	11,558	16,609	21,342	23,420	23,415	29,555	31,317	35,803	34,685	38,138	45,873	45,796
Bulgaria	1,603	1,791	2,583	2,087	1,981	2,264	1,025	598	749	821	893	1,893
Czech Republic	1,443	1,680	1,971	1,834	1,879	3,123	3,207	3,405	4,596	5,213	5,891	6,823
Denmark	6,078	8,692	11,283	12,391	12,974	15,826	16,055	17,725	17,300	19,432	21,797	22,089
Finland	4,284	5,814	7,690	9,234	10,285	13,244	12,145	10,365	8,662	9,975	13,013	13,071
France	81,361	118,267	145,995	160,548	167,100	204,608	204,348	226,012	214,481	224,118	255,433	260,134
Germany	107,894	152,256	192,567	209,783	209,978	263,945	276,225	319,403	328,132	342,284	401,870	396,398
Greece	3,752	4,431	5,453	6,378	6,559	8,229	8,998	10,156	9,821	10,135	12,153	12,639
Hungary	1,540	1,878	2,129	2,524	2,525	2,942	3,246	4,032	4,704	5,773	5,681	6,382
Ireland	2,799	3,818	4,389	5,018	4,861	6,019	6,334	7,371	7,059	7,416	9,571	10,724
Italy	54,754	78,659	96,421	109,196	111,100	146,881	157,648	167,663	139,380	136,633	148,676	171,145
Netherlands	17,365	25,276	31,418	34,824	34,733	42,276	45,224	51,223	51,026	56,605	70,688	74,014
Poland	2,966	3,108	2,695	2,860	3,446	2,695	4,165	6,818	6,688	9,378	11,649	14,226
Portugal	2,950	3,981	5,438	6,563	7,776	10,841	12,186	13,323	12,690	12,662	15,060	15,468
Romania	2,808	2,936	3,486	3,500	2,607	1,924	1,397	1,574	2,140	2,344	2,982	2,518
Slovakia	1,071	1,252	1,310	1,277	1,220	1,121	954	1,059	1,174	1,319	2,020	1,813
Spain	17,512	24,408	31,962	38,952	44,138	59,711	65,832	72,252	61,775	60,851	70,870	73,081
Sweden	11,097	16,229	20,307	23,917	25,420	31,797	32,421	31,611	26,209	27,766	30,489	35,910
United Kingdom	61,762	83,862	103,933	125,823	128,149	158,721	169,582	175,999	165,324	176,661	189,211	210,211
Japan	168,508	254,019	322,443	399,733	406,985	405,617	464,456	522,395	615,172	696,554	791,156	710,283

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	4,867,500	4,972,987	5,277,888	5,497,842	5,571,658	5,852,123	6,554,911	7,277,848	7,875,780	8,510,560	9,501,812
United States	1,750,070	1,894,031	2,056,126	2,220,761	2,307,968	2,371,634	2,484,153	2,645,697	2,875,994	3,081,840	3,266,880
Asia-9	233,487	185,032	212,162	226,515	229,771	261,558	290,429	320,757	360,522	408,347	479,485
India	41,474	42,651	48,275	49,718	55,078	59,574	70,354	79,050	90,805	103,410	130,071
Indonesia	20,174	7,666	10,116	13,541	13,079	16,998	21,316	23,397	26,215	33,724	39,426
Malaysia	15,879	11,740	12,289	12,335	13,280	14,375	15,319	18,018	19,408	21,932	25,989
Philippines	8,344	7,044	8,266	8,015	7,814	8,505	9,027	9,961	11,762	14,154	17,845
Singapore	22,871	20,264	20,223	20,999	20,681	22,703	23,599	26,474	25,352	29,159	36,950
South Korea	68,010	46,824	60,553	65,395	66,605	84,078	92,607	98,675	117,032	133,588	149,463
Taiwan	41,334	38,449	42,849	47,097	44,096	45,247	46,865	50,843	54,182	54,356	58,439
Thailand	13,623	8,600	7,717	7,423	7,008	7,796	8,795	11,376	12,387	14,166	16,855
Vietnam	1,778	1,795	1,874	1,994	2,129	2,282	2,546	2,963	3,378	3,857	4,447
China and Hong Kong	140,594	145,855	154,109	175,818	192,853	210,005	231,625	264,113	306,901	378,729	478,859
China	105,979	115,471	125,052	144,508	163,075	180,477	201,602	233,110	272,665	337,943	434,278
Hong Kong	34,615	30,383	29,058	31,310	29,778	29,528	30,023	31,003	34,236	40,785	44,581
EU	1,351,822	1,415,294	1,467,723	1,373,340	1,408,727	1,571,923	1,943,729	2,244,543	2,348,089	2,497,886	2,874,169
Austria	27,172	28,104	28,286	26,113	26,990	30,330	36,720	41,678	45,132	47,867	54,959
Belgium	42,002	44,549	45,358	42,314	43,189	47,431	58,308	68,886	72,142	77,073	89,330
Bulgaria	1,367	1,766	2,032	1,991	2,264	2,716	3,425	4,172	4,605	5,042	6,593
Czech Republic	6,101	7,405	6,956	6,428	7,500	9,927	12,191	14,046	15,851	18,157	23,012
Denmark	21,227	21,655	21,478	20,188	21,034	22,979	29,101	33,879	35,824	37,690	43,995
Finland	12,561	13,907	14,348	14,632	15,215	16,258	18,237	21,993	21,809	24,112	29,098
France	236,868	246,761	253,923	239,508	239,905	267,008	331,400	378,972	394,023	420,184	480,593
Germany	355,850	357,773	367,021	313,054	315,159	343,752	429,289	489,525	494,360	511,461	568,582
Greece	12,813	13,734	15,030	13,598	12,310	13,575	17,785	20,433	22,731	24,626	29,383
Hungary	5,914	6,051	6,343	6,250	7,229	9,545	11,762	14,377	16,206	17,044	20,384
Ireland	11,869	13,802	14,572	16,561	18,668	20,466	28,933	34,548	42,792	48,591	58,302
Italy	162,813	168,101	175,656	166,779	173,212	191,323	245,344	277,298	287,431	294,534	312,521
Netherlands	69,484	73,765	77,866	72,861	77,362	84,463	106,767	121,139	129,537	135,103	154,065
Poland	16,539	19,024	19,109	21,278	24,158	25,057	26,634	31,609	37,630	42,604	52,208
Portugal	15,159	15,880	16,721	15,538	16,432	17,917	22,295	25,678	26,746	29,198	32,969
Romania	3,114	4,354	4,013	4,120	4,827	5,584	6,405	8,394	11,053	14,185	19,192
Slovakia	2,379	2,377	1,997	2,121	2,131	2,962	3,867	4,983	5,988	7,016	8,891
Spain	69,474	74,173	75,313	72,247	79,451	90,873	116,187	135,354	145,854	160,827	195,542
Sweden	35,289	35,260	38,129	37,032	34,792	36,935	45,761	54,502	57,247	59,904	69,780
United Kingdom	243,826	266,855	283,569	280,728	286,901	332,821	393,318	463,076	481,125	522,668	624,770
Japan	664,136	609,648	703,363	773,870	704,903	693,022	750,959	798,505	811,262	771,786	773,656

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	21,301	21,259	23,894	25,236	24,890	26,386	26,858	31,131	31,969	35,084	41,843	44,394
Cameroon	909	1,200	1,294	1,183	1,098	689	697	721	593	296	366	864
Egypt	3,536	4,088	4,945	5,750	5,785	4,435	2,790	4,090	6,075	8,241	10,322	12,999
Kenya	1,008	1,172	1,328	1,429	1,446	1,510	1,483	1,386	894	1,227	1,566	725
Morocco	714	918	1,104	1,250	1,283	1,534	1,670	1,882	1,815	1,941	2,332	2,294
Nigeria	6,636	3,885	1,897	1,999	1,648	2,146	1,962	1,328	1,225	1,581	2,496	3,291
Senegal	321	507	642	687	668	795	787	873	804	486	574	579
South Africa	7,090	8,256	11,205	11,410	11,405	13,630	15,879	19,080	18,778	19,408	22,125	21,489
Tunisia	504	595	652	662	624	736	793	972	974	1,053	1,223	1,325
Zimbabwe	584	638	828	868	932	910	795	798	811	851	839	827
Central Europe/Asia	11,411	12,060	13,234	13,294	14,264	19,115	19,761	29,177	47,764	53,002	60,176	67,873
Russia	2,398	2,463	2,402	2,595	2,755	2,767	2,115	9,227	22,997	34,872	38,281	43,062
Turkey	8,850	9,435	10,671	10,537	11,340	16,180	17,521	18,674	20,890	14,751	19,817	22,460
Ukraine	164	161	161	162	169	168	125	1,277	3,876	3,380	2,077	2,350
Latin America	75,612	74,629	98,059	116,073	172,349	124,919	133,144	211,723	267,740	236,080	225,130	250,190
Argentina	9,917	12,199	12,804	14,522	8,199	16,116	22,187	29,070	33,505	37,286	39,710	40,645
Bolivia	503	300	356	408	390	388	428	464	499	534	595	711
Brazil	40,496	38,501	61,119	71,256	130,166	70,739	65,707	122,547	161,615	114,302	104,314	125,982
Chile	2,478	2,460	2,669	2,794	3,248	3,489	3,799	4,769	5,337	6,308	7,690	11,749
Colombia	3,486	3,293	3,384	3,764	3,775	3,301	3,501	7,367	8,664	11,326	13,568	15,233
Costa Rica	434	507	564	586	681	769	902	1,037	1,201	1,326	1,447	1,489
Ecuador	528	508	562	393	432	457	586	654	1,439	1,966	2,381	2,569
Honduras	570	630	690	769	877	474	463	523	508	490	557	549
Jamaica	267	346	400	440	542	564	463	397	561	652	740	881
Mexico	9,333	6,935	6,949	12,029	15,103	18,996	24,297	32,405	41,413	45,916	34,823	32,314
Panama	1,156	1,143	1,105	931	917	1,030	1,124	1,373	1,481	1,559	1,558	1,899
Peru	1,480	2,227	3,001	2,276	3,565	3,851	3,874	4,277	3,514	4,221	5,681	6,234
Uruguay	898	1,002	1,126	1,316	1,573	1,702	1,955	2,376	3,172	3,501	3,877	4,225
Venezuela	4,066	4,579	3,333	4,589	2,880	3,044	3,859	4,464	4,830	6,693	8,188	5,711
Middle East	28,856	25,605	26,370	28,591	28,402	28,870	30,733	34,402	33,096	34,327	44,489	48,100
Iran	3,812	3,824	4,269	4,741	4,524	4,133	4,427	5,671	5,401	4,719	4,801	5,189
Israel	4,296	4,692	6,131	7,754	7,936	9,070	10,171	11,262	9,377	10,538	20,421	22,743
Jordan	745	857	914	923	676	578	642	804	883	937	1,012	1,070
Kuwait	2,286	2,199	2,522	2,636	2,544	1,949	1,631	2,206	2,478	2,671	2,722	2,893
Saudi Arabia	17,717	14,034	12,534	12,537	12,721	13,140	13,861	14,460	14,957	15,463	15,534	16,205
Other	100,771	117,582	144,676	174,928	190,530	205,134	213,328	217,470	218,695	234,995	259,136	280,626
Australia	24,733	27,668	36,814	48,717	53,394	55,962	56,852	57,933	57,114	64,904	72,001	81,420
Bangladesh	1,196	1,237	1,451	1,668	1,830	1,909	1,960	2,030	2,194	2,417	2,668	2,947
Canada	41,495	46,508	54,521	65,506	72,660	77,491	82,044	79,999	78,483	78,946	82,889	88,926
New Zealand	3,093	4,301	5,939	7,050	6,599	6,874	6,683	6,152	6,643	8,092	9,781	11,236
Norway	5,819	8,198	10,951	11,963	11,512	12,683	12,567	13,890	12,841	13,451	15,315	15,645

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	47,478	48,947	47,723	48,449	46,189	43,438	53,025	64,876	73,681	79,851	91,975
Cameroon	798	840	814	711	768	866	863	974	1,029	1,031	1,199
Egypt	14,087	15,780	17,465	18,553	17,768	14,963	12,544	13,731	15,232	16,480	19,898
Kenya	840	855	706	497	678	703	862	1,471	1,664	2,013	2,483
Morocco	2,173	2,633	2,637	2,507	2,591	2,783	3,072	3,589	4,104	4,598	5,236
Nigeria	3,668	4,768	1,410	1,528	1,636	1,919	2,172	3,017	4,471	5,578	6,381
Senegal	508	541	582	557	625	709	923	1,143	1,171	1,353	1,582
South Africa	23,193	21,331	21,947	21,717	19,747	18,467	28,623	37,884	43,013	45,604	50,375
Tunisia	1,243	1,293	1,376	1,315	1,377	1,454	1,671	1,952	2,153	2,350	2,776
Zimbabwe	968	906	786	1,063	999	1,572	2,295	1,116	844	844	2,045
Central Europe/Asia	73,950	59,023	48,929	56,840	62,363	74,476	96,325	125,919	158,544	229,557	304,078
Russia	46,579	28,903	21,102	28,627	38,638	44,965	58,079	76,467	99,904	132,154	174,373
Turkey	24,426	27,631	26,105	26,362	20,449	25,683	33,344	41,281	49,075	85,772	112,817
Ukraine	2,945	2,488	1,722	1,851	3,276	3,829	4,902	8,171	9,564	11,630	16,888
Latin America	269,730	279,608	235,301	254,888	250,661	223,974	227,025	256,330	316,224	372,348	440,295
Argentina	42,787	45,157	45,070	44,950	45,920	15,058	15,819	18,690	22,801	27,797	33,666
Bolivia	862	999	1,112	1,036	964	874	812	803	839	922	1,041
Brazil	133,650	135,361	88,513	100,794	88,665	84,725	87,060	100,992	134,200	161,966	198,769
Chile	13,000	12,859	11,678	11,527	10,531	10,284	12,396	15,026	18,093	20,876	22,855
Colombia	17,246	15,692	12,247	10,818	11,021	10,923	10,622	13,096	16,091	16,825	21,026
Costa Rica	1,612	1,675	1,797	2,010	2,171	2,355	2,512	2,654	2,901	3,257	3,791
Ecuador	2,814	2,676	1,459	1,187	1,941	2,630	3,266	3,882	4,654	5,288	5,689
Honduras	659	788	843	969	1,055	1,089	1,176	1,251	1,387	1,598	1,813
Jamaica	964	1,018	1,095	1,109	1,110	1,188	1,236	1,224	1,345	1,443	1,531
Mexico	35,249	39,479	47,478	55,694	61,628	72,975	71,900	76,868	87,307	97,451	108,216
Panama	2,058	2,293	2,461	2,616	2,734	2,847	2,882	3,046	3,303	3,567	4,055
Peru	6,711	6,537	5,924	6,141	5,912	6,501	6,946	7,541	8,471	9,597	11,528
Uruguay	4,534	4,785	4,910	4,826	4,696	3,012	2,491	2,638	3,181	3,592	4,100
Venezuela	7,584	10,288	10,713	11,210	12,313	9,513	7,905	8,618	11,652	18,167	22,216
Middle East	49,195	51,598	52,143	58,202	61,689	67,592	70,617	80,353	89,851	100,204	115,658
Iran	5,705	5,919	5,278	7,011	9,006	13,648	14,686	18,198	21,837	25,751	33,038
Israel	22,402	24,366	24,403	27,239	27,573	27,043	26,439	29,689	32,107	33,860	38,767
Jordan	1,120	1,234	1,266	1,398	1,571	1,703	1,803	2,020	2,403	2,754	3,101
Kuwait	3,163	3,366	3,656	4,404	4,692	5,569	7,183	8,606	10,045	12,659	13,974
Saudi Arabia	16,805	16,715	17,541	18,150	18,846	19,629	20,506	21,841	23,458	25,180	26,779
Other	287,038	283,950	300,309	309,160	306,534	334,500	407,025	476,755	534,711	590,011	676,758
Australia	84,875	76,662	86,240	85,264	80,492	90,484	116,246	141,097	156,477	171,018	206,703
Bangladesh	3,081	3,118	3,301	3,353	3,386	3,553	3,834	4,084	4,254	4,453	4,990
Canada	94,824	95,371	101,602	113,050	115,877	119,816	142,033	164,317	186,815	210,256	234,314
New Zealand	11,445	9,653	10,128	8,942	9,162	11,138	15,004	18,303	20,444	20,355	24,546
Norway	16,138	16,715	17,287	16,653	17,523	20,675	25,916	30,523	34,711	36,758	43,998

Appendix table 6-3

Value added of commercial knowledge-intensive services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	3,405	3,542	3,815	3,964	3,853	4,532	5,089	5,877	6,257	6,664	7,226	7,453
Sri Lanka	537	587	585	623	592	676	793	891	941	1,123	1,279	1,416
Switzerland	16,422	21,637	26,757	31,342	35,444	40,104	41,962	44,381	47,346	51,576	59,161	61,965
All others	4,071	3,904	3,843	4,094	4,646	4,903	5,378	6,318	6,876	7,822	8,817	9,618
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	7,288	7,397	6,970	8,130	7,277	8,451	9,468	10,513	12,863	15,175	17,529	
Sri Lanka	1,583	2,003	2,030	2,105	2,098	2,244	2,562	2,839	3,337	4,152	4,767	
Switzerland	57,442	61,578	60,672	58,510	56,599	62,861	74,345	83,846	85,849	91,467	97,489	
All others	10,361	11,452	12,080	13,152	14,121	15,278	17,618	21,234	29,961	36,377	42,421	

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 business, financial, and communications services; education; and health. Commercial knowledge-intensive services exclude education and health. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-4

Value added of ICT industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	449,857	536,352	623,732	709,669	746,838	830,997	892,346	962,145	1,000,629	1,098,888	1,253,651	1,310,809
United States	167,922	171,787	185,058	200,708	214,138	227,099	237,084	255,065	271,185	303,261	327,987	354,838
Asia-9	16,908	19,923	25,823	32,023	36,459	44,059	50,355	58,016	62,518	76,454	96,518	105,998
India	2,131	2,572	3,405	3,883	4,103	4,361	4,259	4,748	4,798	6,240	6,868	7,314
Indonesia	3,156	2,898	2,632	3,357	3,599	4,383	5,246	6,134	6,786	7,987	8,854	9,823
Malaysia	1,326	1,321	1,546	1,791	2,316	2,818	3,707	4,786	5,778	7,155	8,892	11,433
Philippines	439	499	555	649	742	1,083	1,402	1,483	1,539	1,847	2,541	2,979
Singapore	2,902	3,371	4,345	5,454	5,984	7,088	8,060	9,184	11,061	13,487	17,136	18,415
South Korea	3,588	4,584	6,401	9,151	10,674	12,448	12,868	13,655	16,218	21,857	30,803	30,979
Taiwan	2,904	3,852	5,306	6,284	7,555	8,688	9,648	11,594	12,754	14,067	16,669	19,576
Thailand	432	623	799	1,053	1,377	3,055	4,999	6,192	3,270	3,429	4,228	4,863
Vietnam	33	203	833	401	107	135	167	239	314	385	527	616
China and Hong Kong	15,084	14,374	16,246	21,197	25,136	22,089	24,689	29,148	35,832	34,008	44,260	51,822
China	13,902	12,788	14,091	18,618	22,435	19,063	21,160	24,934	31,208	28,678	38,267	45,329
Hong Kong	1,182	1,585	2,155	2,579	2,701	3,026	3,529	4,214	4,625	5,330	5,993	6,493
EU	116,622	158,238	193,337	214,353	218,734	268,135	282,590	305,857	282,877	299,232	343,861	352,843
Austria	2,393	3,496	4,524	4,918	5,029	6,352	6,554	7,334	7,349	8,012	9,535	9,225
Belgium	2,497	3,495	4,417	4,834	4,862	6,243	6,371	6,958	6,875	7,585	9,203	9,241
Bulgaria	505	515	867	816	753	714	310	262	283	249	317	319
Czech Republic	877	1,023	1,253	1,197	1,103	817	684	697	1,090	1,252	1,551	2,129
Denmark	1,659	2,352	3,144	3,447	3,445	4,499	4,398	4,956	4,584	5,118	5,546	5,990
Finland	1,756	2,428	3,249	3,707	3,838	4,875	4,114	4,050	3,368	4,224	5,674	6,066
France	21,990	31,730	38,470	39,904	40,606	50,843	51,733	56,947	54,165	57,144	66,814	66,330
Germany	34,324	45,838	54,600	58,437	57,576	70,332	75,721	82,396	78,478	81,666	93,647	86,966
Greece	1,304	1,544	1,820	2,083	2,064	2,523	2,554	2,716	2,491	2,570	3,015	2,798
Hungary	595	715	778	804	804	858	901	1,009	1,152	1,252	1,439	1,706
Ireland	825	1,151	1,487	1,761	1,954	2,380	2,366	2,404	2,234	2,684	4,246	4,649
Italy	12,789	18,742	23,419	25,606	27,268	33,978	36,520	40,745	34,580	32,117	33,428	39,202
Netherlands	3,837	5,668	7,386	7,861	7,864	10,006	10,080	11,426	11,147	12,031	14,306	14,786
Poland	1,804	1,894	1,664	1,792	2,165	1,766	1,916	2,040	2,021	2,542	3,054	3,511
Portugal	662	809	986	1,091	1,228	1,719	2,124	2,640	2,614	2,810	3,551	4,021
Romania	588	660	863	860	799	491	367	265	444	537	635	853
Slovakia	339	392	356	343	327	349	291	329	334	434	583	718
Spain	4,960	6,226	7,969	10,107	11,489	15,299	17,168	18,533	16,896	17,663	20,066	21,831
Sweden	3,698	5,059	6,211	7,178	7,564	8,574	9,367	10,250	7,969	8,868	11,168	13,657
United Kingdom	19,222	24,501	29,874	37,606	37,998	45,518	49,052	49,902	44,803	50,474	56,083	58,845
Japan	68,920	100,648	120,817	148,382	151,632	158,762	182,123	186,750	210,409	234,851	272,569	254,979

Appendix table 6-4

Value added of ICT industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	1,353,685	1,384,051	1,507,125	1,638,015	1,555,186	1,611,660	1,805,177	2,051,101	2,182,049	2,362,427	2,623,296
United States	392,122	428,047	478,139	532,160	513,137	509,326	525,163	563,761	601,978	653,290	707,455
Asia-9	104,235	85,502	105,740	125,834	110,787	124,358	137,640	159,046	171,378	191,541	204,036
India	8,406	8,869	9,122	9,491	10,520	10,460	12,856	15,924	18,896	21,936	28,939
Indonesia	9,519	3,816	5,501	6,565	5,495	7,718	9,778	10,908	12,568	16,438	18,725
Malaysia	11,600	8,680	11,079	11,475	9,920	10,382	11,229	12,357	12,820	13,542	13,376
Philippines	3,067	2,797	3,498	3,920	4,016	4,673	4,791	5,351	5,961	6,856	8,115
Singapore	18,257	12,681	14,134	17,406	13,675	14,008	14,894	17,337	14,965	16,497	17,359
South Korea	27,778	23,718	33,141	41,728	36,855	42,969	47,762	58,011	65,353	73,299	76,230
Taiwan	20,918	21,378	25,281	31,107	26,422	29,858	31,698	33,900	35,104	36,219	33,526
Thailand	4,011	2,868	3,207	3,322	3,014	3,357	3,555	4,000	4,219	4,987	5,773
Vietnam	680	695	777	819	870	933	1,077	1,259	1,492	1,767	1,992
China and Hong Kong	61,844	65,103	72,539	91,376	104,480	119,595	142,332	176,178	209,435	253,684	315,081
China	55,261	59,184	67,400	85,428	98,671	114,428	137,683	171,962	204,958	248,953	309,919
Hong Kong	6,583	5,919	5,138	5,948	5,809	5,167	4,649	4,216	4,478	4,731	5,162
EU	351,720	385,956	400,479	381,425	386,919	425,997	509,392	590,527	600,210	627,501	710,883
Austria	7,895	8,432	8,527	7,694	8,250	9,101	10,753	11,702	12,225	12,705	13,971
Belgium	8,954	9,511	10,078	9,277	9,693	10,535	12,911	14,885	15,288	16,035	17,967
Bulgaria	320	429	586	648	834	1,149	1,469	1,691	1,738	1,784	2,368
Czech Republic	2,274	2,573	2,481	2,584	2,917	3,855	4,596	4,948	5,884	6,892	8,435
Denmark	5,988	6,077	6,457	5,662	5,993	6,642	8,282	9,155	9,143	9,387	11,679
Finland	6,640	8,689	10,161	10,571	10,448	12,236	14,621	16,091	15,609	16,691	19,556
France	62,908	67,827	71,180	64,201	64,643	71,120	84,679	96,987	96,545	99,653	112,455
Germany	80,182	84,572	79,714	73,542	72,297	79,655	97,037	113,992	107,944	113,410	127,761
Greece	3,194	3,368	4,037	3,457	3,777	4,487	5,609	6,387	6,843	7,679	8,663
Hungary	2,161	2,407	2,639	2,728	3,066	3,731	5,032	6,307	7,041	6,985	7,626
Ireland	5,513	6,302	8,503	9,854	8,820	8,810	9,671	11,608	15,906	18,094	20,452
Italy	38,049	40,314	42,185	38,781	43,880	49,835	60,267	67,582	69,364	71,196	72,701
Netherlands	14,790	16,572	17,586	17,458	17,553	18,762	23,769	26,708	27,944	29,464	33,619
Poland	4,092	4,868	4,766	4,784	6,347	7,153	7,449	9,308	10,301	11,434	14,149
Portugal	3,850	3,884	4,351	4,031	4,356	4,794	5,869	6,674	6,913	7,134	7,978
Romania	987	1,576	1,562	1,641	1,788	1,868	2,289	2,968	3,598	4,633	6,267
Slovakia	789	819	671	748	837	937	1,279	1,625	1,945	2,436	3,187
Spain	20,816	22,303	22,943	21,124	22,649	25,767	32,540	37,342	39,029	41,492	47,833
Sweden	13,801	14,933	15,910	14,737	13,383	14,412	17,052	23,056	23,389	24,676	27,903
United Kingdom	68,515	80,498	86,143	87,903	85,387	91,147	104,216	121,511	123,561	125,721	146,313
Japan	242,750	223,644	257,781	291,185	231,867	218,743	244,843	266,024	254,691	246,645	227,493

Appendix table 6-4

Value added of ICT industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	8,287	9,178	11,318	11,615	11,242	11,507	10,950	12,319	11,561	12,211	14,068	14,822
Cameroon	237	297	372	312	320	363	352	356	371	206	261	351
Egypt	2,607	2,941	3,764	4,327	4,364	3,558	2,318	1,795	1,957	2,314	2,593	3,451
Kenya	323	377	427	436	449	467	446	519	314	411	545	262
Morocco	474	606	717	819	847	970	1,005	1,114	1,072	1,170	1,341	1,407
Nigeria	1,485	799	377	359	234	256	223	153	193	208	307	352
Senegal	89	128	159	166	162	198	194	213	191	125	156	161
South Africa	2,627	3,495	4,892	4,523	4,187	4,954	5,690	7,386	6,615	6,910	7,880	7,746
Tunisia	291	337	379	422	425	471	491	617	610	660	754	815
Zimbabwe	154	198	232	250	253	270	231	167	237	207	230	278
Central Europe/Asia	6,539	7,009	7,811	8,055	9,045	12,285	11,691	15,549	22,633	26,311	34,706	41,653
Russia	1,616	1,668	1,629	1,755	1,865	1,873	976	3,680	9,373	15,680	21,550	26,837
Turkey	4,847	5,266	6,108	6,222	7,099	10,329	10,671	11,592	12,948	10,110	12,470	13,873
Ukraine	76	75	74	78	81	82	44	276	312	521	686	943
Latin America	13,181	14,949	16,199	18,385	22,193	23,761	25,669	30,190	35,410	40,194	39,652	47,595
Argentina	2,023	2,517	2,419	2,919	1,682	3,236	4,388	5,442	6,544	7,701	8,339	8,860
Bolivia	54	38	44	56	61	69	73	87	101	121	151	175
Brazil	6,203	7,539	8,484	9,258	13,312	12,146	10,884	11,480	13,544	14,938	14,990	20,160
Chile	314	349	395	438	538	576	751	979	1,117	1,337	1,605	1,998
Colombia	641	641	660	762	827	857	940	1,262	1,405	1,852	2,356	2,758
Costa Rica	205	225	247	247	281	315	309	371	432	479	538	558
Ecuador	67	68	62	53	57	67	73	78	192	297	383	401
Honduras	219	250	276	304	349	185	184	204	186	170	184	177
Jamaica	69	99	119	131	150	153	142	106	232	247	251	295
Mexico	2,066	1,598	1,785	2,652	3,425	4,642	6,106	7,813	9,169	10,292	7,010	8,139
Panama	199	204	210	186	179	202	212	224	240	261	275	310
Peru	328	445	684	405	596	573	662	791	644	805	1,322	1,494
Uruguay	179	237	272	287	334	354	421	560	666	785	905	999
Venezuela	612	741	542	688	400	386	526	792	938	908	1,345	1,271
Middle East	6,597	6,753	7,128	8,102	8,011	8,548	9,161	9,970	10,158	10,774	11,550	12,594
Iran	454	477	499	522	503	534	669	720	749	715	725	785
Israel	2,169	2,460	2,915	3,791	3,730	4,222	4,623	4,850	4,776	5,160	5,723	6,545
Jordan	212	251	265	254	199	172	179	212	226	243	276	299
Kuwait	539	558	580	627	618	439	237	559	637	729	744	800
Saudi Arabia	3,223	3,007	2,868	2,908	2,961	3,182	3,452	3,630	3,770	3,926	4,082	4,165
Other	29,797	33,493	39,995	46,849	50,248	54,752	58,034	59,281	58,044	61,592	68,479	73,665
Australia	6,073	6,602	8,458	10,853	12,071	12,843	14,005	13,802	13,847	15,229	17,144	19,834
Bangladesh	142	158	177	191	202	244	237	251	268	330	432	479
Canada	14,132	14,582	16,660	19,508	21,859	23,265	24,611	24,497	23,338	23,378	24,694	25,877
New Zealand	744	1,132	1,510	1,827	1,664	1,764	1,826	1,715	1,794	2,130	2,697	3,050
Norway	1,750	2,279	2,820	3,142	3,171	3,605	3,481	3,840	3,451	3,615	4,111	4,449

Appendix table 6-4

Value added of ICT industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	15,671	15,397	15,498	15,444	15,424	15,699	19,176	23,020	26,912	28,465	32,383
Cameroon	315	308	316	296	328	377	242	266	285	290	341
Egypt	3,858	3,931	4,242	4,164	4,157	4,044	3,683	4,115	5,770	5,983	7,267
Kenya	262	241	184	188	301	388	412	452	545	663	853
Morocco	1,334	1,420	1,424	1,276	1,363	1,512	1,553	1,862	2,169	2,405	2,731
Nigeria	394	492	147	158	175	215	262	364	529	718	833
Senegal	150	160	171	168	207	236	333	453	538	669	755
South Africa	8,260	7,720	7,898	8,081	7,319	6,754	10,316	13,480	15,142	15,632	16,709
Tunisia	810	853	894	857	919	997	1,202	1,441	1,632	1,799	2,154
Zimbabwe	287	272	222	257	656	1,175	1,172	588	303	305	740
Central Europe/Asia	44,066	33,089	26,432	30,305	29,935	36,958	47,509	62,021	75,275	90,601	114,145
Russia	27,244	15,825	10,259	12,868	15,406	19,171	24,585	34,092	40,999	51,155	65,125
Turkey	15,380	16,146	15,400	16,576	13,342	16,449	21,258	25,850	31,804	36,487	45,211
Ukraine	1,441	1,118	773	861	1,187	1,338	1,666	2,079	2,472	2,959	3,809
Latin America	54,023	59,403	55,511	71,774	68,299	56,885	57,380	69,884	86,284	101,642	120,126
Argentina	9,671	10,697	10,673	10,475	10,030	3,110	3,882	4,949	6,226	7,886	9,131
Bolivia	214	255	262	233	225	206	200	222	227	242	247
Brazil	21,422	23,042	17,215	31,007	26,085	23,211	24,122	30,684	41,073	48,241	59,374
Chile	2,164	2,269	2,177	2,019	1,782	1,848	2,324	2,805	3,321	3,918	4,479
Colombia	3,253	3,319	2,701	2,495	2,728	2,737	2,552	3,126	3,786	4,024	5,130
Costa Rica	610	636	642	706	733	812	877	941	1,014	1,123	1,288
Ecuador	411	501	358	362	717	907	1,096	1,229	1,530	1,721	1,894
Honduras	215	254	275	323	348	343	375	388	427	498	561
Jamaica	359	395	409	408	468	562	517	516	568	619	663
Mexico	10,375	12,074	14,168	16,813	18,025	17,128	15,840	18,750	20,627	23,298	25,127
Panama	362	391	447	472	492	503	479	502	555	621	711
Peru	1,591	1,505	1,428	1,460	1,436	1,503	1,588	1,770	1,930	2,344	2,727
Uruguay	1,085	1,150	1,189	1,165	1,094	737	680	782	987	1,145	1,302
Venezuela	2,289	2,914	3,569	3,835	4,136	3,278	2,846	3,220	4,014	5,962	7,490
Middle East	13,121	13,585	13,890	16,060	15,764	16,322	17,213	19,069	21,050	23,784	27,188
Iran	872	836	735	1,230	1,558	2,322	2,387	2,622	3,206	3,892	5,027
Israel	6,781	7,073	7,096	8,403	7,340	6,768	6,917	7,514	7,872	8,554	9,662
Jordan	325	378	415	468	574	583	609	706	720	785	909
Kuwait	820	882	998	1,134	1,245	1,290	1,742	2,256	2,789	3,554	3,981
Saudi Arabia	4,323	4,417	4,646	4,825	5,047	5,358	5,558	5,970	6,462	6,999	7,610
Other	74,134	74,325	81,117	82,451	78,574	87,776	104,530	121,573	134,835	145,275	164,506
Australia	21,034	19,699	21,602	21,012	19,615	22,301	27,742	33,523	35,948	38,315	46,388
Bangladesh	584	590	592	587	636	729	774	852	993	1,139	1,375
Canada	26,592	27,149	30,988	33,744	30,581	31,797	37,229	42,635	48,149	52,590	57,015
New Zealand	3,158	2,698	2,756	2,467	2,480	3,034	3,911	4,697	5,156	4,971	5,969
Norway	4,725	5,081	5,689	5,157	5,368	6,414	7,466	8,658	9,849	10,010	11,381

Appendix table 6-4

Value added of ICT industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	1,826	1,925	2,088	2,151	2,101	2,538	2,987	3,558	3,739	3,950	4,212	4,415
Sri Lanka	310	335	329	345	320	383	459	496	498	586	669	776
Switzerland	3,886	5,510	6,948	7,759	7,674	8,888	9,037	9,630	9,459	10,555	12,336	12,454
All others	934	969	1,005	1,073	1,186	1,222	1,391	1,492	1,650	1,819	2,186	2,332
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	4,455	4,474	4,547	5,310	4,873	5,681	6,511	7,278	8,773	9,899	11,136	
Sri Lanka	894	966	1,060	1,021	1,009	1,058	1,196	1,362	1,640	1,929	2,229	
Switzerland	10,221	10,920	10,803	9,735	10,172	12,436	14,903	17,044	17,835	18,113	19,454	
All others	2,471	2,748	3,079	3,418	3,838	4,326	4,798	5,524	6,492	8,308	9,560	

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 and semiconductors, and computers and office machinery. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-5

Value added of high-technology manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	312,565	370,607	428,798	483,376	506,588	551,275	585,873	596,479	601,662	643,026	720,460	735,889
United States	132,268	135,111	149,189	154,729	163,945	171,942	181,686	180,939	183,858	196,018	209,359	225,639
Asia-9	9,563	11,864	16,121	20,834	23,788	28,877	33,527	38,191	40,016	50,255	64,384	69,737
India	988	1,043	1,264	1,465	1,727	1,623	1,796	1,946	1,874	2,554	2,529	2,666
Indonesia	193	209	212	218	241	480	686	823	775	1,293	1,309	1,719
Malaysia	689	712	836	979	1,366	1,798	2,544	3,381	4,111	5,213	6,462	8,380
Philippines	252	279	331	461	611	885	1,116	1,263	1,274	1,451	2,071	2,521
Singapore	1,976	2,513	3,341	4,221	4,296	5,098	5,771	6,815	8,361	10,028	12,863	13,825
South Korea	2,813	3,767	5,266	7,627	8,671	10,029	10,039	10,440	13,028	18,217	25,386	24,055
Taiwan	2,244	3,056	4,248	5,038	5,831	6,762	7,276	8,355	9,038	9,850	11,906	14,450
Thailand	398	218	365	659	1,013	2,178	4,274	5,136	1,507	1,588	1,787	2,022
Vietnam	10	69	259	167	32	24	24	33	48	60	71	98
China and Hong Kong	9,691	8,721	9,826	13,280	15,490	12,691	13,560	15,174	18,119	15,355	18,723	20,973
China	8,773	7,509	8,270	11,389	13,527	10,650	11,553	12,897	15,906	13,012	16,219	18,632
Hong Kong	918	1,212	1,555	1,891	1,964	2,042	2,008	2,278	2,213	2,344	2,504	2,341
EU	75,869	100,186	119,207	132,638	134,477	160,742	163,924	166,957	146,835	154,708	174,456	178,757
Austria	1,174	1,784	2,283	2,463	2,552	3,250	3,302	3,582	3,521	3,600	4,291	4,070
Belgium	1,329	1,803	2,266	2,563	2,680	3,296	3,236	3,452	3,388	3,670	4,699	4,708
Bulgaria	438	453	659	704	650	492	240	210	183	135	193	123
Czech Republic	289	346	407	399	395	315	355	392	395	464	621	909
Denmark	809	1,150	1,444	1,528	1,509	1,939	2,008	2,318	1,989	2,495	2,930	2,934
Finland	745	1,000	1,407	1,535	1,614	2,134	1,471	1,597	1,525	2,157	3,135	3,332
France	11,857	16,822	19,521	20,834	20,284	24,810	24,669	26,257	25,367	25,300	30,826	30,538
Germany	24,255	31,451	36,098	37,948	36,860	44,142	47,841	49,590	41,579	42,248	45,828	45,589
Greece	339	394	375	476	546	651	776	756	656	616	607	582
Hungary	530	643	664	673	655	614	555	583	646	780	903	925
Ireland	627	854	1,155	1,422	1,680	2,044	2,096	2,280	2,206	2,817	4,525	4,557
Italy	9,801	13,604	16,613	18,439	20,126	24,745	24,307	23,901	18,786	19,088	18,725	21,083
Netherlands	2,329	3,299	4,248	4,102	3,976	5,119	5,069	5,488	5,510	5,494	6,273	5,871
Poland	1,422	1,508	1,347	1,536	1,791	1,292	958	832	828	1,103	1,534	1,714
Portugal	257	304	370	337	412	507	696	808	737	812	1,022	1,113
Romania	619	701	819	884	894	549	201	235	203	291	335	272
Slovakia	149	178	200	186	170	143	153	145	156	195	317	330
Spain	2,790	3,457	4,409	5,552	6,458	8,455	8,848	8,776	7,615	7,146	7,857	8,627
Sweden	2,504	3,420	4,047	4,619	4,703	4,994	5,665	5,827	5,036	5,802	7,374	8,412
United Kingdom	13,607	17,016	20,877	26,438	26,523	31,252	31,475	29,927	26,510	30,497	32,460	33,067
Japan	57,926	83,946	99,289	122,592	125,783	130,304	148,192	147,082	159,957	170,510	193,331	175,638

Appendix table 6-5

Value added of high-technology manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	748,365	741,154	802,899	864,586	754,028	752,036	851,977	961,073	1,028,209	1,134,185	1,219,927
United States	248,022	269,464	278,959	298,483	263,786	252,540	268,997	284,569	306,779	345,772	374,233
Asia-9	68,267	56,218	71,633	86,799	69,560	79,048	85,963	102,924	111,762	123,912	125,804
India	3,055	3,214	3,636	2,838	2,966	3,213	3,974	5,202	5,742	6,449	8,059
Indonesia	2,279	976	1,854	2,540	1,556	2,122	2,381	2,425	2,599	3,050	3,620
Malaysia	8,574	6,321	8,604	8,617	6,698	6,866	7,226	8,487	8,691	8,964	8,079
Philippines	2,538	2,092	2,526	2,882	2,782	3,058	2,884	3,121	3,340	3,856	4,407
Singapore	13,425	8,541	9,644	12,876	9,577	10,683	11,003	13,064	14,682	16,399	17,252
South Korea	21,122	18,251	25,252	32,645	26,143	29,734	33,362	43,767	49,129	55,863	57,763
Taiwan	15,695	15,687	18,830	22,938	18,602	21,953	23,528	25,111	25,667	26,994	24,070
Thailand	1,489	1,020	1,110	1,290	1,052	1,216	1,362	1,495	1,622	1,988	2,161
Vietnam	91	116	178	173	185	204	243	252	289	348	392
China and Hong Kong	24,571	23,645	27,034	35,077	38,954	46,296	62,721	81,591	102,463	130,465	166,865
China	22,374	21,540	25,071	32,658	36,890	45,020	61,812	80,736	101,590	129,635	166,003
Hong Kong	2,198	2,106	1,963	2,420	2,064	1,275	909	855	873	830	862
EU	178,945	185,133	193,631	187,113	178,750	186,076	218,823	245,856	260,273	277,504	305,778
Austria	3,630	3,947	3,815	3,871	3,635	3,899	4,740	5,381	5,938	6,343	6,925
Belgium	4,383	4,059	4,750	4,644	4,607	4,918	5,919	6,496	6,883	7,480	7,761
Bulgaria	98	100	83	89	108	205	264	215	249	232	260
Czech Republic	891	914	973	996	999	1,158	1,526	1,694	2,020	2,220	2,921
Denmark	3,013	3,172	3,531	3,358	3,622	3,449	4,482	4,783	5,441	5,613	5,768
Finland	3,862	5,179	6,146	6,533	5,696	6,887	8,177	8,349	8,570	9,542	11,416
France	31,298	31,443	31,493	30,989	30,239	30,499	35,339	35,583	37,294	40,159	42,174
Germany	42,636	42,923	44,772	43,836	40,931	43,919	56,262	66,120	70,828	74,223	85,806
Greece	550	602	644	619	850	924	986	1,131	1,219	1,226	1,364
Hungary	1,142	1,188	1,118	1,391	1,565	1,761	2,817	3,644	4,072	4,098	4,043
Ireland	4,976	5,637	8,596	8,330	7,694	8,889	9,093	9,810	11,357	12,209	14,626
Italy	20,051	20,569	20,652	19,065	20,019	21,141	24,058	27,205	26,750	28,553	29,850
Netherlands	5,339	5,392	5,665	5,843	4,895	4,339	5,246	5,720	6,412	6,438	6,946
Poland	1,774	1,941	2,194	1,966	2,136	2,060	2,201	2,416	3,069	3,432	4,153
Portugal	1,044	924	963	873	893	885	1,060	1,156	1,174	1,168	1,225
Romania	231	245	188	215	268	296	416	480	532	564	687
Slovakia	294	249	175	265	252	292	359	400	521	823	1,113
Spain	7,493	7,404	7,349	6,727	6,929	6,733	8,352	8,950	9,474	10,440	11,880
Sweden	8,298	9,302	9,611	7,909	6,075	7,440	9,487	12,886	13,231	14,244	15,076
United Kingdom	37,942	39,942	40,915	39,595	37,336	36,381	38,038	43,439	45,239	48,497	51,786
Japan	160,749	141,761	165,488	185,091	135,947	123,598	146,074	164,702	153,766	150,678	128,897

Appendix table 6-5

Value added of high-technology manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	1,598	1,326	1,913	2,177	1,941	2,199	1,749	2,000	1,481	1,558	2,414	2,543
Cameroon	4	5	5	4	4	2	2	5	4	2	3	2
Egypt	351	287	471	492	338	489	205	189	256	304	384	478
Kenya	30	32	33	35	34	38	37	51	30	35	49	49
Morocco	28	74	39	74	78	96	74	150	131	159	168	184
Nigeria	627	358	492	625	521	417	198	208	50	16	648	736
Senegal	2	1	4	4	1	3	3	5	3	5	5	7
South Africa	514	523	813	880	893	1,071	1,143	1,314	939	951	1,071	951
Tunisia	19	19	20	24	32	42	46	50	52	62	65	79
Zimbabwe	23	26	36	39	40	42	41	28	16	24	22	58
Central Europe/Asia	917	1,196	1,435	1,377	1,568	2,179	2,430	3,066	6,875	6,366	5,646	7,102
Russia	397	408	398	429	456	458	291	499	3,781	4,145	3,209	4,689
Turkey	459	727	980	887	1,047	1,658	2,102	2,331	2,866	1,916	2,173	2,141
Ukraine	62	61	58	61	64	63	37	236	227	305	264	272
Latin America	11,142	12,649	13,311	14,374	17,245	17,356	16,176	18,181	20,025	21,717	21,811	23,798
Argentina	1,436	1,765	1,427	1,518	995	1,426	1,847	2,341	1,793	1,894	1,770	1,810
Bolivia	9	8	8	12	13	12	12	14	14	19	22	25
Brazil	6,225	7,889	8,350	8,711	11,619	10,703	8,441	8,816	10,508	11,526	12,778	13,597
Chile	136	121	143	172	211	219	277	344	404	420	483	447
Colombia	326	289	334	347	386	382	420	603	573	697	916	920
Costa Rica	37	38	44	39	46	48	41	51	79	87	78	64
Ecuador	43	41	34	29	28	17	23	20	40	101	34	40
Honduras	10	10	10	10	13	8	7	7	6	6	7	7
Jamaica	7	12	16	14	17	18	19	17	22	19	20	18
Mexico	2,382	1,854	2,215	2,838	3,357	3,869	4,361	5,173	5,831	6,234	4,916	6,178
Panama	17	18	17	15	15	15	16	9	9	11	12	6
Peru	100	147	304	150	176	219	247	286	225	225	253	246
Uruguay	66	76	82	83	94	113	124	133	161	164	183	190
Venezuela	348	382	327	438	274	307	342	368	359	316	341	248
Middle East	1,448	1,595	1,528	1,764	1,827	2,104	2,352	2,276	2,339	2,438	3,128	3,558
Iran	159	185	130	131	159	185	215	248	225	235	242	257
Israel	1,247	1,364	1,346	1,571	1,602	1,855	2,067	1,939	2,018	2,107	2,803	3,200
Jordan	12	20	23	31	34	28	33	48	55	54	39	48
Kuwait	5	6	7	8	8	5	4	5	7	7	8	8
Saudi Arabia	25	21	21	22	24	30	34	36	34	35	37	46
Other	12,143	14,013	16,979	19,611	20,524	22,880	22,276	22,611	22,157	24,102	27,208	28,143
Australia	1,902	1,882	2,078	2,512	2,657	2,387	2,483	2,612	2,588	3,039	3,223	3,611
Bangladesh	54	62	61	15	38	128	110	119	141	156	227	245
Canada	5,553	5,518	6,861	8,082	9,244	9,849	9,486	9,438	9,167	9,191	10,243	10,539
New Zealand	150	171	196	211	191	181	176	168	188	233	261	284
Norway	476	635	768	787	739	866	793	899	863	935	1,178	1,393

Appendix table 6-5

Value added of high-technology manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	2,696	2,517	2,008	2,149	2,138	2,147	2,555	2,953	3,363	3,640	4,146
Cameroon	3	4	3	2	1	6	7	8	8	9	10
Egypt	584	544	630	645	724	671	547	588	662	732	881
Kenya	33	32	30	39	42	47	59	63	74	87	105
Morocco	166	180	135	142	124	138	210	229	245	257	295
Nigeria	776	720	203	259	274	279	318	369	469	556	622
Senegal	6	5	4	4	5	7	8	9	9	9	11
South Africa	990	913	890	954	866	857	1,255	1,530	1,700	1,781	1,873
Tunisia	81	84	87	80	80	89	101	115	117	129	153
Zimbabwe	57	36	27	24	22	54	50	42	79	81	196
Central Europe/Asia	7,242	5,268	4,648	4,483	4,638	5,847	7,079	9,489	12,468	14,818	17,572
Russia	4,475	2,685	1,789	1,607	2,318	2,769	3,262	4,635	6,214	7,853	9,640
Turkey	2,406	2,317	2,622	2,530	1,981	2,692	3,318	4,225	5,363	5,813	6,390
Ukraine	361	267	237	347	339	387	498	629	892	1,152	1,542
Latin America	27,063	26,839	25,615	29,756	28,705	24,531	22,567	27,597	31,637	37,075	39,822
Argentina	2,658	2,395	2,182	1,956	1,948	699	943	1,225	1,357	1,532	1,856
Bolivia	23	37	40	24	26	23	23	24	25	29	33
Brazil	13,791	12,505	10,411	12,830	11,564	9,447	8,568	11,311	13,931	17,589	20,060
Chile	453	440	374	414	364	375	431	537	708	812	927
Colombia	983	936	767	763	755	747	692	819	1,003	1,108	1,377
Costa Rica	64	72	64	67	76	85	86	98	111	128	144
Ecuador	63	46	20	74	46	55	49	53	61	69	73
Honduras	9	12	13	15	17	17	19	18	20	21	24
Jamaica	21	22	22	22	23	24	25	25	27	29	30
Mexico	8,325	9,694	11,132	13,002	13,256	12,554	11,208	12,838	13,635	14,809	14,166
Panama	9	9	8	8	7	7	7	7	8	8	9
Peru	275	251	223	229	230	239	249	296	337	382	439
Uruguay	125	110	106	88	85	57	59	75	99	119	137
Venezuela	264	310	253	262	307	201	207	269	316	439	545
Middle East	4,025	4,298	4,663	6,172	5,199	4,620	4,970	5,484	5,931	6,675	7,238
Iran	254	236	219	272	347	419	531	671	806	949	1,218
Israel	3,650	3,937	4,306	5,748	4,696	4,031	4,255	4,601	4,866	5,432	5,703
Jordan	64	76	84	91	95	105	110	132	158	177	190
Kuwait	9	6	7	7	8	11	13	17	21	28	31
Saudi Arabia	48	42	47	55	53	55	62	63	80	90	97
Other	26,785	26,010	29,218	29,462	26,350	27,333	32,228	35,908	39,767	43,646	49,572
Australia	3,487	3,075	3,236	2,874	2,555	2,974	3,712	4,314	5,037	5,490	6,408
Bangladesh	265	261	232	225	235	253	266	292	324	359	389
Canada	11,572	10,855	13,737	15,477	12,248	11,651	13,670	14,987	16,508	18,032	19,693
New Zealand	264	206	209	194	204	236	306	368	421	400	490
Norway	1,218	1,117	1,375	1,247	1,201	1,410	1,607	1,811	2,060	2,426	2,903

Appendix table 6-5

Value added of high-technology manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	170	205	182	220	226	247	279	343	396	364	406	474
Sri Lanka	3	2	4	4	4	5	9	7	10	18	31	27
Switzerland	3,818	5,520	6,811	7,764	7,406	9,198	8,918	9,004	8,781	10,136	11,603	11,534
All others	18	17	18	18	18	19	21	20	23	31	37	38
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	434	443	446	399	409	442	561	676	817	990	1,095	
Sri Lanka	43	56	123	57	30	30	30	39	48	55	63	
Switzerland	9,456	9,950	9,811	8,933	9,413	10,278	12,010	13,345	14,453	15,776	18,391	
All others	47	46	49	55	56	61	65	76	101	120	141	

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-6

Real GDP per capita, by region/country/economy: 1990–2007

(1990 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
World	5,343	5,321	5,339	5,369	5,478	5,625	5,741	5,888	5,917	6,063	6,285	6,391	6,548	6,787	7,071	7,342	7,661	7,994
United States	23,201	22,849	23,298	23,616	24,279	24,603	25,230	26,052	26,824	27,699	28,403	28,347	28,535	28,982	29,761	30,356	30,916	31,260
Asia-9	2,115	2,183	2,277	2,377	2,507	2,654	2,808	2,886	2,795	2,906	3,048	3,116	3,228	3,382	3,551	3,747	3,966	4,196
India	1,309	1,301	1,346	1,392	1,453	1,527	1,621	1,663	1,745	1,826	1,875	1,953	2,007	2,146	2,273	2,451	2,650	2,842
Indonesia	2,526	2,704	2,849	3,003	3,176	3,380	3,613	3,750	3,214	3,210	3,477	3,562	3,667	3,793	3,928	4,105	4,266	4,484
Malaysia	5,132	5,495	5,848	6,280	6,703	7,200	7,749	8,141	7,384	7,675	8,554	8,430	8,714	9,047	9,484	9,810	10,192	10,649
Philippines	2,224	2,162	2,124	2,124	2,169	2,219	2,294	2,358	2,294	2,321	2,406	2,393	2,445	2,512	2,616	2,690	2,779	2,919
Singapore	14,220	14,698	15,189	16,501	17,873	18,684	19,447	20,346	19,534	20,604	22,283	21,308	21,784	22,126	23,688	25,005	26,647	28,320
South Korea	8,704	9,419	9,859	10,353	11,133	12,050	12,790	13,286	12,283	13,351	14,375	14,819	15,766	16,179	16,874	17,527	18,357	19,220
Taiwan	9,886	10,525	11,243	11,904	12,659	13,355	14,085	14,888	15,426	16,184	16,982	16,500	17,176	17,704	18,728	19,440	20,318	21,402
Thailand	4,633	4,964	5,295	5,659	6,090	6,570	6,876	6,708	5,941	6,149	6,393	6,482	6,775	7,206	7,607	7,896	8,242	8,575
Vietnam	1,025	1,063	1,134	1,203	1,286	1,385	1,491	1,589	1,658	1,715	1,809	1,911	2,023	2,148	2,291	2,459	2,634	2,828
China and Hong Kong	1,949	2,049	2,217	2,400	2,607	2,955	2,986	3,111	3,084	3,253	3,518	3,854	4,292	4,897	5,359	5,878	6,464	7,151
China	1,871	1,967	2,132	2,312	2,515	2,863	2,892	3,013	2,993	3,162	3,421	3,759	4,197	4,803	5,258	5,772	6,352	7,034
Hong Kong	17,541	18,333	19,191	19,991	20,729	20,666	20,973	21,679	20,222	20,566	22,004	21,933	22,175	22,683	24,440	26,006	27,664	29,257
Japan	18,789	19,355	19,482	19,478	19,637	19,970	20,469	20,739	20,267	20,199	20,738	20,736	20,756	21,021	21,577	21,984	22,515	22,997
EU	13,664	13,644	13,685	13,610	13,967	14,334	14,588	14,962	15,378	15,805	16,380	16,672	16,845	17,041	17,446	17,756	18,281	18,784
Austria	16,895	17,289	17,481	17,377	17,753	18,048	18,490	18,809	19,457	20,065	20,689	20,814	20,950	21,167	21,624	22,039	22,744	23,412
Belgium	17,197	17,451	17,645	17,406	17,902	18,270	18,446	19,054	19,342	19,967	20,658	20,765	21,037	21,207	21,800	22,131	22,729	23,333
Bulgaria	5,597	5,198	4,884	4,936	5,078	5,285	4,844	4,628	4,870	5,032	5,354	5,629	5,942	6,299	6,781	7,270	7,797	8,349
Czech Republic	8,895	7,865	7,818	7,814	7,985	8,464	8,815	8,760	8,702	8,828	9,159	9,391	9,575	9,925	10,375	11,041	11,750	12,533
Denmark	18,452	18,644	18,949	18,870	19,847	20,350	20,810	21,388	21,771	22,255	22,966	23,049	23,075	23,080	23,526	24,020	24,874	25,228
Finland	16,866	15,727	15,058	14,849	15,316	15,859	16,394	17,345	18,200	18,867	19,772	20,248	20,530	20,849	21,584	22,159	23,199	24,224
France	18,093	18,168	18,309	18,046	18,361	18,665	18,788	19,121	19,699	20,253	20,937	21,207	21,303	21,416	21,818	22,098	22,442	22,789
Germany	16,306	16,596	16,837	16,591	16,973	17,244	17,365	17,652	18,008	18,358	18,921	19,134	19,118	19,066	19,261	19,411	19,969	20,471
Greece	10,015	10,204	10,201	9,982	10,136	10,321	10,543	10,902	11,250	11,616	12,111	12,628	13,093	13,724	14,323	14,843	15,437	16,022
Hungary	6,459	5,694	5,528	5,507	5,678	5,772	5,861	6,146	6,466	6,760	7,136	7,448	7,793	8,139	8,553	8,929	9,299	9,446
Ireland	11,818	11,969	12,275	12,533	13,191	14,389	15,474	17,084	18,258	19,927	21,554	22,605	23,818	24,595	25,377	26,596	27,799	29,133
Italy	16,313	16,562	16,663	16,461	16,770	17,216	17,376	17,667	17,892	18,137	18,770	19,069	19,129	19,102	19,375	19,467	19,815	20,099
Netherlands	17,262	17,549	17,721	17,825	18,225	18,700	19,251	19,976	20,635	21,461	22,158	22,430	22,301	22,237	22,602	22,939	23,593	24,293
Poland	5,113	4,738	4,842	5,011	5,265	5,623	5,970	6,388	6,704	7,008	7,309	7,399	7,509	7,804	8,226	8,529	9,067	9,662
Portugal	10,826	11,304	11,417	11,138	11,179	11,614	11,993	12,425	12,941	13,362	13,816	14,025	14,068	13,893	14,044	14,116	14,252	14,453
Romania	3,511	3,063	2,797	2,843	2,957	3,174	3,307	3,114	2,971	2,940	3,007	3,183	3,350	3,528	3,831	3,996	4,315	4,581
Slovakia	7,763	6,606	6,158	6,251	6,612	6,977	7,445	7,858	8,137	8,154	8,206	8,464	8,804	9,159	9,642	10,210	11,037	12,164
Slovenia	10,860	9,852	9,315	9,577	10,081	10,624	10,981	11,497	11,915	12,558	13,071	13,472	13,962	14,354	14,993	15,618	16,517	17,529
Spain	12,055	12,327	12,413	12,258	12,528	12,855	13,135	13,608	14,166	14,762	15,378	15,760	15,954	16,177	16,437	16,754	17,136	17,472
Sweden	17,609	17,284	16,980	16,545	17,077	17,663	17,892	18,321	19,009	19,867	20,709	20,889	21,359	21,728	22,585	23,290	24,202	24,821
United Kingdom	16,430	16,157	16,135	16,455	17,111	17,550	17,980	18,478	19,024	19,517	20,181	20,591	20,947	21,462	22,096	22,439	23,031	23,669
All others	10,037	9,406	7,851	7,250	7,203	7,535	7,852	8,471	8,991	9,216	9,809	10,397	11,037	11,771	12,608	13,645	14,868	16,037
Central Europe/Asia	6,428	5,981	5,234	4,826	4,275	4,177	4,179	4,335	4,306	4,374	4,713	4,845	5,126	5,476	5,921	6,330	6,813	7,331

Appendix table 6-6

Real GDP per capita, by region/country/economy: 1990–2007

(1990 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
Belarus	7,184	7,081	6,385	5,889	5,207	4,678	4,824	5,397	5,875	6,094	6,466	6,795	7,167	7,707	8,631	9,491	10,481	11,388
Bosnia and Herzegovina	3,737	3,284	2,475	1,842	1,977	2,139	3,390	4,633	5,105	5,392	5,575	5,708	5,932	6,080	6,310	6,431	6,757	7,067
Croatia	7,351	5,758	5,137	4,735	4,986	5,342	5,699	6,111	6,299	6,262	6,437	6,680	6,987	7,333	7,647	7,977	8,359	8,826
Georgia	7,616	6,013	3,353	2,420	2,223	2,329	2,633	2,940	3,051	3,160	3,244	3,422	3,623	4,038	4,291	4,719	5,179	5,843
Kazakhstan	7,458	6,595	6,231	5,689	5,055	4,729	4,808	4,957	4,938	5,126	5,648	6,402	7,018	7,655	8,370	9,156	10,104	10,926
Russian Federation	7,779	7,373	6,300	5,752	5,020	4,813	4,645	4,717	4,472	4,771	5,273	5,569	5,866	6,329	6,820	7,293	7,868	8,547
Serbia and Montenegro	5,160	4,438	3,126	2,140	2,168	2,263	2,367	2,535	2,604	2,165	2,272	2,380	2,487	2,551	2,765	2,936	3,102	3,327
Turkey	5,445	5,395	5,615	5,961	5,541	5,846	6,160	6,528	6,635	6,237	6,610	6,038	6,439	6,732	7,250	7,699	8,081	8,352
Ukraine	6,027	5,491	4,932	4,229	3,275	2,899	2,630	2,574	2,546	2,565	2,742	3,026	3,215	3,552	4,014	4,154	4,492	4,868
Uzbekistan	4,241	4,114	3,564	3,401	3,156	3,065	3,056	3,158	3,244	3,337	3,424	3,531	3,633	3,750	3,996	4,232	4,495	4,873
Yugoslavia	5,720	4,886	3,958	3,328	3,456	3,632	3,976	4,374	4,565	4,478	4,655	4,798	4,997	5,164	5,431	5,660	5,957	6,305
All others	4,227	3,765	2,826	2,519	2,118	2,045	2,045	2,040	2,121	2,223	2,362	2,578	2,762	3,007	3,283	3,792	4,390	5,028
Latin America	5,263	5,371	5,446	5,552	5,724	5,707	5,810	6,020	6,058	5,971	6,121	6,079	5,994	6,041	6,335	6,550	6,824	7,109
Argentina	6,436	7,017	7,586	7,918	8,274	7,941	8,284	8,852	9,088	8,684	8,520	8,067	7,131	7,693	8,299	8,960	9,612	10,325
Brazil	4,923	4,895	4,793	4,950	5,158	5,292	5,326	5,424	5,343	5,280	5,427	5,419	5,487	5,471	5,704	5,792	5,928	6,164
Chile	6,402	6,795	7,506	7,905	8,230	8,973	9,505	9,997	10,187	9,985	10,309	10,535	10,646	10,944	11,479	12,014	12,370	12,904
Colombia	4,840	4,857	4,966	5,145	5,305	5,474	5,482	5,567	5,499	5,177	5,238	5,264	5,307	5,465	5,632	5,865	6,171	6,509
Costa Rica	4,747	4,739	5,055	5,311	5,444	5,542	5,481	5,677	6,042	6,424	6,427	6,388	6,467	6,772	6,954	7,255	7,732	8,155
Cuba	2,948	2,609	2,289	1,937	1,940	1,979	2,125	2,174	2,169	2,294	2,423	2,483	2,511	2,575	2,681	2,987	3,350	3,758
Guatemala	3,631	3,663	3,777	3,861	3,911	4,003	4,025	4,109	4,229	4,313	4,396	4,419	4,501	4,529	4,587	4,652	4,771	4,925
Mexico	6,085	6,226	6,333	6,339	6,504	6,001	6,209	6,526	6,754	6,916	7,275	7,178	7,146	7,159	7,369	7,486	7,753	7,897
Peru	3,021	3,041	2,966	3,043	3,364	3,581	3,602	3,781	3,692	3,666	3,717	3,668	3,796	3,892	4,033	4,246	4,506	4,811
Puerto Rico	10,539	10,706	11,123	11,542	11,913	12,341	12,606	12,914	13,251	13,738	14,106	14,329	14,324	14,485	14,651	14,983	15,295	15,052
Venezuela	8,313	8,907	9,234	9,061	8,666	8,831	8,649	9,035	8,906	8,238	8,409	8,566	7,696	6,996	8,157	8,869	9,644	10,310
All others	3,605	3,651	3,698	3,716	3,834	3,857	3,959	4,063	4,178	4,151	4,156	4,074	3,953	4,089	4,325	4,494	4,743	4,893
Middle East	4,700	4,761	4,956	4,924	4,929	4,958	5,093	5,120	5,200	5,143	5,321	5,351	5,464	5,632	5,882	6,060	6,261	6,466
Iran	3,503	3,803	3,884	3,813	3,798	3,860	4,096	4,196	4,277	4,330	4,521	4,652	4,984	5,338	5,579	5,803	6,115	6,435
Iraq	2,458	947	1,196	1,161	1,070	945	1,032	962	1,075	1,132	1,221	1,294	1,346	1,023	1,516	1,431	1,427	1,459
Israel	12,968	13,066	13,498	13,516	13,969	14,556	14,893	14,917	15,148	15,198	16,137	15,717	15,326	15,376	15,867	16,397	16,940	17,520
Saudi Arabia	8,993	9,665	9,730	9,133	8,688	8,331	8,338	8,312	8,308	8,011	8,159	7,970	7,763	8,140	8,357	8,655	8,826	8,994
Syria	5,701	6,109	6,725	7,032	7,229	7,424	7,446	7,174	7,377	6,963	6,941	7,014	7,242	7,144	7,165	7,227	7,373	7,488
United Arab Emirates	13,070	12,557	12,150	11,186	11,245	11,269	11,229	11,471	10,883	10,645	11,357	10,977	10,727	11,443	11,986	12,401	12,995	13,954
Yemen	2,272	2,328	2,427	2,430	2,502	2,560	2,597	2,646	2,714	2,725	2,798	2,808	2,821	2,829	2,842	2,900	2,890	2,878
All others	5,184	5,076	5,450	5,930	6,057	6,098	6,014	6,128	6,139	5,998	6,114	6,215	6,252	6,515	6,892	7,253	7,536	7,809
Africa	1,464	1,440	1,385	1,371	1,376	1,373	1,422	1,438	1,461	1,478	1,494	1,527	1,576	1,617	1,675	1,721	1,788	1,856
Algeria	2,946	2,843	2,822	2,699	2,616	2,662	2,713	2,698	2,792	2,838	2,857	2,891	2,985	3,148	3,269	3,393	3,419	3,533
Angola	869	857	784	581	576	645	755	780	766	777	788	800	897	902	974	1,143	1,323	1,567
Democratic Republic of Congo	510	452	392	328	305	295	286	268	258	239	216	205	205	211	218	228	234	241
Egypt	2,522	2,511	2,465	2,483	2,533	2,590	2,658	2,755	2,898	3,010	3,107	3,153	3,191	3,230	3,301	3,386	3,554	3,741
Ethiopia	578	534	492	545	560	574	628	635	597	611	616	644	633	592	624	676	724	776

Appendix table 6-6

Real GDP per capita, by region/country/economy: 1990–2007

(1990 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
Kenya	1,117	1,096	1,045	1,012	1,013	1,030	1,046	1,023	1,033	1,034	1,016	1,037	1,013	1,013	1,031	1,061	1,095	1,140
Morocco	2,596	2,714	2,548	2,469	2,670	2,444	2,690	2,580	2,727	2,691	2,692	2,847	2,892	3,018	3,123	3,148	3,347	3,368
Mozambique	1,115	1,163	1,082	1,132	1,114	1,067	1,185	1,280	1,393	1,471	1,457	1,597	1,706	1,778	1,881	2,000	2,120	2,228
Nigeria	1,214	1,176	1,152	1,147	1,129	1,098	1,126	1,130	1,133	1,113	1,145	1,211	1,435	1,549	1,676	1,729	1,798	1,874
South Africa	3,842	3,723	3,572	3,541	3,592	3,654	3,761	3,811	3,778	3,818	3,929	3,991	4,093	4,176	4,336	4,509	4,708	4,905
Tanzania	551	546	533	521	509	510	522	529	534	538	549	568	595	621	655	689	720	757
Tunisia	3,337	3,402	3,599	3,612	3,662	3,690	3,896	4,052	4,192	4,395	4,549	4,727	4,758	4,969	5,216	5,369	5,609	5,906
Uganda	598	587	583	608	625	676	719	737	743	778	796	810	836	847	863	890	902	928
All others	939	946	894	900	892	896	922	947	957	973	965	968	965	984	1,004	1,014	1,045	1,078
All others	4,071	4,006	4,054	4,104	4,209	4,282	4,345	4,434	4,532	4,654	4,768	4,803	4,875	4,961	5,096	5,244	5,381	5,525
Australia	17,106	16,869	17,276	17,792	18,406	18,956	19,462	20,092	20,899	21,490	21,650	22,185	22,602	23,237	23,625	24,038	24,493	25,275
Bangladesh	640	649	671	691	708	731	753	779	805	829	862	890	911	939	978	1,014	1,059	1,105
Cambodia	880	914	936	929	981	1,021	1,052	1,089	1,121	1,238	1,318	1,394	1,465	1,562	1,695	1,887	2,055	2,227
Canada	18,872	18,262	18,147	18,309	18,942	19,238	19,331	19,962	20,612	21,563	22,488	22,687	23,155	23,407	23,941	24,484	24,951	25,410
Iceland	18,043	17,855	17,107	17,182	17,481	17,406	18,139	18,877	19,863	20,432	21,029	21,564	21,355	21,640	23,067	24,557	25,418	26,173
Myanmar	778	763	828	869	921	970	1,019	1,065	1,113	1,221	1,374	1,515	1,680	1,895	2,130	2,395	2,677	2,800
New Zealand	13,909	13,562	13,562	14,259	14,811	15,192	15,493	15,577	15,541	16,285	16,596	17,061	17,645	17,979	18,481	18,789	18,889	19,275
Norway	18,466	18,951	19,506	19,931	20,818	21,578	22,564	23,649	24,135	24,455	25,087	25,457	25,724	25,871	26,759	27,381	27,965	28,889
Pakistan	1,589	1,633	1,714	1,716	1,748	1,790	1,859	1,842	1,860	1,890	1,919	1,904	1,924	1,980	2,087	2,229	2,328	2,440
Sri Lanka	2,448	2,538	2,620	2,763	2,879	3,001	3,080	3,245	3,364	3,474	3,645	3,558	3,657	3,831	3,998	4,206	4,482	4,739
Switzerland	21,487	21,026	20,821	20,598	20,678	20,627	20,688	21,080	21,593	21,801	22,476	22,597	22,542	22,356	22,791	23,223	23,865	24,509

EU = European Union; GDP = gross domestic product; PPP = purchasing power parity

NOTES: For EU, "All others" includes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta. For Central Europe/Asia, "All others" includes Albania, Azerbaijan, Kyrgyz Republic, Macedonia, Moldova, Tajikistan, and Turkmenistan. For Latin America, "All others" includes Barbados, Bolivia, Dominican Republic, Ecuador, Jamaica, St. Lucia, Trinidad and Tobago, and Uruguay. For Middle East, "All others" includes Bahrain, Jordan, Kuwait, Oman, and Qatar. For Africa, "All others" includes Burkina Faso, Ghana, Madagascar, Malawi, Mali, Niger, Senegal, Sudan, Zambia, and Zimbabwe.

SOURCE: The Conference Board, Total Economy Database (January 2009), http://www.conference-board.org/economics, accessed 23 October 2009.

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Appendix table 6-7

Real GDP per employed person, by region/country/economy: 1990–2007

(1990 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
World	12,097	12,093	12,176	12,314	12,571	12,956	13,194	13,516	13,596	13,871	14,309	14,493	14,792	15,260	15,778	16,279	16,857	17,473
United States	47,907	48,211	49,506	50,105	50,948	51,455	52,600	53,732	55,127	56,660	57,909	58,301	59,391	60,391	61,919	62,655	63,207	63,783
Asia-9	5,415	5,591	5,783	6,045	6,363	6,795	7,116	7,347	7,154	7,430	7,746	7,852	8,042	8,364	8,709	9,126	9,587	10,037
India	3,531	3,498	3,600	3,717	3,888	4,111	4,374	4,496	4,727	4,958	5,061	5,226	5,295	5,607	5,879	6,276	6,714	7,124
Indonesia	5,945	6,427	6,707	7,131	7,404	8,205	8,270	8,688	7,353	7,315	7,926	8,142	8,415	8,707	9,056	9,547	9,944	10,312
Malaysia	13,434	14,279	15,099	15,920	16,913	18,473	18,497	19,457	17,960	18,549	20,118	20,032	20,701	21,173	22,360	23,398	24,197	25,091
Philippines	6,439	6,206	6,021	5,976	6,076	6,200	6,198	6,723	6,617	6,569	7,034	6,739	6,827	7,029	7,246	7,389	7,687	8,066
Singapore	28,191	28,098	29,047	31,908	34,016	38,890	36,133	37,268	35,745	38,393	42,940	38,721	41,131	42,854	46,082	48,821	47,771	48,274
South Korea	20,633	21,889	22,736	23,848	25,083	26,624	27,887	28,688	28,432	30,587	31,826	32,410	33,735	34,828	35,798	36,813	38,159	39,575
Taiwan	24,203	25,557	26,946	28,433	29,871	31,437	33,331	35,110	36,261	37,953	39,693	39,278	40,790	41,693	43,295	44,389	45,781	47,528
Thailand	8,537	9,501	9,744	10,755	11,736	12,549	13,221	12,814	12,007	12,312	12,638	12,585	12,871	13,472	13,961	14,374	14,926	15,393
Vietnam	2,346	2,424	2,567	2,713	2,888	3,094	3,310	3,503	3,628	3,722	3,803	3,970	4,144	4,328	4,553	4,832	5,133	5,456
China and Hong Kong	3,451	3,623	3,927	4,259	4,632	5,259	5,312	5,520	5,457	5,744	6,197	6,762	7,495	8,524	9,290	10,153	11,142	12,304
China	3,311	3,476	3,774	4,098	4,464	5,092	5,140	5,342	5,293	5,578	6,021	6,589	7,323	8,352	9,106	9,961	10,939	12,094
Hong Kong	36,815	38,346	40,831	42,370	43,823	44,212	43,664	44,566	42,417	43,641	45,644	45,306	46,570	48,270	51,079	53,714	56,305	58,517
Japan	37,144	37,666	37,636	37,647	38,043	38,765	39,651	39,838	39,279	39,539	40,771	41,063	41,704	42,387	43,461	44,113	44,986	45,704
EU	30,856	31,114	31,966	32,546	33,605	34,455	34,946	35,701	36,312	37,099	37,863	38,271	38,864	39,251	40,068	40,478	41,084	41,598
Austria	36,542	37,095	37,286	37,107	38,085	38,648	40,173	40,813	42,209	43,171	44,419	44,576	45,256	45,492	47,214	47,165	47,435	47,868
Belgium	44,588	45,253	46,005	45,860	47,539	47,968	48,378	49,833	49,904	50,940	51,827	51,496	52,349	52,842	54,048	54,289	55,143	55,730
Bulgaria	12,150	12,793	12,918	12,932	13,086	13,294	12,031	11,824	12,314	12,862	12,924	13,550	14,129	14,411	14,980	15,497	15,943	16,461
Czech Republic	17,698	16,221	15,920	15,961	16,139	16,974	17,498	17,337	17,474	18,337	19,041	19,418	19,676	20,666	21,518	22,651	23,712	24,835
Denmark	35,865	36,553	37,690	38,215	39,676	40,581	41,353	42,103	42,397	43,118	44,413	44,325	44,515	45,172	46,497	47,243	48,300	48,269
Finland	33,899	33,683	34,883	36,758	38,601	39,433	40,339	41,422	42,736	43,310	44,491	45,017	45,309	46,074	47,589	48,267	49,739	50,902
France	44,897	45,304	46,191	46,366	47,326	47,902	48,253	49,117	50,076	50,703	51,311	51,349	51,555	52,051	53,279	53,989	54,639	55,087
Germany	34,715	34,481	35,769	35,958	36,952	37,566	38,043	38,766	39,086	39,339	39,855	40,173	40,399	40,696	40,965	41,316	42,234	42,553
Greece	27,279	28,799	28,583	27,896	27,922	28,252	28,561	29,715	29,414	30,294	31,206	32,566	33,134	34,020	35,217	36,137	37,053	38,047
Hungary	13,988	13,149	14,066	15,072	16,031	16,422	16,722	17,451	17,985	18,115	18,820	19,536	20,380	20,964	22,120	23,034	23,768	24,120
Ireland	35,842	36,654	37,580	38,015	38,942	40,687	42,458	45,516	45,286	46,957	48,918	50,490	52,803	54,272	54,861	55,361	55,991	57,263
Italy	40,940	40,805	41,420	42,187	43,816	45,145	45,380	46,085	46,273	46,447	47,247	47,154	46,571	45,875	46,374	46,364	46,295	46,441
Netherlands	38,545	38,744	38,858	39,183	40,061	40,403	40,865	41,336	41,864	42,727	43,436	43,380	43,194	43,554	44,918	45,726	46,413	46,900
Poland	11,519	11,378	12,181	12,941	13,711	14,539	15,283	16,131	16,751	18,230	19,324	20,012	20,948	22,013	22,906	23,202	23,853	24,329
Portugal	23,187	23,545	24,198	24,199	24,691	25,799	26,292	26,692	27,226	27,888	28,389	28,447	28,496	28,426	28,885	29,245	29,488	30,037
Romania	5,852	5,122	4,818	5,083	5,308	5,995	6,305	6,154	5,998	6,202	6,182	6,588	7,839	8,252	9,101	9,628	10,102	10,580
Slovakia	15,498	14,378	15,247	15,545	16,806	17,754	18,598	19,868	20,698	21,306	21,884	22,457	23,370	24,082	25,436	26,609	28,160	30,437
Slovenia	22,485	21,668	21,441	21,777	22,775	23,179	24,494	26,192	27,195	28,261	29,038	29,807	30,428	31,420	32,710	33,992	35,513	36,687
Spain	35,994	36,637	37,734	39,026	40,230	40,345	40,192	40,304	40,521	40,186	40,098	40,027	40,007	39,659	39,417	38,688	38,604	38,883
Sweden	33,126	33,270	34,405	35,371	37,120	37,978	38,843	40,320	41,155	42,165	42,965	42,530	43,536	44,622	46,796	48,206	49,349	49,583
United Kingdom	35,069	35,625	36,511	37,868	39,266	40,026	40,765	41,368	42,382	43,163	44,219	44,868	45,541	46,360	47,550	48,106	49,259	50,433
All others	21,166	19,714	17,000	16,232	16,944	18,406	19,159	20,287	21,531	22,375	24,246	25,652	26,511	27,615	29,277	30,889	32,523	34,139
Central Europe/Asia	14,368	13,534	12,149	11,488	10,358	10,213	10,218	10,728	10,765	11,128	11,937	12,211	12,897	13,730	14,673	15,359	16,418	17,483

Appendix table 6-7

Real GDP per employed person, by region/country/economy: 1990–2007

(1990 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
Belarus	14,248	14,410	13,127	12,444	11,356	10,842	11,257	12,528	13,443	13,827	14,630	15,403	16,310	17,618	19,735	21,432	23,285	25,068
Bosnia and Herzegovnia	12,053	11,536	8,752	6,401	6,882	7,414	11,359	15,270	17,216	18,399	19,087	19,827	21,776	23,266	24,619	14,013	14,864	15,639
Croatia	21,140	18,107	17,995	14,683	15,652	16,949	16,529	17,103	18,069	18,527	18,330	20,243	20,518	21,486	22,029	22,800	23,690	24,510
Georgia	15,636	12,469	8,720	6,821	6,263	6,502	7,046	7,771	8,545	8,783	8,426	8,650	9,314	10,485	11,293	12,652	13,820	15,518
Kazakhstan	18,873	14,106	13,602	13,441	12,428	11,462	11,577	11,859	12,287	12,665	13,692	14,385	15,771	16,557	17,648	19,149	20,800	21,888
Russian Federation	15,281	14,807	12,972	12,048	10,881	10,761	10,445	10,795	10,359	10,991	11,991	12,512	12,987	13,843	14,738	15,589	16,640	17,850
Serbia and Montenegro	12,759	11,832	8,516	5,849	5,939	6,230	6,594	7,318	7,366	6,170	6,623	6,928	7,339	7,600	8,201	8,636	9,279	10,044
Turkey	16,320	15,847	16,651	18,899	16,556	17,258	17,950	19,291	19,375	18,243	19,657	18,231	19,832	21,182	22,407	23,788	24,925	25,518
Ukraine	12,104	11,184	10,274	9,020	7,222	6,157	5,542	5,457	5,527	6,330	6,661	7,350	7,690	8,398	9,357	9,433	10,101	10,781
Uzbekistan	11,015	10,543	9,354	9,153	8,552	8,405	8,436	8,753	9,014	9,320	9,587	9,851	10,048	10,210	10,639	11,065	11,566	12,349
Yugoslavia	15,322	14,075	11,800	9,683	10,083	10,598	11,453	12,779	13,292	13,173	13,733	14,262	15,037	15,752	16,582	15,392	16,247	17,129
All others	10,018	9,093	6,921	6,315	5,391	5,245	5,330	5,353	5,615	5,920	6,354	6,904	7,570	8,266	8,913	10,202	11,760	13,450
Latin America	13,463	13,665	13,931	14,278	14,716	14,847	15,280	15,804	15,801	15,486	15,548	15,453	15,186	15,180	15,518	15,831	16,204	16,649
Argentina	17,310	18,870	20,576	21,815	23,169	21,927	23,030	25,098	26,132	25,125	24,612	23,139	23,177	23,751	24,304	24,767	25,074	25,416
Brazil	10,474	10,501	10,406	10,849	11,336	11,656	12,204	12,543	12,410	12,278	12,109	12,178	12,040	11,969	12,047	12,034	12,182	12,563
Chile	18,988	19,810	21,570	22,644	23,512	25,690	27,002	28,300	28,698	27,956	28,758	28,399	28,499	28,764	29,882	30,501	29,208	28,329
Colombia	14,356	13,560	14,144	14,133	13,976	15,461	15,200	15,995	15,904	14,832	14,781	14,468	14,870	14,659	15,067	15,326	16,933	18,744
Costa Rica	14,018	13,979	14,701	15,145	15,231	15,351	15,022	15,099	15,642	16,348	15,612	15,518	15,586	16,082	16,634	16,513	17,342	18,018
Cuba	8,076	7,074	6,145	5,149	5,115	5,165	5,516	5,633	5,579	5,834	6,162	6,168	6,189	6,304	6,538	7,185	8,028	8,971
Guatemala	11,689	11,774	11,918	12,023	11,915	12,215	12,386	12,545	12,624	12,736	12,820	12,697	12,671	12,612	13,169	13,176	13,359	13,630
Mexico	17,605	17,748	17,969	18,042	18,321	17,530	17,689	17,992	17,937	17,975	18,743	18,691	18,408	18,512	18,641	19,047	19,292	19,550
Peru	8,036	7,959	7,911	8,672	10,435	11,428	11,496	11,667	11,278	11,078	11,597	11,696	12,181	12,643	13,018	13,346	13,348	13,430
Puerto Rico	38,390	38,954	40,402	41,563	42,332	42,321	42,262	42,850	44,105	45,715	46,322	48,510	47,252	46,769	46,549	46,888	47,945	48,115
Venezuela	26,050	27,694	28,465	27,720	26,115	26,291	25,408	26,440	25,794	23,518	23,653	23,841	21,851	20,002	23,475	26,472	28,234	29,613
All others	10,538	10,697	10,697	10,808	11,215	11,237	11,551	11,646	11,734	11,598	11,556	11,445	11,060	11,231	11,637	11,917	12,062	11,868
Middle East	16,525	16,621	17,142	16,771	16,482	16,334	16,528	16,256	16,150	15,627	15,864	15,568	15,474	15,539	15,866	15,987	16,167	16,481
Iran	12,795	14,164	14,499	14,003	13,638	13,618	14,128	13,909	13,558	13,119	13,096	12,897	13,194	13,467	13,532	13,571	13,769	13,970
Iraq	9,430	3,361	4,158	3,979	3,633	3,179	3,443	3,188	3,532	3,706	3,978	4,193	4,339	3,281	4,832	4,533	4,488	4,557
Israel	35,485	34,677	35,456	35,058	35,869	37,465	38,320	38,376	38,846	38,545	40,524	39,356	38,422	38,336	39,621	40,888	42,224	42,656
Saudi Arabia	28,348	30,618	31,402	30,301	29,496	28,572	28,664	28,434	28,297	27,375	27,760	26,868	25,867	26,861	27,350	27,961	28,247	30,252
Syria	19,562	20,600	22,167	22,614	22,670	22,714	22,244	20,938	21,036	19,389	19,204	18,794	19,001	18,296	17,843	17,611	17,604	17,509
United Arab Emirates	31,740	30,396	29,307	26,830	25,037	24,310	24,479	24,634	23,437	21,297	22,491	20,589	18,733	19,541	20,347	20,629	20,821	22,357
Yemen	9,407	9,369	9,569	9,331	9,391	9,451	9,459	9,565	9,752	9,791	10,025	10,000	9,960	9,898	9,878	10,016	9,909	9,795
All others	15,931	15,258	15,491	16,030	15,702	15,282	14,866	15,047	15,165	15,091	15,733	16,135	15,975	16,400	16,953	17,362	17,888	18,406
Africa	3,747	3,687	3,529	3,503	3,491	3,481	3,588	3,611	3,659	3,678	3,716	3,789	3,904	3,994	4,112	4,209	4,355	4,502
Algeria	10,225	9,688	9,421	8,828	8,375	8,327	8,292	8,016	8,091	7,996	7,831	7,735	7,785	8,023	8,117	8,228	8,115	8,209
Angola	1,584	1,546	1,430	1,028	1,027	1,120	1,309	1,346	1,318	1,332	1,332	1,332	1,493	1,499	1,607	1,879	2,163	2,543
Democratic Republic of Congo	1,315	1,159	997	829	766	770	743	675	647	607	554	528	530	542	563	588	602	621
Egypt	8,684	9,143	9,046	9,104	9,061	9,433	9,734	10,167	10,784	10,732	11,079	11,309	11,310	11,293	11,459	11,658	12,144	12,680
Ethiopia	1,239	1,136	1,039	1,218	1,248	1,283	1,410	1,425	1,333	1,362	1,372	1,439	1,416	1,323	1,404	1,522	1,632	1,751

Appendix table 6-7

Real GDP per employed person, by region/country/economy: 1990–2007

(1990 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
Kenya	2,651	2,585	2,450	2,358	2,326	2,341	2,355	2,286	2,291	2,278	2,221	2,258	2,197	2,192	2,221	2,285	2,362	2,461
Morocco	8,438	8,721	8,158	7,842	8,370	7,617	8,244	7,816	8,133	7,919	8,070	8,691	8,844	9,010	9,273	9,301	9,833	9,837
Mozambique	2,215	2,301	2,083	2,165	2,202	2,162	2,400	2,596	2,848	3,022	2,999	3,314	3,546	3,706	3,928	4,182	4,443	4,679
Nigeria	3,172	3,065	2,992	2,978	2,907	2,806	2,863	2,860	2,863	2,791	2,871	3,007	3,572	3,878	4,137	4,246	4,393	4,550
South Africa	10,264	9,875	9,357	9,222	9,283	9,353	9,517	9,516	9,317	9,293	9,450	9,520	9,787	9,972	10,357	10,773	11,260	11,741
Tanzania	1,119	1,101	1,067	1,041	1,020	1,024	1,040	1,049	1,063	1,074	1,103	1,143	1,197	1,253	1,313	1,377	1,434	1,501
Tunisia	11,269	11,372	11,865	11,761	11,754	11,672	12,146	12,445	12,630	12,942	13,139	13,359	13,162	13,535	13,947	14,104	14,490	15,001
Uganda	1,281	1,259	1,252	1,314	1,358	1,473	1,571	1,615	1,636	1,728	1,777	1,811	1,871	1,901	1,943	2,010	2,045	2,109
All others	2,344	2,369	2,238	2,256	2,222	2,227	2,280	2,347	2,373	2,415	2,397	2,403	2,391	2,439	2,467	2,483	2,549	2,617
All others	12,256	12,342	12,475	12,599	12,902	13,068	13,326	13,439	13,484	13,727	14,138	14,131	14,151	14,220	14,362	14,691	14,730	15,042
Australia	36,734	37,621	39,214	40,619	41,167	41,249	42,336	43,768	45,039	46,081	45,811	47,010	47,554	48,377	48,743	48,638	49,194	49,957
Bangladesh	2,166	2,190	2,251	2,315	2,373	2,448	2,524	2,595	2,663	2,729	2,827	2,903	2,958	3,044	3,192	3,308	3,446	3,587
Cambodia	2,296	2,394	2,483	2,503	2,732	2,327	2,713	2,883	2,731	2,734	3,101	2,821	2,945	2,944	3,011	3,341	3,613	3,881
Canada	39,837	39,697	40,447	41,197	42,308	42,736	43,041	43,942	44,643	45,939	47,186	47,457	47,684	47,460	48,077	48,860	49,249	49,445
Iceland	33,571	33,496	32,365	32,863	33,776	32,792	34,352	36,040	36,793	36,943	37,796	38,615	39,244	40,136	43,424	45,179	44,872	44,575
Myanmar	1,959	1,913	2,040	2,118	2,222	2,328	2,427	2,509	2,572	2,751	3,006	3,210	3,437	3,752	4,083	4,450	4,828	4,901
New Zealand	30,059	30,149	30,374	31,694	32,013	31,919	31,991	32,373	32,709	33,925	34,168	34,586	35,324	35,756	35,988	35,964	35,763	36,213
Norway	38,044	39,630	41,106	41,943	43,467	44,368	45,704	46,805	46,820	47,334	48,579	49,375	49,924	50,953	52,694	53,470	52,997	52,824
Pakistan	5,938	6,509	6,731	6,682	6,805	7,123	7,414	7,105	6,999	7,129	7,524	7,533	7,484	7,682	7,834	8,378	8,149	8,589
Sri Lanka	8,339	8,797	9,281	9,466	9,850	10,247	10,288	10,810	10,492	10,881	11,116	11,098	11,037	10,869	10,871	11,359	12,940	13,942
Switzerland	36,721	35,701	36,275	36,515	37,193	37,310	37,542	38,300	38,774	38,969	39,947	39,762	39,762	39,750	40,644	41,454	41,840	42,187

EU = European Union; GDP = gross domestic product; PPP = purchasing power parity

NOTES: For EU, "All others" includes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta. For Central Europe/Asia, "All others" includes Albania, Azerbaijan, Kyrgyz Republic, Macedonia, Moldova, Tajikistan, and Turkmenistan. For Latin America, "All others" includes Barbados, Bolivia, Dominican Republic, Ecuador, Jamaica, St. Lucia, Trinidad and Tobago, and Uruguay. For Middle East, "All others" includes Bahrain, Jordan, Kuwait, Oman, and Qatar. For Africa, "All others" includes Burkina Faso, Ghana, Madagascar, Malawi, Mali, Niger, Senegal, Sudan, Zambia, and Zimbabwe.

SOURCE: The Conference Board, Total Economy Database (January 2009), http://www.conference-board.org/economics, accessed 23 October 2009.

Science and Engineering Indicators 2010

Appendix table 6-8

Value added of education services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	488,162	579,496	659,291	725,547	763,175	846,531	912,076	999,315	1,031,367	1,097,537	1,198,817	1,228,601
United States	212,125	225,643	236,075	248,890	265,709	280,867	302,893	319,850	334,063	349,281	363,114	377,296
Asia-9	14,130	15,793	19,512	21,358	22,884	26,641	27,902	33,616	36,576	42,303	46,749	52,098
India	5,076	5,672	6,143	6,523	6,490	7,833	6,549	6,452	5,912	6,619	7,682	8,363
Indonesia	2,246	2,109	1,877	2,267	2,418	2,675	2,870	3,132	3,500	3,915	4,302	4,804
Malaysia	508	367	496	498	611	671	721	853	923	1,010	1,203	1,308
Philippines	350	349	373	430	481	504	532	667	778	985	1,183	1,406
Singapore	192	221	273	324	405	911	1,072	1,240	1,391	1,722	1,990	2,262
South Korea	4,139	4,682	5,759	7,461	9,932	11,252	12,932	14,526	16,213	19,052	23,396	25,968
Taiwan	430	502	723	922	1,154	1,295	1,595	2,015	2,252	2,622	3,119	3,656
Thailand	1,072	1,201	1,268	1,381	1,071	1,149	1,274	4,225	4,860	5,467	3,123	3,436
Vietnam	118	690	2,600	1,552	322	352	357	506	747	911	751	896
China and Hong Kong	9,572	9,945	10,049	12,106	15,871	15,042	16,139	18,551	22,523	22,894	26,504	31,012
China	8,335	8,585	8,521	10,340	11,819	10,432	10,828	12,585	15,612	14,373	17,062	20,650
Hong Kong	1,237	1,360	1,528	1,766	4,052	4,609	5,311	5,966	6,912	8,521	9,442	10,362
EU	132,261	179,234	220,225	243,212	249,328	307,534	327,055	368,001	344,398	360,629	412,558	422,125
Austria	3,772	5,441	6,865	7,222	6,969	8,533	8,853	9,918	9,863	10,311	12,046	11,628
Belgium	5,851	7,993	9,455	9,629	9,705	12,068	12,589	14,143	13,866	14,844	17,378	16,804
Bulgaria	1,033	1,213	1,746	1,366	1,250	769	617	826	1,132	854	512	220
Czech Republic	2,422	2,900	3,081	2,894	3,187	1,672	919	860	1,276	1,589	2,026	2,359
Denmark	2,840	3,868	5,062	5,535	5,305	6,309	6,530	7,205	6,972	7,518	8,705	8,891
Finland	2,305	3,113	3,947	4,603	4,949	6,083	6,155	5,593	4,349	5,017	6,073	6,021
France	24,952	34,683	42,028	43,965	43,878	55,065	57,308	65,824	64,755	67,816	79,470	78,822
Germany	23,183	33,089	42,406	47,586	48,635	62,177	66,352	78,363	78,490	82,498	98,806	97,273
Greece	2,040	2,298	2,771	3,210	3,444	4,318	4,315	4,713	4,516	4,852	5,862	5,957
Hungary	902	1,075	1,171	1,247	1,301	1,500	1,481	1,785	1,891	2,096	2,028	1,836
Ireland	636	1,268	1,457	1,597	1,653	2,112	2,187	2,631	2,578	2,767	3,187	3,377
Italy	20,304	29,387	37,053	41,528	43,028	55,997	58,702	62,686	49,763	49,400	50,207	58,810
Netherlands	6,471	8,913	10,994	11,202	10,466	12,774	12,913	14,604	14,238	14,932	17,460	16,810
Poland	3,562	3,711	3,205	3,447	4,122	2,955	4,074	4,621	3,744	4,107	5,490	6,386
Portugal	901	1,312	1,652	1,916	2,245	2,953	3,925	5,034	4,550	4,940	6,138	6,523
Romania	840	844	929	941	1,185	985	793	509	635	751	891	888
Slovakia	363	441	503	504	525	799	456	506	559	523	611	641
Spain	6,843	9,246	11,732	13,834	15,487	20,429	22,661	26,830	23,338	23,520	27,235	28,473
Sweden	2,707	3,570	4,275	4,740	5,085	6,292	6,570	7,013	9,534	9,943	11,412	12,683
United Kingdom	20,334	24,869	29,893	36,248	36,906	43,742	49,655	54,336	48,349	52,351	57,023	57,722
Japan	47,715	71,293	84,940	100,032	98,422	96,473	109,246	123,001	146,908	164,390	184,692	165,019

Appendix table 6-8

Value added of education services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	1,224,062	1,238,270	1,290,601	1,311,062	1,339,632	1,420,798	1,595,635	1,746,308	1,859,394	1,969,787	2,185,891
United States	394,053	418,600	442,300	471,600	500,600	533,800	568,400	597,100	625,800	659,600	698,300
Asia-9	52,901	41,602	48,748	51,860	51,884	58,043	65,841	73,060	84,755	96,976	112,488
India	9,460	10,116	10,708	11,313	11,597	12,355	14,351	16,579	19,555	21,827	27,787
Indonesia	5,496	2,633	3,827	2,687	2,599	2,914	3,341	3,749	4,245	5,598	6,744
Malaysia	1,293	960	1,054	1,351	1,453	1,107	1,157	601	630	720	890
Philippines	1,521	1,401	1,835	1,941	1,991	1,825	2,001	2,164	2,387	2,772	3,788
Singapore	2,366	2,110	2,105	2,316	2,424	1,742	1,824	2,006	2,087	2,323	2,642
South Korea	24,107	16,600	20,357	22,724	22,343	25,908	30,016	34,215	40,585	46,747	51,036
Taiwan	4,041	3,892	4,561	5,251	5,318	5,437	5,665	6,048	6,515	6,718	7,218
Thailand	3,652	2,896	3,296	3,231	3,058	5,572	6,093	6,187	6,985	8,351	10,151
Vietnam	965	995	1,004	1,048	1,103	1,183	1,392	1,511	1,766	1,921	2,231
China and Hong Kong	35,975	39,888	44,410	48,951	55,039	60,074	64,484	70,892	81,519	90,491	103,125
China	24,047	27,916	32,114	36,601	42,386	47,312	52,283	59,112	69,027	77,498	90,001
Hong Kong	11,928	11,972	12,296	12,350	12,653	12,762	12,202	11,780	12,492	12,993	13,124
EU	397,059	409,808	413,151	379,444	387,419	430,485	527,479	599,987	628,295	656,713	751,509
Austria	10,288	10,449	10,511	9,378	9,307	10,045	12,416	13,825	14,424	15,288	17,247
Belgium	14,932	15,235	14,938	13,194	13,552	14,968	18,626	20,965	21,990	23,100	26,225
Bulgaria	233	381	386	469	491	546	690	849	881	938	1,263
Czech Republic	2,053	2,094	2,158	2,039	2,247	2,783	3,530	4,057	4,805	5,400	6,456
Denmark	7,982	8,337	8,381	7,590	7,690	8,496	10,513	12,040	12,285	12,750	14,277
Finland	5,457	5,606	5,531	4,977	5,099	5,632	7,043	8,081	8,450	8,781	9,965
France	72,030	74,495	74,457	66,452	67,410	74,047	91,546	101,159	104,662	109,202	123,648
Germany	86,758	87,873	86,750	76,820	76,475	83,627	100,011	113,582	115,250	114,904	127,127
Greece	6,441	6,419	6,383	5,765	5,744	7,141	10,020	11,699	12,359	13,275	15,937
Hungary	1,896	1,948	2,045	1,943	2,245	3,024	4,212	4,830	5,348	5,340	6,007
Ireland	3,347	3,232	3,177	3,032	3,392	4,170	5,650	6,645	7,467	8,623	10,198
Italy	55,266	55,134	54,401	48,133	49,279	54,556	68,729	73,802	77,260	80,599	93,177
Netherlands	15,076	15,685	16,153	14,938	15,705	17,866	22,654	25,713	26,459	27,393	31,288
Poland	6,225	6,796	6,650	6,721	7,911	8,295	9,372	11,455	13,690	14,795	19,006
Portugal	6,290	6,622	6,873	6,452	6,746	7,741	9,459	10,946	11,509	11,775	13,291
Romania	719	1,131	1,081	1,089	1,085	1,290	1,826	2,496	3,338	4,143	5,516
Slovakia	635	698	651	660	700	789	1,068	1,267	1,471	1,537	1,875
Spain	25,689	26,882	27,742	25,727	27,209	30,557	38,887	45,552	48,368	52,110	61,054
Sweden	11,703	11,742	12,193	11,219	10,654	12,063	15,735	17,759	17,982	19,001	21,710
United Kingdom	64,041	69,049	72,689	72,845	74,477	82,849	95,491	113,268	120,296	127,756	146,242
Japan	150,039	139,391	158,688	165,094	147,395	144,913	153,744	164,283	159,942	143,197	139,146

Appendix table 6-8

Value added of education services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	10,180	12,291	16,392	19,055	17,619	11,385	6,829	8,766	9,410	10,486	12,259	15,165
Cameroon	168	223	227	217	198	348	315	304	409	298	315	165
Egypt	6,498	8,102	11,407	13,931	12,697	5,697	938	2,508	3,166	3,977	4,603	7,173
Kenya	442	546	619	652	644	650	620	489	348	324	632	819
Morocco	647	831	966	1,061	1,066	1,186	1,222	1,345	1,307	1,447	1,605	1,705
Nigeria	369	195	88	95	65	65	63	97	115	150	205	237
Senegal	40	49	57	59	57	74	72	76	82	61	82	89
South Africa	1,443	1,656	2,169	2,235	2,091	2,454	2,710	3,057	3,132	3,342	3,805	3,726
Tunisia	267	311	324	361	345	393	412	509	486	525	614	651
Zimbabwe	306	378	534	444	456	518	477	382	365	363	398	599
Central Europe/Asia	2,404	2,508	2,617	2,797	3,472	4,491	3,442	6,041	10,715	13,938	15,104	20,083
Russia	1,423	1,462	1,425	1,540	1,635	1,671	566	1,998	6,095	9,899	10,026	13,766
Turkey	753	822	968	1,032	1,604	2,560	2,726	2,912	3,295	2,243	2,764	3,042
Ukraine	227	224	224	225	233	260	150	1,132	1,325	1,795	2,314	3,275
Latin America	21,798	22,261	23,924	27,116	32,324	42,208	51,708	52,081	57,526	64,898	64,542	68,588
Argentina	3,415	4,334	4,380	4,694	2,716	6,611	10,343	13,103	10,028	10,821	11,203	11,254
Bolivia	121	117	131	93	97	96	102	112	120	125	138	150
Brazil	7,236	8,620	9,277	10,976	16,035	20,675	22,568	15,689	18,416	20,767	25,794	28,172
Chile	1,019	1,055	1,153	1,269	1,448	1,646	1,874	2,418	2,748	3,264	4,151	3,113
Colombia	1,844	1,720	1,793	1,905	1,955	2,192	2,426	2,090	2,519	3,157	3,973	5,176
Costa Rica	68	84	108	110	134	158	279	336	403	469	523	552
Ecuador	1,182	749	682	567	416	389	393	396	558	700	845	975
Honduras	130	146	163	177	198	114	100	114	120	110	129	130
Jamaica	62	78	91	112	111	112	90	109	153	141	111	154
Mexico	5,961	4,289	4,697	6,221	7,857	9,084	11,643	15,507	20,392	22,876	14,735	15,858
Panama	39	40	40	34	36	39	42	46	47	51	56	75
Peru	398	644	1,016	516	920	646	1,300	1,523	1,226	1,524	1,824	1,890
Uruguay	175	225	272	283	301	338	418	474	619	718	799	873
Venezuela	146	160	121	158	100	109	130	165	177	175	262	216
Middle East	6,193	6,411	6,958	5,935	7,789	7,450	8,330	9,294	11,039	9,832	11,747	12,266
Iran	238	231	262	285	260	242	252	121	142	529	596	591
Israel	845	1,250	1,846	2,224	2,295	2,639	2,698	3,042	4,452	4,907	6,500	7,380
Jordan	53	64	68	66	45	42	48	54	61	76	93	107
Kuwait	304	327	369	385	384	319	345	461	447	473	492	515
Saudi Arabia	4,752	4,540	4,413	2,976	4,806	4,208	4,987	5,615	5,938	3,848	4,066	3,673
Other	31,785	34,118	38,599	45,047	49,756	54,439	58,533	60,112	58,208	58,887	61,550	64,950
Australia	8,109	8,545	9,594	11,550	13,072	13,779	14,458	14,784	14,424	15,785	16,453	18,710
Bangladesh	220	262	318	352	409	416	525	588	650	702	763	791
Canada	17,879	18,557	20,652	23,982	26,972	29,864	33,019	33,383	32,170	30,754	30,755	31,330
New Zealand	858	1,128	1,429	1,730	1,674	1,687	1,683	1,631	1,709	1,951	2,332	2,583
Norway	2,502	3,227	3,980	4,437	4,467	5,186	5,272	5,832	5,240	5,480	6,384	6,675

Appendix table 6-8

Value added of education services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	15,735	16,019	15,588	15,801	15,092	13,993	15,607	16,820	19,835	21,635	25,806
Cameroon	152	160	180	171	169	203	282	349	358	391	486
Egypt	7,538	7,877	7,939	7,935	7,854	7,483	6,271	6,518	7,502	7,647	9,438
Kenya	976	1,117	1,025	992	1,064	1,262	1,526	1,261	1,376	1,545	2,148
Morocco	1,601	1,601	1,689	1,647	1,630	1,761	2,142	2,073	3,291	4,358	4,900
Nigeria	157	423	126	196	152	147	150	173	198	303	347
Senegal	91	97	99	91	171	197	243	152	287	319	386
South Africa	3,909	3,584	3,559	3,525	3,074	1,938	3,937	5,036	5,562	5,750	6,247
Tunisia	630	658	678	646	597	659	782	937	981	1,045	1,183
Zimbabwe	682	501	293	598	381	344	275	322	280	277	671
Central Europe/Asia	21,882	16,468	11,129	11,817	12,298	14,444	18,546	21,672	27,636	41,757	55,493
Russia	15,336	9,821	5,063	6,374	8,444	8,942	10,382	14,100	17,439	22,344	30,289
Turkey	3,200	3,956	4,222	3,814	2,197	3,477	5,593	4,523	6,126	14,202	18,030
Ukraine	3,346	2,691	1,844	1,629	1,657	2,025	2,571	3,050	4,071	5,210	7,174
Latin America	79,048	80,867	79,218	88,583	91,240	81,142	83,055	89,298	106,256	123,674	144,159
Argentina	11,716	12,182	12,948	13,603	13,532	4,239	4,763	5,428	7,132	9,526	10,906
Bolivia	167	187	193	194	182	177	179	189	195	215	242
Brazil	28,232	26,768	20,425	22,997	18,399	17,130	18,841	19,662	25,953	32,049	40,210
Chile	3,434	3,541	3,633	3,818	3,560	3,587	3,695	4,460	5,145	5,843	6,487
Colombia	6,398	5,923	5,619	5,100	5,092	4,979	4,719	5,583	6,785	7,237	9,564
Costa Rica	599	677	760	834	908	979	1,016	1,029	1,095	1,191	1,362
Ecuador	1,160	1,145	778	536	1,025	1,375	1,843	2,295	2,660	3,024	3,221
Honduras	146	173	184	225	263	291	307	339	367	419	503
Jamaica	194	220	218	231	235	251	237	245	256	277	306
Mexico	19,505	21,494	25,277	30,365	36,031	39,015	39,229	41,086	45,856	48,083	52,209
Panama	77	84	91	95	104	109	107	123	604	639	711
Peru	1,865	1,832	1,686	1,747	1,814	1,901	2,081	2,262	2,514	2,743	3,161
Uruguay	908	943	932	903	851	536	433	483	625	712	845
Venezuela	4,647	5,698	6,473	7,936	9,243	6,573	5,603	6,115	7,069	11,715	14,432
Middle East	13,625	14,813	14,318	14,881	16,067	15,803	16,422	17,931	19,498	20,904	24,241
Iran	667	1,841	1,250	1,150	1,660	1,761	1,562	1,757	2,146	2,336	3,110
Israel	7,785	7,694	7,683	8,205	8,685	8,123	8,164	8,817	9,003	9,644	11,236
Jordan	131	148	165	182	193	218	220	238	295	309	345
Kuwait	1,001	1,104	1,144	1,163	1,188	1,275	1,351	1,473	1,710	3,158	3,201
Saudi Arabia	4,041	4,025	4,077	4,181	4,341	4,426	5,124	5,645	6,344	5,456	6,350
Other	63,744	60,813	63,048	63,031	62,597	68,101	82,057	95,264	105,858	114,840	131,625
Australia	18,727	16,971	17,959	17,246	16,172	18,262	22,995	28,230	31,349	33,157	38,890
Bangladesh	822	882	961	1,033	1,049	1,097	1,215	1,323	1,366	1,441	1,660
Canada	30,560	29,319	30,221	31,501	31,633	32,855	38,590	43,597	49,216	55,181	62,202
New Zealand	2,588	2,249	2,372	2,126	2,021	2,393	3,267	4,037	4,315	4,217	5,049
Norway	6,411	6,608	6,794	6,396	6,847	8,090	9,888	10,780	11,863	12,439	14,423

Appendix table 6-8

Value added of education services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	859	910	982	1,102	1,088	1,236	1,316	1,450	1,541	1,695	1,929	2,018
Sri Lanka	36	39	43	51	50	59	72	78	90	103	122	132
Switzerland	779	945	1,110	1,275	1,439	1,604	1,604	1,844	1,808	1,791	2,157	2,011
All others	542	505	492	567	584	609	583	522	577	627	654	700
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	2,023	2,080	2,051	2,150	2,188	2,419	2,765	3,742	4,430	4,893	4,993	
Sri Lanka	145	143	141	131	125	150	179	193	241	205	284	
Switzerland	1,725	1,755	1,680	1,506	1,543	1,667	1,843	1,902	1,871	1,889	2,110	
All others	742	807	870	943	1,019	1,168	1,315	1,460	1,207	1,419	2,015	

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

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Appendix table 6-9

Value added of health services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	484,328	581,652	687,694	762,915	824,261	957,141	1,043,583	1,155,627	1,194,522	1,274,681	1,405,972	1,445,584
United States	203,400	222,400	253,705	274,361	309,395	346,676	380,654	416,076	437,899	457,949	477,352	493,682
Asia-9	14,197	15,375	17,665	19,535	20,320	24,171	24,729	30,533	32,545	36,798	38,482	42,435
India	6,509	7,274	7,878	8,365	8,322	10,045	8,398	8,273	7,582	8,488	9,851	10,725
Indonesia	2,880	2,704	2,407	2,907	3,101	3,430	3,681	4,016	4,488	5,020	5,517	6,160
Malaysia	651	470	636	638	784	861	924	1,094	1,184	1,296	1,543	1,677
Philippines	226	220	277	327	392	429	480	625	690	791	918	1,013
Singapore	246	283	350	415	520	1,168	1,375	1,590	1,784	2,208	2,552	2,901
South Korea	1,718	1,927	2,297	3,103	3,924	4,468	5,197	5,750	6,414	7,328	8,934	9,995
Taiwan	540	653	1,053	1,326	1,762	2,143	2,882	3,545	3,842	4,257	4,832	5,195
Thailand	1,375	1,540	1,626	1,771	1,373	1,473	1,634	5,418	6,232	7,011	4,005	4,406
Vietnam	52	303	1,142	682	141	154	157	222	328	400	330	363
China and Hong Kong	10,855	10,781	10,177	9,845	14,268	13,375	15,106	17,474	20,747	21,254	23,980	27,213
China	9,269	9,038	8,218	7,580	9,072	7,464	8,295	9,823	11,884	10,328	11,872	13,924
Hong Kong	1,587	1,744	1,960	2,265	5,196	5,911	6,811	7,651	8,863	10,927	12,108	13,288
EU	148,262	201,941	252,411	283,030	290,249	365,056	387,273	437,731	419,937	447,309	519,584	537,870
Austria	3,051	4,426	5,656	6,077	5,903	7,346	7,803	9,119	9,339	10,181	12,493	12,246
Belgium	4,247	5,910	7,696	8,271	8,337	10,345	11,024	11,831	12,160	13,369	15,699	15,422
Bulgaria	610	716	1,030	806	738	454	364	471	852	748	308	164
Czech Republic	1,887	2,260	2,401	2,255	2,484	1,303	654	736	1,107	1,379	1,757	1,932
Denmark	5,025	6,804	8,966	9,832	9,411	11,651	11,709	12,961	12,635	13,376	15,823	16,146
Finland	3,673	4,916	6,202	7,077	7,759	9,958	10,373	9,424	7,015	8,010	9,792	9,874
France	32,791	46,391	56,225	61,599	61,916	79,195	79,649	90,916	89,964	94,889	110,924	112,351
Germany	30,574	43,639	55,926	62,758	64,141	82,001	87,506	106,693	106,349	117,196	142,941	144,116
Greece	1,526	1,719	2,073	2,400	2,576	3,229	3,227	3,525	3,377	3,628	4,384	4,488
Hungary	771	918	1,000	1,065	1,112	1,281	1,265	1,529	1,593	1,743	1,714	1,690
Ireland	659	1,313	1,509	1,654	1,713	2,187	2,362	2,700	2,728	2,922	3,656	4,172
Italy	16,214	22,588	30,384	34,582	35,864	47,701	52,883	56,563	46,478	47,064	48,838	55,659
Netherlands	8,667	12,320	15,692	16,378	15,750	19,638	20,635	23,290	23,146	24,225	28,345	27,689
Poland	2,692	2,804	2,422	2,604	3,115	2,233	3,046	3,530	3,147	2,986	3,992	4,528
Portugal	813	1,143	1,465	1,714	1,833	2,546	3,064	4,021	3,762	3,993	4,820	5,121
Romania	657	661	727	737	928	771	646	406	468	562	627	674
Slovakia	180	219	250	250	260	397	226	251	277	435	601	623
Spain	6,244	8,497	11,111	13,248	15,306	20,413	23,066	27,829	23,416	23,570	27,577	28,993
Sweden	4,991	6,583	7,882	8,740	9,377	11,602	12,114	12,931	17,445	18,226	20,810	23,603
United Kingdom	22,990	28,117	33,797	40,982	41,726	50,804	55,656	59,006	54,680	58,806	64,483	68,378
Japan	34,927	52,886	64,919	77,294	78,515	79,030	91,948	103,943	128,476	146,545	169,109	157,545

Appendix table 6-9

Value added of health services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	1,428,851	1,445,145	1,503,569	1,544,387	1,612,945	1,739,446	1,992,004	2,209,925	2,354,608	2,472,869	2,750,930
United States	510,849	533,904	561,713	599,197	654,233	706,300	757,169	807,972	856,145	904,753	957,440
Asia-9	45,578	38,317	44,813	46,685	48,749	51,696	57,592	64,335	75,794	87,692	106,823
India	12,131	12,972	13,732	14,507	14,872	15,844	18,403	21,260	25,076	27,990	35,633
Indonesia	7,048	3,376	4,907	3,446	3,332	3,737	4,285	4,808	5,444	7,179	8,648
Malaysia	1,658	1,231	1,351	1,733	1,863	1,420	1,483	662	727	839	1,025
Philippines	1,018	889	1,104	1,144	1,158	3,705	4,024	5,098	6,153	7,513	10,267
Singapore	3,034	2,705	2,699	2,971	3,108	2,233	2,339	2,572	2,677	2,978	3,388
South Korea	9,937	7,339	9,788	11,121	13,009	13,984	15,958	18,199	22,523	26,852	30,739
Taiwan	5,693	5,715	6,617	7,198	7,050	7,566	7,658	8,178	9,050	9,498	11,275
Thailand	4,683	3,714	4,227	4,143	3,921	2,745	2,881	2,901	3,362	3,960	4,814
Vietnam	375	375	387	423	436	462	560	657	783	881	1,035
China and Hong Kong	30,570	32,385	34,177	36,313	40,676	42,852	44,374	46,769	51,831	56,917	63,579
China	15,275	17,032	18,409	20,476	24,451	26,486	28,727	31,663	35,811	40,255	46,750
Hong Kong	15,296	15,352	15,768	15,837	16,225	16,366	15,647	15,106	16,019	16,662	16,829
EU	502,987	517,955	519,072	482,335	497,364	563,195	701,766	811,030	850,473	896,679	1,028,051
Austria	9,827	10,214	10,088	9,037	9,420	10,339	13,136	15,042	15,701	16,725	19,245
Belgium	13,689	14,029	14,761	13,426	13,813	15,290	19,150	22,115	23,299	24,537	28,463
Bulgaria	175	277	306	278	302	415	555	634	609	619	833
Czech Republic	1,834	1,948	1,895	1,808	2,099	2,805	3,383	3,997	4,557	5,130	5,894
Denmark	14,841	15,550	15,624	14,098	14,529	16,015	20,073	22,992	23,532	24,329	27,864
Finland	8,937	9,088	9,017	8,182	8,568	9,539	12,033	13,947	14,831	15,736	18,137
France	100,453	102,303	100,663	89,532	91,859	104,315	131,911	154,935	162,033	170,141	196,878
Germany	127,632	129,754	128,009	114,241	115,550	129,784	158,917	177,041	180,193	185,650	208,029
Greece	4,505	4,685	4,699	4,180	4,971	5,577	7,374	8,147	9,901	10,940	13,017
Hungary	1,720	1,747	1,790	1,774	1,951	2,585	3,599	4,114	4,427	4,309	5,035
Ireland	4,300	4,219	4,510	4,640	5,357	6,371	8,841	10,975	11,967	13,170	16,451
Italy	56,330	56,241	55,293	52,639	54,410	59,127	73,074	86,478	91,859	97,188	107,014
Netherlands	25,273	26,355	26,839	25,080	27,161	32,676	42,212	48,123	49,691	52,468	59,751
Poland	4,654	5,337	4,691	4,973	6,335	7,403	8,386	8,130	9,766	11,195	14,381
Portugal	4,807	5,184	5,511	5,321	5,875	6,663	8,259	9,828	10,608	11,338	12,797
Romania	517	930	714	738	631	913	1,397	1,871	2,694	3,202	4,262
Slovakia	858	840	746	647	685	802	1,073	1,109	1,343	1,448	1,997
Spain	26,069	27,369	28,521	26,690	27,477	31,720	42,584	50,909	55,801	60,605	72,205
Sweden	21,279	21,308	21,924	21,350	20,545	23,883	30,238	34,282	34,987	37,093	42,383
United Kingdom	75,289	80,577	83,473	83,702	85,825	96,972	115,571	136,361	142,672	150,855	173,415
Japan	146,502	137,364	160,757	189,092	177,947	175,093	196,291	215,017	216,822	184,679	192,135

Appendix table 6-9

Value added of health services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	3,569	4,199	5,139	5,531	5,283	5,871	6,113	6,810	6,851	7,321	8,343	8,696
Cameroon	53	70	72	69	62	110	99	96	129	94	100	52
Egypt	140	175	246	300	273	123	20	54	68	86	99	155
Kenya	57	71	80	84	83	84	80	63	45	42	82	295
Morocco	830	1,065	1,239	1,361	1,367	1,521	1,567	1,725	1,676	1,855	2,058	2,186
Nigeria	97	51	23	25	17	17	16	25	30	39	54	62
Senegal	51	62	73	76	73	94	93	97	105	78	105	114
South Africa	1,851	2,124	2,781	2,866	2,682	3,147	3,475	3,920	4,017	4,286	4,879	4,778
Tunisia	342	398	416	462	443	504	528	652	623	674	787	834
Zimbabwe	147	182	209	288	282	271	234	178	157	166	178	220
Central Europe/Asia	1,811	1,917	2,085	2,227	3,014	4,272	3,977	5,466	9,561	12,430	13,042	17,363
Russia	731	751	733	791	840	859	407	1,166	4,348	8,061	7,657	10,707
Turkey	966	1,054	1,241	1,323	2,057	3,283	3,495	3,734	4,226	2,876	3,545	3,902
Ukraine	114	112	112	113	116	130	75	566	987	1,493	1,840	2,754
Latin America	18,929	19,370	20,822	22,232	26,049	34,316	42,430	42,950	45,368	50,024	51,586	52,690
Argentina	2,779	3,527	3,564	3,820	2,210	5,380	8,417	10,664	8,161	8,805	9,070	9,205
Bolivia	155	150	168	119	124	123	130	143	154	160	176	193
Brazil	5,383	6,413	6,901	8,165	11,929	15,381	16,789	11,671	13,700	15,449	19,189	20,958
Chile	1,086	1,124	1,228	1,352	1,543	1,753	1,996	2,575	2,927	3,477	4,422	3,316
Colombia	1,601	1,493	1,557	1,654	1,698	1,903	2,107	1,815	2,220	2,899	3,399	3,656
Costa Rica	88	107	138	141	172	203	358	431	517	602	671	708
Ecuador	814	516	470	390	287	268	271	273	384	518	574	647
Honduras	167	187	209	227	254	147	128	146	154	142	165	166
Jamaica	79	100	117	144	142	144	116	140	196	181	142	198
Mexico	5,235	3,766	4,124	4,351	5,541	7,128	9,194	11,637	13,590	13,873	9,023	9,071
Panama	140	143	142	121	128	130	128	140	148	161	158	89
Peru	510	826	1,303	661	1,180	828	1,668	1,954	1,572	1,954	2,313	2,404
Uruguay	225	289	349	363	386	433	536	607	793	920	1,024	1,119
Venezuela	667	729	550	722	458	496	592	754	851	883	1,259	961
Middle East	8,346	8,368	8,850	7,416	9,672	8,978	10,109	10,651	12,014	10,390	11,904	11,771
Iran	1,213	1,178	1,333	1,449	1,323	1,232	1,283	617	564	1,253	1,294	1,223
Israel	612	905	1,337	1,611	1,662	1,911	1,954	2,204	3,225	3,554	4,708	5,110
Jordan	38	45	48	46	31	30	34	38	38	42	57	66
Kuwait	390	420	473	494	492	410	443	591	573	606	631	660
Saudi Arabia	6,093	5,821	5,659	3,816	6,163	5,396	6,395	7,201	7,615	4,935	5,214	4,710
Other	40,031	44,414	51,921	61,444	67,495	75,394	81,245	83,992	81,125	84,661	92,591	96,320
Australia	8,997	9,763	11,411	14,501	15,881	17,434	18,184	17,967	17,336	19,505	21,386	23,796
Bangladesh	264	315	382	423	491	499	623	683	739	784	839	871
Canada	19,683	20,810	23,846	27,905	31,645	35,403	39,361	39,445	38,007	36,505	36,578	36,970
New Zealand	947	1,187	1,504	1,856	1,708	1,733	1,815	1,729	1,843	2,097	2,789	3,135
Norway	3,671	4,782	6,091	6,825	6,801	8,096	8,602	9,636	8,840	9,296	11,107	11,826

Appendix table 6-9

Value added of health services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	8,863	8,565	8,571	8,545	7,929	6,809	10,067	11,465	13,778	15,668	17,690
Cameroon	51	57	53	41	43	52	69	81	112	108	134
Egypt	190	239	296	313	317	316	275	346	329	405	500
Kenya	326	350	337	355	404	454	513	419	490	572	795
Morocco	2,053	2,053	2,166	2,112	2,091	2,258	2,747	2,658	4,220	5,588	6,284
Nigeria	41	111	33	51	40	38	39	45	52	79	91
Senegal	117	125	127	116	220	253	311	194	89	106	129
South Africa	5,013	4,597	4,564	4,520	3,942	2,485	5,048	6,458	7,133	7,374	8,011
Tunisia	807	844	870	829	765	845	1,003	1,201	1,258	1,340	1,517
Zimbabwe	264	190	125	207	109	107	62	63	96	94	229
Central Europe/Asia	19,372	14,691	10,677	11,037	10,653	16,116	21,154	24,188	30,581	39,224	52,998
Russia	12,435	7,645	4,112	5,186	6,717	10,280	12,278	16,333	19,987	27,642	38,141
Turkey	4,104	5,073	5,415	4,891	2,817	4,459	7,172	5,800	7,856	8,064	10,370
Ukraine	2,833	1,972	1,150	960	1,119	1,378	1,705	2,055	2,737	3,518	4,487
Latin America	57,286	58,381	56,256	61,542	62,930	54,811	55,684	59,360	70,208	82,977	96,559
Argentina	9,661	9,931	10,231	10,455	10,515	3,130	3,470	3,785	4,620	5,742	6,574
Bolivia	215	239	247	249	234	228	230	242	250	276	310
Brazil	21,003	19,913	15,195	17,108	14,532	13,001	14,075	15,734	20,617	25,460	31,943
Chile	3,844	3,913	3,788	3,937	3,645	3,647	3,624	3,291	3,783	4,405	4,891
Colombia	4,134	4,008	3,839	3,501	3,615	3,695	3,539	4,243	5,122	5,463	7,220
Costa Rica	767	868	975	1,069	1,164	1,255	1,303	1,319	1,405	1,528	1,747
Ecuador	695	694	371	260	476	595	787	871	986	1,081	1,151
Honduras	187	221	236	289	338	373	394	434	471	538	645
Jamaica	248	282	280	296	301	322	303	314	328	355	392
Mexico	10,931	12,039	14,341	17,059	20,323	22,209	21,847	22,461	24,640	27,743	29,316
Panama	111	118	143	143	123	128	128	147	539	536	596
Peru	2,453	2,415	2,461	2,550	2,648	2,774	3,037	3,302	3,669	4,004	4,614
Uruguay	1,165	1,210	1,195	1,157	1,091	688	556	619	801	913	1,083
Venezuela	1,874	2,530	2,954	3,467	3,925	2,767	2,392	2,598	2,976	4,932	6,076
Middle East	13,032	13,158	13,191	14,492	15,394	15,672	17,304	19,081	21,665	23,201	27,238
Iran	1,141	1,214	1,084	1,738	2,175	2,606	3,132	3,656	4,633	5,042	6,712
Israel	5,349	5,275	5,316	5,799	6,017	5,635	5,738	6,156	6,549	6,950	8,098
Jordan	76	90	96	103	113	121	131	141	156	163	182
Kuwait	1,283	1,416	1,467	1,492	1,523	1,635	1,733	1,889	2,192	4,048	4,103
Saudi Arabia	5,183	5,162	5,228	5,361	5,566	5,676	6,570	7,239	8,136	6,997	8,143
Other	93,811	90,427	94,341	95,149	97,070	106,901	130,602	150,709	167,313	181,080	208,417
Australia	23,160	20,980	23,055	22,509	21,531	24,380	31,746	38,418	43,336	46,027	54,704
Bangladesh	898	932	986	1,031	1,025	1,050	1,135	1,209	1,260	1,309	1,455
Canada	37,125	35,722	37,475	40,561	41,777	43,393	52,053	59,007	66,198	74,332	83,397
New Zealand	3,221	2,799	2,892	2,645	2,662	3,135	4,293	5,286	5,887	5,754	6,889
Norway	11,860	11,942	12,443	11,755	12,625	15,479	18,608	20,659	23,138	25,019	30,172

Appendix table 6-9

Value added of health services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	1,102	1,167	1,260	1,413	1,396	1,585	1,687	1,859	1,976	2,173	2,474	2,588
Sri Lanka	47	50	55	66	64	75	93	100	116	132	156	170
Switzerland	4,877	5,912	6,945	7,977	9,008	10,038	10,380	12,108	11,728	13,563	16,620	16,280
All others	443	426	427	479	502	531	499	465	540	606	642	684
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	2,594	2,667	2,630	2,757	2,806	3,102	3,546	4,799	5,681	6,275	6,402	
Sri Lanka	186	183	180	168	160	192	230	247	309	262	364	
Switzerland	14,035	14,419	13,830	12,791	13,484	15,033	17,734	19,725	20,546	20,965	23,424	
All others	731	783	850	934	999	1,135	1,257	1,359	959	1,137	1,611	

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

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Appendix table 6-10

Value added of business services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	781,450	946,577	1,099,510	1,271,656	1,383,334	1,558,437	1,649,601	1,856,044	1,913,070	2,051,351	2,317,561	2,467,003
United States	381,300	421,800	458,803	518,264	574,894	632,451	640,892	692,001	728,633	773,332	823,000	899,785
Asia-9	19,281	21,140	23,914	27,384	30,947	35,806	38,716	43,173	47,260	54,761	65,737	73,637
India	9,278	10,464	11,616	12,422	12,209	13,058	11,553	11,672	11,424	12,140	13,119	13,343
Indonesia	2,354	2,279	2,065	2,227	2,872	3,710	4,453	4,927	5,602	6,657	7,324	7,827
Malaysia	1,571	1,809	1,923	2,091	2,282	2,588	2,933	3,787	4,898	5,331	6,313	7,715
Philippines	1,224	1,186	1,241	1,385	1,567	1,661	1,782	1,949	2,095	2,495	2,926	3,266
Singapore	1,445	1,364	1,572	1,852	2,262	2,558	3,020	3,551	3,934	4,891	6,090	7,602
South Korea	2,237	2,696	3,749	5,364	7,197	9,032	11,216	12,700	14,266	17,408	22,476	25,786
Taiwan	606	699	896	1,078	1,571	1,910	2,300	2,939	3,243	3,843	4,437	4,919
Thailand	560	610	715	861	953	1,257	1,413	1,589	1,706	1,864	2,405	2,473
Vietnam	6	32	136	104	33	32	46	59	92	132	647	706
China and Hong Kong	15,564	15,948	18,240	23,322	25,280	22,826	26,348	32,875	40,012	39,803	46,014	53,680
China	12,716	12,558	13,952	17,998	21,186	18,051	20,290	25,092	30,717	28,038	35,877	42,203
Hong Kong	2,849	3,390	4,288	5,324	4,094	4,776	6,058	7,784	9,296	11,766	10,137	11,477
EU	200,414	285,211	358,488	408,601	427,176	540,736	569,047	643,225	601,436	634,988	748,448	790,565
Austria	2,126	3,296	4,317	4,913	5,294	7,027	7,819	9,254	9,319	10,021	12,963	13,187
Belgium	5,470	7,883	9,978	11,097	11,277	14,288	15,316	17,842	17,672	19,540	23,506	24,132
Bulgaria	815	926	1,273	1,030	985	1,110	511	264	330	378	403	978
Czech Republic	451	527	581	524	620	1,667	1,459	1,646	2,288	2,734	3,199	3,752
Denmark	2,569	3,804	5,184	5,898	6,111	7,741	7,896	8,359	8,419	9,381	10,351	10,380
Finland	1,716	2,431	3,199	3,953	4,514	5,545	4,963	4,225	3,388	4,345	5,649	6,059
France	44,619	65,878	81,429	92,897	96,798	122,520	123,192	136,446	127,218	133,795	157,903	160,995
Germany	62,679	89,154	113,446	123,898	124,070	156,381	163,734	192,872	195,888	202,719	241,638	239,752
Greece	1,224	1,449	1,786	2,118	2,227	2,823	3,218	3,697	3,610	3,682	4,421	4,424
Hungary	626	769	888	1,104	1,104	1,314	1,470	2,173	2,570	2,940	2,905	3,445
Ireland	1,429	1,862	2,121	2,432	2,320	2,854	2,781	3,058	2,774	3,209	3,207	4,135
Italy	26,640	39,297	51,010	57,018	61,488	78,503	84,269	93,392	75,274	74,362	83,971	99,441
Netherlands	8,234	12,371	15,799	17,526	17,930	23,695	25,454	28,847	28,711	31,487	39,253	42,526
Poland	1,467	1,528	1,320	1,419	1,697	1,217	2,175	4,030	3,538	4,966	6,533	7,727
Portugal	1,065	1,461	1,872	2,311	2,743	3,746	4,574	5,768	5,313	5,440	6,304	6,554
Romania	1,161	1,204	1,394	1,404	1,020	787	508	436	571	655	706	749
Slovakia	351	413	459	447	427	368	321	348	395	406	631	750
Spain	6,803	9,865	12,873	15,272	17,124	23,257	25,959	28,777	25,733	26,358	31,220	33,485
Sweden	4,647	6,332	8,118	9,565	10,476	13,015	14,664	16,394	11,667	13,321	16,069	18,966
United Kingdom	26,320	34,762	41,443	53,775	58,952	72,880	78,763	85,398	76,757	85,249	97,615	109,126
Japan	72,619	105,119	125,295	158,100	168,435	172,075	211,061	247,924	291,070	317,617	358,586	329,212

Appendix table 6-10

Value added of business services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	2,551,316	2,670,283	2,843,194	2,981,270	3,010,205	3,110,827	3,477,731	3,859,990	4,188,660	4,529,107	5,080,436
United States	992,200	1,077,036	1,177,118	1,261,773	1,288,905	1,311,703	1,374,609	1,468,668	1,602,859	1,726,341	1,855,155
Asia-9	74,960	57,987	65,844	73,782	72,410	81,760	91,397	98,047	111,308	128,372	152,538
India	14,612	15,170	17,127	19,124	20,513	22,049	25,928	30,188	35,558	39,626	49,187
Indonesia	7,789	2,909	3,779	5,715	5,499	6,914	8,460	9,067	9,904	12,358	14,804
Malaysia	7,910	5,753	6,069	5,751	6,105	6,663	6,921	2,859	3,227	3,697	4,763
Philippines	3,288	2,669	3,081	2,883	2,676	2,828	2,860	3,007	3,354	3,940	5,140
Singapore	7,987	6,915	6,814	7,202	6,949	7,966	8,044	8,675	7,681	9,052	11,457
South Korea	25,157	16,924	20,182	23,408	21,326	25,824	29,411	32,646	39,127	45,944	51,537
Taiwan	5,394	5,229	6,134	7,077	6,780	6,747	6,901	7,761	8,390	9,247	10,312
Thailand	2,066	1,649	1,902	1,841	1,716	1,845	1,858	2,699	2,846	3,181	3,781
Vietnam	758	768	755	780	845	923	1,014	1,147	1,223	1,327	1,558
China and Hong Kong	62,597	67,471	71,196	79,865	90,055	99,747	111,506	130,699	149,243	174,091	215,834
China	49,109	55,889	62,011	71,041	81,840	91,947	103,866	122,263	140,051	162,980	203,722
Hong Kong	13,487	11,582	9,185	8,824	8,215	7,799	7,640	8,437	9,192	11,111	12,112
EU	770,627	826,307	864,245	835,351	867,538	944,912	1,156,818	1,327,934	1,404,169	1,500,288	1,744,461
Austria	12,186	13,126	13,827	13,058	13,746	15,945	19,632	22,698	24,702	26,452	30,728
Belgium	22,957	25,097	25,998	24,639	26,214	27,799	34,647	40,567	43,302	47,329	56,388
Bulgaria	782	998	1,072	994	1,064	1,248	1,538	1,835	2,035	2,306	2,968
Czech Republic	3,227	3,713	3,578	3,487	3,952	5,588	6,486	7,615	9,165	10,401	12,882
Denmark	10,555	10,653	11,117	10,693	11,433	12,250	14,929	17,888	19,064	20,725	24,175
Finland	6,146	6,775	7,167	6,642	7,426	7,891	9,830	11,847	12,751	14,104	17,137
France	147,234	157,261	163,540	155,502	161,548	175,881	216,257	247,718	259,673	278,780	322,038
Germany	215,980	223,251	225,772	208,242	212,589	226,005	277,361	307,215	319,522	333,472	382,227
Greece	4,404	4,647	4,699	4,255	4,330	5,302	6,745	7,899	8,471	8,777	11,274
Hungary	2,988	3,122	3,323	3,437	4,025	5,307	6,408	7,827	8,573	9,486	11,666
Ireland	5,193	6,230	6,125	7,778	9,157	9,628	12,449	14,461	20,481	23,672	28,137
Italy	99,268	99,541	105,473	101,424	102,702	115,628	149,100	168,558	173,290	177,227	175,438
Netherlands	40,750	44,166	47,082	44,247	47,252	48,794	58,155	65,879	70,509	79,030	95,609
Poland	8,514	10,689	10,224	10,705	12,226	12,605	13,185	15,184	18,509	20,666	25,224
Portugal	6,202	6,708	7,345	6,679	6,724	7,411	9,149	10,600	11,279	11,721	13,229
Romania	1,739	2,294	2,071	2,153	2,540	3,015	3,444	4,255	6,179	8,532	11,550
Slovakia	1,134	1,168	1,131	1,186	1,142	1,430	1,818	2,394	2,850	3,627	4,669
Spain	31,777	33,969	36,381	35,118	39,115	44,766	58,521	68,370	75,359	84,169	100,479
Sweden	18,084	19,790	22,144	22,967	22,295	23,829	29,355	34,990	36,649	41,076	48,508
United Kingdom	131,507	153,109	166,178	172,144	178,059	194,591	227,810	270,135	281,807	298,737	370,135
Japan	307,874	298,856	342,224	390,079	350,793	335,942	360,226	387,273	397,901	379,668	381,118

Appendix table 6-10

Value added of business services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	5,404	5,401	6,252	6,640	6,734	7,596	8,632	9,744	9,874	10,496	12,511	12,888
Cameroon	475	643	658	619	553	232	246	260	158	64	75	371
Egypt	31	37	42	48	45	29	16	73	130	187	244	301
Kenya	126	146	166	182	183	192	191	163	108	152	191	185
Morocco	160	209	259	300	306	393	446	517	498	523	667	606
Nigeria	1,304	733	327	305	266	280	279	199	244	721	1,220	1,600
Senegal	144	237	303	325	316	374	371	413	383	227	265	265
South Africa	2,965	3,160	4,236	4,598	4,811	5,806	6,786	7,786	8,022	8,278	9,443	9,132
Tunisia	136	165	175	154	135	179	203	237	242	261	311	340
Zimbabwe	63	70	87	110	118	112	95	95	89	83	95	89
Central Europe/Asia	3,456	3,741	4,063	3,854	3,863	5,078	5,802	7,120	12,298	12,976	20,031	23,966
Russia	800	822	802	866	920	924	860	1,818	6,151	9,215	14,281	17,362
Turkey	2,638	2,901	3,244	2,971	2,925	4,135	4,925	5,138	5,792	3,420	5,199	6,018
Ukraine	18	17	17	17	18	19	17	163	354	341	552	586
Latin America	27,042	27,516	33,342	39,061	50,753	42,385	48,007	73,291	77,263	89,884	107,888	135,122
Argentina	5,913	7,353	7,788	8,660	4,900	9,546	13,203	17,524	19,692	22,974	23,918	24,539
Bolivia	304	178	214	240	224	218	242	257	257	250	264	297
Brazil	9,339	8,764	14,251	16,616	30,766	16,036	14,818	28,811	25,457	29,690	49,611	70,747
Chile	1,354	1,326	1,433	1,482	1,710	1,827	1,912	2,379	2,649	3,130	3,871	6,207
Colombia	1,728	1,615	1,667	1,835	1,805	1,500	1,573	3,704	4,356	5,531	6,222	6,750
Costa Rica	143	177	200	210	248	283	358	383	410	445	467	481
Ecuador	311	299	338	230	253	263	321	362	842	1,109	1,316	1,435
Honduras	220	239	262	292	332	182	176	200	202	201	236	236
Jamaica	123	155	178	194	246	258	202	183	206	254	310	372
Mexico	3,615	2,679	2,656	4,655	5,590	7,218	9,512	13,052	16,654	19,343	13,038	15,344
Panama	560	553	528	438	435	469	496	527	541	566	588	845
Peru	736	1,144	1,547	1,203	1,891	2,076	2,038	2,201	1,804	2,148	2,766	3,014
Uruguay	450	484	542	650	784	852	968	1,146	1,577	1,713	1,890	2,054
Venezuela	2,247	2,548	1,739	2,356	1,571	1,657	2,188	2,562	2,615	2,530	3,391	2,802
Middle East	15,539	13,656	14,094	15,027	14,851	14,963	15,776	17,911	16,731	17,364	23,037	25,038
Iran	3,106	3,132	3,493	3,889	3,712	3,349	3,543	4,634	4,300	4,041	3,969	4,340
Israel	1,865	1,953	2,610	3,173	3,349	3,872	4,412	4,948	3,819	4,381	9,998	11,121
Jordan	370	423	454	466	333	284	323	413	447	472	554	588
Kuwait	1,191	1,252	1,477	1,486	1,355	1,230	985	1,144	1,171	1,230	1,266	1,349
Saudi Arabia	9,008	6,896	6,059	6,013	6,103	6,228	6,512	6,772	6,995	7,239	7,250	7,640
Other	40,832	47,046	57,018	71,402	80,401	84,522	85,321	88,781	88,493	100,131	112,308	123,109
Australia	14,552	16,368	20,147	26,601	30,605	30,312	29,664	30,419	28,777	35,186	39,039	44,526
Bangladesh	874	903	1,069	1,235	1,361	1,406	1,418	1,463	1,582	1,720	1,875	2,084
Canada	13,847	15,367	18,386	23,212	26,814	28,996	30,044	28,541	28,046	28,296	30,491	32,747
New Zealand	1,133	1,477	2,148	2,784	2,624	2,638	2,610	2,569	2,977	3,629	4,516	5,491
Norway	2,572	3,475	4,165	4,749	4,401	4,694	4,830	5,374	5,189	5,686	6,914	7,557

Appendix table 6-10

Value added of business services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	13,870	14,160	12,824	12,534	11,774	11,464	16,934	23,001	27,294	30,237	34,521
Cameroon	355	404	391	332	359	396	498	566	613	661	767
Egypt	311	298	379	325	245	230	202	1,142	1,722	2,161	2,602
Kenya	211	223	201	159	180	171	215	529	603	720	870
Morocco	574	805	784	794	788	820	979	1,113	1,247	1,415	1,620
Nigeria	1,778	2,594	832	936	963	1,047	1,296	1,930	2,990	3,697	4,227
Senegal	227	241	261	247	266	302	376	441	405	439	531
South Africa	9,996	9,211	9,592	9,392	8,602	8,112	12,619	16,818	19,236	20,641	23,174
Tunisia	289	295	323	307	307	309	317	347	356	381	436
Zimbabwe	127	88	60	42	65	77	431	115	121	121	294
Central Europe/Asia	26,677	22,810	18,803	21,939	25,372	27,312	34,534	42,434	54,178	95,284	128,184
Russia	19,600	14,088	10,603	14,399	18,891	18,926	23,667	28,206	37,635	49,722	66,103
Turkey	6,381	8,062	7,605	6,986	5,121	6,770	9,050	11,682	13,556	41,115	55,406
Ukraine	695	660	595	554	1,360	1,616	1,816	2,546	2,987	4,447	6,675
Latin America	152,076	153,945	128,636	137,139	132,036	110,639	113,181	126,899	152,756	174,001	201,273
Argentina	25,711	26,079	25,660	25,651	24,613	7,460	8,255	9,020	10,575	12,371	14,614
Bolivia	330	365	434	408	388	345	337	337	333	358	402
Brazil	78,669	77,828	50,061	51,507	42,326	37,656	38,048	43,353	56,666	69,281	84,045
Chile	6,886	6,729	6,050	6,048	5,560	5,394	6,427	7,805	9,450	10,874	11,664
Colombia	7,549	6,936	5,774	5,097	4,880	4,783	4,508	5,353	6,505	6,782	8,431
Costa Rica	518	544	580	649	741	773	784	826	868	997	1,173
Ecuador	1,694	1,594	945	579	874	1,338	1,770	2,203	2,483	2,774	2,956
Honduras	282	339	362	411	450	477	512	552	614	707	806
Jamaica	384	396	438	446	408	401	460	453	498	530	559
Mexico	20,134	22,188	27,179	34,788	39,223	41,477	42,490	46,741	53,443	55,779	60,468
Panama	920	996	1,096	1,161	1,194	1,287	1,364	1,390	1,563	1,696	1,929
Peru	3,253	3,198	2,865	2,980	3,457	3,752	3,936	4,252	4,668	5,105	6,203
Uruguay	2,190	2,309	2,370	2,329	2,291	1,454	1,157	1,187	1,405	1,571	1,799
Venezuela	3,557	4,444	4,823	5,084	5,631	4,041	3,134	3,427	3,686	5,175	6,225
Middle East	25,746	26,962	27,038	30,278	32,649	36,520	37,365	41,831	46,144	51,510	59,713
Iran	4,822	4,903	4,286	5,228	6,884	10,056	10,175	11,675	13,260	15,624	20,053
Israel	10,876	12,012	12,137	13,733	14,018	13,825	13,351	15,051	16,382	17,222	19,635
Jordan	626	658	686	724	757	775	816	899	969	1,144	1,273
Kuwait	1,510	1,589	1,723	2,122	2,223	2,742	3,481	4,067	4,655	5,856	6,436
Saudi Arabia	7,913	7,800	8,206	8,471	8,767	9,123	9,542	10,140	10,878	11,665	12,316
Other	124,690	124,749	135,265	138,531	138,672	150,829	181,162	213,204	242,807	269,315	307,638
Australia	45,696	42,721	47,740	47,629	43,865	49,908	63,925	77,009	85,886	95,769	113,956
Bangladesh	2,141	2,167	2,301	2,338	2,311	2,390	2,546	2,674	2,666	2,690	2,925
Canada	35,747	37,649	41,820	47,337	49,114	51,241	60,826	69,576	79,942	89,071	97,346
New Zealand	5,585	4,701	5,094	4,395	4,580	5,542	7,533	9,428	10,506	10,447	12,603
Norway	8,034	8,748	9,607	9,631	10,210	11,952	13,831	16,058	19,167	21,507	25,982

Appendix table 6-10

Value added of business services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	1,003	1,047	1,109	1,165	1,127	1,279	1,346	1,480	1,617	1,749	1,970	2,041
Sri Lanka	142	158	161	175	172	184	212	249	280	342	395	415
Switzerland	5,359	6,959	8,559	10,160	11,760	13,360	13,394	16,602	17,809	20,854	23,975	24,900
All others	1,350	1,291	1,275	1,321	1,536	1,653	1,802	2,083	2,216	2,668	3,135	3,349
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	1,899	1,959	1,649	1,887	1,625	1,877	2,022	2,229	2,814	3,623	4,371	
Sri Lanka	456	678	681	712	700	766	879	954	1,099	1,440	1,647	
Switzerland	21,655	22,500	22,611	20,732	22,272	22,659	24,616	29,009	33,199	35,019	37,178	
All others	3,477	3,626	3,763	3,871	3,996	4,494	4,984	6,266	7,529	9,750	11,631	

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 business, financial, and communications services; education; and health. Commercial knowledge-intensive services exclude education and health. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

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Appendix table 6-11

Value added of financial services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	569,643	706,149	851,813	977,054	1,062,558	1,119,982	1,191,138	1,327,909	1,464,035	1,503,074	1,626,332	1,653,223
United States	225,879	255,678	274,448	295,812	316,181	340,137	376,473	407,529	437,797	450,100	490,900	530,702
Asia-9	21,417	23,734	29,220	37,530	48,429	53,899	58,676	66,665	75,107	88,488	105,109	113,891
India	6,998	7,817	8,727	9,700	10,405	11,551	12,111	11,037	12,303	14,222	18,336	18,344
Indonesia	1,564	1,515	1,373	1,480	1,909	2,466	2,960	3,275	3,724	4,425	4,868	5,202
Malaysia	1,044	1,203	1,278	1,390	1,517	1,720	1,950	2,517	3,256	3,544	4,196	5,128
Philippines	978	1,018	1,220	1,396	1,665	1,824	1,832	2,084	2,159	2,550	3,042	3,678
Singapore	1,659	1,567	1,805	2,126	2,597	2,936	3,197	4,059	5,365	6,388	6,944	7,497
South Korea	3,710	4,423	5,985	9,396	12,871	13,807	16,554	19,555	21,132	24,685	32,076	36,127
Taiwan	3,767	4,272	6,263	8,885	13,714	14,627	14,596	17,927	19,097	22,887	24,298	25,757
Thailand	1,691	1,891	2,448	3,090	3,729	4,948	5,446	6,172	8,013	9,701	10,931	11,691
Vietnam	6	28	120	67	21	20	30	38	59	85	417	467
China and Hong Kong	12,562	14,739	17,678	22,664	30,947	27,496	27,737	33,830	41,294	39,390	46,977	54,266
China	8,850	10,322	12,090	15,726	25,611	21,272	19,842	23,687	28,979	25,930	33,509	38,629
Hong Kong	3,712	4,417	5,588	6,938	5,335	6,224	7,895	10,144	12,315	13,460	13,468	15,637
EU	138,466	195,024	243,314	273,160	273,917	342,944	353,012	369,871	362,710	375,033	411,549	428,667
Austria	3,650	5,189	6,717	7,227	7,239	8,593	9,000	10,093	10,915	10,958	12,278	11,721
Belgium	4,425	6,380	8,386	9,119	8,992	11,267	11,867	13,476	12,627	13,818	16,509	15,766
Bulgaria	620	704	968	783	749	844	389	201	251	287	306	744
Czech Republic	240	281	310	279	330	888	1,325	1,337	1,526	1,587	1,604	1,776
Denmark	2,515	3,526	4,310	4,494	4,904	5,515	5,635	6,413	6,147	7,084	8,150	7,913
Finland	1,508	2,015	2,719	3,217	3,632	5,091	4,635	3,786	3,479	3,583	4,850	4,329
France	26,485	37,700	46,786	50,561	53,056	60,300	58,289	64,464	62,597	63,999	67,983	69,986
Germany	28,107	39,979	50,872	55,559	55,636	70,126	73,423	80,981	86,984	92,344	105,084	107,346
Greece	1,361	1,611	1,986	2,355	2,476	3,139	3,578	4,111	4,014	4,094	4,916	5,603
Hungary	487	598	691	859	859	1,022	1,133	1,135	1,300	1,938	1,714	1,698
Ireland	925	1,356	1,544	1,771	1,689	2,078	2,482	3,132	3,173	2,954	4,858	4,844
Italy	20,879	28,638	32,338	38,434	35,756	51,318	54,567	52,989	45,123	45,821	47,702	51,626
Netherlands	7,084	9,893	11,791	13,109	12,586	13,392	14,417	16,141	16,231	18,643	23,854	23,838
Poland	440	459	396	426	510	365	654	1,386	1,737	2,701	3,162	4,218
Portugal	1,448	1,953	2,893	3,477	4,168	5,893	6,135	5,719	5,540	5,252	6,204	5,991
Romania	1,229	1,274	1,476	1,486	1,080	833	594	933	1,196	1,251	1,765	1,052
Slovakia	495	582	646	630	601	519	452	491	557	597	999	607
Spain	7,692	10,732	14,185	17,605	20,369	27,417	29,400	31,198	25,216	23,197	26,683	25,771
Sweden	4,822	7,737	9,489	11,303	11,636	14,585	13,287	10,243	10,645	10,470	9,777	11,753
United Kingdom	24,053	34,416	44,811	50,466	47,646	59,759	61,752	61,643	63,453	64,456	63,151	72,084
Japan	72,788	114,454	154,345	191,844	189,380	184,539	198,437	215,618	253,652	297,084	335,966	288,571

Appendix table 6-11

Value added of financial services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	1,683,873	1,665,546	1,763,603	1,806,455	1,833,079	1,972,989	2,211,498	2,435,989	2,646,293	2,872,850	3,164,809
United States	595,541	641,118	679,842	740,489	782,627	822,728	864,624	907,882	989,473	1,060,925	1,091,415
Asia-9	116,572	93,452	107,667	109,311	111,583	130,234	142,252	159,281	180,661	201,441	237,212
India	20,752	20,986	24,541	23,523	26,493	29,788	34,773	37,035	40,934	46,937	58,376
Indonesia	5,177	1,934	2,512	3,799	3,655	4,596	5,623	6,027	6,583	8,214	9,840
Malaysia	5,257	3,824	4,034	3,823	4,058	4,429	4,600	10,971	11,654	13,223	15,512
Philippines	3,884	3,186	3,623	3,373	3,139	3,304	3,454	3,848	4,788	6,079	7,779
Singapore	8,863	7,989	7,620	7,505	7,764	8,878	8,849	9,884	13,045	14,917	19,772
South Korea	33,134	22,802	31,102	31,177	32,908	43,996	47,583	49,990	59,050	66,992	76,276
Taiwan	30,244	27,351	30,212	32,266	29,930	31,101	32,311	34,908	37,140	36,498	39,476
Thailand	8,796	4,908	3,486	3,270	3,042	3,503	4,357	5,811	6,517	7,480	8,892
Vietnam	466	473	537	575	595	639	700	809	951	1,101	1,289
China and Hong Kong	60,715	60,072	63,120	68,507	70,595	73,879	79,272	84,788	98,918	133,016	174,276
China	43,508	44,663	46,102	49,365	52,597	55,731	60,280	65,158	76,971	106,487	145,355
Hong Kong	17,207	15,408	17,018	19,142	17,998	18,149	18,992	19,630	21,948	26,529	28,921
EU	402,522	398,739	413,702	364,475	362,238	421,264	536,085	627,274	656,985	700,711	793,459
Austria	10,511	10,557	10,225	9,609	9,413	10,225	11,890	13,645	14,943	15,843	18,029
Belgium	13,551	13,644	13,444	12,463	11,704	13,659	16,181	19,381	19,755	20,368	22,661
Bulgaria	382	480	524	498	544	600	770	961	1,192	1,304	1,678
Czech Republic	1,518	2,115	1,924	1,459	1,820	2,103	2,969	3,449	3,403	3,985	5,743
Denmark	7,248	7,526	6,808	6,477	6,542	7,431	9,806	11,171	11,773	12,331	14,268
Finland	3,768	4,083	3,749	4,557	3,963	4,006	3,167	4,222	3,830	4,773	6,195
France	62,560	62,072	62,492	61,166	54,797	62,583	80,093	90,339	93,529	100,561	112,819
Germany	96,412	90,196	102,145	71,599	69,733	79,703	104,184	126,408	125,215	125,102	125,497
Greece	5,373	5,946	6,569	6,215	4,717	4,444	6,301	7,262	8,729	9,683	11,335
Hungary	1,522	1,422	1,376	1,331	1,552	2,170	2,802	3,536	4,406	4,430	5,031
Ireland	4,735	5,314	6,047	6,275	7,191	8,330	12,987	16,017	18,019	20,141	24,637
Italy	44,137	47,863	48,344	45,857	48,254	50,050	65,197	72,975	77,145	79,453	95,704
Netherlands	21,434	21,638	22,747	20,880	21,825	25,382	34,928	40,043	43,599	40,567	41,612
Poland	5,349	5,223	5,916	7,503	7,698	7,284	7,987	9,404	11,661	13,585	16,450
Portugal	6,099	6,361	6,297	6,023	6,584	7,021	8,890	10,260	10,535	12,450	14,053
Romania	600	746	619	570	791	1,067	1,102	1,711	1,998	2,007	2,708
Slovakia	717	621	365	436	444	889	1,188	1,553	1,922	2,103	2,555
Spain	24,121	25,775	24,625	24,197	27,045	30,798	38,151	44,243	46,839	51,688	67,198
Sweden	12,255	10,398	10,920	9,241	8,151	8,236	10,387	13,187	14,256	12,665	14,448
United Kingdom	80,233	76,759	78,567	68,119	69,471	95,282	117,105	137,507	144,233	167,672	190,837
Japan	265,142	226,216	265,745	282,430	262,677	267,363	294,532	311,143	317,272	302,717	301,361

Appendix table 6-11

Value added of financial services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	8,332	7,412	7,429	8,065	7,946	8,549	8,651	10,632	12,030	13,984	17,210	18,708
Cameroon	223	302	309	290	260	109	115	122	74	30	35	174
Egypt	971	1,151	1,314	1,490	1,404	901	506	2,273	4,039	5,806	7,572	9,338
Kenya	577	671	759	834	838	877	874	747	497	694	877	326
Morocco	106	139	172	199	203	262	296	344	331	347	443	403
Nigeria	3,919	2,402	1,217	1,354	1,165	1,628	1,481	992	846	712	1,098	1,485
Senegal	96	157	201	216	210	248	247	274	254	151	176	176
South Africa	1,971	2,101	2,816	3,056	3,198	3,859	4,510	5,175	5,332	5,502	6,276	6,070
Tunisia	90	110	116	102	89	119	135	158	161	174	207	226
Zimbabwe	378	380	525	524	578	546	486	548	496	569	526	510
Central Europe/Asia	2,034	2,213	2,436	2,270	2,256	3,058	3,808	8,405	16,164	16,799	9,689	7,006
Russia	190	195	190	205	218	219	455	4,027	8,982	11,851	5,228	2,024
Turkey	1,754	1,928	2,156	1,975	1,944	2,749	3,273	3,415	3,850	2,273	3,455	4,000
Ukraine	91	89	89	90	94	90	80	963	3,331	2,675	1,005	981
Latin America	41,246	39,277	56,355	67,021	109,969	68,708	68,940	119,135	166,789	119,895	94,865	88,546
Argentina	2,725	3,389	3,589	3,991	2,258	4,399	6,085	8,076	9,075	8,750	9,872	9,835
Bolivia	162	95	114	128	120	116	129	137	158	181	204	268
Brazil	28,442	26,690	43,403	50,607	93,699	48,838	45,129	87,747	128,688	76,917	49,970	47,771
Chile	900	881	952	985	1,136	1,215	1,271	1,581	1,761	2,081	2,573	4,125
Colombia	1,260	1,177	1,215	1,338	1,316	1,093	1,146	2,700	3,248	4,395	5,614	6,392
Costa Rica	106	132	149	157	185	211	266	320	401	452	498	509
Ecuador	176	170	192	131	143	149	217	243	463	644	799	863
Honduras	146	159	174	194	221	121	117	133	134	133	157	157
Jamaica	82	103	118	129	163	171	134	121	137	169	206	247
Mexico	4,623	3,426	3,397	5,953	7,537	8,897	10,666	13,868	18,246	19,387	17,382	12,297
Panama	428	423	403	335	332	390	448	657	736	771	745	818
Peru	489	761	1,028	800	1,257	1,380	1,354	1,463	1,199	1,428	1,839	2,004
Uruguay	299	322	361	432	521	566	643	761	1,048	1,138	1,256	1,365
Venezuela	1,407	1,549	1,260	1,843	1,081	1,161	1,333	1,328	1,495	3,448	3,751	1,894
Middle East	8,522	7,057	7,106	7,567	7,692	7,743	8,452	9,301	8,904	9,084	13,026	14,094
Iran	486	490	546	608	581	524	554	725	728	305	509	522
Israel	1,239	1,298	1,735	2,109	2,226	2,574	2,933	3,289	2,538	2,912	6,645	7,392
Jordan	184	211	226	232	166	141	161	206	240	255	230	236
Kuwait	625	475	571	621	664	364	476	580	749	801	823	867
Saudi Arabia	5,987	4,584	4,027	3,997	4,056	4,140	4,329	4,501	4,649	4,812	4,819	5,078
Other	38,398	46,561	59,483	71,121	75,842	82,909	86,951	86,925	89,589	93,217	101,041	108,773
Australia	5,912	6,723	10,751	14,666	14,738	16,765	17,101	17,817	18,347	19,450	21,333	23,768
Bangladesh	233	241	285	330	363	375	407	421	456	499	558	602
Canada	17,368	20,504	24,421	28,946	31,013	32,480	34,774	34,322	34,524	35,056	36,192	39,110
New Zealand	1,355	1,872	2,533	2,763	2,634	2,793	2,578	2,211	2,290	2,880	3,240	3,508
Norway	2,077	3,227	4,898	5,009	4,838	5,387	5,219	5,685	5,137	5,187	5,608	5,180

Appendix table 6-11

Value added of financial services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	20,187	21,734	21,756	22,885	21,282	18,558	20,184	23,218	24,642	26,768	31,545
Cameroon	159	163	143	113	113	132	172	198	193	149	173
Egypt	10,004	11,644	12,941	14,153	13,437	10,774	8,730	8,647	7,981	8,636	10,396
Kenya	397	420	348	173	224	176	271	560	599	732	885
Morocco	382	535	521	528	524	545	651	740	829	941	1,077
Nigeria	1,654	1,912	509	520	586	763	741	914	1,256	1,553	1,775
Senegal	151	160	174	164	177	201	250	293	269	292	353
South Africa	6,644	6,122	6,376	6,242	5,717	5,392	8,388	11,179	12,786	13,720	15,403
Tunisia	192	196	215	204	204	206	211	230	237	253	290
Zimbabwe	603	580	530	788	301	369	771	457	492	492	1,192
Central Europe/Asia	8,136	7,254	7,315	8,443	11,162	15,164	20,285	29,103	39,220	58,898	81,075
Russia	2,898	1,037	1,778	3,240	6,779	9,504	12,961	18,168	26,803	38,619	52,616
Turkey	4,241	5,358	5,055	4,643	3,404	4,500	5,576	6,947	7,739	15,239	20,873
Ukraine	996	859	482	559	980	1,160	1,748	3,988	4,678	5,040	7,586
Latin America	87,109	89,394	72,026	69,930	72,501	74,225	72,346	79,313	100,051	123,843	148,370
Argentina	10,121	11,129	11,515	11,513	13,759	5,338	4,643	5,837	7,323	9,123	11,830
Bolivia	348	412	458	433	387	357	308	277	313	360	435
Brazil	46,690	46,279	30,071	29,164	29,745	31,545	31,674	35,717	47,465	58,583	71,767
Chile	4,577	4,473	4,022	4,020	3,696	3,585	4,272	5,188	6,281	7,228	7,965
Colombia	7,162	6,089	4,332	3,713	3,879	3,904	4,022	5,173	6,492	6,768	8,413
Costa Rica	549	568	641	725	774	859	939	982	1,121	1,257	1,472
Ecuador	857	724	245	301	431	520	574	670	895	1,087	1,158
Honduras	187	226	241	274	299	317	340	367	408	470	535
Jamaica	256	263	291	297	271	267	306	301	331	352	371
Mexico	9,836	11,252	12,935	12,108	12,181	21,151	19,281	18,456	20,453	25,862	29,143
Panama	855	993	1,020	1,089	1,156	1,184	1,172	1,291	1,344	1,427	1,622
Peru	2,162	2,126	1,904	1,981	1,340	1,628	1,811	1,947	2,355	2,695	3,274
Uruguay	1,456	1,534	1,576	1,548	1,523	966	769	789	934	1,044	1,196
Venezuela	2,053	3,327	2,776	2,764	3,061	2,603	2,236	2,318	4,336	7,588	9,187
Middle East	14,204	15,149	15,574	17,495	18,181	19,914	21,256	25,200	28,976	32,192	37,039
Iran	525	687	725	1,121	1,303	2,427	3,281	5,265	6,967	8,175	10,492
Israel	7,229	7,984	8,067	9,128	9,317	9,189	8,874	10,004	10,889	11,447	13,051
Jordan	223	255	229	272	308	422	457	503	812	945	1,055
Kuwait	968	1,038	1,099	1,343	1,426	1,813	2,302	2,689	3,078	3,872	4,256
Saudi Arabia	5,259	5,185	5,454	5,630	5,828	6,064	6,343	6,740	7,230	7,753	8,186
Other	113,743	112,419	116,855	122,491	120,232	129,660	160,662	188,786	210,093	232,340	269,057
Australia	25,479	21,732	25,908	25,997	26,047	28,764	37,577	46,506	52,719	56,884	70,287
Bangladesh	629	638	683	700	701	727	811	873	923	970	1,073
Canada	42,314	41,415	42,682	47,516	48,418	49,577	58,685	68,955	77,768	88,763	101,611
New Zealand	3,527	3,049	3,218	2,923	2,998	3,718	5,025	5,995	6,792	6,862	8,277
Norway	5,057	5,000	4,598	4,496	4,530	5,212	7,879	9,896	10,610	10,217	12,555

Appendix table 6-11

Value added of financial services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	667	696	737	774	749	850	895	984	1,075	1,163	1,309	1,356
Sri Lanka	94	105	107	116	114	123	141	165	186	227	262	276
Switzerland	8,820	11,453	14,087	16,720	19,354	21,987	23,518	22,428	24,407	25,213	28,753	30,717
All others	1,871	1,738	1,664	1,796	2,037	2,149	2,318	2,891	3,168	3,542	3,786	4,257
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	1,262	1,302	1,096	1,254	1,080	1,247	1,344	1,481	1,870	2,408	2,905	
Sri Lanka	303	451	453	473	466	509	584	634	730	957	1,095	
Switzerland	30,430	33,409	32,603	32,887	29,315	32,967	40,398	44,342	41,923	45,869	48,698	
All others	4,743	5,422	5,615	6,246	6,678	6,940	8,358	10,103	16,758	19,409	22,555	

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 business, financial, and communications services; education; and health. Commercial knowledge-intensive services exclude education and health. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-12

Value added of communications services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	228,775	271,369	314,172	345,226	357,649	403,156	434,910	476,794	499,786	541,189	600,623	627,684
United States	84,042	87,989	93,422	97,828	103,554	110,795	118,573	127,189	134,983	144,907	150,348	158,956
Asia-9	9,656	10,373	12,658	15,174	16,977	19,349	22,323	25,345	28,357	33,032	38,408	42,677
India	1,292	1,568	2,172	2,586	2,520	2,827	2,704	3,106	3,427	4,199	4,834	5,291
Indonesia	2,990	2,719	2,465	3,192	3,363	3,947	4,736	5,286	6,063	6,890	7,454	8,116
Malaysia	608	554	648	764	919	987	1,175	1,375	1,594	1,868	2,271	2,703
Philippines	256	287	307	345	374	437	570	654	677	767	877	1,092
Singapore	1,330	1,369	1,577	1,916	2,290	2,701	3,258	3,518	3,995	4,737	5,611	5,900
South Korea	1,751	1,975	2,616	3,447	4,156	4,701	5,406	5,613	6,167	7,231	9,054	10,453
Taiwan	1,063	1,253	1,693	2,002	2,495	2,666	3,141	4,112	4,424	4,873	5,176	5,500
Thailand	343	493	534	641	778	966	1,185	1,463	1,731	2,126	2,700	3,132
Vietnam	25	154	647	280	83	117	149	217	279	340	431	491
China and Hong Kong	1,830	1,946	2,227	2,747	3,196	3,688	4,626	5,738	7,785	8,509	11,471	14,248
China	1,344	1,352	1,429	1,724	2,020	2,283	2,780	3,514	5,201	5,588	8,103	10,433
Hong Kong	486	594	798	1,023	1,176	1,405	1,846	2,223	2,584	2,921	3,368	3,815
EU	62,998	85,360	104,405	113,596	114,623	141,408	150,944	167,009	157,081	163,230	184,626	185,371
Austria	1,505	2,162	2,801	3,091	3,038	3,744	3,875	4,366	4,396	4,748	5,561	5,360
Belgium	1,663	2,346	2,978	3,204	3,146	4,001	4,134	4,485	4,386	4,780	5,857	5,898
Bulgaria	168	161	342	274	246	311	125	133	168	156	183	172
Czech Republic	751	872	1,080	1,031	928	569	423	422	782	892	1,088	1,295
Denmark	994	1,362	1,790	1,999	1,960	2,570	2,524	2,953	2,734	2,967	3,296	3,795
Finland	1,060	1,368	1,772	2,064	2,139	2,608	2,548	2,355	1,795	2,047	2,513	2,683
France	10,257	14,689	17,780	17,090	17,245	21,788	22,868	25,102	24,666	26,324	29,546	29,152
Germany	17,107	23,124	28,248	30,326	30,272	37,439	39,068	45,550	45,260	47,221	55,148	49,300
Greece	1,167	1,371	1,682	1,906	1,856	2,266	2,201	2,348	2,196	2,360	2,816	2,611
Hungary	428	511	550	560	562	606	643	724	834	895	1,062	1,239
Ireland	445	601	723	815	852	1,086	1,071	1,181	1,111	1,253	1,506	1,745
Italy	7,234	10,724	13,073	13,744	13,856	17,060	18,811	21,282	18,983	16,450	17,003	20,078
Netherlands	2,047	3,011	3,828	4,189	4,217	5,190	5,353	6,235	6,084	6,475	7,581	7,650
Poland	1,059	1,122	980	1,015	1,240	1,113	1,336	1,402	1,413	1,710	1,954	2,281
Portugal	437	567	674	775	865	1,202	1,477	1,836	1,837	1,971	2,552	2,923
Romania	417	458	616	610	507	304	295	205	373	438	511	717
Slovakia	225	257	205	199	192	234	181	220	222	316	390	456
Spain	3,017	3,810	4,904	6,074	6,644	9,038	10,472	12,277	10,827	11,296	12,967	13,825
Sweden	1,628	2,160	2,700	3,049	3,307	4,197	4,469	4,973	3,898	3,975	4,644	5,192
United Kingdom	11,389	14,685	17,680	21,582	21,550	26,083	29,068	28,958	25,115	26,956	28,445	29,000
Japan	23,100	34,446	42,804	49,789	49,171	49,003	54,959	58,853	70,449	81,853	96,604	92,499

Appendix table 6-12

Value added of communications services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	632,312	637,158	671,091	710,117	728,373	768,307	865,682	981,869	1,040,828	1,108,603	1,256,568
United States	162,329	175,877	199,166	218,499	236,436	237,203	244,920	269,147	283,662	294,574	320,310
Asia-9	41,955	33,593	38,650	43,422	45,777	49,564	56,780	63,429	68,553	78,534	89,734
India	6,110	6,495	6,607	7,071	8,072	7,736	9,653	11,827	14,314	16,847	22,508
Indonesia	7,209	2,823	3,824	4,027	3,924	5,489	7,232	8,304	9,727	13,152	14,782
Malaysia	2,712	2,163	2,186	2,761	3,118	3,283	3,797	4,188	4,527	5,013	5,714
Philippines	1,173	1,189	1,562	1,759	1,999	2,373	2,714	3,106	3,621	4,134	4,926
Singapore	6,021	5,361	5,789	6,291	5,968	5,858	6,706	7,916	4,627	5,190	5,720
South Korea	9,718	7,097	9,269	10,810	12,371	14,258	15,613	16,040	18,855	20,652	21,650
Taiwan	5,697	5,868	6,503	7,754	7,387	7,398	7,653	8,175	8,652	8,611	8,651
Thailand	2,761	2,043	2,329	2,311	2,250	2,448	2,580	2,867	3,025	3,505	4,182
Vietnam	554	553	582	639	688	720	832	1,007	1,205	1,429	1,601
China and Hong Kong	17,282	18,312	19,794	27,446	32,203	36,379	40,847	48,626	58,740	71,622	88,748
China	13,361	14,919	16,939	24,102	28,638	32,799	37,457	45,689	55,643	68,476	85,201
Hong Kong	3,921	3,394	2,855	3,344	3,565	3,580	3,390	2,937	3,097	3,145	3,547
EU	178,673	190,249	189,776	173,515	178,951	205,748	250,825	289,334	286,935	296,887	336,249
Austria	4,475	4,420	4,235	3,447	3,832	4,160	5,198	5,334	5,486	5,573	6,202
Belgium	5,494	5,807	5,917	5,212	5,271	5,973	7,479	8,938	9,085	9,376	10,281
Bulgaria	203	288	436	499	656	869	1,118	1,375	1,378	1,432	1,947
Czech Republic	1,357	1,577	1,454	1,482	1,728	2,235	2,736	2,983	3,283	3,771	4,386
Denmark	3,425	3,476	3,554	3,018	3,060	3,297	4,366	4,820	4,987	4,634	5,553
Finland	2,647	3,050	3,433	3,433	3,826	4,361	5,239	5,925	5,227	5,235	5,765
France	27,074	27,429	27,891	22,839	23,560	28,545	35,050	40,914	40,821	40,843	45,736
Germany	43,458	44,326	39,105	33,212	32,836	38,045	47,744	55,902	49,624	52,887	60,858
Greece	3,037	3,141	3,763	3,128	3,263	3,830	4,739	5,272	5,531	6,166	6,774
Hungary	1,403	1,507	1,645	1,482	1,652	2,068	2,553	3,014	3,227	3,128	3,687
Ireland	1,942	2,258	2,401	2,508	2,320	2,508	3,497	4,070	4,292	4,778	5,527
Italy	19,408	20,697	21,839	19,499	22,256	25,645	31,047	35,765	36,997	37,854	41,379
Netherlands	7,300	7,961	8,037	7,733	8,285	10,288	13,684	15,216	15,429	15,506	16,843
Poland	2,676	3,112	2,969	3,070	4,234	5,169	5,462	7,021	7,461	8,354	10,533
Portugal	2,858	2,811	3,079	2,837	3,124	3,485	4,256	4,817	4,932	5,027	5,687
Romania	776	1,314	1,323	1,397	1,496	1,503	1,860	2,428	2,875	3,646	4,934
Slovakia	528	587	500	500	544	643	861	1,036	1,216	1,286	1,668
Spain	13,577	14,429	14,307	12,931	13,291	15,308	19,515	22,740	23,656	24,970	27,865
Sweden	4,951	5,072	5,065	4,824	4,346	4,871	6,019	6,326	6,342	6,163	6,824
United Kingdom	32,087	36,987	38,824	40,465	39,371	42,947	48,403	55,435	55,084	56,258	63,798
Japan	91,121	84,576	95,394	101,361	91,433	89,717	96,201	100,089	96,089	89,401	91,177

Appendix table 6-12

Value added of communications services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	7,565	8,445	10,213	10,530	10,210	10,241	9,575	10,756	10,066	10,604	12,122	12,798
Cameroon	211	255	327	273	285	348	336	339	361	202	255	319
Egypt	2,533	2,900	3,589	4,212	4,335	3,505	2,267	1,745	1,906	2,248	2,506	3,359
Kenya	304	355	404	413	425	441	419	477	289	381	498	215
Morocco	448	570	673	751	774	879	928	1,021	986	1,071	1,222	1,284
Nigeria	1,412	750	354	340	217	237	202	137	135	149	179	207
Senegal	81	112	138	146	142	173	170	186	167	109	134	138
South Africa	2,153	2,996	4,152	3,756	3,396	3,966	4,583	6,119	5,425	5,628	6,406	6,288
Tunisia	277	321	361	406	400	438	456	577	572	618	705	760
Zimbabwe	143	187	216	234	235	252	214	155	226	199	218	228
Central Europe/Asia	5,921	6,106	6,735	7,170	8,145	10,980	10,151	13,653	19,302	23,227	30,456	36,901
Russia	1,408	1,446	1,410	1,524	1,617	1,624	800	3,382	7,864	13,806	18,772	23,676
Turkey	4,458	4,605	5,270	5,591	6,470	9,297	9,323	10,121	11,248	9,058	11,163	12,442
Ukraine	55	55	55	55	57	59	28	150	190	364	520	783
Latin America	7,324	7,837	8,362	9,991	11,627	13,826	16,197	19,297	23,688	26,301	22,376	26,521
Argentina	1,279	1,457	1,427	1,871	1,042	2,171	2,899	3,470	4,739	5,562	5,920	6,271
Bolivia	37	26	28	40	46	53	57	70	83	102	127	147
Brazil	2,715	3,047	3,465	4,033	5,701	5,864	5,760	5,989	7,469	7,695	4,733	7,464
Chile	224	253	283	327	402	447	615	810	927	1,097	1,245	1,417
Colombia	498	501	501	591	654	708	782	963	1,060	1,400	1,732	2,091
Costa Rica	185	198	214	219	247	275	278	334	390	430	482	499
Ecuador	41	39	32	32	36	44	47	48	135	213	266	271
Honduras	204	231	255	284	324	171	171	191	173	156	163	156
Jamaica	62	88	104	117	133	135	127	93	217	229	224	261
Mexico	1,095	830	895	1,421	1,977	2,880	4,118	5,485	6,514	7,186	4,403	4,673
Panama	168	168	174	159	151	171	179	190	205	222	226	236
Peru	255	322	426	274	418	395	482	612	511	644	1,076	1,217
Uruguay	148	196	223	234	267	284	344	469	546	651	732	805
Venezuela	412	481	334	389	229	226	337	574	719	715	1,047	1,015
Middle East	4,796	4,893	5,170	5,997	5,858	6,164	6,505	7,190	7,462	7,879	8,426	8,968
Iran	221	202	230	243	232	260	331	312	374	372	323	328
Israel	1,192	1,441	1,786	2,472	2,362	2,624	2,826	3,025	3,019	3,245	3,778	4,229
Jordan	191	223	233	224	177	153	158	185	197	210	228	247
Kuwait	470	472	474	529	526	354	171	482	558	640	633	677
Saudi Arabia	2,721	2,555	2,448	2,527	2,562	2,772	3,020	3,186	3,314	3,413	3,464	3,487
Other	21,542	23,975	28,175	32,405	34,288	37,703	41,056	41,765	40,612	41,647	45,786	48,744
Australia	4,269	4,577	5,916	7,450	8,051	8,885	10,088	9,696	9,990	10,268	11,629	13,127
Bangladesh	89	93	97	103	106	129	135	146	156	198	236	261
Canada	10,279	10,637	11,714	13,348	14,832	16,015	17,226	17,136	15,913	15,594	16,207	17,069
New Zealand	606	951	1,258	1,502	1,341	1,443	1,495	1,371	1,376	1,584	2,024	2,237
Norway	1,169	1,496	1,888	2,205	2,273	2,602	2,518	2,831	2,515	2,578	2,793	2,908

Appendix table 6-12

Value added of communications services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	13,421	13,053	13,143	13,030	13,133	13,417	15,907	18,656	21,745	22,847	25,909
Cameroon	284	273	280	266	296	338	194	210	223	221	259
Egypt	3,771	3,838	4,145	4,075	4,086	3,960	3,612	3,943	5,529	5,682	6,899
Kenya	231	212	157	165	274	357	375	381	462	562	729
Morocco	1,217	1,292	1,331	1,185	1,280	1,419	1,443	1,736	2,028	2,242	2,539
Nigeria	236	262	69	72	87	110	135	173	225	328	379
Senegal	131	139	147	145	183	206	297	409	497	623	698
South Africa	6,553	5,998	5,979	6,083	5,427	4,962	7,616	9,886	10,991	11,243	11,797
Tunisia	761	801	838	805	866	939	1,143	1,375	1,560	1,716	2,050
Zimbabwe	237	238	196	233	633	1,127	1,092	544	231	231	559
Central Europe/Asia	39,138	28,959	22,810	26,458	25,828	32,001	41,507	54,382	65,145	75,375	94,819
Russia	24,080	13,778	8,720	10,988	12,968	16,535	21,451	30,093	35,465	43,813	55,654
Turkey	13,804	14,211	13,445	14,733	11,925	14,413	18,718	22,651	27,780	29,419	36,538
Ukraine	1,254	970	645	738	935	1,053	1,338	1,638	1,899	2,143	2,627
Latin America	30,545	36,270	34,639	47,819	46,124	39,110	41,498	50,118	63,417	74,505	90,652
Argentina	6,955	7,950	7,895	7,786	7,548	2,260	2,921	3,833	4,903	6,304	7,222
Bolivia	184	222	221	195	189	171	167	188	193	204	204
Brazil	8,291	11,254	8,381	20,122	16,593	15,524	17,339	21,922	30,069	34,102	42,957
Chile	1,536	1,658	1,606	1,458	1,275	1,305	1,698	2,034	2,362	2,775	3,226
Colombia	2,536	2,667	2,141	2,007	2,262	2,235	2,092	2,570	3,094	3,275	4,181
Costa Rica	545	563	575	637	655	723	789	847	912	1,003	1,145
Ecuador	262	358	269	307	636	772	921	1,009	1,276	1,427	1,574
Honduras	190	223	241	284	306	294	324	332	364	422	473
Jamaica	324	359	367	366	430	520	471	470	515	561	601
Mexico	5,279	6,039	7,365	8,797	10,225	10,347	10,129	11,671	13,411	15,810	18,604
Panama	283	304	345	366	385	376	347	365	397	444	504
Peru	1,297	1,213	1,154	1,180	1,116	1,122	1,199	1,342	1,448	1,798	2,051
Uruguay	888	942	964	949	883	591	566	663	841	977	1,105
Venezuela	1,974	2,517	3,114	3,362	3,621	2,869	2,535	2,874	3,631	5,404	6,805
Middle East	9,244	9,488	9,531	10,429	10,858	11,158	11,997	13,322	14,730	16,502	18,906
Iran	358	328	267	661	819	1,166	1,230	1,258	1,610	1,953	2,494
Israel	4,298	4,370	4,198	4,378	4,239	4,029	4,215	4,635	4,837	5,191	6,081
Jordan	271	320	351	402	506	506	530	617	622	665	773
Kuwait	685	739	835	939	1,043	1,014	1,400	1,850	2,312	2,932	3,283
Saudi Arabia	3,632	3,730	3,880	4,048	4,251	4,442	4,622	4,962	5,350	5,762	6,276
Other	48,605	46,782	48,189	48,138	47,630	54,011	65,201	74,766	81,811	88,357	100,063
Australia	13,700	12,209	12,592	11,638	10,580	11,812	14,744	17,582	17,872	18,365	22,460
Bangladesh	312	314	317	316	374	436	476	536	666	793	992
Canada	16,763	16,307	17,100	18,197	18,345	18,999	22,522	25,786	29,105	32,422	35,357
New Zealand	2,333	1,903	1,816	1,625	1,584	1,877	2,446	2,880	3,146	3,047	3,666
Norway	3,047	2,967	3,081	2,527	2,783	3,510	4,206	4,568	4,934	5,034	5,461

Appendix table 6-12

Value added of communications services, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	1,736	1,799	1,969	2,025	1,976	2,403	2,847	3,412	3,565	3,752	3,947	4,056
Sri Lanka	301	324	317	332	306	369	440	477	475	553	622	725
Switzerland	2,243	3,224	4,111	4,462	4,330	4,757	5,050	5,351	5,131	5,509	6,433	6,347
All others	849	875	905	977	1,073	1,101	1,258	1,344	1,491	1,611	1,895	2,013
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	4,127	4,136	4,226	4,988	4,573	5,327	6,103	6,803	8,179	9,145	10,253	
Sri Lanka	825	874	897	921	932	969	1,098	1,251	1,508	1,755	2,025	
Switzerland	5,357	5,668	5,458	4,891	5,013	7,236	9,331	10,495	10,726	10,579	11,613	
All others	2,142	2,404	2,702	3,035	3,447	3,844	4,276	4,865	5,674	7,218	8,235	

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 business, financial, and communications services; education; and health. Commercial knowledge-intensive services exclude education and health. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

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Appendix table 6-13

Value added of communications and semiconductors, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	108,510	127,559	148,120	176,324	184,462	200,046	215,504	220,257	229,024	258,738	301,835	299,867
United States	37,902	34,914	37,253	42,033	44,272	46,113	48,154	52,368	55,422	67,464	78,566	81,973
Asia-9	5,368	7,197	10,037	13,052	13,348	17,135	19,852	22,788	22,707	29,414	39,630	41,385
India	292	291	396	475	586	506	572	619	516	921	671	673
Indonesia	35	29	22	23	46	189	214	524	353	622	769	1,016
Malaysia	627	645	761	894	1,247	1,637	2,252	3,074	3,722	4,782	5,923	7,569
Philippines	114	133	157	214	258	532	707	691	684	822	1,213	1,423
Singapore	1,315	1,736	2,448	3,149	1,943	2,182	2,468	2,807	3,219	4,147	5,543	5,045
South Korea	1,535	2,188	3,119	4,635	5,111	5,943	5,578	5,741	7,409	11,081	16,978	15,318
Taiwan	1,387	2,048	2,788	3,220	3,601	4,142	4,389	4,812	5,466	5,841	7,175	8,775
Thailand	58	90	216	357	538	1,990	3,661	4,504	1,314	1,168	1,324	1,513
Vietnam	6	36	130	86	17	14	13	15	23	30	34	54
China and Hong Kong	6,404	5,583	6,326	8,403	10,195	7,933	8,279	8,858	10,405	8,928	11,387	12,245
China	5,949	4,895	5,364	7,432	9,218	7,223	7,568	7,946	9,407	7,803	10,215	11,164
Hong Kong	455	688	962	971	977	710	711	912	999	1,125	1,172	1,081
EU	19,294	25,655	31,187	34,459	35,222	42,076	42,650	43,229	38,797	42,065	46,940	48,104
Austria	722	1,064	1,358	1,394	1,499	1,938	1,917	2,010	1,954	2,113	2,483	2,345
Belgium	540	712	867	968	1,000	1,306	1,216	1,229	1,194	1,273	1,495	1,443
Bulgaria	280	281	420	463	428	318	144	105	87	61	91	54
Czech Republic	68	81	96	96	96	78	109	99	72	80	125	203
Denmark	200	295	361	332	345	486	462	492	400	490	634	670
Finland	288	391	583	614	716	922	513	642	758	1,207	1,940	2,106
France	3,001	4,213	4,899	5,172	4,989	6,149	5,930	6,366	6,130	6,314	7,581	7,891
Germany	4,261	5,996	7,244	7,726	7,705	9,208	11,467	11,610	9,700	10,425	10,276	9,423
Greece	111	147	110	143	175	213	291	305	253	169	152	140
Hungary	83	99	109	100	97	83	69	80	113	136	171	189
Ireland	43	66	99	149	207	219	228	198	249	275	396	564
Italy	2,705	3,770	4,758	5,392	6,157	7,751	7,762	7,865	6,348	6,203	5,833	6,248
Netherlands	1,097	1,506	2,100	2,072	1,966	2,506	2,273	2,388	2,371	2,616	2,843	2,460
Poland	530	549	490	565	674	473	341	256	268	335	467	487
Portugal	127	150	186	176	185	263	327	376	365	384	470	536
Romania	87	102	126	136	204	120	35	27	30	46	58	64
Slovakia	43	51	57	53	49	41	44	38	34	37	60	58
Spain	833	965	1,252	1,631	1,955	2,727	2,400	2,060	1,889	1,874	1,871	2,066
Sweden	856	1,112	1,253	1,493	1,452	1,375	1,407	1,357	1,214	1,529	2,192	2,990
United Kingdom	3,421	4,103	4,819	5,785	5,323	5,900	5,716	5,726	5,370	6,497	7,804	8,169
Japan	30,867	44,227	51,950	65,938	67,534	71,838	81,756	78,080	85,636	93,908	107,170	96,742

Appendix table 6-13

Value added of communications and semiconductors, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	310,442	291,732	334,206	389,805	286,261	279,697	321,762	380,459	400,254	445,803	445,301
United States	95,488	96,080	104,411	120,234	85,278	74,891	83,364	88,719	96,778	117,023	128,128
Asia-9	39,973	34,412	46,085	57,640	43,322	50,643	57,061	72,229	76,763	83,401	80,561
India	806	896	792	597	551	488	639	1,063	953	893	1,117
Indonesia	1,630	738	1,326	2,018	1,064	1,540	1,723	1,708	1,839	1,991	2,359
Malaysia	7,469	5,632	7,900	7,528	5,788	6,177	6,577	7,719	7,801	7,955	6,942
Philippines	1,432	1,255	1,536	1,779	1,647	1,932	1,713	1,865	1,955	2,281	2,607
Singapore	4,831	3,179	3,961	6,444	4,031	3,855	4,199	4,872	5,214	5,077	4,449
South Korea	12,632	12,193	17,486	22,710	17,358	20,555	23,712	34,277	37,507	42,271	43,137
Taiwan	10,050	9,784	12,312	15,654	12,194	15,274	17,581	19,745	20,466	21,638	18,599
Thailand	1,069	680	702	844	609	724	794	866	905	1,147	1,184
Vietnam	53	56	70	66	79	99	122	113	123	148	166
China and Hong Kong	14,957	13,022	15,441	20,215	21,664	24,088	26,630	35,202	43,830	55,071	66,279
China	13,976	12,139	14,312	18,661	20,311	23,367	26,165	34,813	43,443	54,709	66,009
Hong Kong	982	883	1,129	1,554	1,353	720	465	389	387	362	270
EU	49,838	51,737	55,600	56,488	46,101	45,448	52,139	62,320	60,906	65,219	65,149
Austria	2,008	2,151	2,129	2,165	2,167	2,089	2,340	2,714	2,760	3,045	3,098
Belgium	1,482	1,244	1,367	1,437	1,115	1,116	1,298	1,295	1,298	1,329	1,234
Bulgaria	43	47	44	54	80	152	199	132	151	107	100
Czech Republic	229	280	295	310	323	455	564	623	769	858	1,026
Denmark	672	664	756	545	507	602	588	527	555	654	778
Finland	2,680	3,986	4,947	5,514	4,569	5,792	6,856	6,972	6,963	7,759	9,296
France	7,565	8,205	8,311	8,892	7,643	7,330	7,566	8,539	7,980	7,731	8,470
Germany	9,068	9,125	10,256	10,911	7,808	8,933	12,157	15,262	14,276	15,222	14,669
Greece	114	180	206	243	372	331	320	387	387	326	331
Hungary	265	291	350	522	625	732	1,193	1,620	1,902	1,930	1,700
Ireland	1,343	1,323	2,657	2,395	2,168	1,733	1,567	1,928	2,145	3,234	3,217
Italy	6,289	5,828	5,287	5,383	5,691	5,564	7,514	8,355	8,319	8,560	7,315
Netherlands	2,160	2,115	2,098	2,435	1,500	830	967	1,086	1,174	1,032	989
Poland	524	597	670	477	612	524	502	495	586	702	714
Portugal	447	389	434	410	409	316	377	417	430	400	381
Romania	56	56	43	44	58	58	87	111	89	82	81
Slovakia	70	74	17	86	83	90	143	153	206	464	654
Spain	1,785	1,715	1,628	1,498	1,459	1,116	1,238	1,290	1,346	1,480	1,663
Sweden	3,267	3,407	3,378	2,525	1,324	1,682	1,242	4,243	4,068	4,501	4,701
United Kingdom	9,770	10,057	10,728	10,641	7,590	6,002	5,421	6,170	5,504	5,805	4,729
Japan	90,167	77,616	92,189	111,471	71,226	67,845	84,926	99,461	96,733	97,436	77,216

Appendix table 6-13

Value added of communications and semiconductors, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	305	274	533	462	370	491	483	518	440	430	520	485
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	67	39	172	107	23	48	45	45	36	38	65	63
Kenya	11	12	12	12	11	14	15	31	18	20	31	31
Morocco	12	17	20	39	45	56	41	33	30	33	37	41
Nigeria	0	0	0	0	0	0	2	3	42	9	24	4
Senegal	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	201	194	313	288	266	343	349	378	288	305	338	281
Tunisia	6	5	6	7	14	20	21	22	22	22	21	23
Zimbabwe	7	6	10	9	10	10	11	6	5	2	4	42
Central Europe/Asia	368	586	713	584	585	901	1,118	1,329	2,289	1,837	2,232	2,185
Russia	114	118	115	124	131	132	89	102	897	918	1,274	1,202
Turkey	238	452	584	441	434	750	1,016	1,125	1,306	805	850	883
Ukraine	16	16	15	19	19	19	13	102	85	114	108	101
Latin America	3,561	4,319	4,423	4,790	5,857	5,980	5,424	5,304	5,906	6,793	7,102	7,813
Argentina	364	518	408	458	293	397	562	770	436	438	328	350
Bolivia	0	0	0	1	1	1	0	1	1	1	1	2
Brazil	2,243	2,972	3,027	3,182	4,279	4,138	3,322	2,776	3,557	4,257	5,204	5,670
Chile	15	9	13	18	26	10	10	15	19	21	33	37
Colombia	44	32	39	51	52	48	51	54	58	58	89	68
Costa Rica	12	15	19	15	18	22	7	11	15	18	15	16
Ecuador	9	9	7	6	4	5	4	6	3	6	6	5
Honduras	3	3	3	2	3	2	1	1	1	1	1	1
Jamaica	1	1	2	1	1	1	1	1	1	0	1	1
Mexico	762	616	668	848	1,049	1,261	1,377	1,577	1,750	1,963	1,400	1,636
Panama	0	0	0	0	0	0	0	0	0	0	0	0
Peru	31	47	144	51	53	38	39	34	15	6	7	9
Uruguay	4	7	9	10	13	11	11	14	13	10	9	10
Venezuela	73	90	85	145	66	47	39	45	38	14	9	9
Middle East	893	909	928	1,101	1,129	1,343	1,562	1,556	1,545	1,586	993	1,220
Iran	59	68	22	28	23	48	102	103	93	50	58	68
Israel	833	841	906	1,073	1,106	1,296	1,460	1,453	1,452	1,536	935	1,152
Jordan	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0
Other	3,548	3,896	4,771	5,502	5,947	6,236	6,224	6,226	5,878	6,313	7,295	7,714
Australia	416	418	475	588	624	533	537	551	529	699	706	834
Bangladesh	4	6	5	10	7	22	8	9	9	10	36	34
Canada	2,282	2,286	2,852	3,338	3,840	3,866	3,919	3,960	3,680	3,748	4,322	4,427
New Zealand	36	44	50	54	52	47	49	48	56	69	77	87
Norway	163	217	267	222	196	193	225	218	210	236	310	345

Appendix table 6-13

Value added of communications and semiconductors, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	466	435	380	399	344	378	471	540	622	649	764
Cameroon	0	0	0	0	0	0	0	0	0	0	0
Egypt	58	63	59	57	46	61	51	59	67	74	89
Kenya	12	9	8	9	11	14	16	19	22	26	31
Morocco	44	44	4	6	7	7	10	11	11	12	13
Nigeria	4	4	1	1	1	1	2	2	2	3	3
Senegal	0	0	0	0	0	0	0	0	0	0	0
South Africa	287	263	262	284	238	228	329	386	426	432	423
Tunisia	22	25	25	23	24	25	26	30	33	40	55
Zimbabwe	39	26	21	19	17	41	38	32	60	62	149
Central Europe/Asia	2,210	1,882	1,619	1,578	1,488	1,872	2,269	2,949	3,934	4,331	4,605
Russia	1,105	627	413	381	459	458	536	828	1,173	1,464	1,624
Turkey	997	1,173	1,143	1,146	918	1,309	1,605	1,960	2,532	2,572	2,586
Ukraine	109	83	63	50	112	105	128	161	228	295	395
Latin America	8,314	7,563	7,246	9,388	8,732	6,990	5,957	8,643	9,142	10,567	9,819
Argentina	407	383	340	297	217	92	133	196	217	246	298
Bolivia	2	2	1	1	1	0	0	0	0	0	1
Brazil	5,450	4,172	3,332	4,680	4,043	3,129	2,288	3,732	4,150	5,323	5,361
Chile	34	24	11	12	7	6	2	3	3	4	4
Colombia	60	43	24	24	26	24	20	26	32	35	44
Costa Rica	20	24	13	10	11	12	12	12	13	14	16
Ecuador	3	3	1	2	2	3	2	3	3	3	4
Honduras	1	1	1	1	1	1	1	1	1	2	2
Jamaica	1	1	1	1	1	1	1	1	1	1	1
Mexico	2,316	2,888	3,503	4,339	4,400	3,706	3,483	4,650	4,700	4,911	4,056
Panama	0	0	0	0	0	0	0	0	0	0	0
Peru	9	8	6	7	6	5	5	6	7	8	9
Uruguay	6	5	4	3	5	2	2	2	3	3	4
Venezuela	7	9	9	11	11	8	7	10	11	16	20
Middle East	1,450	1,570	1,684	2,695	1,789	1,385	1,450	1,493	1,520	1,738	1,733
Iran	89	73	67	88	115	150	160	202	243	286	367
Israel	1,361	1,497	1,617	2,607	1,675	1,235	1,290	1,291	1,277	1,452	1,367
Jordan	0	0	0	0	0	0	0	0	0	0	0
Kuwait	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0
Other	7,576	7,415	9,551	9,696	6,316	6,158	7,495	8,903	10,025	10,368	11,046
Australia	715	622	656	589	528	728	839	1,140	1,320	1,466	1,723
Bangladesh	87	88	62	60	55	56	52	53	59	65	71
Canada	4,836	4,679	6,735	7,094	3,781	3,255	4,106	4,775	5,454	5,372	5,687
New Zealand	82	64	68	62	65	72	97	118	135	129	157
Norway	337	320	450	465	372	358	386	409	497	542	512

Appendix table 6-14

Value added of pharmaceuticals, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	50,204	62,383	74,473	84,990	91,448	99,982	109,256	121,632	126,431	136,236	149,083	152,057
United States	14,434	15,283	17,012	18,480	21,428	24,457	28,301	31,262	33,027	37,454	37,964	41,189
Asia-9	2,185	2,302	2,897	3,720	4,419	4,502	5,609	6,002	6,610	7,722	8,344	9,465
India	524	564	666	729	736	756	798	851	1,009	1,100	1,235	1,476
Indonesia	146	167	177	184	181	275	452	251	383	608	438	542
Malaysia	25	24	26	28	29	34	38	48	54	61	82	70
Philippines	130	133	157	227	325	332	384	538	504	505	612	857
Singapore	169	249	300	333	375	446	685	698	750	732	805	877
South Korea	799	924	1,213	1,659	2,027	2,206	2,491	2,695	3,311	3,837	4,352	4,714
Taiwan	127	166	232	288	326	343	382	569	558	600	511	589
Thailand	264	65	87	248	416	107	376	347	34	271	300	328
Vietnam	1	10	39	24	4	2	3	6	7	9	11	12
China and Hong Kong	1,552	1,578	1,787	2,477	2,741	2,383	2,734	3,305	3,843	3,263	3,699	4,456
China	1,533	1,556	1,759	2,450	2,706	2,348	2,687	3,254	3,776	3,200	3,630	4,366
Hong Kong	19	22	28	28	35	35	47	51	67	63	69	90
EU	14,430	19,681	24,450	27,943	28,604	34,996	37,235	40,829	36,987	39,686	46,054	46,987
Austria	178	315	412	511	492	617	689	732	760	712	981	866
Belgium	457	641	842	978	1,049	1,175	1,262	1,438	1,405	1,542	2,233	2,242
Bulgaria	47	58	75	73	62	49	32	43	31	28	33	19
Czech Republic	58	62	71	70	77	58	92	108	98	126	174	182
Denmark	239	362	473	544	526	724	805	967	787	1,060	1,286	1,152
Finland	147	139	188	244	280	327	341	311	217	285	316	298
France	1,969	3,348	4,112	4,525	4,368	5,214	5,492	5,991	6,187	6,422	7,924	7,609
Germany	3,483	4,353	5,329	5,788	5,821	7,438	7,705	8,437	7,869	8,490	10,225	10,396
Greece	69	89	103	131	136	183	194	201	186	212	237	213
Hungary	305	372	370	395	369	357	334	303	330	406	492	430
Ireland	150	189	217	267	313	410	422	587	609	1,008	1,274	1,157
Italy	2,500	3,496	4,544	5,105	5,328	6,907	6,815	7,034	5,601	5,923	5,466	6,789
Netherlands	503	640	688	632	549	671	778	915	1,216	1,178	1,620	1,547
Poland	163	196	172	216	243	205	183	211	200	324	477	489
Portugal	69	120	137	137	201	209	310	354	297	308	397	425
Romania	162	190	215	237	243	148	76	118	85	121	164	137
Slovakia	59	70	79	73	67	56	60	63	77	106	167	148
Spain	946	1,243	1,541	1,843	2,216	2,919	3,304	3,906	2,874	2,576	3,073	3,257
Sweden	484	698	832	1,034	1,043	1,281	1,699	1,891	1,802	2,095	2,476	2,517
United Kingdom	2,442	3,099	4,049	5,140	5,221	6,047	6,640	7,219	6,357	6,764	7,039	7,114
Japan	9,145	14,373	18,185	21,218	21,830	20,267	22,441	25,024	29,549	31,164	34,566	30,711

Appendix table 6-14

Value added of pharmaceuticals, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	149,262	148,471	166,118	168,290	178,928	189,687	221,292	244,445	260,780	286,449	318,509
United States	43,040	47,139	52,478	55,026	63,620	67,085	77,071	83,934	84,139	95,669	101,572
Asia-9	8,983	7,175	8,412	9,015	9,036	10,821	11,999	14,337	17,083	20,054	22,812
India	1,719	1,753	2,216	1,727	1,879	2,223	2,765	3,472	4,048	4,703	5,883
Indonesia	478	181	389	366	426	552	623	674	713	982	1,164
Malaysia	80	66	58	82	68	84	99	170	260	294	332
Philippines	863	669	816	916	938	969	1,012	1,093	1,250	1,444	1,650
Singapore	760	863	849	1,206	1,173	1,883	2,073	2,747	3,111	3,667	3,974
South Korea	4,168	2,885	3,251	3,899	3,713	4,335	4,652	5,272	6,679	7,621	8,313
Taiwan	632	537	572	541	579	482	427	494	553	795	862
Thailand	272	210	244	259	243	273	328	385	439	514	597
Vietnam	11	11	17	18	17	19	20	30	31	33	38
China and Hong Kong	4,893	5,296	6,298	7,746	8,807	10,150	12,446	13,830	18,736	22,740	30,137
China	4,802	5,229	6,219	7,657	8,728	10,084	12,381	13,765	18,669	22,677	30,059
Hong Kong	91	67	78	89	79	66	66	65	66	63	77
EU	44,814	45,535	49,613	46,590	49,981	54,335	66,750	74,169	80,213	87,655	99,266
Austria	786	834	755	932	626	844	1,208	1,250	1,706	1,761	2,004
Belgium	2,018	1,931	2,465	2,322	2,603	2,979	3,622	3,977	4,307	4,852	4,979
Bulgaria	15	14	12	13	13	23	30	36	40	47	58
Czech Republic	186	162	161	169	178	225	272	332	404	458	534
Denmark	1,380	1,462	1,677	1,649	1,797	1,678	2,347	2,589	3,084	2,880	2,489
Finland	278	304	298	247	295	266	319	366	444	539	655
France	7,389	7,545	7,666	7,565	8,151	8,441	10,621	10,631	11,627	12,447	13,617
Germany	9,136	8,701	9,329	8,509	9,089	9,617	13,107	15,730	18,036	19,134	24,415
Greece	208	210	181	162	202	248	341	374	437	423	519
Hungary	480	469	385	455	550	633	941	1,086	1,135	1,295	1,477
Ireland	1,221	1,689	2,373	2,005	2,097	3,047	3,055	2,984	2,661	2,834	4,267
Italy	6,097	6,256	7,215	6,163	6,322	7,002	8,356	8,989	8,014	8,553	9,369
Netherlands	1,486	1,369	1,540	1,429	1,459	1,467	1,639	1,817	2,194	2,261	2,455
Poland	501	492	470	474	537	598	709	846	1,085	1,211	1,488
Portugal	418	339	344	303	300	344	402	426	434	447	467
Romania	115	126	99	102	112	124	151	184	249	283	368
Slovakia	102	52	81	78	83	98	83	71	91	102	132
Spain	2,839	2,689	2,724	2,554	2,935	2,946	3,764	4,245	4,502	5,084	5,841
Sweden	2,470	2,749	3,255	3,032	3,182	3,992	4,890	4,995	5,339	5,827	5,921
United Kingdom	7,690	8,142	8,584	8,427	9,451	9,766	10,893	13,245	14,426	17,218	18,211
Japan	27,458	23,841	30,869	31,067	28,654	28,219	31,763	34,120	32,082	27,203	26,559

Appendix table 6-14

Value added of pharmaceuticals, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	1,129	885	1,059	1,275	1,195	1,274	815	927	709	758	1,502	1,711
Cameroon	4	5	5	4	4	2	2	5	4	2	3	2
Egypt	255	229	220	283	277	390	132	134	202	229	290	391
Kenya	15	16	17	19	19	20	19	17	10	14	16	16
Morocco	6	45	7	13	14	19	16	82	69	89	97	103
Nigeria	627	357	492	625	520	417	196	205	8	7	624	732
Senegal	1	1	4	4	1	3	3	5	3	5	5	6
South Africa	200	206	283	292	328	386	407	446	387	369	424	409
Tunisia	7	8	9	11	6	10	13	16	17	25	29	40
Zimbabwe	14	17	23	25	25	27	27	18	8	19	15	12
Central Europe/Asia	265	299	401	447	599	830	953	1,117	1,488	1,440	1,517	1,592
Russia	74	76	74	80	84	85	48	176	254	485	482	555
Turkey	187	219	322	363	509	740	901	922	1,211	909	994	970
Ukraine	5	5	5	5	5	5	4	20	23	46	42	66
Latin America	4,763	5,339	5,675	5,915	6,865	6,991	6,632	8,359	9,265	9,600	9,791	10,327
Argentina	902	1,056	846	872	577	842	1,050	1,317	1,029	1,149	1,155	1,193
Bolivia	8	7	7	10	11	10	10	11	12	17	20	23
Brazil	2,398	2,930	3,219	3,321	4,358	4,000	3,124	3,995	4,777	4,862	5,213	5,468
Chile	114	105	121	142	170	192	249	301	353	366	411	369
Colombia	224	199	230	218	247	247	278	438	428	555	682	717
Costa Rica	18	16	17	16	18	16	25	29	46	43	35	28
Ecuador	25	24	20	16	20	8	12	9	34	90	27	35
Honduras	6	6	6	7	9	6	5	5	5	5	6	6
Jamaica	6	9	12	11	14	15	16	15	20	16	17	16
Mexico	688	565	783	911	1,095	1,189	1,348	1,637	1,970	1,988	1,582	1,897
Panama	10	10	11	10	8	9	11	7	8	9	10	5
Peru	58	82	126	72	99	156	184	232	192	180	224	220
Uruguay	59	65	69	69	66	81	86	103	125	131	152	155
Venezuela	247	265	208	240	173	219	234	261	266	190	258	196
Middle East	238	354	279	326	362	382	358	381	392	426	450	486
Iran	84	104	96	90	121	119	90	109	97	142	137	139
Israel	122	214	143	185	187	211	210	196	213	202	246	263
Jordan	11	19	21	30	32	26	31	46	53	53	36	46
Kuwait	2	2	3	4	4	2	2	3	4	4	3	4
Saudi Arabia	19	16	16	16	18	23	25	27	26	26	28	34
Other	2,062	2,289	2,729	3,191	3,406	3,901	4,177	4,428	4,560	4,723	5,195	5,132
Australia	552	546	604	707	734	701	751	798	806	924	1,009	1,041
Bangladesh	49	56	57	5	31	105	102	110	131	145	191	210
Canada	907	967	1,223	1,498	1,617	1,892	1,967	1,923	1,949	1,756	1,760	1,767
New Zealand	39	38	39	44	39	42	41	40	47	61	58	62
Norway	57	83	125	141	160	187	168	250	247	237	337	431

Appendix table 6-14

Value added of pharmaceuticals, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	1,896	1,779	1,345	1,457	1,511	1,425	1,628	1,880	2,167	2,378	2,747
Cameroon	3	4	3	2	1	6	7	8	8	9	10
Egypt	499	461	558	571	661	544	453	488	549	607	731
Kenya	18	19	18	25	25	26	36	35	42	49	59
Morocco	89	112	103	115	106	120	180	194	210	221	254
Nigeria	772	716	202	258	273	277	316	367	466	553	618
Senegal	5	5	3	4	5	7	8	9	9	8	11
South Africa	452	412	406	436	394	385	563	710	807	850	953
Tunisia	44	43	47	43	42	49	55	61	61	64	71
Zimbabwe	14	8	5	3	4	11	10	9	16	16	40
Central Europe/Asia	1,798	1,616	1,685	1,752	1,524	1,858	2,304	3,007	3,645	4,242	5,096
Russia	716	531	338	434	484	521	626	801	913	1,132	1,352
Turkey	997	1,015	1,280	1,203	949	1,234	1,567	2,066	2,535	2,856	3,403
Ukraine	85	71	67	116	91	103	110	139	197	255	341
Latin America	11,633	11,566	10,456	10,582	10,242	9,414	9,733	11,204	14,006	16,619	18,820
Argentina	1,971	1,713	1,602	1,427	1,542	519	672	846	936	1,058	1,283
Bolivia	21	34	38	23	24	22	22	23	24	28	32
Brazil	5,597	5,520	4,218	4,006	3,134	2,998	3,282	3,869	5,524	6,961	8,065
Chile	373	353	312	336	309	323	382	481	642	736	844
Colombia	755	738	622	612	572	570	526	616	755	834	1,036
Costa Rica	33	35	37	42	53	60	64	74	85	98	111
Ecuador	60	42	18	71	43	51	46	50	56	64	68
Honduras	8	10	11	13	14	15	16	15	17	18	20
Jamaica	18	19	19	19	20	21	22	21	23	25	26
Mexico	2,251	2,567	3,123	3,602	4,049	4,438	4,275	4,686	5,334	6,049	6,452
Panama	8	7	6	6	5	5	5	6	6	6	7
Peru	247	225	205	215	220	231	241	287	326	371	425
Uruguay	100	91	89	71	68	49	52	66	87	105	120
Venezuela	191	211	154	138	188	113	126	163	191	266	331
Middle East	482	525	511	569	601	658	763	891	1,031	1,179	1,369
Iran	115	117	109	134	161	190	262	332	399	469	602
Israel	267	302	285	305	306	323	345	380	415	464	502
Jordan	61	73	80	87	91	98	102	123	147	165	177
Kuwait	4	2	2	3	4	6	7	9	11	15	16
Saudi Arabia	36	31	35	41	40	41	46	47	59	67	72
Other	4,265	3,997	4,451	4,485	4,950	5,721	6,836	7,072	7,677	8,709	10,130
Australia	1,124	974	1,051	961	875	854	1,017	1,171	1,408	1,480	1,709
Bangladesh	177	173	170	165	179	197	214	238	264	293	317
Canada	1,499	1,234	1,531	1,765	2,202	2,671	3,264	3,165	3,293	3,860	4,252
New Zealand	60	42	41	39	40	49	56	66	76	72	88
Norway	259	291	304	326	325	407	464	545	578	702	825

Appendix table 6-14

Value added of pharmaceuticals, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	129	142	135	156	164	184	216	280	311	274	292	280
Sri Lanka	1	1	2	2	2	3	4	4	5	8	16	12
Switzerland	324	452	541	634	655	784	924	1,019	1,058	1,311	1,524	1,322
All others	4	3	3	3	3	4	4	4	5	6	7	7
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Pakistan	256	262	263	236	242	261	332	399	483	585	647	
Sri Lanka	13	23	22	20	15	16	17	22	26	30	34	
Switzerland	868	989	1,058	961	1,059	1,253	1,457	1,449	1,527	1,659	2,224	
All others	10	10	11	13	13	14	15	17	24	28	33	

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-15

Value added of scientific instruments, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	55,475	65,070	73,906	84,019	86,799	94,326	97,044	100,430	98,575	103,100	113,208	117,221
United States	21,735	21,205	23,049	25,713	27,331	27,728	27,246	27,914	28,909	31,523	33,843	35,124
Asia-9	933	1,088	1,383	1,585	1,764	1,907	2,227	2,369	2,550	3,218	3,705	3,771
India	118	138	149	161	173	165	165	154	182	205	283	270
Indonesia	4	3	3	5	6	10	12	30	19	53	73	110
Malaysia	30	36	42	53	85	97	163	162	185	235	286	250
Philippines	5	10	11	14	17	11	13	18	39	37	38	59
Singapore	89	102	121	157	174	200	230	288	343	381	495	543
South Korea	329	422	551	643	714	789	878	896	1,077	1,476	1,715	1,729
Taiwan	285	308	420	486	541	573	636	713	666	691	658	634
Thailand	71	62	59	49	50	58	126	102	31	132	146	160
Vietnam	1	7	25	17	3	3	4	6	7	9	11	15
China and Hong Kong	1,310	1,173	1,230	1,537	1,679	1,380	1,424	1,678	2,586	1,955	1,887	2,248
China	1,021	842	852	1,025	1,144	843	930	1,167	2,122	1,499	1,467	1,910
Hong Kong	289	331	378	512	535	536	494	511	464	456	420	338
EU	18,489	24,612	29,188	31,994	32,144	38,664	39,667	42,448	37,507	38,265	42,959	46,147
Austria	259	382	482	505	517	651	659	759	730	721	773	802
Belgium	174	230	280	312	322	421	392	396	385	411	482	484
Bulgaria	21	21	28	24	23	20	13	12	12	8	13	12
Czech Republic	21	28	44	43	40	38	49	59	123	137	213	292
Denmark	302	405	488	517	503	578	604	690	702	794	898	935
Finland	158	217	266	318	362	409	371	348	306	401	553	596
France	3,253	4,388	5,053	5,233	5,080	6,241	6,127	6,482	5,945	5,750	6,923	7,759
Germany	6,517	9,037	10,767	11,616	11,659	14,275	14,967	17,446	15,142	15,186	16,554	16,910
Greece	14	16	25	33	32	35	31	33	25	20	24	32
Hungary	122	148	161	156	168	156	135	184	182	216	218	237
Ireland	147	173	236	292	343	433	483	576	627	614	704	918
Italy	2,820	3,813	4,382	4,794	4,965	5,947	5,921	5,310	4,165	4,242	4,590	5,436
Netherlands	498	725	928	864	856	1,102	1,127	1,145	1,128	1,048	1,193	1,261
Poland	382	409	372	416	486	350	259	222	227	270	391	521
Portugal	15	19	24	20	21	25	47	66	63	80	117	114
Romania	347	384	449	480	422	264	85	85	83	116	106	63
Slovakia	39	47	53	49	45	38	40	35	38	41	67	104
Spain	353	487	730	732	722	1,093	1,145	1,295	991	921	1,050	1,136
Sweden	298	391	474	514	818	1,127	1,180	1,179	1,157	1,413	1,788	2,034
United Kingdom	2,748	3,293	3,946	5,076	4,760	5,463	6,033	6,128	5,480	5,875	6,302	6,501
Japan	7,708	10,688	11,637	14,529	14,897	14,627	16,834	16,057	16,418	16,248	17,602	15,854

Appendix table 6-15

Value added of scientific instruments, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	116,890	119,388	121,454	126,281	117,423	117,460	133,095	148,999	160,969	173,660	189,257
United States	38,276	41,334	40,656	44,360	37,148	34,603	34,297	35,258	37,452	37,538	36,286
Asia-9	3,710	2,870	3,492	4,020	3,866	3,968	4,501	5,236	5,873	6,726	7,093
India	206	346	391	357	420	387	435	500	582	673	842
Indonesia	145	52	130	138	43	11	16	17	22	26	31
Malaysia	283	238	209	334	365	326	346	408	440	498	562
Philippines	60	46	56	63	65	67	70	75	86	100	114
Singapore	566	527	629	734	744	810	865	930	994	1,052	1,237
South Korea	1,659	958	1,289	1,535	1,359	1,426	1,610	1,976	2,507	2,902	2,880
Taiwan	646	581	647	710	729	784	970	1,107	990	1,181	1,088
Thailand	133	102	119	126	118	133	160	187	214	250	290
Vietnam	13	20	22	23	24	25	29	35	39	44	49
China and Hong Kong	2,305	2,322	2,395	2,881	3,092	3,386	5,461	7,010	9,049	12,236	15,376
China	1,973	2,035	2,180	2,589	2,874	3,244	5,377	6,918	8,948	12,140	15,292
Hong Kong	332	287	215	292	218	142	84	93	101	96	84
EU	43,526	44,866	45,573	44,355	44,373	47,863	57,635	65,059	69,159	73,820	83,386
Austria	764	839	803	696	760	854	1,093	1,328	1,338	1,396	1,687
Belgium	425	404	356	350	336	364	469	573	613	685	862
Bulgaria	12	12	10	8	8	11	15	19	18	22	31
Czech Republic	316	325	332	279	291	345	455	541	596	687	841
Denmark	848	932	954	1,043	1,195	1,049	1,408	1,535	1,653	1,908	2,295
Finland	603	641	681	660	705	692	861	853	994	1,073	1,259
France	7,073	7,091	7,095	6,909	6,685	7,594	8,614	10,077	9,345	9,351	8,328
Germany	15,035	15,249	15,309	15,580	15,356	15,961	20,434	23,166	24,874	27,467	31,642
Greece	26	25	28	26	25	32	49	60	65	91	121
Hungary	214	195	186	186	204	254	326	392	419	440	502
Ireland	897	1,023	1,286	1,528	1,834	2,374	2,932	2,755	3,608	3,361	4,037
Italy	5,077	5,264	5,281	4,724	5,097	6,113	5,807	6,754	7,458	8,162	9,210
Netherlands	1,002	1,080	1,227	1,220	1,266	1,446	1,904	2,041	2,220	2,326	2,556
Poland	539	627	792	670	711	674	710	782	958	1,069	1,406
Portugal	118	139	133	117	146	178	224	252	251	264	311
Romania	54	57	41	63	90	106	166	172	180	183	216
Slovakia	108	107	63	87	69	89	110	127	187	220	288
Spain	1,097	1,106	1,211	1,151	1,215	1,114	1,415	1,552	1,639	1,835	2,193
Sweden	1,896	2,074	2,010	1,449	760	965	2,248	2,402	2,542	2,744	3,168
United Kingdom	7,422	7,675	7,773	7,608	7,619	7,646	8,394	9,679	10,200	10,536	12,433
Japan	15,016	13,858	15,194	15,956	13,936	11,892	12,829	15,401	14,979	15,408	14,684

Appendix table 6-15

Value added of scientific instruments, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	100	114	192	273	216	265	267	326	158	180	191	167
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	25	19	79	97	35	48	23	9	11	24	27	22
Kenya	1	1	1	2	2	2	1	1	0	0	0	0
Morocco	4	6	6	12	11	11	10	8	7	7	7	11
Nigeria	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
South Africa	65	83	100	156	162	196	225	300	131	141	148	125
Tunisia	3	3	4	4	4	5	6	6	6	6	6	6
Zimbabwe	1	1	2	2	2	2	2	2	2	2	3	2
Central Europe/Asia	132	136	134	169	195	223	180	309	955	1,026	826	997
Russia	92	95	92	100	106	106	72	82	722	846	567	782
Turkey	9	12	13	41	58	87	94	172	187	121	215	166
Ukraine	31	30	29	29	31	30	14	55	46	60	44	49
Latin America	1,669	1,648	1,776	2,077	2,557	2,537	2,471	2,657	2,901	3,175	2,624	2,798
Argentina	95	100	105	120	78	112	142	140	216	203	208	168
Bolivia	1	1	1	1	1	1	1	2	1	1	1	1
Brazil	764	923	999	1,101	1,511	1,300	1,026	1,029	1,103	1,269	1,245	1,356
Chile	4	4	5	6	8	9	12	15	19	25	29	28
Colombia	38	39	46	60	70	70	71	75	68	65	79	84
Costa Rica	4	5	5	5	6	6	4	5	13	20	20	12
Ecuador	9	8	7	7	3	3	7	5	2	5	1	1
Honduras	1	1	1	1	1	1	1	1	0	0	1	1
Jamaica	1	1	2	2	1	1	1	1	2	2	1	1
Mexico	714	519	541	698	808	956	1,098	1,295	1,396	1,418	931	1,069
Panama	2	3	3	2	3	3	3	1	1	1	1	1
Peru	10	16	27	22	21	19	16	18	16	35	17	14
Uruguay	1	2	2	3	14	19	25	14	19	19	18	21
Venezuela	26	26	32	50	32	37	64	57	44	112	74	43
Middle East	147	140	146	152	140	145	183	101	185	201	1,356	1,480
Iran	14	11	11	10	11	14	22	35	33	35	41	44
Israel	129	124	131	138	123	125	156	60	147	161	1,308	1,430
Jordan	1	1	2	1	2	2	2	2	1	1	2	1
Kuwait	1	1	1	1	1	0	0	1	1	1	1	1
Saudi Arabia	3	2	2	2	2	3	3	4	3	3	4	5
Other	3,253	4,267	5,170	5,990	5,877	6,848	6,545	6,569	6,406	7,308	8,214	8,636
Australia	476	478	544	676	696	659	673	688	699	815	869	993
Bangladesh	0	0	0	0	0	0	0	0	0	0	0	0
Canada	614	623	715	861	971	991	870	817	789	847	903	1,003
New Zealand	16	19	22	23	22	20	21	21	24	30	33	38
Norway	82	108	133	158	148	178	200	232	234	263	336	345

Appendix table 6-15

Value added of scientific instruments, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	165	134	117	112	100	182	222	255	283	334	361
Cameroon	0	0	0	0	0	0	0	0	0	0	0
Egypt	25	16	10	14	16	64	43	40	45	50	60
Kenya	1	1	1	2	2	3	2	2	2	2	2
Morocco	10	10	11	9	6	7	15	18	19	20	23
Nigeria	0	0	0	0	0	0	0	0	0	0	0
Senegal	0	0	0	0	0	0	0	0	0	0	0
South Africa	122	99	87	80	69	100	149	180	202	246	255
Tunisia	6	7	7	6	7	7	11	12	12	13	14
Zimbabwe	1	1	1	0	0	1	1	1	2	2	5
Central Europe/Asia	901	432	368	330	682	724	1,345	2,028	2,896	3,789	4,842
Russia	597	353	276	203	597	623	1,223	1,872	2,651	3,494	4,458
Turkey	243	40	56	73	40	50	57	74	127	144	181
Ukraine	61	40	36	53	44	51	65	83	117	151	202
Latin America	3,051	3,184	2,916	3,436	3,213	3,065	2,959	3,216	3,868	4,500	4,927
Argentina	181	202	171	161	130	71	110	150	166	188	227
Bolivia	1	0	1	1	1	1	1	1	1	1	1
Brazil	1,330	1,309	965	1,202	973	908	898	1,182	1,669	2,030	2,379
Chile	33	25	16	18	13	12	19	24	29	32	36
Colombia	115	112	90	96	111	112	114	135	165	182	227
Costa Rica	4	3	3	4	3	3	2	2	2	2	3
Ecuador	0	0	0	0	1	1	1	1	1	1	1
Honduras	1	1	1	1	1	1	1	1	1	2	2
Jamaica	1	1	1	1	1	1	2	2	2	2	2
Mexico	1,287	1,416	1,559	1,822	1,858	1,868	1,731	1,616	1,711	1,892	1,844
Panama	1	1	1	1	1	1	1	1	1	1	1
Peru	14	12	8	3	1	1	0	1	1	1	1
Uruguay	17	11	11	12	11	6	5	6	8	10	11
Venezuela	66	90	89	112	108	79	74	96	112	156	194
Middle East	1,702	1,831	2,091	2,492	2,394	2,224	2,401	2,712	2,979	3,337	3,645
Iran	43	39	38	42	65	69	97	123	147	173	222
Israel	1,651	1,784	2,044	2,440	2,319	2,142	2,289	2,573	2,811	3,140	3,398
Jordan	3	3	4	4	4	7	8	9	11	12	13
Kuwait	1	1	1	1	1	1	1	1	2	2	3
Saudi Arabia	5	4	5	5	5	5	6	6	8	9	10
Other	8,237	8,554	8,651	8,341	8,621	9,554	11,445	12,823	14,431	15,972	18,656
Australia	916	793	802	720	645	684	936	1,012	1,224	1,359	1,598
Bangladesh	0	0	0	0	0	0	1	1	1	1	1
Canada	1,120	1,182	1,295	1,564	1,574	1,636	1,951	2,263	2,546	2,824	3,159
New Zealand	36	28	30	27	28	32	44	53	61	58	71
Norway	366	408	481	381	379	522	600	655	788	919	1,153

Appendix table 6-15

Value added of scientific instruments, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	6	5	5	11	11	11	11	12	15	14	16	15
Sri Lanka	0	0	0	0	0	0	0	0	1	0	1	1
Switzerland	2,057	3,032	3,748	4,258	4,028	4,987	4,768	4,797	4,643	5,336	6,053	6,238
All others	2	2	2	2	2	1	2	2	2	2	3	3

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Pakistan	13	14	14	12	13	14	17	21	25	30	34
Sri Lanka	1	1	1	1	0	0	0	0	0	1	1
Switzerland	5,782	6,125	6,024	5,632	5,977	6,661	7,892	8,811	9,777	10,769	12,629
All others	4	4	4	5	5	5	5	7	8	10	12

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-16

Value added of aerospace industry, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	53,365	62,167	70,181	68,358	72,447	80,990	86,826	78,259	74,552	65,979	64,425	71,889
United States	40,418	45,625	50,372	45,712	47,808	51,589	57,970	49,627	46,964	37,975	36,097	41,716
Asia-9	348	396	455	612	452	528	800	821	840	1,075	1,116	1,141
India	24	28	33	71	40	35	45	62	55	63	95	73
Indonesia	8	10	9	6	7	4	7	16	15	5	23	51
Malaysia	3	2	2	2	2	4	4	5	5	5	6	6
Philippines	2	1	1	3	2	4	4	4	5	5	3	4
Singapore	226	249	260	309	198	231	254	392	455	508	554	557
South Korea	14	16	14	63	43	93	264	114	154	329	257	236
Taiwan	68	85	118	142	149	148	171	163	133	141	153	187
Thailand	4	1	2	5	9	6	50	61	12	13	17	20
Vietnam	1	5	18	12	2	2	3	4	5	6	8	8
China and Hong Kong	283	259	336	566	533	349	489	665	725	623	706	736
China	211	171	249	437	399	188	308	437	485	381	461	494
Hong Kong	72	88	88	129	134	160	181	228	241	241	245	242
EU	8,803	11,969	13,998	16,124	17,961	22,507	21,614	20,477	17,470	17,623	17,592	18,295
Austria	5	8	12	33	24	21	12	54	50	26	21	27
Belgium	104	148	190	214	214	269	245	267	276	306	327	378
Bulgaria	78	79	118	129	123	92	43	42	45	32	48	31
Czech Republic	127	155	173	168	161	126	89	104	80	96	69	64
Denmark	1	1	4	10	8	11	10	13	1	16	11	11
Finland	52	50	88	92	111	113	125	92	111	137	152	156
France	1,765	2,294	2,454	2,785	2,833	3,547	3,542	3,652	3,878	3,586	4,377	4,149
Germany	1,662	2,282	2,813	3,007	3,337	4,173	4,274	4,583	3,603	3,265	3,314	4,206
Greece	125	123	120	147	184	194	220	183	178	205	185	181
Hungary	9	11	12	10	9	7	4	7	7	13	14	14
Ireland	48	74	98	109	117	155	146	187	126	111	156	207
Italy	1,048	1,581	1,778	1,927	2,429	2,886	2,582	2,396	1,936	1,987	1,569	1,637
Netherlands	87	153	248	286	365	536	550	601	471	288	150	181
Poland	256	259	229	246	280	187	120	101	91	122	119	126
Portugal	0	0	0	0	1	1	1	1	1	25	19	9
Romania	3	3	4	4	3	1	1	1	1	1	1	2
Slovakia	1	1	1	1	1	1	1	1	1	3	4	4
Spain	116	173	246	403	417	618	500	625	764	678	683	756
Sweden	397	492	636	669	585	759	834	966	577	476	625	558
United Kingdom	2,918	4,080	4,772	5,885	6,761	8,810	8,312	6,601	5,272	6,251	5,749	5,600
Japan	1,158	1,478	2,081	2,095	1,778	1,606	1,838	2,215	2,771	2,849	3,186	2,890

Appendix table 6-16

Value added of aerospace industry, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	76,992	86,845	88,344	85,264	93,626	92,007	93,965	101,276	116,263	131,887	152,844
United States	42,745	51,530	51,352	48,926	54,880	52,207	51,037	54,960	63,476	71,634	80,148
Asia-9	1,145	863	928	1,222	1,503	1,510	1,585	1,947	2,220	2,707	3,303
India	98	63	95	65	56	64	83	99	114	127	150
Indonesia	19	4	7	15	8	14	15	20	22	47	61
Malaysia	7	1	5	8	11	19	21	22	25	29	33
Philippines	4	2	3	3	3	3	3	3	4	4	4
Singapore	552	433	451	474	578	633	657	819	1,016	1,322	1,629
South Korea	238	212	246	390	437	319	318	493	474	678	869
Taiwan	207	109	64	183	292	334	362	386	447	353	387
Thailand	13	28	44	60	80	86	80	55	62	75	88
Vietnam	7	10	13	23	39	38	47	49	56	72	81
China and Hong Kong	881	972	624	609	962	1,491	2,222	3,291	4,397	6,215	10,600
China	604	736	389	375	701	1,235	1,980	3,041	4,143	5,965	10,217
Hong Kong	276	236	235	235	261	256	242	250	254	250	382
EU	21,873	23,897	25,031	23,862	24,829	25,528	27,670	27,764	32,881	35,875	40,614
Austria	37	18	21	15	16	30	11	19	26	35	33
Belgium	326	360	467	450	482	390	445	547	566	509	562
Bulgaria	21	20	11	9	4	14	18	25	37	53	68
Czech Republic	55	62	71	75	88	76	82	94	107	105	149
Denmark	14	5	8	11	13	13	11	15	20	16	22
Finland	140	149	153	109	105	123	121	133	144	139	168
France	6,204	5,772	5,739	5,456	5,691	5,395	6,610	4,820	7,363	9,798	11,017
Germany	4,378	5,024	5,901	5,033	5,730	6,154	6,404	6,866	8,896	7,791	8,927
Greece	191	177	218	181	245	308	271	304	326	381	387
Hungary	13	20	23	18	16	20	29	40	40	61	84
Ireland	218	223	227	255	231	244	283	302	330	358	411
Italy	1,685	2,157	1,736	1,757	1,688	1,728	1,593	1,989	2,027	2,493	3,404
Netherlands	291	321	327	245	265	284	413	390	451	476	540
Poland	135	126	118	162	160	161	156	170	210	279	339
Portugal	19	23	9	9	8	10	13	13	12	12	13
Romania	2	1	1	1	1	2	3	3	4	5	7
Slovakia	4	3	3	2	3	3	4	5	4	5	6
Spain	777	819	840	807	630	914	1,225	1,239	1,316	1,603	1,783
Sweden	397	726	653	657	680	637	797	868	984	895	984
United Kingdom	6,966	7,892	8,505	8,609	8,772	9,024	9,182	9,921	10,018	10,861	11,711
Japan	2,711	3,253	3,446	2,845	3,251	3,296	3,455	3,895	3,276	3,976	4,481

Appendix table 6-16

Value added of aerospace industry, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	50	37	115	142	141	146	161	191	133	138	162	140
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0	0
Kenya	3	3	3	3	3	3	2	2	1	2	2	2
Morocco	0	0	0	0	0	0	0	0	0	0	0	0
Nigeria	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
South Africa	43	31	109	135	129	136	151	181	125	129	152	128
Tunisia	4	2	2	1	6	5	5	5	5	7	7	8
Zimbabwe	1	1	1	2	3	2	2	3	1	1	1	2
Central Europe/Asia	94	100	104	118	124	151	138	205	1,895	1,725	744	1,863
Russia	68	69	68	73	78	78	53	60	1,693	1,585	588	1,714
Turkey	20	24	31	38	40	67	81	98	143	73	97	102
Ukraine	6	6	6	6	6	6	4	47	59	66	59	48
Latin America	170	189	174	192	259	266	243	333	293	322	449	453
Argentina	21	27	20	21	16	27	30	45	13	13	9	13
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	96	122	113	124	170	183	152	186	212	245	293	316
Chile	3	3	4	5	7	9	7	13	12	8	11	13
Colombia	17	17	17	15	16	16	18	33	16	14	61	48
Costa Rica	2	2	3	3	5	4	5	6	5	6	7	7
Ecuador	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
Jamaica	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	25	14	14	20	41	25	30	49	34	34	67	56
Panama	5	5	4	3	4	2	1	1	1	1	1	1
Peru	0	0	0	0	0	0	0	0	0	0	0	0
Uruguay	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Middle East	122	134	123	128	140	173	192	178	149	136	148	166
Iran	0	0	0	0	0	0	0	0	0	0	0	0
Israel	122	134	123	128	140	173	192	178	149	136	148	166
Jordan	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0
Other	1,918	1,980	2,423	2,669	3,250	3,675	3,381	3,549	3,311	3,513	4,224	4,489
Australia	383	369	374	443	496	388	411	458	437	461	490	570
Bangladesh	0	0	0	0	0	0	0	0	0	0	0	0
Canada	1,191	1,166	1,468	1,563	2,132	2,510	2,262	2,384	2,194	2,270	2,869	3,037
New Zealand	43	50	63	65	55	52	44	37	37	43	59	59
Norway	69	61	106	131	127	188	147	144	132	144	140	207

Appendix table 6-16

Value added of aerospace industry, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	133	143	140	160	169	151	220	261	274	262	255
Cameroon	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0
Kenya	2	2	2	4	4	4	4	7	8	10	12
Morocco	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0
Senegal	0	0	0	0	0	0	0	0	0	0	0
South Africa	122	133	130	149	160	140	208	245	256	243	231
Tunisia	7	7	7	6	5	6	7	8	8	9	10
Zimbabwe	2	1	0	0	0	1	0	0	1	1	2
Central Europe/Asia	1,916	1,079	712	545	604	1,024	781	996	1,275	1,549	2,028
Russia	1,688	983	617	396	495	871	577	742	921	1,098	1,434
Turkey	140	31	34	44	35	44	33	37	48	55	63
Ukraine	88	65	61	105	75	109	171	216	307	396	531
Latin America	677	826	1,192	1,593	1,955	1,789	1,456	1,959	1,666	1,932	2,436
Argentina	9	8	4	5	5	1	1	1	1	1	1
Bolivia	0	0	0	0	0	0	0	0	0	0	0
Brazil	539	670	1,016	1,399	1,756	1,586	1,288	1,757	1,444	1,701	2,167
Chile	13	37	35	48	34	34	27	29	35	39	43
Colombia	49	39	29	28	43	39	29	39	47	52	65
Costa Rica	7	10	10	11	8	9	7	9	11	12	14
Ecuador	0	0	0	0	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0	0	0
Mexico	59	61	96	101	108	119	101	124	127	125	146
Panama	1	1	1	1	1	1	1	1	1	1	1
Peru	0	0	0	0	0	0	0	0	0	0	0
Uruguay	0	0	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0
Middle East	187	195	202	225	228	202	214	250	261	271	324
Iran	0	0	0	0	0	0	0	0	0	0	0
Israel	187	195	202	225	228	202	214	250	261	271	324
Jordan	0	0	0	0	0	0	0	0	0	0	0
Kuwait	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0
Other	4,725	4,086	4,718	5,277	5,245	4,809	5,325	5,952	6,539	7,465	8,655
Australia	575	558	588	488	407	546	742	838	916	1,017	1,196
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Canada	3,444	2,980	3,586	4,294	4,281	3,637	3,833	4,220	4,710	5,391	6,115
New Zealand	51	44	41	39	42	52	67	78	89	84	103
Norway	172	36	49	50	97	110	131	179	169	246	346

Appendix table 6-16

Value added of aerospace industry, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	0	0	0	0	0	0	0	0	0	0	0	0
Sri Lanka	0	0	0	0	0	0	0	0	0	0	0	0
Switzerland	230	332	410	465	439	535	514	524	509	593	663	612
All others	2	2	2	2	2	2	2	2	2	3	3	3

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
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
Switzerland	479	464	449	400	414	457	547	630	644	715	881
All others	5	5	5	5	5	6	6	8	10	12	14

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

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Appendix table 6-17

Value added of computers and office machinery, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	45,013	53,428	62,117	69,685	71,433	75,932	77,244	75,900	73,080	78,973	91,909	94,856
United States	17,779	18,084	21,503	22,791	23,106	22,055	20,015	19,767	19,536	21,602	22,890	25,637
Asia-9	729	882	1,349	1,865	3,804	4,805	5,039	6,211	7,310	8,825	11,588	13,976
India	30	23	21	29	192	162	216	259	112	264	246	174
Indonesia	0	0	0	0	0	1	1	2	5	4	6	1
Malaysia	4	4	5	2	3	26	87	92	145	130	165	485
Philippines	2	1	6	3	9	5	9	12	42	83	204	177
Singapore	177	176	211	273	1,605	2,038	2,136	2,630	3,593	4,261	5,467	6,804
South Korea	137	217	369	627	776	997	829	994	1,077	1,494	2,084	2,058
Taiwan	377	449	690	902	1,214	1,554	1,697	2,097	2,215	2,578	3,409	4,266
Thailand	0	0	0	0	0	17	61	121	115	4	1	1
Vietnam	1	11	46	29	5	3	2	4	5	6	7	8
China and Hong Kong	142	128	146	297	342	648	634	668	559	588	1,044	1,288
China	59	46	46	45	60	47	60	93	117	129	446	697
Hong Kong	83	83	100	252	282	601	575	575	442	459	598	590
EU	14,853	18,270	20,383	22,119	20,546	22,499	22,758	19,974	16,074	17,069	20,910	19,225
Austria	9	14	19	20	20	24	25	26	26	27	34	31
Belgium	53	72	86	92	95	125	121	122	129	138	161	161
Bulgaria	13	13	18	15	14	13	8	7	7	5	8	7
Czech Republic	16	20	22	21	21	15	15	23	23	25	40	169
Denmark	67	86	117	126	127	140	128	156	99	135	102	166
Finland	100	204	281	267	144	362	121	204	134	127	174	176
France	1,868	2,580	3,003	3,120	3,013	3,659	3,577	3,766	3,227	3,228	4,021	3,131
Germany	8,332	9,782	9,944	9,811	8,338	9,048	9,428	7,514	5,264	4,881	5,459	4,653
Greece	19	19	18	22	19	25	39	35	14	10	10	15
Hungary	10	12	13	12	12	11	13	10	14	9	8	56
Ireland	239	351	506	605	700	828	818	733	595	809	1,994	1,712
Italy	728	944	1,151	1,221	1,247	1,254	1,228	1,296	736	733	1,268	973
Netherlands	143	275	284	249	241	304	340	439	324	365	468	422
Poland	92	94	83	92	108	78	56	43	42	52	80	92
Portugal	46	15	23	4	4	9	10	11	11	14	18	30
Romania	20	22	25	27	22	16	4	5	4	6	7	7
Slovakia	8	9	11	10	9	8	8	8	6	7	19	16
Spain	543	588	640	943	1,148	1,099	1,499	890	1,098	1,097	1,180	1,413
Sweden	469	727	851	908	805	452	545	434	287	288	294	313
United Kingdom	2,078	2,441	3,290	4,553	4,457	5,031	4,774	4,253	4,033	5,111	5,566	5,684
Japan	9,048	13,181	15,437	18,812	19,745	21,966	25,323	25,705	25,584	26,341	30,807	29,441

Appendix table 6-17

Value added of computers and office machinery, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	94,780	94,718	92,777	94,946	77,790	73,184	81,863	85,894	89,943	96,387	114,016
United States	28,473	33,381	30,061	29,937	22,861	23,753	23,228	21,697	24,934	23,907	28,098
Asia-9	14,455	10,898	12,716	14,903	11,833	12,106	10,817	9,174	9,823	11,023	12,035
India	227	156	142	92	61	51	53	68	47	53	67
Indonesia	6	2	2	3	14	5	4	5	4	4	5
Malaysia	736	384	431	664	466	260	182	168	165	187	210
Philippines	179	121	115	121	130	86	86	84	46	28	31
Singapore	6,715	3,538	3,754	4,018	3,052	3,503	3,208	3,694	4,348	5,281	5,964
South Korea	2,424	2,002	2,980	4,111	3,275	3,099	3,070	1,749	1,962	2,390	2,565
Taiwan	4,160	4,676	5,235	5,850	4,808	5,080	4,188	3,379	3,211	3,028	3,134
Thailand	2	1	1	1	1	1	1	1	1	2	2
Vietnam	7	19	56	44	26	22	25	25	41	51	58
China and Hong Kong	1,535	2,033	2,276	3,626	4,428	7,181	15,961	22,258	26,452	34,202	44,473
China	1,019	1,400	1,971	3,376	4,275	7,090	15,909	22,200	26,387	34,143	44,425
Hong Kong	516	633	305	250	153	91	52	58	64	59	48
EU	18,894	19,097	17,815	15,818	13,466	12,902	14,630	16,545	17,113	14,936	17,363
Austria	34	105	107	64	66	81	88	70	108	106	104
Belgium	132	120	95	85	71	70	84	104	100	104	123
Bulgaria	8	7	6	5	3	5	3	3	2	3	4
Czech Republic	105	84	114	161	120	58	153	103	145	112	371
Denmark	99	109	137	110	111	108	128	117	128	154	184
Finland	162	100	67	4	22	13	20	25	25	33	37
France	3,066	2,829	2,682	2,166	2,068	1,739	1,929	1,517	980	833	742
Germany	5,019	4,824	3,977	3,803	2,949	3,255	4,161	5,096	4,746	4,609	6,153
Greece	10	10	11	7	6	5	5	6	5	6	5
Hungary	170	214	174	210	170	121	328	505	575	373	280
Ireland	1,298	1,381	2,053	2,147	1,364	1,492	1,254	1,841	2,612	2,423	2,693
Italy	904	1,064	1,133	1,037	1,222	734	788	1,119	933	785	551
Netherlands	400	506	473	514	406	311	323	387	373	343	407
Poland	76	99	144	182	117	104	123	123	230	171	206
Portugal	41	33	43	34	30	37	44	47	48	45	53
Romania	5	6	4	4	6	7	9	9	9	11	15
Slovakia	10	12	10	11	14	13	19	44	32	33	33
Spain	994	1,075	946	716	689	643	710	624	672	438	400
Sweden	267	346	314	246	129	164	310	378	298	278	302
United Kingdom	6,094	6,176	5,324	4,310	3,904	3,943	4,148	4,425	5,091	4,077	4,701
Japan	25,397	23,192	23,790	23,752	18,880	12,346	13,101	11,825	6,696	6,654	5,956

Appendix table 6-17

Value added of computers and office machinery, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	14	15	15	24	20	23	22	38	40	52	38	40
Cameroon	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	5	0	0	5	3	2	4	0	8	14	2	2
Kenya	0	0	0	0	0	0	0	0	0	0	0	0
Morocco	4	6	6	10	8	10	7	27	24	30	26	28
Nigeria	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
South Africa	5	9	8	9	8	9	10	9	8	7	8	8
Tunisia	0	0	0	0	1	1	1	1	1	2	2	2
Zimbabwe	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	58	74	83	60	65	74	43	107	248	337	326	464
Russia	49	51	49	53	57	57	30	79	214	311	298	436
Turkey	6	20	30	4	5	13	10	14	20	8	17	21
Ukraine	4	3	3	3	3	3	2	13	14	19	11	7
Latin America	980	1,154	1,263	1,401	1,706	1,581	1,406	1,528	1,660	1,826	1,844	2,406
Argentina	53	64	48	47	31	48	62	69	98	91	71	87
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	725	942	991	983	1,302	1,081	817	830	860	892	824	787
Chile	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	3	2	3	2	2	2	2	3	3	4	4	4
Costa Rica	0	0	0	0	0	0	0	0	0	0	1	0
Ecuador	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
Jamaica	0	0	0	0	0	0	0	0	0	0	1	0
Mexico	194	140	210	360	365	438	508	614	681	831	936	1,521
Panama	0	0	0	0	0	0	0	0	0	0	0	0
Peru	1	2	8	5	3	5	8	2	2	4	5	4
Uruguay	2	2	2	1	2	2	3	3	4	3	3	3
Venezuela	2	2	2	3	2	4	5	6	11	0	0	0
Middle East	48	59	52	56	56	61	56	61	68	88	182	207
Iran	1	1	2	2	4	4	1	2	3	8	6	7
Israel	40	51	43	47	45	50	48	52	58	72	166	189
Jordan	0	0	0	0	0	0	0	0	0	0	0	0
Kuwait	2	3	3	4	3	3	1	2	2	3	4	4
Saudi Arabia	4	3	3	3	4	5	5	6	5	6	6	7
Other	1,361	1,581	1,886	2,259	2,044	2,220	1,949	1,840	2,002	2,244	2,281	2,172
Australia	75	72	81	98	108	106	111	117	116	140	148	174
Bangladesh	0	0	0	0	0	0	0	0	0	0	0	0
Canada	559	476	603	821	685	590	468	356	555	570	389	306
New Zealand	16	19	22	24	23	20	21	21	24	30	34	38
Norway	106	166	138	134	108	120	52	56	40	56	55	64

Appendix table 6-17

Value added of computers and office machinery, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	35	24	26	22	13	12	14	17	17	17	19
Cameroon	0	0	0	0	0	0	0	0	0	0	0
Egypt	2	3	3	2	2	1	0	0	1	1	1
Kenya	0	0	0	0	0	0	0	0	0	0	0
Morocco	24	14	16	13	5	4	5	5	4	4	4
Nigeria	0	0	0	0	0	0	0	0	0	0	0
Senegal	0	0	0	0	0	0	0	0	0	0	0
South Africa	7	6	5	5	4	5	7	8	9	10	11
Tunisia	2	2	2	2	2	2	2	3	3	3	3
Zimbabwe	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	416	258	264	279	340	369	381	509	718	907	1,001
Russia	368	191	144	192	283	296	300	392	555	666	771
Turkey	29	59	109	64	39	54	57	88	121	186	156
Ukraine	19	8	11	22	18	19	24	30	42	55	73
Latin America	3,389	3,699	3,806	4,757	4,563	3,273	2,461	2,573	2,955	3,457	3,819
Argentina	90	90	65	66	54	15	26	31	36	40	48
Bolivia	0	0	0	0	0	0	0	0	0	0	0
Brazil	875	833	881	1,543	1,658	826	811	771	1,143	1,573	2,088
Chile	0	0	0	0	0	0	0	0	0	0	0
Colombia	4	4	3	3	3	3	3	3	4	5	6
Costa Rica	1	1	1	1	1	1	1	1	1	1	1
Ecuador	0	0	0	0	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0	0	0	0	0
Jamaica	0	1	1	1	1	1	1	1	1	1	1
Mexico	2,412	2,762	2,851	3,139	2,841	2,424	1,617	1,763	1,765	1,832	1,669
Panama	0	0	0	0	0	0	0	0	0	0	0
Peru	5	5	3	3	3	3	2	3	3	4	4
Uruguay	2	3	2	2	2	1	1	1	1	1	1
Venezuela	0	0	0	1	1	0	0	1	1	1	1
Middle East	204	176	176	191	187	152	142	137	141	150	166
Iran	8	7	6	7	7	10	12	15	18	21	27
Israel	184	159	159	172	168	129	115	106	102	105	113
Jordan	0	0	0	0	0	0	0	0	0	0	0
Kuwait	4	4	4	3	3	4	5	7	8	10	12
Saudi Arabia	8	7	7	9	8	9	10	10	13	14	15
Other	1,982	1,958	1,848	1,662	1,218	1,091	1,128	1,158	1,095	1,133	1,085
Australia	158	129	138	117	100	162	179	154	168	168	182
Bangladesh	0	0	0	0	0	0	0	0	0	0	0
Canada	674	781	592	759	411	452	516	564	505	585	480
New Zealand	36	28	29	27	28	31	42	52	60	57	70
Norway	84	62	91	24	29	12	28	22	28	17	66

Appendix table 6-17

Value added of computers and office machinery, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	14	15	15	15	16	18	19	22	27	25	29	21
Sri Lanka	0	0	0	0	1	0	0	0	3	4	8	7
Switzerland	590	830	1,026	1,165	1,102	1,365	1,275	1,266	1,233	1,417	1,615	1,559
All others	2	2	2	2	2	2	2	2	2	3	4	4

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Pakistan	19	19	19	17	18	19	24	29	36	43	48
Sri Lanka	22	22	86	28	6	6	5	7	8	10	11
Switzerland	984	911	886	682	619	400	325	320	277	238	209
All others	5	6	6	7	7	8	8	10	13	16	19

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-18

Value added of all manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
World	2,501,768	2,975,155	3,404,729	3,853,218	3,997,150	4,296,072	4,420,025	4,680,233	4,716,070	5,031,106	5,574,701	5,593,773
United States	776,167	805,110	853,158	921,099	976,119	997,592	1,010,338	1,053,434	1,100,014	1,185,640	1,245,202	1,288,329
Asia-9	124,204	140,842	172,404	207,543	225,563	245,337	266,865	292,694	315,103	360,647	423,908	458,113
India	33,971	36,834	40,704	44,681	46,220	50,279	41,059	41,740	41,124	49,386	59,744	62,303
Indonesia	17,092	16,406	15,754	21,416	24,516	28,949	33,512	37,408	43,153	50,570	59,729	71,317
Malaysia	6,191	5,501	6,265	7,566	9,090	10,484	12,340	15,015	17,048	19,505	23,034	27,602
Philippines	7,731	7,356	8,247	9,708	10,589	11,003	11,498	12,811	12,891	14,907	17,043	18,896
Singapore	4,171	4,730	5,794	7,679	8,890	9,523	11,495	12,628	14,688	17,124	20,736	21,789
South Korea	23,586	28,911	37,945	51,682	60,447	64,605	76,366	79,406	87,860	103,880	128,838	133,452
Taiwan	22,603	28,877	38,480	44,311	49,606	51,332	57,293	64,457	64,781	66,830	69,331	73,706
Thailand	8,528	10,290	12,257	15,934	15,252	18,370	22,299	27,710	31,559	36,016	42,344	45,305
Vietnam	331	1,939	6,957	4,565	954	793	1,001	1,519	1,999	2,428	3,109	3,743
China and Hong Kong	113,884	112,704	122,030	151,444	167,216	140,156	145,506	172,786	220,385	199,485	255,501	297,178
China	106,632	104,093	111,623	139,847	154,819	127,462	132,927	159,827	208,315	188,048	244,976	286,894
Hong Kong	7,252	8,612	10,406	11,597	12,397	12,694	12,579	12,958	12,069	11,437	10,524	10,283
EU	720,801	952,944	1,141,445	1,254,416	1,280,762	1,509,497	1,484,655	1,559,952	1,363,915	1,449,299	1,679,487	1,679,320
Austria	13,579	19,389	23,536	25,421	25,246	31,855	32,551	35,197	32,485	34,523	42,137	40,836
Belgium	17,502	24,393	28,978	32,478	33,300	41,108	39,041	42,161	38,919	42,558	51,722	49,344
Bulgaria	6,403	7,553	10,165	8,190	7,503	6,129	2,126	2,286	2,355	1,947	2,716	2,015
Czech Republic	6,098	8,044	8,997	8,738	8,362	6,621	6,327	7,449	7,719	9,409	12,122	14,699
Denmark	9,875	13,813	16,566	16,975	16,461	20,364	20,181	22,419	20,433	22,434	26,924	26,142
Finland	12,093	15,219	19,305	22,455	24,160	27,321	21,559	19,907	17,165	21,849	28,806	27,144
France	95,984	131,814	155,643	167,473	165,510	204,052	201,038	215,332	195,449	201,166	234,912	228,047
Germany	209,032	279,261	333,070	356,208	364,831	450,470	451,910	484,734	427,762	447,054	516,507	489,447
Greece	7,588	8,913	9,853	11,144	11,424	13,033	12,956	13,628	12,822	13,237	14,268	15,102
Hungary	5,677	6,438	6,749	6,550	6,437	6,569	6,216	6,932	7,019	7,552	8,295	8,387
Ireland	4,272	5,858	7,166	8,312	8,971	11,438	11,573	13,415	12,451	13,982	18,096	19,412
Italy	102,429	142,581	176,295	192,688	201,486	240,479	241,309	248,441	198,722	207,462	225,477	247,570
Netherlands	21,759	31,359	38,895	42,092	41,511	50,338	49,689	53,701	51,648	54,923	65,984	63,054
Poland	21,069	21,754	19,117	21,225	25,992	17,862	14,892	14,423	13,596	18,999	25,885	27,406
Portugal	5,078	7,020	8,752	9,595	10,162	12,643	14,017	16,969	14,813	15,573	18,533	19,749
Romania	18,465	20,655	23,027	23,797	20,397	13,062	8,512	5,468	6,531	8,027	8,729	9,469
Slovakia	3,057	3,645	4,097	3,803	3,486	2,927	3,139	2,858	2,432	3,057	4,700	4,938
Spain	40,006	55,276	68,097	78,072	84,827	104,228	107,584	111,979	89,878	89,589	105,614	109,390
Sweden	21,048	28,251	34,086	37,918	38,922	43,691	41,377	41,006	32,632	38,243	49,767	52,237
United Kingdom	99,788	121,707	149,051	181,282	181,775	205,306	198,659	201,646	179,083	197,714	218,294	224,933
Japan	383,435	551,450	658,050	794,440	789,144	810,475	922,590	971,176	1,052,108	1,103,549	1,218,078	1,077,349

Appendix table 6-18

Value added of all manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
World	5,542,361	5,388,684	5,530,252	5,664,363	5,346,741	5,469,319	6,066,360	6,804,738	7,258,713	7,870,935	8,874,592
United States	1,367,281	1,440,507	1,491,777	1,542,952	1,460,004	1,471,634	1,482,873	1,558,717	1,623,901	1,711,683	1,755,618
Asia-9	448,699	336,727	394,021	439,409	405,685	446,691	495,666	575,326	646,545	737,417	841,379
India	63,226	60,733	61,343	66,841	66,823	71,596	83,410	100,097	117,856	136,325	170,533
Indonesia	70,779	29,212	44,561	45,786	46,615	56,190	66,330	72,083	79,520	102,231	121,108
Malaysia	27,945	20,421	24,069	28,947	27,219	29,494	32,982	37,897	40,838	46,279	52,224
Philippines	18,334	14,254	16,475	16,878	16,308	17,735	18,523	20,037	22,958	26,916	31,652
Singapore	21,573	18,839	18,804	23,859	19,599	21,311	22,159	28,395	30,715	35,663	38,279
South Korea	121,377	85,570	111,898	133,744	117,725	129,917	141,972	173,325	199,851	220,929	240,242
Taiwan	75,521	68,499	71,756	76,342	66,310	70,491	72,506	78,671	82,659	83,581	87,321
Thailand	45,519	34,534	40,039	41,226	38,619	42,739	49,695	55,580	61,211	72,554	85,451
Vietnam	4,425	4,666	5,075	5,786	6,466	7,218	8,090	9,241	10,938	12,939	14,569
China and Hong Kong	326,155	333,477	350,400	393,619	426,768	463,319	544,727	630,932	739,511	925,668	1,267,574
China	316,112	324,609	342,234	384,938	419,106	456,729	539,025	625,224	733,654	919,972	1,260,867
Hong Kong	10,043	8,868	8,166	8,681	7,662	6,590	5,702	5,708	5,857	5,696	6,707
EU	1,585,101	1,629,445	1,584,882	1,462,495	1,443,271	1,524,311	1,803,172	2,050,890	2,102,254	2,223,026	2,555,815
Austria	37,026	37,827	37,887	35,342	35,027	36,906	44,326	50,454	53,287	58,804	67,661
Belgium	45,092	45,414	43,377	39,704	38,407	40,975	48,345	55,896	57,137	60,262	66,957
Bulgaria	1,721	2,180	1,951	1,984	2,108	2,330	3,051	3,625	3,979	4,764	5,722
Czech Republic	14,131	14,419	14,429	13,788	14,799	17,347	20,466	26,379	29,437	33,741	42,959
Denmark	24,787	24,894	24,437	22,226	21,895	23,552	27,476	30,257	30,935	33,765	39,240
Finland	26,236	29,053	28,711	27,831	28,224	29,554	34,561	38,679	39,088	43,172	50,757
France	209,172	215,279	209,380	190,479	185,853	192,837	228,438	252,052	255,250	258,812	284,086
Germany	438,818	449,215	431,500	392,241	389,589	408,465	493,136	561,932	570,672	609,072	711,577
Greece	13,084	13,326	13,512	12,489	14,374	15,825	20,664	23,608	27,545	31,464	34,309
Hungary	9,117	9,408	9,331	9,601	10,234	12,344	15,889	19,247	20,947	21,968	26,242
Ireland	22,288	26,279	29,588	27,854	29,483	35,113	39,415	41,916	41,848	43,343	50,966
Italy	232,347	236,214	226,138	205,390	205,002	218,370	259,244	292,700	294,346	302,716	344,948
Netherlands	56,197	58,123	57,418	53,481	52,642	55,826	68,039	77,790	80,958	82,648	94,395
Poland	27,491	29,673	28,097	28,225	28,475	28,838	33,793	42,940	49,565	56,648	71,679
Portugal	18,632	18,982	19,140	16,988	17,069	18,316	21,555	23,792	23,543	24,176	27,107
Romania	8,448	8,928	6,739	8,123	9,221	10,373	12,390	15,769	20,546	25,098	29,808
Slovakia	4,445	4,612	4,480	4,473	4,822	5,042	6,977	9,046	10,255	12,154	16,649
Spain	101,797	105,285	105,064	97,724	100,262	108,057	133,935	152,868	159,970	170,517	195,959
Sweden	47,965	48,673	49,069	47,424	40,718	44,248	54,341	62,101	62,874	67,739	79,270
United Kingdom	246,307	251,661	244,633	227,129	215,068	219,994	237,132	269,840	270,072	282,162	315,524
Japan	983,285	868,623	968,484	1,033,786	856,642	808,675	886,471	974,736	979,573	933,487	895,240

Appendix table 6-18

Value added of all manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Africa	37,038	40,050	47,935	54,618	53,943	52,355	48,807	49,748	48,348	51,521	60,264	63,000
Cameroon	1,398	1,845	2,040	2,116	1,941	2,183	2,158	2,204	2,124	1,391	1,709	1,776
Egypt	10,575	13,549	17,705	21,105	19,728	13,097	7,952	7,591	8,518	10,031	11,393	14,909
Kenya	1,055	1,254	1,326	1,420	1,391	1,442	1,420	1,279	820	1,080	1,267	1,400
Morocco	2,410	2,947	3,451	3,920	4,108	4,797	4,838	5,206	4,867	5,218	6,111	6,310
Nigeria	7,186	3,757	1,860	2,428	1,694	1,829	1,953	1,561	1,767	2,860	4,809	6,073
Senegal	382	550	688	768	727	894	855	951	868	642	740	755
South Africa	11,480	13,183	17,666	19,265	20,391	24,040	25,136	26,337	25,301	25,940	29,276	26,566
Tunisia	1,527	1,752	1,806	2,071	2,060	2,275	2,413	2,803	2,704	3,047	3,589	3,772
Zimbabwe	1,024	1,213	1,394	1,525	1,903	1,798	2,082	1,816	1,380	1,313	1,372	1,439
Central Europe/Asia	20,859	25,505	27,501	29,797	34,141	42,409	39,693	63,959	84,560	95,968	98,419	114,352
Russia	6,379	6,553	6,390	6,904	7,329	7,361	4,872	18,566	36,988	54,147	48,592	63,512
Turkey	12,274	16,812	19,037	20,856	24,774	33,085	33,489	34,424	37,544	28,826	38,209	38,364
Ukraine	2,206	2,140	2,074	2,037	2,038	1,963	1,333	10,970	10,027	12,995	11,618	12,476
Latin America	170,771	176,392	182,619	209,158	230,637	249,126	253,498	266,561	282,995	309,132	287,940	301,380
Argentina	26,130	29,031	29,919	35,529	25,864	37,787	46,199	49,976	38,928	41,590	44,513	47,740
Bolivia	780	616	851	820	801	826	947	968	968	996	1,123	1,215
Brazil	68,306	78,653	83,951	91,193	121,012	120,860	103,860	99,146	124,672	141,491	124,975	124,136
Chile	2,621	3,212	3,675	4,425	5,040	5,694	6,705	8,067	8,694	9,937	12,801	13,264
Colombia	7,690	8,095	7,616	8,549	8,509	8,278	8,761	9,835	10,524	12,253	13,654	13,999
Costa Rica	1,164	1,260	1,300	1,319	1,440	1,481	1,499	1,820	1,967	2,111	2,341	2,381
Ecuador	3,067	2,265	2,084	2,169	2,101	2,098	2,477	2,830	1,740	2,339	2,281	2,243
Honduras	673	700	771	896	1,000	639	641	753	769	732	885	917
Jamaica	409	548	642	703	808	836	709	652	771	769	864	939
Mexico	37,734	27,836	31,722	40,941	44,906	49,992	59,212	67,325	70,591	72,594	54,546	65,073
Panama	1,006	956	917	704	693	781	872	966	997	1,034	1,079	1,106
Peru	2,384	3,406	4,354	3,886	4,792	4,857	5,564	6,528	5,637	7,158	8,116	8,346
Uruguay	1,391	1,747	2,133	2,147	2,040	2,198	2,609	3,192	3,166	3,299	3,801	3,952
Venezuela	17,417	18,067	12,683	15,877	11,630	12,798	13,443	14,504	13,571	12,828	16,961	16,069
Middle East	18,229	18,567	23,052	24,967	25,985	28,445	29,792	33,760	33,381	36,999	39,534	44,310
Iran	3,038	3,025	4,028	4,689	4,721	5,440	6,488	6,837	6,296	7,535	7,450	8,594
Israel	5,005	5,752	7,300	8,564	8,947	10,182	10,884	12,241	12,358	13,402	14,596	15,824
Jordan	622	976	1,047	864	561	647	638	615	606	796	814	757
Kuwait	1,273	2,051	2,878	2,803	3,397	2,139	545	1,784	2,100	2,641	2,979	3,678
Saudi Arabia	8,290	6,764	7,799	8,048	8,359	10,036	11,236	12,284	12,020	12,625	13,696	15,457
Other	136,380	151,589	176,536	205,737	213,641	220,680	218,282	216,164	215,261	238,866	266,368	270,442
Australia	29,374	29,668	34,494	42,283	45,815	42,498	43,174	43,625	43,400	49,277	51,313	55,486
Bangladesh	2,717	2,735	2,845	3,059	3,490	3,676	3,939	4,124	4,548	4,969	5,575	5,894
Canada	60,193	63,098	72,337	87,197	93,529	91,734	87,647	82,725	83,098	89,707	100,479	102,238
New Zealand	4,945	6,223	7,122	8,030	7,873	7,613	7,403	7,066	7,661	9,259	10,517	11,103
Norway	7,615	9,380	11,350	12,583	11,836	12,802	12,633	13,583	12,792	13,685	17,018	17,053

Appendix table 6-18

Value added of all manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Africa	65,446	62,753	57,143	56,403	53,211	53,448	63,421	74,847	83,171	89,488	105,423
Cameroon	1,645	1,881	1,950	1,789	1,860	2,074	2,554	2,819	2,905	3,426	3,739
Egypt	16,992	17,573	18,121	17,910	16,873	15,842	13,060	15,170	17,421	19,464	23,846
Kenya	1,487	1,515	1,284	1,292	1,270	1,292	1,448	1,610	1,973	2,316	2,989
Morocco	5,954	6,136	6,314	5,745	5,461	5,898	7,682	8,401	9,111	9,610	11,025
Nigeria	6,584	6,465	1,635	1,652	1,790	1,964	2,227	2,629	3,144	3,720	4,821
Senegal	687	719	719	604	728	806	963	1,126	1,147	1,159	1,489
South Africa	27,040	23,663	22,417	22,942	20,563	19,931	29,301	36,760	39,980	42,049	45,616
Tunisia	3,694	3,833	3,983	3,805	3,964	3,913	4,480	4,996	4,975	5,229	5,802
Zimbabwe	1,364	968	721	664	702	1,726	1,706	1,336	2,516	2,516	6,097
Central Europe/Asia	119,117	92,662	76,305	87,361	82,652	98,337	121,608	166,668	216,612	263,637	335,653
Russia	65,399	42,897	32,417	43,452	46,210	53,936	64,417	93,287	124,347	157,136	205,525
Turkey	40,948	38,847	35,191	38,234	29,819	36,842	47,919	61,348	75,248	84,779	101,025
Ukraine	12,770	10,919	8,698	5,675	6,623	7,559	9,272	12,033	17,017	21,721	29,103
Latin America	329,159	319,884	286,067	317,733	300,948	264,203	277,795	327,974	382,765	448,804	517,366
Argentina	53,409	53,353	48,079	46,862	43,231	20,631	28,681	33,898	39,038	43,814	53,108
Bolivia	1,151	1,189	1,126	1,119	1,087	1,030	1,034	1,097	1,111	1,300	1,497
Brazil	128,442	117,275	82,411	96,131	81,290	73,417	86,110	109,435	136,898	169,989	205,867
Chile	14,427	13,540	12,676	13,258	12,638	12,326	12,183	15,205	17,609	19,486	21,523
Colombia	14,707	13,839	11,949	12,272	11,850	11,700	11,708	14,866	18,499	20,440	25,411
Costa Rica	2,622	2,978	4,206	3,681	3,243	3,280	3,360	3,664	3,938	4,343	5,034
Ecuador	2,485	2,760	1,612	810	1,797	1,891	1,985	1,524	1,217	871	1,487
Honduras	1,056	1,204	1,306	1,471	1,503	1,564	1,629	1,700	1,863	2,018	2,234
Jamaica	1,034	1,006	1,014	1,025	1,056	1,074	1,034	1,129	1,229	1,283	1,405
Mexico	77,727	82,015	92,499	107,196	110,381	110,651	104,015	112,646	122,824	135,578	140,085
Panama	1,078	1,135	1,167	1,100	1,034	974	969	1,023	1,072	1,157	1,315
Peru	8,788	8,093	7,204	7,701	7,910	8,233	8,726	10,388	11,962	13,744	15,565
Uruguay	4,098	4,118	3,489	3,392	3,028	2,151	2,083	2,823	3,747	4,495	5,270
Venezuela	18,136	17,380	17,328	21,717	20,900	15,279	14,279	18,576	21,757	30,285	37,565
Middle East	46,892	44,061	45,423	50,770	50,112	53,969	59,089	67,163	74,848	86,994	99,902
Iran	8,631	7,518	7,104	9,534	11,413	15,290	15,061	18,054	20,133	24,220	31,356
Israel	16,790	17,021	17,214	19,322	16,876	14,894	15,770	16,835	17,178	19,500	21,099
Jordan	829	991	1,024	1,095	1,153	1,341	1,472	1,780	1,975	2,393	2,411
Kuwait	4,016	3,038	3,334	2,608	2,214	2,984	3,782	4,941	6,017	7,794	8,682
Saudi Arabia	16,627	15,492	16,747	18,211	18,455	19,460	23,005	25,554	29,545	33,087	36,354
Other	271,226	260,546	275,750	279,836	267,448	284,731	331,539	377,484	409,533	450,731	500,622
Australia	56,357	48,389	50,447	46,065	41,928	48,219	61,942	71,056	75,574	80,947	91,817
Bangladesh	6,165	6,666	6,679	6,681	6,851	7,222	7,878	8,658	9,140	9,998	11,768
Canada	108,463	107,028	121,073	132,946	123,142	123,591	137,437	153,576	164,597	181,758	196,068
New Zealand	10,872	8,639	8,923	8,246	7,959	9,279	11,834	14,618	16,739	15,913	19,462
Norway	16,800	16,863	16,973	15,694	16,067	18,045	21,048	23,576	26,309	29,901	35,946

Appendix table 6-18

Value added of all manufacturing industries, by region/country/economy: 1985–2007

(Millions of current dollars)

Region/country/economy	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pakistan	5,567	6,026	6,778	7,368	7,528	8,551	9,173	9,247	9,773	10,427	11,438	11,452
Sri Lanka	932	928	975	1,059	1,110	1,326	1,467	1,594	1,703	1,926	2,179	2,383
Switzerland	21,747	30,753	37,447	40,581	38,714	48,498	48,803	50,148	47,818	54,090	61,687	58,331
All others	3,292	2,779	3,189	3,576	3,747	3,982	4,043	4,052	4,467	5,525	6,162	6,502

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Pakistan	11,175	10,987	10,561	11,336	10,381	12,146	15,627	19,510	23,317	26,506	29,452
Sri Lanka	2,704	2,775	2,731	2,910	2,831	2,986	3,340	3,612	4,421	5,131	5,647
Switzerland	50,562	51,047	49,509	44,588	46,672	50,560	58,020	64,708	67,399	72,751	77,475
All others	8,129	8,153	8,854	11,370	11,618	12,682	14,413	18,169	22,038	27,827	32,987

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. EU excludes Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, and Slovenia.

SOURCE: IHS Global Insight, World Industry Service database, special tabulations (2009).

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Appendix table 6-19

Exports and imports of high-technology goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	915,221	981,417	1,075,836	1,110,807	1,229,109	1,448,691	1,377,006	1,421,136	1,613,117	1,966,025	2,184,439	2,507,863	2,789,396	2,925,168
World excluding intra-EU and intra-China/Hong Kong	732,410	784,042	856,120	871,593	971,193	1,159,889	1,071,861	1,103,320	1,257,893	1,535,239	1,698,339	1,914,682	2,175,268	2,294,633
Africa	769	953	1,162	1,652	1,951	1,906	1,739	1,929	2,048	2,678	3,705	4,171	4,584	4,914
Asia-9	197,876	219,970	233,247	228,333	271,309	339,496	292,061	316,091	360,093	441,739	484,106	551,774	619,425	641,292
India	1,283	1,471	1,665	1,398	1,703	2,061	2,444	2,865	3,616	4,066	4,987	6,108	8,104	9,583
Indonesia	2,868	3,921	4,277	4,036	4,918	8,668	7,654	7,555	7,115	8,310	8,523	9,581	10,515	11,565
Malaysia	36,832	41,184	42,077	40,744	50,962	61,621	54,929	57,840	61,076	69,317	77,457	87,515	90,492	96,035
Philippines	5,159	11,554	15,893	20,782	26,606	28,753	24,438	27,039	28,233	29,051	29,252	32,603	35,468	36,726
Singapore	62,163	67,292	67,568	60,428	64,257	76,830	66,539	67,660	80,043	99,920	111,319	130,486	142,599	151,227
South Korea	37,960	36,938	39,136	37,912	50,985	66,327	51,982	60,181	73,405	97,346	104,031	108,795	132,140	136,202
Taiwan	37,444	41,547	45,580	46,046	53,776	72,502	63,487	70,786	81,269	105,288	115,040	137,437	153,565	152,126
Thailand	14,132	15,969	16,881	16,815	17,925	21,761	19,555	21,169	23,980	27,726	32,361	37,842	44,792	45,862
Vietnam	36	92	171	171	178	974	1,033	996	1,356	715	1,136	1,406	1,749	1,965
Central Europe/Asia	931	2,289	2,345	3,090	3,074	3,549	4,227	4,339	7,932	7,869	7,361	9,116	11,166	11,162
China and Hong Kong total	62,869	68,235	77,372	82,365	92,765	123,073	134,569	170,235	227,812	316,276	397,559	491,650	572,306	626,685
China and Hong Kong ROW	45,352	49,352	56,005	60,499	68,062	87,535	91,846	117,467	159,522	226,259	281,201	344,953	408,844	455,008
Intra-China/Hong Kong	17,517	18,883	21,366	21,866	24,702	35,538	42,723	52,769	68,289	90,017	116,358	146,697	163,462	171,676
EU total	284,925	307,130	342,256	367,038	392,205	434,487	449,254	458,593	508,704	615,059	676,479	775,057	820,141	857,484
EU ROW	119,631	128,639	143,906	149,690	158,990	181,223	186,831	193,546	221,769	274,290	306,737	328,574	369,474	398,625
Intra-EU	165,294	178,492	198,350	217,348	233,215	253,264	262,423	265,048	286,935	340,769	369,742	446,484	450,667	458,859
Japan	134,836	123,747	125,735	113,833	125,854	151,309	121,170	116,814	133,303	158,434	153,938	151,704	184,386	185,661
Latin America	15,822	19,185	23,770	30,262	37,227	46,890	47,434	44,782	45,436	51,839	56,649	66,373	78,416	81,351
Middle East	4,510	5,286	6,513	6,708	7,705	10,950	10,711	9,192	10,556	13,301	14,152	16,232	17,991	19,806
United States	155,622	172,737	200,167	209,003	222,018	249,695	228,028	207,354	211,702	234,126	251,941	286,132	305,236	312,107
All other countries	57,061	61,884	63,270	68,522	75,001	87,336	87,814	91,805	105,531	124,703	138,550	155,653	175,746	184,706
Imports														
World	915,221	981,417	1,075,836	1,110,807	1,229,109	1,448,691	1,377,006	1,421,136	1,613,117	1,966,025	2,184,439	2,507,863	2,789,396	2,925,168
World excluding intra-EU and intra-China/Hong Kong	732,410	784,042	856,120	871,593	971,193	1,159,889	1,071,861	1,103,320	1,257,893	1,535,239	1,698,339	1,914,682	2,175,268	2,294,633
Africa	12,944	13,213	14,663	16,743	16,429	18,055	18,586	18,024	20,910	26,500	32,194	35,755	40,994	46,671
Asia-9	151,867	166,676	179,573	155,135	183,255	232,929	199,237	211,664	243,804	292,507	313,452	353,840	399,841	420,649
India	3,576	4,085	4,081	4,349	4,456	5,350	6,091	7,748	10,644	13,170	18,968	24,451	36,063	36,165
Indonesia	2,670	4,116	4,327	1,774	1,317	1,886	1,864	2,124	7,520	9,248	9,453	10,238	12,810	15,267
Malaysia	28,666	29,490	31,284	27,955	31,555	40,524	35,402	39,078	42,206	48,560	50,243	57,895	62,433	67,005
Philippines	5,930	9,997	14,207	13,147	14,295	16,490	14,721	16,280	18,108	20,549	19,508	20,917	22,642	22,424
Singapore	46,298	49,078	49,434	41,709	46,686	57,347	49,757	50,079	55,083	68,926	74,889	87,458	99,672	111,651
South Korea	23,866	26,674	27,776	20,655	31,438	42,853	35,278	38,637	44,436	52,505	55,563	62,849	70,457	72,553
Taiwan	25,828	26,562	32,288	32,413	39,154	49,734	38,098	39,636	44,276	53,862	56,220	57,956	59,642	57,367
Thailand	14,018	14,881	14,756	11,812	13,161	17,313	16,352	16,173	18,649	21,915	24,883	28,070	31,164	32,460
Vietnam	1,015	1,793	1,421	1,322	1,194	1,432	1,673	1,909	2,882	3,772	3,725	4,005	4,957	5,756
Central Europe/Asia	11,802	13,531	15,586	16,525	14,790	17,780	16,189	18,412	23,897	34,134	41,119	52,426	64,588	75,241
China and Hong Kong total	69,282	71,860	81,245	83,253	91,376	123,883	135,844	163,662	215,534	278,870	336,935	406,439	474,996	498,023

Appendix table 6-19

Exports and imports of high-technology goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China and Hong Kong ROW	51,765	52,977	59,878	61,387	66,673	88,346	93,122	110,893	147,245	188,853	220,577	259,743	311,534	326,347
Intra-China/Hong Kong	17,517	18,883	21,366	21,866	24,702	35,538	42,723	52,769	68,289	90,017	116,358	146,697	163,462	171,676
EU total	307,181	329,022	361,326	395,361	429,705	473,256	470,642	470,431	528,564	643,822	694,693	817,222	867,262	889,694
EU ROW	141,886	150,531	162,976	178,013	196,490	219,992	208,219	205,384	241,629	303,053	324,951	370,738	416,595	430,835
Intra-EU	165,294	178,492	198,350	217,348	233,215	253,264	262,423	265,048	286,935	340,769	369,742	446,484	450,667	458,859
Japan	53,757	60,249	60,811	55,970	65,754	82,767	75,172	74,003	81,745	95,919	100,351	109,466	129,907	136,816
Latin America	35,856	40,685	50,353	53,836	56,432	68,439	67,040	61,719	61,901	80,112	90,926	109,420	125,282	139,503
Middle East	15,952	17,901	22,720	25,305	24,131	23,216	26,210	26,599	29,141	34,985	49,521	51,706	57,726	65,320
United States	170,852	175,951	193,008	204,973	233,050	281,757	244,748	247,975	264,650	305,331	331,469	362,235	387,637	391,737
All other countries	85,728	92,329	96,551	103,705	114,190	126,608	123,337	128,647	142,973	173,845	193,779	209,354	241,162	261,514
Balance														
Africa	-12,175	-12,260	-13,501	-15,091	-14,478	-16,149	-16,846	-16,095	-18,862	-23,823	-28,489	-31,584	-36,410	-41,757
Asia-9	46,009	53,294	53,674	73,198	88,054	106,567	92,824	104,427	116,289	149,232	170,654	197,934	219,583	220,643
India	-2,293	-2,614	-2,416	-2,950	-2,752	-3,289	-3,648	-4,883	-7,028	-9,104	-13,980	-18,343	-27,958	-26,582
Indonesia	198	-195	-50	2,263	3,600	6,782	5,790	5,431	-404	-938	-931	-657	-2,295	-3,702
Malaysia	8,166	11,694	10,792	12,789	19,406	21,097	19,526	18,762	18,870	20,756	27,214	29,620	28,058	29,030
Philippines	-772	1,558	1,686	7,635	12,311	12,263	9,718	10,758	10,125	8,503	9,744	11,686	12,826	14,302
Singapore	15,865	18,214	18,134	18,719	17,571	19,483	16,782	17,581	24,959	30,994	36,430	43,028	42,926	39,576
South Korea	14,093	10,265	11,361	17,257	19,547	23,473	16,704	21,544	28,969	44,842	48,469	45,946	61,683	63,649
Taiwan	11,616	14,985	13,292	13,633	14,623	22,768	25,390	31,151	36,993	51,426	58,820	79,481	93,923	94,759
Thailand	113	1,088	2,125	5,003	4,764	4,448	3,202	4,996	5,331	5,811	7,478	9,772	13,628	13,402
Vietnam	-979	-1,701	-1,250	-1,151	-1,016	-458	-640	-913	-1,526	-3,057	-2,589	-2,599	-3,208	-3,791
Central Europe/Asia	-10,871	-11,242	-13,241	-13,435	-11,715	-14,231	-11,962	-14,073	-15,965	-26,265	-33,758	-43,310	-53,422	-64,079
China and Hong Kong total	-6,413	-3,625	-3,873	-888	1,389	-810	-1,276	6,574	12,278	37,406	60,624	85,211	97,310	128,662
China and Hong Kong ROW	-6,413	-3,625	-3,873	-888	1,389	-810	-1,276	6,574	12,278	37,406	60,624	85,211	97,310	128,662
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU total	-22,255	-21,892	-19,070	-28,323	-37,500	-38,769	-21,388	-11,838	-19,860	-28,763	-18,214	-42,164	-47,120	-32,211
EU ROW	-22,255	-21,892	-19,070	-28,323	-37,500	-38,769	-21,388	-11,838	-19,860	-28,763	-18,214	-42,164	-47,120	-32,211
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	81,080	63,499	64,924	57,863	60,100	68,542	45,998	42,811	51,558	62,515	53,587	42,239	54,479	48,845
Latin America	-20,035	-21,499	-26,583	-23,574	-19,205	-21,549	-19,606	-16,937	-16,464	-28,273	-34,277	-43,047	-46,866	-58,151
Middle East	-11,442	-12,615	-16,207	-18,597	-16,425	-12,266	-15,499	-17,407	-18,585	-21,683	-35,369	-35,475	-39,735	-45,514
United States	-15,230	-3,215	7,159	4,031	-11,031	-32,062	-16,720	-40,620	-52,947	-71,205	-79,528	-76,103	-82,401	-79,630
All other countries	-28,668	-30,445	-33,280	-35,183	-39,189	-39,272	-35,523	-36,841	-37,442	-49,142	-55,229	-53,701	-65,416	-76,807

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. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-20

Exports and imports of communications and semiconductors goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	381,730	396,136	425,028	425,910	489,076	633,333	551,516	574,051	656,504	828,687	935,286	1,107,560	1,239,481	1,285,062
World excluding intra-EU and intra-China/Hong Kong	323,952	331,920	351,790	346,070	400,421	521,759	442,590	453,164	528,724	662,537	739,758	843,455	986,951	1,032,629
Africa	230	251	312	828	954	947	826	996	1,089	1,321	1,711	1,974	2,179	2,375
Asia-9	113,760	119,569	122,631	118,451	143,919	189,849	160,176	178,276	215,359	272,286	301,922	349,039	399,249	415,440
India	230	233	208	161	182	223	240	330	440	550	651	912	1,017	1,224
Indonesia	1,948	2,577	2,536	2,419	2,660	4,714	4,517	4,479	4,306	4,618	4,594	5,059	5,809	6,341
Malaysia	27,094	28,819	27,385	24,235	29,005	36,528	32,780	34,653	38,476	42,215	47,231	51,937	53,640	59,793
Philippines	4,107	7,866	10,603	14,435	18,895	19,696	15,268	17,770	19,418	19,453	19,806	22,280	24,245	24,912
Singapore	29,733	29,877	28,472	24,886	28,195	40,188	33,388	35,158	45,183	60,149	66,750	82,552	91,718	97,492
South Korea	29,034	27,537	28,001	27,108	34,610	42,945	34,376	40,007	49,928	67,048	71,043	73,870	91,691	94,763
Taiwan	15,237	15,925	18,130	18,243	22,505	34,527	30,244	35,480	44,850	63,804	75,758	93,790	108,405	107,336
Thailand	6,360	6,663	7,162	6,839	7,759	10,686	8,981	9,979	12,222	14,136	15,681	18,093	21,969	22,710
Vietnam	17	73	133	125	107	341	384	420	535	314	408	546	756	869
Central Europe/Asia	382	911	1,280	1,355	1,389	1,471	1,574	2,097	2,634	3,952	4,184	5,631	6,570	6,463
China and Hong Kong total	32,731	33,857	37,450	38,003	43,500	61,006	65,083	83,517	107,740	155,487	198,733	260,123	309,130	333,366
China and Hong Kong ROW	23,470	24,078	26,183	26,768	30,216	41,528	42,798	53,731	69,349	101,809	128,496	167,373	207,485	227,911
Intra-China/Hong Kong	9,261	9,779	11,267	11,235	13,284	19,478	22,285	29,786	38,391	53,678	70,237	92,750	101,645	105,455
EU total	84,612	94,076	105,828	112,864	123,191	152,471	139,940	139,453	144,512	183,078	210,949	255,875	245,129	245,015
EU ROW	36,095	39,639	43,857	44,260	47,819	60,375	53,300	48,352	55,123	70,606	85,658	84,520	94,243	98,037
Intra-EU	48,517	54,436	61,971	68,605	75,371	92,096	86,641	91,101	89,389	112,472	125,292	171,355	150,885	146,979
Japan	70,389	61,354	59,489	53,434	60,661	76,402	58,734	59,215	70,417	82,973	79,664	78,524	107,716	107,919
Latin America	8,275	9,740	11,547	14,319	16,159	22,306	21,759	20,515	20,727	25,468	29,476	37,402	46,350	47,961
Middle East	2,121	2,411	2,951	3,178	3,608	6,487	5,578	4,538	5,403	6,591	6,481	6,662	7,129	7,497
United States	56,043	58,866	67,244	66,134	77,060	95,804	77,286	69,400	71,476	77,264	78,776	87,606	88,742	91,774
All other countries	13,188	15,101	16,296	17,345	18,635	26,590	20,561	16,044	17,147	20,265	23,391	24,724	27,288	27,253
Imports														
World	381,730	396,136	425,028	425,910	489,076	633,333	551,516	574,051	656,504	828,687	935,286	1,107,560	1,239,481	1,285,062
World excluding intra-EU and intra-China/Hong Kong	323,952	331,920	351,790	346,070	400,421	521,759	442,590	453,164	528,724	662,537	739,758	843,455	986,951	1,032,629
Africa	4,046	4,216	4,587	5,905	5,504	6,114	5,681	5,358	6,772	9,312	11,414	13,285	15,633	17,978
Asia-9	93,048	98,564	103,789	91,750	111,462	143,451	116,319	126,588	150,173	177,389	184,207	209,590	234,393	246,362
India	1,179	1,188	1,212	1,137	1,269	1,543	1,805	2,894	4,429	5,983	7,110	8,902	11,714	13,161
Indonesia	1,384	2,153	2,081	651	547	780	757	861	4,584	5,355	4,899	5,436	6,443	7,831
Malaysia	21,621	22,253	21,882	20,585	24,359	31,905	26,177	28,696	31,346	33,857	34,442	39,991	42,634	45,011
Philippines	4,130	6,949	9,553	9,350	10,704	12,097	10,319	11,716	13,046	15,149	14,312	15,510	16,699	16,099
Singapore	29,190	28,659	26,886	22,572	25,754	34,189	26,431	27,456	32,201	41,646	45,748	54,426	63,977	71,366
South Korea	11,663	13,503	15,034	12,487	19,392	24,858	19,863	22,560	27,096	31,033	30,759	33,790	37,210	38,252
Taiwan	15,843	15,574	18,520	17,846	21,281	26,875	20,561	22,242	26,434	30,572	32,235	35,130	36,888	34,895
Thailand	7,604	7,786	7,989	6,495	7,618	10,599	9,723	9,460	10,264	12,776	13,428	14,969	17,032	17,698
Vietnam	434	500	633	628	538	606	682	702	774	1,017	1,275	1,435	1,796	2,049
Central Europe/Asia	4,225	5,034	5,834	5,131	4,973	6,695	4,979	6,022	8,733	13,110	14,753	17,706	21,900	23,770

Appendix table 6-20

Exports and imports of communications and semiconductors goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China and Hong Kong total	39,987	39,863	45,378	43,819	51,632	72,309	73,532	92,894	123,611	163,970	197,326	244,690	287,599	298,889
China and Hong Kong ROW	30,726	30,083	34,111	32,584	38,348	52,831	51,247	63,108	85,220	110,292	127,089	151,940	185,954	193,434
Intra-China/Hong Kong	9,261	9,779	11,267	11,235	13,284	19,478	22,285	29,786	38,391	53,678	70,237	92,750	101,645	105,455
EU total	95,265	101,418	111,750	121,738	134,335	167,854	153,448	155,457	168,411	218,585	240,332	306,986	300,691	297,268
EU ROW	46,748	46,982	49,778	53,134	58,964	75,758	66,808	64,356	79,022	106,113	115,040	135,631	149,806	150,290
Intra-EU	48,517	54,436	61,971	68,605	75,371	92,096	86,641	91,101	89,389	112,472	125,292	171,355	150,885	146,979
Japan	20,946	23,209	21,985	19,995	23,915	32,819	29,719	28,324	31,651	38,705	39,704	45,412	67,401	71,211
Latin America	15,905	17,768	22,554	23,669	26,399	34,357	30,830	26,047	25,707	34,781	41,348	50,078	58,199	64,716
Middle East	5,851	5,875	6,215	6,567	6,380	7,468	8,542	9,273	10,474	13,841	22,909	20,550	22,968	25,572
United States	74,980	72,253	74,702	76,902	89,523	119,698	94,226	93,223	96,554	115,485	130,671	142,729	159,135	161,388
All other countries	27,476	27,934	28,234	30,433	34,952	42,570	34,239	30,865	34,417	43,509	52,623	56,534	71,562	77,909
Balance														
Africa	-3,816	-3,964	-4,275	-5,077	-4,550	-5,167	-4,856	-4,362	-5,684	-7,991	-9,703	-11,311	-13,454	-15,603
Asia-9	20,712	21,005	18,842	26,701	32,456	46,398	43,857	51,688	65,185	94,898	117,714	139,449	164,856	169,078
India	-949	-955	-1,004	-976	-1,087	-1,320	-1,565	-2,564	-3,989	-5,433	-6,459	-7,990	-10,697	-11,937
Indonesia	564	424	455	1,768	2,113	3,935	3,760	3,618	-278	-738	-305	-377	-633	-1,490
Malaysia	5,473	6,566	5,504	3,650	4,646	4,623	6,603	5,957	7,131	8,358	12,788	11,946	11,006	14,782
Philippines	-23	917	1,051	5,085	8,191	7,599	4,949	6,054	6,372	4,305	5,494	6,771	7,545	8,814
Singapore	543	1,219	1,586	2,314	2,441	5,999	6,957	7,702	12,983	18,503	21,002	28,125	27,741	26,126
South Korea	17,371	14,034	12,967	14,622	15,218	18,087	14,512	17,447	22,832	36,015	40,284	40,080	54,481	56,510
Taiwan	-606	351	-390	397	1,225	7,653	9,682	13,237	18,416	33,231	43,523	58,660	71,516	72,441
Thailand	-1,244	-1,123	-827	344	141	87	-743	519	1,958	1,360	2,253	3,123	4,937	5,012
Vietnam	-417	-427	-500	-503	-431	-265	-298	-282	-239	-703	-867	-889	-1,040	-1,180
Central Europe/Asia	-3,843	-4,124	-4,555	-3,776	-3,584	-5,224	-3,405	-3,925	-6,099	-9,158	-10,570	-12,074	-15,330	-17,307
China and Hong Kong total	-7,256	-6,006	-7,928	-5,816	-8,131	-11,303	-8,449	-9,377	-15,871	-8,483	1,407	15,433	21,531	34,477
China and Hong Kong ROW	-7,256	-6,006	-7,928	-5,816	-8,131	-11,303	-8,449	-9,377	-15,871	-8,483	1,407	15,433	21,531	34,477
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU total	-10,653	-7,343	-5,922	-8,874	-11,144	-15,383	-13,508	-16,005	-23,899	-35,507	-29,382	-51,112	-55,563	-52,253
EU ROW	-10,653	-7,343	-5,922	-8,874	-11,144	-15,383	-13,508	-16,005	-23,899	-35,507	-29,382	-51,112	-55,563	-52,253
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	49,443	38,145	37,504	33,438	36,745	43,583	29,015	30,891	38,765	44,268	39,960	33,112	40,315	36,708
Latin America	-7,630	-8,028	-11,007	-9,350	-10,240	-12,051	-9,071	-5,532	-4,980	-9,313	-11,872	-12,676	-11,850	-16,755
Middle East	-3,730	-3,464	-3,263	-3,389	-2,773	-981	-2,964	-4,735	-5,070	-7,249	-16,428	-13,888	-15,839	-18,075
United States	-18,937	-13,388	-7,458	-10,768	-12,463	-23,894	-16,940	-23,823	-25,078	-38,221	-51,895	-55,123	-70,393	-69,614
All other countries	-14,288	-12,833	-11,938	-13,089	-16,317	-15,980	-13,678	-14,821	-17,270	-23,243	-29,232	-31,811	-44,274	-50,656

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. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-21

Exports and imports of computer and office machinery goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	246,825	273,412	306,619	312,075	343,917	395,383	362,562	358,624	397,677	468,408	512,389	559,603	594,414	609,485
World excluding intra-EU and intra-China/Hong Kong	193,097	215,856	240,189	238,405	266,235	311,774	275,946	276,001	302,748	355,456	386,361	419,036	444,895	459,942
Africa	105	137	154	141	222	150	146	148	175	198	241	303	341	355
Asia-9	70,558	85,767	94,232	93,174	109,556	131,713	112,465	115,720	115,004	128,471	128,161	137,227	142,594	141,098
India	251	288	327	123	141	255	348	209	315	301	305	334	398	463
Indonesia	583	904	1,182	1,205	1,790	3,446	2,607	2,527	2,290	3,127	3,236	3,732	3,884	4,252
Malaysia	8,025	10,365	12,620	14,149	19,956	23,075	19,835	20,717	19,849	23,462	26,373	30,949	31,640	30,165
Philippines	686	3,099	4,684	5,749	7,183	8,464	8,345	8,423	7,881	8,454	8,043	8,707	9,471	9,972
Singapore	28,364	33,172	34,386	31,257	31,115	31,489	27,592	26,467	27,360	30,708	33,573	33,763	34,439	36,236
South Korea	6,829	7,282	8,139	6,930	12,017	20,483	14,602	17,597	19,343	23,219	19,336	18,637	20,361	19,003
Taiwan	19,313	22,732	24,521	25,078	28,381	34,442	29,678	30,073	28,278	28,514	23,517	24,640	23,168	21,621
Thailand	6,506	7,923	8,360	8,676	8,959	9,556	8,957	9,293	9,065	10,430	13,248	15,839	18,498	18,597
Vietnam	2	2	13	7	14	503	502	414	623	255	530	626	735	790
Central Europe/Asia	22	123	143	93	117	103	117	139	137	276	221	263	307	320
China and Hong Kong total	14,136	17,250	21,257	25,051	29,003	38,337	45,207	62,204	90,810	124,840	156,346	182,907	207,958	229,484
China and Hong Kong ROW	10,528	12,863	16,148	19,486	22,939	28,852	32,100	46,056	69,299	98,148	121,723	141,629	159,783	178,187
Intra-China/Hong Kong	3,609	4,387	5,109	5,564	6,064	9,485	13,106	16,148	21,511	26,693	34,624	41,278	48,175	51,296
EU total	69,506	74,125	84,411	92,482	98,207	103,870	101,395	92,208	101,420	119,149	128,897	138,491	142,568	140,594
EU ROW	19,386	20,956	23,090	24,376	26,588	29,747	27,886	25,733	28,002	32,888	37,493	39,202	41,223	42,348
Intra-EU	50,120	53,169	61,321	68,106	71,619	74,123	73,510	66,475	73,418	86,260	91,405	99,289	101,344	98,246
Japan	37,032	34,992	37,682	33,974	34,640	37,174	28,527	26,932	26,523	28,643	27,539	26,603	28,572	26,106
Latin America	3,239	4,584	6,369	8,511	12,301	13,475	13,621	11,984	11,565	11,003	11,171	11,603	11,777	11,508
Middle East	454	678	822	927	1,127	1,270	1,132	1,078	1,211	1,452	1,602	1,779	2,093	1,983
United States	41,947	45,751	51,641	47,759	48,604	57,595	49,404	39,744	41,054	43,861	46,882	49,143	46,192	46,060
All other countries	9,826	10,006	9,908	9,964	10,140	11,696	10,549	8,468	9,779	10,516	11,328	11,285	12,011	11,977
Imports														
World	246,825	273,412	306,619	312,075	343,917	395,383	362,562	358,624	397,677	468,408	512,389	559,603	594,414	609,485
World excluding intra-EU and intra-China/Hong Kong	193,097	215,856	240,189	238,405	266,235	311,774	275,946	276,001	302,748	355,456	386,361	419,036	444,895	459,942
Africa	2,121	2,181	2,189	2,539	2,730	2,788	2,783	2,761	3,110	3,983	4,821	5,306	6,102	6,552
Asia-9	24,795	31,932	35,270	29,081	37,051	49,294	42,227	44,705	46,331	53,556	59,291	66,325	75,607	82,648
India	565	694	894	908	1,171	1,751	1,604	1,678	2,037	2,941	3,937	5,116	6,646	7,428
Indonesia	160	211	261	120	144	350	341	376	1,270	2,026	2,549	2,813	3,482	4,006
Malaysia	3,106	4,160	5,110	3,999	4,403	5,396	5,525	6,433	7,251	9,507	10,807	11,622	13,462	15,082
Philippines	594	1,570	2,171	2,199	2,334	2,850	2,975	3,328	3,339	3,126	3,006	3,078	3,488	3,588
Singapore	10,759	13,330	14,379	12,249	13,926	16,092	13,731	13,947	13,615	15,595	17,004	19,484	21,719	24,184
South Korea	3,249	3,826	3,755	2,014	4,517	7,879	5,731	5,981	5,623	6,569	7,891	9,180	10,573	11,541
Taiwan	3,583	4,619	5,419	5,256	7,677	10,813	8,187	8,476	7,853	7,416	6,892	6,736	7,082	6,951
Thailand	2,681	3,399	3,139	2,189	2,714	3,920	3,855	4,163	4,880	5,321	6,376	7,323	7,922	8,435
Vietnam	98	122	143	145	166	242	278	322	463	1,056	829	974	1,234	1,434
Central Europe/Asia	1,982	1,672	2,087	1,967	2,111	2,862	2,581	2,799	3,901	5,557	8,387	10,650	14,053	15,557

Appendix table 6-21

Exports and imports of computer and office machinery goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China and Hong Kong total	10,606	12,360	15,552	17,117	19,192	28,438	33,589	39,789	51,279	61,440	73,993	83,782	96,341	100,417
China and Hong Kong ROW	6,998	7,973	10,443	11,553	13,129	18,953	20,482	23,641	29,768	34,747	39,369	42,504	48,166	49,121
Intra-China/Hong Kong	3,609	4,387	5,109	5,564	6,064	9,485	13,106	16,148	21,511	26,693	34,624	41,278	48,175	51,296
EU total	96,695	104,008	117,973	128,001	134,932	143,288	134,771	123,164	140,195	165,459	175,105	191,313	203,600	205,076
EU ROW	46,576	50,838	56,652	59,895	63,313	69,164	61,262	56,689	66,778	79,199	83,700	92,024	102,256	106,830
Intra-EU	50,120	53,169	61,321	68,106	71,619	74,123	73,510	66,475	73,418	86,260	91,405	99,289	101,344	98,246
Japan	15,031	18,050	17,760	15,139	19,799	26,971	23,150	21,997	23,414	26,040	26,718	25,522	22,310	24,113
Latin America	7,340	9,304	11,384	11,327	11,207	13,571	14,109	14,651	14,468	18,636	20,138	23,064	24,515	25,958
Middle East	1,759	1,936	2,306	2,642	3,139	3,618	3,965	3,961	3,996	4,868	7,125	8,125	9,230	10,295
United States	62,824	66,499	75,001	76,846	84,443	92,165	75,861	76,970	80,826	93,805	98,596	105,585	101,531	95,250
All other countries	23,671	25,471	27,095	27,416	29,313	32,387	29,526	27,827	30,158	35,065	38,217	39,931	41,126	43,617
Balance														
Africa	-2,016	-2,044	-2,035	-2,398	-2,508	-2,639	-2,637	-2,614	-2,935	-3,785	-4,580	-5,003	-5,761	-6,197
Asia-9	45,763	53,835	58,962	64,093	72,505	82,419	70,238	71,016	68,673	74,914	68,870	70,902	66,988	58,450
India	-314	-406	-568	-785	-1,030	-1,496	-1,256	-1,469	-1,722	-2,640	-3,631	-4,782	-6,247	-6,965
Indonesia	423	693	922	1,085	1,646	3,096	2,265	2,151	1,020	1,101	688	918	401	246
Malaysia	4,919	6,205	7,511	10,149	15,553	17,678	14,310	14,283	12,598	13,956	15,566	19,327	18,179	15,083
Philippines	92	1,529	2,513	3,550	4,850	5,614	5,370	5,095	4,542	5,328	5,037	5,629	5,983	6,383
Singapore	17,605	19,841	20,007	19,008	17,189	15,397	13,861	12,520	13,745	15,114	16,569	14,279	12,721	12,053
South Korea	3,581	3,456	4,384	4,915	7,499	12,604	8,870	11,616	13,720	16,650	11,445	9,456	9,788	7,461
Taiwan	15,730	18,113	19,102	19,822	20,704	23,629	21,491	21,597	20,425	21,098	16,625	17,904	16,086	14,670
Thailand	3,825	4,524	5,222	6,487	6,245	5,636	5,103	5,130	4,186	5,109	6,872	8,517	10,576	10,162
Vietnam	-97	-120	-130	-138	-152	261	224	92	160	-801	-299	-347	-499	-644
Central Europe/Asia	-1,959	-1,548	-1,944	-1,875	-1,994	-2,759	-2,464	-2,660	-3,764	-5,281	-8,167	-10,387	-13,745	-15,237
China and Hong Kong total	3,530	4,890	5,705	7,933	9,811	9,899	11,618	22,415	39,531	63,401	82,353	99,125	111,617	129,067
China and Hong Kong ROW	3,530	4,890	5,705	7,933	9,811	9,899	11,618	22,415	39,531	63,401	82,353	99,125	111,617	129,067
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU total	-27,190	-29,882	-33,562	-35,519	-36,725	-39,418	-33,376	-30,956	-38,775	-46,311	-46,208	-52,822	-61,032	-64,482
EU ROW	-27,190	-29,882	-33,562	-35,519	-36,725	-39,418	-33,376	-30,956	-38,775	-46,311	-46,208	-52,822	-61,032	-64,482
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	22,000	16,942	19,922	18,835	14,841	10,204	5,378	4,935	3,109	2,603	821	1,081	6,262	1,993
Latin America	-4,101	-4,720	-5,015	-2,817	1,094	-96	-488	-2,667	-2,903	-7,633	-8,966	-11,462	-12,737	-14,451
Middle East	-1,306	-1,259	-1,485	-1,715	-2,012	-2,348	-2,834	-2,884	-2,784	-3,416	-5,522	-6,346	-7,137	-8,313
United States	-20,877	-20,748	-23,360	-29,086	-35,839	-34,570	-26,458	-37,226	-39,773	-49,944	-51,713	-56,441	-55,339	-49,190
All other countries	-13,844	-15,465	-17,188	-17,452	-19,173	-20,691	-18,977	-19,359	-20,379	-24,548	-26,888	-28,647	-29,115	-31,640

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. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-22

Exports and imports of scientific instruments and measuring equipment goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	149,757	158,485	169,301	169,964	181,845	205,169	207,185	206,187	241,986	300,658	331,046	371,886	414,523	449,899
World excluding intra-EU and intra-China/Hong Kong	116,782	124,376	133,661	133,650	144,690	166,765	165,265	163,778	189,903	240,012	264,079	296,848	328,172	355,222
Africa	222	246	306	304	338	311	362	423	443	586	597	657	722	786
Asia-9	10,646	11,454	12,428	12,133	13,601	13,769	14,721	17,266	22,992	33,494	43,178	51,775	60,582	66,628
India	112	134	161	177	265	334	380	451	573	693	842	1,000	1,263	1,407
Indonesia	282	371	490	345	350	418	415	390	373	386	461	533	538	621
Malaysia	1,216	1,370	1,434	1,265	1,291	1,662	2,033	2,174	2,454	3,263	3,378	4,122	4,664	5,467
Philippines	344	535	511	551	490	545	699	784	839	905	1,024	1,190	1,317	1,379
Singapore	3,147	3,306	3,605	3,245	3,533	3,830	3,999	4,421	5,450	6,847	6,628	7,929	8,947	10,281
South Korea	1,615	1,702	2,185	2,741	3,783	2,124	2,192	2,038	3,400	6,311	12,802	15,363	18,947	21,262
Taiwan	2,794	2,769	2,795	2,582	2,754	3,399	3,404	5,108	7,922	12,732	15,461	18,652	21,576	22,707
Thailand	1,126	1,254	1,229	1,195	1,086	1,362	1,475	1,761	1,814	2,222	2,405	2,778	3,100	3,229
Vietnam	9	13	17	31	50	94	124	139	167	135	177	210	229	275
Central Europe/Asia	175	426	485	615	719	866	1,412	1,114	1,271	1,660	1,239	1,499	1,797	1,941
China and Hong Kong total	13,257	14,294	15,792	16,221	17,089	20,624	21,019	20,993	25,165	31,215	36,827	42,225	47,088	53,146
China and Hong Kong ROW	9,415	10,449	11,707	12,033	12,632	14,783	14,409	14,871	17,418	22,223	26,136	30,508	34,484	39,330
Intra-China/Hong Kong	3,842	3,844	4,085	4,188	4,457	5,841	6,610	6,122	7,747	8,992	10,690	11,717	12,604	13,816
EU total	55,238	58,554	61,972	62,714	64,102	67,280	71,800	73,998	88,684	107,764	116,451	131,684	150,202	164,075
EU ROW	26,106	28,290	30,418	30,587	31,404	34,718	36,491	37,710	44,348	56,110	60,174	68,362	76,455	83,214
Intra-EU	29,133	30,265	31,554	32,127	32,698	32,563	35,310	36,288	44,337	51,654	56,277	63,322	73,747	80,861
Japan	24,971	24,533	25,097	22,599	26,157	33,161	28,996	25,979	31,236	41,217	41,116	41,212	42,062	45,245
Latin America	2,873	2,990	3,489	4,335	4,830	5,731	6,275	6,993	8,034	8,360	9,382	10,177	11,359	11,507
Middle East	1,051	1,266	1,661	1,660	1,901	2,064	2,106	1,864	1,995	3,050	2,550	3,077	3,340	3,455
United States	25,466	28,335	32,444	33,159	35,496	42,220	41,228	38,263	40,325	46,933	50,537	56,682	60,956	64,128
All other countries	15,857	16,389	15,626	16,225	17,613	19,141	19,265	19,296	21,841	26,379	29,169	32,898	36,416	38,989
Imports														
World	149,757	158,485	169,301	169,964	181,845	205,169	207,185	206,187	241,986	300,658	331,046	371,886	414,523	449,899
World excluding intra-EU and intra-China/Hong Kong	116,782	124,376	133,661	133,650	144,690	166,765	165,265	163,778	189,903	240,012	264,079	296,848	328,172	355,222
Africa	2,557	2,620	2,678	2,723	2,788	2,580	2,894	3,003	3,472	4,598	4,929	5,380	6,343	7,168
Asia-9	19,452	20,659	22,106	17,668	21,571	28,118	23,826	24,384	28,949	41,748	43,505	47,202	51,527	55,022
India	879	895	980	1,044	1,075	1,117	1,453	1,502	1,715	2,253	2,827	3,573	4,636	5,184
Indonesia	554	539	576	364	275	404	380	294	852	1,149	1,199	1,258	1,462	1,825
Malaysia	2,235	2,058	2,226	1,708	1,880	2,451	2,459	2,476	2,615	3,618	3,432	4,158	4,380	4,708
Philippines	491	680	844	804	785	943	935	692	1,106	1,443	1,201	1,270	1,285	1,354
Singapore	3,981	4,168	4,621	3,604	4,188	5,167	4,701	4,495	4,716	6,728	6,666	7,528	8,176	9,222
South Korea	5,708	6,053	5,793	3,411	4,942	6,667	5,657	6,177	8,208	11,102	12,848	14,141	16,244	16,961
Taiwan	3,651	4,257	5,238	5,503	7,120	9,645	6,453	6,835	7,383	12,448	11,851	11,528	11,121	11,154
Thailand	1,794	1,821	1,649	1,049	1,134	1,500	1,528	1,575	1,903	2,492	2,924	3,080	3,377	3,638
Vietnam	160	189	179	181	172	223	261	338	451	515	556	667	845	976
Central Europe/Asia	2,766	3,148	3,442	3,543	2,703	2,971	3,227	3,299	4,436	5,731	6,927	9,029	10,935	12,567

Appendix table 6-22

Exports and imports of scientific instruments and measuring equipment goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China and Hong Kong total	12,613	12,761	13,443	12,794	13,928	17,787	20,761	22,860	32,016	44,834	53,439	60,955	70,700	79,080
China and Hong Kong ROW	8,771	8,916	9,358	8,606	9,471	11,946	14,151	16,739	24,269	35,842	42,749	49,239	58,096	65,264
Intra-China/Hong Kong	3,842	3,844	4,085	4,188	4,457	5,841	6,610	6,122	7,747	8,992	10,690	11,717	12,604	13,816
EU total	55,298	57,718	60,051	62,703	65,333	67,928	70,757	68,936	80,575	94,723	104,257	116,784	131,965	143,288
EU ROW	26,165	27,453	28,497	30,577	32,635	35,366	35,447	32,648	36,239	43,068	47,981	53,462	58,217	62,427
Intra-EU	29,133	30,265	31,554	32,127	32,698	32,563	35,310	36,288	44,337	51,654	56,277	63,322	73,747	80,861
Japan	9,692	11,359	12,156	11,231	12,360	13,954	14,136	13,760	15,374	18,639	20,440	24,451	24,299	24,862
Latin America	6,211	6,873	8,108	8,648	8,463	9,369	10,212	9,535	9,683	11,856	13,876	16,675	19,389	21,562
Middle East	3,268	3,578	4,302	4,247	4,124	4,487	5,193	5,280	5,881	6,881	7,400	8,339	9,631	10,875
United States	21,168	22,483	24,798	27,360	30,560	37,040	34,946	34,681	38,225	43,994	46,691	50,174	52,833	54,806
All other countries	16,732	17,286	18,216	19,047	20,014	20,936	21,233	20,448	23,374	27,655	29,583	32,896	36,903	40,669
Balance														
Africa	-2,335	-2,374	-2,372	-2,419	-2,450	-2,269	-2,532	-2,580	-3,029	-4,012	-4,331	-4,723	-5,621	-6,382
Asia-9	-8,806	-9,206	-9,678	-5,534	-7,970	-14,349	-9,105	-7,118	-5,957	-8,253	-327	4,572	9,055	11,606
India	-767	-761	-818	-867	-810	-784	-1,073	-1,051	-1,142	-1,560	-1,985	-2,573	-3,373	-3,777
Indonesia	-273	-169	-86	-19	75	14	36	96	-479	-763	-738	-725	-924	-1,205
Malaysia	-1,018	-688	-793	-442	-588	-789	-425	-302	-162	-354	-54	-36	284	759
Philippines	-146	-145	-332	-254	-295	-397	-236	92	-267	-538	-178	-80	32	26
Singapore	-834	-862	-1,016	-359	-655	-1,337	-702	-74	735	119	-38	400	771	1,059
South Korea	-4,092	-4,351	-3,608	-670	-1,160	-4,543	-3,465	-4,139	-4,808	-4,791	-46	1,222	2,703	4,301
Taiwan	-857	-1,488	-2,443	-2,920	-4,366	-6,246	-3,049	-1,727	539	284	3,610	7,124	10,455	11,553
Thailand	-668	-568	-420	147	-48	-138	-53	186	-89	-269	-520	-302	-277	-409
Vietnam	-151	-175	-161	-150	-122	-128	-137	-199	-284	-380	-379	-457	-616	-701
Central Europe/Asia	-2,591	-2,723	-2,958	-2,929	-1,984	-2,105	-1,815	-2,185	-3,165	-4,070	-5,688	-7,530	-9,138	-10,626
China and Hong Kong total	645	1,533	2,349	3,427	3,160	2,837	258	-1,868	-6,852	-13,619	-16,612	-18,730	-23,612	-25,935
China and Hong Kong ROW	645	1,533	2,349	3,427	3,160	2,837	258	-1,868	-6,852	-13,619	-16,612	-18,730	-23,612	-25,935
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU total	-59	837	1,921	10	-1,231	-648	1,044	5,062	8,109	13,041	12,194	14,900	18,238	20,787
EU ROW	-59	837	1,921	10	-1,231	-648	1,044	5,062	8,109	13,041	12,194	14,900	18,238	20,787
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	15,279	13,174	12,941	11,368	13,796	19,208	14,860	12,218	15,861	22,578	20,676	16,761	17,763	20,383
Latin America	-3,339	-3,883	-4,620	-4,313	-3,633	-3,638	-3,937	-2,542	-1,649	-3,496	-4,494	-6,498	-8,029	-10,055
Middle East	-2,217	-2,312	-2,641	-2,587	-2,224	-2,422	-3,087	-3,416	-3,886	-3,831	-4,850	-5,262	-6,291	-7,421
United States	4,298	5,851	7,646	5,799	4,936	5,180	6,283	3,582	2,101	2,939	3,846	6,508	8,123	9,323
All other countries	-875	-897	-2,590	-2,822	-2,401	-1,795	-1,968	-1,153	-1,533	-1,276	-414	2	-487	-1,680

EU = European Union; ROW = rest of world

NOTES: ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-23

Exports and imports of pharmaceutical goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	72,115	79,348	85,484	96,217	108,517	111,466	138,360	168,804	205,162	254,121	280,359	314,621	369,596	415,103
World excluding intra-EU and intra-China/Hong Kong	48,258	53,507	58,538	66,024	75,476	79,200	98,178	125,426	151,393	188,810	210,113	236,460	275,525	310,302
Africa	107	148	223	216	185	240	185	211	238	262	300	324	380	407
Asia-9	1,887	2,081	2,229	2,147	2,826	2,911	3,184	3,424	4,040	4,888	7,425	9,993	12,863	13,710
India	684	798	919	924	1,090	1,213	1,389	1,799	2,209	2,467	3,114	3,781	5,330	6,518
Indonesia	41	50	41	53	78	79	91	104	119	143	122	144	158	188
Malaysia	77	82	72	70	78	78	83	94	106	141	142	154	175	204
Philippines	19	38	31	26	22	20	22	20	21	31	30	33	40	49
Singapore	589	618	616	586	1,049	977	1,033	833	936	1,323	3,093	4,839	5,888	5,306
South Korea	259	290	336	304	311	325	339	369	395	484	544	589	746	810
Taiwan	90	95	103	81	87	91	88	83	96	133	177	218	246	290
Thailand	127	107	109	99	107	117	121	104	132	157	187	218	257	321
Vietnam	1	2	3	4	3	11	18	18	25	9	16	18	22	23
Central Europe/Asia	135	290	313	354	291	305	341	366	511	584	653	749	903	1,063
China and Hong Kong total	2,481	2,526	2,490	2,545	2,543	2,496	2,711	2,952	3,527	4,016	4,686	5,388	6,856	9,070
China and Hong Kong ROW	1,699	1,707	1,680	1,801	1,870	1,950	2,155	2,486	3,019	3,521	4,164	4,733	6,180	8,335
Intra-China/Hong Kong	783	820	810	744	673	545	556	466	507	495	522	656	676	735
EU total	44,109	48,236	52,070	58,518	65,018	65,740	83,715	101,555	124,610	154,816	167,129	183,143	214,920	240,523
EU ROW	21,035	23,216	25,934	29,069	32,650	34,019	44,089	58,643	71,348	90,000	97,405	105,638	121,525	136,457
Intra-EU	23,074	25,021	26,137	29,449	32,368	31,721	39,625	42,912	53,262	64,816	69,724	77,505	93,395	104,066
Japan	1,859	1,988	2,077	2,126	2,710	3,028	3,094	3,327	3,986	4,177	4,087	3,687	3,977	4,248
Latin America	1,025	1,341	1,535	1,703	1,835	1,980	2,371	2,499	2,640	3,422	3,197	3,650	4,269	5,110
Middle East	234	320	419	435	511	534	844	979	1,204	1,563	2,548	3,650	4,004	5,429
United States	6,554	7,330	8,231	9,661	11,247	13,122	15,421	16,148	19,210	23,978	25,952	29,057	33,436	38,193
All other countries	13,724	15,088	15,897	18,512	21,351	21,110	26,494	37,343	45,196	56,415	64,382	74,980	87,988	97,350
Imports														
World	72,115	79,348	85,484	96,217	108,517	111,466	138,360	168,804	205,162	254,121	280,359	314,668	369,402	407,509
World excluding intra-EU and intra-China/Hong Kong	48,258	53,507	58,538	66,024	75,476	79,200	98,178	125,426	151,393	188,810	210,113	236,508	275,331	306,619
Africa	2,762	2,656	2,952	3,434	3,345	3,413	3,805	4,098	4,608	5,603	6,376	6,802	8,180	9,558
Asia-9	3,989	4,244	4,432	3,788	4,278	4,543	5,176	5,653	6,423	7,948	9,391	10,420	12,461	14,608
India	407	358	417	430	441	442	515	654	703	973	1,177	1,420	1,909	2,413
Indonesia	250	241	273	200	161	187	177	202	311	357	347	379	466	571
Malaysia	344	367	402	294	349	363	416	456	515	672	692	767	929	1,087
Philippines	312	346	369	340	378	372	387	413	475	531	550	569	669	780
Singapore	538	571	623	513	594	626	755	777	817	981	1,530	1,438	1,603	1,993
South Korea	682	778	732	566	705	799	1,034	1,161	1,374	1,710	1,999	2,498	2,993	3,349
Taiwan	649	722	711	736	861	894	977	1,047	1,136	1,475	1,594	1,690	1,860	2,013
Thailand	536	551	555	376	487	514	564	550	663	762	931	984	1,142	1,390
Vietnam	270	309	350	332	301	346	350	394	430	488	570	677	892	1,012
Central Europe/Asia	1,710	2,220	3,014	2,912	2,636	3,275	3,977	4,161	5,590	7,424	9,132	11,412	14,175	18,010
China and Hong Kong total	2,192	2,298	2,263	2,340	2,183	2,029	2,194	2,319	2,532	2,745	3,190	3,672	4,280	5,300

Appendix table 6-23

Exports and imports of pharmaceutical goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China and Hong Kong ROW	1,410	1,479	1,454	1,596	1,510	1,484	1,638	1,853	2,025	2,250	2,668	3,016	3,604	4,544
Intra-China/Hong Kong	783	820	810	744	673	545	556	466	507	495	522	656	676	755
EU total	34,770	38,381	39,961	45,802	51,821	51,419	64,889	77,454	94,477	118,730	129,663	145,264	172,716	186,023
EU ROW	11,696	13,360	13,825	16,353	19,453	19,698	25,264	34,541	41,215	53,913	59,939	67,759	79,321	85,888
Intra-EU	23,074	25,021	26,137	29,449	32,368	31,721	39,625	42,912	53,262	64,816	69,724	77,505	93,395	100,135
Japan	4,430	4,142	4,041	3,600	4,416	4,398	4,795	4,947	5,674	6,724	7,492	7,732	8,294	9,609
Latin America	3,558	4,168	4,842	5,532	5,957	6,365	7,297	6,983	7,786	9,201	9,854	11,672	14,208	16,722
Middle East	2,012	2,034	2,290	2,529	2,600	2,613	3,038	3,299	3,798	4,391	4,850	5,546	6,706	7,882
United States	5,544	7,076	8,737	10,885	13,542	14,694	18,624	25,116	32,055	35,566	39,039	45,920	52,311	58,759
All other countries	11,148	12,129	12,952	15,395	17,739	18,717	24,565	34,774	42,219	55,789	61,372	66,228	76,071	81,038
Balance														
Africa	-2,655	-2,508	-2,730	-3,219	-3,159	-3,173	-3,619	-3,887	-4,370	-5,341	-6,076	-6,478	-7,800	-9,151
Asia-9	-2,102	-2,163	-2,203	-1,642	-1,453	-1,631	-1,992	-2,229	-2,383	-3,060	-1,966	-428	402	-899
India	277	440	502	494	649	771	874	1,145	1,506	1,494	1,936	2,362	3,421	4,105
Indonesia	-209	-191	-231	-147	-83	-108	-86	-98	-192	-214	-225	-235	-308	-383
Malaysia	-267	-285	-330	-224	-272	-285	-333	-362	-409	-530	-550	-613	-753	-883
Philippines	-293	-308	-339	-314	-356	-352	-365	-393	-454	-499	-520	-536	-629	-731
Singapore	51	47	-7	73	454	351	278	56	119	342	1,563	3,401	4,285	3,313
South Korea	-423	-488	-396	-262	-394	-474	-695	-791	-979	-1,226	-1,455	-1,910	-2,246	-2,539
Taiwan	-559	-627	-608	-655	-774	-803	-889	-964	-1,040	-1,342	-1,416	-1,472	-1,613	-1,723
Thailand	-409	-443	-446	-277	-380	-397	-443	-446	-531	-604	-745	-766	-885	-1,069
Vietnam	-269	-307	-347	-328	-298	-334	-332	-377	-404	-479	-554	-659	-870	-989
Central Europe/Asia	-1,575	-1,929	-2,701	-2,558	-2,345	-2,970	-3,636	-3,796	-5,079	-6,840	-8,479	-10,663	-13,272	-16,947
China and Hong Kong total	289	228	226	205	360	467	517	633	995	1,271	1,496	1,717	2,576	3,771
China and Hong Kong ROW	289	228	226	205	360	467	517	633	995	1,271	1,496	1,717	2,576	3,791
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	-20
EU total	9,339	9,855	12,109	12,716	13,197	14,321	18,826	24,102	30,133	36,086	37,466	37,879	42,204	54,500
EU ROW	9,339	9,855	12,109	12,716	13,197	14,321	18,826	24,102	30,133	36,086	37,466	37,879	42,204	50,569
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	3,931
Japan	-2,571	-2,153	-1,965	-1,475	-1,706	-1,370	-1,700	-1,620	-1,689	-2,546	-3,406	-4,045	-4,318	-5,361
Latin America	-2,533	-2,827	-3,308	-3,830	-4,122	-4,385	-4,926	-4,484	-5,146	-5,779	-6,658	-8,022	-9,939	-11,612
Middle East	-1,779	-1,714	-1,871	-2,094	-2,089	-2,079	-2,194	-2,321	-2,594	-2,827	-2,302	-1,897	-2,702	-2,453
United States	1,010	254	-507	-1,224	-2,295	-1,572	-3,203	-8,968	-12,845	-11,587	-13,087	-16,864	-18,874	-20,566
All other countries	2,576	2,959	2,945	3,117	3,612	2,393	1,929	2,569	2,977	626	3,010	8,752	11,917	16,312

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. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-24

Exports and imports of aerospace goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	64,794	74,037	89,405	106,641	105,753	103,340	117,383	113,470	111,788	114,150	125,359	154,145	171,576	173,213
World excluding intra-EU and intra-China/Hong Kong	50,321	58,383	71,942	87,445	84,372	80,392	89,881	84,951	85,125	88,425	98,029	118,836	139,918	140,221
Africa	105	171	167	164	252	257	221	152	103	311	856	913	961	998
Asia-9	1,025	1,100	1,727	2,428	1,408	1,254	1,515	1,405	2,698	2,600	3,420	3,740	4,132	4,541
India	7	18	50	14	25	37	87	76	79	56	76	80	96	127
Indonesia	15	20	26	14	40	11	24	55	27	36	109	114	125	159
Malaysia	419	549	565	1,025	632	278	197	202	191	234	333	353	372	410
Philippines	3	17	63	21	15	27	104	41	74	208	349	393	396	414
Singapore	330	319	489	455	365	345	528	781	1,113	894	1,274	1,404	1,605	1,901
South Korea	222	127	476	828	265	449	474	170	338	284	307	337	393	336
Taiwan	9	25	31	61	49	43	73	43	122	105	126	138	170	175
Thailand	13	22	20	5	14	40	21	32	747	781	841	915	968	1,013
Vietnam	7	2	5	4	3	24	5	5	5	2	6	6	7	7
Central Europe/Asia	216	539	124	674	557	804	783	623	3,379	1,396	1,065	974	1,588	1,408
China and Hong Kong total	264	308	383	545	629	610	550	570	570	718	968	1,005	1,271	1,382
China and Hong Kong ROW	241	255	287	411	405	423	385	323	437	559	683	708	909	1,028
Intra-China/Hong Kong	23	53	96	134	224	188	165	247	133	159	285	297	363	354
EU total	31,460	32,139	37,974	40,461	41,688	45,125	52,403	51,380	49,478	50,252	53,052	65,834	67,232	72,369
EU ROW	17,010	16,538	20,607	21,399	20,530	22,364	25,066	23,108	22,948	24,686	26,007	30,821	35,937	39,730
Intra-EU	14,451	15,601	17,367	19,062	21,158	22,761	27,338	28,272	26,529	25,566	27,044	35,013	31,295	32,638
Japan	586	880	1,390	1,701	1,687	1,544	1,818	1,361	1,143	1,425	1,533	1,678	2,383	2,271
Latin America	410	530	831	1,394	2,101	3,399	3,408	2,791	2,470	3,587	3,424	3,541	4,660	5,300
Middle East	651	612	660	508	559	595	1,051	734	742	645	970	1,064	1,425	1,530
United States	25,613	32,455	40,608	52,290	49,611	40,953	44,689	43,799	39,638	42,089	49,793	63,643	75,910	71,951
All other countries	4,465	5,303	5,541	6,475	7,263	8,799	10,946	10,655	11,566	11,128	10,278	11,754	12,013	11,464
Imports														
World	64,794	74,037	89,405	106,641	105,753	103,340	117,383	113,470	111,788	114,150	125,359	154,145	171,576	173,213
World excluding intra-EU and intra-China/Hong Kong	50,321	58,383	71,942	87,445	84,372	80,392	89,881	84,951	85,125	88,425	98,029	118,836	139,918	140,221
Africa	1,458	1,541	2,257	2,142	2,062	3,159	3,423	2,804	2,948	3,003	4,656	4,982	4,736	5,415
Asia-9	10,584	11,276	13,976	12,849	8,892	7,523	11,690	10,335	11,928	11,867	17,058	20,303	25,853	22,009
India	546	950	577	830	499	497	714	1,020	1,759	1,021	3,917	5,441	11,158	7,979
Indonesia	321	972	1,136	438	190	164	209	391	503	360	459	352	957	1,034
Malaysia	1,361	652	1,665	1,370	565	408	826	1,017	479	907	869	1,357	1,029	1,116
Philippines	404	452	1,270	454	93	228	105	131	142	301	439	491	502	604
Singapore	1,830	2,351	2,924	2,771	2,224	1,273	4,140	3,404	3,736	3,976	3,940	4,582	4,197	4,887
South Korea	2,565	2,513	2,462	2,177	1,881	2,650	2,993	2,759	2,134	2,090	2,066	3,239	3,438	2,449
Taiwan	2,101	1,389	2,400	3,072	2,215	1,507	1,919	1,035	1,470	1,951	3,648	2,873	2,691	2,355
Thailand	1,403	1,324	1,424	1,702	1,208	780	683	425	940	565	1,224	1,714	1,692	1,299
Vietnam	53	674	117	35	16	15	102	152	764	696	496	252	190	285
Central Europe/Asia	1,119	1,456	1,209	2,971	2,366	1,977	1,425	2,130	1,236	2,312	1,921	3,630	3,526	5,337
China and Hong Kong total	3,884	4,578	4,609	7,183	4,440	3,320	5,769	5,799	6,096	5,881	8,987	13,341	16,077	14,337

Appendix table 6-24

Exports and imports of aerospace goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China and Hong Kong ROW	3,861	4,525	4,513	7,049	4,216	3,133	5,604	5,553	5,963	5,722	8,702	13,044	15,714	13,983
Intra-China/Hong Kong	23	53	96	134	224	188	165	247	133	159	285	297	363	354
EU total	25,152	27,498	31,590	37,117	43,284	42,767	46,777	45,420	44,906	46,325	45,336	56,874	58,290	58,039
EU ROW	10,702	11,897	14,224	18,054	22,126	20,006	19,439	17,149	18,376	20,759	18,291	21,861	26,995	25,401
Intra-EU	14,451	15,601	17,367	19,062	21,158	22,761	27,338	28,272	26,529	25,566	27,044	35,013	31,295	32,638
Japan	3,657	3,489	4,868	6,005	5,263	4,626	3,372	4,974	5,631	5,812	5,997	6,349	7,603	7,022
Latin America	2,842	2,572	3,463	4,659	4,405	4,777	4,593	4,503	4,257	5,639	5,710	7,930	8,971	10,544
Middle East	3,061	4,478	7,608	9,320	7,887	5,031	5,471	4,786	4,992	5,004	7,237	9,146	9,191	10,695
United States	6,336	7,639	9,770	12,980	14,982	18,160	21,091	17,984	16,990	16,481	16,472	17,826	21,827	21,534
All other countries	6,701	9,510	10,055	11,415	12,172	11,999	13,773	14,733	12,804	11,826	11,985	13,765	15,501	18,281
Balance														
Africa	-1,353	-1,370	-2,090	-1,978	-1,810	-2,902	-3,202	-2,652	-2,845	-2,693	-3,799	-4,069	-3,775	-4,417
Asia-9	-9,558	-10,176	-12,249	-10,421	-7,484	-6,269	-10,175	-8,930	-9,230	-9,267	-13,638	-16,563	-21,721	-17,468
India	-539	-932	-527	-816	-474	-461	-626	-944	-1,680	-964	-3,842	-5,360	-11,062	-7,852
Indonesia	-306	-952	-1,110	-425	-150	-153	-185	-336	-476	-324	-350	-239	-832	-875
Malaysia	-942	-104	-1,100	-344	67	-130	-629	-815	-288	-673	-536	-1,004	-657	-706
Philippines	-401	-434	-1,207	-432	-78	-201	0	-90	-68	-93	-90	-98	-106	-190
Singapore	-1,500	-2,031	-2,435	-2,317	-1,859	-928	-3,612	-2,623	-2,623	-3,083	-2,666	-3,179	-2,592	-2,986
South Korea	-2,343	-2,386	-1,986	-1,348	-1,616	-2,201	-2,519	-2,589	-1,795	-1,806	-1,759	-2,903	-3,045	-2,114
Taiwan	-2,092	-1,364	-2,369	-3,011	-2,166	-1,464	-1,845	-993	-1,348	-1,846	-3,522	-2,735	-2,521	-2,180
Thailand	-1,390	-1,302	-1,403	-1,697	-1,194	-740	-662	-393	-193	216	-383	-799	-724	-286
Vietnam	-46	-672	-112	-32	-14	9	-97	-147	-759	-694	-490	-246	-183	-278
Central Europe/Asia	-904	-917	-1,085	-2,297	-1,808	-1,174	-641	-1,507	2,143	-916	-856	-2,656	-1,937	-3,929
China and Hong Kong total	-3,620	-4,270	-4,225	-6,638	-3,811	-2,710	-5,219	-5,229	-5,526	-5,163	-8,019	-12,336	-14,805	-12,955
China and Hong Kong ROW	-3,620	-4,270	-4,225	-6,638	-3,811	-2,710	-5,219	-5,229	-5,526	-5,163	-8,019	-12,336	-14,805	-12,955
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU total	6,308	4,641	6,384	3,344	-1,597	2,358	5,626	5,959	4,572	3,927	7,716	8,960	8,942	14,330
EU ROW	6,308	4,641	6,384	3,344	-1,597	2,358	5,626	5,959	4,572	3,927	7,716	8,960	8,942	14,330
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	-3,072	-2,609	-3,478	-4,303	-3,577	-3,083	-1,555	-3,613	-4,489	-4,387	-4,464	-4,671	-5,220	-4,750
Latin America	-2,432	-2,042	-2,633	-3,265	-2,304	-1,379	-1,184	-1,712	-1,786	-2,052	-2,287	-4,389	-4,311	-5,245
Middle East	-2,410	-3,866	-6,947	-8,813	-7,329	-4,437	-4,420	-4,052	-4,250	-4,360	-6,267	-8,082	-7,767	-9,165
United States	19,277	24,816	30,837	39,310	34,629	22,794	23,598	25,815	22,648	25,608	33,321	45,816	54,082	50,417
All other countries	-2,236	-4,206	-4,514	-4,940	-4,909	-3,199	-2,827	-4,079	-1,238	-698	-1,706	-2,011	-3,488	-6,817

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. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-25
Regions and countries/economies in bilateral trade data

Africa	European Union (continued)
Eastern Africa	Portugal
Egypt	Romania
Kenya	Slovakia
Other East Africa	Spain
Other Southern Africa	Sweden
South Africa	United Kingdom
Western Africa	Central Asia/Europe
Asia-9	Russia
India	Other CIS Southeast
Indonesia	Other CIS West
Malaysia	Turkey
Philippines	Japan
Singapore	Latin America
South Korea	Argentina
Taiwan	Brazil
Thailand	Caribbean Basin
Vietnam	Central America
China and Hong Kong	Chile
China	Colombia
Hong Kong	Mexico
European Union	Other East Coast of South America
Austria	Other West Coast of South America
Belgium	Peru
Bulgaria	Venezuela
Czech Republic	Middle East
Denmark	Israel
Estonia	Other Gulf States
Finland	Saudi Arabia
France	United States
Germany	All others
Greece	Australia
Hungary	Canada
Ireland	New Zealand
Italy	Switzerland
Latvia	Pakistan
Lithuania	Norway
Netherlands	Other Indian Subcontinent
Poland	

CIS = Commonwealth of Independent States

SOURCE: IHS Global Insight, World Trade Service database, special tabulations (15 January 2009).

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Appendix table 6-26

Exports and imports of information and communications technology goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports														
World	628,555	669,548	731,646	737,984	832,994	1,028,716	914,079	932,674	1,054,181	1,297,095	1,447,676	1,667,163	1,833,896	1,894,547
World excluding intra-EU and intra-China/Hong Kong	517,048	547,776	591,978	584,475	666,655	833,533	718,537	729,164	831,472	1,017,993	1,126,118	1,262,491	1,431,846	1,492,571
Africa	335	388	466	969	1,176	1,097	971	1,143	1,264	1,519	1,951	2,277	2,520	2,730
Asia-9	184,318	205,336	216,863	211,625	253,474	321,562	272,641	293,996	330,363	400,757	430,083	486,266	541,844	556,538
India	480	521	535	284	323	477	587	539	755	850	956	1,247	1,415	1,687
Indonesia	2,530	3,481	3,719	3,624	4,450	8,160	7,123	7,006	6,596	7,744	7,830	8,791	9,693	10,593
Malaysia	35,119	39,184	40,006	38,383	48,961	59,603	52,615	55,370	58,325	65,678	73,603	82,886	85,280	89,958
Philippines	4,792	10,965	15,288	20,184	26,079	28,161	23,612	26,193	27,299	27,908	27,849	30,987	33,716	34,884
Singapore	58,097	63,049	62,858	56,143	59,310	71,677	60,980	61,625	72,543	90,857	100,323	116,315	126,157	133,728
South Korea	35,863	34,819	36,140	34,038	46,626	63,428	48,977	57,604	69,271	90,267	90,379	92,506	112,052	113,765
Taiwan	34,550	38,657	42,651	43,321	50,886	68,970	59,922	65,553	73,128	92,318	99,275	118,430	131,572	128,957
Thailand	12,866	14,586	15,523	15,515	16,718	20,242	17,938	19,272	21,287	24,566	28,929	33,932	40,467	41,307
Vietnam	19	75	145	132	122	844	886	834	1,159	569	938	1,172	1,491	1,659
Central Europe/Asia	404	1,034	1,423	1,448	1,507	1,574	1,691	2,236	2,771	4,228	4,404	5,894	6,877	6,782
China and Hong Kong total	46,867	51,107	58,707	63,053	72,503	99,343	110,289	145,720	198,550	280,327	355,079	443,030	517,088	562,850
China and Hong Kong ROW	33,998	36,941	42,331	46,254	53,155	70,379	74,898	99,786	138,648	199,957	250,219	309,002	367,268	406,098
Intra-China/Hong Kong	12,870	14,166	16,376	16,800	19,348	28,964	35,392	45,934	59,902	80,371	104,860	134,028	149,820	156,751
EU total	154,118	168,201	190,240	205,346	221,398	256,341	241,336	231,661	245,932	302,227	339,847	394,366	387,696	385,609
EU ROW	55,481	60,595	66,947	68,635	74,407	90,121	81,185	74,085	83,125	103,495	123,150	123,722	135,467	140,384
Intra-EU	98,637	107,605	123,292	136,710	146,990	166,220	160,150	157,576	162,807	198,732	216,697	270,644	252,229	245,225
Japan	107,421	96,346	97,171	87,407	95,301	113,576	87,261	86,147	96,939	111,616	107,203	105,127	136,288	134,025
Latin America	11,514	14,324	17,916	22,830	28,461	35,780	35,380	32,499	32,292	36,471	40,647	49,004	58,127	59,469
Middle East	2,575	3,089	3,773	4,105	4,735	7,757	6,709	5,616	6,615	8,044	8,084	8,441	9,222	9,480
United States	97,990	104,617	118,885	113,893	125,664	153,399	126,689	109,144	112,530	121,125	125,659	136,750	134,934	137,834
All other countries	23,014	25,107	26,204	27,308	28,775	38,287	31,111	24,512	26,926	30,782	34,719	36,008	39,299	39,231
Imports														
World	628,555	669,548	731,646	737,984	832,994	1,028,716	914,079	932,674	1,054,181	1,297,095	1,447,676	1,667,163	1,833,896	1,894,547
World excluding intra-EU and intra-China/Hong Kong	517,048	547,776	591,978	584,475	666,655	833,533	718,537	729,164	831,472	1,017,993	1,126,118	1,262,491	1,431,846	1,492,571
Africa	6,167	6,397	6,776	8,444	8,234	8,902	8,464	8,119	9,882	13,296	16,234	18,591	21,735	24,530
Asia-9	117,843	130,496	139,059	120,830	148,514	192,745	158,545	171,292	196,504	230,945	243,498	275,914	310,000	329,010
India	1,744	1,882	2,107	2,045	2,441	3,294	3,409	4,572	6,466	8,924	11,046	14,018	18,359	20,588
Indonesia	1,544	2,364	2,342	771	691	1,130	1,098	1,236	5,854	7,381	7,447	8,249	9,925	11,836
Malaysia	24,727	26,412	26,991	24,584	28,762	37,301	31,702	35,129	38,596	43,364	45,249	51,613	56,095	60,094
Philippines	4,723	8,519	11,724	11,549	13,038	14,947	13,294	15,044	16,385	18,275	17,318	18,587	20,187	19,687
Singapore	39,949	41,989	41,266	34,821	39,680	50,281	40,162	41,403	45,815	57,240	62,753	73,910	85,696	95,550
South Korea	14,912	17,330	18,789	14,501	23,909	32,737	25,595	28,541	32,720	37,602	38,650	42,971	47,783	49,794
Taiwan	19,427	20,194	23,939	23,102	28,958	37,688	28,748	30,719	34,287	37,988	39,127	41,866	43,970	41,846
Thailand	10,286	11,185	11,128	8,685	10,331	14,519	13,578	13,623	15,144	18,097	19,804	22,292	24,953	26,133
Vietnam	533	622	775	773	704	849	960	1,024	1,237	2,074	2,104	2,409	3,030	3,483
Central Europe/Asia	6,206	6,706	7,921	7,099	7,084	9,557	7,560	8,821	12,634	18,667	23,140	28,355	35,952	39,327
China and Hong Kong total	50,593	52,222	60,930	60,936	70,824	100,747	107,121	132,683	174,890	225,409	271,319	328,471	383,940	399,306
China and Hong Kong ROW	37,724	38,056	44,555	44,136	51,476	71,783	71,729	86,749	114,988	145,039	166,459	194,444	234,120	242,555

Appendix table 6-26

Exports and imports of information and communications technology goods, by region/country/economy: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Intra-China/Hong Kong	12,870	14,166	16,376	16,800	19,348	28,964	35,392	45,934	59,902	80,371	104,860	134,028	149,820	156,751
EU total	191,960	205,426	229,723	249,739	269,267	311,141	288,220	278,621	308,606	384,044	415,437	498,300	504,291	502,345
EU ROW	93,324	97,820	106,431	113,029	122,276	144,922	128,069	121,045	145,799	185,312	198,740	227,656	252,062	257,120
Intra-EU	98,637	107,605	123,292	136,710	146,990	166,220	160,150	157,576	162,807	198,732	216,697	270,644	252,229	245,225
Japan	35,978	41,259	39,745	35,134	43,714	59,790	52,869	50,322	55,065	64,745	66,422	70,934	89,711	95,324
Latin America	23,245	27,072	33,938	34,997	37,606	47,928	44,938	40,698	40,175	53,417	61,485	73,143	82,714	90,674
Middle East	7,611	7,811	8,521	9,209	9,519	11,085	12,507	13,234	14,469	18,709	30,033	28,675	32,198	35,868
United States	137,804	138,753	149,703	153,747	173,966	211,863	170,088	170,194	177,380	209,290	229,267	248,314	260,666	256,638
All other countries	51,147	53,405	55,329	57,849	64,265	74,957	63,765	58,692	64,575	78,573	90,839	96,466	112,688	121,526
Balance														
Africa	-5,833	-6,009	-6,310	-7,475	-7,058	-7,806	-7,493	-6,976	-8,618	-11,777	-14,283	-16,314	-19,215	-21,800
Asia-9	66,475	74,840	77,804	90,795	104,961	128,817	114,096	122,704	133,859	169,812	186,585	210,351	231,844	227,528
India	-1,264	-1,361	-1,572	-1,761	-2,118	-2,816	-2,822	-4,033	-5,712	-8,074	-10,090	-12,772	-16,944	-18,901
Indonesia	987	1,117	1,377	2,853	3,759	7,030	6,025	5,769	742	363	383	541	-232	-1,243
Malaysia	10,393	12,771	13,015	13,799	20,199	22,302	20,914	20,241	19,729	22,314	28,354	31,273	29,184	29,865
Philippines	69	2,445	3,564	8,635	13,041	13,213	10,319	11,149	10,914	9,633	10,531	12,400	13,528	15,197
Singapore	18,148	21,060	21,592	21,322	19,630	21,396	20,818	20,222	26,728	33,617	37,570	42,405	40,461	38,178
South Korea	20,951	17,490	17,351	19,537	22,717	30,691	23,383	29,063	36,552	52,665	51,729	49,536	64,269	63,972
Taiwan	15,123	18,464	18,712	20,219	21,928	31,282	31,173	34,834	38,841	54,329	60,148	76,565	87,602	87,111
Thailand	2,581	3,401	4,395	6,831	6,387	5,723	4,360	5,649	6,143	6,469	9,125	11,640	15,513	15,174
Vietnam	-514	-547	-630	-641	-583	-4	-74	-190	-79	-1,504	-1,166	-1,236	-1,539	-1,824
Central Europe/Asia	-5,802	-5,672	-6,498	-5,651	-5,578	-7,983	-5,870	-6,585	-9,863	-14,439	-18,736	-22,461	-29,075	-32,545
China and Hong Kong total	-3,726	-1,116	-2,223	2,117	1,679	-1,404	3,169	13,038	23,660	54,918	83,760	114,558	133,148	163,544
China and Hong Kong ROW	-3,726	-1,116	-2,223	2,117	1,679	-1,404	3,169	13,038	23,660	54,918	83,760	114,558	133,148	163,544
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU total	-37,843	-37,225	-39,483	-44,393	-47,869	-54,800	-46,884	-46,960	-62,674	-81,817	-75,590	-103,934	-116,595	-116,735
EU ROW	-37,843	-37,225	-39,483	-44,393	-47,869	-54,800	-46,884	-46,960	-62,674	-81,817	-75,590	-103,934	-116,595	-116,735
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	71,443	55,087	57,426	52,273	51,587	53,787	34,392	35,826	41,874	46,871	40,781	34,193	46,577	38,701
Latin America	-11,731	-12,748	-16,023	-12,167	-9,145	-12,148	-9,559	-8,199	-7,883	-16,946	-20,838	-24,138	-24,587	-31,205
Middle East	-5,036	-4,723	-4,748	-5,104	-4,784	-3,328	-5,798	-7,618	-7,855	-10,665	-21,950	-20,234	-22,976	-26,388
United States	-39,815	-34,136	-30,818	-39,854	-48,301	-58,464	-43,398	-61,049	-64,851	-88,165	-103,608	-111,564	-125,732	-118,804
All other countries	-28,133	-28,298	-29,125	-30,541	-35,490	-36,671	-32,655	-34,180	-37,649	-47,792	-56,120	-60,457	-73,389	-82,295

EU = European Union; ROW = rest of the world

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. ROW is trade between named region/country/economy and rest of world. Intra-EU is trade between EU member countries. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-27

U.S. exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	97,990	104,617	118,885	113,893	125,664	153,399	126,689	109,144	112,530	121,125	125,659	136,750	134,934	137,834
Africa	644	582	637	735	747	772	895	604	650	903	1,039	1,394	1,082	1,142
Asia-9	23,738	25,392	28,952	25,585	31,269	38,978	28,938	28,913	31,557	30,351	30,591	33,069	31,828	32,085
India	358	387	351	379	381	602	587	724	758	895	994	1,103	1,216	1,214
Indonesia	371	450	650	193	140	209	180	134	128	147	141	141	186	192
Malaysia	5,087	4,438	5,111	4,725	5,556	6,558	5,039	6,066	7,341	6,461	6,297	6,963	6,085	7,113
Philippines	2,092	2,696	3,804	3,795	4,447	5,251	4,763	4,807	5,642	4,437	4,169	4,622	4,316	4,154
Singapore	5,953	6,504	6,449	5,547	5,639	6,603	5,008	4,055	4,486	5,171	5,197	5,760	6,407	6,304
South Korea	4,405	5,167	5,805	4,848	8,272	9,877	5,634	5,762	6,264	6,027	6,250	6,681	5,423	4,600
Taiwan	3,703	4,088	4,834	4,544	5,066	7,013	5,496	5,861	5,318	4,985	4,926	5,198	5,646	5,998
Thailand	1,740	1,626	1,913	1,523	1,737	2,806	2,191	1,461	1,579	2,166	2,542	2,511	2,436	2,334
Vietnam	30	35	33	32	31	59	40	42	41	63	76	89	115	177
Central Europe/Asia	459	447	626	587	482	513	455	395	434	533	545	675	776	739
China and Hong Kong	5,136	5,120	6,014	6,027	6,826	8,787	8,938	8,388	9,546	11,555	12,534	15,574	16,162	16,057
EU	23,899	23,626	26,367	25,945	27,390	31,663	27,246	21,216	20,709	21,667	21,887	23,335	23,516	22,746
Japan	10,497	12,352	12,282	10,396	10,468	13,069	10,690	7,610	6,907	6,707	6,255	6,493	5,901	5,311
Latin America	12,535	15,207	20,546	21,271	23,692	30,146	26,728	23,538	23,863	27,667	28,506	32,034	31,270	34,859
Middle East	1,606	1,556	1,885	1,812	1,984	2,183	1,644	1,312	1,369	1,794	1,951	1,950	2,032	2,459
All other countries	19,477	20,335	21,575	21,534	22,807	27,288	21,154	17,168	17,495	19,947	22,352	22,225	22,367	22,435
Imports by origin														
World	137,804	138,753	149,703	153,747	173,966	211,863	170,088	170,194	177,380	209,290	229,267	248,314	260,666	256,638
Africa	75	91	94	108	141	168	104	126	128	135	117	135	132	137
Asia-9	60,508	63,139	67,505	66,969	75,368	89,301	69,096	69,803	68,588	75,091	76,354	79,644	75,045	71,701
India	111	139	241	125	90	76	77	69	69	112	194	320	259	458
Indonesia	1,022	1,278	1,560	1,678	1,838	2,024	2,014	1,772	1,473	1,725	1,820	1,318	1,451	1,590
Malaysia	12,964	12,926	12,977	13,775	16,254	19,756	17,060	18,875	20,089	21,446	26,534	28,230	23,814	21,033
Philippines	2,897	4,083	5,852	6,844	7,349	8,629	6,291	6,149	5,103	3,961	3,905	3,932	3,674	3,279
Singapore	15,052	16,748	16,115	14,554	13,897	14,218	10,408	9,656	9,262	9,509	8,715	8,911	8,488	7,054
South Korea	12,846	11,358	11,293	10,351	15,131	20,209	14,243	14,504	15,184	18,981	14,556	13,582	14,113	15,583
Taiwan	11,685	12,702	14,711	14,582	15,645	18,754	14,573	13,952	12,736	13,202	12,723	14,736	14,373	13,410
Thailand	3,932	3,905	4,756	5,060	5,164	5,636	4,431	4,808	4,601	6,091	7,759	8,319	8,426	8,710
Vietnam	0	0	0	0	0	0	0	19	70	64	148	296	447	584
Central Europe/Asia	10	18	20	14	17	29	16	19	15	20	24	22	33	34
China and Hong Kong	9,593	10,330	12,703	15,171	18,109	23,516	22,701	31,518	42,594	62,642	79,411	93,806	102,499	103,950
EU	10,248	9,862	10,697	11,362	12,439	14,511	12,290	12,363	12,348	11,975	12,636	11,688	11,262	11,847
Japan	38,451	33,496	33,485	30,303	32,598	36,214	24,623	21,199	20,642	22,435	21,631	19,274	22,258	20,124
Latin America	9,687	11,847	14,511	18,515	22,604	28,926	29,321	26,578	25,070	27,958	28,860	33,977	39,769	39,504
Middle East	668	721	827	870	1,083	2,031	1,461	1,146	1,154	1,258	1,350	1,556	1,505	1,289
All other countries	8,564	9,250	9,860	10,434	11,606	17,167	10,476	7,440	6,840	7,775	8,885	8,212	8,162	8,052

Appendix table 6-27

U.S. exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Balance														
World	-39,815	-34,136	-30,818	-39,854	-48,301	-58,464	-43,398	-61,049	-64,851	-88,165	-103,608	-111,564	-125,732	-118,804
Africa	569	491	543	627	605	604	791	478	522	768	922	1,259	949	1,005
Asia-9	-36,770	-37,747	-38,553	-41,384	-44,099	-50,322	-40,158	-40,891	-37,031	-44,740	-45,763	-46,575	-43,216	-39,616
India	247	248	110	253	292	526	511	656	689	783	800	783	957	756
Indonesia	-651	-828	-910	-1,485	-1,698	-1,815	-1,835	-1,637	-1,345	-1,578	-1,679	-1,177	-1,265	-1,398
Malaysia	-7,877	-8,488	-7,866	-9,051	-10,698	-13,197	-12,021	-12,809	-12,748	-14,985	-20,237	-21,267	-17,729	-13,920
Philippines	-805	-1,387	-2,048	-3,050	-2,902	-3,378	-1,528	-1,342	539	476	265	690	643	875
Singapore	-9,099	-10,244	-9,667	-9,007	-8,258	-7,615	-5,400	-5,602	-4,775	-4,339	-3,518	-3,151	-2,081	-750
South Korea	-8,441	-6,191	-5,487	-5,503	-6,859	-10,332	-8,609	-8,742	-8,921	-12,954	-8,307	-6,901	-8,690	-10,983
Taiwan	-7,983	-8,614	-9,877	-10,038	-10,579	-11,741	-9,077	-8,091	-7,419	-8,217	-7,797	-9,538	-8,727	-7,412
Thailand	-2,192	-2,279	-2,843	-3,537	-3,427	-2,829	-2,240	-3,347	-3,022	-3,926	-5,217	-5,808	-5,990	-6,376
Vietnam	30	35	33	32	31	58	40	23	-29	-1	-72	-206	-332	-407
Central Europe/Asia	449	429	606	573	464	484	439	376	418	513	521	653	743	706
China and Hong Kong	-4,457	-5,210	-6,689	-9,144	-11,283	-14,729	-13,763	-23,130	-33,048	-51,087	-66,876	-78,231	-86,337	-87,893
EU	13,650	13,764	15,670	14,584	14,951	17,152	14,956	8,853	8,361	9,691	9,251	11,648	12,253	10,900
Japan	-27,954	-21,144	-21,202	-19,907	-22,130	-23,145	-13,933	-13,589	-13,735	-15,728	-15,376	-12,781	-16,357	-14,813
Latin America	2,847	3,360	6,035	2,756	1,088	1,220	-2,592	-3,041	-1,207	-291	-354	-1,943	-8,499	-4,644
Middle East	937	835	1,058	941	901	152	183	166	215	536	601	395	527	1,170
All other countries	10,913	11,085	11,715	11,100	11,201	10,121	10,678	9,728	10,655	12,172	13,467	14,012	14,205	14,383

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-28

EU exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	154,118	168,201	190,240	205,346	221,398	256,341	241,336	231,661	245,932	302,227	339,847	394,366	387,696	385,609
World excluding intra-EU	55,481	60,595	66,947	68,635	74,407	90,121	81,185	74,085	83,125	103,495	123,150	123,722	135,467	140,384
Africa	3,426	3,504	3,694	5,239	4,986	5,575	5,017	4,792	5,736	7,639	9,622	10,045	11,689	12,650
Asia-9	10,159	12,798	14,728	11,697	12,931	16,604	14,767	13,205	14,545	18,295	18,321	19,941	22,917	23,307
India	322	269	379	234	332	384	462	642	936	1,199	1,257	1,528	1,874	1,991
Indonesia	490	1,150	1,015	252	162	178	240	377	358	633	718	748	803	914
Malaysia	2,572	2,639	2,657	2,208	2,946	3,564	3,623	3,353	3,907	4,922	4,562	5,199	5,925	6,048
Philippines	486	1,049	1,061	898	962	1,755	1,584	1,035	1,195	1,618	1,428	1,573	1,718	1,438
Singapore	2,996	3,947	3,671	3,429	3,588	3,800	3,309	3,082	3,336	4,107	4,725	5,272	6,210	6,650
South Korea	872	1,191	1,782	1,062	1,394	2,390	1,726	1,546	1,727	2,162	2,045	2,067	2,339	2,404
Taiwan	1,263	1,263	2,890	2,839	2,637	3,367	2,303	1,979	2,184	2,508	2,479	2,432	2,722	2,496
Thailand	1,049	1,175	1,151	676	842	1,084	1,385	1,070	728	943	913	915	1,065	1,118
Vietnam	112	115	123	99	68	81	135	120	175	203	193	207	262	249
Central Europe/Asia	3,074	3,384	4,550	4,522	5,005	6,676	5,027	5,694	8,069	11,911	14,294	17,023	20,201	21,547
China and Hong Kong	4,742	5,006	6,036	6,603	6,806	8,666	8,467	6,836	7,513	10,070	10,389	10,929	12,409	12,923
Intra-EU	98,637	107,605	123,292	136,710	146,990	166,220	160,150	157,576	162,807	198,732	216,697	270,644	252,229	245,225
Japan	3,241	3,509	3,417	2,804	3,397	4,727	4,095	2,878	2,760	2,847	2,715	2,491	2,978	2,988
Latin America	2,456	2,884	3,575	3,879	3,989	4,579	4,251	2,428	3,191	4,911	5,428	5,956	6,789	6,901
Middle East	2,444	2,433	2,854	3,648	4,152	5,037	5,565	5,831	6,979	9,445	17,734	14,350	13,714	13,718
United States	10,248	9,862	10,697	11,362	12,439	14,511	12,290	12,363	12,348	11,975	12,636	11,688	11,262	11,847
All other countries	15,691	17,215	17,396	18,881	20,702	23,748	21,707	20,057	21,984	26,402	32,012	31,301	33,508	34,503
Imports by origin														
World	191,960	205,426	229,723	249,739	269,267	311,141	288,220	278,621	308,606	384,044	415,437	498,300	504,291	502,345
World excluding intra-EU	93,324	97,820	106,431	113,029	122,276	144,922	128,069	121,045	145,799	185,312	198,740	227,656	252,062	257,120
Africa	149	163	195	640	793	689	632	736	821	914	1,195	1,363	1,442	1,544
Asia-9	31,462	36,665	40,530	43,169	47,934	56,009	47,636	47,081	52,651	66,617	64,505	71,272	74,593	70,159
India	124	144	101	52	62	101	120	168	255	293	298	375	475	492
Indonesia	317	453	344	278	355	1,253	1,007	1,157	1,021	1,122	929	1,162	1,257	1,363
Malaysia	5,031	5,912	6,462	6,449	8,099	8,375	7,621	6,627	7,289	8,764	8,698	10,581	11,328	10,853
Philippines	510	1,834	2,590	4,158	5,345	5,107	4,708	4,996	4,345	4,994	4,823	5,792	5,675	4,062
Singapore	11,444	12,376	13,167	12,703	12,042	13,434	11,161	10,672	11,672	14,831	14,600	15,288	15,426	15,636
South Korea	4,727	5,175	6,033	6,082	7,750	10,627	7,703	8,878	10,630	15,842	16,679	16,908	18,371	16,371
Taiwan	7,427	8,525	9,345	10,610	11,341	13,668	12,226	11,460	13,906	16,727	14,396	16,090	16,206	15,437
Thailand	1,881	2,240	2,469	2,803	2,901	3,371	3,028	3,047	3,414	3,973	3,935	4,901	5,662	5,730
Vietnam	1	5	19	34	40	74	62	75	121	72	146	175	193	216
Central Europe/Asia	275	375	602	882	934	1,065	1,097	1,585	1,995	3,108	3,318	4,458	5,223	5,046
China and Hong Kong	7,571	8,267	9,333	10,868	12,101	16,362	17,605	20,691	34,153	51,314	65,259	83,838	93,873	105,032
Intra-EU	98,637	107,605	123,292	136,710	146,990	166,220	160,150	157,576	162,807	198,732	216,697	270,644	252,229	245,225
Japan	20,206	17,612	17,994	18,219	18,419	21,946	16,877	15,633	17,892	21,677	19,749	20,002	27,756	27,512

Appendix table 6-28

EU exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Latin America	308	331	427	834	1,443	1,494	1,075	998	1,571	1,453	1,815	2,100	2,282	2,571
Middle East	756	1,059	1,230	1,491	1,610	2,155	1,798	1,364	1,959	2,369	3,154	2,849	3,144	2,943
United States	23,899	23,626	26,367	25,945	27,390	31,663	27,246	21,216	20,709	21,667	21,887	23,335	23,516	22,746
All other countries	8,698	9,721	9,753	10,980	11,653	13,539	14,103	11,742	14,047	16,193	17,858	18,437	20,233	19,567
Balance														
World	-37,843	-37,225	-39,483	-44,393	-47,869	-54,800	-46,884	-46,960	-62,674	-81,817	-75,590	-103,934	-116,595	-116,735
World excluding intra-EU	-37,843	-37,225	-39,483	-44,393	-47,869	-54,800	-46,884	-46,960	-62,674	-81,817	-75,590	-103,934	-116,595	-116,735
Africa	3,277	3,341	3,499	4,600	4,193	4,886	4,385	4,056	4,915	6,724	8,427	8,681	10,246	11,106
Asia-9	-21,303	-23,867	-25,802	-31,472	-35,003	-39,405	-32,870	-33,876	-38,106	-48,322	-46,184	-51,331	-51,676	-46,852
India	198	125	278	183	270	283	342	474	681	906	959	1,152	1,399	1,499
Indonesia	173	697	671	-26	-193	-1,075	-767	-780	-663	-489	-211	-414	-454	-450
Malaysia	-2,460	-3,273	-3,806	-4,240	-5,152	-4,811	-3,998	-3,274	-3,382	-3,842	-4,136	-5,382	-5,403	-4,805
Philippines	-24	-785	-1,529	-3,261	-4,383	-3,352	-3,124	-3,961	-3,150	-3,376	-3,395	-4,220	-3,957	-2,624
Singapore	-8,448	-8,429	-9,496	-9,274	-8,453	-9,633	-7,852	-7,590	-8,336	-10,724	-9,875	-10,015	-9,216	-8,985
South Korea	-3,855	-3,984	-4,250	-5,020	-6,356	-8,237	-5,977	-7,332	-8,903	-13,680	-14,634	-14,840	-16,032	-13,967
Taiwan	-6,164	-7,262	-6,455	-7,771	-8,704	-10,301	-9,923	-9,481	-11,722	-14,219	-11,917	-13,658	-13,484	-12,941
Thailand	-833	-1,065	-1,319	-2,127	-2,059	-2,287	-1,644	-1,977	-2,686	-3,030	-3,022	-3,986	-4,597	-4,612
Vietnam	111	110	104	65	28	8	73	45	55	132	47	32	69	33
Central Europe/Asia	2,799	3,009	3,948	3,640	4,071	5,611	3,930	4,109	6,073	8,803	10,976	12,564	14,978	16,501
China and Hong Kong total	-2,829	-3,261	-3,297	-4,266	-5,294	-7,696	-9,138	-13,855	-26,639	-41,245	-54,870	-72,909	-81,464	-92,109
Intra-EU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	-16,966	-14,103	-14,576	-15,415	-15,022	-17,219	-12,782	-12,755	-15,132	-18,830	-17,035	-17,511	-24,778	-24,523
Latin America	2,148	2,553	3,147	3,046	2,546	3,084	3,176	1,430	1,620	3,458	3,613	3,856	4,507	4,330
Middle East	1,689	1,374	1,624	2,157	2,542	2,882	3,767	4,468	5,020	7,077	14,580	11,500	10,571	10,774
United States	-13,650	-13,764	-15,670	-14,584	-14,951	-17,152	-14,956	-8,853	-8,361	-9,691	-9,251	-11,648	-12,253	-10,900
All other countries	6,993	7,494	7,643	7,901	9,049	10,208	7,604	8,315	7,937	10,209	14,155	12,864	13,275	14,937

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Intra-EU is trade between EU member countries. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-29

Japan exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	107,421	96,346	97,171	87,407	95,301	113,576	87,261	86,147	96,939	111,616	107,203	105,127	136,288	134,025
Africa	295	228	231	240	224	252	176	191	222	276	251	234	415	464
Asia-9	30,210	29,215	28,058	22,363	26,387	32,856	25,030	26,190	27,948	30,752	29,713	28,550	33,004	32,715
India	134	71	97	110	111	102	95	102	139	159	203	231	362	402
Indonesia	181	188	153	113	53	71	60	58	65	77	91	69	114	140
Malaysia	5,465	5,288	4,524	3,748	4,334	5,569	4,216	3,884	3,718	3,941	3,631	3,412	3,924	3,801
Philippines	662	2,020	2,615	2,420	2,491	2,181	2,356	2,895	3,087	3,113	3,307	3,028	3,322	3,043
Singapore	9,550	8,025	7,448	5,721	6,496	8,444	5,872	4,908	5,048	6,125	6,204	6,249	7,650	8,649
South Korea	4,876	4,749	4,686	3,272	4,945	6,493	5,251	6,062	7,199	7,368	6,435	6,019	7,165	6,604
Taiwan	6,822	6,310	5,932	4,840	5,561	6,880	4,458	5,240	5,491	6,143	6,103	6,019	6,259	5,685
Thailand	2,487	2,515	2,452	1,988	2,200	2,949	2,469	2,841	3,074	3,641	3,497	3,278	3,892	4,022
Vietnam	32	49	150	150	196	166	255	199	127	187	242	246	318	369
Central Europe/Asia	387	266	240	221	127	183	203	233	289	430	547	605	1,086	1,313
China and Hong Kong	11,134	9,364	10,434	9,409	10,931	14,995	13,701	16,670	23,571	27,723	26,433	27,588	38,079	37,747
EU	20,206	17,612	17,994	18,219	18,419	21,946	16,877	15,633	17,892	21,677	19,749	20,002	27,756	27,512
Latin America	1,790	1,870	2,097	1,886	1,925	2,249	2,255	1,836	1,954	2,917	3,728	4,005	6,503	6,121
Middle East	911	774	849	869	529	507	589	565	527	633	798	803	1,488	1,871
United States	38,451	33,496	33,485	30,303	32,598	36,214	24,623	21,199	20,642	22,435	21,631	19,274	22,258	20,124
All other countries	4,037	3,521	3,783	3,897	4,161	4,374	3,807	3,630	3,894	4,773	4,353	4,066	5,699	6,158
Imports by origin														
World	35,978	41,259	39,745	35,134	43,714	59,790	52,869	50,322	55,065	64,745	66,422	70,934	89,711	95,324
Africa	1	0	1	2	3	1	1	2	1	2	5	5	5	5
Asia-9	18,203	20,063	18,257	16,380	23,651	33,863	27,950	26,036	26,966	31,196	30,065	32,117	36,984	37,601
India	3	7	3	7	6	3	2	6	3	3	5	6	6	6
Indonesia	177	401	491	587	718	1,203	1,082	824	660	884	692	824	1,181	1,144
Malaysia	2,530	3,068	2,801	2,639	4,499	5,664	4,920	3,772	3,686	4,173	4,029	4,201	5,846	6,790
Philippines	457	1,654	1,897	1,866	2,659	3,462	3,256	3,166	2,869	2,891	2,090	2,224	2,279	2,356
Singapore	5,103	5,589	4,677	3,842	4,263	5,139	4,565	4,426	4,542	5,696	6,281	7,184	6,661	6,583
South Korea	4,392	3,505	3,168	2,526	4,362	6,815	5,120	4,876	5,927	7,160	6,094	5,789	7,402	6,694
Taiwan	3,678	4,320	3,694	3,466	5,649	9,413	6,895	6,536	6,724	7,679	7,835	8,658	8,695	8,741
Thailand	1,862	1,511	1,501	1,426	1,478	2,077	2,021	2,271	2,251	2,608	2,939	3,123	4,742	5,100
Vietnam	2	7	23	20	17	87	89	161	303	103	99	108	172	186
Central Europe/Asia	1	1	2	1	2	2	1	1	2	4	6	8	13	15
China and Hong Kong	3,580	4,744	5,104	4,990	5,457	7,279	9,498	13,280	17,688	23,330	26,530	28,946	42,464	48,126
EU	3,241	3,509	3,417	2,804	3,397	4,727	4,095	2,878	2,760	2,847	2,715	2,491	2,978	2,988
Latin America	73	53	61	99	254	272	156	170	280	111	281	301	421	487
Middle East	78	101	109	103	155	177	149	120	92	178	136	137	225	255
United States	10,497	12,352	12,282	10,396	10,468	13,069	10,690	7,610	6,907	6,707	6,255	6,493	5,901	5,311
All other countries	304	436	512	359	327	400	329	225	369	370	429	436	720	536

Appendix table 6-29

Japan exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Balance														
World	71,443	55,087	57,426	52,273	51,587	53,787	34,392	35,826	41,874	46,871	40,781	34,193	46,577	38,701
Africa	294	228	230	238	221	251	175	189	221	275	246	229	409	458
Asia-9	12,006	9,152	9,801	5,984	2,737	-1,007	-2,920	153	982	-444	-352	-3,566	-3,980	-4,885
India	131	64	93	103	105	99	93	97	136	157	198	226	356	396
Indonesia	3	-213	-338	-474	-665	-1,132	-1,022	-766	-595	-807	-601	-754	-1,067	-1,004
Malaysia	2,935	2,219	1,723	1,109	-165	-95	-704	112	31	-232	-398	-789	-1,922	-2,989
Philippines	206	365	718	554	-168	-1,281	-900	-271	218	222	1,217	804	1,042	686
Singapore	4,447	2,436	2,772	1,880	2,233	3,306	1,306	482	507	429	-77	-936	988	2,066
South Korea	484	1,244	1,518	746	583	-322	131	1,186	1,272	208	341	229	-237	-90
Taiwan	3,145	1,990	2,238	1,374	-88	-2,533	-2,437	-1,296	-1,233	-1,536	-1,732	-2,639	-2,436	-3,055
Thailand	625	1,005	950	561	723	872	448	570	823	1,032	558	156	-850	-1,078
Vietnam	30	42	127	130	179	79	166	38	-176	83	143	138	145	183
Central Europe/Asia	386	264	238	220	126	181	202	232	286	426	541	596	1,073	1,298
China and Hong Kong	7,554	4,620	5,331	4,419	5,474	7,716	4,203	3,390	5,882	4,393	-97	-1,358	-4,385	-10,378
EU	16,965	14,103	14,577	15,415	15,022	17,219	12,782	12,755	15,132	18,830	17,034	17,511	24,778	24,524
Latin America	1,717	1,817	2,036	1,788	1,671	1,977	2,099	1,666	1,674	2,807	3,448	3,704	6,083	5,633
Middle East	833	673	740	767	374	330	439	445	435	455	662	666	1,263	1,617
United States	27,954	21,144	21,202	19,907	22,130	23,145	13,933	13,589	13,735	15,728	15,376	12,781	16,357	14,813
All other countries	3,733	3,085	3,271	3,538	3,834	3,974	3,478	3,405	3,525	4,403	3,924	3,630	4,979	5,622

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-30

China and Hong Kong exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	46,867	51,107	58,707	63,053	72,503	99,343	110,289	145,720	198,550	280,327	355,079	443,030	517,088	562,850
World excluding intra-China/Hong Kong	33,998	36,941	42,331	46,254	53,155	70,379	74,898	99,786	138,648	199,957	250,219	309,002	367,268	406,098
Africa	461	431	463	525	565	531	616	716	1,094	1,587	2,255	3,193	4,253	5,451
Asia-9	8,497	9,205	10,578	10,365	12,326	16,311	17,582	24,517	30,879	42,287	49,621	62,734	75,582	85,164
India	197	225	227	243	272	429	480	1,028	1,536	2,264	2,988	4,376	6,687	8,328
Indonesia	133	131	148	64	177	313	281	355	428	650	709	881	1,166	1,462
Malaysia	761	903	1,081	978	1,017	1,942	2,327	3,898	4,553	6,053	6,847	8,684	10,799	12,701
Philippines	460	675	768	672	774	670	808	1,297	1,329	2,174	2,406	2,717	3,190	3,382
Singapore	3,069	3,103	3,335	3,601	3,990	4,586	4,686	6,381	7,358	10,821	12,394	16,357	19,683	21,361
South Korea	1,441	1,680	1,948	1,514	2,695	3,839	3,935	5,127	6,496	9,210	10,776	13,614	16,028	18,360
Taiwan	1,893	1,784	2,173	2,473	2,460	3,259	3,339	4,271	6,036	7,558	9,030	10,369	11,256	11,345
Thailand	477	653	843	763	875	1,198	1,628	2,000	2,927	3,279	4,067	5,195	6,029	7,314
Vietnam	66	51	54	58	65	75	98	159	216	278	406	541	743	911
Central Europe/Asia	287	422	408	391	352	521	459	787	1,589	2,414	4,031	5,635	8,606	9,982
EU	7,571	8,267	9,333	10,868	12,101	16,362	17,605	20,691	34,153	51,314	65,259	83,838	93,873	105,032
Intra-China/Hong Kong	12,870	14,166	16,376	16,800	19,348	28,964	35,392	45,934	59,902	80,371	104,860	134,028	149,820	156,751
Japan	3,580	4,744	5,104	4,990	5,457	7,279	9,498	13,280	17,688	23,330	26,530	28,946	42,464	48,126
Latin America	1,273	1,077	1,149	1,262	1,138	1,939	2,077	2,772	2,829	4,800	6,713	9,789	12,830	15,122
Middle East	648	605	671	638	657	862	1,107	1,395	1,680	2,328	3,567	4,829	6,779	8,580
United States	9,593	10,330	12,703	15,171	18,109	23,516	22,701	31,518	42,594	62,642	79,411	93,806	102,499	103,950
All other countries	2,088	1,860	1,923	2,043	2,451	3,058	3,255	4,110	6,142	9,254	12,832	16,234	20,381	24,692
Imports by origin														
World	50,593	52,222	60,930	60,936	70,824	100,747	107,121	132,683	174,890	225,409	271,319	328,471	383,940	399,306
World excluding intra-China/Hong Kong	37,724	38,056	44,555	44,136	51,476	71,783	71,729	86,749	114,988	145,039	166,459	194,444	234,120	242,555
Africa	7	6	8	8	5	11	35	39	33	19	35	41	43	37
Asia-9	15,337	17,447	20,761	20,843	25,786	37,488	38,464	52,882	71,943	93,022	114,116	136,554	163,191	171,441
India	8	19	13	7	13	20	11	25	27	26	47	56	75	78
Indonesia	66	89	93	137	273	550	607	905	465	540	557	714	849	865
Malaysia	1,890	2,270	2,539	2,173	2,928	4,261	4,994	6,158	7,412	8,961	10,615	12,276	14,652	17,352
Philippines	230	505	786	989	1,881	1,714	2,171	3,286	5,737	6,671	8,370	9,209	11,327	13,211
Singapore	5,628	5,760	6,662	5,924	5,825	8,367	8,259	9,204	13,028	17,814	23,327	30,764	35,447	38,987
South Korea	2,855	3,667	4,212	4,296	6,003	8,669	7,876	12,164	17,989	23,080	26,803	27,656	33,506	34,585
Taiwan	4,274	4,453	5,623	6,146	7,647	11,939	12,297	18,041	23,278	31,671	37,946	47,734	56,752	55,697
Thailand	383	675	802	1,148	1,211	1,950	2,214	3,040	3,865	4,131	6,259	7,925	10,331	10,399
Vietnam	2	9	31	21	7	18	34	58	142	128	193	219	252	268
Central Europe/Asia	48	163	208	125	117	86	130	155	225	308	350	479	487	506
EU	4,742	5,006	6,036	6,603	6,806	8,666	8,467	6,836	7,513	10,070	10,389	10,929	12,409	12,923

Appendix table 6-30

China and Hong Kong exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Intra-China/Hong Kong	12,870	14,166	16,376	16,800	19,348	28,964	35,392	45,934	59,902	80,371	104,860	134,028	149,820	156,751
Japan	11,134	9,364	10,434	9,409	10,931	14,995	13,701	16,670	23,571	27,723	26,433	27,588	38,079	37,747
Latin America	42	33	33	179	188	315	375	521	794	760	1,056	1,381	1,747	1,805
Middle East	80	94	84	149	153	267	495	465	444	504	349	393	448	509
United States	5,136	5,120	6,014	6,027	6,826	8,787	8,938	8,388	9,546	11,555	12,534	15,574	16,162	16,057
All other countries	1,197	824	977	794	664	1,167	1,125	793	919	1,079	1,198	1,506	1,553	1,530
Balance														
World	-3,726	-1,116	-2,223	2,117	1,679	-1,404	3,169	13,038	23,660	54,918	83,760	114,558	133,148	163,544
World excluding intra-China/Hong Kong	-3,726	-1,116	-2,223	2,117	1,679	-1,404	3,169	13,038	23,660	54,918	83,760	114,558	133,148	163,544
Africa	455	425	455	517	560	520	580	677	1,061	1,568	2,220	3,152	4,210	5,414
Asia-9	-6,840	-8,242	-10,183	-10,478	-13,460	-21,177	-20,882	-28,364	-41,064	-50,735	-64,495	-73,820	-87,610	-86,277
India	189	207	214	236	260	409	469	1,004	1,509	2,238	2,941	4,320	6,613	8,249
Indonesia	68	42	55	-73	-96	-237	-326	-550	-37	110	152	167	317	597
Malaysia	-1,129	-1,367	-1,458	-1,196	-1,911	-2,319	-2,667	-2,261	-2,859	-2,908	-3,768	-3,592	-3,854	-4,650
Philippines	230	170	-18	-318	-1,108	-1,043	-1,363	-1,990	-4,408	-4,497	-5,964	-6,493	-8,136	-9,828
Singapore	-2,559	-2,657	-3,327	-2,323	-1,834	-3,782	-3,574	-2,823	-5,670	-6,993	-10,934	-14,407	-15,763	-17,626
South Korea	-1,415	-1,987	-2,263	-2,782	-3,308	-4,830	-3,940	-7,036	-11,492	-13,869	-16,027	-14,042	-17,478	-16,225
Taiwan	-2,382	-2,670	-3,451	-3,674	-5,187	-8,680	-8,958	-13,770	-17,242	-24,113	-28,916	-37,365	-45,496	-44,352
Thailand	94	-22	41	-385	-335	-752	-586	-1,040	-938	-853	-2,192	-2,730	-4,303	-3,084
Vietnam	64	42	24	37	58	57	63	101	74	150	214	322	491	643
Central Europe/Asia	238	259	200	267	235	435	329	632	1,364	2,106	3,681	5,156	8,119	9,476
EU	2,829	3,261	3,297	4,266	5,294	7,696	9,138	13,855	26,639	41,245	54,870	72,909	81,464	92,109
Intra-China/Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	-7,554	-4,620	-5,331	-4,419	-5,474	-7,716	-4,203	-3,390	-5,882	-4,393	97	1,358	4,385	10,378
Latin America	1,232	1,044	1,116	1,083	950	1,624	1,702	2,251	2,035	4,041	5,657	8,408	11,083	13,317
Middle East	567	511	587	488	504	594	612	930	1,235	1,825	3,219	4,436	6,331	8,071
United States	4,457	5,210	6,689	9,144	11,283	14,729	13,763	23,130	33,048	51,087	66,876	78,231	86,337	87,893
All other countries	890	1,036	947	1,249	1,788	1,890	2,130	3,316	5,223	8,175	11,634	14,728	18,828	23,163

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Intra-China/Hong Kong is trade between China and Hong Kong. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-31

Asia-9 exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	184,318	205,336	216,863	211,625	253,474	321,562	272,641	293,996	330,363	400,757	430,083	486,266	541,844	556,538
World excluding intra-Asia-9	141,334	154,457	163,455	163,831	190,938	237,679	203,852	218,534	241,991	295,001	318,332	358,737	399,781	405,536
Africa	986	1,211	1,118	1,062	1,035	1,038	1,089	1,140	1,329	1,753	1,894	2,303	2,610	2,974
Central Europe/Asia	1,773	1,609	1,369	798	593	902	818	1,092	1,421	2,290	2,824	3,271	3,915	4,158
China and Hong Kong	15,337	17,447	20,761	20,843	25,786	37,488	38,464	52,882	71,943	93,022	114,116	136,554	163,191	171,441
EU	31,462	36,665	40,530	43,169	47,934	56,009	47,636	47,081	52,651	66,617	64,505	71,272	74,593	70,159
Intra-Asia-9	42,983	50,878	53,408	47,794	62,536	83,883	68,789	75,462	88,372	105,756	111,751	127,529	142,063	151,002
Japan	18,203	20,063	18,257	16,380	23,651	33,863	27,950	26,036	26,966	31,196	30,065	32,117	36,984	37,601
Latin America	3,532	4,012	3,863	3,845	4,170	4,961	6,118	7,455	5,451	8,916	11,105	13,386	15,824	16,659
Middle East	1,666	2,026	1,754	1,681	1,658	1,742	2,711	3,103	2,629	2,960	4,006	4,414	5,519	6,224
United States	60,508	63,139	67,505	66,969	75,368	89,301	69,096	69,803	68,588	75,091	76,354	79,644	75,045	71,701
All other countries	7,866	8,286	8,298	9,085	10,744	12,376	9,971	9,942	11,013	13,156	13,463	15,777	22,100	24,619
Imports by origin														
World	117,843	130,496	139,059	120,830	148,514	192,745	158,545	171,292	196,504	230,945	243,498	275,914	310,000	329,010
World excluding intra-Asia-9	74,859	79,618	85,651	73,037	85,978	108,862	89,757	95,830	108,133	125,188	131,748	148,385	167,937	178,008
Africa	11	7	9	14	14	14	21	25	20	44	54	62	71	65
Central Europe/Asia	16	106	88	91	89	37	59	61	80	152	185	261	314	303
China and Hong Kong	8,497	9,205	10,578	10,365	12,326	16,311	17,582	24,517	30,879	42,287	49,621	62,734	75,582	85,164
EU	10,159	12,798	14,728	11,697	12,931	16,604	14,767	13,205	14,545	18,295	18,321	19,941	22,917	23,307
Intra-Asia-9	42,983	50,878	53,408	47,794	62,536	83,883	68,789	75,462	88,372	105,756	111,751	127,529	142,063	151,002
Japan	30,210	29,215	28,058	22,363	26,387	32,856	25,030	26,190	27,948	30,752	29,713	28,550	33,004	32,715
Latin America	95	257	561	760	843	497	624	461	480	417	665	800	898	953
Middle East	514	627	710	525	575	1,597	1,273	839	843	1,116	643	736	801	927
United States	23,738	25,392	28,952	25,585	31,269	38,978	28,938	28,913	31,557	30,351	30,591	33,069	31,828	32,085
All other countries	1,621	2,012	1,966	1,635	1,543	1,968	1,465	1,620	1,779	1,775	1,955	2,234	2,523	2,487
Balance														
World	66,475	74,840	77,804	90,795	104,961	128,817	114,096	122,704	133,859	169,812	186,585	210,351	231,844	227,528
World excluding intra-Asia-9	66,475	74,840	77,804	90,795	104,961	128,817	114,096	122,704	133,859	169,812	186,585	210,351	231,844	227,528
Africa	976	1,204	1,108	1,047	1,020	1,024	1,069	1,115	1,309	1,709	1,840	2,241	2,539	2,909
Central Europe/Asia	1,758	1,503	1,281	707	504	865	759	1,031	1,341	2,138	2,639	3,010	3,601	3,855
China and Hong Kong	6,840	8,242	10,183	10,478	13,460	21,177	20,882	28,364	41,064	50,735	64,495	73,820	87,610	86,277
EU	21,303	23,867	25,802	31,472	35,003	39,405	32,870	33,876	38,106	48,322	46,184	51,331	51,676	46,852
Intra-Asia-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Japan	-12,006	-9,152	-9,801	-5,984	-2,737	1,007	2,920	-153	-982	444	352	3,566	3,980	4,885

Appendix table 6-31

Asia-9 exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Latin America	3,438	3,755	3,302	3,084	3,327	4,464	5,494	6,994	4,971	8,499	10,439	12,586	14,926	15,705
Middle East	1,152	1,400	1,044	1,156	1,083	145	1,439	2,264	1,785	1,844	3,363	3,678	4,718	5,297
United States	36,770	37,747	38,553	41,384	44,099	50,322	40,158	40,891	37,031	44,740	45,763	46,575	43,216	39,616
All other countries	6,245	6,274	6,332	7,451	9,201	10,408	8,506	8,322	9,234	11,381	11,509	13,543	19,577	22,133

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Asia-9 includes India, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. Intra-Asia-9 is trade between Asia-9 countries/economies. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-32

Philippines exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	4,792	10,965	15,288	20,184	26,079	28,161	23,612	26,193	27,299	27,908	27,849	30,987	33,716	34,884
Africa	3	2	6	9	10	14	15	16	22	17	14	16	19	22
Asia-9	609	2,697	3,888	5,499	7,970	8,590	6,569	7,801	8,522	8,667	7,910	8,950	9,789	10,995
India	1	2	8	8	9	9	25	31	43	74	118	133	144	156
Indonesia	2	2	1	2	10	0	1	3	3	7	7	7	8	10
Malaysia	28	601	651	1,140	1,396	1,418	1,071	1,812	2,493	1,991	2,138	2,351	2,267	2,482
Philippines	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Singapore	373	1,053	1,594	1,845	2,284	2,762	1,868	1,837	2,079	2,717	2,604	3,381	4,126	4,967
South Korea	31	235	314	454	795	977	919	1,109	1,050	840	843	831	960	991
Taiwan	153	482	961	1,587	2,892	2,668	1,960	2,305	2,289	1,956	1,486	1,441	1,300	1,204
Thailand	20	322	359	462	582	752	722	703	560	556	611	688	836	1,033
Vietnam	0	1	0	1	2	3	3	2	5	526	103	118	149	154
Central Europe/Asia	3	3	6	12	11	14	8	23	29	56	78	96	118	148
China and Hong Kong	230	505	786	989	1,881	1,714	2,171	3,286	5,737	6,671	8,370	9,209	11,327	13,211
EU	510	1,834	2,590	4,158	5,345	5,107	4,708	4,996	4,345	4,994	4,823	5,792	5,675	4,062
Japan	457	1,654	1,897	1,866	2,659	3,462	3,256	3,166	2,869	2,891	2,090	2,224	2,279	2,356
Latin America	8	31	35	213	220	143	195	190	131	171	265	301	322	317
Middle East	10	15	20	42	27	36	34	24	36	40	57	62	76	73
United States	2,897	4,083	5,852	6,844	7,349	8,629	6,291	6,149	5,103	3,961	3,905	3,932	3,674	3,279
All other countries	65	140	208	551	607	452	366	543	505	439	337	405	436	421
Imports by origin														
World	4,723	8,519	11,724	11,549	13,038	14,947	13,294	15,044	16,385	18,275	17,318	18,587	20,187	19,687
Africa	1	0	0	1	0	0	5	10	5	5	4	4	4	4
Asia-9	797	1,793	3,221	3,599	4,256	4,567	3,461	4,880	4,864	6,616	5,797	6,410	7,378	7,411
India	1	1	1	0	3	2	2	3	2	1	5	4	5	4
Indonesia	11	17	27	18	24	45	28	39	52	64	38	39	43	37
Malaysia	50	232	404	484	450	504	326	620	621	851	665	728	768	732
Philippines	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Singapore	426	799	1,189	1,038	1,263	1,274	1,085	1,264	1,378	1,900	1,766	2,136	2,594	3,065
South Korea	178	403	985	1,437	1,778	1,343	928	1,655	1,404	1,553	1,046	1,081	1,311	1,269
Taiwan	108	240	346	269	407	809	569	759	797	1,779	1,944	1,983	2,153	1,785
Thailand	23	101	263	342	330	318	260	356	478	465	325	428	494	510
Vietnam	0	1	7	10	1	272	264	183	132	5	9	9	10	7
Central Europe/Asia	0	0	0	0	0	3	0	0	0	3	1	1	2	1
China and Hong Kong	460	675	768	672	774	670	808	1,297	1,329	2,174	2,406	2,717	3,190	3,382
EU	486	1,049	1,061	898	962	1,755	1,584	1,035	1,195	1,618	1,428	1,573	1,718	1,438
Japan	662	2,020	2,615	2,420	2,491	2,181	2,356	2,895	3,087	3,113	3,307	3,028	3,322	3,043
Latin America	2	3	3	6	26	42	36	7	21	12	30	39	45	47
Middle East	134	159	108	83	22	365	218	69	141	202	24	22	28	24

Appendix table 6-32

Philippines exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	2,092	2,696	3,804	3,795	4,447	5,251	4,763	4,807	5,642	4,437	4,169	4,622	4,316	4,154
All other countries	88	124	142	76	62	112	63	45	101	95	152	172	184	183
Balance														
World	69	2,445	3,564	8,635	13,041	13,213	10,319	11,149	10,914	9,633	10,531	12,400	13,528	15,197
Africa	2	2	6	8	10	14	10	6	16	12	10	13	15	18
Asia-9	-188	904	667	1,900	3,714	4,023	3,108	2,921	3,658	2,051	2,113	2,541	2,412	3,585
India	0	2	7	8	6	7	23	28	40	73	114	129	139	152
Indonesia	-9	-15	-26	-16	-14	-45	-27	-36	-49	-57	-31	-32	-34	-28
Malaysia	-22	369	248	656	946	914	745	1,191	1,873	1,141	1,473	1,623	1,499	1,749
Philippines	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Singapore	-53	254	404	807	1,021	1,488	783	573	700	817	838	1,245	1,531	1,902
South Korea	-147	-169	-671	-983	-984	-365	-9	-546	-354	-714	-203	-250	-351	-279
Taiwan	45	242	616	1,318	2,485	1,859	1,391	1,545	1,492	177	-457	-542	-854	-582
Thailand	-3	221	96	120	252	434	463	346	83	92	286	259	342	523
Vietnam	0	0	-7	-9	1	-269	-261	-181	-127	522	94	109	140	147
Central Europe/Asia	3	3	6	12	11	10	8	23	29	53	77	95	116	147
China and Hong Kong	-230	-170	18	318	1,108	1,043	1,363	1,990	4,408	4,497	5,964	6,493	8,136	9,828
EU	24	785	1,529	3,261	4,383	3,352	3,124	3,961	3,150	3,376	3,395	4,220	3,957	2,624
Japan	-206	-365	-718	-554	168	1,281	900	271	-218	-222	-1,217	-804	-1,042	-686
Latin America	6	28	32	207	194	101	159	183	111	158	235	262	277	269
Middle East	-124	-144	-89	-42	6	-329	-184	-45	-105	-162	34	39	48	49
United States	805	1,387	2,048	3,050	2,902	3,378	1,528	1,342	-539	-476	-265	-690	-643	-875
All other countries	-23	16	66	475	545	340	302	498	404	344	185	232	252	238

na = not applicable

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-33

Singapore exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	58,097	63,049	62,858	56,143	59,310	71,677	60,980	61,625	72,543	90,857	100,323	116,315	126,157	133,728
Africa	372	415	383	409	395	392	332	371	447	590	633	803	905	1,154
Asia-9	15,055	16,862	17,048	14,372	18,402	24,939	21,341	22,346	28,683	35,388	38,678	44,081	49,146	53,201
India	464	552	657	658	761	911	795	814	1,111	1,667	2,078	2,634	3,376	3,893
Indonesia	0	0	0	0	0	0	25	0	4,486	5,380	5,434	6,039	7,212	8,670
Malaysia	7,814	8,264	7,927	6,976	8,476	11,473	9,753	9,949	10,302	12,509	13,822	16,242	17,261	18,010
Philippines	426	799	1,189	1,038	1,263	1,274	1,085	1,264	1,378	1,900	1,766	2,136	2,594	3,065
Singapore	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South Korea	1,310	1,784	1,798	1,265	2,085	3,062	2,915	3,290	4,106	5,171	5,464	5,813	7,095	8,156
Taiwan	2,560	2,762	3,279	2,745	3,588	5,659	4,375	4,289	4,715	5,596	6,212	6,552	6,336	6,128
Thailand	2,336	2,505	1,934	1,435	2,042	2,337	2,163	2,500	2,300	2,837	3,388	4,075	4,558	4,408
Vietnam	145	197	265	255	188	224	230	239	285	328	514	590	714	871
Central Europe/Asia	847	572	445	197	108	121	107	143	205	314	347	432	480	472
China and Hong Kong	5,628	5,760	6,662	5,924	5,825	8,367	8,259	9,204	13,028	17,814	23,327	30,764	35,447	38,987
EU	11,444	12,376	13,167	12,703	12,042	13,434	11,161	10,672	11,672	14,831	14,600	15,288	15,426	15,636
Japan	5,103	5,589	4,677	3,842	4,263	5,139	4,565	4,426	4,542	5,696	6,281	7,184	6,661	6,583
Latin America	839	907	860	787	838	1,031	1,224	1,344	1,239	2,272	2,637	3,011	3,171	3,409
Middle East	613	671	621	583	409	308	687	738	554	666	1,104	1,042	1,235	1,515
United States	15,052	16,748	16,115	14,554	13,897	14,218	10,408	9,656	9,262	9,509	8,715	8,911	8,488	7,054
All other countries	3,144	3,149	2,880	2,772	3,131	3,728	2,896	2,725	2,911	3,777	4,001	4,799	5,198	5,717
Imports by origin														
World	39,949	41,989	41,266	34,821	39,680	50,281	40,162	41,403	45,815	57,240	62,753	73,910	85,696	95,550
Africa	2	1	2	2	3	1	3	3	4	3	6	6	6	7
Asia-9	17,673	19,381	19,137	15,235	18,715	25,736	20,370	21,940	24,517	29,887	33,107	38,974	44,261	51,064
India	132	83	58	31	31	41	56	54	42	48	74	60	77	87
Indonesia	587	688	580	334	501	1,580	956	736	1,797	2,109	2,239	2,787	2,742	3,309
Malaysia	8,077	8,914	9,034	7,226	8,621	11,761	9,746	10,450	10,707	11,575	12,452	14,308	15,257	19,559
Philippines	373	1,053	1,594	1,845	2,284	2,762	1,868	1,837	2,079	2,717	2,604	3,381	4,126	4,967
Singapore	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South Korea	3,285	2,432	2,239	1,681	2,372	3,225	2,224	2,514	3,004	4,236	4,437	4,999	6,514	7,312
Taiwan	1,907	2,152	2,443	1,891	2,425	3,661	3,076	3,617	4,610	6,622	8,709	10,443	11,970	12,428
Thailand	3,307	4,044	3,171	2,218	2,470	2,681	2,402	2,702	2,239	2,539	2,544	2,956	3,528	3,373
Vietnam	4	15	19	9	11	25	42	29	39	41	47	40	48	29
Central Europe/Asia	11	4	5	7	3	4	3	2	2	3	3	4	4	5
China and Hong Kong	3,069	3,103	3,335	3,601	3,990	4,586	4,686	6,381	7,358	10,821	12,394	16,357	19,683	21,361
EU	2,996	3,947	3,671	3,429	3,588	3,800	3,309	3,082	3,336	4,107	4,725	5,272	6,210	6,650
Japan	9,550	8,025	7,448	5,721	6,496	8,444	5,872	4,908	5,048	6,125	6,204	6,249	7,650	8,649

Appendix table 6-33

Singapore exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Latin America	38	142	354	479	519	227	208	160	166	151	254	268	309	347
Middle East	122	131	164	75	86	114	137	128	115	168	104	124	130	166
United States	5,953	6,504	6,449	5,547	5,639	6,603	5,008	4,055	4,486	5,171	5,197	5,760	6,407	6,304
All other countries	535	751	701	725	641	766	566	744	783	804	759	896	1,036	997
Balance														
World	18,148	21,060	21,592	21,322	19,630	21,396	20,818	20,222	26,728	33,617	37,570	42,405	40,461	38,178
Africa	369	413	381	407	392	391	330	368	444	587	628	796	899	1,147
Asia-9	-2,618	-2,520	-2,089	-863	-313	-797	971	406	4,166	5,501	5,571	5,107	4,886	2,137
India	331	469	599	628	730	870	739	760	1,069	1,620	2,004	2,574	3,300	3,807
Indonesia	-587	-688	-580	-334	-501	-1,580	-931	-736	2,689	3,271	3,195	3,252	4,469	5,361
Malaysia	-263	-650	-1,107	-250	-145	-288	7	-500	-405	935	1,370	1,934	2,004	-1,549
Philippines	53	-254	-404	-807	-1,021	-1,488	-783	-573	-700	-817	-838	-1,245	-1,531	-1,902
Singapore	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South Korea	-1,974	-648	-441	-416	-287	-163	691	776	1,101	935	1,027	814	581	844
Taiwan	653	609	836	854	1,163	1,998	1,299	672	105	-1,026	-2,498	-3,891	-5,634	-6,299
Thailand	-971	-1,539	-1,237	-783	-427	-345	-240	-202	61	298	844	1,119	1,030	1,035
Vietnam	141	182	246	246	177	199	188	210	247	287	467	550	667	841
Central Europe/Asia	836	568	439	189	105	118	104	140	203	311	344	429	476	467
China and Hong Kong	2,559	2,657	3,327	2,323	1,834	3,782	3,574	2,823	5,670	6,993	10,934	14,407	15,763	17,626
EU	8,448	8,429	9,496	9,274	8,453	9,633	7,852	7,590	8,336	10,724	9,875	10,015	9,216	8,985
Japan	-4,447	-2,436	-2,772	-1,880	-2,233	-3,306	-1,306	-482	-507	-429	77	936	-988	-2,066
Latin America	801	764	506	308	319	804	1,016	1,184	1,073	2,121	2,382	2,744	2,862	3,061
Middle East	490	540	457	509	324	194	550	611	438	499	1,000	918	1,105	1,349
United States	9,099	10,244	9,667	9,007	8,258	7,615	5,400	5,602	4,775	4,339	3,518	3,151	2,081	750
All other countries	2,609	2,398	2,179	2,047	2,490	2,962	2,330	1,981	2,128	2,973	3,242	3,903	4,162	4,720

na = not applicable

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-34

South Korea exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	35,863	34,819	36,140	34,038	46,626	63,428	48,977	57,604	69,271	90,267	90,379	92,506	112,052	113,765
Africa	240	347	295	276	229	203	262	303	359	535	645	726	867	952
Asia-9	6,862	6,509	7,630	7,462	9,641	12,541	9,234	11,934	13,360	16,691	16,867	17,950	21,290	21,142
India	53	56	73	95	88	121	239	390	945	1,170	1,724	1,880	2,253	2,284
Indonesia	111	117	147	69	93	255	218	209	257	305	156	142	178	182
Malaysia	1,341	2,017	2,440	2,382	2,066	1,875	1,306	2,067	2,454	2,399	2,640	2,539	3,062	3,119
Philippines	178	403	985	1,437	1,778	1,343	928	1,655	1,404	1,553	1,046	1,081	1,311	1,269
Singapore	3,285	2,432	2,239	1,681	2,372	3,225	2,224	2,514	3,004	4,236	4,437	4,999	6,514	7,312
South Korea	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Taiwan	1,455	1,021	1,276	1,416	2,707	4,895	3,528	4,164	4,083	5,534	5,548	5,960	6,311	5,133
Thailand	342	341	380	324	481	762	718	819	1,044	1,251	997	1,049	1,312	1,501
Vietnam	96	121	90	58	55	66	74	115	168	244	318	299	349	344
Central Europe/Asia	734	872	658	354	231	332	383	424	581	896	1,089	1,186	1,389	1,476
China and Hong Kong	2,855	3,667	4,212	4,296	6,003	8,669	7,876	12,164	17,989	23,080	26,803	27,656	33,506	34,585
EU	4,727	5,175	6,033	6,082	7,750	10,627	7,703	8,878	10,630	15,842	16,679	16,908	18,371	16,371
Japan	4,392	3,505	3,168	2,526	4,362	6,815	5,120	4,876	5,927	7,160	6,094	5,789	7,402	6,694
Latin America	1,510	1,579	1,267	1,244	1,514	1,784	1,619	1,579	1,611	2,784	3,319	4,005	4,811	4,908
Middle East	313	497	466	436	556	666	1,055	1,378	1,202	1,288	1,414	1,411	1,933	2,079
United States	12,846	11,358	11,293	10,351	15,131	20,209	14,243	14,504	15,184	18,981	14,556	13,582	14,113	15,583
All other countries	1,385	1,312	1,118	1,010	1,209	1,582	1,483	1,564	2,429	3,010	2,913	3,294	8,371	9,977
Imports by origin														
World	14,912	17,330	18,789	14,501	23,909	32,737	25,595	28,541	32,720	37,602	38,650	42,971	47,783	49,794
Africa	0	0	2	1	1	3	1	1	2	8	5	6	6	6
Asia-9	2,869	3,978	3,957	3,335	5,985	9,508	8,598	9,611	10,580	12,360	12,751	14,166	16,373	17,393
India	1	1	1	1	4	4	3	3	8	7	10	12	15	14
Indonesia	34	48	64	42	89	112	140	147	126	107	135	146	158	137
Malaysia	458	593	440	433	990	1,806	1,374	1,515	1,361	1,414	1,300	1,434	1,639	1,454
Philippines	31	235	314	454	795	977	919	1,109	1,050	840	843	831	960	991
Singapore	1,310	1,784	1,798	1,265	2,085	3,062	2,915	3,290	4,106	5,171	5,464	5,813	7,095	8,156
South Korea	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Taiwan	894	1,150	1,064	927	1,664	2,969	2,706	2,902	3,310	4,232	4,266	5,094	5,563	5,650
Thailand	134	156	259	207	343	546	489	538	538	542	699	798	896	946
Vietnam	7	14	18	6	17	32	52	109	81	48	36	39	46	46
Central Europe/Asia	2	3	4	6	4	4	4	7	6	6	14	14	16	16
China and Hong Kong	1,441	1,680	1,948	1,514	2,695	3,839	3,935	5,127	6,496	9,210	10,776	13,614	16,028	18,360
EU	872	1,191	1,782	1,062	1,394	2,390	1,726	1,546	1,727	2,162	2,045	2,067	2,339	2,404
Japan	4,876	4,749	4,686	3,272	4,945	6,493	5,251	6,062	7,199	7,368	6,435	6,019	7,165	6,604
Latin America	17	41	10	13	70	55	80	84	60	50	51	61	72	67
Middle East	169	235	350	280	329	248	154	149	143	169	61	72	83	92

Appendix table 6-34

South Korea exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	4,405	5,167	5,805	4,848	8,272	9,877	5,634	5,762	6,264	6,027	6,250	6,681	5,423	4,600
All other countries	261	284	244	171	213	319	212	192	244	242	263	269	278	252
Balance														
World	20,951	17,490	17,351	19,537	22,717	30,691	23,383	29,063	36,552	52,665	51,729	49,536	64,269	63,972
Africa	240	347	293	275	228	200	261	301	357	527	640	720	860	946
Asia-9	3,992	2,531	3,673	4,128	3,656	3,033	637	2,323	2,780	4,332	4,116	3,784	4,917	3,749
India	51	56	71	95	84	117	236	388	937	1,163	1,715	1,868	2,238	2,270
Indonesia	77	70	82	27	4	143	79	63	130	198	21	-4	20	45
Malaysia	884	1,424	2,001	1,949	1,077	69	-68	552	1,094	985	1,340	1,106	1,423	1,664
Philippines	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Singapore	1,974	648	441	416	287	163	-691	-776	-1,101	-935	-1,027	-814	-581	-844
South Korea	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Taiwan	561	-128	212	488	1,043	1,926	822	1,262	773	1,302	1,282	866	748	-517
Thailand	208	185	121	117	139	216	228	281	507	709	298	251	416	555
Vietnam	89	107	73	53	38	34	22	7	87	196	283	260	303	298
Central Europe/Asia	732	868	655	348	228	327	379	418	575	890	1,074	1,172	1,373	1,460
China and Hong Kong	1,415	1,987	2,263	2,782	3,308	4,830	3,940	7,036	11,492	13,869	16,027	14,042	17,478	16,225
EU	3,855	3,984	4,250	5,020	6,356	8,237	5,977	7,332	8,903	13,680	14,634	14,840	16,032	13,967
Japan	-484	-1,244	-1,518	-746	-583	322	-131	-1,186	-1,272	-208	-341	-229	237	90
Latin America	1,493	1,538	1,257	1,232	1,444	1,729	1,539	1,495	1,551	2,733	3,268	3,943	4,739	4,840
Middle East	144	261	116	156	227	417	901	1,229	1,059	1,120	1,353	1,338	1,850	1,987
United States	8,441	6,191	5,487	5,503	6,859	10,332	8,609	8,742	8,921	12,954	8,307	6,901	8,690	10,983
All other countries	1,123	1,028	875	839	996	1,263	1,272	1,373	2,186	2,768	2,650	3,025	8,092	9,724

na = not applicable

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

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Appendix table 6-35

Taiwan exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	34,550	38,657	42,651	43,321	50,886	68,970	59,922	65,553	73,128	92,318	99,275	118,430	131,572	128,957
Africa	274	292	286	199	222	224	217	216	270	310	277	347	351	366
Asia-9	4,532	5,204	5,603	4,637	6,377	10,120	8,853	9,667	11,772	16,886	19,776	23,304	25,964	25,734
India	60	58	85	77	94	139	142	151	220	277	254	265	329	372
Indonesia	80	76	70	10	11	26	12	14	18	16	20	23	26	27
Malaysia	857	952	1,019	1,017	1,360	1,903	1,827	2,200	1,908	2,775	3,221	3,796	3,988	3,776
Philippines	108	240	346	269	407	809	569	759	797	1,779	1,944	1,983	2,153	1,785
Singapore	1,907	2,152	2,443	1,891	2,425	3,661	3,076	3,617	4,610	6,622	8,709	10,443	11,970	12,428
South Korea	894	1,150	1,064	927	1,664	2,969	2,706	2,902	3,310	4,232	4,266	5,094	5,563	5,650
Taiwan	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Thailand	626	576	577	445	416	571	487	0	872	1,184	1,362	1,701	1,934	1,696
Vietnam	0	0	0	0	0	42	32	23	38	0	0	0	0	0
Central Europe/Asia	75	110	136	142	147	249	156	229	307	475	594	670	856	811
China and Hong Kong	4,274	4,453	5,623	6,146	7,647	11,939	12,297	18,041	23,278	31,671	37,946	47,734	56,752	55,697
EU	7,427	8,525	9,345	10,610	11,341	13,668	12,226	11,460	13,906	16,727	14,396	16,090	16,206	15,437
Japan	3,678	4,320	3,694	3,466	5,649	9,413	6,895	6,536	6,724	7,679	7,835	8,658	8,695	8,741
Latin America	620	810	819	857	795	1,023	1,836	2,852	1,411	2,100	2,701	3,387	4,540	4,997
Middle East	123	138	148	172	182	334	212	190	329	427	334	397	468	459
United States	11,685	12,702	14,711	14,582	15,645	18,754	14,573	13,952	12,736	13,202	12,723	14,736	14,373	13,410
All other countries	1,862	2,105	2,285	2,510	2,882	3,245	2,657	2,408	2,395	2,841	2,695	3,107	3,368	3,304
Imports by origin														
World	19,427	20,194	23,939	23,102	28,958	37,688	28,748	30,719	34,287	37,988	39,127	41,866	43,970	41,846
Africa	1	1	2	2	2	5	1	2	1	1	12	15	17	12
Asia-9	5,431	6,409	7,714	8,048	12,878	16,754	12,706	12,969	14,874	16,278	16,017	17,184	17,351	15,586
India	3	5	5	1	2	2	2	2	5	6	9	11	15	13
Indonesia	10	14	23	10	17	120	69	80	60	67	67	73	82	74
Malaysia	919	1,682	1,609	1,492	2,595	2,103	1,840	2,109	2,250	1,968	1,582	1,850	1,885	1,842
Philippines	153	482	961	1,587	2,892	2,668	1,960	2,305	2,289	1,956	1,486	1,441	1,300	1,204
Singapore	2,560	2,762	3,279	2,745	3,588	5,659	4,375	4,289	4,715	5,596	6,212	6,552	6,336	6,128
South Korea	1,455	1,021	1,276	1,416	2,707	4,895	3,528	4,164	4,083	5,534	5,548	5,960	6,311	5,133
Taiwan	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Thailand	331	442	560	796	1,076	1,303	920	0	1,454	1,150	1,113	1,297	1,423	1,193
Vietnam	0	0	0	0	0	3	11	19	19	0	0	0	0	0
Central Europe/Asia	0	1	1	4	2	6	3	6	10	13	16	18	18	18
China and Hong Kong	1,893	1,784	2,173	2,473	2,460	3,259	3,339	4,271	6,036	7,558	9,030	10,369	11,256	11,345
EU	1,263	1,263	2,890	2,839	2,637	3,367	2,303	1,979	2,184	2,508	2,479	2,432	2,722	2,496
Japan	6,822	6,310	5,932	4,840	5,561	6,880	4,458	5,240	5,491	6,143	6,103	6,019	6,259	5,685
Latin America	3	5	25	38	56	53	100	48	38	72	170	221	250	253
Middle East	9	11	23	30	63	121	101	132	107	300	159	186	198	220

Appendix table 6-35

Taiwan exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	3,703	4,088	4,834	4,544	5,066	7,013	5,496	5,861	5,318	4,985	4,926	5,198	5,646	5,998
All other countries	301	322	345	285	233	229	241	209	228	131	216	223	253	232
Balance														
World	15,123	18,464	18,712	20,219	21,928	31,282	31,173	34,834	38,841	54,329	60,148	76,565	87,602	87,111
Africa	273	291	284	197	220	219	216	215	269	309	265	332	334	355
Asia-9	-900	-1,205	-2,112	-3,411	-6,501	-6,634	-3,853	-3,302	-3,102	608	3,759	6,121	8,613	10,147
India	57	53	80	76	92	137	140	148	215	271	245	254	315	359
Indonesia	70	62	47	0	-6	-94	-57	-66	-42	-50	-46	-51	-56	-47
Malaysia	-62	-731	-591	-475	-1,235	-201	-13	91	-342	807	1,639	1,946	2,103	1,934
Philippines	-45	-242	-616	-1,318	-2,485	-1,859	-1,391	-1,545	-1,492	-177	457	542	854	582
Singapore	-653	-610	-836	-854	-1,163	-1,998	-1,299	-672	-105	1,026	2,497	3,891	5,634	6,300
South Korea	-561	128	-212	-488	-1,043	-1,926	-822	-1,262	-773	-1,302	-1,282	-866	-748	517
Taiwan	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Thailand	295	134	16	-352	-660	-732	-433	0	-581	34	250	405	511	503
Vietnam	0	0	0	0	0	38	21	4	18	0	0	0	0	0
Central Europe/Asia	75	109	135	138	145	242	153	223	297	462	578	652	838	793
China and Hong Kong	2,382	2,670	3,451	3,674	5,187	8,680	8,958	13,770	17,242	24,113	28,916	37,365	45,496	44,352
EU	6,164	7,262	6,455	7,771	8,704	10,301	9,923	9,481	11,722	14,219	11,917	13,658	13,484	12,941
Japan	-3,145	-1,990	-2,238	-1,374	88	2,533	2,437	1,296	1,233	1,536	1,732	2,639	2,436	3,055
Latin America	617	805	794	819	739	970	1,736	2,804	1,373	2,029	2,531	3,165	4,289	4,744
Middle East	114	127	125	143	120	213	111	58	222	127	175	211	270	239
United States	7,983	8,614	9,877	10,038	10,579	11,741	9,077	8,091	7,419	8,217	7,797	9,538	8,727	7,412
All other countries	1,561	1,782	1,940	2,226	2,649	3,017	2,416	2,198	2,167	2,710	2,479	2,883	3,115	3,073

na = not applicable

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-36

Malaysia exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports by destination														
World	35,119	39,184	40,006	38,383	48,961	59,603	52,615	55,370	58,325	65,678	73,603	82,886	85,280	89,958
Africa	61	0	86	104	126	112	153	103	106	154	171	205	236	234
Asia-9	10,592	12,751	12,773	10,624	13,735	18,149	14,968	17,039	17,146	18,546	18,773	21,743	23,054	26,622
India	50	80	81	100	187	314	278	321	360	575	528	719	793	589
Indonesia	93	71	63	26	19	37	37	56	62	104	94	118	139	143
Malaysia	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Philippines	50	232	404	484	450	504	326	620	621	851	665	728	768	732
Singapore	8,077	8,914	9,034	7,226	8,621	11,761	9,746	10,450	10,707	11,575	12,452	14,308	15,257	19,559
South Korea	458	593	440	433	990	1,806	1,374	1,515	1,361	1,414	1,300	1,434	1,639	1,454
Taiwan	919	1,682	1,609	1,492	2,595	2,103	1,840	2,109	2,250	1,968	1,582	1,850	1,885	1,842
Thailand	929	1,141	1,112	775	802	1,521	1,311	1,887	1,692	1,909	1,998	2,381	2,322	2,039
Vietnam	18	38	30	89	72	102	55	81	93	149	154	206	252	264
Central Europe/Asia	86	40	81	65	70	122	86	120	124	227	436	515	605	730
China and Hong Kong	1,890	2,270	2,539	2,173	2,928	4,261	4,994	6,158	7,412	8,961	10,615	12,276	14,652	17,352
EU	5,031	5,912	6,462	6,449	8,099	8,375	7,621	6,627	7,289	8,764	8,698	10,581	11,328	10,853
Japan	2,530	3,068	2,801	2,639	4,499	5,664	4,920	3,772	3,686	4,173	4,029	4,201	5,846	6,790
Latin America	460	521	679	587	609	648	718	715	616	1,100	1,539	1,830	1,953	2,002
Middle East	476	519	367	323	366	221	434	458	251	278	592	812	1,002	1,180
United States	12,964	12,926	12,977	13,775	16,254	19,756	17,060	18,875	20,089	21,446	26,534	28,230	23,814	21,033
All other countries	1,028	1,177	1,240	1,644	2,274	2,294	1,660	1,503	1,607	2,030	2,216	2,492	2,788	3,162
Imports by origin														
World	24,727	26,412	26,991	24,584	28,762	37,301	31,702	35,129	38,596	43,364	45,249	51,613	56,095	60,094
Africa	3	3	1	2	4	1	5	2	2	3	6	9	11	12
Asia-9	10,690	12,925	13,316	12,572	14,599	18,661	15,580	17,402	18,566	21,651	23,631	27,001	28,972	30,003
India	36	59	44	12	52	147	188	24	51	69	14	15	20	22
Indonesia	113	182	218	253	312	534	375	389	269	313	380	456	514	567
Malaysia	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Philippines	28	601	651	1,140	1,396	1,418	1,071	1,812	2,493	1,991	2,138	2,351	2,267	2,482
Singapore	7,814	8,264	7,927	6,976	8,476	11,473	9,753	9,949	10,302	12,509	13,822	16,242	17,261	18,010
South Korea	1,341	2,017	2,440	2,382	2,066	1,875	1,306	2,067	2,454	2,399	2,640	2,539	3,062	3,119
Taiwan	857	952	1,019	1,017	1,360	1,903	1,827	2,200	1,908	2,775	3,221	3,796	3,988	3,776
Thailand	500	842	1,009	788	930	1,175	949	935	1,061	1,570	1,388	1,571	1,824	2,001
Vietnam	1	8	8	5	6	135	111	26	26	24	27	30	35	27
Central Europe/Asia	0	1	1	22	31	1	1	1	1	2	4	4	4	5
China and Hong Kong	761	903	1,081	978	1,017	1,942	2,327	3,898	4,553	6,053	6,847	8,684	10,799	12,701
EU	2,572	2,639	2,657	2,208	2,946	3,564	3,623	3,353	3,907	4,922	4,562	5,199	5,925	6,048
Japan	5,465	5,288	4,524	3,748	4,334	5,569	4,216	3,884	3,718	3,941	3,631	3,412	3,924	3,801
Latin America	6	4	51	142	80	75	143	128	157	97	103	147	150	167
Middle East	5	6	14	5	8	678	594	243	199	58	2	3	3	3

Appendix table 6-36

Malaysia exports and imports of information and communications technology goods, by region/country/economy of origin and destination: 1995–2008

(Millions of current dollars)

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	5,087	4,438	5,111	4,725	5,556	6,558	5,039	6,066	7,341	6,461	6,297	6,963	6,085	7,113
All other countries	138	205	236	183	187	251	173	152	154	176	167	191	222	239
Balance														
World	10,393	12,771	13,015	13,799	20,199	22,302	20,914	20,241	19,729	22,314	28,354	31,273	29,184	29,865
Africa	58	-3	85	103	122	111	149	100	104	150	165	196	225	222
Asia-9	-98	-173	-543	-1,948	-864	-512	-612	-364	-1,420	-3,105	-4,858	-5,259	-5,918	-3,381
India	14	21	37	88	135	167	90	296	309	506	513	703	772	566
Indonesia	-20	-111	-156	-226	-294	-497	-338	-333	-207	-209	-286	-338	-375	-424
Malaysia	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Philippines	22	-369	-248	-656	-946	-914	-745	-1,191	-1,873	-1,141	-1,473	-1,623	-1,499	-1,749
Singapore	263	650	1,107	250	145	288	-7	500	405	-935	-1,370	-1,934	-2,004	1,549
South Korea	-884	-1,424	-2,001	-1,949	-1,077	-69	68	-552	-1,094	-985	-1,340	-1,106	-1,423	-1,664
Taiwan	62	731	591	475	1,235	201	13	-91	342	-807	-1,639	-1,946	-2,103	-1,934
Thailand	429	299	104	-14	-128	346	362	952	631	340	610	810	497	38
Vietnam	17	30	21	83	66	-33	-56	55	67	126	126	176	216	237
Central Europe/Asia	86	38	80	43	39	122	85	119	123	225	433	512	601	726
China and Hong Kong	1,129	1,367	1,458	1,196	1,911	2,319	2,667	2,261	2,859	2,908	3,768	3,592	3,854	4,650
EU	2,460	3,273	3,806	4,240	5,152	4,811	3,998	3,274	3,382	3,842	4,136	5,382	5,403	4,805
Japan	-2,935	-2,219	-1,723	-1,109	165	95	704	-112	-31	232	398	789	1,922	2,989
Latin America	454	516	629	445	529	573	574	587	459	1,003	1,437	1,683	1,804	1,834
Middle East	471	513	353	318	358	-457	-160	215	52	220	590	809	999	1,177
United States	7,877	8,488	7,866	9,051	10,698	13,197	12,021	12,809	12,748	14,985	20,237	21,267	17,729	13,920
All other countries	891	972	1,005	1,461	2,087	2,042	1,487	1,352	1,453	1,854	2,049	2,301	2,566	2,923

na = not applicable

EU = European Union

NOTES: Information and communications technology goods include communications and semiconductors and computers and office machinery. Detail may not add to total because of rounding. See appendix table 6-25 for full list of countries in each region.

SOURCE: IHS Global Insight, World Trade Service database (15 July 2009).

Science and Engineering Indicators 2010

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	227,393	199,628	178,567	180,208	201,419	216,055	252,708	274,160	275,818
Africa	2,923	3,463	2,382	1,774	2,377	2,998	3,781	3,064	3,349
Algeria	374	493	245	36	197	456	245	137	145
Angola	20	17	32	58	34	60	716	247	524
Egypt	1,069	1,132	800	318	621	469	938	873	645
Kenya	25	443	134	75	231	443	250	310	159
Morocco	181	36	313	154	171	189	291	214	321
Nigeria	47	73	124	107	132	177	207	182	180
South Africa	909	931	570	642	540	634	700	726	897
All others	298	338	164	384	451	571	434	374	478
Asia-9	54,269	43,848	42,343	44,408	47,636	48,120	57,535	60,666	53,743
India	1,066	1,148	1,255	1,311	1,507	2,055	3,251	8,059	4,516
Indonesia	256	216	198	208	214	271	260	867	833
Malaysia	7,327	6,041	7,235	7,803	7,579	7,054	8,521	7,554	8,466
Philippines	5,576	4,934	4,965	5,851	4,828	4,416	4,906	4,585	4,470
Singapore	9,203	9,685	8,138	8,398	10,159	9,339	12,154	11,678	12,081
South Korea	14,293	9,916	9,600	9,540	10,386	11,427	14,111	12,169	10,112
Taiwan	13,000	9,016	9,176	8,203	9,956	10,008	10,332	12,135	10,096
Thailand	3,483	2,843	1,717	2,309	2,532	3,096	3,867	3,440	2,825
Vietnam	64	50	58	786	475	453	132	180	344
Canada	26,272	21,274	17,450	18,108	20,622	23,617	23,739	26,962	27,485
Central Europe/Asia	2,315	1,729	2,218	1,377	1,497	1,598	2,951	2,779	3,971
Kazakhstan	26	27	360	37	52	64	91	69	187
Russia	449	390	430	367	412	449	562	1,007	936
Turkey	1,595	1,007	1,247	602	514	790	1,994	1,273	2,208
All others	245	305	181	371	519	295	305	429	640
China and Hong Kong	11,449	13,005	13,035	13,400	15,799	18,791	24,172	28,058	26,205
China	5,541	7,230	8,289	8,280	9,423	12,289	17,633	20,342	18,733
Hong Kong	5,908	5,775	4,747	5,120	6,375	6,502	6,539	7,716	7,472
EU	66,507	60,039	49,732	50,611	56,294	57,656	64,168	74,953	75,687
Austria	633	562	709	423	532	628	705	859	659
Belgium	2,134	1,942	1,656	1,568	1,861	2,320	2,492	3,010	3,616
Denmark	526	555	524	492	912	563	616	1,104	701
Finland	726	603	594	422	478	560	545	572	539
France	9,282	8,669	8,512	6,654	9,167	9,229	10,050	11,800	10,862
Germany	12,588	12,336	9,347	9,293	9,346	10,682	12,965	16,454	17,148
Greece	593	607	548	1,773	1,067	304	537	911	482
Ireland	3,906	3,575	2,823	3,278	3,735	4,199	4,026	4,365	4,024
Italy	3,339	2,749	3,120	3,090	2,897	2,574	2,721	2,611	2,889
Netherlands	9,591	7,782	7,253	8,397	9,153	9,634	10,109	10,718	12,143
Poland	265	215	179	189	225	333	818	1,541	1,241
Portugal	366	577	229	195	367	546	836	1,459	1,594
Spain	2,256	1,426	1,143	1,427	1,607	1,681	1,526	1,965	2,198
Sweden	2,282	1,398	1,212	1,205	1,049	1,064	1,455	1,525	1,620
United Kingdom	16,927	15,449	10,572	10,766	12,071	11,593	12,681	13,553	13,792
All others	1,092	1,592	1,310	1,439	1,830	1,747	2,086	2,509	2,187
Japan	22,196	18,511	16,853	16,923	18,003	17,765	19,542	19,981	18,741
Latin America	28,161	25,675	22,422	22,776	28,018	30,343	36,463	38,169	44,400
Argentina	1,401	1,011	223	439	607	867	958	1,310	1,414
Bermuda	97	91	117	102	134	126	186	175	283
Brazil	5,831	5,690	3,942	3,205	4,379	5,126	6,999	8,883	11,113
Chile	926	857	599	578	616	1,065	1,775	1,660	1,833

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	591	607	742	661	747	892	1,067	1,437	1,751
Costa Rica	441	492	1,064	1,287	1,126	1,209	1,487	1,443	1,806
Dominican Republic	271	361	258	198	204	259	311	388	349
Ecuador	91	163	200	213	279	381	361	510	478
El Salvador	119	133	89	162	233	212	220	272	247
Guatemala	200	145	183	193	236	313	346	389	332
Jamaica	97	182	159	189	157	138	157	152	148
Mexico	15,489	13,874	12,579	13,550	16,509	16,573	18,650	17,240	19,610
Panama	339	152	319	399	341	306	367	489	525
Paraguay	226	239	296	226	424	633	648	775	889
Peru	318	278	290	301	323	360	520	558	802
Trinidad and Tobago	389	101	165	96	137	169	240	171	202
Venezuela	767	685	580	344	851	1,057	1,455	1,512	1,732
All others	566	612	619	631	715	656	716	804	886
Middle East	5,884	5,389	4,665	4,386	4,485	8,185	11,094	10,660	12,256
Bahrain	205	135	139	281	43	57	70	92	193
Iraq	0	6	1	17	172	257	325	479	424
Israel	2,768	2,600	2,025	1,846	2,760	2,684	2,949	3,373	3,305
Kuwait	64	100	110	188	122	140	364	349	257
Oman	21	86	168	98	30	210	345	190	293
Qatar	21	30	55	55	85	75	139	698	1,103
Saudi Arabia	2,119	1,703	590	680	507	665	718	738	1,359
United Arab Emirates	565	591	1,296	1,060	625	3,911	6,000	4,299	4,996
All others	121	137	282	160	143	187	183	443	326
Other	7,415	6,696	7,467	6,445	6,687	6,981	9,263	8,864	9,973
Australia	3,737	3,045	4,708	4,032	3,282	3,446	4,227	3,953	4,433
New Zealand	806	985	589	541	590	931	1,313	957	614
Norway	588	551	456	407	379	518	617	858	1,040
Pakistan	79	63	109	153	925	217	1,056	839	766
Switzerland	1,827	1,426	1,142	1,027	1,165	1,362	1,376	1,493	2,175
All others	377	625	464	285	346	507	674	764	945
Imports									
World	222,080	195,177	195,151	207,031	238,275	259,742	290,761	326,809	331,372
Africa	188	126	141	133	149	134	145	148	165
Algeria	0	0	0	0	0	0	0	1	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	1	3	3	2	2	1	1
Kenya	8	4	4	6	3	2	4	2	6
Morocco	139	83	98	89	103	92	100	96	94
Nigeria	0	0	0	0	0	1	0	0	3
South Africa	28	30	25	25	30	30	26	31	36
All others	12	8	13	10	11	7	13	17	25
Asia-9	79,463	62,116	62,736	62,726	69,754	69,834	75,259	75,064	72,660
India	146	200	199	253	319	456	693	709	1,062
Indonesia	1,318	1,399	1,259	1,076	1,123	1,104	917	1,125	1,343
Malaysia	16,246	14,052	15,151	16,382	18,232	22,640	25,098	22,420	20,216
Philippines	8,055	5,900	5,843	4,920	3,806	3,694	3,747	3,667	3,330
Singapore	13,656	10,095	10,062	10,385	10,878	9,253	9,803	9,003	7,614
South Korea	18,737	13,759	13,822	14,378	17,977	13,980	13,647	15,361	16,837
Taiwan	17,637	13,812	13,331	12,031	12,808	12,264	14,063	14,762	13,782
Thailand	3,667	2,899	3,062	3,291	4,599	6,412	7,209	7,735	8,062
Vietnam	0	0	8	10	12	30	83	282	414
Canada	22,417	17,325	13,704	13,700	13,827	15,652	14,873	17,767	16,628

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	1,258	1,226	1,014	1,241	1,092	1,133	1,254	1,477	1,361
Kazakhstan	29	45	75	51	0	24	0	106	42
Russia	1,047	1,011	831	1,054	920	945	999	1,055	998
Turkey	99	107	83	83	107	136	160	205	232
All others	83	63	25	53	65	28	95	111	89
China and Hong Kong	14,187	14,421	21,291	30,400	46,819	60,286	73,513	88,792	92,160
China	12,466	13,367	20,097	29,370	45,694	59,252	72,727	88,015	91,393
Hong Kong	1,721	1,054	1,194	1,030	1,124	1,034	786	777	768
EU	44,097	46,902	47,812	49,420	51,122	53,680	58,699	65,695	68,946
Austria	314	290	443	404	501	579	663	863	913
Belgium	977	1,369	1,298	989	1,517	1,096	1,981	2,208	2,937
Denmark	462	494	502	591	756	879	889	928	1,079
Finland	274	463	639	608	414	505	374	457	423
France	9,644	10,407	9,645	9,182	8,659	8,468	9,778	12,262	12,026
Germany	9,119	9,537	8,089	8,010	9,580	11,034	11,428	11,861	11,628
Greece	12	8	17	20	17	35	29	35	48
Ireland	6,805	8,835	12,624	14,497	13,431	14,058	14,216	16,146	17,699
Italy	1,934	1,674	1,843	1,734	1,974	2,200	2,165	2,410	2,864
Netherlands	1,672	1,524	1,767	2,028	2,120	2,235	2,832	3,572	3,143
Poland	49	38	42	46	74	94	312	301	289
Portugal	223	254	312	428	543	668	803	422	193
Spain	232	256	368	752	701	552	594	780	1,053
Sweden	1,241	1,124	1,510	1,343	1,466	1,891	1,267	1,383	1,532
United Kingdom	9,378	9,247	7,146	6,842	7,414	7,262	9,428	9,994	10,786
All others	1,759	1,383	1,567	1,946	1,956	2,123	1,941	2,073	2,334
Japan	37,327	27,879	23,688	22,388	23,877	24,576	25,853	28,093	26,720
Latin America	18,383	20,488	20,465	22,365	26,559	28,375	34,332	42,463	44,783
Argentina	11	14	18	10	17	14	16	11	13
Bermuda	0	0	0	0	0	0	0	1	5
Brazil	1,934	2,928	2,948	2,704	2,792	2,599	1,730	2,034	2,570
Chile	2	3	4	4	6	4	8	11	13
Colombia	5	9	4	2	3	6	11	19	10
Costa Rica	1,224	726	919	1,207	1,104	1,129	1,175	1,257	1,389
Dominican Republic	357	356	354	456	470	606	470	464	431
Ecuador	1	1	1	1	1	4	10	5	3
El Salvador	1	4	0	1	1	1	1	3	1
Guatemala	0	2	3	4	2	3	2	4	2
Jamaica	1	0	0	0	1	1	1	1	7
Mexico	14,816	16,422	16,196	17,961	22,142	23,991	30,881	38,631	40,320
Panama	5	2	2	2	2	3	5	5	4
Paraguay	0	0	0	0	0	0	0	1	1
Peru	1	2	2	1	2	1	1	1	2
Trinidad and Tobago	0	0	0	0	1	1	1	1	2
Venezuela	5	2	3	2	3	4	10	2	2
All others	21	18	10	8	13	10	10	10	8
Middle East	2,582	2,248	2,085	2,020	2,300	2,326	2,862	3,292	3,184
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	1	1	1	0	0
Israel	2,566	2,227	2,077	2,009	2,284	2,297	2,818	3,272	3,166
Kuwait	0	0	0	2	0	0	0	1	0
Oman	1	2	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	11	5	3	1	2	6	2	1	6

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	2	10	4	6	10	14	37	15	9
All others	2	4	1	1	2	7	4	1	3
Other	2,177	2,446	2,215	2,636	2,776	3,747	3,970	4,012	4,759
Australia	398	428	384	380	418	532	609	859	817
New Zealand	53	69	72	92	116	129	143	160	164
Norway	259	333	313	280	372	349	444	507	644
Pakistan	25	23	28	26	31	32	33	43	55
Switzerland	1,408	1,563	1,376	1,799	1,784	2,652	2,663	2,375	3,007
All others	34	30	42	59	56	53	77	75	77
Balance									
World	5,313	4,451	-16,584	-26,822	-36,856	-43,686	-38,053	-52,649	-55,554
Africa	2,735	3,337	2,241	1,641	2,229	2,865	3,636	2,916	3,184
Algeria	374	493	245	36	197	456	245	137	145
Angola	20	17	31	58	34	60	716	247	524
Egypt	1,068	1,131	799	315	619	467	936	872	644
Kenya	17	439	131	69	229	441	246	308	153
Morocco	41	-47	215	65	68	97	190	118	228
Nigeria	47	73	123	107	132	177	207	182	177
South Africa	881	901	545	617	510	603	674	695	860
All others	286	330	151	374	440	564	421	357	453
Asia-9	-25,194	-18,268	-20,394	-18,318	-22,118	-21,714	-17,724	-14,397	-18,916
India	920	948	1,056	1,058	1,188	1,599	2,558	7,350	3,454
Indonesia	-1,062	-1,183	-1,061	-868	-909	-833	-656	-258	-510
Malaysia	-8,919	-8,011	-7,917	-8,580	-10,653	-15,586	-16,577	-14,866	-11,750
Philippines	-2,479	-966	-877	932	1,023	722	1,159	918	1,140
Singapore	-4,453	-410	-1,923	-1,987	-719	87	2,351	2,674	4,468
South Korea	-4,444	-3,843	-4,222	-4,839	-7,591	-2,554	464	-3,192	-6,726
Taiwan	-4,637	-4,796	-4,155	-3,829	-2,852	-2,256	-3,730	-2,626	-3,686
Thailand	-184	-56	-1,345	-982	-2,068	-3,316	-3,342	-4,295	-5,237
Vietnam	64	50	50	776	463	423	49	-103	-69
Canada	3,855	3,948	3,745	4,408	6,795	7,965	8,867	9,195	10,857
Central Europe/Asia	1,057	503	1,204	136	405	465	1,698	1,302	2,610
Kazakhstan	-3	-18	285	-14	52	40	91	-37	145
Russia	-598	-620	-401	-687	-509	-496	-437	-48	-62
Turkey	1,495	900	1,164	519	407	654	1,834	1,069	1,976
All others	162	242	156	318	454	267	210	318	551
China and Hong Kong	-2,738	-1,416	-8,255	-17,000	-31,020	-41,495	-49,341	-60,734	-65,956
China	-6,925	-6,137	-11,808	-21,090	-36,271	-46,963	-55,094	-67,673	-72,660
Hong Kong	4,188	4,720	3,553	4,090	5,251	5,468	5,753	6,939	6,705
EU	22,411	13,136	1,919	1,191	5,172	3,976	5,468	9,258	6,741
Austria	319	272	266	19	31	49	42	-4	-254
Belgium	1,157	573	358	579	344	1,224	511	802	679
Denmark	64	61	22	-99	156	-316	-273	176	-378
Finland	452	140	-45	-186	64	55	171	115	116
France	-362	-1,738	-1,133	-2,528	508	761	272	-462	-1,164
Germany	3,469	2,799	1,258	1,283	-234	-352	1,537	4,593	5,520
Greece	581	599	531	1,753	1,050	269	508	876	434
Ireland	-2,899	-5,260	-9,801	-11,219	-9,696	-9,859	-10,190	-11,781	-13,675
Italy	1,405	1,075	1,277	1,356	923	374	556	201	25
Netherlands	7,919	6,258	5,486	6,369	7,033	7,399	7,277	7,146	9,000
Poland	216	177	137	143	151	239	506	1,240	952
Portugal	143	323	-83	-233	-176	-122	33	1,037	1,401
Spain	2,024	1,170	775	675	906	1,129	932	1,185	1,145

Appendix table 6-37

U.S. trade in advanced-technology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	1,041	274	-298	-138	-417	-827	188	142	88
United Kingdom	7,549	6,202	3,426	3,924	4,657	4,331	3,253	3,559	3,006
All others	-667	209	-257	-507	-126	-376	145	436	-147
Japan	-15,130	-9,367	-6,835	-5,465	-5,874	-6,811	-6,311	-8,112	-7,979
Latin America	9,778	5,187	1,958	411	1,459	1,968	2,130	-4,293	-382
Argentina	1,390	997	205	429	590	853	941	1,299	1,401
Bermuda	97	91	117	102	134	126	186	173	278
Brazil	3,897	2,762	994	501	1,588	2,527	5,269	6,849	8,543
Chile	924	855	595	574	610	1,061	1,767	1,649	1,821
Colombia	586	599	738	659	744	886	1,056	1,418	1,741
Costa Rica	-783	-234	145	80	21	80	312	186	417
Dominican Republic	-86	5	-96	-258	-265	-347	-158	-77	-82
Ecuador	91	162	199	212	278	377	351	504	475
El Salvador	119	129	89	162	232	211	219	269	246
Guatemala	200	143	180	189	234	310	344	385	330
Jamaica	96	182	159	189	156	137	156	151	141
Mexico	672	-2,548	-3,618	-4,412	-5,633	-7,418	-12,231	-21,391	-20,709
Panama	334	150	316	396	338	303	361	484	521
Paraguay	226	239	295	226	424	633	647	774	889
Peru	317	276	287	300	321	359	519	557	800
Trinidad and Tobago	389	101	164	96	137	168	240	171	200
Venezuela	762	684	577	342	849	1,053	1,446	1,510	1,730
All others	545	594	609	623	702	647	706	794	877
Middle East	3,302	3,141	2,580	2,366	2,185	5,859	8,232	7,369	9,072
Bahrain	205	135	139	281	42	57	70	91	192
Iraq	0	6	1	17	171	256	325	479	424
Israel	203	373	-52	-163	475	386	132	101	140
Kuwait	64	100	110	187	121	139	364	348	257
Oman	20	84	168	98	30	210	345	190	293
Qatar	21	30	55	55	85	74	139	697	1,103
Saudi Arabia	2,107	1,698	587	678	504	659	715	736	1,353
United Arab Emirates	563	581	1,292	1,054	615	3,897	5,963	4,284	4,987
All others	119	134	281	159	140	180	179	442	323
Other	5,238	4,250	5,253	3,809	3,911	3,235	5,293	4,852	5,214
Australia	3,339	2,617	4,324	3,652	2,865	2,914	3,618	3,095	3,616
New Zealand	754	916	517	449	474	803	1,170	797	450
Norway	329	218	143	127	7	169	173	351	396
Pakistan	54	39	81	127	894	185	1,023	795	711
Switzerland	420	-136	-235	-773	-619	-1,289	-1,287	-882	-832
All others	343	595	423	226	290	454	596	689	868

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-38

U.S. trade in aerospace products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	52,687	56,710	53,233	49,834	53,991	63,049	81,324	93,009	90,244
Africa	3,198	3,194	2,703	1,377	1,477	2,183	3,771	1,566	1,746
Algeria	278	264	225	19	20	246	36	13	27
Angola	7	5	18	38	8	40	684	205	477
Egypt	853	900	634	163	307	220	509	513	296
Kenya	10	431	117	59	203	411	221	261	113
Morocco	150	17	294	134	144	162	246	167	264
Nigeria	18	21	52	18	55	74	73	59	41
South Africa	582	638	302	327	204	246	238	229	334
All others	1,300	918	1,060	619	537	782	1,764	119	194
Asia-9	6,397	10,210	8,445	8,089	8,607	9,714	14,113	17,950	12,834
India	295	355	333	327	241	621	1,635	6,192	2,644
Indonesia	57	56	72	51	59	59	98	642	593
Malaysia	340	701	954	257	694	384	848	484	352
Philippines	113	54	67	66	100	57	54	72	121
Singapore	1,285	4,056	3,297	3,100	3,297	3,191	4,892	4,294	4,812
South Korea	2,131	2,816	2,449	1,684	2,036	2,285	3,727	3,572	2,668
Taiwan	1,608	1,596	1,095	1,265	1,598	2,556	1,747	1,966	1,408
Thailand	565	572	173	622	187	213	1,106	713	209
Vietnam	2	4	4	718	394	348	6	16	26
Canada	3,399	3,722	3,050	3,013	3,340	4,514	4,463	6,033	6,065
Central Europe/Asia	465	263	275	223	401	262	245	1,394	2,424
Kazakhstan	0	0	154	3	2	15	4	11	110
Russia	203	13	37	13	25	105	117	371	298
Turkey	122	53	10	9	10	6	8	802	1,680
All others	140	197	74	198	365	138	117	210	336
China and Hong Kong	2,038	2,991	3,714	2,585	2,201	4,698	6,589	8,660	6,572
China	1,769	2,590	3,499	2,425	1,987	4,322	6,014	7,200	5,288
Hong Kong	269	402	215	160	214	376	575	1,460	1,284
EU	23,452	22,611	19,833	20,214	22,948	22,193	25,097	31,142	30,753
Austria	238	140	398	167	219	270	268	421	313
Belgium	610	569	378	231	245	350	472	540	906
Denmark	200	250	229	178	552	186	182	533	207
Finland	172	104	204	55	101	122	132	108	134
France	4,435	5,118	5,448	3,737	5,985	6,254	6,863	8,145	7,222
Germany	4,573	4,503	2,909	2,680	2,743	3,464	4,252	5,148	5,598
Greece	276	317	284	1,629	898	153	251	682	294
Ireland	775	824	849	1,020	1,677	2,051	1,901	2,589	2,250
Italy	803	728	1,678	1,616	1,279	973	1,013	918	1,078
Netherlands	1,797	1,284	1,429	2,475	2,149	1,257	1,882	1,696	2,172
Poland	19	33	27	21	35	69	526	1,071	841
Portugal	109	106	139	106	276	437	547	489	717
Spain	1,343	644	448	439	719	845	606	860	898
Sweden	1,331	579	481	441	330	303	318	315	440
United Kingdom	6,494	6,772	4,424	4,748	4,753	4,752	5,136	6,470	6,794
All others	276	641	507	671	988	708	751	1,158	889
Japan	4,135	3,690	4,870	5,719	5,707	6,310	7,043	7,881	7,906
Latin America	3,176	3,761	2,977	2,792	3,933	4,351	7,136	7,586	9,247
Argentina	117	114	41	57	82	126	77	153	105
Bermuda	12	37	81	62	90	55	130	117	215
Brazil	1,566	2,279	1,473	1,138	2,047	2,132	3,440	4,574	5,822
Chile	176	200	53	80	61	352	921	635	733

Appendix table 6-38

U.S. trade in aerospace products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	75	45	203	93	73	89	138	184	214
Costa Rica	18	12	24	11	12	13	19	22	32
Dominican Republic	6	18	24	5	8	20	16	14	8
Ecuador	14	25	18	13	18	17	41	39	46
El Salvador	1	35	10	61	98	60	49	41	64
Guatemala	12	10	8	20	5	38	38	41	12
Jamaica	7	55	14	57	21	20	21	19	14
Mexico	518	757	610	757	1,053	1,013	1,838	1,240	1,544
Panama	193	15	192	263	199	152	177	239	201
Paraguay	1	0	0	0	1	2	5	1	1
Peru	38	13	33	14	23	31	47	25	43
Trinidad and Tobago	304	9	68	11	27	20	29	23	25
Venezuela	59	67	100	72	78	108	102	168	98
All others	60	70	23	77	36	102	48	51	71
Middle East	3,232	3,144	2,857	2,459	2,057	5,626	8,094	7,051	8,089
Bahrain	186	111	103	258	20	21	36	52	154
Iraq	0	0	0	5	36	104	169	299	204
Israel	853	1,160	944	804	1,354	1,395	1,503	1,723	1,481
Kuwait	25	33	62	67	41	41	227	212	127
Oman	10	68	153	80	8	182	320	155	226
Qatar	10	9	34	24	44	30	92	628	1,027
Saudi Arabia	1,839	1,411	320	388	223	314	274	301	763
United Arab Emirates	273	302	1,029	753	278	3,488	5,421	3,391	3,981
All others	36	50	212	78	51	51	51	290	125
Other	3,195	3,123	4,509	3,363	3,321	3,196	4,773	3,746	4,608
Australia	1,372	1,120	3,126	2,377	1,421	1,299	1,680	1,075	1,749
New Zealand	453	754	391	336	378	686	1,093	704	341
Norway	346	321	256	150	155	271	257	416	572
Pakistan	42	30	53	101	832	106	881	606	431
Switzerland	792	503	483	341	454	657	559	607	1,043
All others	191	395	199	58	80	178	304	338	473
Imports									
World	25,758	30,518	25,005	22,766	23,610	25,360	27,595	33,824	35,022
Africa	3	9	3	5	8	5	7	7	13
Algeria	0	0	0	0	0	0	0	1	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	2
Morocco	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	3
South Africa	1	8	2	4	6	2	2	3	4
All others	2	0	0	1	2	3	5	4	4
Asia-9	381	550	424	443	544	675	812	975	969
India	5	5	5	9	11	9	13	15	42
Indonesia	1	2	1	2	3	1	4	9	12
Malaysia	1	2	9	16	19	22	28	40	31
Philippines	17	27	12	12	14	16	16	8	8
Singapore	93	124	128	121	142	172	179	237	317
South Korea	194	302	212	198	233	354	445	497	368
Taiwan	63	76	52	80	111	92	114	153	175
Thailand	6	13	5	6	12	9	13	16	15
Vietnam	0	0	0	0	0	0	0	0	1
Canada	6,098	7,728	6,805	7,232	6,591	7,166	6,317	8,065	7,803

Appendix table 6-38

U.S. trade in aerospace products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	222	200	104	201	170	161	284	364	336
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	63	59	25	96	38	40	72	109	83
Turkey	85	91	72	73	91	120	147	189	214
All others	74	50	7	32	40	1	64	66	39
China and Hong Kong	76	104	115	133	183	176	261	354	408
China	73	101	99	124	172	169	256	350	406
Hong Kong	3	2	15	9	11	6	6	3	2
EU	15,179	17,129	13,103	10,741	11,197	12,349	14,937	17,484	18,135
Austria	39	40	29	34	86	115	126	143	136
Belgium	110	128	92	79	80	115	127	147	243
Denmark	20	18	15	17	26	16	43	17	18
Finland	18	21	16	20	22	4	10	13	10
France	7,054	7,699	6,234	5,069	5,094	4,943	6,791	8,964	8,794
Germany	3,267	3,667	2,338	1,699	1,833	2,835	2,542	2,382	2,801
Greece	5	6	14	13	9	15	19	17	22
Ireland	48	52	55	44	61	82	90	99	110
Italy	422	494	432	386	461	625	680	865	920
Netherlands	161	169	154	149	171	191	206	214	237
Poland	15	21	20	26	53	54	252	202	157
Portugal	5	2	2	1	7	13	6	5	5
Spain	49	56	83	47	123	69	131	170	136
Sweden	143	150	127	114	140	106	111	246	253
United Kingdom	3,808	4,576	3,446	2,967	2,915	3,035	3,609	3,716	3,948
All others	15	31	46	76	116	131	194	283	346
Japan	1,517	1,818	1,380	1,290	1,405	1,685	2,236	2,794	2,562
Latin America	1,579	2,078	2,165	1,887	2,578	1,998	1,345	2,060	2,834
Argentina	1	1	1	0	0	1	1	0	0
Bermuda	0	0	0	0	0	0	0	0	5
Brazil	1,466	1,936	1,848	1,682	2,384	1,807	1,151	1,703	2,289
Chile	1	1	0	0	0	1	1	5	6
Colombia	0	0	1	0	1	1	3	3	1
Costa Rica	0	0	0	0	0	0	0	1	1
Dominican Republic	2	3	2	1	1	0	0	0	0
Ecuador	1	0	0	0	0	0	0	1	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	5
Mexico	108	136	312	202	191	186	188	342	526
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	1	0	1	0
All others	0	0	2	0	0	0	0	5	1
Middle East	464	574	557	549	625	719	923	1,214	1,314
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	1	0	0	0	0
Israel	458	567	554	548	622	713	920	1,212	1,308
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	5	1	2	0	2	5	2	1	5

Appendix table 6-38

U.S. trade in aerospace products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	6	0	0	1	0	1	2	1
All others	0	1	0	0	0	0	0	0	0
Other	240	328	349	285	310	425	472	506	647
Australia	111	146	128	126	107	124	136	174	171
New Zealand	2	2	3	8	10	10	13	10	4
Norway	73	132	126	91	136	73	80	88	116
Pakistan	0	0	1	0	0	1	1	1	1
Switzerland	53	47	87	60	55	217	241	229	350
All others	1	1	5	0	2	1	1	4	5
Balance									
World	26,929	26,192	28,227	27,068	30,381	37,689	53,730	59,185	55,221
Africa	3,195	3,186	2,700	1,372	1,470	2,178	3,764	1,559	1,733
Algeria	277	264	225	19	20	246	36	13	27
Angola	7	5	18	38	8	40	684	205	477
Egypt	853	900	634	163	307	220	509	513	296
Kenya	10	431	117	59	203	411	221	261	111
Morocco	150	17	294	134	144	162	246	167	264
Nigeria	18	21	52	18	55	74	73	59	39
South Africa	581	629	301	323	198	244	236	226	330
All others	1,298	918	1,060	618	535	780	1,759	116	189
Asia-9	6,016	9,660	8,021	7,646	8,063	9,040	13,301	16,975	11,865
India	290	349	328	318	231	612	1,622	6,177	2,602
Indonesia	56	55	70	49	56	58	94	633	580
Malaysia	339	699	946	241	675	363	820	444	321
Philippines	96	27	54	54	86	42	38	64	113
Singapore	1,191	3,933	3,169	2,979	3,156	3,019	4,713	4,056	4,495
South Korea	1,938	2,515	2,237	1,486	1,803	1,931	3,283	3,075	2,300
Taiwan	1,545	1,520	1,044	1,185	1,487	2,464	1,632	1,813	1,233
Thailand	559	558	168	616	175	204	1,093	697	194
Vietnam	2	4	4	718	394	348	6	16	26
Canada	-2,698	-4,007	-3,755	-4,219	-3,251	-2,652	-1,854	-2,032	-1,738
Central Europe/Asia	243	63	170	22	231	101	-39	1,030	2,087
Kazakhstan	0	0	154	3	2	15	4	11	110
Russia	139	-46	12	-83	-13	65	44	262	214
Turkey	37	-38	-62	-64	-82	-115	-140	613	1,466
All others	66	147	67	166	324	136	53	144	297
China and Hong Kong	1,961	2,888	3,599	2,451	2,019	4,523	6,328	8,306	6,165
China	1,696	2,489	3,400	2,300	1,815	4,152	5,758	6,849	4,883
Hong Kong	266	399	200	151	203	370	569	1,457	1,282
EU	8,274	5,482	6,730	9,473	11,751	9,843	10,160	13,658	12,618
Austria	199	100	368	133	133	154	141	277	177
Belgium	501	441	285	152	165	235	345	393	663
Denmark	180	232	215	161	527	170	139	516	189
Finland	153	83	188	36	78	118	122	95	124
France	-2,619	-2,581	-786	-1,332	892	1,311	72	-820	-1,572
Germany	1,306	836	571	980	910	629	1,709	2,766	2,797
Greece	271	311	271	1,617	888	138	232	665	273
Ireland	727	771	794	976	1,616	1,969	1,811	2,490	2,140
Italy	381	234	1,245	1,230	818	347	333	53	158
Netherlands	1,636	1,115	1,276	2,326	1,978	1,066	1,676	1,482	1,936
Poland	4	12	8	-5	-18	15	274	869	684
Portugal	104	105	137	105	269	424	542	484	712
Spain	1,294	588	365	392	596	776	475	690	762

Appendix table 6-38

U.S. trade in aerospace products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	1,188	429	354	328	190	198	206	69	186
United Kingdom	2,686	2,196	978	1,780	1,837	1,717	1,526	2,754	2,846
All others	261	610	461	595	871	577	557	875	543
Japan	2,618	1,872	3,490	4,429	4,302	4,625	4,807	5,087	5,344
Latin America	1,597	1,684	812	905	1,354	2,353	5,791	5,526	6,412
Argentina	116	113	40	57	81	125	76	152	105
Bermuda	12	37	81	62	90	55	130	117	210
Brazil	100	343	-374	-544	-337	325	2,289	2,871	3,533
Chile	175	199	53	80	60	351	920	631	727
Colombia	75	45	202	92	72	89	135	181	213
Costa Rica	18	12	24	10	12	13	19	21	31
Dominican Republic	4	16	22	3	7	20	15	14	8
Ecuador	13	25	18	13	18	17	41	38	45
El Salvador	1	35	10	61	98	60	49	41	64
Guatemala	12	10	8	20	5	37	38	41	12
Jamaica	7	55	14	57	21	19	21	19	9
Mexico	410	621	298	555	862	827	1,650	898	1,018
Panama	193	15	192	263	199	152	177	239	201
Paraguay	1	0	0	0	1	2	5	1	1
Peru	38	13	33	14	23	31	47	25	43
Trinidad and Tobago	304	8	68	11	27	20	29	23	25
Venezuela	59	67	99	72	78	107	102	168	98
All others	60	70	21	77	36	102	48	46	71
Middle East	2,768	2,569	2,300	1,910	1,431	4,907	7,171	5,837	6,775
Bahrain	186	111	103	258	20	21	36	52	154
Iraq	0	0	0	5	36	103	169	299	204
Israel	394	594	389	256	732	682	583	511	172
Kuwait	25	33	62	67	41	41	227	212	127
Oman	10	68	153	80	8	182	320	155	226
Qatar	10	9	34	24	44	30	92	628	1,027
Saudi Arabia	1,834	1,410	318	388	221	309	272	300	758
United Arab Emirates	273	296	1,029	753	277	3,488	5,420	3,389	3,981
All others	36	49	212	78	51	51	51	290	125
Other	2,955	2,796	4,159	3,078	3,011	2,771	4,302	3,240	3,961
Australia	1,261	974	2,998	2,252	1,314	1,175	1,543	901	1,577
New Zealand	451	752	387	329	368	675	1,080	694	337
Norway	273	190	131	59	18	198	176	328	456
Pakistan	42	29	52	101	832	106	880	605	430
Switzerland	739	456	397	281	400	439	318	378	693
All others	190	394	194	57	79	178	303	334	468

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-39

U.S. trade in electronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	60,692	45,326	42,747	46,578	48,694	47,562	53,466	50,809	50,799
Africa	41	41	31	35	34	94	93	71	50
Algeria	0	1	0	0	1	14	11	3	4
Angola	0	0	0	0	0	1	1	0	2
Egypt	5	11	7	3	5	9	10	6	6
Kenya	3	2	1	1	1	11	1	2	3
Morocco	6	1	1	2	1	1	11	12	9
Nigeria	0	2	1	1	2	1	1	6	3
South Africa	22	22	17	18	15	14	16	21	14
All others	5	3	4	9	10	43	42	21	8
Asia-9	27,981	20,258	21,234	24,283	23,081	22,308	25,031	23,391	23,745
India	54	59	70	82	91	118	139	134	172
Indonesia	109	59	37	29	43	36	34	62	52
Malaysia	5,445	3,957	4,926	6,434	5,574	5,085	5,906	5,039	6,108
Philippines	4,851	4,433	4,581	5,446	4,245	3,915	4,306	3,974	3,659
Singapore	3,868	2,718	2,216	2,389	3,166	2,847	3,629	4,243	3,926
South Korea	6,159	3,506	3,929	4,787	4,703	4,845	5,237	3,870	3,294
Taiwan	5,247	3,905	4,563	4,205	3,873	3,902	4,315	4,657	5,257
Thailand	2,219	1,614	902	902	1,365	1,546	1,438	1,400	1,247
Vietnam	30	7	9	10	21	15	26	12	31
Canada	6,851	3,817	2,473	2,455	3,270	3,856	3,385	2,867	2,694
Central Europe/Asia	55	58	57	80	75	60	75	83	94
Kazakhstan	0	0	1	0	1	1	2	1	3
Russia	22	33	32	53	42	29	38	38	49
Turkey	28	20	18	20	24	23	26	34	29
All others	4	5	6	7	8	8	9	10	13
China and Hong Kong	3,739	3,263	3,976	5,301	6,962	6,977	8,995	9,722	9,512
China	923	1,134	1,664	2,553	3,069	3,468	6,012	6,573	6,632
Hong Kong	2,815	2,128	2,313	2,748	3,893	3,509	2,982	3,149	2,880
EU	7,630	6,302	4,994	4,751	4,818	4,155	5,214	5,426	4,875
Austria	3	4	5	6	8	7	7	220	240
Belgium	58	89	52	36	33	26	42	33	36
Denmark	128	91	56	52	75	80	76	106	162
Finland	78	49	31	33	30	29	40	118	113
France	135	102	119	71	71	73	74	44	43
Germany	1,192	754	592	531	537	307	335	316	358
Greece	1,300	1,353	1,489	1,503	1,287	1,338	1,967	1,820	1,507
Ireland	11	10	6	8	8	10	15	15	27
Italy	552	448	317	556	494	366	415	230	223
Netherlands	756	451	308	268	316	265	392	303	295
Poland	587	573	557	419	333	389	338	301	243
Portugal	12	9	11	18	33	29	31	29	18
Spain	148	358	21	23	12	13	179	852	765
Sweden	80	59	77	65	73	73	98	91	61
United Kingdom	284	164	146	112	110	107	237	257	162
All others	2,307	1,787	1,207	1,050	1,401	1,044	969	693	621
Japan	4,586	3,525	2,780	2,392	2,246	1,714	2,032	1,736	1,584
Latin America	8,647	7,124	6,413	6,549	7,190	7,517	7,744	6,866	7,426
Argentina	45	21	9	17	34	35	55	69	76
Bermuda	9	12	1	1	1	1	1	1	1
Brazil	1,122	861	650	635	678	693	692	653	896
Chile	30	23	30	33	34	53	55	50	33

Appendix table 6-39

U.S. trade in electronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	8	8	6	6	8	22	18	35	43
Costa Rica	231	255	838	1,016	848	869	1,047	1,029	1,353
Dominican Republic	9	9	10	25	38	53	75	79	58
Ecuador	1	2	3	7	8	11	17	20	23
El Salvador	2	3	1	2	1	6	7	3	3
Guatemala	2	1	1	2	5	4	5	4	12
Jamaica	1	1	1	4	3	3	3	5	3
Mexico	7,128	5,887	4,801	4,758	5,474	5,629	5,659	4,808	4,777
Panama	4	2	3	2	2	3	3	4	10
Paraguay	10	8	36	12	14	75	41	41	8
Peru	13	4	3	5	7	6	6	9	18
Trinidad and Tobago	1	1	1	3	4	5	5	1	1
Venezuela	15	17	8	8	17	32	21	34	80
All others	16	9	9	14	14	18	34	21	30
Middle East	575	389	290	284	519	401	418	355	410
Bahrain	2	2	1	1	1	2	1	1	1
Iraq	0	1	0	0	3	7	5	5	7
Israel	521	336	256	241	457	349	351	267	297
Kuwait	1	2	3	3	2	3	5	7	5
Oman	0	1	1	0	0	0	1	1	1
Qatar	1	1	1	1	3	3	1	2	5
Saudi Arabia	5	9	5	9	11	11	13	17	23
United Arab Emirates	31	27	22	25	40	22	38	50	68
All others	15	11	1	3	2	3	3	5	3
Other	331	270	196	223	269	235	219	293	410
Australia	113	108	98	122	134	115	116	123	141
New Zealand	13	11	11	13	12	10	11	10	10
Norway	53	51	18	24	24	19	20	21	28
Pakistan	1	1	1	1	4	2	2	2	3
Switzerland	141	85	60	52	78	71	59	118	205
All others	11	14	9	11	17	18	13	19	24
Imports									
World	48,839	30,852	26,592	25,136	27,454	26,582	27,995	27,038	25,645
Africa	147	84	106	90	103	94	101	95	93
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	5	1	2	0	0	0	0	0	0
Morocco	139	82	96	88	101	91	99	93	90
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	2	1	1	1	1	1	1	1	2
All others	1	1	7	1	1	1	1	1	0
Asia-9	30,102	18,079	16,240	14,974	16,223	15,092	16,131	15,255	14,598
India	19	29	20	15	35	45	73	64	96
Indonesia	266	196	163	144	162	170	159	195	174
Malaysia	6,162	4,448	4,146	3,479	3,557	3,365	3,027	2,725	2,855
Philippines	5,493	3,462	3,186	2,808	2,338	2,303	2,342	2,025	1,744
Singapore	3,366	1,769	1,300	1,302	1,495	1,539	1,981	1,846	1,473
South Korea	7,742	3,637	3,574	3,462	4,082	3,166	3,096	2,579	2,696
Taiwan	5,651	3,728	3,266	3,187	3,934	3,854	4,539	4,597	4,463
Thailand	1,401	811	584	575	616	648	911	1,220	1,094
Vietnam	0	0	1	2	3	3	3	4	4
Canada	2,369	1,973	1,252	1,223	1,411	1,835	1,262	1,173	1,105

Appendix table 6-39

U.S. trade in electronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	12	6	3	3	4	4	6	4	15
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	10	5	3	2	3	3	4	3	13
Turkey	0	0	0	0	0	0	0	0	0
All others	1	1	1	0	1	1	1	1	2
China and Hong Kong	2,105	1,389	1,290	1,173	1,703	2,130	2,487	2,494	2,133
China	897	722	810	918	1,421	1,908	2,333	2,393	2,043
Hong Kong	1,208	668	480	256	282	222	154	101	90
EU	3,830	3,203	3,076	3,179	3,049	3,034	3,120	3,333	3,219
Austria	54	34	28	29	37	36	39	113	147
Belgium	47	52	53	34	50	34	39	48	51
Denmark	36	37	11	25	33	25	17	13	37
Finland	7	20	25	12	5	9	8	11	14
France	570	529	478	557	527	513	406	360	220
Germany	1,002	1,035	1,026	950	777	797	875	861	803
Greece	0	0	0	0	0	1	1	0	0
Ireland	262	167	103	127	111	134	178	501	513
Italy	419	196	375	328	358	338	334	279	505
Netherlands	87	82	44	57	53	35	25	28	29
Poland	5	3	6	4	4	16	27	51	67
Portugal	195	198	217	319	295	267	351	313	123
Spain	15	11	11	18	15	13	11	7	10
Sweden	113	72	63	48	55	44	45	52	43
United Kingdom	602	456	377	354	406	539	535	449	436
All others	417	311	258	318	324	234	230	246	221
Japan	7,767	4,223	2,649	2,332	2,800	2,586	2,948	3,021	2,940
Latin America	1,886	1,531	1,573	1,723	1,608	1,332	1,392	1,387	1,251
Argentina	0	0	0	0	0	0	0	0	1
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	18	9	3	3	3	5	7	8	13
Chile	0	0	0	0	0	0	0	1	0
Colombia	1	7	0	0	0	2	0	0	0
Costa Rica	203	328	452	629	493	331	247	202	209
Dominican Republic	0	1	0	1	1	1	4	4	2
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	1
Mexico	1,662	1,185	1,117	1,088	1,110	992	1,132	1,170	1,023
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0
All others	1	0	1	0	0	0	1	1	1
Middle East	503	232	299	323	357	279	410	153	83
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	503	231	299	322	356	278	410	153	82
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-39

U.S. trade in electronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	1	0	0	0	1	0	0	0
All others	0	0	0	0	0	0	0	0	0
Other	118	132	102	116	198	196	136	123	207
Australia	12	15	9	11	13	14	10	13	17
New Zealand	2	3	4	5	6	5	3	3	2
Norway	6	5	5	2	5	14	6	8	8
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	92	106	83	97	170	162	115	98	177
All others	6	3	2	1	3	1	2	2	2
Balance									
World	11,853	14,474	16,155	21,441	21,240	20,980	25,471	23,771	25,154
Africa	-106	-43	-75	-56	-69	0	-8	-25	-43
Algeria	0	1	0	0	1	14	11	3	4
Angola	0	0	0	0	0	1	1	0	2
Egypt	5	11	7	3	5	9	10	6	6
Kenya	-2	1	-1	1	1	10	1	1	3
Morocco	-134	-81	-95	-86	-100	-90	-89	-80	-81
Nigeria	0	2	1	1	2	1	1	6	3
South Africa	20	21	17	17	14	13	16	20	12
All others	4	2	-3	8	9	42	41	20	8
Asia-9	-2,122	2,179	4,994	9,309	6,858	7,216	8,901	8,136	9,147
India	36	30	50	67	56	72	66	69	76
Indonesia	-158	-137	-125	-115	-120	-134	-125	-134	-123
Malaysia	-717	-490	780	2,955	2,016	1,721	2,880	2,314	3,253
Philippines	-643	971	1,396	2,639	1,908	1,612	1,965	1,949	1,915
Singapore	501	950	916	1,088	1,671	1,308	1,648	2,398	2,453
South Korea	-1,584	-131	355	1,324	620	1,678	2,142	1,291	598
Taiwan	-405	177	1,297	1,018	-61	48	-224	60	794
Thailand	818	803	318	327	749	898	527	180	153
Vietnam	30	7	7	7	18	11	23	8	27
Canada	4,482	1,844	1,221	1,232	1,859	2,021	2,123	1,695	1,589
Central Europe/Asia	43	52	53	78	71	56	69	79	78
Kazakhstan	0	0	1	0	1	1	2	1	3
Russia	11	28	29	51	39	25	34	35	36
Turkey	28	19	18	20	24	22	26	34	28
All others	3	4	5	7	7	8	8	9	12
China and Hong Kong	1,634	1,874	2,686	4,127	5,259	4,846	6,507	7,228	7,379
China	26	413	854	1,635	1,648	1,560	3,679	4,180	4,589
Hong Kong	1,608	1,461	1,832	2,492	3,611	3,286	2,828	3,048	2,790
EU	3,800	3,099	1,918	1,572	1,769	1,121	2,094	2,093	1,656
Austria	-51	-30	-23	-23	-29	-29	-32	106	93
Belgium	12	37	-1	3	-17	-8	3	-15	-15
Denmark	93	54	45	27	42	55	59	93	125
Finland	71	29	6	21	25	21	31	106	99
France	-435	-427	-360	-486	-456	-439	-332	-316	-177
Germany	191	-281	-434	-419	-240	-490	-541	-546	-445
Greece	1,300	1,353	1,489	1,503	1,286	1,337	1,966	1,820	1,507
Ireland	-251	-156	-97	-119	-103	-125	-163	-486	-486
Italy	132	253	-58	227	136	28	82	-49	-282
Netherlands	669	369	264	211	262	230	367	275	266
Poland	583	571	551	415	329	373	311	250	177
Portugal	-183	-189	-206	-301	-262	-238	-321	-284	-105
Spain	132	347	9	5	-3	0	168	845	755

Appendix table 6-39

U.S. trade in electronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	-34	-13	14	18	18	29	53	39	18
United Kingdom	-319	-292	-231	-242	-296	-432	-298	-192	-273
All others	1,890	1,475	949	733	1,077	810	740	446	400
Japan	-3,181	-698	131	61	-554	-872	-915	-1,285	-1,355
Latin America	6,761	5,593	4,840	4,826	5,582	6,185	6,352	5,479	6,174
Argentina	45	21	9	17	34	35	54	69	76
Bermuda	9	12	1	1	1	1	1	1	1
Brazil	1,105	852	647	632	675	689	685	645	883
Chile	30	23	30	33	34	52	55	49	33
Colombia	7	2	6	6	8	21	17	35	43
Costa Rica	28	-73	386	387	356	538	800	827	1,144
Dominican Republic	9	8	10	25	37	52	71	75	57
Ecuador	1	2	3	7	7	11	17	20	22
El Salvador	1	3	1	2	1	6	7	3	3
Guatemala	2	1	1	1	5	4	5	4	12
Jamaica	1	1	1	4	3	3	3	4	2
Mexico	5,466	4,702	3,684	3,669	4,364	4,637	4,527	3,638	3,754
Panama	4	2	3	2	2	3	3	4	10
Paraguay	10	8	36	12	14	75	41	41	8
Peru	13	4	3	5	7	6	6	9	18
Trinidad and Tobago	1	1	1	3	4	5	5	0	1
Venezuela	14	16	8	8	17	32	21	34	80
All others	15	9	9	13	14	18	33	20	28
Middle East	72	157	-9	-38	163	122	8	202	327
Bahrain	2	2	1	1	1	2	1	1	1
Iraq	0	1	0	0	3	7	5	5	7
Israel	19	105	-43	-81	101	71	-59	114	215
Kuwait	1	2	3	3	2	3	5	7	5
Oman	0	1	1	0	0	0	1	1	1
Qatar	1	1	1	1	3	3	1	2	5
Saudi Arabia	5	9	5	9	11	11	13	17	22
United Arab Emirates	31	26	22	25	40	22	38	50	67
All others	15	11	1	3	2	3	3	4	3
Other	213	138	94	106	71	39	83	170	203
Australia	101	94	90	111	121	101	106	111	124
New Zealand	10	8	7	8	6	5	8	7	8
Norway	48	46	13	22	19	6	13	13	19
Pakistan	1	1	1	1	3	2	2	2	3
Switzerland	49	-22	-23	-46	-93	-91	-57	20	28
All others	4	11	7	10	14	17	11	17	21

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-40

U.S. trade in information and communications products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	76,239	65,127	53,296	53,119	59,308	64,093	69,205	74,901	77,549
Africa	590	700	408	473	701	757	1,031	865	887
Algeria	93	220	15	8	164	180	184	99	89
Angola	8	8	10	16	21	7	21	16	23
Egypt	133	142	91	97	108	104	265	154	127
Kenya	8	7	12	9	14	13	22	39	29
Morocco	20	12	9	11	16	17	26	24	31
Nigeria	26	41	62	79	67	88	108	90	96
South Africa	212	156	126	158	208	222	273	292	313
All others	90	114	83	94	104	125	132	151	178
Asia-9	10,378	7,713	6,995	6,718	7,109	8,155	8,097	8,405	8,668
India	544	482	628	650	826	915	998	1,121	1,037
Indonesia	53	71	64	93	86	146	86	114	119
Malaysia	928	913	960	780	819	1,133	1,063	1,006	1,031
Philippines	316	263	175	168	174	206	257	265	397
Singapore	2,638	2,081	1,711	1,972	1,950	2,182	2,043	2,067	2,271
South Korea	3,526	1,894	1,732	1,344	1,229	1,415	1,463	1,481	1,520
Taiwan	1,814	1,460	1,179	1,057	1,234	1,040	1,090	1,240	1,029
Thailand	540	527	519	623	754	1,066	1,042	1,012	1,047
Vietnam	21	22	27	31	35	51	54	99	218
Canada	12,687	10,705	9,084	9,580	10,536	11,670	11,769	13,720	14,202
Central Europe/Asia	414	367	516	407	461	459	550	675	666
Kazakhstan	13	17	201	13	14	24	56	34	50
Russia	143	170	159	190	236	220	243	324	226
Turkey	185	106	88	78	104	122	158	199	232
All others	72	74	69	126	108	93	93	118	158
China and Hong Kong	4,386	4,651	3,571	3,485	3,793	4,640	5,505	5,805	6,235
China	2,100	2,345	1,857	1,921	2,157	2,688	3,156	3,360	3,666
Hong Kong	2,286	2,306	1,714	1,564	1,636	1,952	2,350	2,446	2,569
EU	22,830	19,476	14,967	14,693	15,317	16,040	16,404	17,425	16,612
Austria	151	111	94	94	92	120	129	115	115
Belgium	613	600	345	304	363	501	473	717	781
Denmark	152	145	153	156	179	195	233	239	191
Finland	319	280	189	197	213	246	212	264	236
France	1,885	1,549	1,372	1,275	1,314	1,287	1,297	1,422	1,452
Germany	3,782	3,505	2,531	2,534	2,472	2,597	2,839	3,220	2,632
Greece	85	195	195	65	71	45	114	123	55
Ireland	2,075	1,785	1,326	1,262	1,114	1,184	1,183	1,140	1,104
Italy	877	753	459	510	584	535	537	581	556
Netherlands	5,713	4,495	3,721	3,451	3,710	4,372	4,135	4,640	4,785
Poland	179	125	110	102	102	156	141	155	172
Portugal	67	67	37	30	36	46	53	52	46
Spain	415	317	314	575	474	323	299	322	357
Sweden	326	272	233	271	205	232	281	319	326
United Kingdom	5,768	4,791	3,541	3,503	3,996	3,623	3,706	3,358	3,141
All others	422	488	350	367	392	577	771	759	663
Japan	7,409	6,103	4,371	4,002	4,193	3,825	4,137	3,967	3,320
Latin America	13,492	12,265	10,894	11,314	14,389	15,250	17,940	19,599	22,597
Argentina	1,067	721	140	295	402	559	666	902	992
Bermuda	31	36	28	35	35	61	47	46	56
Brazil	2,474	2,036	1,390	1,115	1,296	1,805	2,250	2,806	3,309
Chile	630	557	431	376	427	534	643	810	897

Appendix table 6-40

U.S. trade in information and communications products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	435	467	436	454	558	612	697	955	1,170
Costa Rica	130	183	148	191	195	200	282	296	315
Dominican Republic	224	293	191	141	121	154	178	203	223
Ecuador	67	109	156	175	231	315	262	405	337
El Salvador	106	86	68	86	124	128	143	205	145
Guatemala	169	119	159	153	207	247	276	314	278
Jamaica	77	115	130	118	115	106	118	112	117
Mexico	6,483	5,977	6,051	6,831	8,559	8,255	9,388	9,413	11,017
Panama	124	102	98	115	115	125	145	191	254
Paraguay	209	227	254	209	406	551	596	720	859
Peru	236	233	228	254	260	278	413	436	632
Trinidad and Tobago	74	67	71	65	87	115	172	107	134
Venezuela	534	479	385	218	661	766	1,150	1,058	1,210
All others	422	457	531	482	588	437	514	619	651
Middle East	1,314	1,075	836	891	1,060	1,233	1,347	1,744	1,904
Bahrain	12	11	9	15	15	19	13	23	22
Iraq	0	0	1	9	97	105	77	122	163
Israel	896	689	464	441	496	533	494	544	556
Kuwait	22	32	24	70	50	57	54	61	68
Oman	4	7	6	8	6	8	9	6	20
Qatar	6	11	11	16	23	21	22	35	38
Saudi Arabia	156	126	132	118	130	158	227	207	258
United Arab Emirates	179	158	151	171	199	267	394	683	685
All others	38	42	38	43	46	65	56	61	94
Other	2,740	2,071	1,654	1,555	1,747	2,065	2,425	2,697	2,458
Australia	1,747	1,234	982	965	1,073	1,250	1,494	1,734	1,416
New Zealand	283	161	136	129	129	152	135	155	155
Norway	109	95	81	84	95	121	151	153	200
Pakistan	21	20	41	33	59	64	74	121	144
Switzerland	438	402	203	181	199	243	294	231	209
All others	142	159	210	163	192	234	277	302	335
Imports									
World	111,142	95,153	100,660	110,089	132,544	147,178	160,784	179,575	181,802
Africa	10	15	10	21	19	10	18	24	32
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	1	2	2	1	1	0	0
Kenya	2	4	1	5	2	1	3	1	4
Morocco	0	1	1	0	0	0	1	3	2
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	4	5	3	7	8	5	7	8	8
All others	4	6	4	7	7	3	6	11	17
Asia-9	46,495	40,917	43,204	43,674	48,651	50,322	53,053	53,295	52,203
India	41	35	32	43	43	127	239	192	365
Indonesia	891	1,060	979	865	871	871	714	877	1,109
Malaysia	9,593	9,188	10,564	12,510	14,260	18,770	21,403	18,957	16,607
Philippines	2,499	2,336	2,576	2,024	1,366	1,277	1,258	1,437	1,292
Singapore	9,603	7,635	7,537	7,332	7,527	6,737	6,599	6,464	5,366
South Korea	10,351	9,181	9,553	10,147	12,742	9,557	8,958	10,629	12,552
Taiwan	11,372	9,582	9,620	8,173	8,075	7,578	8,338	8,548	8,178
Thailand	2,146	1,899	2,336	2,573	3,759	5,380	5,469	6,019	6,425
Vietnam	0	0	6	7	7	25	75	171	309
Canada	12,565	6,469	4,492	3,863	4,322	5,093	5,136	5,430	5,229

Appendix table 6-40

U.S. trade in information and communications products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	10	10	11	9	16	15	8	20	19
Kazakhstan	0	0	0	0	0	0	0	1	0
Russia	4	5	5	2	3	4	3	3	7
Turkey	5	2	4	5	9	8	3	7	8
All others	1	2	1	2	4	2	2	9	5
China and Hong Kong	9,950	10,706	17,165	26,878	42,165	54,227	64,963	78,471	80,980
China	9,533	10,413	16,582	26,173	41,376	53,483	64,418	77,867	80,378
Hong Kong	417	292	583	705	789	744	545	604	603
EU	9,167	7,755	8,265	7,788	7,491	8,193	7,270	7,067	7,783
Austria	33	39	43	43	33	29	43	45	55
Belgium	177	147	124	97	116	102	141	207	225
Denmark	62	64	69	76	90	112	103	129	144
Finland	92	276	446	415	210	280	128	206	159
France	884	618	793	587	385	429	322	371	326
Germany	878	861	968	1,163	1,093	1,077	1,230	1,430	1,580
Greece	1	1	2	2	5	16	8	11	19
Ireland	1,644	1,500	1,938	1,270	1,055	1,268	1,474	1,194	1,147
Italy	464	458	481	406	405	311	266	285	317
Netherlands	199	140	131	146	140	137	147	208	223
Poland	21	8	9	9	8	12	16	19	35
Portugal	19	49	89	103	236	381	436	85	46
Spain	71	70	62	357	246	92	48	62	63
Sweden	760	666	1,092	900	895	1,310	675	525	782
United Kingdom	2,605	1,924	1,288	1,385	1,532	1,276	1,125	1,068	1,161
All others	1,258	933	729	828	1,041	1,362	1,109	1,223	1,502
Japan	18,883	13,802	12,932	12,073	12,076	11,816	11,691	13,022	12,561
Latin America	12,602	14,265	13,732	14,986	16,899	16,518	17,431	20,573	21,357
Argentina	2	2	8	3	2	4	3	3	4
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	405	945	1,080	1,002	384	760	546	285	211
Chile	1	1	4	3	4	3	6	5	5
Colombia	4	1	2	1	1	3	5	14	7
Costa Rica	843	111	114	112	135	282	354	432	444
Dominican Republic	0	1	1	22	78	228	113	126	79
Ecuador	0	1	1	1	0	3	9	4	2
El Salvador	0	4	0	1	1	0	1	2	1
Guatemala	0	2	1	0	0	0	0	1	1
Jamaica	0	0	0	0	1	1	1	1	0
Mexico	11,332	13,189	12,513	13,834	16,277	15,222	16,380	19,690	20,593
Panama	4	1	1	2	2	2	3	4	3
Paraguay	0	0	0	0	0	0	0	1	0
Peru	0	1	1	0	0	1	1	0	1
Trinidad and Tobago	0	0	0	0	0	1	0	0	0
Venezuela	4	1	1	1	2	1	1	1	0
All others	5	5	5	3	10	6	6	3	4
Middle East	1,042	839	571	507	548	637	804	1,174	1,005
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	1	0	0
Israel	1,038	834	567	501	540	623	769	1,161	998
Kuwait	0	0	0	2	0	0	0	1	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	1	0	1	1	0	1	0	1	0

Appendix table 6-40

U.S. trade in information and communications products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	2	3	3	4	6	12	34	10	5
All others	1	2	0	0	1	1	1	0	1
Other	418	376	279	289	359	346	410	500	631
Australia	69	60	67	67	96	65	69	108	91
New Zealand	10	18	18	28	29	22	30	36	34
Norway	125	140	118	121	149	158	205	244	352
Pakistan	1	0	0	0	0	0	1	0	1
Switzerland	199	150	66	57	71	89	83	87	129
All others	14	8	10	15	14	12	23	24	24
Balance									
World	-34,903	-30,026	-47,364	-56,969	-73,237	-83,085	-91,579	-104,674	-104,253
Africa	580	685	397	451	682	746	1,014	841	855
Algeria	93	220	15	8	164	180	184	99	89
Angola	8	8	10	16	21	7	21	16	23
Egypt	133	142	90	96	106	103	264	154	127
Kenya	6	3	10	3	12	12	19	37	26
Morocco	20	11	8	11	16	17	25	21	29
Nigeria	26	41	62	78	67	88	108	90	96
South Africa	208	151	123	151	200	217	266	284	305
All others	87	108	79	88	96	122	126	139	161
Asia-9	-36,117	-33,204	-36,209	-36,956	-41,542	-42,167	-44,956	-44,890	-43,535
India	503	447	596	607	783	788	759	928	672
Indonesia	-838	-989	-915	-772	-785	-725	-628	-763	-991
Malaysia	-8,666	-8,275	-9,604	-11,730	-13,441	-17,637	-20,339	-17,951	-15,576
Philippines	-2,183	-2,072	-2,401	-1,856	-1,192	-1,071	-1,001	-1,171	-895
Singapore	-6,965	-5,554	-5,826	-5,361	-5,577	-4,555	-4,556	-4,397	-3,095
South Korea	-6,825	-7,287	-7,821	-8,803	-11,513	-8,141	-7,495	-9,148	-11,032
Taiwan	-9,558	-8,122	-8,441	-7,116	-6,841	-6,538	-7,248	-7,308	-7,149
Thailand	-1,606	-1,372	-1,817	-1,950	-3,005	-4,313	-4,427	-5,006	-5,378
Vietnam	21	22	21	25	28	26	-20	-72	-92
Canada	121	4,236	4,592	5,718	6,214	6,577	6,633	8,290	8,973
Central Europe/Asia	404	358	506	398	446	444	541	655	647
Kazakhstan	13	17	201	13	14	24	56	33	50
Russia	139	165	154	188	233	216	240	321	219
Turkey	180	104	84	72	95	113	155	192	224
All others	72	72	68	124	104	91	91	109	154
China and Hong Kong	-5,564	-6,055	-13,594	-23,393	-38,372	-49,588	-59,458	-72,666	-74,745
China	-7,433	-8,068	-14,726	-24,253	-39,219	-50,795	-61,262	-74,507	-76,711
Hong Kong	1,868	2,013	1,132	859	847	1,208	1,804	1,841	1,966
EU	13,663	11,721	6,703	6,905	7,826	7,847	9,133	10,358	8,829
Austria	118	72	51	50	59	91	86	70	60
Belgium	437	453	220	207	247	399	333	510	557
Denmark	89	80	84	79	89	83	130	110	46
Finland	227	4	-257	-218	2	-33	84	58	77
France	1,001	931	579	687	929	858	975	1,051	1,125
Germany	2,904	2,644	1,563	1,371	1,380	1,520	1,609	1,790	1,053
Greece	84	193	193	64	66	29	105	112	35
Ireland	431	285	-612	-8	59	-84	-290	-54	-43
Italy	413	295	-22	105	179	224	271	296	239
Netherlands	5,515	4,354	3,590	3,305	3,570	4,236	3,988	4,432	4,563
Poland	158	117	100	93	94	144	125	136	138
Portugal	48	18	-52	-73	-201	-335	-382	-33	0
Spain	344	247	253	217	228	231	251	260	293

Appendix table 6-40

U.S. trade in information and communications products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	-434	-394	-859	-630	-690	-1,078	-394	-206	-456
United Kingdom	3,163	2,867	2,253	2,117	2,464	2,347	2,582	2,290	1,980
All others	-836	-446	-379	-461	-649	-785	-338	-464	-839
Japan	-11,474	-7,698	-8,561	-8,071	-7,882	-7,992	-7,554	-9,055	-9,241
Latin America	890	-2,000	-2,838	-3,672	-2,509	-1,268	510	-974	1,239
Argentina	1,065	719	132	292	400	555	662	899	988
Bermuda	30	36	28	34	35	61	47	46	56
Brazil	2,069	1,091	310	113	912	1,045	1,704	2,521	3,098
Chile	629	556	427	373	423	532	637	805	893
Colombia	431	467	434	453	557	609	692	941	1,163
Costa Rica	-713	72	35	79	60	-82	-72	-136	-129
Dominican Republic	223	293	190	119	43	-75	65	77	143
Ecuador	67	108	155	175	231	312	253	401	335
El Salvador	106	82	68	85	123	128	142	203	144
Guatemala	168	117	158	153	207	247	276	313	277
Jamaica	77	115	129	118	115	105	117	112	117
Mexico	-4,849	-7,212	-6,463	-7,003	-7,718	-6,968	-6,992	-10,277	-9,576
Panama	121	100	96	113	113	122	142	187	251
Paraguay	209	227	254	209	405	551	596	719	859
Peru	236	232	227	254	260	277	413	436	631
Trinidad and Tobago	74	67	71	65	87	115	171	107	134
Venezuela	530	479	384	216	659	766	1,149	1,057	1,210
All others	417	453	527	479	578	432	508	616	647
Middle East	272	236	265	384	513	596	543	570	899
Bahrain	12	11	9	15	15	19	13	23	22
Iraq	0	0	1	9	97	105	77	122	163
Israel	-142	-145	-103	-60	-44	-90	-275	-617	-442
Kuwait	22	32	24	68	49	57	54	60	68
Oman	4	7	6	8	6	8	9	6	20
Qatar	6	11	11	16	23	21	22	35	37
Saudi Arabia	154	126	131	118	129	157	227	207	258
United Arab Emirates	177	155	148	167	193	255	361	673	679
All others	37	40	38	43	44	64	55	60	93
Other	2,322	1,695	1,375	1,267	1,388	1,719	2,015	2,197	1,827
Australia	1,678	1,174	915	898	977	1,185	1,425	1,626	1,326
New Zealand	273	142	118	101	100	131	105	118	121
Norway	-16	-45	-37	-37	-54	-37	-54	-91	-152
Pakistan	21	20	41	32	59	64	73	121	143
Switzerland	239	252	137	124	129	155	212	144	80
All others	127	151	201	148	178	222	254	278	311

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

Science and Engineering Indicators 2010

Appendix table 6-41

U.S. trade in life sciences products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	12,009	12,782	11,828	12,996	14,539	16,508	18,762	21,585	25,177
Africa	112	127	117	120	155	205	216	289	325
Algeria	1	3	4	6	10	10	5	18	16
Angola	1	1	1	2	2	5	6	16	12
Egypt	41	53	32	21	29	32	31	41	70
Kenya	2	1	3	2	6	5	4	6	5
Morocco	2	4	2	4	6	4	6	8	12
Nigeria	1	4	6	3	3	6	10	12	18
South Africa	50	50	59	64	79	110	119	133	137
All others	13	11	10	19	20	33	36	55	54
Asia-9	1,048	992	970	1,095	1,257	1,538	1,693	2,023	2,170
India	116	140	144	164	250	262	298	381	437
Indonesia	17	18	12	11	9	17	23	28	44
Malaysia	336	325	313	381	388	515	537	617	602
Philippines	52	68	61	51	70	72	82	99	105
Singapore	31	28	23	22	28	50	56	55	61
South Korea	162	134	152	178	192	230	304	373	465
Taiwan	267	216	207	206	216	237	247	295	260
Thailand	59	51	44	62	88	128	114	143	154
Vietnam	8	12	13	19	15	26	34	32	41
Canada	995	1,063	1,060	1,172	1,319	1,433	1,619	1,855	2,024
Central Europe/Asia	131	128	115	140	162	220	286	372	484
Kazakhstan	6	7	3	1	2	6	15	17	15
Russia	37	54	51	66	52	50	75	137	228
Turkey	70	51	42	54	86	136	141	161	174
All others	19	16	19	18	22	29	56	58	68
China and Hong Kong	555	759	714	951	1,022	1,169	1,237	1,436	1,777
China	318	490	461	655	725	861	934	1,126	1,404
Hong Kong	237	269	253	296	298	308	304	311	372
EU	5,197	5,634	5,238	5,731	6,306	7,040	8,129	9,278	10,830
Austria	71	62	58	64	80	76	84	151	91
Belgium	316	282	268	319	363	450	564	846	1,005
Denmark	63	62	61	78	96	107	113	152	132
Finland	38	42	43	53	55	74	79	84	75
France	620	641	658	684	741	746	855	947	978
Germany	1,275	1,369	1,374	1,638	1,641	1,768	2,043	2,296	2,479
Greece	44	37	40	46	57	52	60	77	80
Ireland	206	321	180	157	209	221	293	225	268
Italy	365	375	388	354	423	516	510	510	556
Netherlands	852	889	851	876	996	1,184	1,430	1,692	2,600
Poland	29	24	18	25	31	48	49	71	88
Portugal	32	38	22	22	32	35	37	39	40
Spain	249	282	181	247	235	252	311	361	381
Sweden	204	240	238	278	301	345	442	509	537
United Kingdom	770	869	786	814	953	1,060	1,126	1,134	1,302
All others	63	103	71	76	92	107	134	183	218
Japan	1,985	1,984	1,710	1,793	2,072	2,195	2,358	2,480	2,819
Latin America	1,079	1,069	946	900	1,104	1,418	1,674	2,026	2,493
Argentina	90	71	20	38	54	83	98	116	147
Bermuda	3	3	4	3	5	7	6	8	7
Brazil	316	301	252	194	234	328	406	537	687
Chile	50	49	48	46	62	79	92	89	105

Appendix table 6-41

U.S. trade in life sciences products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	43	52	54	48	69	96	117	139	165
Costa Rica	14	15	21	54	49	60	65	55	49
Dominican Republic	13	13	18	13	10	12	18	37	32
Ecuador	5	20	12	11	13	22	23	25	39
El Salvador	5	5	5	7	5	9	10	10	12
Guatemala	10	7	7	10	8	13	12	16	12
Jamaica	4	5	4	5	14	5	8	7	7
Mexico	399	370	372	379	436	501	575	666	814
Panama	10	11	12	8	16	17	24	37	37
Paraguay	2	3	4	3	2	3	3	5	5
Peru	16	15	12	14	19	23	31	56	66
Trinidad and Tobago	6	15	11	6	8	16	19	20	19
Venezuela	55	75	61	29	60	100	120	152	223
All others	39	38	26	32	39	44	47	51	67
Middle East	250	296	268	347	350	402	444	530	621
Bahrain	4	8	3	3	3	4	7	6	6
Iraq	0	5	0	1	18	23	24	38	27
Israel	98	97	95	110	120	99	119	124	134
Kuwait	8	9	7	21	18	22	23	39	37
Oman	3	4	3	5	8	13	6	6	11
Qatar	3	5	2	7	6	11	10	20	19
Saudi Arabia	71	105	95	119	103	122	131	137	185
United Arab Emirates	43	39	42	60	45	61	83	110	144
All others	20	23	20	20	30	46	41	49	57
Other	657	730	690	747	792	889	1,104	1,295	1,634
Australia	319	356	334	342	393	429	558	616	783
New Zealand	40	40	30	39	48	59	53	67	77
Norway	45	48	50	62	53	66	104	151	139
Pakistan	10	8	8	13	16	28	26	31	34
Switzerland	223	259	246	266	249	261	309	367	536
All others	20	19	22	24	33	46	54	63	65
Imports									
World	16,201	20,041	25,416	30,801	32,775	30,421	33,616	36,232	39,934
Africa	11	4	7	7	9	13	12	14	15
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	0	0	0	0	1
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	11	3	7	7	9	13	11	13	14
All others	0	0	0	0	0	0	0	1	1
Asia-9	520	607	1,218	1,819	1,877	1,013	1,340	1,467	1,560
India	43	83	112	159	189	233	321	381	509
Indonesia	0	0	0	1	1	1	0	1	3
Malaysia	83	66	72	74	110	102	144	170	170
Philippines	17	14	15	18	26	41	58	61	56
Singapore	4	7	5	10	14	14	17	28	33
South Korea	311	366	925	1,433	1,411	528	680	679	613
Taiwan	55	65	82	115	113	74	93	105	125
Thailand	7	4	5	9	12	20	25	33	25
Vietnam	0	0	0	0	1	0	1	10	25
Canada	386	521	578	824	781	779	1,187	1,727	1,380

Appendix table 6-41

U.S. trade in life sciences products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	17	17	22	29	32	42	48	55	68
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	15	13	19	26	29	35	36	36	45
Turkey	0	0	1	1	1	0	1	1	2
All others	2	3	2	3	2	6	11	18	21
China and Hong Kong	357	367	450	498	594	405	625	794	1,085
China	332	355	433	481	578	392	614	784	1,070
Hong Kong	25	12	17	17	16	13	11	9	15
EU	10,793	13,852	18,022	21,278	22,788	20,683	22,359	23,675	26,818
Austria	106	101	192	227	242	119	113	133	143
Belgium	404	745	725	411	1,000	485	1,168	1,191	1,738
Denmark	235	253	354	404	529	285	271	276	303
Finland	79	70	78	102	97	140	147	137	162
France	495	936	1,418	1,901	1,865	1,561	1,400	1,432	1,695
Germany	2,430	2,564	2,644	2,995	4,236	3,379	3,569	3,727	3,410
Greece	0	0	0	0	0	0	0	2	2
Ireland	4,744	6,971	10,229	12,691	11,697	11,981	11,905	12,749	14,664
Italy	469	363	386	399	498	402	398	392	434
Netherlands	371	451	518	556	740	726	789	786	785
Poland	1	2	2	1	3	6	11	20	22
Portugal	1	0	0	0	1	2	4	12	11
Spain	47	73	149	269	234	147	144	261	530
Sweden	93	96	121	122	156	159	211	214	203
United Kingdom	1,298	1,198	1,165	1,135	1,396	1,185	2,131	2,235	2,590
All others	20	29	41	64	93	104	97	106	127
Japan	1,696	1,768	1,801	1,903	2,007	2,159	2,135	2,332	2,103
Latin America	1,334	1,543	1,821	2,382	2,563	2,730	3,166	3,545	3,876
Argentina	5	3	2	2	3	2	3	3	3
Bermuda	0	0	0	0	0	0	0	1	0
Brazil	3	3	4	3	3	8	7	12	14
Chile	0	0	0	0	0	0	1	0	1
Colombia	0	1	1	1	0	0	3	0	0
Costa Rica	176	285	352	464	474	512	561	616	728
Dominican Republic	342	345	345	428	385	370	346	323	338
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	2	3	1	2	1	1	1
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	793	895	1,113	1,480	1,695	1,831	2,234	2,586	2,786
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	1	0	0	2	8	0	1
All others	14	11	2	1	1	2	1	1	1
Middle East	318	352	440	505	564	490	479	505	528
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	317	352	440	504	562	483	475	502	527
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-41

U.S. trade in life sciences products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	1	1	1	2	3	1
All others	0	0	0	1	1	6	2	0	1
Other	770	1,010	1,058	1,554	1,560	2,107	2,266	2,119	2,502
Australia	88	85	107	127	165	259	333	412	446
New Zealand	26	32	40	40	58	67	78	90	105
Norway	35	29	46	34	41	64	87	87	79
Pakistan	24	23	27	26	30	31	32	42	53
Switzerland	586	830	824	1,304	1,234	1,651	1,688	1,445	1,776
All others	10	12	14	23	32	35	46	43	43
Balance									
World	-4,192	-7,260	-13,588	-17,804	-18,235	-13,912	-14,854	-14,647	-14,758
Africa	101	124	110	113	146	192	205	276	309
Algeria	1	3	4	6	10	10	5	18	16
Angola	1	1	1	2	2	5	6	16	12
Egypt	41	53	32	21	29	32	31	41	70
Kenya	2	1	3	2	6	5	4	6	5
Morocco	2	4	2	4	6	4	6	8	11
Nigeria	1	4	6	3	3	6	10	11	18
South Africa	39	46	52	57	70	97	108	121	123
All others	13	11	10	19	20	32	36	55	54
Asia-9	528	384	-248	-724	-620	525	354	556	610
India	73	57	32	5	61	29	-24	0	-72
Indonesia	17	18	12	10	9	16	22	26	41
Malaysia	253	258	240	307	278	413	393	447	432
Philippines	35	54	46	33	44	31	24	38	49
Singapore	28	21	18	12	15	36	39	28	28
South Korea	-149	-233	-773	-1,255	-1,219	-298	-376	-305	-148
Taiwan	212	150	125	92	104	163	153	190	135
Thailand	51	47	39	53	76	108	89	111	129
Vietnam	8	12	12	19	13	26	34	22	17
Canada	609	542	483	348	537	654	431	128	645
Central Europe/Asia	114	112	93	110	130	178	239	317	416
Kazakhstan	6	7	3	1	2	6	15	16	15
Russia	22	41	31	41	23	15	39	101	182
Turkey	69	51	41	54	86	135	140	160	172
All others	17	13	18	15	20	22	45	40	47
China and Hong Kong	198	391	264	453	429	764	612	642	692
China	-14	135	28	174	147	469	319	341	334
Hong Kong	212	256	236	279	282	295	292	301	358
EU	-5,596	-8,218	-12,785	-15,547	-16,481	-13,642	-14,230	-14,397	-15,988
Austria	-35	-40	-134	-163	-162	-42	-29	19	-51
Belgium	-88	-463	-457	-91	-637	-36	-604	-345	-733
Denmark	-172	-191	-292	-326	-433	-178	-158	-124	-171
Finland	-42	-28	-35	-49	-42	-66	-68	-53	-87
France	125	-295	-760	-1,217	-1,124	-815	-546	-485	-718
Germany	-1,155	-1,195	-1,271	-1,357	-2,595	-1,611	-1,526	-1,431	-931
Greece	44	37	40	46	56	51	60	75	79
Ireland	-4,537	-6,650	-10,049	-12,534	-11,487	-11,760	-11,612	-12,524	-14,396
Italy	-104	12	2	-45	-75	114	112	118	122
Netherlands	481	438	333	320	256	459	641	906	1,815
Poland	27	23	16	24	28	42	38	50	66
Portugal	31	38	22	22	32	32	33	27	29
Spain	201	209	32	-22	0	105	166	100	-149

Appendix table 6-41

U.S. trade in life sciences products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	110	144	118	157	145	186	231	294	334
United Kingdom	-528	-330	-380	-321	-443	-125	-1,005	-1,100	-1,288
All others	43	73	30	12	-1	2	37	76	91
Japan	289	216	-91	-109	65	35	223	148	717
Latin America	-255	-475	-874	-1,483	-1,460	-1,312	-1,492	-1,519	-1,383
Argentina	85	68	18	36	51	81	95	114	144
Bermuda	3	3	4	3	5	7	6	7	7
Brazil	313	298	249	191	230	320	399	525	672
Chile	50	49	48	46	62	78	91	89	105
Colombia	43	51	54	48	69	96	114	139	165
Costa Rica	-162	-270	-330	-410	-424	-452	-496	-560	-679
Dominican Republic	-330	-332	-327	-414	-376	-358	-328	-287	-306
Ecuador	5	20	12	11	13	22	23	25	38
El Salvador	5	5	5	7	5	9	10	9	12
Guatemala	10	7	6	7	6	12	11	15	11
Jamaica	4	5	4	5	14	5	8	7	7
Mexico	-394	-525	-741	-1,101	-1,260	-1,330	-1,659	-1,920	-1,972
Panama	10	11	12	8	16	17	23	37	37
Paraguay	2	3	4	3	2	3	3	4	5
Peru	16	15	12	14	19	23	31	56	66
Trinidad and Tobago	6	15	11	6	8	16	19	20	18
Venezuela	55	75	61	29	60	98	112	152	222
All others	25	27	24	30	39	42	46	50	65
Middle East	-68	-56	-172	-159	-214	-89	-35	25	92
Bahrain	4	8	3	3	3	4	7	6	6
Iraq	0	5	0	1	18	23	24	38	27
Israel	-220	-255	-345	-394	-442	-384	-356	-379	-392
Kuwait	8	9	7	21	18	22	23	39	37
Oman	3	4	3	5	8	13	6	6	11
Qatar	3	5	2	7	6	11	10	20	19
Saudi Arabia	71	105	95	119	103	122	131	137	185
United Arab Emirates	43	39	42	59	43	60	82	108	143
All others	20	22	20	20	29	40	39	49	56
Other	-113	-280	-368	-807	-768	-1,218	-1,162	-824	-868
Australia	231	271	227	215	228	169	225	204	337
New Zealand	14	9	-11	0	-10	-8	-25	-23	-27
Norway	10	19	4	28	12	2	17	64	60
Pakistan	-14	-15	-19	-13	-14	-3	-6	-10	-19
Switzerland	-364	-572	-577	-1,038	-985	-1,390	-1,380	-1,078	-1,240
All others	10	7	8	1	1	11	8	20	22

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	4,101	3,399	2,430	2,467	3,525	4,609	5,064	5,469	5,035
Africa	24	14	13	19	18	30	23	30	44
Algeria	0	0	0	0	0	0	1	0	0
Angola	0	0	0	0	0	0	0	2	4
Egypt	4	2	1	4	1	3	4	9	1
Kenya	0	0	1	3	3	1	1	1	1
Morocco	2	0	1	0	0	0	0	0	1
Nigeria	0	0	1	0	0	5	3	1	10
South Africa	16	11	9	9	12	12	12	11	13
All others	1	1	1	3	1	8	2	6	15
Asia-9	928	645	542	454	993	948	1,254	1,284	848
India	12	45	10	16	11	24	28	49	28
Indonesia	3	0	1	1	1	0	1	1	2
Malaysia	106	41	31	31	41	55	99	60	84
Philippines	71	33	12	5	16	11	10	11	7
Singapore	147	107	97	112	184	131	187	187	206
South Korea	133	150	86	93	190	222	401	325	276
Taiwan	443	259	295	180	515	468	492	608	212
Thailand	12	10	10	16	33	35	36	41	30
Vietnam	0	0	1	0	1	1	1	2	2
Canada	431	342	289	224	253	318	343	313	354
Central Europe/Asia	10	5	10	11	15	22	23	34	36
Kazakhstan	0	0	0	0	0	0	1	0	2
Russia	0	1	2	5	9	8	11	11	7
Turkey	9	3	6	4	4	12	8	19	18
All others	1	1	1	1	1	2	3	3	9
China and Hong Kong	145	200	185	218	266	318	364	447	369
China	64	82	108	98	179	196	266	329	258
Hong Kong	81	118	77	120	87	122	97	118	111
EU	1,485	1,336	737	728	959	1,473	1,557	1,695	1,769
Austria	7	46	11	4	6	11	17	14	12
Belgium	10	17	16	41	55	70	59	67	90
Denmark	7	12	10	9	16	19	11	23	11
Finland	15	26	7	6	5	13	13	9	8
France	121	85	58	62	92	104	119	89	118
Germany	417	499	294	238	338	507	536	716	733
Greece	3	2	3	4	4	8	8	3	3
Ireland	32	31	19	52	47	120	53	24	27
Italy	142	136	48	65	46	84	77	80	111
Netherlands	135	116	120	126	195	325	381	374	258
Poland	2	3	4	3	6	6	8	11	10
Portugal	2	1	1	2	4	8	10	8	17
Spain	14	32	24	18	17	28	55	73	159
Sweden	26	49	10	5	8	13	22	23	28
United Kingdom	544	277	102	83	112	147	165	150	156
All others	8	5	9	8	8	11	25	29	28
Japan	569	498	348	346	545	847	780	776	580
Latin America	374	224	218	365	329	475	501	610	777
Argentina	6	5	1	3	4	22	10	12	10
Bermuda	39	0	1	0	0	1	1	1	1
Brazil	105	29	23	19	19	45	63	86	82
Chile	3	3	8	12	8	17	20	16	17

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	4	6	5	4	6	12	18	22	35
Costa Rica	2	4	2	2	2	4	5	4	6
Dominican Republic	2	8	4	2	2	5	5	7	8
Ecuador	1	1	2	1	1	6	5	9	19
El Salvador	0	0	1	1	1	4	3	2	5
Guatemala	0	1	1	1	1	2	3	4	5
Jamaica	0	0	1	0	1	2	2	3	3
Mexico	199	157	158	312	273	321	326	376	509
Panama	1	1	0	1	0	2	2	6	4
Paraguay	0	0	1	0	1	2	1	5	14
Peru	2	1	4	2	3	5	11	10	13
Trinidad and Tobago	0	0	1	1	1	2	2	4	3
Venezuela	6	5	2	1	3	9	11	26	27
All others	3	3	3	4	3	13	13	17	17
Middle East	64	76	33	47	60	78	86	122	128
Bahrain	0	0	0	0	0	2	0	0	0
Iraq	0	0	0	0	1	4	2	5	6
Israel	54	68	26	37	45	50	55	89	77
Kuwait	2	0	0	3	1	2	1	5	2
Oman	0	0	0	0	0	0	0	1	0
Qatar	0	0	0	0	1	1	6	1	2
Saudi Arabia	1	1	2	2	1	5	7	7	18
United Arab Emirates	2	4	3	4	9	13	13	12	19
All others	4	1	1	1	1	2	2	1	3
Other	72	59	57	57	87	101	132	158	130
Australia	39	28	28	26	43	43	51	76	63
New Zealand	2	3	3	3	3	8	7	5	5
Norway	6	6	4	4	4	17	25	15	9
Pakistan	0	0	1	1	7	1	2	7	9
Switzerland	23	19	17	21	28	25	39	43	36
All others	2	2	3	3	3	8	9	12	8
Imports									
World	5,820	5,602	5,447	5,256	7,802	12,149	19,584	24,965	25,569
Africa	0	0	2	2	2	3	3	1	2
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	1	0	0	0	0	0	0
Morocco	0	0	0	0	0	0	0	0	0
Nigeria	0	0	1	2	1	2	3	0	0
South Africa	0	0	0	0	0	0	0	1	1
All others	0	0	0	0	0	0	1	0	0
Asia-9	1,084	1,026	980	1,095	1,380	1,578	2,425	2,239	1,621
India	7	8	12	5	6	6	19	29	15
Indonesia	148	138	115	61	79	53	28	33	31
Malaysia	365	286	298	215	135	207	254	101	80
Philippines	38	54	51	60	67	77	106	123	213
Singapore	200	134	99	102	124	132	153	170	194
South Korea	88	149	206	283	502	418	511	383	122
Taiwan	168	109	81	258	294	355	596	894	438
Thailand	71	149	119	109	173	330	753	409	455
Vietnam	0	0	0	1	0	0	4	97	74
Canada	76	67	80	90	89	128	102	211	164

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	1	1	1	2	2	5	4	7	7
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	1	0	1	1	2	3	2	5	5
Turkey	0	0	0	0	0	0	0	1	1
All others	1	0	0	0	0	1	1	2	2
China and Hong Kong	1,492	1,664	1,936	1,288	1,664	2,770	4,447	5,852	6,665
China	1,437	1,592	1,857	1,257	1,653	2,743	4,398	5,810	6,621
Hong Kong	55	72	79	30	11	27	50	42	44
EU	349	406	455	664	677	822	770	957	989
Austria	3	3	4	7	7	15	12	27	19
Belgium	14	11	24	57	44	54	19	12	11
Denmark	9	7	15	19	19	22	30	24	18
Finland	1	4	4	3	6	3	4	4	4
France	53	45	48	38	29	38	33	42	47
Germany	90	107	117	118	137	298	356	507	590
Greece	0	0	0	0	0	0	0	1	1
Ireland	2	5	11	8	12	12	9	6	4
Italy	16	16	17	24	31	38	41	36	31
Netherlands	29	61	80	235	223	159	72	67	45
Poland	0	0	0	0	0	1	1	3	1
Portugal	3	4	4	4	4	2	2	4	7
Spain	7	10	6	3	6	4	2	15	14
Sweden	11	15	24	27	34	27	24	20	34
United Kingdom	106	96	48	58	66	91	102	137	124
All others	5	21	53	65	58	58	62	53	40
Japan	2,042	1,647	1,392	1,354	1,627	1,625	1,332	1,266	1,228
Latin America	517	574	441	639	2,150	4,965	10,173	14,163	14,641
Argentina	0	0	1	0	0	0	0	3	3
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	4	4	1	2	1	1	1	4	4
Chile	0	0	0	0	1	0	0	0	0
Colombia	0	0	0	0	0	0	0	1	0
Costa Rica	0	0	0	0	0	0	0	0	0
Dominican Republic	9	7	6	5	5	6	5	6	9
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	2	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	503	561	432	627	2,141	4,957	10,164	14,147	14,623
Panama	1	0	0	1	0	0	2	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	1	1	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	1
Venezuela	0	0	0	0	0	0	0	0	0
All others	0	0	0	2	1	0	0	0	0
Middle East	155	137	112	70	133	119	180	155	130
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	155	137	112	69	133	118	179	155	130
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	1	0	0	0	0	0
All others	0	0	0	0	0	0	1	0	0
Other	103	81	47	53	77	136	147	104	114
Australia	2	2	8	6	1	14	16	7	6
New Zealand	0	0	0	1	2	1	2	2	2
Norway	1	1	1	1	1	1	3	2	2
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	99	76	37	44	71	120	124	99	110
All others	1	1	1	1	2	1	1	1	1
Balance									
World	-1,719	-2,203	-3,017	-2,788	-4,277	-7,540	-14,520	-19,496	-20,533
Africa	23	14	12	17	17	27	19	28	43
Algeria	0	0	0	0	0	0	1	0	0
Angola	0	0	0	0	0	0	0	2	4
Egypt	4	2	0	4	1	3	4	9	1
Kenya	0	0	0	3	3	1	1	1	1
Morocco	2	0	1	0	0	0	0	0	1
Nigeria	0	0	0	-1	-1	2	0	1	10
South Africa	16	11	9	9	12	12	12	9	11
All others	1	1	1	2	1	8	1	5	14
Asia-9	-156	-382	-438	-641	-388	-630	-1,171	-956	-774
India	6	36	-2	11	6	18	9	21	13
Indonesia	-144	-137	-114	-61	-78	-53	-27	-32	-28
Malaysia	-258	-245	-267	-185	-94	-152	-155	-42	3
Philippines	33	-21	-39	-55	-51	-66	-96	-112	-205
Singapore	-53	-26	-2	10	60	-1	34	17	12
South Korea	44	1	-120	-190	-312	-196	-111	-58	155
Taiwan	276	150	215	-78	221	113	-105	-286	-226
Thailand	-59	-139	-109	-93	-140	-294	-718	-368	-425
Vietnam	0	0	0	0	0	1	-3	-95	-72
Canada	354	275	208	134	164	190	241	102	189
Central Europe/Asia	9	4	8	9	12	17	20	27	29
Kazakhstan	0	0	0	0	0	0	1	0	2
Russia	-1	0	2	4	8	4	9	6	3
Turkey	9	3	6	4	4	12	8	19	17
All others	0	1	1	1	1	1	2	2	7
China and Hong Kong	-1,347	-1,464	-1,751	-1,070	-1,398	-2,452	-4,084	-5,405	-6,295
China	-1,373	-1,510	-1,749	-1,159	-1,474	-2,547	-4,131	-5,482	-6,363
Hong Kong	26	47	-2	89	75	95	47	76	67
EU	1,136	930	282	64	283	652	787	737	780
Austria	4	42	7	-2	-1	-4	4	-13	-7
Belgium	-4	6	-8	-15	12	16	41	54	80
Denmark	-1	5	-5	-9	-2	-3	-19	-1	-6
Finland	13	21	3	3	-1	10	9	5	4
France	68	41	11	24	63	66	86	46	70
Germany	327	392	176	120	201	209	179	209	143
Greece	3	2	3	4	4	8	8	2	2
Ireland	30	26	7	44	35	108	44	18	23
Italy	126	120	31	41	15	47	36	44	80
Netherlands	106	55	40	-109	-28	165	309	308	213
Poland	2	3	4	3	6	5	7	9	8
Portugal	-1	-3	-2	-2	0	6	9	3	10
Spain	7	22	19	15	11	23	52	58	146

Appendix table 6-42

U.S. trade in optoelectronics products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	16	33	-15	-21	-26	-13	-2	3	-6
United Kingdom	438	181	55	25	45	56	63	13	31
All others	3	-16	-45	-57	-50	-47	-38	-23	-11
Japan	-1,473	-1,149	-1,044	-1,008	-1,082	-778	-552	-490	-648
Latin America	-143	-349	-223	-273	-1,821	-4,490	-9,672	-13,553	-13,864
Argentina	6	5	1	2	4	21	10	9	7
Bermuda	39	0	1	0	0	1	1	1	1
Brazil	101	24	22	16	18	44	62	82	78
Chile	3	3	8	12	7	17	20	16	17
Colombia	4	6	5	4	6	12	18	21	34
Costa Rica	2	4	2	2	2	4	5	4	6
Dominican Republic	-7	1	-2	-3	-3	0	-1	1	-1
Ecuador	1	1	2	1	1	6	5	9	19
El Salvador	0	0	1	1	1	3	3	2	5
Guatemala	0	1	1	1	1	2	3	2	5
Jamaica	0	0	1	0	1	2	2	3	3
Mexico	-303	-404	-274	-316	-1,867	-4,636	-9,838	-13,771	-14,114
Panama	1	0	0	1	0	2	0	6	4
Paraguay	0	0	1	0	1	2	1	5	14
Peru	2	1	4	1	1	5	11	10	13
Trinidad and Tobago	0	0	1	1	1	2	2	4	3
Venezuela	6	5	2	1	3	9	11	26	26
All others	3	3	3	1	2	13	12	17	17
Middle East	-91	-61	-80	-23	-73	-41	-93	-33	-2
Bahrain	0	0	0	0	0	2	0	0	0
Iraq	0	0	0	0	1	4	2	5	6
Israel	-101	-68	-86	-32	-88	-69	-124	-66	-53
Kuwait	2	0	0	3	1	1	1	5	2
Oman	0	0	0	0	0	0	0	1	0
Qatar	0	0	0	0	1	1	6	1	2
Saudi Arabia	1	1	2	2	1	5	7	7	18
United Arab Emirates	2	4	3	3	9	12	13	11	19
All others	4	1	1	1	1	2	1	1	3
Other	-31	-22	10	4	10	-35	-14	54	16
Australia	38	26	20	20	41	29	34	69	57
New Zealand	2	3	3	2	1	6	5	3	3
Norway	5	5	3	2	3	16	22	13	7
Pakistan	0	0	1	1	7	1	2	7	9
Switzerland	-76	-57	-20	-23	-43	-95	-86	-56	-73
All others	1	1	3	2	1	8	7	11	8

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	2,652	2,310	1,088	1,036	1,134	1,152	1,401	1,666	1,894
Africa	7	7	12	6	7	6	3	7	46
Algeria	0	1	0	1	0	0	0	0	2
Angola	0	0	0	0	0	0	0	0	0
Egypt	4	4	8	0	1	1	1	0	0
Kenya	0	1	0	0	0	0	0	1	0
Morocco	0	0	2	3	2	0	0	0	0
Nigeria	0	0	0	0	0	0	0	3	0
South Africa	2	0	0	2	2	2	1	1	39
All others	1	0	2	0	3	1	1	2	4
Asia-9	272	219	201	220	248	191	238	330	365
India	2	15	7	8	7	4	3	7	9
Indonesia	3	1	1	6	4	2	3	4	7
Malaysia	22	17	13	12	20	12	18	19	24
Philippines	4	4	6	1	1	0	1	1	24
Singapore	107	50	53	65	63	50	47	70	68
South Korea	58	50	39	55	69	65	78	136	121
Taiwan	76	76	77	69	80	51	70	72	88
Thailand	1	6	4	2	3	4	17	17	17
Vietnam	0	0	0	2	2	2	2	5	8
Canada	646	391	117	82	89	95	105	103	129
Central Europe/Asia	3	3	5	9	19	16	22	34	45
Kazakhstan	0	0	0	0	3	0	0	0	0
Russia	2	0	4	6	11	9	14	23	27
Turkey	0	0	1	3	4	7	7	7	14
All others	1	3	0	0	0	0	1	4	4
China and Hong Kong	130	464	84	116	98	85	161	267	327
China	35	65	27	39	47	36	118	237	286
Hong Kong	95	399	56	77	51	48	44	30	41
EU	769	596	255	277	335	324	356	435	473
Austria	8	6	10	8	26	38	43	48	29
Belgium	9	10	2	8	18	17	9	14	8
Denmark	3	7	3	1	1	1	5	9	10
Finland	1	2	1	2	1	2	2	5	2
France	174	75	20	14	24	23	31	52	64
Germany	128	134	96	92	97	92	87	82	79
Greece	0	0	0	0	0	1	0	0	0
Ireland	48	46	26	31	43	46	41	46	55
Italy	21	18	16	26	31	20	30	41	52
Netherlands	80	61	16	34	26	21	15	23	34
Poland	2	2	1	1	2	4	6	21	36
Portugal	0	2	1	0	0	0	0	0	1
Spain	17	13	15	11	3	4	23	31	24
Sweden	10	20	6	3	7	6	8	7	6
United Kingdom	266	197	40	42	46	40	49	51	52
All others	2	3	2	6	9	10	6	5	19
Japan	379	308	239	198	159	138	157	196	151
Latin America	339	185	116	81	130	241	243	176	270
Argentina	29	29	0	0	1	2	1	2	2
Bermuda	2	1	0	0	0	0	0	0	0
Brazil	108	48	4	2	4	4	7	7	13
Chile	6	2	1	1	0	1	3	2	4

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	5	6	2	4	3	3	11	18	28
Costa Rica	1	1	4	1	1	2	4	4	8
Dominican Republic	3	2	2	1	1	1	1	1	2
Ecuador	0	0	1	0	0	0	1	0	2
El Salvador	0	0	0	0	0	0	0	0	1
Guatemala	0	1	0	2	0	0	1	1	1
Jamaica	0	0	0	0	0	0	0	1	2
Mexico	110	85	99	67	116	221	197	120	186
Panama	0	2	0	0	0	1	7	2	2
Paraguay	0	0	0	0	0	0	0	0	0
Peru	3	1	0	1	1	1	1	5	4
Trinidad and Tobago	0	0	0	0	0	1	2	3	2
Venezuela	71	7	2	1	2	2	6	5	6
All others	6	2	1	2	2	10	14	3	6
Middle East	60	59	43	33	28	29	35	42	47
Bahrain	0	1	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	1	1	1	0
Israel	57	54	38	32	23	22	25	29	36
Kuwait	0	0	0	0	0	0	1	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	1	1
Saudi Arabia	1	3	2	1	2	2	7	7	4
United Arab Emirates	1	1	3	0	2	4	2	4	5
All others	0	0	1	0	0	0	0	0	1
Other	43	74	16	12	17	17	68	76	41
Australia	30	46	10	6	11	9	58	62	19
New Zealand	1	1	0	1	0	1	1	1	1
Norway	1	1	2	3	1	3	2	4	4
Pakistan	0	0	0	0	0	1	1	2	2
Switzerland	6	4	3	2	3	3	5	5	8
All others	5	23	1	1	1	1	1	3	6
Imports									
World	2,699	2,444	1,468	1,511	1,794	1,803	2,176	2,379	2,255
Africa	5	6	0	1	2	1	0	0	0
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	2	1	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	4	6	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Asia-9	371	503	244	229	270	228	273	307	246
India	21	26	3	3	2	4	4	2	5
Indonesia	11	3	1	2	5	5	8	6	6
Malaysia	75	43	33	27	35	31	36	41	44
Philippines	2	6	4	1	1	0	0	1	0
Singapore	26	32	31	35	48	23	28	35	33
South Korea	133	306	118	108	119	117	143	156	102
Taiwan	94	79	53	51	58	47	49	57	50
Thailand	9	8	1	1	2	2	5	8	6
Vietnam	0	0	0	0	0	0	0	0	0
Canada	526	237	44	34	38	17	21	18	14

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	11	17	5	5	8	4	6	8	5
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	4	4	3	4	7	3	3	5	2
Turkey	6	11	1	0	0	0	0	0	0
All others	1	2	1	1	1	1	2	3	3
China and Hong Kong	80	75	41	76	98	85	119	124	151
China	71	72	40	74	97	81	118	123	150
Hong Kong	10	3	1	1	2	4	1	1	1
EU	637	668	394	369	392	429	530	538	418
Austria	1	1	1	1	1	0	1	1	2
Belgium	3	3	1	2	2	1	1	1	2
Denmark	89	99	15	10	6	7	13	27	16
Finland	39	34	40	35	38	36	43	41	33
France	66	71	61	68	83	102	154	142	92
Germany	289	280	193	184	175	182	219	200	172
Greece	0	0	0	0	0	0	0	0	0
Ireland	2	2	0	1	2	27	1	3	2
Italy	6	16	17	13	24	19	31	24	25
Netherlands	26	45	12	13	15	15	11	23	12
Poland	1	1	1	0	1	1	1	1	2
Portugal	0	0	0	0	0	0	0	0	0
Spain	0	4	0	1	1	1	1	2	1
Sweden	1	3	2	1	1	1	1	1	2
United Kingdom	106	104	42	31	33	24	34	51	32
All others	6	5	8	9	10	14	19	22	25
Japan	862	777	656	714	841	846	960	1,157	1,098
Latin America	145	114	65	64	125	187	252	192	265
Argentina	0	0	0	0	0	0	0	0	0
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	21	16	3	1	0	0	0	0	1
Chile	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	0
Costa Rica	2	2	1	1	2	4	5	4	6
Dominican Republic	3	0	0	0	0	0	0	3	3
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	119	96	61	63	123	183	245	184	256
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0
All others	2	2	1	1	2	4	5	0	0
Middle East	12	11	7	8	11	1	1	9	8
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	6	5	6	8	11	1	1	9	8
Kuwait	0	0	0	0	0	0	0	0	0
Oman	1	2	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	5	4	0	0	0	0	0	0	0

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Other	50	35	13	13	8	5	14	26	49
Australia	36	23	5	5	1	1	0	2	2
New Zealand	2	1	0	0	0	0	0	0	0
Norway	2	1	0	1	1	2	10	20	42
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	10	8	6	5	5	2	4	4	5
All others	0	2	2	2	1	0	0	0	0
Balance									
World	-47	-135	-380	-475	-660	-651	-774	-713	-360
Africa	2	0	12	5	5	5	3	7	46
Algeria	0	1	0	1	0	0	0	0	2
Angola	0	0	0	0	0	0	0	0	0
Egypt	4	4	8	0	1	1	1	0	0
Kenya	0	1	0	0	0	0	0	1	0
Morocco	0	0	2	2	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	3	0
South Africa	-2	-6	0	2	2	2	1	1	39
All others	1	0	1	0	3	1	1	2	3
Asia-9	-99	-284	-43	-9	-22	-37	-34	23	119
India	-20	-11	5	5	4	0	-1	5	4
Indonesia	-8	-3	0	4	-2	-3	-5	-3	0
Malaysia	-53	-26	-20	-16	-14	-19	-18	-22	-21
Philippines	3	-1	2	0	0	0	0	0	24
Singapore	81	19	22	31	15	28	19	35	36
South Korea	-75	-256	-79	-53	-50	-51	-65	-21	19
Taiwan	-18	-3	24	18	22	4	21	15	38
Thailand	-8	-2	3	1	1	2	12	9	11
Vietnam	0	0	0	2	2	2	2	5	8
Canada	120	154	73	49	51	78	84	85	115
Central Europe/Asia	-8	-14	0	3	11	13	16	26	40
Kazakhstan	0	0	0	0	3	0	0	0	0
Russia	-3	-4	0	2	4	6	11	18	25
Turkey	-6	-10	0	2	4	7	6	7	13
All others	0	0	0	0	-1	-1	-1	1	1
China and Hong Kong	49	389	43	41	0	-1	42	143	177
China	-36	-7	-12	-35	-50	-45	0	114	136
Hong Kong	85	396	55	75	50	45	42	29	41
EU	132	-72	-138	-91	-57	-105	-174	-104	54
Austria	7	5	9	7	24	38	43	47	27
Belgium	6	7	2	6	16	16	8	13	6
Denmark	-86	-92	-11	-8	-4	-6	-7	-17	-5
Finland	-38	-31	-39	-34	-36	-35	-41	-36	-31
France	108	4	-41	-54	-59	-79	-124	-90	-28
Germany	-161	-146	-97	-92	-78	-90	-133	-118	-93
Greece	0	0	0	0	0	1	0	0	0
Ireland	46	44	25	30	41	19	40	43	54
Italy	15	1	-1	13	7	1	-1	17	26
Netherlands	54	17	5	21	11	6	4	0	22
Poland	1	0	0	0	1	3	4	19	34
Portugal	0	2	1	0	0	0	0	0	1
Spain	17	8	15	10	2	3	23	29	23

Appendix table 6-43

U.S. trade in advanced materials, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	9	17	4	3	6	5	7	6	4
United Kingdom	160	93	-2	12	13	15	15	-1	20
All others	-4	-2	-6	-3	-2	-3	-13	-16	-6
Japan	-483	-468	-417	-516	-682	-709	-803	-961	-947
Latin America	194	71	51	17	4	53	-9	-16	5
Argentina	29	29	0	0	1	2	1	2	2
Bermuda	2	1	0	0	0	0	0	0	0
Brazil	86	31	0	2	3	4	7	6	12
Chile	6	2	1	1	0	1	3	2	4
Colombia	5	6	2	4	3	3	11	18	28
Costa Rica	-1	-1	3	1	-1	-2	-1	-1	3
Dominican Republic	0	2	2	1	1	1	1	-2	-2
Ecuador	0	0	1	0	0	0	1	0	2
El Salvador	0	0	0	0	0	0	0	0	1
Guatemala	0	1	0	2	0	0	1	1	1
Jamaica	0	0	0	0	0	0	0	1	2
Mexico	-9	-11	39	4	-8	38	-49	-63	-69
Panama	0	2	0	0	0	1	7	2	2
Paraguay	0	0	0	0	0	0	0	0	0
Peru	3	1	0	1	1	1	1	5	4
Trinidad and Tobago	0	0	0	0	0	1	2	3	2
Venezuela	71	7	2	1	2	2	6	5	6
All others	4	0	0	1	0	6	9	3	6
Middle East	48	48	37	26	17	28	33	33	39
Bahrain	0	1	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	1	1	1	0
Israel	51	49	31	24	12	21	23	20	28
Kuwait	0	0	0	0	0	0	1	0	0
Oman	-1	-2	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	1	1
Saudi Arabia	-4	0	2	1	2	2	7	6	4
United Arab Emirates	1	1	3	0	2	4	2	4	5
All others	0	0	1	0	0	0	0	0	1
Other	-8	39	4	-1	9	12	53	50	-8
Australia	-6	22	5	1	10	8	58	60	17
New Zealand	-1	-1	0	0	0	1	1	1	1
Norway	0	0	1	1	0	1	-8	-16	-38
Pakistan	0	0	0	0	0	1	1	2	2
Switzerland	-4	-4	-2	-3	-1	1	1	1	3
All others	5	21	0	-1	0	1	1	3	6

EU = European Union

NOTES: *Advanced materials* refers to the development of materials, including semiconductor materials, optical fiber cable, and videodisks, that enhance the application of other advanced technologies. Technologies classified by Census Bureau. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-44

U.S. trade in biotechnology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	1,729	1,615	2,136	2,864	3,739	4,592	5,170	7,541	9,423
Africa	10	12	10	13	28	18	19	36	28
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	5	7	5	5	16	4	3	15	7
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	1	0	0	1	1
Nigeria	0	0	0	0	1	0	0	0	0
South Africa	4	4	4	4	6	8	9	12	15
All others	0	1	1	3	4	5	5	8	5
Asia-9	99	120	119	132	112	141	167	219	252
India	6	6	5	5	5	7	20	18	27
Indonesia	3	3	4	5	5	6	8	8	7
Malaysia	4	7	6	6	7	8	10	10	12
Philippines	6	7	7	8	8	11	9	11	13
Singapore	7	13	5	16	5	4	7	13	17
South Korea	26	39	38	35	40	56	59	87	99
Taiwan	35	33	44	43	28	31	33	48	47
Thailand	10	10	10	12	11	15	17	19	24
Vietnam	1	1	1	3	2	3	4	5	6
Canada	178	227	260	324	379	452	533	636	781
Central Europe/Asia	28	22	18	22	21	17	42	43	49
Kazakhstan	0	0	0	0	0	1	1	0	0
Russia	2	6	2	3	6	6	14	12	15
Turkey	25	15	9	14	13	8	15	19	21
All others	2	1	6	5	2	3	13	12	13
China and Hong Kong	16	17	19	23	21	46	51	84	117
China	6	9	11	15	12	29	33	62	91
Hong Kong	10	8	8	8	9	17	18	21	26
EU	873	749	1,225	1,776	2,559	3,258	3,611	5,809	7,292
Austria	4	19	64	30	29	43	45	33	34
Belgium	380	323	525	536	647	701	676	502	443
Denmark	2	3	7	6	6	8	8	11	10
Finland	1	3	3	3	1	4	3	3	4
France	48	44	69	49	59	79	86	492	434
Germany	153	82	69	89	85	151	427	2,336	3,375
Greece	1	2	3	5	5	3	2	2	2
Ireland	6	11	20	33	39	27	21	72	33
Italy	26	41	41	40	32	23	32	40	70
Netherlands	57	73	301	791	1,386	1,811	1,487	1,178	1,472
Poland	6	7	4	5	7	3	2	3	5
Portugal	0	0	0	0	0	0	1	0	0
Spain	39	10	11	21	21	39	69	151	233
Sweden	24	19	52	38	6	6	98	46	55
United Kingdom	118	105	50	123	228	351	649	940	1,121
All others	6	7	8	8	7	8	4	5	8
Japan	212	196	203	205	259	258	233	154	185
Latin America	124	154	162	142	153	201	254	315	488
Argentina	14	13	4	8	8	19	24	29	30
Bermuda	0	0	0	0	0	0	0	0	1
Brazil	31	30	46	33	30	42	52	91	118
Chile	6	5	7	7	5	8	14	10	16

Appendix table 6-44

U.S. trade in biotechnology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	7	8	12	14	12	16	18	20	28
Costa Rica	2	3	4	2	1	2	3	4	10
Dominican Republic	3	4	3	2	15	2	4	32	3
Ecuador	1	2	2	2	2	3	3	3	4
El Salvador	2	2	2	2	2	2	3	3	5
Guatemala	3	3	4	3	4	4	3	4	4
Jamaica	1	1	1	0	1	0	0	0	0
Mexico	35	49	49	48	50	76	102	76	219
Panama	2	3	2	2	2	2	3	6	7
Paraguay	0	0	0	0	0	0	0	0	0
Peru	4	4	4	4	5	5	4	7	11
Trinidad and Tobago	1	1	1	1	1	1	1	1	1
Venezuela	7	12	9	6	11	11	14	22	21
All others	5	14	12	8	4	7	5	7	9
Middle East	16	36	21	43	34	37	84	97	77
Bahrain	0	0	0	1	0	0	0	1	1
Iraq	0	0	0	0	1	0	10	1	1
Israel	7	9	6	10	10	9	35	56	21
Kuwait	0	0	0	2	1	2	1	2	2
Oman	0	0	1	1	0	0	0	0	0
Qatar	0	0	0	5	2	1	0	1	0
Saudi Arabia	5	20	8	12	9	10	11	15	25
United Arab Emirates	1	1	1	1	1	2	3	3	6
All others	2	4	4	12	9	13	24	19	22
Other	174	83	98	184	173	165	176	148	154
Australia	38	29	42	77	71	111	101	100	86
New Zealand	5	6	4	5	4	4	3	4	16
Norway	5	1	0	1	0	1	1	1	1
Pakistan	1	1	1	2	2	5	3	4	2
Switzerland	123	44	47	97	92	42	65	36	40
All others	1	1	2	3	4	3	3	4	10
Imports									
World	1,136	1,295	1,869	2,184	1,986	4,200	4,906	6,527	5,758
Africa	2	2	2	2	1	0	0	0	0
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	2	2	2	2	1	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Asia-9	1	1	3	4	6	8	8	9	10
India	0	1	1	1	1	2	2	3	4
Indonesia	0	0	0	0	1	2	2	2	1
Malaysia	0	0	0	0	0	0	0	0	0
Philippines	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	1	0	2	2
South Korea	1	0	2	3	2	3	4	1	1
Taiwan	0	0	0	0	2	1	0	0	1
Thailand	0	0	0	0	0	0	0	1	1
Vietnam	0	0	0	0	0	0	0	0	0
Canada	41	14	39	42	47	79	245	521	412

Appendix table 6-44

U.S. trade in biotechnology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	0	0	0	0	0	1	0	0	0
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	1	0	0	0
China and Hong Kong	8	11	13	17	16	39	47	47	56
China	8	11	13	17	16	39	47	47	55
Hong Kong	0	0	0	0	0	0	0	0	0
EU	865	1,034	1,651	1,963	1,842	3,772	4,302	5,634	4,913
Austria	0	2	66	12	19	189	218	297	321
Belgium	214	245	253	292	213	288	454	534	608
Denmark	3	7	13	26	35	392	395	412	513
Finland	1	0	1	2	0	4	5	8	9
France	210	240	276	288	219	254	226	259	248
Germany	76	65	49	56	158	1,156	1,269	1,215	513
Greece	0	0	0	0	0	0	0	0	0
Ireland	94	130	263	322	477	546	542	1,578	1,239
Italy	14	15	16	19	16	208	212	264	385
Netherlands	92	116	111	123	36	33	38	37	37
Poland	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	1	2	2	0
Spain	14	7	19	18	31	191	208	205	250
Sweden	3	4	8	6	69	21	14	20	40
United Kingdom	130	188	164	239	289	325	553	714	733
All others	14	14	411	559	282	163	167	89	15
Japan	31	24	28	28	19	37	33	35	47
Latin America	23	29	17	17	26	25	32	22	20
Argentina	2	6	5	4	9	4	7	0	1
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	1	0	0	0	1	0	0	1	1
Chile	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	0
Costa Rica	0	0	0	0	0	0	0	0	0
Dominican Republic	0	0	0	0	0	0	0	0	0
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	20	23	11	13	15	20	25	20	18
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Middle East	2	1	1	1	1	8	13	19	32
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	2	1	1	1	1	8	13	19	32
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-44

U.S. trade in biotechnology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Other	163	179	115	108	29	230	225	240	269
Australia	1	2	1	2	7	13	9	20	51
New Zealand	4	5	3	4	3	15	14	13	8
Norway	0	0	0	0	0	7	8	12	10
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	157	172	111	101	18	194	194	194	198
All others	1	0	0	0	0	0	0	1	0
Balance									
World	593	320	267	681	1,752	392	265	1,013	3,665
Africa	8	10	8	10	27	18	19	36	28
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	5	7	5	5	16	4	3	15	7
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	1	0	0	1	1
Nigeria	0	0	0	0	1	0	0	0	0
South Africa	2	2	2	2	5	8	9	12	15
All others	0	1	1	3	4	5	5	8	5
Asia-9	98	118	116	128	106	133	159	210	242
India	6	5	5	4	4	5	18	15	22
Indonesia	3	3	4	5	4	4	6	7	6
Malaysia	4	7	6	6	7	8	10	10	12
Philippines	6	7	7	8	8	11	9	11	13
Singapore	7	13	5	15	5	4	6	11	15
South Korea	25	39	36	32	38	53	55	86	98
Taiwan	35	33	44	43	26	30	33	47	46
Thailand	10	10	10	12	11	15	17	18	23
Vietnam	1	1	1	3	2	3	4	5	6
Canada	137	213	221	282	332	372	288	116	369
Central Europe/Asia	28	22	17	22	21	16	42	43	49
Kazakhstan	0	0	0	0	0	1	1	0	0
Russia	2	6	2	3	6	6	14	12	15
Turkey	25	15	9	14	13	8	15	19	21
All others	2	1	6	5	2	2	13	12	13
China and Hong Kong	8	5	6	6	4	7	4	36	61
China	-2	-3	-2	-2	-5	-10	-13	15	36
Hong Kong	10	8	8	8	9	16	18	21	26
EU	8	-284	-425	-187	718	-514	-692	175	2,379
Austria	4	17	-1	17	11	-146	-173	-264	-287
Belgium	166	79	272	244	434	413	223	-33	-165
Denmark	-1	-4	-6	-21	-29	-384	-387	-401	-503
Finland	1	3	2	1	1	0	-2	-5	-5
France	-162	-196	-208	-239	-159	-175	-140	234	186
Germany	78	17	20	32	-72	-1,005	-841	1,122	2,862
Greece	1	2	3	5	5	3	2	2	2
Ireland	-88	-119	-243	-289	-438	-520	-521	-1,506	-1,207
Italy	12	27	25	20	16	-185	-180	-225	-315
Netherlands	-34	-43	189	667	1,350	1,778	1,448	1,141	1,435
Poland	6	7	4	5	7	3	2	3	5
Portugal	0	0	0	0	0	-1	-1	-2	0
Spain	24	3	-8	2	-10	-152	-139	-54	-17

Appendix table 6-44

U.S. trade in biotechnology products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	22	15	44	33	-63	-15	84	26	15
United Kingdom	-13	-83	-114	-115	-60	26	96	226	388
All others	-8	-7	-403	-552	-275	-155	-163	-84	-7
Japan	180	172	176	177	240	221	200	118	139
Latin America	101	125	146	125	127	176	222	294	468
Argentina	12	7	-1	4	-1	15	18	29	29
Bermuda	0	0	0	0	0	0	0	0	1
Brazil	30	30	46	33	29	42	51	90	118
Chile	6	5	7	7	5	8	14	10	16
Colombia	7	8	12	14	12	16	18	20	28
Costa Rica	2	3	4	2	1	2	3	4	10
Dominican Republic	3	4	3	2	15	2	4	32	3
Ecuador	1	1	2	2	2	3	3	3	4
El Salvador	2	2	2	2	2	2	3	3	5
Guatemala	3	3	3	3	4	4	3	4	4
Jamaica	1	1	1	0	1	0	0	0	0
Mexico	15	27	37	35	35	56	77	56	201
Panama	2	3	2	2	2	2	3	6	7
Paraguay	0	0	0	0	0	0	0	0	0
Peru	4	4	4	4	5	5	4	7	11
Trinidad and Tobago	1	1	1	1	1	1	1	1	1
Venezuela	7	12	9	6	11	11	14	22	21
All others	5	14	12	8	4	7	5	7	9
Middle East	15	35	20	42	32	28	71	77	45
Bahrain	0	0	0	1	0	0	0	1	1
Iraq	0	0	0	0	1	0	10	1	1
Israel	6	9	5	8	9	1	22	37	-11
Kuwait	0	0	0	2	1	2	1	2	2
Oman	0	0	1	1	0	0	0	0	0
Qatar	0	0	0	5	2	1	0	1	0
Saudi Arabia	5	20	8	12	9	10	11	15	25
United Arab Emirates	1	1	1	1	1	2	3	3	6
All others	2	4	4	12	9	13	24	19	22
Other	11	-96	-17	76	145	-65	-49	-91	-114
Australia	37	28	41	74	64	98	92	80	35
New Zealand	2	1	1	1	0	-11	-11	-10	8
Norway	5	1	0	1	0	-6	-7	-11	-10
Pakistan	1	1	1	2	2	5	3	4	2
Switzerland	-34	-127	-64	-5	74	-152	-129	-158	-158
All others	0	1	2	3	4	3	3	3	9

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-45

U.S. trade in flexible manufacturing products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	14,408	9,424	8,580	8,374	13,118	11,859	14,668	14,658	11,534
Africa	38	36	27	37	34	44	77	66	80
Algeria	1	2	1	0	1	5	7	3	4
Angola	0	1	1	1	1	2	2	6	3
Egypt	9	4	3	10	8	7	17	12	9
Kenya	1	1	1	1	2	2	1	1	8
Morocco	1	2	1	0	1	1	1	1	3
Nigeria	1	4	2	3	2	3	9	9	7
South Africa	16	18	8	11	10	15	28	23	29
All others	9	5	8	10	10	10	12	11	17
Asia-9	6,618	3,101	3,263	2,942	5,653	4,758	6,231	6,460	4,046
India	27	37	36	44	62	102	124	153	158
Indonesia	10	4	4	8	5	5	7	8	10
Malaysia	421	329	274	224	346	303	492	315	251
Philippines	181	110	91	129	253	162	211	150	140
Singapore	964	495	569	526	1,260	687	1,021	720	683
South Korea	1,659	866	732	949	1,404	1,806	2,262	1,949	1,275
Taiwan	3,278	1,209	1,512	991	2,232	1,603	2,015	3,066	1,429
Thailand	75	48	44	68	87	86	95	91	92
Vietnam	2	2	2	3	3	6	4	8	10
Canada	915	814	961	1,100	1,265	1,223	1,436	1,296	1,126
Central Europe/Asia	30	33	42	53	48	47	66	103	102
Kazakhstan	5	1	0	1	5	2	5	6	6
Russia	10	16	31	19	22	15	43	74	62
Turkey	10	10	8	27	13	18	13	14	23
All others	4	5	3	7	7	12	5	10	11
China and Hong Kong	406	603	714	653	1,360	844	1,248	1,614	1,253
China	301	475	618	523	1,190	677	1,082	1,436	1,072
Hong Kong	106	127	96	130	170	167	166	178	182
EU	3,115	2,332	1,495	1,582	1,884	2,088	2,309	1,983	1,849
Austria	86	81	15	13	39	40	75	41	25
Belgium	58	40	56	66	81	125	153	210	189
Denmark	14	10	20	24	24	13	11	8	11
Finland	38	41	22	27	14	18	19	43	28
France	727	335	207	206	314	348	414	233	184
Germany	774	765	447	412	528	622	682	727	633
Greece	4	4	10	4	8	4	5	5	7
Ireland	209	107	81	163	104	182	116	39	64
Italy	313	191	128	180	140	120	117	121	126
Netherlands	243	193	107	133	178	199	255	145	148
Poland	13	7	4	10	7	14	16	14	16
Portugal	6	4	7	3	5	5	6	18	6
Spain	27	39	27	25	40	33	33	37	33
Sweden	49	36	29	19	34	28	28	33	40
United Kingdom	511	456	301	254	333	287	304	260	277
All others	44	24	31	43	35	49	76	51	63
Japan	2,090	1,396	1,167	1,203	1,820	1,623	1,908	1,663	1,168
Latin America	789	778	591	493	671	834	848	824	1,020
Argentina	30	31	5	9	15	20	24	23	45
Bermuda	1	1	2	1	2	1	0	1	1
Brazil	80	77	76	56	57	74	78	115	168
Chile	21	15	13	12	14	19	16	19	25

Appendix table 6-45

U.S. trade in flexible manufacturing products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	10	11	11	13	11	27	41	52	57
Costa Rica	39	17	21	10	15	59	61	29	31
Dominican Republic	9	12	5	5	7	10	15	13	15
Ecuador	2	3	4	2	4	6	6	5	7
El Salvador	3	2	1	4	2	2	3	8	12
Guatemala	3	4	3	3	6	3	7	5	7
Jamaica	7	4	8	5	2	2	4	5	2
Mexico	543	551	408	339	485	539	508	454	530
Panama	4	4	2	2	2	3	4	4	9
Paraguay	3	0	0	0	0	0	0	2	1
Peru	6	6	4	6	4	11	6	8	13
Trinidad and Tobago	2	8	9	5	4	7	6	8	11
Venezuela	15	22	11	8	16	27	28	44	58
All others	13	11	8	12	25	23	40	28	25
Middle East	266	161	185	186	255	241	362	457	674
Bahrain	0	1	1	2	2	2	1	3	4
Iraq	0	0	0	1	13	7	23	7	15
Israel	209	107	113	123	183	173	246	368	522
Kuwait	2	3	8	5	5	5	8	9	8
Oman	2	4	4	3	7	2	3	1	4
Qatar	1	4	6	2	1	4	3	6	9
Saudi Arabia	22	19	21	19	18	25	41	29	47
United Arab Emirates	25	22	30	30	24	21	32	31	52
All others	4	2	3	1	2	3	3	4	13
Other	140	170	135	126	130	157	183	193	216
Australia	50	74	47	56	55	80	85	73	75
New Zealand	5	4	6	7	6	9	7	9	6
Norway	8	9	10	17	13	9	29	30	60
Pakistan	2	1	3	2	3	7	6	3	6
Switzerland	71	75	58	34	45	40	44	61	55
All others	5	8	11	9	7	12	11	16	14
Imports									
World	8,668	7,488	6,550	6,259	7,595	8,880	10,303	10,742	10,084
Africa	4	5	1	3	3	6	3	2	7
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	1	0	1	1	1	0
Kenya	1	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	3	4	1	1	2	5	2	1	4
All others	0	1	1	0	0	0	0	0	2
Asia-9	458	397	384	436	744	869	1,173	1,474	1,400
India	6	8	9	3	6	15	11	11	13
Indonesia	0	0	0	0	1	1	1	2	7
Malaysia	33	71	86	116	199	205	293	386	429
Philippines	2	8	7	4	3	4	5	8	15
Singapore	54	34	41	59	131	122	183	222	190
South Korea	140	113	78	92	180	257	334	429	375
Taiwan	195	148	150	144	200	241	312	385	330
Thailand	27	14	13	17	24	23	33	30	42
Vietnam	0	0	0	0	1	1	0	0	0
Canada	300	263	279	261	392	410	426	381	411

Appendix table 6-45

U.S. trade in flexible manufacturing products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	2	2	9	9	11	8	3	4	6
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	0	1	1	1	2	0	1	2	1
Turkey	1	1	1	0	1	1	1	2	1
All others	0	0	7	8	9	7	2	1	3
China and Hong Kong	68	62	149	180	263	317	413	552	563
China	65	58	131	170	250	301	397	540	553
Hong Kong	3	4	18	10	14	16	17	12	10
EU	2,723	2,337	2,044	1,978	2,329	2,668	3,042	3,137	2,719
Austria	77	68	77	46	70	71	106	97	86
Belgium	6	10	8	15	8	8	10	18	12
Denmark	8	8	11	11	15	12	10	12	12
Finland	30	34	24	15	30	25	23	35	26
France	97	109	77	82	91	122	128	156	152
Germany	981	835	601	606	843	950	978	968	1,078
Greece	0	0	0	0	1	1	0	1	2
Ireland	10	8	24	35	17	7	18	15	20
Italy	122	115	117	149	175	189	197	199	242
Netherlands	635	437	633	582	570	709	1,049	1,135	681
Poland	6	4	4	4	5	4	3	4	5
Portugal	1	0	0	0	0	2	3	1	2
Spain	24	19	28	28	35	25	28	38	26
Sweden	90	76	61	77	97	182	108	79	72
United Kingdom	617	580	364	300	341	309	321	331	251
All others	21	34	16	26	31	54	60	48	55
Japan	4,510	3,804	2,831	2,563	3,056	3,756	4,469	4,422	4,141
Latin America	253	294	594	609	552	549	483	461	479
Argentina	1	2	0	0	1	2	1	1	0
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	16	14	9	9	13	16	15	21	35
Chile	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	1
Costa Rica	0	1	0	1	1	0	8	2	2
Dominican Republic	0	0	0	0	0	0	1	1	0
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	235	278	581	597	535	528	456	433	439
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	1	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	1	0	0	0	0	0	0
All others	0	0	0	1	1	1	1	1	1
Middle East	46	35	26	28	43	45	42	50	52
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	45	35	26	28	43	44	42	49	50
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-45

U.S. trade in flexible manufacturing products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	0	0	0	0	0	1
All others	0	0	0	0	0	0	0	0	1
Other	303	288	233	193	201	252	247	260	305
Australia	78	93	53	30	21	18	21	24	22
New Zealand	6	7	1	5	6	8	2	5	9
Norway	9	12	8	11	10	6	7	13	14
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	210	173	162	130	161	216	212	217	260
All others	0	4	9	17	3	3	4	1	1
Balance									
World	5,740	1,936	2,030	2,114	5,523	2,980	4,366	3,916	1,450
Africa	34	31	26	35	31	38	74	64	73
Algeria	1	2	1	0	1	5	7	3	4
Angola	0	1	1	1	1	2	2	6	3
Egypt	9	4	3	9	7	6	17	12	8
Kenya	0	1	1	1	2	2	1	1	8
Morocco	1	2	1	0	1	1	1	1	3
Nigeria	1	4	2	3	2	3	9	9	7
South Africa	13	14	8	10	8	10	26	22	24
All others	8	4	8	10	10	10	12	11	15
Asia-9	6,160	2,704	2,879	2,506	4,909	3,890	5,059	4,986	2,646
India	21	29	27	40	56	87	113	142	145
Indonesia	10	4	3	8	4	3	6	6	3
Malaysia	388	257	188	108	148	98	199	-72	-178
Philippines	179	102	84	125	250	158	206	141	125
Singapore	910	461	529	468	1,129	565	838	498	493
South Korea	1,520	753	654	857	1,224	1,549	1,928	1,519	900
Taiwan	3,083	1,060	1,362	847	2,032	1,361	1,703	2,681	1,099
Thailand	48	35	31	50	63	62	62	61	50
Vietnam	2	2	2	3	2	5	4	8	9
Canada	614	551	682	839	872	813	1,010	916	714
Central Europe/Asia	28	31	33	44	37	38	63	99	96
Kazakhstan	5	1	0	1	5	2	5	6	6
Russia	10	15	30	18	20	15	43	72	61
Turkey	8	10	7	26	13	17	12	13	22
All others	4	5	-5	-1	-1	5	3	8	8
China and Hong Kong	338	540	566	473	1,096	527	834	1,062	691
China	235	417	488	352	940	376	686	896	519
Hong Kong	103	123	78	120	156	151	149	166	172
EU	392	-5	-549	-396	-445	-580	-733	-1,154	-870
Austria	10	12	-62	-33	-30	-30	-32	-56	-61
Belgium	52	30	49	51	73	116	143	192	177
Denmark	7	2	9	13	9	1	1	-4	0
Finland	7	8	-2	11	-16	-7	-3	8	2
France	630	226	130	123	223	226	286	76	32
Germany	-207	-70	-153	-194	-315	-327	-296	-241	-444
Greece	4	4	10	4	7	3	4	4	5
Ireland	199	99	58	128	87	175	99	24	44
Italy	191	76	12	31	-35	-69	-80	-78	-116
Netherlands	-392	-244	-525	-449	-392	-510	-794	-990	-534
Poland	7	3	0	6	1	10	12	10	10
Portugal	5	4	7	2	5	4	3	17	5
Spain	3	20	-1	-3	5	8	5	-2	7

Appendix table 6-45

U.S. trade in flexible manufacturing products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	-41	-40	-32	-59	-63	-154	-80	-47	-32
United Kingdom	-106	-124	-64	-45	-8	-21	-17	-71	26
All others	23	-11	15	17	4	-5	16	3	8
Japan	-2,421	-2,408	-1,664	-1,360	-1,236	-2,133	-2,561	-2,759	-2,973
Latin America	537	483	-3	-116	119	285	365	363	541
Argentina	29	29	4	9	13	18	23	22	45
Bermuda	1	1	2	1	2	0	0	1	1
Brazil	64	63	67	47	44	57	62	94	134
Chile	21	15	13	12	14	18	15	19	24
Colombia	10	11	11	13	11	27	41	52	56
Costa Rica	39	16	21	9	15	59	53	26	30
Dominican Republic	9	12	5	5	7	10	15	12	15
Ecuador	2	3	4	2	4	6	6	5	7
El Salvador	3	2	1	4	2	2	3	8	12
Guatemala	3	4	3	3	6	3	7	4	7
Jamaica	7	4	8	5	2	2	3	4	2
Mexico	308	273	-173	-258	-50	11	51	21	92
Panama	4	4	2	2	2	3	4	4	9
Paraguay	3	0	0	0	0	0	0	2	1
Peru	6	6	3	6	4	11	6	8	13
Trinidad and Tobago	2	8	9	5	4	7	6	8	11
Venezuela	15	22	10	8	16	27	28	44	58
All others	13	11	8	11	24	23	39	28	24
Middle East	220	126	158	158	211	196	319	407	622
Bahrain	0	1	1	2	2	2	1	3	4
Iraq	0	0	0	1	13	7	23	7	15
Israel	164	73	86	95	140	128	204	318	472
Kuwait	2	3	8	5	5	5	8	9	8
Oman	2	4	4	3	7	2	3	1	4
Qatar	1	4	6	2	1	4	3	6	9
Saudi Arabia	22	19	21	19	18	25	41	29	47
United Arab Emirates	25	22	30	30	23	21	32	31	51
All others	4	2	3	1	2	3	3	4	12
Other	-163	-118	-98	-67	-71	-94	-65	-66	-90
Australia	-28	-19	-6	27	34	62	64	49	53
New Zealand	-1	-3	5	2	1	1	5	5	-3
Norway	-1	-4	1	6	3	3	22	17	46
Pakistan	2	1	3	2	3	7	6	3	6
Switzerland	-139	-98	-104	-96	-116	-176	-168	-156	-205
All others	4	5	3	-8	5	8	7	15	13

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-46

U.S. trade in nuclear products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	1,342	1,416	1,671	1,488	1,504	1,073	1,635	2,541	2,041
Africa	4	25	38	43	4	8	12	10	12
Algeria	0	0	0	0	0	0	0	1	1
Angola	0	0	0	0	0	3	2	1	2
Egypt	1	0	0	0	1	0	2	3	2
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	1	2	0	0	0
Nigeria	0	0	0	0	0	0	2	1	2
South Africa	2	24	36	41	1	2	1	2	2
All others	1	0	1	0	1	0	3	2	2
Asia-9	359	357	334	288	360	198	333	416	613
India	3	4	8	2	1	2	5	4	4
Indonesia	0	0	0	0	0	0	0	1	1
Malaysia	2	1	1	1	1	1	1	2	2
Philippines	0	0	1	4	0	0	1	0	0
Singapore	5	1	1	2	2	4	18	22	23
South Korea	187	160	148	143	216	110	144	266	243
Taiwan	160	190	167	135	137	79	160	118	338
Thailand	1	1	8	0	1	1	2	1	1
Vietnam	0	0	0	0	0	0	0	0	1
Canada	22	23	14	19	21	22	20	24	27
Central Europe/Asia	34	93	112	25	28	30	20	22	32
Kazakhstan	0	0	1	18	25	16	7	0	1
Russia	28	90	109	5	1	8	7	17	24
Turkey	5	2	2	1	1	1	1	1	2
All others	0	1	1	1	2	5	4	4	6
China and Hong Kong	12	21	13	12	13	14	19	21	39
China	7	12	8	7	9	11	16	18	33
Hong Kong	5	9	5	5	4	3	3	3	5
EU	227	224	183	211	279	236	524	1,062	542
Austria	2	2	4	3	3	3	2	2	3
Belgium	5	6	5	4	1	1	4	5	7
Denmark	1	2	0	0	0	1	0	0	1
Finland	3	1	1	2	1	2	2	2	4
France	18	21	29	36	17	71	46	91	22
Germany	88	47	41	26	38	35	32	45	30
Greece	0	1	1	0	2	0	0	0	0
Ireland	2	1	0	0	0	0	0	0	0
Italy	8	9	12	4	5	3	4	5	7
Netherlands	3	17	21	3	2	21	111	634	237
Poland	0	0	0	0	0	0	1	1	1
Portugal	0	0	1	9	0	0	0	0	0
Spain	35	15	17	13	13	49	17	20	31
Sweden	22	10	9	30	35	13	12	13	15
United Kingdom	31	58	25	53	109	18	246	164	148
All others	7	35	17	28	50	17	46	79	38
Japan	632	615	947	826	738	507	603	844	656
Latin America	35	22	13	34	41	16	72	104	46
Argentina	1	1	0	2	1	1	1	3	4
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	7	4	3	3	4	1	10	13	17
Chile	0	0	3	0	1	1	0	0	1

Appendix table 6-46

U.S. trade in nuclear products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	0	0	1	0	0	0	1	1	5
Costa Rica	0	0	0	0	0	0	0	0	0
Dominican Republic	1	0	0	1	2	0	0	0	0
Ecuador	0	0	1	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	22	12	3	25	32	7	53	79	7
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	1	1
Trinidad and Tobago	0	0	0	0	0	2	3	4	4
Venezuela	1	0	1	1	1	1	1	1	1
All others	1	2	0	0	0	1	0	0	4
Middle East	8	8	6	6	9	10	16	19	21
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	1	1	0	1
Israel	5	5	3	3	6	4	3	3	1
Kuwait	0	0	0	1	0	1	1	1	1
Oman	0	0	0	0	1	0	0	0	1
Qatar	0	0	0	0	0	1	2	3	0
Saudi Arabia	1	1	1	1	1	1	2	6	11
United Arab Emirates	0	0	1	1	1	2	7	5	5
All others	0	0	1	0	0	0	0	1	2
Other	10	28	10	25	10	32	17	18	54
Australia	4	5	5	3	4	4	5	8	9
New Zealand	0	0	0	0	0	0	0	0	0
Norway	1	0	1	1	2	5	8	7	7
Pakistan	1	0	0	0	0	3	1	0	0
Switzerland	3	21	3	20	3	19	3	2	36
All others	1	1	1	1	1	2	1	1	1
Imports									
World	1,436	1,406	1,738	2,568	2,170	2,517	3,051	4,764	4,483
Africa	5	0	9	0	0	0	0	0	0
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	0	0	9	0	0	0	0	0	0
All others	5	0	0	0	0	0	0	0	0
Asia-9	3	4	5	19	26	14	13	12	13
India	2	4	4	14	25	14	9	10	12
Indonesia	0	0	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0	0	0
Philippines	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0
South Korea	0	0	1	5	0	0	4	2	0
Taiwan	0	0	0	0	0	0	0	0	0
Thailand	0	0	0	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0
Canada	22	11	73	54	53	46	56	126	27

Appendix table 6-46

U.S. trade in nuclear products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	966	958	838	966	829	876	870	993	880
Kazakhstan	29	45	75	51	0	24	0	105	41
Russia	935	911	761	911	825	848	866	884	835
Turkey	0	0	0	0	0	0	0	0	0
All others	1	2	2	3	3	3	4	3	3
China and Hong Kong	0	11	95	100	74	73	48	3	3
China	0	11	95	100	74	73	48	3	3
Hong Kong	0	0	0	0	0	0	0	0	0
EU	438	416	706	1,308	1,154	1,440	2,023	3,510	3,527
Austria	0	0	0	0	1	0	0	0	0
Belgium	1	14	15	2	1	5	19	48	46
Denmark	0	0	0	0	0	0	0	0	0
Finland	5	5	5	5	4	4	5	2	5
France	215	159	257	589	364	500	300	526	438
Germany	62	83	124	171	252	244	298	475	547
Greece	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0
Italy	0	0	0	0	0	60	1	60	1
Netherlands	64	19	79	154	160	212	452	1,035	1,039
Poland	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0	0
Spain	0	0	0	1	2	4	9	3	0
Sweden	20	42	5	47	8	29	33	166	66
United Kingdom	70	93	219	339	360	379	905	1,192	1,381
All others	1	1	1	1	1	2	1	3	3
Japan	1	4	10	117	34	55	38	33	30
Latin America	0	0	0	5	0	0	0	0	1
Argentina	0	0	0	0	0	0	0	0	0
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0
Chile	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	0
Costa Rica	0	0	0	0	0	0	0	0	0
Dominican Republic	0	0	0	0	0	0	0	0	0
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	4	0	0	0	0	1
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Middle East	0	0	0	0	0	1	1	1	1
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	0	0	0	0	0	1	1	1	1
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-46

U.S. trade in nuclear products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Other	0	0	1	0	0	13	0	87	0
Australia	0	0	1	0	0	12	0	87	0
New Zealand	0	0	0	0	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Balance									
World	-94	10	-66	-1,079	-666	-1,445	-1,416	-2,223	-2,442
Africa	-1	25	29	43	4	8	11	10	12
Algeria	0	0	0	0	0	0	0	1	1
Angola	0	0	0	0	0	3	2	1	2
Egypt	1	0	0	0	1	0	2	3	2
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	1	2	0	0	0
Nigeria	0	0	0	0	0	0	2	1	2
South Africa	2	24	27	41	1	2	1	2	2
All others	-4	0	1	0	1	0	3	2	2
Asia-9	356	353	329	269	334	184	319	403	599
India	1	0	4	-12	-24	-12	-4	-6	-8
Indonesia	0	0	0	0	0	0	0	1	1
Malaysia	2	1	1	1	1	1	1	2	2
Philippines	0	0	1	4	0	0	1	0	0
Singapore	5	1	1	2	2	4	18	22	22
South Korea	187	160	147	138	216	110	141	264	243
Taiwan	160	190	167	135	137	79	160	118	338
Thailand	1	1	8	0	1	1	2	1	1
Vietnam	0	0	0	0	0	0	0	0	1
Canada	0	11	-59	-35	-32	-25	-36	-103	0
Central Europe/Asia	-933	-864	-726	-941	-800	-846	-851	-970	-848
Kazakhstan	-29	-45	-75	-33	25	-8	7	-105	-40
Russia	-908	-821	-653	-906	-824	-840	-859	-867	-811
Turkey	5	2	2	1	1	1	1	1	2
All others	-1	-1	-1	-3	-2	2	0	1	2
China and Hong Kong	12	10	-82	-88	-61	-59	-29	19	36
China	7	1	-87	-92	-65	-62	-32	15	30
Hong Kong	5	9	5	5	4	3	3	3	5
EU	-212	-192	-523	-1,097	-875	-1,204	-1,499	-2,447	-2,985
Austria	2	2	4	3	2	3	2	2	3
Belgium	5	-8	-10	2	1	-3	-14	-43	-40
Denmark	1	2	0	0	0	0	0	0	1
Finland	-2	-4	-4	-3	-3	-3	-3	0	-1
France	-197	-138	-228	-553	-347	-429	-254	-434	-416
Germany	26	-36	-83	-145	-214	-209	-266	-430	-518
Greece	0	1	1	0	2	0	0	0	0
Ireland	2	1	0	0	0	0	0	0	0
Italy	7	8	12	4	5	-56	3	-55	6
Netherlands	-61	-3	-58	-151	-158	-191	-341	-400	-802
Poland	0	0	0	0	0	0	1	1	1
Portugal	0	0	1	9	0	0	0	0	0
Spain	35	15	16	12	10	45	8	17	31

Appendix table 6-46

U.S. trade in nuclear products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	2	-31	4	-17	27	-16	-21	-153	-51
United Kingdom	-38	-36	-194	-286	-251	-361	-660	-1,028	-1,234
All others	6	34	16	27	50	15	45	76	36
Japan	631	610	937	709	704	452	565	811	626
Latin America	35	22	13	29	41	16	71	104	45
Argentina	1	1	0	2	1	1	1	3	4
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	7	4	3	3	4	1	10	13	17
Chile	0	0	3	0	1	1	0	0	1
Colombia	0	0	0	0	0	0	1	1	5
Costa Rica	0	0	0	0	0	0	0	0	0
Dominican Republic	1	0	0	1	2	0	0	0	0
Ecuador	0	0	1	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	22	12	3	21	32	7	53	79	6
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	1	1
Trinidad and Tobago	0	0	0	0	0	2	3	4	4
Venezuela	1	0	1	1	1	1	1	1	1
All others	1	2	0	0	0	1	0	0	4
Middle East	8	7	6	6	9	10	15	19	20
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	1	1	0	1
Israel	5	5	3	2	5	3	2	2	0
Kuwait	0	0	0	1	0	1	1	1	1
Oman	0	0	0	0	1	0	0	0	1
Qatar	0	0	0	0	0	1	2	3	0
Saudi Arabia	1	1	1	1	1	1	2	6	11
United Arab Emirates	0	0	1	1	1	2	7	5	5
All others	0	0	1	0	0	0	0	1	2
Other	10	28	9	25	10	19	17	-69	53
Australia	4	5	4	3	4	-9	5	-79	9
New Zealand	0	0	0	0	0	0	0	0	0
Norway	1	0	1	1	2	5	8	7	7
Pakistan	1	0	0	0	0	3	1	0	0
Switzerland	3	21	3	20	3	19	3	2	35
All others	1	1	1	1	1	2	1	1	1

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-47

U.S. trade in weapons products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Exports									
World	1,533	1,521	1,558	1,451	1,867	1,558	2,013	1,975	2,113
Africa	25	25	32	33	165	92	99	123	132
Algeria	0	2	1	1	0	0	0	0	1
Angola	4	1	0	1	1	0	0	0	0
Egypt	13	8	19	14	146	89	96	119	127
Kenya	0	0	0	0	2	0	0	0	0
Morocco	0	0	1	0	0	0	0	2	0
Nigeria	0	0	0	2	3	0	0	0	1
South Africa	3	10	8	8	5	2	3	2	2
All others	4	3	3	7	8	2	0	0	1
Asia-9	189	232	239	187	217	167	378	190	204
India	6	6	13	13	11	0	0	0	1
Indonesia	1	3	4	4	2	0	0	0	0
Malaysia	7	8	8	7	6	0	2	3	1
Philippines	2	2	3	2	3	2	1	1	4
Singapore	20	29	36	38	38	13	7	7	14
South Korea	79	110	135	69	110	108	202	109	151
Taiwan	71	72	36	50	43	42	164	65	29
Thailand	2	4	3	3	2	2	1	3	4
Vietnam	0	0	0	1	2	0	0	1	1
Canada	149	169	143	139	151	35	67	114	83
Central Europe/Asia	20	38	59	27	19	27	58	18	41
Kazakhstan	1	0	0	0	1	0	0	0	0
Russia	3	6	3	7	7	0	0	1	1
Turkey	15	28	54	12	7	21	55	16	17
All others	1	3	2	7	4	6	3	1	23
China and Hong Kong	22	38	45	56	63	2	2	3	2
China	18	29	36	44	48	1	1	2	1
Hong Kong	5	9	9	12	14	1	1	1	1
EU	673	499	501	424	658	603	709	698	691
Austria	7	7	3	4	4	1	1	1	0
Belgium	4	5	6	7	11	25	4	4	25
Denmark	6	15	9	7	6	5	14	11	15
Finland	3	3	4	7	15	5	9	10	5
France	63	46	59	61	83	9	5	14	32
Germany	98	79	97	83	117	107	100	65	82
Greece	169	39	5	10	14	29	83	3	12
Ireland	1	1	5	4	8	2	2	0	0
Italy	28	47	43	27	42	35	10	11	39
Netherlands	123	83	129	90	177	55	76	34	193
Poland	3	5	1	4	2	3	39	166	54
Portugal	1	1	1	1	1	2	2	1	1
Spain	37	16	28	15	12	36	16	21	21
Sweden	6	8	8	7	12	10	10	4	10
United Kingdom	119	138	97	95	140	272	331	334	180
All others	4	5	6	3	12	7	8	20	22
Japan	200	195	220	239	263	349	289	284	371
Latin America	97	88	90	94	71	32	36	64	38
Argentina	3	4	1	10	6	0	1	1	1
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	23	25	23	9	11	2	2	2	2
Chile	4	2	4	9	4	2	12	29	2

Appendix table 6-47

U.S. trade in weapons products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Colombia	3	4	12	25	6	13	9	10	6
Costa Rica	3	3	0	1	1	0	1	0	0
Dominican Republic	2	2	1	2	2	1	0	1	0
Ecuador	0	2	1	1	1	0	1	2	2
El Salvador	1	0	0	0	0	1	3	1	1
Guatemala	0	0	0	0	0	0	0	1	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	51	28	28	35	31	10	5	8	7
Panama	1	13	9	4	3	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	1	1	1	2	1	0	0	1	1
Trinidad and Tobago	1	0	2	4	5	0	0	0	2
Venezuela	4	2	2	0	3	0	2	1	7
All others	2	4	5	1	3	1	1	6	5
Middle East	100	146	126	90	113	128	209	242	285
Bahrain	0	0	21	1	0	6	11	4	3
Iraq	0	0	0	1	3	5	14	0	0
Israel	68	75	81	46	67	49	119	170	181
Kuwait	4	20	4	17	3	8	43	12	6
Oman	0	2	1	1	1	4	4	19	29
Qatar	0	0	0	0	4	3	3	1	2
Saudi Arabia	17	8	5	10	8	18	6	12	26
United Arab Emirates	10	37	14	14	25	32	6	10	30
All others	1	4	1	1	1	4	2	13	7
Other	53	87	102	153	141	122	166	240	267
Australia	26	44	36	58	77	108	79	87	92
New Zealand	4	6	6	8	8	2	2	2	2
Norway	14	18	34	62	32	7	22	60	20
Pakistan	0	1	0	0	2	0	61	62	136
Switzerland	8	15	21	14	14	1	1	22	7
All others	1	3	5	12	8	4	1	6	9
Imports									
World	381	377	406	461	544	652	751	762	820
Africa	0	0	0	1	3	1	1	3	2
Algeria	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	1	3	1	1	3	2
All others	0	0	0	0	0	0	0	0	0
Asia-9	48	30	34	33	34	34	32	30	39
India	1	1	1	1	1	1	1	0	0
Indonesia	0	0	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0	0	0
Philippines	1	1	1	1	4	3	2	3	3
Singapore	2	1	1	1	0	0	1	0	5
South Korea	5	5	5	6	7	8	8	5	8
Taiwan	39	23	26	24	22	22	20	21	23
Thailand	0	0	0	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0
Canada	35	41	63	80	103	99	120	116	81

Appendix table 6-47

U.S. trade in weapons products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Europe/Asia	16	16	21	18	20	18	24	21	25
Kazakhstan	0	0	0	0	0	0	0	0	0
Russia	13	11	12	11	11	9	11	8	6
Turkey	1	2	4	4	6	5	7	4	7
All others	2	2	4	3	3	4	7	8	12
China and Hong Kong	50	33	37	57	59	64	100	102	118
China	49	31	37	55	58	63	99	98	115
Hong Kong	0	1	1	1	1	1	2	4	3
EU	117	103	97	152	205	290	345	361	423
Austria	1	1	3	5	4	5	5	7	4
Belgium	3	15	2	2	2	4	5	1	2
Denmark	1	1	1	3	3	7	8	19	19
Finland	0	0	0	0	0	0	1	0	0
France	1	1	3	1	4	6	17	9	12
Germany	46	41	28	68	76	116	91	97	134
Greece	5	0	1	5	0	2	1	3	3
Ireland	0	0	0	0	0	0	0	0	0
Italy	2	1	2	9	7	10	5	6	3
Netherlands	8	5	7	12	11	18	43	39	56
Poland	0	0	0	0	0	0	0	1	0
Portugal	0	0	0	0	0	0	0	0	0
Spain	5	5	9	10	9	6	12	18	22
Sweden	7	1	6	2	11	13	44	60	36
United Kingdom	36	30	33	35	76	100	113	100	129
All others	1	2	2	0	1	2	0	0	2
Japan	16	11	10	15	12	10	10	10	10
Latin America	45	59	57	52	57	72	58	60	58
Argentina	0	0	0	0	0	0	0	0	0
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	1	0	2	0	2
Chile	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	0
Costa Rica	0	0	0	0	0	0	0	0	0
Dominican Republic	0	0	0	0	0	0	0	0	0
Ecuador	0	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	45	58	56	52	56	71	57	60	56
Panama	0	0	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	0	1	1	0	0	0	0	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Middle East	41	67	71	29	16	26	8	11	30
Bahrain	0	0	0	0	0	0	0	0	0
Iraq	0	0	0	0	0	0	0	0	0
Israel	41	67	71	29	16	26	8	11	30
Kuwait	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0

Appendix table 6-47

U.S. trade in weapons products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
United Arab Emirates	0	0	0	0	1	0	0	0	0
All others	0	0	0	0	0	0	0	0	0
Other	12	16	16	26	35	37	53	48	33
Australia	1	2	6	7	6	11	14	13	10
New Zealand	1	1	1	0	0	0	0	1	0
Norway	10	13	9	18	28	25	37	33	21
Pakistan	0	0	0	0	0	0	0	0	0
Switzerland	0	0	1	0	0	1	2	2	2
All others	0	0	0	0	0	0	0	0	0
Balance									
World	1,152	1,144	1,152	990	1,323	906	1,262	1,213	1,293
Africa	25	25	32	32	162	91	98	120	130
Algeria	0	2	1	1	0	0	0	0	1
Angola	4	1	0	1	1	0	0	0	0
Egypt	13	8	19	14	146	89	96	119	127
Kenya	0	0	0	0	2	0	0	0	0
Morocco	0	0	1	0	0	0	0	2	0
Nigeria	0	0	0	2	3	0	0	0	1
South Africa	3	10	8	7	2	1	2	-1	0
All others	4	3	3	7	8	2	0	0	1
Asia-9	141	202	205	154	183	133	346	160	165
India	5	5	12	12	10	-1	-1	0	1
Indonesia	1	3	4	4	2	0	0	0	0
Malaysia	7	8	8	7	6	0	2	3	1
Philippines	1	1	2	1	-1	-1	-1	-2	1
Singapore	18	28	35	37	38	13	6	7	9
South Korea	74	105	130	63	103	100	194	104	143
Taiwan	32	49	10	26	21	20	144	44	6
Thailand	2	4	3	3	2	2	1	3	4
Vietnam	0	0	0	1	2	0	0	1	1
Canada	114	128	80	59	48	-64	-53	-2	2
Central Europe/Asia	4	22	38	9	-1	9	34	-3	16
Kazakhstan	1	0	0	0	1	0	0	0	0
Russia	-10	-5	-9	-4	-4	-9	-11	-7	-5
Turkey	14	26	50	8	1	16	48	12	10
All others	-1	1	-2	4	1	2	-4	-7	11
China and Hong Kong	-28	5	8	-1	4	-62	-98	-99	-116
China	-31	-2	-1	-11	-10	-62	-98	-96	-114
Hong Kong	5	8	8	11	13	0	-1	-3	-2
EU	556	396	404	272	453	313	364	337	268
Austria	6	6	0	-1	0	-4	-4	-6	-4
Belgium	1	-10	4	5	9	21	-1	3	23
Denmark	5	14	8	4	3	-2	6	-8	-4
Finland	3	3	4	7	15	5	8	10	5
France	62	45	56	60	79	3	-12	5	20
Germany	52	38	69	15	41	-9	9	-32	-52
Greece	164	39	4	5	14	27	82	0	9
Ireland	1	1	5	4	8	2	2	0	0
Italy	26	46	41	18	35	25	5	5	36
Netherlands	115	78	122	78	166	37	33	-5	137
Poland	3	5	1	4	2	3	39	165	54
Portugal	1	1	1	1	1	2	2	1	1
Spain	32	11	19	5	3	30	4	3	-1

Appendix table 6-47

U.S. trade in weapons products, by region/country/economy: 2000–08

(Millions of current dollars)

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sweden	-1	7	2	5	1	-3	-34	-56	-26
United Kingdom	83	108	64	60	64	172	218	234	51
All others	3	3	4	3	11	5	8	20	20
Japan	184	184	210	224	251	339	279	274	361
Latin America	52	29	33	42	14	-40	-22	4	-20
Argentina	3	4	1	10	6	0	1	1	1
Bermuda	0	0	0	0	0	0	0	0	0
Brazil	23	25	23	9	10	2	0	2	0
Chile	4	2	4	9	4	2	12	29	2
Colombia	3	4	12	25	6	13	9	10	6
Costa Rica	3	3	0	1	1	0	1	0	0
Dominican Republic	2	2	1	2	2	1	0	1	0
Ecuador	0	2	1	1	1	0	1	2	2
El Salvador	1	0	0	0	0	1	3	1	1
Guatemala	0	0	0	0	0	0	0	1	0
Jamaica	0	0	0	0	0	0	0	0	0
Mexico	6	-30	-28	-17	-25	-61	-52	-52	-49
Panama	1	13	9	4	3	0	0	0	0
Paraguay	0	0	0	0	0	0	0	0	0
Peru	1	0	0	2	1	0	0	1	1
Trinidad and Tobago	1	0	2	4	5	0	0	0	2
Venezuela	4	2	2	0	3	0	2	1	7
All others	2	4	5	1	3	1	1	6	5
Middle East	59	79	55	61	97	102	201	231	255
Bahrain	0	0	21	1	0	6	11	4	3
Iraq	0	0	0	1	3	5	14	0	0
Israel	27	8	10	17	51	23	111	159	151
Kuwait	4	20	4	17	3	8	43	12	6
Oman	0	2	1	1	1	4	4	19	29
Qatar	0	0	0	0	4	3	3	1	2
Saudi Arabia	17	8	5	10	8	18	6	12	26
United Arab Emirates	10	37	14	14	24	32	6	10	30
All others	1	4	1	1	1	4	2	13	7
Other	41	71	86	127	106	85	113	192	234
Australia	25	42	30	51	71	97	65	74	82
New Zealand	3	5	5	8	8	2	2	1	2
Norway	4	5	25	44	4	-18	-15	27	-1
Pakistan	0	1	0	0	2	0	61	62	136
Switzerland	8	15	20	14	14	0	-1	20	5
All others	1	3	5	12	8	4	1	6	9

EU = European Union

NOTES: Technologies classified by U.S. Census. Detail may not add to total because of rounding or minor discrepancies. See appendix table 6-48 for full list of countries in each region.

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 21 October 2009.

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Appendix table 6-48

Regions and countries/economies in U.S. advanced technology product trade data

- Africa
  - Algeria
  - Angola
  - Egypt
  - Kenya
  - Morocco
  - Nigeria
  - South Africa
  - All others
    - Benin
    - Botswana
    - Burkina Faso
    - Burundi
    - Cameroon
    - Central African Republic
    - Chad
    - Congo (Brazzaville)
    - Congo, Democratic Rep. of
    - Côte d'Ivoire
    - Djibouti
    - Eritrea
    - Ethiopia
    - Gabon
    - Gambia
    - Ghana
    - Guinea
    - Guinea-Bissau
    - Lesotho
    - Liberia
    - Libya
    - Madagascar
    - Malawi
    - Mali
    - Mauritania
    - Mauritius
    - Mozambique
    - Namibia
    - Niger
    - Rwanda
    - São Tomé and Príncipe
    - Senegal
    - Sierra Leone
    - Somalia
    - Sudan
    - Swaziland
    - Tanzania
- Africa, all others (cont.)
    - Togo
    - Tunisia
    - Uganda
    - Western Sahara
    - Zambia
    - Zimbabwe
- Asia-9
  - India
  - Indonesia
  - Malaysia
  - Philippines
  - Singapore
  - South Korea
  - Taiwan
  - Thailand
  - Vietnam
- Canada
- China and Hong Kong
  - China
  - Hong Kong
    - Macau
- Central Europe/Asia
  - Kazakhstan
  - Russia
  - Turkey
  - All others
    - Albania
    - Armenia
    - Azerbaijan
    - Belarus
    - Bosnia and Herzegovina
    - Croatia
    - Georgia
    - Kyrgyzstan
    - Macedonia (Skopje)
    - Moldova
    - Mongolia
    - Montenegro
    - Serbia
    - Serbia and Montenegro
    - Tajikistan
    - Turkmenistan
    - Ukraine
    - Uzbekistan
- European Union
  - Austria
  - Belgium
  - Denmark
  - Finland
  - France
  - Germany
  - Greece
  - Ireland
  - Italy
  - Netherlands
  - Poland
  - Portugal
  - Spain
  - Sweden
  - United Kingdom
  - All others
    - Bulgaria
    - Cyprus
    - Czech Republic
    - Estonia
    - Hungary
    - Latvia
    - Lithuania
    - Luxembourg
    - Malta
    - Romania
    - Slovakia
    - Slovenia
- Japan
- Latin America
  - Argentina
  - Bermuda
  - Brazil
  - Chile
  - Colombia
  - Costa Rica
  - Dominican Republic
  - Ecuador
  - El Salvador
  - Guatemala
  - Jamaica
  - Mexico
  - Peru
  - Trinidad and Tobago
  - Venezuela
- Latin America (cont.)
  - All others
    - Anguilla
    - Antigua and Barbuda
    - Aruba
    - Bahamas
    - Barbados
    - Belize
    - Bolivia
    - Cuba
    - Dominica
    - Equatorial Guinea
    - French Guiana
    - Guyana
    - Haiti
    - Honduras
    - Martinique
    - Nicaragua
    - Panama
    - Paraguay
    - St. Kitts and Nevis
    - St. Lucia
    - St. Vincent and the Grenadines
    - Suriname
    - Uruguay
- Middle East
  - Bahrain
  - Iraq
  - Israel
  - Kuwait
  - Oman
  - Qatar
  - Saudi Arabia
  - United Arab Emirates
  - All others
    - Brunei
    - Gaza Strip (admin. by Israel)
    - Iran
    - Jordan
    - Lebanon
    - Republic of Yemen
    - Syria
    - West Bank (admin. by Israel)
- United States
- Other
  - Australia
  - New Zealand
  - Norway
  - Pakistan
  - Switzerland
  - All others
    - Afghanistan
    - Andorra
    - Bangladesh
    - Bhutan
    - British Indian Ocean Territory
    - British Virgin Islands
    - Cambodia
    - Cape Verde
    - Cayman Islands
    - Christmas Island
    - Cocos (Keeling) Island
    - Comoros
    - Cook Islands
    - East Timor
    - Falkland Islands
    - Faroe Islands
    - Fed. States of Micronesia
    - Fiji
    - French Polynesia
    - French Southern and Antarctic
    - Gibraltar
    - Greenland
    - Grenada
    - Guadeloupe
    - Heard and McDonald Islands
    - Iceland
    - International Organizations
    - Kiribati
    - Laos
    - Liechtenstein
    - Macao
    - Maldives
    - Marshall Islands
    - Mayotte
    - Monaco
    - Montserrat
- Other, all others (cont.)
    - Myanmar
    - Nauru
    - Nepal
    - Netherlands Antilles
    - New Caledonia
    - Niue
    - Norfolk Island
    - North Korea
    - Palau
    - Papua New Guinea
    - Pitcairn Island
    - Reunion
    - San Marino
    - Seychelles
    - Solomon Islands
    - Sri Lanka
    - St. Helena
    - St. Pierre and Miquelon
    - Svalbard, Jan Mayen Island
    - Tokelau
    - Tonga
    - Turks and Caicos Islands
    - Tuvalu
    - Vanuatu
    - Vatican City
    - Wallis and Futuna
    - Western Samoa

SOURCE: Census Bureau, Foreign Trade Statistics, Country and Product Trade Data, Advanced Technology Products, http://www.census.gov/foreign-trade/statistics/country/index.html, accessed 23 October 2009.

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Appendix table 6-49

U.S. trade in private service industries, by industry: 1997–2007

(Millions of current dollars)

Industry	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Exports											
All service industries	238,457	244,427	265,106	284,027	272,814	279,561	290,217	336,332	368,496	415,321	479,980
Commercial knowledge-intensive services	62,353	67,912	78,529	81,631	86,268	92,978	101,224	117,922	128,679	154,504	184,510
Finance and insurance	15,950	18,609	22,486	25,748	25,323	28,911	33,814	43,703	47,444	57,534	68,552
Telecommunications	3,918	5,568	4,549	3,884	4,332	3,890	4,452	4,651	4,748	7,278	8,283
Business, professional, and technical services	42,485	43,735	51,494	51,999	56,613	60,177	62,958	69,568	76,487	89,692	107,675
Computer and information services	4,846	4,921	6,688	6,949	6,847	7,079	8,213	8,693	9,434	10,341	12,728
Management and consulting services	NA	NA	NA	NA	12,865	14,339	14,309	16,372	19,242	22,058	24,699
R&D and testing services	NA	NA	NA	NA	7,610	8,678	9,467	9,563	10,431	12,821	14,698
Operational leasing	3,551	4,041	4,918	5,192	5,883	7,552	8,062	8,634	9,555	10,389	11,664
Other business, professional, and technical services	31,563	32,019	37,065	37,277	23,406	22,527	22,904	26,304	27,825	34,083	43,887
Education	8,347	9,037	9,616	10,348	11,476	12,626	13,312	13,634	14,021	14,645	15,732
Other transportation	27,006	25,604	26,916	29,803	28,442	29,195	31,416	36,957	41,281	46,323	51,586
Passenger fares	20,868	20,098	19,785	20,687	17,926	17,046	15,891	18,851	20,970	22,036	25,586
Royalties and license fees	33,228	35,626	39,670	43,233	40,696	44,508	46,988	56,715	64,395	72,191	82,614
Travel	73,426	71,325	74,801	82,400	71,893	66,605	64,359	74,546	81,799	85,720	96,712
All others	13,231	14,827	15,791	15,929	16,115	16,602	17,025	17,707	17,351	19,901	23,241
Imports											
All service industries	151,463	165,643	183,034	207,392	204,074	209,048	221,938	258,147	279,486	313,865	341,126
Commercial knowledge-intensive services	41,199	45,453	53,044	57,852	63,086	69,307	75,895	85,769	92,279	119,050	137,786
Finance and insurance	11,903	15,260	17,669	22,220	26,863	30,889	34,182	40,246	40,836	51,615	61,689
Telecommunications	8,347	7,682	6,602	5,429	4,771	4,233	4,255	4,601	4,519	6,367	7,334
Business, professional, and technical services	20,949	22,511	28,773	30,203	31,452	34,185	37,458	40,922	46,924	61,068	68,763
Computer and information services	3,122	3,565	6,042	6,230	6,511	6,495	7,617	8,639	10,596	13,604	14,815
Management and consulting services	NA	NA	NA	NA	8,041	11,028	10,770	12,076	14,905	19,361	20,475
R&D and testing services	NA	NA	NA	NA	3,389	4,063	5,071	5,778	7,239	9,429	11,437
Operational leasing	1,084	1,122	1,224	1,223	1,154	1,060	841	1,142	1,316	1,161	1,046
Other business, professional, and technical services	15,491	16,317	19,915	21,258	12,353	11,540	13,156	13,287	12,867	17,513	20,990
Education	1,396	1,586	1,808	2,032	2,300	2,702	3,148	3,542	3,992	4,465	4,523
Other transportation	28,959	30,363	34,139	41,425	38,682	38,407	44,705	54,161	61,937	65,262	67,050
Passenger fares	18,138	19,971	21,315	24,274	22,633	19,969	20,989	24,718	26,149	27,501	28,486
Royalties and license fees	9,161	11,235	13,107	16,468	16,538	19,353	19,033	23,266	24,612	23,777	25,048
Travel	52,051	56,483	58,963	64,705	60,200	58,715	57,447	65,750	68,970	72,104	76,167
All others	560	550	658	639	640	596	725	943	1,547	1,706	2,065
Balance											
All service industries	86,994	78,784	82,072	76,635	68,740	70,513	68,279	78,185	89,010	101,456	138,854
Commercial knowledge-intensive services	21,154	22,459	25,485	23,779	23,182	23,671	25,329	32,153	36,400	35,454	46,724
Finance and Insurance	4,047	3,350	4,817	3,527	-1,540	-1,978	-368	3,457	6,608	5,919	6,863
Telecommunications	-4,429	-2,114	-2,053	-1,545	-439	-343	197	50	229	911	949

Appendix table 6-49

U.S. trade in private service industries, by industry: 1997–2007

(Millions of current dollars)

Industry	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Business, professional, and technical services	21,536	21,223	22,721	21,797	25,161	25,992	25,500	28,646	29,563	28,624	38,912
Computer and information services	1,724	1,355	646	718	337	584	596	54	-1,163	-3,263	-2,087
Management and consulting services	NA	NA	NA	NA	4,824	3,311	3,540	4,296	4,337	2,697	4,225
R&D and testing services	NA	NA	NA	NA	4,221	4,616	4,396	3,785	3,192	3,392	3,261
Operational leasing	2,467	2,919	3,694	3,969	4,729	6,492	7,221	7,492	8,239	9,228	10,618
Other business, professional, and technical services	16,072	15,702	17,150	16,019	11,052	10,988	9,748	13,017	14,959	16,570	22,896
Education	6,951	7,451	7,808	8,316	9,176	9,924	10,164	10,092	10,029	10,180	11,209
Other transportation	-1,953	-4,759	-7,223	-11,622	-10,240	-9,212	-13,289	-17,204	-20,656	-18,939	-15,464
Passenger fares	2,730	127	-1,530	-3,587	-4,707	-2,923	-5,098	-5,867	-5,179	-5,465	-2,900
Royalties and license fees	24,067	24,391	26,563	26,765	24,158	25,155	27,955	33,449	39,783	48,414	57,566
Travel	21,375	14,842	15,838	17,695	11,693	7,890	6,912	8,796	12,829	13,616	20,545
All others	12,671	14,277	15,133	15,290	15,475	16,006	16,300	16,764	15,804	18,195	21,176

NA = not available

NOTES: Commercial knowledge-intensive services classified by Organisation for Economic Co-operation and Development and include business, financial, and communications services. Computer and information services include computer, data, database, and other information services. Other business, professional, and technical services include language translation services, security services, collection services, salvage services, satellite photography, and remote sensing. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis, International Economic Accounts, U.S. International Services: Cross-Border Trade 1986–2007, and Services Supplied Through Affiliates, 1986–2006, http://www.bea.gov/international/intlserv.htm, accessed 15 September 2009.

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Appendix table 6-50

Domestic and foreign value added and employment of U.S. multinationals, by selected industry: 1999 and 2006

Variable and industry	1999			2006		
	All U.S. multinationals and their foreign affiliates	U.S. multinationals	U.S. foreign affiliates	All U.S. multinationals and their foreign affiliates	U.S. multinationals	U.S. foreign affiliates
Value added	Millions of current dollars					
All industries	2,480,739	1,914,343	566,396	3,504,857	2,509,219	995,638
All manufacturing industries	1,308,640	931,180	377,460	1,711,406	1,045,509	665,897
High-technology manufacturing industries	231,379	160,926	70,453	313,315	193,632	119,683
Communications and semiconductors	102,414	79,139	23,275	95,275	60,461	34,814
Computers and office machinery	30,251	19,493	10,758	31,840	15,421	16,419
Scientific instruments and measuring equipment	8,725	6,234	2,491	35,196	23,996	11,200
Pharmaceuticals	89,989	56,060	33,929	151,004	93,754	57,250
ICT industries	385,905	311,451	74,454	424,160	316,358	107,802
Computers and peripheral equipment	30,251	19,493	10,758	31,840	15,421	16,419
Communications and semiconductors	102,414	79,139	23,275	95,275	60,461	34,814
Telecommunications	155,195	149,734	5,461	150,052	145,441	4,611
Information services and data-processing services	27,761	20,917	6,844	50,396	38,688	11,708
Computer systems design and related services	70,284	42,168	28,116	96,597	56,347	40,250
All services	1,017,952	858,945	159,007	1,591,035	1,308,419	282,616
Commerical knowledge-intensive services	470,016	394,190	75,826	720,909	602,335	118,574
Business services	147,745	104,873	42,872	239,181	170,612	68,569
Professional and technical services	134,973	96,069	38,904	200,363	141,835	58,528
Financial services	134,157	108,961	25,196	269,722	231,465	38,257
Communications services	188,114	180,356	7,758	212,006	200,258	11,748
Health services	21,605	21,471	134	24,569	24,028	541
Employment	Thousands of persons					
All industries	32,227	23,007	9,220	32,683	21,748	10,935
All manufacturing industries	14,279	9,021	5,259	13,230	7,546	5,685
High-technology manufacturing industries	2,289	1,343	946	NA	1,263	NA
Communications and semiconductors	1,138	719	419	NA	438	NA
Computers and office machinery	372	190	181	338	178	160
Scientific instruments and measuring equipment	122	88	34	366	243	123
Pharmaceuticals	658	345	313	743	403	339
ICT industries	NA	2,408	NA	NA	2,209	NA
Computers and peripheral equipment	372	190	181	338	178	160
Communications and semiconductors	1,138	719	419	NA	438	NA
Telecommunications	1,155	852	304	NA	871	NA
Information services and data-processing services	NA	254	NA	NA	315	NA
Computer systems design and related services	711	394	318	NA	407	NA
All services	16,965	13,275	3,691	NA	13,588	NA
Commerical knowledge-intensive services	5,000	3,680	1,320	NA	3,711	NA
Business services	1,755	1,124	631	2,256	1,393	863

Appendix table 6-50

Domestic and foreign value added and employment of U.S. multinationals, by selected industry: 1999 and 2006

Variable and industry	1999			2006		
	All U.S. multinationals and their foreign affiliates	U.S. multinationals	U.S. foreign affiliates	All U.S. multinationals and their foreign affiliates	U.S. multinationals	U.S. foreign affiliates
Professional and technical services	1,531	1,015	516	1,745	1,158	587
Financial services	1,677	1,367	311	1,594	1,148	445
Communications services	1,567	1,189	379	NA	1,170	NA
Health services	444	440	3	312	307	5

NA = not available

ICT = information and communications technology

NOTES: High-technology manufacturing industries, commercial knowledge-intensive services, and information and communications technology (ICT) classified by Organisation for Economic Co-operation and Development. High-technology manufacturing industries include aerospace, communications and semiconductors, computers and office machinery, scientific instruments and measuring equipment, and pharmaceuticals. Data on aerospace not available. Commercial knowledge-intensive services include business, financial, and communications services. Business services include management of nonbank companies, rental and leasing, and professional and technical services. Financial services include insurance but exclude depository institutions. ICT includes communications services, computer and related services, communications and semiconductors, and computers and office machinery. Communications and semiconductors include communications, semiconductors, and audio and video equipment. Foreign affiliate data is industry of U.S. parent. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis (BEA), International Economic Accounts, U.S. Direct Investment Abroad: Balance of Payments and Direct Investment Position Data, http://www.bea.gov/international/di1usdbal.htm, accessed 1 September 2009; and BEA, International Economic Accounts, Foreign Direct Investment in the U.S.: Balance of Payments and Direct Investment Position Data, http://www.bea.gov/international/di1fdibal.htm, accessed 1 September 2009.

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Appendix table 6-51

U.S. direct investment abroad and foreign direct investment in United States, by selected industry: 2000–08

(Millions of current dollars)

Type of investment and industry	2000	2001	2002	2003	2004	2005	2006	2007	2008
U.S. direct investment abroad									
All industries	1,316,247	1,460,352	1,616,548	1,769,613	2,160,844	2,241,656	2,477,268	2,791,269	3,162,021
All manufacturing industries	343,899	328,030	337,741	371,078	416,643	430,737	441,724	531,315	512,293
High-technology manufacturing industries	87,338	90,782	83,548	83,794	94,319	92,442	97,216	124,720	120,839
Aerospace products and parts	2,904	3,400	5,136	4,280	5,203	4,494	5,361	11,887	11,328
Communications and semiconductors	41,927	40,259	36,380	32,612	37,047	36,611	45,653	48,500	53,748
Computers and peripheral equipment	14,120	14,219	7,447	8,202	8,319	6,267	8,228	10,156	8,634
Scientific instruments and measuring equipment	3,125	3,777	4,427	4,640	6,485	6,371	6,911	8,072	10,074
Pharmaceuticals and medicines	25,262	29,127	30,158	34,060	37,265	38,699	31,063	46,105	37,055
All services	874,615	1,023,919	1,167,424	1,290,896	1,623,767	1,683,742	1,897,772	2,100,563	2,486,109
Commercial knowledge-intensive services	304,966	319,125	361,368	400,947	558,226	605,377	671,123	707,540	834,109
Business services	60,974	65,426	68,997	77,030	108,860	129,120	140,995	164,110	185,164
Professional, scientific, and technical services	32,868	34,306	31,068	35,832	53,964	57,164	69,213	63,791	81,242
Communications services	26,906	13,427	7,176	7,070	14,110	12,276	15,666	11,497	14,899
Financial services	217,086	240,272	285,195	316,847	435,256	463,981	514,462	531,933	634,046
Foreign direct investment in United States									
All industries	1,256,867	1,343,987	1,327,170	1,395,159	1,520,316	1,634,121	1,840,463	2,109,876	2,278,892
All manufacturing industries	480,562	476,474	451,985	465,401	475,214	499,851	569,324	703,146	795,336
High-technology manufacturing	132,499	106,483	94,096	106,499	94,995	101,617	NA	166,914	186,770
Aerospace products and parts	4,542	6,496	4,205	7,417	5,455	8,550	8,509	9,301	10,458
Communications and semiconductors	61,687	36,559	26,411	28,657	17,015	14,410	NA	32,343	24,946
Computers and peripheral equipment	2,493	2,078	2,016	2,447	1,438	2,181	1,586	3,719	6,516
Scientific instruments and measuring equipment	19,031	11,580	16,253	9,573	6,233	10,907	NA	17,371	20,096
Pharmaceuticals and medicines	44,746	49,770	45,211	58,405	64,854	65,569	72,907	104,180	124,754
All services	735,901	808,185	804,555	843,843	955,679	1,026,692	1,166,527	1,249,579	1,285,043
Commercial knowledge-intensive services	NA	278,051	239,933	261,918	292,719	321,510	397,651	393,078	389,489
Business services	46,952	47,843	50,550	55,675	62,439	71,288	67,571	83,323	90,951
Professional, scientific, and technical services	30,492	31,477	34,640	38,280	44,207	51,546	47,597	58,770	62,118
Communications services	NA	56,407	34,077	32,638	30,863	35,599	46,716	49,020	49,650
Financial services	167,007	173,801	162,817	182,951	199,417	214,623	283,364	260,735	248,888

NA = not available

NOTES: High-technology manufacturing industries and commercial knowledge-intensive services classified by Organisation for Economic Co-operation and Development. High-technology manufacturing industries include aerospace, communications and semiconductors, computers and office machinery, scientific instruments and measuring equipment, and pharmaceuticals. Commercial knowledge-intensive include business, financial, and communications services. Business services include professional, scientific and technical services; rental and leasing; and software publishers. Financial services include insurance but exclude depository institutions. Detail may not add to total because of rounding.

SOURCE: Bureau of Economic Analysis (BEA), International Economic Accounts, U.S. Direct Investment Abroad, Balance of Payments and Direct Investment Position Data, http://www.bea.gov/international/di1usdbal.htm, accessed 1 September 2009; and BEA, International Economic Accounts, Foreign Direct Investment in the U.S.: Balance of Payments and Direct Investment Position Data, http://www.bea.gov/international/di1fdibal.htm, accessed 1 September 2009.

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Appendix table 6-52

U.S. receipts and payments of royalties and fees associated with affiliated and unaffiliated foreign companies: 1992–2007

(Millions of current dollars)

	Receipts			Payments			Balance		
Year	All	Affiliated	Unaffiliated	All	Affiliated	Unaffiliated	All	Affiliated	Unaffiliated
1992	20,841	15,658	5,183	5,161	3,396	1,766	15,680	12,262	3,417
1993	21,695	15,688	5,032	5,032	3,386	1,646	16,663	12,302	3,386
1994	26,712	20,275	6,437	5,852	3,934	1,919	20,860	16,341	4,518
1995	30,289	22,859	7,430	6,919	5,256	1,663	23,370	17,603	5,767
1996	32,470	24,556	7,914	7,837	5,406	2,431	24,633	19,150	5,483
1997	33,228	24,465	8,763	9,161	6,749	2,412	24,067	17,716	6,351
1998	35,626	26,313	9,314	11,235	8,547	2,688	24,391	17,766	6,626
1999	39,670	29,275	10,395	13,107	10,374	2,733	26,563	18,901	7,662
2000	43,233	30,479	12,754	16,468	12,536	3,932	26,765	17,943	8,822
2001	40,696	29,164	11,532	16,538	13,241	3,297	24,158	15,923	8,235
2002	44,508	32,770	11,738	19,353	15,134	4,219	25,155	17,636	7,519
2003	46,988	35,539	11,449	19,033	15,179	3,854	27,955	20,360	7,595
2004	56,715	43,074	13,642	23,266	17,873	5,393	33,449	25,201	8,249
2005	64,395	48,496	15,900	24,612	20,331	4,281	39,783	28,165	11,619
2006	72,191	52,469	19,723	23,777	18,160	5,617	48,414	34,309	14,106
2007	82,614	58,881	23,733	25,048	19,653	5,396	57,566	39,228	18,337

NOTES: Affiliate is business enterprise located in one country directly or indirectly owned or controlled by entity in another country. Controlling interest must be ≥10% of its voting stock or equivalent. Detail may not add to total because of rounding.

SOURCE: U.S. Bureau of Economic Analysis, International Economic Accounts, U.S. International Services: Cross-Border Trade 1986–2007, and Services Supplied Through Affiliates, 1986–2006, table 4, "Royalties and License Fees," http://www.bea.gov/international/intlserv.htm, accessed 15 September 2009.

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Appendix table 6-53

USPTO patent applications, by region/country/economy: 1992–99

Region/country/economy	1992	1993	1994	1995	1996	1997	1998	1999
World	173,075	174,743	189,857	212,377	195,187	215,257	243,062	270,187
Africa	235	262	253	202	210	214	230	212
Egypt	10	4	6	2	2	10	11	16
South Africa	207	246	238	187	189	174	211	179
All others	18	12	9	13	19	30	8	17
Asia-9	4,339	4,707	6,187	7,176	9,375	10,864	13,470	15,325
India	64	54	70	91	115	137	180	271
Indonesia	11	7	5	4	11	3	9	12
Malaysia	16	20	37	30	30	61	41	76
Philippines	10	9	7	12	9	15	13	20
Singapore	89	104	134	144	176	213	336	460
South Korea	1,471	1,624	2,354	2,820	4,248	4,920	5,452	5,033
Taiwan	2,667	2,874	3,560	4,054	4,766	5,492	7,412	9,411
Thailand	11	15	19	21	20	21	26	41
Vietnam	0	0	1	0	0	2	1	1
Central Europe/Asia	226	251	275	298	321	319	366	477
Belarus	4	8	5	7	9	3	5	10
Croatia	0	6	9	15	16	20	20	12
Russia	183	207	227	232	263	251	274	389
Turkey	2	3	5	6	7	10	16	29
Ukraine	4	16	14	17	18	24	28	22
All others	33	11	15	21	8	11	23	15
China and Hong Kong	279	292	321	308	364	325	455	661
China	129	135	100	144	142	117	181	257
Hong Kong	150	157	221	164	222	208	274	404
EU	28,839	26,517	28,885	30,947	29,424	31,768	36,161	42,723
Austria	566	526	599	619	543	552	710	823
Belgium	692	685	862	1,001	930	894	1,059	1,204
Bulgaria	7	3	4	6	5	4	3	11
Czech Republic	41	27	28	36	30	40	53	46
Denmark	378	376	445	618	496	634	748	863
Estonia	0	2	2	0	0	2	3	6
Finland	576	568	707	745	836	891	970	1,376
France	4,828	4,320	4,528	5,001	4,486	4,759	5,249	6,216
Germany	11,652	10,500	11,324	11,853	11,550	12,333	13,885	16,978
Greece	28	19	27	29	23	30	45	50
Hungary	76	69	76	70	59	40	73	120
Ireland	103	104	149	131	114	138	228	252
Italy	2,288	1,906	1,998	2,128	2,062	2,119	2,313	2,577
Luxembourg	39	35	39	20	31	32	36	59
Netherlands	1,547	1,472	1,455	1,570	1,559	1,726	1,816	2,058
Poland	16	27	20	19	22	19	19	31
Portugal	11	9	14	10	16	12	17	28
Romania	2	5	4	7	5	12	11	8
Slovakia	0	0	13	7	2	3	6	5
Slovenia	8	19	11	13	19	24	29	21
Spain	313	269	315	357	359	370	409	464
Sweden	1,072	1,157	1,405	1,500	1,481	1,980	2,359	2,570
United Kingdom	4,587	4,414	4,856	5,202	4,791	5,147	6,110	6,948
All others	9	5	4	5	5	7	10	9
Japan	38,633	34,816	37,768	39,872	39,510	41,767	45,260	47,821
Latin America	386	358	467	423	454	450	570	595
Argentina	59	56	75	65	78	77	119	96
Bahamas	6	11	8	15	9	14	20	15
Brazil	112	105	156	115	145	134	165	186
Chile	12	11	11	10	23	17	17	16
Colombia	13	3	18	19	10	6	12	20
Costa Rica	1	8	12	7	4	6	13	8
Cuba	6	4	2	3	5	4	6	9
Mexico	105	82	105	99	97	110	141	147

Appendix table 6-53

USPTO patent applications, by region/country/economy: 1992–99

Region/country/economy	1992	1993	1994	1995	1996	1997	1998	1999
Uruguay	3	8	6	6	1	4	1	3
Venezuela	47	38	43	32	38	40	35	42
All others	22	32	31	52	44	38	41	53
Middle East	799	833	1,074	1,115	1,076	1,236	1,488	2,054
Israel	780	803	1,040	1,072	1,042	1,198	1,442	2,009
Kuwait	2	2	0	5	2	11	8	9
Saudi Arabia	11	17	23	24	19	17	26	11
United Arab Emirates	2	0	2	2	2	3	3	4
All others	4	11	9	12	11	7	9	21
United States	92,425	99,955	107,233	123,958	106,892	120,445	135,483	149,825
Other	6,914	6,752	7,394	8,078	7,561	7,869	9,579	10,494
Australia	863	781	921	1,007	1,057	1,006	1,420	1,462
Canada	3,761	3,910	4,255	4,745	4,443	4,694	5,689	6,149
Iceland	16	3	6	6	13	8	25	31
Liechtenstein	19	13	15	13	17	19	24	26
Monaco	8	6	3	6	12	10	13	21
New Zealand	107	85	130	137	174	174	187	240
Norway	212	190	203	243	227	303	337	415
Switzerland	1,922	1,759	1,852	1,917	1,609	1,637	1,875	2,144
All others	6	5	9	4	9	18	9	6

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Patent applications assigned to region/country/economy based on residence of first-named inventor. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-55 for full list of countries in each region.

SOURCE: USPTO, Number of Utility Patent Applications Filed in the United States, By Country of Origin, Calendar Years 1965 to Present, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/appl_yr.htm, accessed 19 August 2009.

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Appendix table 6-54

USPTO patent applications, by region/country/economy: 2000–08

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	295,926	326,508	334,445	342,441	356,943	390,733	425,967	456,154	456,321
Africa	248	270	275	265	285	237	279	317	348
Egypt	20	16	11	12	19	19	20	30	54
South Africa	209	231	241	224	246	197	231	252	265
All others	19	23	23	29	20	21	28	35	29
Asia-9	16,058	19,477	22,439	26,481	31,384	36,686	44,592	45,579	46,215
India	438	643	919	1,164	1,303	1,463	1,923	2,387	2,879
Indonesia	9	5	27	8	16	11	16	19	13
Malaysia	104	116	142	237	326	323	379	337	297
Philippines	32	51	58	42	82	65	69	81	69
Singapore	632	786	807	771	879	919	1,143	1,188	1,266
South Korea	5,705	6,719	7,937	10,411	13,646	17,217	21,685	22,976	23,584
Taiwan	9,046	11,086	12,488	13,786	15,057	16,617	19,301	18,486	18,001
Thailand	92	70	61	60	69	68	71	99	96
Vietnam	0	1	0	2	6	3	5	6	10
Central Europe/Asia	501	541	492	467	494	511	610	643	755
Belarus	7	10	5	8	11	4	15	14	12
Croatia	21	21	16	24	38	32	34	40	38
Russia	382	433	377	341	334	366	412	444	547
Turkey	28	28	36	28	48	46	71	66	85
Ukraine	40	32	43	45	38	37	41	40	45
All others	23	17	15	21	25	26	37	39	28
China and Hong Kong	942	1,256	1,572	1,769	2,473	2,947	4,658	4,958	5,487
China	469	626	888	1,034	1,655	2,127	3,768	3,903	4,455
Hong Kong	473	630	684	735	818	820	890	1,055	1,032
EU	45,503	50,224	50,377	47,479	49,905	51,420	56,037	60,767	64,599
Austria	881	961	1,115	933	1,022	1,044	1,214	1,438	1,418
Belgium	1,245	1,286	1,293	1,395	1,309	1,460	1,546	1,766	1,609
Bulgaria	18	13	8	10	105	58	47	55	99
Czech Republic	52	77	58	61	69	81	115	133	190
Denmark	859	1,113	1,065	1,002	923	997	1,165	1,284	1,439
Estonia	4	10	6	7	9	17	13	26	24
Finland	1,530	1,840	1,811	1,935	2,096	2,032	2,383	2,444	2,621
France	6,623	6,852	6,825	6,603	6,813	6,972	7,176	8,046	8,561
Germany	17,715	19,900	20,418	18,890	19,824	20,664	22,369	23,608	25,202
Greece	44	49	58	50	62	68	75	104	105
Hungary	107	103	128	118	144	131	143	193	198
Ireland	362	366	440	368	403	516	483	648	709
Italy	2,704	2,967	2,980	3,011	2,997	2,993	3,274	3,376	3,805
Luxembourg	57	61	69	60	72	51	70	104	86
Netherlands	2,289	2,712	2,602	2,257	3,052	3,188	3,823	3,946	3,883
Poland	33	39	46	59	101	102	98	74	133
Portugal	17	28	27	20	30	33	42	57	84
Romania	12	14	8	11	16	18	29	48	44
Slovakia	10	6	8	5	12	16	20	27	29
Slovenia	27	20	36	38	50	43	50	63	68
Spain	549	601	564	606	696	701	844	966	1,216
Sweden	2,825	2,827	2,410	2,314	2,270	2,243	2,680	3,164	3,265
United Kingdom	7,523	8,362	8,391	7,700	7,792	7,962	8,342	9,164	9,771
All others	17	17	11	26	38	30	36	33	40
Japan	52,891	61,238	58,739	60,350	64,812	71,994	76,839	78,794	82,396
Latin America	751	763	687	785	768	806	904	985	1,131
Argentina	137	137	95	125	103	94	117	150	138
Bahamas	18	16	20	23	21	15	13	9	18
Brazil	220	219	243	259	287	295	341	375	442
Chile	24	23	38	33	51	55	76	68	75
Colombia	21	29	16	20	20	11	21	23	34
Costa Rica	16	3	8	11	9	32	17	20	13
Cuba	15	13	7	6	12	13	14	15	39
Mexico	190	196	157	185	179	180	213	212	248

Appendix table 6-54

USPTO patent applications, by region/country/economy: 2000–08

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Uruguay	4	7	8	11	9	16	11	9	23
Venezuela	45	53	36	29	18	34	22	32	22
All others	61	67	59	83	59	61	59	72	79
Middle East	2,567	2,765	2,719	2,608	2,786	3,251	3,816	4,576	4,765
Israel	2,509	2,710	2,645	2,539	2,693	3,157	3,657	4,410	4,550
Kuwait	10	9	9	5	19	19	34	25	22
Saudi Arabia	28	26	37	32	37	38	62	64	111
United Arab Emirates	7	2	6	12	17	16	24	25	34
All others	13	18	22	20	20	21	39	52	48
United States	164,795	177,511	184,245	188,941	189,536	207,867	221,784	241,347	231,588
Other	11,670	12,463	12,900	13,296	14,500	15,014	16,448	18,188	19,037
Australia	1,800	1,995	2,160	2,310	3,000	2,919	2,928	3,412	3,976
Canada	6,809	7,221	7,375	7,750	8,202	8,638	9,652	10,421	10,307
Iceland	30	51	41	56	51	53	48	46	39
Liechtenstein	28	29	34	32	21	23	24	31	39
Monaco	26	20	26	23	20	12	14	11	14
New Zealand	279	318	375	387	346	352	415	455	438
Norway	447	475	531	449	525	541	562	693	827
Switzerland	2,233	2,337	2,338	2,275	2,316	2,447	2,773	3,079	3,353
All others	18	17	20	14	19	29	32	40	44

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Patent applications assigned to region/country/economy based on residence of first-named inventor. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-55 for full list of countries in each region.

SOURCE: USPTO, Number of Utility Patent Applications Filed in the United States, By Country of Origin, Calendar Years 1965 to Present, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/appl_yr.htm, accessed 19 August 2009.

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Appendix table 6-55

Regions and countries/economies in USPTO patent data

- Africa
  - Egypt
  - South Africa
  - All others
    - Algeria
    - Benin
    - Burkina Faso
    - Cameroon
    - Chad
    - Comoros
    - Congo, Dem. Rep. of
    - Congo, Rep. of
    - Ethiopia
    - Gabon
    - Ghana
    - Guinea
    - Ivory Coast
    - Kenya
    - Lesotho
    - Liberia
    - Libya
    - Madagascar
    - Malagasy Rep.
    - Malawi
    - Mali
    - Mauritania
    - Mauritius
    - Morocco
    - Mozambique
    - Namibia
    - Niger
    - Nigeria
    - Reunion
    - Rhodesia
    - Rhodesia, South
    - Senegal
    - Seychelles
    - Sierra Leone
    - South-West Africa
    - Sudan
    - Swaziland
    - Tanzania
- Africa, all others (cont.)
    - Tunisia
    - Uganda
    - Upper Volta
    - West Africa
    - Western Sahara
    - Zambia
    - Zimbabwe
- Asia-9
  - India
  - Indonesia
  - Malaysia
  - Philippines
  - Singapore
  - South Korea
  - Taiwan
  - Thailand
  - Vietnam
- Canada
- China and Hong Kong
  - China
  - Hong Kong
    - Macau
- Central Europe/Asia
  - Belarus
  - Croatia
  - Russia
  - Turkey
  - Ukraine
  - All others
    - Albania
    - Armenia
    - Azerbaijan
    - Bosnia and Herzegovina
    - Georgia
    - Kazakhstan
    - Kyrgyzstan
    - Macedonia
    - Moldova
    - Mongolia
    - Serbia
    - Serbia and Montenegro
- Central Europe/Asia, all others (cont.)
    - South Georgia
    - Uzbekistan
    - Yugoslavia
- European Union
  - Austria
  - Belgium
  - Bulgaria
  - Czech Republic
  - Denmark
  - Estonia
  - Finland
  - France
  - Germany
  - Greece
  - Hungary
  - Ireland
  - Italy
  - Luxembourg
  - Netherlands
  - Poland
  - Portugal
  - Romania
  - Slovakia
  - Slovenia
  - Spain
  - Sweden
  - United Kingdom
  - All others
    - Cyprus
    - Latvia
    - Lithuania
    - Malta
- Japan
- Latin America
  - Argentina
  - Bahamas
  - Brazil
  - Chile
  - Colombia
  - Costa Rica
- Latin America (cont.)
  - Cuba
  - Mexico
  - Uruguay
  - Venezuela
  - All others
    - Anguilla
    - Antigua and Barbuda
    - Aruba
    - Barbados
    - Belize
    - Bermuda
    - Bolivia
    - British Virgin Islands
    - British West Indies
    - Cayman Islands
    - Central America
    - Cocos Islands
    - Dominica
    - Dominican Republic
    - Ecuador
    - El Salvador
    - Falkland Islands
    - French Guiana
    - Grenada
    - Guatemala
    - Guyana
    - Haiti
    - Honduras
    - Jamaica
    - Martinique
    - Montserrat
    - Nicaragua
    - Panama
    - Paraguay
    - Peru
    - St. Kitts and Nevis
    - St. Lucia
    - St. Vincent and the Grenadines
    - Suriname
    - Trinidad and Tobago
    - Turks and Caicos Islands
- Middle East
  - Israel
  - Kuwait
  - Saudi Arabia
  - United Arab Emirates
  - All others
    - Bahrain
    - Iran
    - Iraq
    - Jordan
    - Lebanon
    - Oman
    - Qatar
    - Syria
    - United Arab Republic
    - West Bank/Gaza
    - Yemen
- United States
- Other
  - Australia
  - Canada
  - Iceland
  - Liechtenstein
  - Monaco
  - New Zealand
  - Norway
  - Switzerland
  - All others
    - Afghanistan
    - Andorra
    - Bangladesh
    - Brunei
    - Burma
    - Ceylon
    - Cook Islands
    - European Patent Office
    - Fiji
    - French Polynesia
    - Gibraltar
    - Greenland
    - Marshall Islands
    - Myanmar
- Other, all others (cont.)
    - Nauru
    - Nepal
    - Netherlands Antilles
    - New Caledonia
    - New Hebrides
    - North Korea
    - Niue
    - Norfolk Island
    - Other Foreign
    - Pakistan
    - Palau
    - Papua New Guinea
    - Samoa
    - San Marino
    - Solomon Islands
    - Sri Lanka
    - Vatican City

USPTO = U.S. Patent and Trademark Office

NOTES: Russia includes former USSR. Czech Republic includes former Czechoslovakia.

SOURCE: USPTO, Number of Utility Patent Applications Filed in the United States, By Country of Origin, Calendar Years 1965 to Present, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/appl_yr.htm, accessed 19 August 2009.

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Appendix table 6-56

USPTO patent grants, by region/country/economy: 1992–99

Region/country/economy	1992	1993	1994	1995	1996	1997	1998	1999
World	97,444	98,342	101,676	101,419	109,645	111,984	147,517	153,485
Africa	103	102	112	130	118	107	119	120
Egypt	1	1	4	3	3	1	0	3
South Africa	97	93	101	123	111	101	115	110
All others	5	8	7	4	4	5	4	7
Asia-9	1,616	2,062	2,489	2,894	3,541	4,120	6,611	7,579
India	24	30	27	37	35	47	85	112
Indonesia	8	4	9	4	1	5	3	5
Malaysia	32	38	51	53	88	94	120	144
Philippines	5	13	10	7	12	17	23	30
Singapore	7	4	1	4	4	4	8	11
South Korea	538	779	943	1,161	1,493	1,891	3,259	3,562
Taiwan	1,001	1,189	1,443	1,620	1,897	2,057	3,100	3,693
Thailand	1	5	5	8	11	5	13	20
Vietnam	0	0	0	0	0	0	0	2
Central Europe/Asia	87	90	122	137	167	147	238	237
Belarus	0	0	2	3	4	2	7	5
Croatia	0	2	1	6	4	10	13	16
Russia	66	68	91	110	132	115	195	184
Turkey	4	0	2	2	3	5	2	4
Ukraine	0	0	9	8	15	8	17	20
All others	17	20	17	8	9	7	4	8
China and Hong Kong	101	113	105	149	135	143	232	245
China	41	53	48	62	46	62	72	90
Hong Kong	60	60	57	87	89	81	160	155
EU	17,105	16,312	16,002	16,193	16,807	17,606	22,820	23,611
Austria	371	312	289	337	362	376	387	479
Belgium	325	350	352	397	488	515	693	648
Bulgaria	5	5	4	1	1	5	1	2
Czech Republic	17	13	20	16	13	23	22	29
Denmark	193	197	207	199	241	333	392	487
Estonia	0	0	1	1	1	0	0	1
Finland	361	293	312	358	444	452	595	649
France	3,029	2,909	2,779	2,821	2,788	2,958	3,674	3,820
Germany	7,309	6,893	6,731	6,600	6,818	7,008	9,095	9,337
Greece	9	7	16	7	18	12	16	23
Hungary	88	61	46	50	43	25	50	39
Ireland	49	46	48	47	77	71	71	90
Italy	1,271	1,285	1,215	1,078	1,200	1,239	1,584	1,492
Luxembourg	26	28	22	24	18	22	20	22
Netherlands	855	800	852	799	797	808	1,226	1,247
Poland	5	8	8	8	15	11	15	19
Portugal	1	2	6	3	3	8	11	5
Romania	0	2	1	3	4	1	3	4
Slovakia	0	0	0	0	1	3	2	5
Slovenia	0	3	6	4	10	7	18	10
Spain	133	158	141	148	157	177	248	222
Sweden	626	636	706	806	854	867	1,225	1,401
United Kingdom	2,431	2,302	2,236	2,481	2,454	2,680	3,467	3,576
All others	1	2	4	5	0	5	5	4
Japan	21,925	22,293	22,384	21,764	23,053	23,179	30,840	31,104
Latin America	153	186	192	195	191	222	272	317
Argentina	20	24	32	31	30	35	43	44
Bahamas	2	2	2	4	2	10	10	10
Brazil	40	57	60	63	63	62	74	91
Chile	5	9	8	7	4	5	16	12
Colombia	6	6	4	3	6	10	4	6
Costa Rica	1	1	2	3	1	7	1	8
Cuba	0	2	4	0	0	4	5	3
Mexico	39	45	44	40	39	45	57	76

Appendix table 6-56

USPTO patent grants, by region/country/economy: 1992–99

Region/country/economy	1992	1993	1994	1995	1996	1997	1998	1999
Uruguay	2	0	0	2	2	4	3	2
Venezuela	22	31	23	29	25	25	27	39
All others	16	9	13	13	19	15	32	26
Middle East	350	323	367	398	500	557	775	774
Israel	335	314	350	384	484	534	754	743
Kuwait	1	2	1	1	2	2	1	10
Saudi Arabia	8	3	11	10	12	14	14	12
United Arab Emirates	1	1	1	0	1	0	1	3
All others	5	3	4	3	1	7	5	6
United States	52,253	53,231	56,066	55,739	61,104	61,708	80,289	83,905
Other	3,751	3,630	3,837	3,820	4,029	4,195	5,321	5,593
Australia	409	378	467	459	471	478	720	707
Canada	1,964	1,944	2,008	2,104	2,232	2,379	2,973	3,226
Iceland	6	5	4	4	4	3	7	11
Liechtenstein	16	11	17	17	12	11	16	15
Monaco	4	5	6	2	4	5	7	13
New Zealand	44	39	37	44	52	85	114	114
Norway	108	117	126	130	139	142	198	224
Switzerland	1,197	1,127	1,169	1,056	1,112	1,090	1,279	1,279
All others	3	4	3	4	3	2	7	4

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Patent grants assigned to region/country/economy based on residence of first-named inventor. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-55 for full list of countries in each region.

SOURCES: USPTO, Extended Year Set, Historic Patents By Country, State, and Year, Utility Patents (December 2008), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_utlh.htm, accessed 23 October 2009.

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Appendix table 6-57

USPTO patent grants, by region/country/economy: 2000–08

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	157,494	166,035	167,331	169,023	164,290	143,806	173,772	157,282	157,772
Africa	124	138	126	130	116	106	123	102	106
Egypt	8	6	5	6	4	7	4	12	2
South Africa	111	120	113	112	100	87	109	82	91
All others	5	12	8	12	12	12	10	8	13
Asia-9	8,395	9,462	9,996	10,117	11,302	10,334	13,344	13,556	15,116
India	131	178	249	342	363	384	481	546	634
Indonesia	6	4	7	9	4	10	3	5	5
Malaysia	42	39	55	50	80	88	113	158	152
Philippines	2	12	14	22	21	18	35	20	16
Singapore	218	296	410	427	449	346	412	393	399
South Korea	3,314	3,538	3,786	3,944	4,428	4,352	5,908	6,295	7,549
Taiwan	4,667	5,371	5,431	5,298	5,938	5,118	6,361	6,128	6,339
Thailand	15	24	44	25	18	16	31	11	22
Vietnam	0	0	0	0	1	2	0	0	0
Central Europe/Asia	225	295	272	271	227	198	241	259	247
Belarus	3	7	2	5	2	2	5	8	7
Croatia	6	8	12	13	9	12	14	15	14
Russia	184	234	201	203	169	148	172	188	176
Turkey	4	11	15	27	13	7	16	19	16
Ukraine	17	21	27	14	21	18	24	12	21
All others	11	14	15	9	13	11	10	17	13
China and Hong Kong	298	432	523	574	715	686	971	1,110	1,537
China	119	195	289	297	404	402	661	772	1,225
Hong Kong	179	237	234	277	311	284	310	338	312
EU	25,082	27,192	27,088	26,841	24,906	21,125	24,364	21,956	21,863
Austria	505	589	530	592	540	463	577	457	463
Belgium	694	718	722	622	612	519	625	520	510
Bulgaria	1	3	3	9	3	3	3	6	16
Czech Republic	32	23	31	41	31	25	34	37	48
Denmark	436	479	426	529	414	358	439	388	391
Estonia	4	1	4	3	2	5	2	7	2
Finland	618	732	809	865	918	720	950	850	824
France	3,819	4,041	4,035	3,868	3,380	2,866	3,431	3,130	3,163
Germany	10,235	11,260	11,280	11,444	10,779	9,011	10,005	9,051	8,915
Greece	18	26	20	22	15	15	20	20	23
Hungary	36	60	48	72	48	46	49	47	66
Ireland	121	141	127	163	186	156	174	146	164
Italy	1,714	1,709	1,751	1,722	1,584	1,296	1,480	1,302	1,357
Luxembourg	40	33	37	35	44	41	33	38	24
Netherlands	1,241	1,332	1,391	1,325	1,273	993	1,323	1,250	1,329
Poland	13	16	11	17	16	23	29	32	54
Portugal	11	12	11	12	17	10	16	13	11
Romania	4	10	3	7	9	7	9	11	12
Slovakia	4	1	8	6	5	0	4	5	5
Slovenia	16	21	16	18	21	12	21	16	14
Spain	270	269	303	309	264	273	295	268	303
Sweden	1,577	1,741	1,675	1,521	1,290	1,123	1,243	1,061	1,060
United Kingdom	3,669	3,967	3,843	3,631	3,450	3,148	3,585	3,292	3,094
All others	4	8	4	8	5	12	17	9	15
Japan	31,295	33,223	34,858	35,515	35,348	30,341	36,807	33,354	33,682
Latin America	328	341	340	377	308	245	295	255	260
Argentina	54	51	54	63	46	24	38	37	32
Bahamas	13	10	13	9	6	6	5	4	3
Brazil	98	110	96	130	106	77	121	90	101
Chile	15	13	11	11	15	9	14	25	13
Colombia	8	12	6	10	10	7	5	3	12
Costa Rica	7	3	3	6	0	3	5	3	4
Cuba	3	4	9	7	2	3	2	3	6
Mexico	76	81	94	85	86	80	66	56	54

Appendix table 6-57

USPTO patent grants, by region/country/economy: 2000–08

Region/country/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Uruguay	1	0	3	2	0	2	2	3	2
Venezuela	27	26	30	19	18	8	13	11	14
All others	26	31	21	35	19	26	24	20	19
Middle East	822	1,001	1,070	1,227	1,052	951	1,262	1,145	1,231
Israel	783	970	1,040	1,193	1,028	924	1,218	1,107	1,166
Kuwait	8	6	8	7	4	3	7	6	15
Saudi Arabia	19	12	10	19	15	18	19	20	30
United Arab Emirates	2	5	6	2	2	3	8	2	9
All others	10	8	6	6	3	3	10	10	11
United States	85,068	87,600	86,971	87,893	84,270	74,637	89,823	79,526	77,501
Other	5,857	6,351	6,087	6,078	6,046	5,183	6,542	6,019	6,229
Australia	705	876	859	902	953	910	1,325	1,265	1,292
Canada	3,419	3,606	3,431	3,427	3,374	2,894	3,572	3,318	3,393
Iceland	17	19	13	14	20	20	22	19	26
Liechtenstein	17	23	17	15	21	10	20	5	12
Monaco	13	14	13	9	10	6	13	9	6
New Zealand	107	124	140	135	142	122	136	113	105
Norway	248	265	242	262	243	220	244	247	273
Switzerland	1,322	1,420	1,364	1,308	1,277	995	1,201	1,035	1,112
All others	9	4	8	6	6	6	9	8	10

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Patent grants assigned to region/country/economy based on residence of first-named inventor. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-55 for full list of countries in each region.

SOURCES: USPTO, Extended Year Set, Historic Patents By Country, State, and Year, Utility Patents (December 2008), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_utlh.htm, accessed 23 October 2009.

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Appendix table 6-58

USPTO patents granted, by technology area: 1995–2008

Technology area	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All technologies	101,417	109,638	111,980	147,503	153,478	157,490	166,033	167,328	169,020	164,291	143,804	173,771	157,282	157,773
Agriculture	2,000	2,272	2,255	2,860	3,417	3,375	3,037	3,115	2,828	2,282	2,157	2,424	2,319	2,140
Aerospace	452	434	411	662	625	741	813	818	793	727	666	741	607	527
Biotechnology	1,280	1,835	2,506	3,654	3,687	3,252	3,695	3,266	2,903	2,550	2,170	2,811	2,728	2,385
Chemicals	8,993	8,795	9,294	11,183	11,325	10,554	10,933	11,369	10,695	9,464	7,609	9,476	8,951	8,983
Electrical appliances and components	5,092	5,544	5,812	7,350	8,017	8,939	9,019	9,277	9,246	9,547	8,250	10,064	9,273	9,073
Fabricated metals	1,391	1,460	1,513	1,731	2,002	2,185	2,189	2,118	1,980	1,687	1,419	1,462	1,324	1,163
Food and tobacco	1,252	1,293	1,166	1,392	1,825	1,756	1,721	1,471	1,336	1,262	875	965	804	658
Glass, clay, and cement	672	694	820	913	892	771	835	829	787	789	546	621	521	532
Heating, ventilation, and refrigeration	831	790	881	1,041	1,163	1,139	1,289	1,277	1,193	1,027	897	940	945	626
Information and communications	21,621	24,664	25,029	37,918	40,289	42,106	45,678	47,717	51,091	55,101	50,758	67,364	61,255	64,884
Computers	8,125	9,900	10,554	16,916	17,643	17,651	18,750	19,361	21,196	23,417	22,082	31,070	28,047	30,332
Semiconductors	5,835	5,827	6,156	8,497	9,766	11,115	13,112	14,030	14,806	15,103	13,100	14,017	13,362	13,420
Telecommunications	7,661	8,937	8,319	12,505	12,880	13,340	13,816	14,326	15,089	16,581	15,576	22,277	19,846	21,132
Industrial machinery and tools	5,093	5,523	5,403	6,773	7,595	8,064	8,590	8,072	7,904	7,391	6,653	7,535	6,107	5,243
Industrial process equipment	3,648	3,775	3,767	4,528	4,898	4,807	4,943	4,704	4,641	4,303	3,656	3,531	3,109	3,313
Measurement and control equipment	4,550	5,036	4,449	5,712	5,560	6,174	6,709	7,604	8,361	8,176	7,575	9,317	8,967	9,122
Medical electronics	1,356	1,272	1,328	1,985	1,748	2,071	2,236	2,370	2,456	1,885	1,026	1,549	1,604	1,485
Medical equipment	4,014	4,224	4,569	6,061	6,093	5,934	5,979	5,599	6,577	5,109	3,854	4,524	4,114	3,606
Miscellaneous machinery	4,928	5,062	4,832	6,028	6,246	6,431	6,312	6,162	5,933	5,048	4,238	4,603	3,881	3,860
Miscellaneous manufacturing	6,934	7,205	7,512	9,094	9,443	9,427	9,530	9,580	9,376	8,969	7,465	7,893	6,940	6,855
Motor vehicles	3,656	4,148	3,888	4,885	4,941	5,760	6,425	6,322	6,101	5,921	5,495	6,068	5,327	5,300
Office equipment and camera	5,109	5,881	6,009	8,367	8,156	8,454	9,246	9,511	9,560	10,041	8,619	9,801	9,188	9,414
Oil, gas, and mining	1,273	1,152	1,028	1,325	1,438	1,550	1,661	1,420	1,472	1,436	1,167	1,556	1,441	1,537
Other	3,323	3,424	3,387	4,594	4,333	4,359	4,446	4,477	4,542	4,211	4,990	4,931	4,149	3,819
Other transport	1,407	1,500	1,340	1,734	1,787	2,076	2,268	2,114	2,025	1,833	1,895	1,986	1,843	1,717
Pharmaceuticals	2,710	3,317	4,399	4,966	5,060	4,776	5,210	5,342	4,972	3,766	2,877	3,874	3,540	3,533
Plastics, rubber, and polymer	4,181	4,147	4,174	4,812	4,613	4,542	4,980	4,751	4,867	4,422	3,100	3,583	3,030	2,605
Power generation and distribution	1,083	1,197	1,204	1,772	1,797	1,767	2,035	2,060	1,981	2,243	1,827	1,920	1,621	1,812
Primary metals	628	560	500	614	678	650	782	764	663	558	377	304	321	354
Textiles and apparel	2,309	2,510	2,553	3,203	3,430	3,180	3,108	2,787	2,461	2,399	1,940	2,128	1,748	1,693
Wood and paper	1,631	1,924	1,951	2,346	2,420	2,650	2,364	2,432	2,276	2,144	1,703	1,800	1,625	1,534

USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board™. Detail may not add to total because of rounding.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-59

USPTO patents granted in information and communications technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	21,621	24,664	25,029	37,918	40,289	42,106	45,678	47,717	51,091	55,101	50,758	67,364	61,255	64,884
Africa	5	8	6	6	9	10	13	12	10	18	16	18	15	21
Algeria	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Egypt	0	1	1	0	1	3	2	0	1	2	2	3	5	3
Kenya	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Morocco	0	0	0	0	1	0	0	0	1	0	1	0	0	3
Nigeria	0	0	1	0	0	0	0	1	0	0	0	0	0	0
South Africa	4	7	4	6	7	7	9	8	7	14	13	14	7	16
All others	0	1	0	0	0	0	2	2	1	2	1	0	3	1
Asia-9	990	1,279	1,614	2,768	3,254	3,737	4,322	4,373	4,486	5,214	4,995	6,850	7,340	8,674
India	6	8	8	7	13	19	29	37	80	99	144	210	268	347
Indonesia	0	0	0	0	2	1	0	2	0	2	0	2	1	1
Malaysia	1	0	1	2	10	11	19	23	16	30	45	50	94	83
Philippines	0	0	2	1	4	3	4	7	14	16	15	16	13	11
Singapore	17	28	58	66	79	119	188	271	265	298	203	257	227	240
South Korea	638	791	977	1,741	1,889	1,869	2,043	2,113	2,237	2,522	2,532	3,596	3,957	4,933
Taiwan	327	450	567	949	1,256	1,710	2,038	1,914	1,867	2,244	2,053	2,712	2,775	3,050
Thailand	0	2	1	1	2	5	2	8	7	3	3	8	6	9
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	25	19	25	54	61	43	73	66	78	57	54	88	76	97
Russia	0	0	0	0	0	0	63	56	67	50	46	76	59	80
Turkey	0	0	0	0	0	0	3	2	1	2	2	4	4	7
Ukraine	3	3	2	5	1	1	2	5	5	1	2	2	2	3
All others	22	16	23	48	60	42	5	2	4	4	3	6	11	7
China and Hong Kong	23	26	26	39	43	47	60	80	103	168	206	353	439	654
China	13	12	12	15	15	18	31	51	60	113	145	272	372	607
Hong Kong	10	14	15	24	28	29	29	29	43	55	61	81	67	47
EU	2,066	2,315	2,177	3,385	3,600	3,879	4,362	4,767	5,193	5,454	5,120	6,596	5,970	6,346
Austria	27	21	17	34	40	53	59	53	91	90	88	116	87	114
Belgium	32	46	39	72	60	67	90	71	94	127	99	127	115	135
Czech Republic	0	0	0	0	0	0	2	8	8	6	10	6	7	13
Denmark	8	12	8	7	38	28	38	51	63	46	52	91	69	75
Finland	74	91	91	180	220	221	254	315	387	440	360	560	537	512
France	457	492	459	629	650	667	695	765	782	844	761	1,044	895	963
Germany	580	619	584	912	972	1,124	1,286	1,498	1,704	1,806	1,790	2,199	2,044	2,165
Hungary	2	4	3	9	5	5	7	6	26	9	12	13	20	18
Ireland	19	25	24	22	22	29	57	41	60	80	58	85	70	88
Italy	99	142	157	231	212	235	300	290	297	253	253	286	261	307
Netherlands	241	236	206	361	330	286	311	345	388	378	272	403	377	372
Poland	0	0	1	0	1	3	3	1	4	5	6	11	12	18
Spain	4	11	17	22	12	17	16	20	23	28	35	61	51	77
Sweden	107	170	153	235	299	395	430	421	394	330	315	358	276	297
United Kingdom	411	440	411	664	730	741	803	873	863	1,001	990	1,207	1,122	1,157
All others	5	7	6	5	9	9	10	9	10	10	17	28	27	37

Appendix table 6-59

USPTO patents granted in information and communications technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	7,729	8,250	8,037	11,482	11,495	11,244	11,957	12,884	13,758	14,605	12,923	16,676	14,786	15,200
Latin America	8	11	11	9	14	13	16	21	19	31	26	29	27	28
Argentina	3	0	1	1	0	2	2	1	0	3	0	4	4	1
Brazil	1	3	4	4	6	2	4	6	6	9	4	12	11	14
Chile	0	0	0	0	1	1	1	0	1	3	1	0	0	2
Colombia	0	1	1	0	0	0	1	2	1	0	1	0	0	0
Mexico	2	2	2	1	4	7	7	9	8	12	15	8	8	3
Venezuela	1	2	1	0	0	1	0	2	1	1	3	4	2	3
All others	2	3	2	2	3	1	1	1	2	3	2	0	2	6
Middle East	103	145	151	230	232	253	307	348	450	458	435	607	538	601
Iran	0	0	1	0	0	0	2	4	2	3	2	1	2	0
Israel	102	142	149	229	231	249	301	340	446	451	429	597	534	589
Saudi Arabia	1	3	0	0	0	1	2	1	2	2	1	3	0	7
All others	2	1	3	2	2	6	4	5	2	5	3	9	4	7
United States	10,334	12,215	12,556	19,302	20,827	22,056	23,701	24,253	25,930	27,816	25,807	34,392	30,370	31,404
Other	340	396	426	644	755	824	868	914	1,065	1,281	1,175	1,756	1,694	1,859
Australia	32	32	34	63	59	79	76	108	150	205	203	364	368	345
Canada	208	290	290	459	551	611	637	628	721	848	740	1,115	1,075	1,238
New Zealand	3	2	6	14	9	12	13	12	25	10	18	21	19	20
Norway	16	10	7	14	22	22	22	31	28	37	36	46	55	57
Switzerland	80	62	89	91	107	93	108	130	134	165	172	200	170	193
All others	2	0	0	4	6	7	12	5	7	16	7	9	6	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. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board™, Proprietary Patent Database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-60

Regions and countries/economies in USPTO patent technology data

- Africa
  - Algeria
  - Egypt
  - Ethiopia
  - Kenya
  - Morocco
  - Nigeria
  - South Africa
  - Other
    - Africa Regional Industrial Property Org.
    - African Intellectual Property Org.
    - Benin
    - Burkina Faso
    - Cameroon
    - Chad
    - Congo
    - Congo, Democratic Rep. of
    - Côte d'Ivoire
    - Djibouti
    - Gabon
    - Gambia
    - Ghana
    - Guinea
    - Liberia
    - Madagascar
    - Mali
    - Mauritius
    - Namibia
    - Niger
    - Rwanda
    - Senegal
    - Seychelles
    - Sierra Leone
    - Swaziland
    - Tanzania
    - Tunisia
    - Uganda
    - Yemen
    - Zambia
    - Zimbabwe
- Asia-9
  - India
  - Indonesia
  - Malaysia
  - Philippines
  - Singapore
  - South Korea
  - Taiwan
  - Thailand
  - Vietnam
- Central Europe/Asia
  - Russia
  - Turkey
  - Ukraine
- Central Europe/Asia (cont.)
  - Other
    - Albania
    - Andorra
    - Armenia
    - Azerbaijan
    - Belarus
    - Bosnia and Herzegovina
    - Kirabati
    - Kyrgyzstan
    - Laos
    - Macedonia
    - Moldova
    - Tajikistan
    - USSR
    - Uzbekistan
    - Vatican City
    - Yugoslavia
- China and Hong Kong
  - China
  - Hong Kong
    - Macau
- European Union
  - Austria
  - Belgium
  - Czech Republic
  - Denmark
    - Denmark
    - Faroe Islands
    - Greenland
  - Finland
  - France
    - France
    - French Guiana
    - French Polynesia
    - Guadeloupe
    - New Caledonia
  - Germany
  - Hungary
  - Ireland
  - Italy
  - Netherlands
  - Poland
  - Sweden
  - United Kingdom
    - Anguilla
    - Bermuda
    - British Indian Ocean Territory
    - Cayman Islands
    - Falkland Islands
    - Gibralter
    - Turks and Caicos Islands
    - United Kingdom
    - Virgin Islands (British)
- European Union (cont.)
  - Other
    - Bulgaria
    - Cyprus
    - Estonia
    - European Patent Office
    - Greece
    - Hague Agreement
    - Latvia
    - Lithuania
    - Luxembourg
    - Malta
    - Portugal
    - Romania
- Japan
- Latin America
  - Argentina
  - Brazil
  - Chile
  - Colombia
  - Mexico
  - Venezuela
  - Other
    - 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
- Middle East
  - Bahrain
  - Iran
  - Israel
- Middle East (cont.)
  - Saudi Arabia
  - Other
    - Kuwait
    - Lebanon
    - Oman
    - Pakistan
    - Qatar
    - Syria
    - United Arab Emirates
- United States
  - American Virgin Islands
  - Northern Mariana Islands
  - Puerto Rico
  - United States
- Other
  - Australia
    - Australia
    - Christmas Island
    - Norfolk
  - Canada
  - New Zealand
    - Cook Islands
    - New Zealand
    - Tokelau
  - Norway
  - Switzerland
  - All others
    - Afghanistan
    - Bangladesh
    - Brunei
    - Burma
    - Fiji
    - Gibraltar
    - Iceland
    - Liechtenstein
    - Marshall Islands
    - Monaco
    - Myanmar
    - Nauru
    - Nepal
    - North Korea
    - Palau
    - Papua New Guinea
    - Samoa
    - San Marino
    - Solomon Islands
    - Sri Lanka
    - Vanuatu

USPTO = U.S. Patent and Trademark Office

NOTE: Czech Republic includes former Czechoslovakia.

SOURCE: The Patent Board, Proprietary Patent Database (15 February 2009).

Science and Engineering Indicators 2010

Appendix table 6-61

USPTO patents granted in computer technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	8,125	9,900	10,554	16,916	17,643	17,651	18,750	19,361	21,196	23,417	22,082	31,070	28,047	30,332
Africa	1	2	1	2	2	1	3	5	3	8	4	7	6	12
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	1	0	0	0	0	0	0	1	0	1	2	2
Kenya	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Morocco	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Nigeria	0	0	0	0	0	0	0	1	0	0	0	0	0	0
South Africa	1	2	0	2	1	1	3	3	2	7	4	5	3	8
All others	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Asia-9	240	335	466	842	956	955	1,011	1,077	1,171	1,450	1,507	2,251	2,345	2,839
India	6	3	3	4	8	11	18	18	44	65	77	131	161	212
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	0	0	1	1	2	4	1	2	6	4	11	15	30	24
Philippines	0	0	0	1	1	1	0	0	0	0	2	0	1	3
Singapore	3	3	8	12	25	18	31	55	82	107	58	85	52	72
South Korea	173	243	333	634	694	663	678	603	603	695	732	1,175	1,245	1,541
Taiwan	57	85	120	190	226	256	282	394	432	577	625	841	852	984
Thailand	0	1	0	1	0	3	1	4	5	1	2	2	3	3
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	4	2	7	18	33	19	26	19	38	20	20	48	32	42
Russia	0	0	0	0	0	0	22	18	36	19	17	41	25	38
Turkey	0	0	0	0	0	0	1	1	1	0	1	1	1	1
Ukraine	0	1	0	1	1	1	1	1	0	0	0	1	1	1
All others	4	1	7	17	31	18	2	0	1	1	2	4	4	2
China and Hong Kong	10	6	13	15	12	18	23	30	39	65	78	153	191	305
China	7	4	4	4	6	7	14	23	23	45	52	125	161	286
Hong Kong	3	3	9	10	6	10	9	8	16	21	25	28	30	19
EU	585	646	671	1,081	1,140	1,187	1,391	1,522	1,596	1,845	1,818	2,430	2,395	2,580
Austria	11	6	7	13	14	17	19	15	29	20	21	26	21	31
Belgium	10	9	11	20	24	29	27	23	22	30	28	44	46	39
Czech Republic	0	0	0	0	0	0	2	1	2	4	5	4	2	6
Denmark	1	3	3	4	13	8	12	16	23	17	16	30	23	16
Finland	8	7	8	15	23	32	43	43	45	56	59	110	121	118
France	145	163	159	216	233	207	233	263	280	334	296	414	374	399
Germany	144	151	162	277	302	347	394	485	523	601	627	788	834	902
Hungary	1	1	0	2	2	0	2	0	3	3	2	6	4	6
Ireland	9	14	7	5	9	13	21	20	20	33	23	34	29	35
Italy	26	50	56	101	81	94	109	97	101	102	115	128	126	146
Netherlands	67	74	63	113	94	97	114	118	120	127	108	166	163	156
Poland	0	0	0	0	1	0	0	0	2	3	3	6	2	5
Spain	1	4	2	5	5	3	1	6	6	10	12	22	16	31
Sweden	21	19	28	33	39	52	68	72	66	76	60	108	99	99
United Kingdom	138	145	166	274	297	285	344	361	352	422	431	530	525	570
All others	4	2	1	2	4	4	2	2	4	5	9	12	10	20

Appendix table 6-61

USPTO patents granted in computer technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	3,147	3,451	3,449	4,984	4,882	4,613	4,859	5,091	5,574	5,936	5,292	7,427	6,530	6,558
Latin America	1	6	5	6	10	6	8	10	13	17	18	17	19	19
Argentina	0	0	1	1	0	1	1	1	0	1	0	2	3	1
Brazil	0	1	0	3	5	1	3	3	5	5	3	8	10	9
Chile	0	0	0	0	1	1	1	0	1	3	1	0	0	2
Colombia	0	1	1	0	0	0	1	1	0	0	1	0	0	0
Mexico	0	1	1	1	2	4	2	3	4	5	10	4	4	2
Venezuela	0	2	1	0	0	0	0	2	1	1	3	2	1	1
All others	1	2	0	1	2	1	0	1	2	2	0	0	2	5
Middle East	43	64	67	116	118	138	163	175	221	220	216	306	269	318
Iran	0	0	0	0	0	0	2	2	1	1	0	0	1	0
Israel	43	61	67	116	117	136	159	171	219	217	215	302	267	312
Saudi Arabia	1	3	0	0	0	1	1	0	0	1	0	1	0	4
All others	0	0	1	1	0	1	0	3	1	0	1	3	0	2
United States	3,995	5,265	5,713	9,606	10,219	10,410	10,917	11,049	12,118	13,332	12,616	17,618	15,404	16,753
Other	99	123	162	247	271	303	349	382	423	525	514	814	855	907
Australia	15	13	16	31	32	52	46	52	84	118	114	228	243	210
Canada	49	82	117	169	186	206	246	259	272	331	292	474	484	560
New Zealand	1	1	1	3	6	3	4	5	12	6	8	13	13	13
Norway	15	8	5	11	18	18	8	18	12	16	19	22	32	31
Switzerland	18	19	22	32	29	24	43	46	39	52	78	72	78	89
All others	1	0	0	2	0	0	3	2	3	2	3	5	3	3

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-62

USPTO patents granted in semiconductor technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	5,835	5,827	6,156	8,497	9,766	11,115	13,112	14,030	14,806	15,103	13,100	14,017	13,362	13,420
Africa	1	1	1	1	2	3	2	2	1	3	0	2	2	2
Algeria	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Egypt	0	1	0	0	0	0	1	0	1	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Morocco	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	0	0	0	0
South Africa	1	0	1	1	2	3	1	0	0	2	0	1	1	1
All others	0	0	0	0	0	0	0	1	1	1	0	0	1	0
Asia-9	470	537	705	1,163	1,500	1,961	2,473	2,347	2,279	2,436	2,097	2,547	2,712	3,046
India	0	1	1	0	1	4	1	2	6	4	5	8	9	14
Indonesia	0	0	0	0	1	0	0	1	0	1	0	1	1	1
Malaysia	0	0	0	1	4	4	13	17	9	19	28	29	46	43
Philippines	0	0	2	0	3	2	4	7	14	16	13	14	11	8
Singapore	8	14	31	33	41	71	134	169	155	147	114	121	124	118
South Korea	237	224	314	535	582	615	758	870	938	1,005	933	1,194	1,359	1,628
Taiwan	225	297	356	594	866	1,263	1,564	1,277	1,155	1,242	1,003	1,175	1,160	1,229
Thailand	0	1	1	0	2	2	0	3	2	2	1	5	2	6
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	16	11	9	18	19	17	29	28	27	13	14	12	15	21
Russia	0	0	0	0	0	0	27	24	21	12	12	11	11	15
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Ukraine	2	0	1	1	0	0	0	3	4	0	0	0	1	2
All others	14	11	8	18	19	17	1	2	3	1	1	1	3	2
China and Hong Kong	5	8	4	7	14	7	19	32	37	64	70	83	131	172
China	2	5	4	3	3	2	11	18	25	42	49	66	110	157
Hong Kong	3	3	0	4	11	5	8	13	12	22	21	17	21	15
EU	520	524	516	761	773	861	1,046	1,176	1,377	1,318	1,182	1,211	1,100	1,092
Austria	10	7	2	8	9	13	20	12	20	21	16	29	27	27
Belgium	4	5	6	10	11	13	27	22	48	43	25	32	32	41
Czech Republic	0	0	0	0	0	0	0	0	1	1	0	0	1	5
Denmark	4	1	2	0	3	3	4	8	7	8	4	11	5	8
Finland	1	7	5	9	6	13	14	17	17	21	25	24	18	18
France	105	90	92	131	126	136	153	162	184	177	163	195	164	136
Germany	204	203	212	312	321	382	440	529	624	640	601	612	554	569
Hungary	1	2	3	5	3	3	3	5	12	3	4	3	5	5
Ireland	5	5	5	4	4	3	14	5	8	10	7	13	5	13
Italy	35	45	48	61	69	80	117	117	110	84	72	61	48	52
Netherlands	65	66	53	99	83	70	89	106	146	94	53	61	75	64
Poland	0	0	1	0	0	2	2	1	2	1	1	3	2	7
Spain	1	2	4	4	1	4	3	5	2	0	6	6	2	4
Sweden	12	18	18	40	37	57	67	51	48	49	39	27	19	24
United Kingdom	75	72	65	77	99	82	92	134	145	166	164	128	136	117
All others	0	1	1	1	1	2	4	3	4	3	1	6	6	2

Appendix table 6-62

USPTO patents granted in semiconductor technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	2,150	2,082	2,140	2,785	3,170	3,236	3,705	4,283	4,593	4,773	4,058	4,296	3,973	3,956
Latin America	3	2	2	0	1	2	4	4	0	4	3	2	1	2
Argentina	0	0	0	0	0	1	1	0	0	1	0	0	0	0
Brazil	0	0	1	0	1	0	1	1	0	2	1	2	0	1
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	2	1	0	0	0	1	1	3	0	1	1	0	1	1
Venezuela	1	0	0	0	0	1	0	0	0	0	0	0	0	0
All others	1	1	1	0	0	0	1	0	0	0	0	0	0	0
Middle East	11	16	18	20	23	21	31	35	54	39	38	37	49	39
Iran	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Israel	11	16	18	20	23	21	31	34	53	38	37	36	49	39
Saudi Arabia	0	0	0	0	0	0	0	1	1	1	1	1	0	0
All others	1	1	1	1	2	3	2	2	1	3	0	2	2	2
United States	2,581	2,578	2,689	3,660	4,186	4,905	5,695	6,015	6,263	6,282	5,514	5,665	5,255	4,955
Other	78	68	74	80	78	102	109	108	174	171	124	162	124	136
Australia	4	4	7	6	5	5	13	12	25	26	21	33	22	17
Canada	42	44	37	52	40	64	61	50	101	100	71	88	73	86
New Zealand	0	1	0	0	0	2	1	0	1	0	0	1	2	0
Norway	0	0	2	1	2	1	2	2	4	5	5	5	3	2
Switzerland	32	19	29	21	32	30	31	44	41	39	28	34	23	29
All others	0	0	0	0	0	0	1	0	1	2	0	1	1	2

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies ba sed on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-63

USPTO patents granted in telecommunications technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	7,661	8,937	8,319	12,505	12,880	13,340	13,816	14,326	15,089	16,581	15,576	22,277	19,846	21,132
Africa	3	6	4	4	5	5	8	5	6	7	12	9	8	8
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	1	2	1	0	1	1	2	2	3	0
Kenya	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	1	0	0	1
Nigeria	0	0	1	0	0	0	0	0	0	0	0	0	0	0
South Africa	2	5	3	4	3	3	5	5	5	6	9	7	3	7
All others	0	1	0	0	0	0	2	0	0	0	1	0	1	1
Asia-9	280	408	444	762	797	821	837	949	1,036	1,328	1,391	2,053	2,282	2,789
India	0	4	4	4	3	4	10	17	30	30	62	71	97	121
Indonesia	0	0	0	0	1	1	0	0	0	1	0	2	0	0
Malaysia	1	0	0	0	4	3	4	4	2	6	6	5	18	16
Philippines	0	0	0	0	0	1	0	0	0	0	0	1	1	1
Singapore	6	11	19	20	13	30	23	47	29	44	31	50	51	49
South Korea	228	324	329	572	612	591	607	639	697	822	868	1,228	1,353	1,764
Taiwan	45	68	92	166	164	192	192	243	279	424	425	696	763	837
Thailand	0	0	0	1	0	0	1	0	0	0	0	1	0	0
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	6	6	10	18	9	7	19	18	12	23	20	28	29	34
Russia	0	0	0	0	0	0	15	15	10	19	17	23	23	28
Turkey	0	0	0	0	0	0	1	1	1	1	1	3	2	3
Ukraine	1	1	1	4	0	0	1	2	1	1	2	1	0	0
All others	5	4	9	14	9	7	2	1	1	3	0	1	4	3
China and Hong Kong	8	12	10	17	17	22	18	17	27	39	58	117	116	177
China	4	4	4	7	6	8	7	9	12	27	44	81	100	164
Hong Kong	4	8	5	10	11	13	12	8	15	12	15	36	16	13
EU	960	1,145	990	1,542	1,686	1,830	1,925	2,068	2,219	2,291	2,120	2,955	2,475	2,675
Austria	6	8	8	14	18	24	21	26	42	49	52	60	38	56
Belgium	19	32	22	41	25	26	36	25	24	54	46	51	37	54
Czech Republic	0	0	0	0	0	0	1	7	5	1	4	2	4	2
Denmark	3	7	4	3	22	16	23	28	33	21	32	50	41	51
Finland	64	77	79	156	191	176	197	255	325	363	276	425	399	377
France	207	240	209	282	291	324	309	340	317	333	302	436	356	428
Germany	232	266	210	322	349	396	451	484	558	565	561	799	656	694
Hungary	0	1	1	2	1	2	2	1	12	4	5	4	11	8
Ireland	5	6	12	13	9	13	22	16	32	37	28	38	36	40
Italy	38	47	54	69	62	61	74	76	86	68	65	97	87	108
Netherlands	110	97	90	148	153	119	108	122	122	157	111	175	139	152
Poland	0	0	0	0	1	1	1	0	0	1	2	2	7	6
Spain	2	5	11	14	5	10	13	9	15	18	18	33	32	42
Sweden	75	133	108	163	224	286	296	298	280	205	216	223	159	173
United Kingdom	199	223	180	313	334	375	367	378	367	413	395	549	461	469
All others	1	4	4	2	4	3	5	4	2	2	7	10	11	15

Appendix table 6-63

USPTO patents granted in telecommunications technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	2,431	2,717	2,448	3,713	3,443	3,395	3,392	3,511	3,591	3,897	3,573	4,953	4,284	4,687
Latin America	3	3	4	3	3	5	4	7	6	10	5	10	7	7
Argentina	3	0	0	0	0	1	0	0	0	1	0	2	1	0
Brazil	1	2	2	1	0	1	0	2	1	2	0	1	1	4
Chile	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Mexico	0	1	1	0	2	3	4	4	4	6	4	4	3	0
Venezuela	0	1	0	0	0	0	0	0	0	1	0	3	1	2
All others	0	0	1	1	1	0	0	0	0	0	1	0	0	1
Middle East	48	64	66	93	91	94	113	138	176	200	181	264	220	244
Iran	0	0	1	0	0	0	0	2	1	2	2	0	1	0
Israel	48	64	65	93	91	92	111	135	174	196	177	260	218	238
Saudi Arabia	0	0	0	0	0	0	0	0	1	0	0	1	0	3
All others	0	0	1	0	0	2	2	1	0	1	2	3	1	3
United States	3,758	4,372	4,153	6,036	6,422	6,741	7,089	7,189	7,548	8,202	7,678	11,109	9,711	9,696
Other	163	205	191	317	406	419	410	423	468	585	538	780	715	816
Australia	13	15	11	26	23	21	18	44	41	61	68	103	103	118
Canada	117	164	137	238	326	341	331	319	348	417	377	553	518	592
New Zealand	2	0	5	11	3	7	8	6	12	4	11	8	4	7
Norway	1	2	1	2	2	3	12	11	11	16	12	19	20	23
Switzerland	29	24	38	38	47	40	34	40	54	74	66	94	68	75
All others	1	0	0	2	6	7	8	4	3	12	4	4	2	1

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-64

USPTO patents granted in aerospace technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	452	434	411	662	625	741	813	818	793	727	666	741	607	527
Africa	0	0	1	0	0	1	1	0	1	1	1	0	0	1
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	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
Morocco	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	0	0	0	0
South Africa	0	0	1	0	0	1	1	0	1	1	1	0	0	1
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia-9	2	3	1	10	5	8	6	7	6	6	3	5	6	2
India	0	0	0	0	0	1	0	0	0	0	1	0	1	0
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Philippines	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	0	0	0	0	1	0	0	0
South Korea	0	0	0	6	1	2	2	0	4	0	0	3	3	1
Taiwan	2	3	1	4	4	4	3	6	2	6	1	2	2	1
Thailand	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	2	3	2	4	3	4	12	11	8	7	0	2	1	1
Russia	0	0	0	0	0	0	11	10	6	5	0	2	1	1
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ukraine	0	0	0	0	0	0	1	0	1	2	0	0	0	0
All others	2	3	2	4	3	4	0	1	1	0	0	0	0	0
China and Hong Kong	1	0	0	0	0	0	0	0	0	1	2	2	1	1
China	1	0	0	0	0	0	0	0	0	0	1	1	1	1
Hong Kong	0	0	0	0	0	0	0	0	0	1	1	1	0	0
EU	105	104	79	143	134	195	183	185	181	156	132	150	130	120
Austria	0	0	0	1	1	1	8	3	3	0	2	2	0	1
Belgium	0	1	0	1	0	0	0	3	2	0	0	0	0	0
Czech Republic	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Denmark	0	0	0	0	3	1	0	1	0	0	0	0	0	0
Finland	1	3	1	0	0	0	1	2	1	0	1	2	1	1
France	39	42	28	73	49	81	60	51	54	68	46	50	53	55
Germany	18	27	23	34	53	53	64	72	66	49	35	48	41	27
Hungary	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Ireland	1	0	1	0	0	1	0	0	0	0	0	0	0	0
Italy	4	2	4	1	2	7	5	6	7	4	8	5	3	3
Netherlands	4	4	3	1	1	2	1	2	4	3	1	1	1	2
Poland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	4	1	1	3	1	10	5	6	2	1	2	0	2	2
Sweden	7	1	4	1	3	2	5	6	6	3	5	10	3	5
United Kingdom	27	22	14	29	21	35	34	34	34	27	29	31	25	23
All others	0	0	0	0	0	0	0	0	1	2	0	1	0	2

Appendix table 6-64

USPTO patents granted in aerospace technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	19	18	24	24	38	40	75	58	68	60	57	50	30	25
Latin America	0	0	0	0	0	5	1	0	1	0	0	3	0	1
Argentina	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Brazil	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Chile	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	1	1	0	1	0	0	1	0	1
Middle East	1	2	6	6	6	3	6	6	9	5	1	1	5	4
Iran	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel	1	2	6	6	5	2	6	6	8	5	1	1	5	3
Saudi Arabia	0	0	0	0	0	0	0	0	1	0	0	0	0	1
All others	0	0	0	0	1	1	0	0	0	0	0	0	0	0
United States	306	288	280	452	422	460	495	519	482	449	440	471	404	338
Other	17	16	18	25	17	26	34	32	36	41	31	57	31	34
Australia	1	1	1	1	0	2	0	3	5	2	2	3	3	3
Canada	6	6	5	9	6	16	13	17	17	21	19	32	19	15
New Zealand	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Norway	0	0	1	0	1	0	1	1	3	1	1	0	1	1
Switzerland	10	9	11	15	9	8	21	12	11	17	7	21	7	14
All others	0	0	0	1	1	0	0	0	0	0	1	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies ba sed on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-65

USPTO patents granted in pharmaceuticals technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	2,710	3,317	4,399	4,966	5,060	4,776	5,210	5,342	4,972	3,766	2,877	3,874	3,540	3,533
Africa	1	4	7	4	5	5	6	8	10	3	3	3	6	2
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	1	0	0	0	1	0	0	0	1	2	0	2	0
Kenya	0	0	0	0	0	0	1	0	1	0	0	1	0	0
Morocco	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Nigeria	0	0	0	1	0	2	0	1	1	0	0	0	0	0
South Africa	0	3	5	3	4	1	3	5	6	2	1	1	3	1
All others	1	0	1	0	1	0	2	1	2	0	0	1	1	1
Asia-9	13	26	43	49	72	83	84	94	129	118	90	125	112	110
India	3	5	6	11	17	26	33	39	62	37	36	52	30	41
Indonesia	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0	0	3	1	0	1	1	1
Philippines	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Singapore	1	0	1	2	1	3	2	1	6	4	3	3	3	7
South Korea	7	15	26	25	36	43	33	32	35	54	28	37	50	26
Taiwan	2	6	9	11	15	10	16	19	22	22	21	29	26	33
Thailand	0	0	0	0	2	1	0	2	1	1	1	2	1	2
Vietnam	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Central Europe/Asia	6	15	13	21	17	21	23	21	12	6	11	11	19	18
Russia	0	0	0	0	0	0	12	11	9	3	6	5	10	10
Turkey	1	0	0	0	1	1	1	3	0	1	0	0	0	0
Ukraine	0	0	0	1	0	0	0	1	0	0	0	0	0	0
All others	5	15	13	20	17	20	9	7	3	2	5	5	9	8
China and Hong Kong	10	6	11	6	8	8	12	15	18	25	22	22	47	35
China	8	5	10	5	7	6	12	14	17	18	16	16	31	26
Hong Kong	2	1	1	1	0	1	0	2	1	7	6	6	17	8
EU	672	792	1,054	1,154	1,184	1,173	1,228	1,198	1,161	876	645	869	810	838
Austria	9	15	22	18	31	20	13	15	13	9	5	16	12	13
Belgium	19	24	37	32	40	35	36	51	48	37	24	39	37	36
Czech Republic	0	0	0	0	0	0	5	3	2	4	1	2	4	3
Denmark	23	24	35	48	61	48	65	47	53	45	29	38	34	34
Finland	7	17	11	14	16	12	11	16	15	9	10	12	6	11
France	141	154	204	234	198	224	245	223	237	146	111	155	136	148
Germany	168	191	269	287	291	301	333	339	297	247	169	231	216	235
Hungary	15	17	9	12	9	8	10	11	10	6	6	6	3	8
Ireland	1	3	7	6	4	9	5	5	4	6	4	6	2	6
Italy	73	92	93	91	88	94	104	86	75	67	57	68	69	65
Netherlands	17	17	30	48	42	37	44	35	41	39	40	34	35	37
Poland	1	4	3	4	3	2	4	2	3	2	2	3	5	1
Spain	14	17	20	29	23	10	12	27	29	18	16	24	24	22
Sweden	33	44	64	69	68	68	64	73	72	49	37	45	46	45
United Kingdom	147	170	246	257	290	295	275	259	246	187	132	181	179	171
All others	3	5	5	6	19	10	4	6	14	5	2	10	3	4

Appendix table 6-65

USPTO patents granted in pharmaceuticals technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	350	364	393	437	422	392	489	427	357	286	203	292	242	238
Latin America	6	12	12	13	11	11	11	20	26	11	10	17	12	18
Argentina	2	3	6	5	4	3	4	7	9	4	1	3	2	2
Brazil	2	2	0	1	3	1	1	3	9	2	4	9	4	3
Chile	1	0	1	3	0	0	1	2	0	0	0	0	1	0
Colombia	0	0	0	1	0	0	0	0	0	1	0	1	0	0
Mexico	1	4	3	2	2	4	1	0	5	2	3	3	0	2
Venezuela	0	0	1	0	0	0	0	0	0	1	0	1	1	0
All others	0	2	2	1	2	4	4	8	3	2	1	1	4	10
Middle East	28	41	34	49	69	50	43	69	66	46	33	37	52	47
Iran	1	0	0	0	0	0	0	0	0	1	1	1	0	0
Israel	27	41	31	48	67	48	41	68	65	45	32	34	50	47
Saudi Arabia	0	0	0	0	1	1	1	0	0	0	0	0	0	1
All others	0	0	4	1	1	1	1	1	1	0	0	2	2	0
United States	1,494	1,890	2,609	2,949	2,966	2,776	3,023	3,193	2,911	2,158	1,695	2,253	2,033	1,980
Others	130	168	222	282	306	257	291	298	283	237	164	246	207	248
Australia	20	22	22	42	56	38	64	41	42	36	18	32	29	42
Canada	59	84	116	167	172	155	146	171	153	132	94	141	118	128
New Zealand	2	4	3	3	12	6	7	12	15	11	6	6	6	6
Norway	3	11	10	10	6	11	5	11	8	5	8	7	10	7
Switzerland	44	46	68	57	56	45	65	59	61	49	36	55	41	64
All others	2	0	2	2	5	3	3	4	5	4	3	5	3	1

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-66

USPTO patents granted in biotechnology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	1,280	1,835	2,506	3,654	3,687	3,252	3,695	3,266	2,903	2,550	2,170	2,811	2,728	2,385
Africa	2	0	0	1	3	2	4	3	1	2	0	2	1	2
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Morocco	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	0	0	0	0
South Africa	2	0	0	0	2	0	3	2	0	2	0	2	0	0
All others	0	0	0	1	0	1	0	1	0	0	0	0	1	0
Asia-9	15	16	23	44	57	35	70	74	74	54	66	128	103	102
India	3	3	4	5	5	5	9	23	27	19	16	25	25	20
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	0	1	1	0	1	0	0	0	1	0	0	1	2	2
Philippines	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Singapore	0	1	0	4	3	2	3	1	4	4	4	8	5	9
South Korea	9	9	10	20	34	16	34	29	28	20	28	55	45	45
Taiwan	2	2	7	15	13	10	24	21	13	11	18	36	26	24
Thailand	0	0	0	0	1	0	0	0	0	0	1	2	0	2
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	1	8	6	11	11	7	9	14	8	8	9	7	14	14
Russia	0	0	0	0	0	0	6	12	7	6	9	7	11	12
Turkey	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Ukraine	0	0	0	2	0	0	2	1	1	2	0	0	2	1
All others	1	8	6	9	11	7	0	0	0	0	0	0	0	1
China and Hong Kong	2	0	0	7	3	5	9	9	12	9	14	23	25	18
China	0	0	0	6	2	2	6	3	7	7	8	16	15	11
Hong Kong	2	0	0	1	2	2	3	6	5	2	6	7	10	8
EU	209	276	404	641	650	583	726	585	579	487	402	494	510	455
Austria	8	10	15	20	10	12	15	15	13	12	13	7	11	9
Belgium	12	16	13	32	31	35	30	28	19	30	14	22	32	16
Czech Republic	0	0	0	0	0	0	1	1	0	1	1	1	1	0
Denmark	11	18	39	67	67	64	72	44	50	27	29	37	33	29
Finland	9	8	11	20	21	4	11	9	8	6	7	10	8	12
France	29	52	80	105	113	101	126	93	116	81	73	87	81	67
Germany	65	75	91	141	144	125	182	154	177	160	126	143	148	151
Hungary	1	1	0	2	2	1	1	3	3	5	5	2	2	4
Ireland	0	1	1	1	2	1	2	3	2	3	2	5	4	0
Italy	10	17	17	29	30	15	17	19	17	8	14	14	12	17
Netherlands	13	15	37	55	51	59	59	43	38	30	32	37	33	40
Poland	0	1	0	1	1	0	0	0	0	1	1	2	2	2
Spain	3	4	3	5	7	7	8	5	5	9	5	7	7	9
Sweden	9	8	18	21	27	24	34	26	27	21	13	19	21	22
United Kingdom	39	47	79	136	139	130	161	136	101	89	66	99	111	75
All others	1	2	1	5	5	6	6	4	2	4	3	4	5	3

Appendix table 6-66

USPTO patents granted in biotechnology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	178	206	216	388	312	258	288	242	220	212	217	297	288	285
Latin America	3	2	7	8	4	4	11	8	5	9	4	4	6	6
Argentina	0	1	0	1	0	0	0	0	0	3	0	1	2	1
Brazil	0	0	1	0	1	0	5	2	1	4	0	2	2	1
Chile	0	0	0	0	0	0	0	0	1	0	0	1	1	2
Colombia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	3	1	3	2	2	3	3	2	3	1	2	0	0	2
Venezuela	0	0	0	0	1	1	0	1	0	0	0	0	0	0
All others	0	0	2	4	0	0	2	2	1	1	1	0	0	1
Middle East	6	11	16	32	26	21	29	28	20	16	13	29	20	23
Iran	0	0	0	0	1	0	1	0	0	0	0	1	0	0
Israel	6	11	16	32	25	20	28	28	20	15	13	28	20	23
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All others	0	0	0	0	0	1	0	0	0	0	0	0	0	0
United States	806	1,216	1,739	2,358	2,438	2,156	2,351	2,121	1,849	1,625	1,336	1,682	1,631	1,372
Other	58	99	95	165	185	180	199	183	135	129	109	145	131	107
Australia	10	22	22	40	27	25	36	31	19	21	26	33	27	23
Canada	28	48	45	85	124	112	116	105	78	74	53	71	78	57
New Zealand	0	1	3	3	2	3	2	10	3	4	4	10	4	6
Norway	1	5	1	3	7	8	5	1	6	7	3	3	3	1
Switzerland	19	23	23	34	24	31	40	34	26	22	20	26	17	18
All others	0	0	1	0	1	0	1	1	3	1	2	2	2	3

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-67

USPTO patents granted in medical equipment, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	4,014	4,224	4,569	6,061	6,093	5,934	5,979	5,599	6,577	5,109	3,854	4,524	4,114	3,606
Africa	11	3	3	8	8	9	5	5	9	5	4	12	4	3
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	1	1	1	1	0	0	0	0	0
Kenya	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	1	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0	0	0	1
South Africa	11	3	3	8	8	9	4	4	8	5	3	9	4	2
All others	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Asia-9	59	49	46	75	78	93	97	128	136	100	96	132	92	77
India	0	0	0	6	3	3	2	2	4	2	2	6	3	6
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	1	0	1	0	0	2	1	3	3	3	3	1	0	1
Philippines	0	1	1	1	0	0	0	0	2	0	0	1	1	0
Singapore	0	1	2	2	1	1	4	3	5	4	1	5	3	4
South Korea	12	10	11	19	19	15	28	33	51	21	25	33	24	21
Taiwan	45	35	31	48	52	73	62	86	71	70	66	85	61	46
Thailand	1	2	1	0	3	0	1	1	1	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	6	8	6	11	16	16	10	11	14	11	8	10	13	12
Russia	0	0	0	0	0	0	7	7	11	5	6	8	9	7
Turkey	1	0	0	0	0	1	1	2	1	1	1	2	0	0
Ukraine	0	0	0	1	0	1	0	1	2	2	1	1	1	2
All others	6	8	6	10	16	14	2	2	1	3	1	0	3	2
China and Hong Kong	3	1	6	4	8	8	8	5	14	9	9	14	14	12
China	1	0	4	1	6	4	4	1	9	6	7	12	10	9
Hong Kong	2	1	2	3	2	4	4	4	6	3	2	2	4	3
EU	514	509	613	785	825	856	890	856	924	753	500	555	581	465
Austria	12	9	14	11	15	19	14	15	20	21	12	11	8	11
Belgium	5	1	11	11	7	14	11	12	15	10	4	11	9	7
Czech Republic	0	0	0	0	0	0	1	0	1	1	0	0	0	1
Denmark	10	20	21	23	42	25	27	27	47	29	22	23	16	17
Finland	10	10	13	10	14	21	21	13	12	15	11	8	5	2
France	82	68	112	119	116	127	136	131	139	102	63	65	79	81
Germany	191	189	203	277	274	289	308	302	311	259	143	197	208	158
Hungary	2	2	1	2	0	1	2	2	5	0	2	2	1	3
Ireland	1	7	4	7	9	15	8	6	21	15	21	19	19	6
Italy	25	28	37	51	54	58	64	61	67	55	36	36	52	32
Netherlands	31	22	32	35	44	41	44	45	29	27	17	24	22	14
Poland	1	0	0	0	2	2	3	0	3	1	1	1	3	0
Spain	11	10	6	8	10	13	9	11	14	9	5	6	12	2
Sweden	49	47	45	95	84	93	116	108	113	79	68	58	44	41
United Kingdom	82	91	110	130	144	133	120	120	125	121	90	91	100	84
All others	2	4	5	5	10	5	5	4	2	8	4	3	4	7

Appendix table 6-67

USPTO patents granted in medical equipment, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	225	216	289	341	377	322	374	389	465	322	195	262	300	281
Latin America	12	20	21	30	36	28	32	34	33	21	25	13	8	8
Argentina	6	6	10	13	16	10	13	12	13	10	10	3	4	1
Brazil	2	7	4	7	8	7	9	8	11	0	7	6	0	3
Chile	0	0	0	2	1	0	0	0	0	0	1	0	0	0
Colombia	0	2	2	0	1	1	4	3	5	4	2	1	0	1
Mexico	3	3	2	5	1	2	2	4	2	5	3	3	0	3
Venezuela	1	1	1	1	1	0	2	2	0	0	0	0	1	1
All others	0	2	3	4	8	8	2	5	2	2	3	1	3	0
Middle East	18	23	37	65	66	59	78	91	100	74	43	68	60	58
Iran	0	0	0	0	0	0	1	0	2	0	0	0	0	0
Israel	17	22	34	63	64	58	76	91	96	73	43	67	60	55
Saudi Arabia	1	1	3	1	0	0	1	0	0	0	0	1	0	1
All others	0	0	0	1	2	1	1	0	2	1	0	1	0	2
United States	3,015	3,265	3,388	4,529	4,485	4,319	4,236	3,854	4,595	3,608	2,799	3,253	2,881	2,524
Other	151	132	159	212	194	224	249	225	287	205	175	204	161	166
Australia	30	23	17	44	38	41	37	42	60	36	39	55	35	29
Canada	74	54	90	82	76	85	110	83	127	72	69	66	54	55
New Zealand	3	4	1	5	6	7	7	10	10	12	4	11	6	0
Norway	2	4	3	3	3	5	11	6	7	10	4	5	6	2
Switzerland	41	46	47	73	66	80	80	84	77	74	54	61	50	67
All others	1	1	1	4	5	6	5	1	5	2	4	7	10	13

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies ba sed on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-68

USPTO patents granted in medical electronics, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	1,356	1,272	1,328	1,985	1,748	2,071	2,236	2,370	2,456	1,885	1,026	1,549	1,604	1,485
Africa	1	1	1	0	0	1	0	2	5	3	2	0	1	0
Algeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	1	1	1	0	1	0
Kenya	0	0	0	0	0	0	0	0	1	1	1	0	1	0
Morocco	0	0	0	0	0	0	0	0	1	1	1	0	1	0
Nigeria	0	0	0	0	0	0	0	2	2	1	0	0	0	0
South Africa	1	1	1	0	0	1	0	0	2	1	1	0	0	0
All others	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asia-9	5	1	7	18	15	23	23	37	38	29	13	20	19	30
India	0	0	0	0	0	1	1	0	3	5	3	3	4	1
Indonesia	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Malaysia	0	0	0	0	0	1	0	3	0	0	0	1	0	1
Philippines	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	0	0	0	1	1	0	2	0	1	0	3
South Korea	2	1	6	7	7	13	14	20	19	14	2	5	7	16
Taiwan	3	0	1	10	8	8	7	12	14	8	9	10	7	10
Thailand	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	1	1	1	0	1	0
Central Europe/Asia	2	2	2	6	3	7	4	10	8	6	4	3	5	8
Russia	0	0	0	0	0	0	4	6	4	2	3	1	2	5
Turkey	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Ukraine	1	1	0	0	0	1	0	0	1	0	0	0	1	0
All others	1	1	2	5	3	7	0	4	4	4	1	2	1	3
China and Hong Kong	0	3	0	1	4	1	1	7	1	4	2	4	4	8
China	0	3	0	1	4	1	1	2	1	2	2	3	2	6
Hong Kong	0	0	0	0	0	0	0	5	0	2	0	1	2	2
EU	235	187	216	307	220	298	354	362	374	272	163	231	231	249
Austria	2	1	3	3	4	3	2	8	9	4	2	4	3	4
Belgium	1	3	3	8	4	7	4	7	5	1	4	7	3	5
Czech Republic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Denmark	2	4	3	5	1	8	7	8	8	7	4	5	1	5
Finland	8	11	9	16	6	6	13	15	27	18	4	17	13	17
France	26	26	27	40	29	28	33	43	41	30	19	27	16	30
Germany	76	62	81	91	85	117	147	157	143	114	66	90	98	123
Hungary	0	1	2	2	2	0	2	0	0	1	1	0	2	1
Ireland	2	2	1	1	1	3	1	0	2	3	2	1	1	2
Italy	10	9	10	15	6	13	13	22	24	13	6	12	12	13
Netherlands	19	26	13	48	43	38	47	42	38	33	15	22	28	22
Poland	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Spain	1	2	1	1	1	3	0	1	1	1	0	1	4	2
Sweden	60	25	35	44	18	42	42	23	35	28	25	32	34	17
United Kingdom	26	15	28	33	20	29	42	34	38	20	12	12	12	7
All others	2	2	1	1	2	1	2	2	3	1	3	1	3	0

Appendix table 6-68

USPTO patents granted in medical electronics, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	128	133	129	184	138	144	175	211	239	171	98	166	145	185
Latin America	1	1	0	3	5	4	2	5	0	4	0	3	2	2
Argentina	0	0	0	0	0	2	0	2	0	0	0	1	0	1
Brazil	1	1	0	0	1	0	1	0	0	2	0	0	1	0
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia	0	0	0	0	1	1	0	1	0	1	0	0	0	1
Mexico	0	0	0	2	1	1	1	0	0	1	0	1	2	0
Venezuela	0	0	0	0	1	0	0	1	0	0	0	0	0	0
All others	0	0	0	1	2	0	0	1	0	0	0	1	0	0
Middle East	16	17	18	30	26	34	83	68	80	63	23	42	34	42
Iran	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel	16	17	18	30	26	33	82	67	80	63	23	42	34	41
Saudi Arabia	0	0	0	0	0	0	1	1	0	0	0	0	0	0
All others	0	0	0	0	0	1	0	0	0	0	0	0	0	1
United States	930	889	912	1,379	1,279	1,482	1,509	1,587	1,619	1,265	692	1,040	1,103	915
Other	38	38	43	59	58	76	85	81	92	68	30	39	61	47
Australia	6	10	8	11	15	18	9	15	12	10	5	12	21	17
Canada	22	17	19	31	25	30	43	35	45	28	15	17	25	16
New Zealand	1	0	0	1	0	0	0	2	1	1	0	0	0	1
Norway	5	5	6	4	5	12	17	15	18	11	3	7	7	6
Switzerland	5	6	10	12	12	14	16	12	15	17	7	4	8	8
All others	0	0	0	0	1	1	0	2	1	0	0	0	0	0

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies ba sed on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

Science and Engineering Indicators 2010

Appendix table 6-69

USPTO patents granted in measurement and control equipment technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World	4,550	5,036	4,449	5,712	5,560	6,174	6,709	7,604	8,361	8,176	7,575	9,317	8,967	9,122
Africa	4	3	1	4	4	3	2	2	2	6	2	4	6	5
Algeria	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	1	0	2	1
Kenya	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	1
Nigeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	4	3	1	4	3	3	1	2	2	4	1	4	4	2
All others	0	0	0	0	1	0	1	0	0	2	0	0	0	1
Asia-9	78	93	112	234	204	262	279	319	348	361	415	536	596	638
India	1	1	1	3	3	2	3	9	9	14	13	20	30	37
Indonesia	0	0	0	1	0	0	1	0	1	0	1	0	0	0
Malaysia	2	0	0	0	0	3	0	3	4	4	10	20	23	25
Philippines	1	1	0	1	1	0	0	0	2	2	0	1	2	0
Singapore	3	7	4	9	7	12	11	24	24	19	25	17	27	20
South Korea	37	48	56	134	102	111	118	115	125	137	151	217	241	277
Taiwan	34	36	52	87	92	133	147	160	181	184	217	259	272	277
Thailand	0	0	0	0	0	0	1	7	2	1	0	1	1	1
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	4	5	7	7	8	9	17	9	16	10	7	12	17	15
Russia	0	0	0	0	0	0	13	6	13	8	6	9	12	8
Turkey	0	0	1	0	0	1	0	0	2	0	0	0	1	1
Ukraine	0	0	0	0	1	2	1	1	2	2	2	1	4	4
All others	4	5	6	7	6	6	3	2	0	0	0	1	0	2
China and Hong Kong	3	8	2	7	4	11	15	24	22	26	25	51	73	93
China	1	4	1	3	1	6	8	15	11	18	15	39	55	84
Hong Kong	2	5	1	5	3	5	7	9	11	8	10	11	18	10
EU	718	804	746	906	923	1,087	1,194	1,364	1,507	1,428	1,331	1,579	1,519	1,512
Austria	10	5	12	10	17	21	17	18	27	26	20	28	30	30
Belgium	7	10	8	9	14	15	16	16	15	16	17	14	19	18
Czech Republic	0	0	0	0	0	0	1	7	3	3	1	7	5	3
Denmark	2	5	6	9	15	10	11	15	11	16	16	30	18	14
Finland	12	19	20	19	16	26	17	30	32	43	33	25	42	30
France	153	152	135	172	156	171	177	184	178	155	168	196	184	241
Germany	311	352	321	414	423	522	568	659	818	761	691	798	768	709
Hungary	3	1	3	1	3	2	1	0	2	3	2	3	1	2
Ireland	3	1	3	2	5	2	6	8	10	12	6	11	14	16
Italy	25	40	35	51	48	55	77	77	78	85	71	80	83	72
Netherlands	46	49	41	43	49	53	50	65	61	49	53	62	85	107
Poland	1	4	0	1	1	1	0	2	2	1	2	2	4	4
Spain	1	4	1	7	1	5	5	7	6	5	4	6	5	12
Sweden	28	40	33	32	50	63	63	87	57	56	55	76	52	54
United Kingdom	116	121	125	136	120	135	181	182	205	192	190	233	201	190
All others	2	3	4	3	5	6	4	8	4	7	3	7	7	9

Appendix table 6-69

USPTO patents granted in measurement and control equipment technology, by region/country/economy: 1995–2008

Region/country/economy	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Japan	895	1,047	858	1,186	1,119	1,147	1,291	1,530	1,669	1,634	1,474	1,893	1,778	1,743
Latin America	2	4	5	5	9	4	6	8	15	15	10	17	15	10
Argentina	0	0	3	0	3	0	1	1	3	3	0	1	3	2
Brazil	0	0	1	3	3	2	2	3	1	1	3	6	4	5
Chile	0	0	1	0	0	1	0	0	0	1	0	0	2	0
Colombia	1	1	0	0	0	0	0	0	0	0	1	1	0	0
Mexico	1	2	0	0	2	1	1	3	10	9	5	6	6	3
Venezuela	0	1	0	1	0	0	1	0	1	0	0	0	0	0
All others	0	0	0	1	0	0	1	1	0	0	1	3	0	0
Middle East	20	20	24	39	32	50	59	60	61	62	62	67	78	82
Iran	0	0	0	0	0	0	0	1	1	0	0	1	0	0
Israel	19	20	22	39	31	50	58	56	59	62	56	62	74	76
Saudi Arabia	1	0	2	0	0	0	1	1	2	0	4	4	2	2
All others	0	0	0	0	0	0	0	1	0	0	1	1	2	4
United States	2,669	2,857	2,525	3,128	3,057	3,343	3,592	4,007	4,383	4,295	3,940	4,820	4,493	4,600
Other	158	195	170	196	200	258	254	282	339	339	308	338	393	423
Australia	14	18	14	18	8	10	22	23	34	35	27	46	63	50
Canada	81	87	95	90	108	141	133	135	163	146	151	146	178	161
New Zealand	0	3	4	4	9	5	6	4	7	6	8	5	5	11
Norway	7	5	6	10	11	11	7	13	19	22	22	25	33	49
Switzerland	56	81	50	72	63	90	85	105	114	128	100	113	111	149
All others	0	1	1	2	1	1	1	2	1	1	1	3	2	4

EU = European Union; USPTO = U.S. Patent and Trademark Office

NOTES: Technologies classified by The Patent Board. Patent grants fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. Russia includes former USSR. Czech Republic includes former Czechoslovakia. Hong Kong includes Macau. Detail may not add to total because of rounding. See appendix table 6-60 for full list of countries by region.

SOURCE: The Patent Board, Proprietary Patent Database, special tabulations (2009).

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Appendix table 6-70

Triadic patent families, by region/country/economy: 1993–2006

Region/country/economy	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
World	30,794	32,414	35,731	39,098	41,515	42,878	45,507	47,162	45,565	46,120	48,093	50,727	50,569	51,579
Asia-9	203	259	374	408	473	574	744	900	1,153	1,519	2,022	2,647	2,975	3,152
India	8	6	11	14	22	34	40	45	85	106	120	122	133	136
Indonesia	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
Philippines	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	16	22	23	34	30	48	55	66	85	80	95	109	105	113
South Korea	164	209	322	322	387	462	604	752	935	1,245	1,729	2,324	2,628	2,785
Taiwan	16	22	18	38	34	30	44	37	48	88	78	92	110	119
Thailand	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vietnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Europe/Asia	36	53	62	62	72	100	65	74	64	56	59	67	83	85
Russian Federation	34	51	60	58	69	94	60	69	56	48	51	55	64	63
Turkey	2	2	2	4	3	7	5	5	9	8	8	12	20	22
China and Hong Kong	32	32	40	41	53	68	84	111	143	203	273	316	413	516
China	16	17	21	23	43	47	62	84	114	178	252	290	384	484
Hong Kong	15	15	19	18	10	21	22	27	29	25	21	26	29	32
EU	10,034	11,049	11,779	13,109	13,686	14,163	14,505	14,259	14,001	13,713	14,026	14,533	14,587	14,795
Austria	175	209	221	213	258	269	251	283	263	317	331	343	350	388
Belgium	339	352	373	362	432	393	404	367	339	346	319	379	368	372
Czech Republic	8	5	3	11	11	16	9	9	14	16	16	16	15	17
Denmark	159	177	189	226	216	269	246	240	230	236	248	256	264	277
Finland	252	345	316	356	454	440	454	373	347	279	304	314	319	341
France	1,721	1,903	1,971	2,147	2,205	2,272	2,391	2,332	2,370	2,398	2,462	2,500	2,468	2,499
Germany	4,042	4,398	4,849	5,508	5,680	6,119	6,214	6,213	5,792	5,633	5,867	6,079	6,132	6,171
Greece	3	4	2	13	9	10	10	8	6	8	10	9	14	15
Hungary	25	21	25	25	32	18	37	36	33	29	43	40	38	41
Ireland	19	31	31	28	38	38	72	43	54	51	58	68	64	70
Italy	626	619	617	701	737	671	651	691	735	701	716	750	764	767
Luxembourg	13	8	13	16	16	21	22	18	23	14	18	24	21	23
Netherlands	596	677	753	805	835	850	947	1,056	1,238	1,095	1,041	1,079	1,027	1,005
Poland	12	4	5	11	9	4	9	8	9	14	13	12	13	13
Portugal	4	2	3	4	7	4	6	4	6	6	7	6	10	10
Slovenia	6	4	7	5	5	12	7	9	7	14	14	14	15	16
Spain	70	87	82	91	109	126	131	156	169	166	171	205	230	236
Sweden	528	665	751	914	979	849	903	697	679	706	690	747	791	847
United Kingdom	1,429	1,531	1,561	1,659	1,639	1,773	1,729	1,703	1,666	1,669	1,670	1,669	1,654	1,663
All others	9	5	9	11	14	10	13	12	19	16	28	22	29	26
Japan	8,306	8,273	9,576	10,608	11,109	11,336	12,940	14,943	13,622	13,376	14,174	14,950	13,987	14,187
Latin America	32	23	36	40	43	50	52	48	68	65	75	76	86	95
Argentina	4	4	6	10	5	9	8	7	5	7	5	7	8	8
Brazil	22	12	17	18	29	29	31	33	47	44	51	51	56	65
Chile	0	2	2	3	0	2	1	1	5	4	2	4	4	5
Mexico	6	5	12	10	9	9	11	7	11	10	16	14	18	17

Appendix table 6-70

Triadic patent families, by region/country/economy: 1993–2006

Region/country/economy	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
United States	10,663	11,089	12,146	12,931	13,914	14,402	14,868	14,475	14,236	14,807	14,960	15,540	15,688	15,942
Other	1,436	1,585	1,675	1,827	2,092	2,107	2,164	2,267	2,198	2,298	2,417	2,507	2,657	2,711
Australia	196	234	231	233	275	298	324	349	349	372	376	385	386	390
Canada	292	357	387	427	527	532	552	537	538	617	635	706	751	767
Iceland	1	3	6	7	4	6	7	10	3	8	5	2	6	6
Israel	121	138	159	209	290	298	290	324	328	283	359	373	449	477
New Zealand	14	24	21	32	39	50	50	57	44	63	69	59	53	54
Norway	73	85	87	75	102	94	110	113	92	113	100	110	130	131
South Africa	32	21	25	29	34	35	31	35	24	28	30	33	31	30
Switzerland	707	723	760	816	821	795	801	842	819	816	843	839	850	856

EU = European Union

NOTES: Triadic patent families fractionally allocated among regions/countries/economies based on proportion of residences of all named inventors. EU includes all 27 member countries. Detail may not add to total because of rounding.

SOURCE: Organisation for Economic Co-operation and Development, Patents Statistics, Patents by Regions database, http://stats.oecd.org/index.aspx, accessed 20 October 2009.

Science and Engineering Indicators 2010

Appendix table 6-71

Firms and employment in U.S. high-technology small businesses, by industry: 2006

(Thousands)

Industry	Employees	Firms
All industries	5,274.7	503.8
Services	3,599.2	437.0
Architectural, engineering, and related services	923.0	100.0
Computer systems design and related services	667.3	99.6
Data processing, hosting, and related services	112.9	7.2
Electronic and precision equipment repair and maintenance	76.2	11.6
Facilities support services	40.8	1.5
Internet publishing and broadcasting	19.3	2.3
Internet service providers and web search portals	37.6	4.8
Management of companies and enterprises	351.7	19.7
Management, scientific, and technical consulting services	637.4	136.9
Other pipeline transportation	0.9	0.1
Other telecommunications	3.8	0.4
Pipeline transportation of crude oil	0.7	0.0
Pipeline transportation of natural gas	1.8	0.1
Professional and commercial equipment and supplies merchant wholesalers	311.1	26.3
Satellite telecommunications	6.3	0.4
Scientific research and development services	194.5	12.7
Securities and commodity exchanges	2.6	0.1
Software publishers	113.7	6.0
Telecommunications resellers	24.9	2.2
Wired telecommunications carriers	49.3	2.4
Wireless telecommunications carriers (except satellite)	23.4	2.5
Manufacturing	1,554.1	58.4
Aerospace product and parts manufacturing	40.7	1.2
Audio and video equipment manufacturing	9.6	0.5
Basic chemical manufacturing	35.2	1.2
Boiler, tank, and shipping container manufacturing	42.9	1.2
Commercial and service industry machinery manufacturing	49.6	2.0
Communications equipment manufacturing	46.5	1.5
Computer and peripheral equipment manufacturing	24.8	1.2
Electrical equipment manufacturing	50.6	1.9
Engine, turbine, and power transmission equipment manufacturing	22.2	0.7
Industrial machinery manufacturing	84.9	3.5
Manufacturing and reproducing magnetic and optical media	13.1	0.8
Metalworking machinery manufacturing	138.8	7.8
Motor vehicle body and trailer manufacturing	63.4	1.8
Motor vehicle manufacturing	7.1	0.3
Motor vehicle parts manufacturing	162.9	4.1
Navigational, measuring, electromedical, and control instruments manufacturing	99.7	4.3
Other chemical product and preparation manufacturing	44.7	2.0
Other electrical equipment and component manufacturing	59.1	1.7
Other fabricated metal product manufacturing	127.4	5.5
Other general purpose machinery manufacturing	134.7	5.3
Other transportation equipment manufacturing	18.1	0.9
Paint, coating, and adhesive manufacturing	29.9	1.4
Pesticide, fertilizer, and other agricultural chemical manufacturing	11.4	0.6
Petroleum and coal products manufacturing	24.7	1.0
Pharmaceutical and medicine manufacturing	50.2	1.3
Resin, synthetic rubber, and artificial synthetic fibers and filaments manufacturing	25.6	0.6
Semiconductor and other electronic component manufacturing	136.2	4.0

Appendix table 6-71

Firms and employment in U.S. high-technology small businesses, by industry: 2006

(Thousands)

Industry	Employees	Firms
Other	121.5	8.4
Electric power generation, transmission and distribution	73.9	1.5
Oil and gas extraction	45.8	6.5
Timber tract operations	1.9	0.4

NOTES: Small businesses are firms with <500 employees. Firms include those reporting no employees on their payroll. Firm is an entity that is either in a single location with no subsidiaries or branches or is topmost parent of a group of subsidiaries or branches. High-technology industries defined by Bureau of Labor Statistics on basis of employment intensity of technology-oriented occupations. High-technology small business employment is lower-bound estimate because employment not available for several industries due to data supression. Detail may not add to total because of rounding.

SOURCES: Census Bureau, Statistics of U.S. Businesses, http://www.census.gov/econ/susb/, accessed 1 September 2009; and Hecker DE, High-technology employment: A NAICS-based update, *Monthly Labor Review* 128(7):57–72 (2006), http://www.bls.gov/opub/mlr/2005/07/art6full.pdf, accessed 23 October 2009.

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Appendix table 6-72

U.S. venture capital investment, financing stage, industry, and number of companies: 1995–2008

(Millions of current dollars)

Financing stage/industry/number of companies	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All financing stages	7,628	10,840	14,364	20,172	52,016	101,767	39,308	21,250	19,278	22,117	22,922	26,334	30,639	28,077
Seed/startup	1,244	1,267	1,309	1,679	3,571	3,053	739	327	341	461	893	1,194	1,330	1,494
Early	1,694	2,614	3,430	5,389	11,263	24,569	8,387	3,723	3,455	3,918	3,830	4,195	5,686	5,346
Expansion	3,553	5,340	7,382	9,999	28,720	58,138	22,248	12,063	9,760	9,086	8,574	11,417	11,386	10,473
Later	1,138	1,619	2,243	3,105	8,463	16,007	7,935	5,138	5,723	8,653	9,626	9,528	12,237	10,765
All industries	7,628	10,840	14,364	20,172	52,016	101,767	39,308	21,250	19,278	22,117	22,922	26,334	30,639	28,077
Biotechnology	768	1,156	1,385	1,520	2,029	4,057	3,400	3,183	3,553	4,145	3,924	4,504	5,247	4,410
Business products and services	177	377	409	691	2,791	4,560	1,031	450	579	396	396	552	709	477
Computers and peripherals	324	383	377	372	897	1,596	655	457	373	590	539	532	586	424
Consumer products and services	473	503	738	622	2,534	3,350	662	228	163	309	304	407	476	437
Electronics/Instrumentation	125	193	260	227	282	773	381	314	236	351	438	722	563	574
Financial services	194	329	362	781	2,202	4,180	1,380	338	410	520	918	462	558	526
Healthcare services	448	664	869	926	1,368	1,352	499	368	222	363	407	381	295	192
Industrial/energy	529	504	696	1,407	1,508	2,479	1,067	740	756	775	808	1,925	3,222	4,576
Information technology services	178	430	655	1,057	3,958	8,619	2,391	1,039	775	737	1,063	1,377	1,707	1,812
Media and entertainment	910	1,074	956	1,744	6,560	10,299	2,312	712	879	965	1,149	1,624	1,962	1,884
Medical devices and equipment	627	648	1,016	1,144	1,511	2,312	1,997	1,838	1,602	1,921	2,186	2,910	3,872	3,446
Networking and equipment	347	612	937	1,360	4,259	11,409	5,543	2,595	1,737	1,545	1,517	1,091	1,378	735
Other	10	21	56	88	84	45	62	4	0	1	57	8	2	23
Retailing/distribution	314	257	303	609	2,805	3,067	321	151	65	174	207	201	365	235
Semiconductors	202	299	567	618	1,290	3,542	2,391	1,503	1,764	2,128	1,923	2,101	2,080	1,641
Software	1,123	2,218	3,281	4,367	10,295	24,012	10,141	5,150	4,462	5,375	4,803	4,920	5,423	5,027
Telecommunications	880	1,171	1,498	2,639	7,642	16,116	5,074	2,180	1,701	1,822	2,283	2,618	2,196	1,659
Internet specific	505	1,562	2,359	4,457	23,331	42,233	9,848	3,577	2,388	2,875	3,336	4,336	5,176	4,871
Clean technology	77	157	144	107	200	577	386	390	263	440	523	1,458	2,656	4,023
Number of companies	1,539	2,076	2,537	2,979	4,404	6,335	3,786	2,634	2,461	2,625	2,708	3,089	3,301	3,262

NOTES: Seed/startup includes proof of concept (seed), research, product development, or initial marketing. Early includes financing for activities such as initial expansion, commercial manufacturing, and marketing. Expansion includes major expansion of activities, or to prepare a company expecting to go public within 6–12 months. Later includes acquisition financing and management and leveraged buyout. Internet specific are companies whose business model is fundamentally dependent on the Internet, regardless of the company's primary industry category. Clean technology comprises companies that focus on alternative energy, pollution and recycling, power supplies and conservation.

SOURCE: PricewaterhouseCoopers/National Venture Capital Association, MoneyTree™ Report (data provided by Thomson Reuters), https://www.pwcmoneytree.com/MTPublic/ns/index.jsp, accessed 23 October 2009.

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Appendix table 6-73

U.S. angel capital investment, number of businesses, investors, and employment: 2001–08

Year	Investment ($billions)	Businesses receiving investment	Angel investors	Total employment	Employees/business	Average investment/business ($)
2001	30.0	NA	NA	NA	NA	NA
2002	15.7	36,000	200,000	NA	NA	436,111
2003	18.1	42,000	220,000	NA	NA	430,952
2004	22.5	48,000	225,000	141,200	2.9	468,750
2005	23.1	49,500	227,000	198,000	4.0	466,667
2006	25.6	51,000	234,000	201,400	3.9	501,961
2007	26.0	57,120	258,200	200,000	3.5	455,182
2008	19.2	55,480	260,500	NA	NA	346,071

NA = not available

NOTE: Business includes anything from an entrepreneur with an idea to a legally established operating company.

SOURCE: Jeffrey Sohl, Analysis Reports, Center for Venture Research, University of New Hampshire, http://wsbe.unh.edu/analysis-reports-0, accessed 20 October 2009.

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Appendix table 6-74

World Bank knowledge development indexes by region/country/economy: 1995 and 2005

(Scale 1–10)

			KEI component index							
	KEI		EIR		Innovation		Education		ICT	
Region/country/economy	1995	2005	1995	2005	1995	2005	1995	2005	1995	2005
Africa	3.75	3.63	3.18	3.70	4.62	4.33	3.39	3.04	3.79	3.44
Angola	1.33	1.70	0.57	1.76	2.47	2.44	0.65	0.88	1.63	1.70
Burkina Faso	1.95	1.64	3.79	3.24	2.40	2.15	0.31	0.26	1.29	0.93
Cameroon	2.05	1.69	0.88	1.20	3.03	2.49	1.86	1.36	2.42	1.70
Egypt	4.20	4.03	3.71	3.57	5.02	4.55	4.31	4.35	3.75	3.66
Ethiopia	1.20	1.18	0.86	1.95	2.24	1.57	0.39	0.73	1.30	0.48
Ghana	2.35	2.50	3.22	3.97	2.62	2.08	1.81	1.80	1.77	2.13
Kenya	2.49	2.82	2.29	3.31	3.86	3.87	1.94	1.49	1.88	2.60
Madagascar	2.04	2.37	1.55	4.93	3.65	2.54	1.28	0.76	1.68	1.25
Malawi	2.25	1.55	3.93	2.71	2.66	2.11	0.94	0.87	1.47	0.53
Mali	2.10	1.78	4.55	3.58	2.34	1.69	0.36	0.66	1.13	1.19
Morocco	3.68	3.45	4.53	3.80	4.78	3.67	2.44	2.00	2.96	4.32
Mozambique	1.76	1.71	3.36	3.24	1.75	1.86	0.32	0.33	1.62	1.41
Nigeria	2.11	2.04	1.23	1.16	2.64	2.72	1.88	1.87	2.68	2.41
Senegal	2.54	2.63	3.21	4.07	3.27	2.77	0.89	0.92	2.79	2.75
South Africa	5.92	5.55	4.19	5.81	7.16	6.92	5.79	4.51	6.52	4.98
Tanzania	2.21	2.28	3.51	3.98	2.54	2.39	0.95	1.05	1.83	1.70
Tunisia	4.10	4.73	4.44	5.26	4.20	4.58	3.50	4.10	4.27	5.00
Uganda	2.23	2.46	4.00	4.04	2.57	2.72	1.14	1.16	1.20	1.92
Zimbabwe	3.28	2.51	2.18	0.29	4.53	4.09	3.55	2.38	2.86	3.29
Asia-9	5.02	4.97	5.16	4.89	5.23	5.59	4.75	4.46	4.94	4.95
India	3.14	3.12	3.48	3.67	3.65	3.97	2.56	2.26	2.87	2.59
Indonesia	3.46	3.23	4.02	3.36	2.40	3.32	3.92	3.42	3.50	2.82
Malaysia	6.03	6.06	7.21	6.18	6.20	6.83	4.16	4.14	6.57	7.08
Philippines	4.77	4.25	4.63	4.95	4.08	3.63	6.42	4.76	3.92	3.66
Singapore	8.44	8.24	9.68	9.71	9.04	9.56	6.18	5.19	8.86	8.50
South Korea	7.86	7.68	6.75	5.57	8.17	8.47	8.30	7.97	8.20	8.71
Taiwan	8.19	8.69	7.81	8.35	9.21	9.24	7.48	7.91	8.27	9.26
Thailand	5.65	5.44	6.75	5.51	5.62	5.98	5.13	5.27	5.10	5.00
Vietnam	2.61	3.02	2.44	2.85	2.26	2.83	3.56	3.32	2.20	3.08
Central Europe/Asia	5.42	5.43	3.25	3.16	5.45	6.26	7.23	6.59	5.76	5.73
Albania	3.54	4.04	4.62	3.91	3.41	3.10	3.31	4.94	2.80	4.20
Armenia	4.62	5.51	2.11	5.71	5.70	6.17	6.06	6.32	4.62	3.84
Azerbaijan	4.10	3.81	1.25	3.42	4.91	3.05	5.94	5.03	4.28	3.73
Belarus	5.16	4.93	2.22	0.55	5.40	5.54	8.29	8.00	4.75	5.63
Croatia	6.33	7.19	4.04	7.16	7.43	7.54	6.96	6.44	6.89	7.61
Georgia	4.78	4.69	1.29	3.54	5.45	5.38	7.40	5.97	4.98	3.85
Kazakhstan	4.61	5.01	2.18	4.82	4.02	3.77	7.54	7.21	4.71	4.25
Kyrgyzstan	3.86	3.74	2.32	3.25	3.47	2.70	5.73	6.25	3.90	2.75
Macedonia	4.93	5.33	4.04	5.61	4.38	4.76	5.17	4.87	6.13	6.06

Appendix table 6-74

World Bank knowledge development indexes by region/country/economy: 1995 and 2005

(Scale 1–10)

			KEI component index							
	KEI		EIR		Innovation		Education		ICT	
Region/country/economy	1995	2005	1995	2005	1995	2005	1995	2005	1995	2005
Moldova	4.55	5.04	3.42	4.19	4.38	4.39	6.91	6.40	3.47	5.17
Russia	5.54	5.40	2.43	1.55	5.62	6.89	8.05	7.09	6.05	6.08
Tajikistan	3.36	2.79	0.14	2.37	3.37	2.33	6.69	5.34	3.25	1.10
Turkey	5.41	5.61	6.40	7.02	4.96	5.67	4.42	4.38	5.87	5.38
Ukraine	5.57	5.80	2.98	4.06	6.13	5.77	8.17	7.91	5.01	5.45
China and Hong Kong	3.83	4.68	3.81	4.48	4.44	5.43	3.81	4.23	3.26	4.59
China	3.43	4.35	3.31	4.01	4.06	5.12	3.62	4.11	2.74	4.16
Hong Kong	8.23	8.20	9.40	9.60	8.60	8.64	5.80	5.30	9.11	9.26
EU	8.65	8.50	8.57	8.40	8.63	8.56	8.95	8.46	8.45	8.58
Austria	9.13	8.89	9.49	9.30	8.90	8.90	9.35	8.53	8.78	8.85
Belgium	9.02	8.73	8.64	8.82	9.14	8.96	9.86	9.14	8.45	8.02
Bulgaria	6.64	6.80	5.76	7.01	7.10	6.43	7.25	7.42	6.45	6.33
Cyprus	7.49	7.55	8.39	7.77	7.50	7.65	6.09	6.45	7.97	8.32
Czech Republic	7.55	7.83	7.95	8.23	7.10	7.60	7.51	8.11	7.63	7.39
Denmark	9.59	9.58	9.57	9.66	9.53	9.57	9.61	9.80	9.63	9.28
Estonia	7.82	8.34	8.15	8.68	6.61	7.49	8.26	8.27	8.27	8.90
Finland	9.56	9.37	9.43	9.47	9.31	9.66	9.74	9.78	9.75	8.56
France	8.92	8.47	8.47	7.82	8.93	8.61	9.54	9.08	8.75	8.38
Germany	9.06	8.87	8.99	8.99	9.18	9.00	9.28	8.46	8.81	9.04
Greece	7.77	7.38	8.18	7.08	7.37	7.63	7.75	8.20	7.76	6.62
Hungary	7.29	7.85	6.66	8.39	7.66	8.14	7.56	7.62	7.27	7.25
Ireland	8.95	8.92	9.16	9.23	9.00	9.04	9.23	9.08	8.43	8.33
Italy	8.12	7.86	8.06	6.84	8.31	8.04	8.02	7.86	8.10	8.68
Latvia	6.36	7.64	7.11	8.04	4.42	6.40	7.49	8.41	6.44	7.73
Lithuania	6.35	7.68	6.82	7.94	5.24	6.59	7.42	8.36	5.94	7.84
Luxembourg	8.56	8.65	9.21	9.42	8.87	8.91	6.82	6.66	9.33	9.62
Netherlands	9.49	9.32	9.50	9.18	9.53	9.48	9.69	9.26	9.24	9.36
Poland	6.71	7.38	5.84	7.39	6.17	6.92	8.14	7.94	6.71	7.25
Portugal	7.87	7.52	8.63	8.44	7.39	7.43	7.45	6.83	8.02	7.39
Romania	5.49	6.37	5.73	6.87	4.79	5.66	6.19	6.30	5.24	6.63
Slovak Republic	6.94	7.33	6.38	7.99	7.06	6.86	7.15	6.98	7.18	7.51
Slovenia	8.02	8.25	7.96	8.11	7.86	8.31	7.85	8.24	8.41	8.33
Spain	8.28	8.24	8.61	8.58	8.24	8.14	8.54	8.21	7.71	8.04
Sweden	9.48	9.52	8.84	9.18	9.75	9.79	9.59	9.40	9.73	9.69
United Kingdom	9.39	9.09	9.40	9.28	9.36	9.18	9.69	8.54	9.10	9.38
Japan	8.83	8.56	8.26	7.71	9.29	9.15	9.06	8.71	8.70	8.66
Latin America	5.38	5.34	5.23	4.28	5.94	5.81	4.72	5.50	5.66	5.80
Argentina	6.53	5.49	5.99	2.63	7.13	6.85	6.65	6.49	6.36	5.98
Bolivia	4.39	3.42	6.04	2.78	3.54	3.05	4.28	4.76	3.72	3.09
Brazil	5.04	5.57	4.81	4.30	5.93	6.07	3.94	5.84	5.50	6.08

Appendix table 6-74

World Bank knowledge development indexes by region/country/economy: 1995 and 2005

(Scale 1–10)

	KEI		KEI component index							
			EIR		Innovation		Education		ICT	
Region/country/economy	1995	2005	1995	2005	1995	2005	1995	2005	1995	2005
Chile	6.73	6.92	7.77	8.11	6.51	6.81	6.09	6.31	6.55	6.46
Colombia	4.98	4.42	5.05	3.83	4.45	4.26	4.76	4.79	5.66	4.80
Ecuador	4.48	3.46	4.26	1.58	4.48	3.55	4.57	3.77	4.62	4.93
Mexico	5.56	5.45	5.59	5.38	6.37	5.82	4.62	4.85	5.68	5.77
Peru	4.69	4.64	4.24	3.98	4.41	3.88	5.60	5.57	4.51	5.12
Uruguay	6.58	6.35	6.75	6.49	6.10	5.26	6.93	7.18	6.53	6.48
Venezuela	4.99	4.23	3.91	0.51	5.04	5.73	5.01	5.27	6.02	5.41
Middle East	4.36	4.61	3.41	3.82	4.36	4.17	4.45	4.48	5.24	5.99
Bahrain	6.89	6.02	7.22	6.84	6.74	4.20	6.32	5.82	7.30	7.22
Iran	3.15	3.39	0.79	1.18	2.83	3.02	4.44	3.89	4.56	5.48
Israel	8.45	8.22	8.85	8.16	9.20	9.34	7.39	6.72	8.37	8.64
Jordan	5.08	5.53	5.49	5.77	6.09	5.66	4.50	5.49	4.25	5.21
Kuwait	5.71	6.01	5.64	7.01	5.44	5.05	4.61	4.87	7.16	7.13
Oman	4.71	5.37	6.46	7.32	5.38	4.95	3.13	4.30	3.85	4.90
Qatar	5.81	6.15	5.75	5.99	4.70	5.77	5.55	5.29	7.24	7.56
Saudi Arabia	4.66	5.15	4.57	5.39	4.96	4.04	3.86	4.87	5.26	6.29
Syria	3.04	2.90	2.29	1.55	2.97	3.44	3.31	2.91	3.58	3.68
Yemen	1.83	1.80	1.78	1.72	1.97	1.68	1.54	1.83	2.02	1.99
United States	9.50	9.08	9.20	9.16	9.56	9.45	9.42	8.77	9.83	8.93
Other										
Australia	9.23	9.05	8.75	8.66	8.87	8.72	9.93	9.64	9.35	9.16
Bangladesh	1.63	1.49	1.77	1.10	2.19	1.71	1.45	1.52	1.12	1.66
Canada	9.23	9.21	8.41	9.42	9.32	9.43	9.69	9.26	9.49	8.74
Iceland	8.43	8.88	7.39	8.92	7.89	7.98	8.87	9.44	9.56	9.18
Myanmar	1.79	1.48	0.82	1.35	1.68	1.17	3.00	2.58	1.65	0.82
New Zealand	9.37	8.87	9.89	8.48	8.67	8.65	9.66	9.79	9.27	8.56
Norway	9.49	9.27	9.39	9.25	9.07	9.06	9.71	9.60	9.78	9.16
Pakistan	2.31	2.24	2.21	2.43	2.86	2.75	1.38	1.07	2.78	2.72
Sri Lanka	3.76	4.16	4.80	4.44	3.26	4.44	4.40	4.91	2.60	2.85
Switzerland	9.41	9.15	9.54	9.50	9.82	9.89	8.65	7.69	9.62	9.52

EIR = Economic Incentive Regime; EU = European Union; ICT = Information and communications technology; KEI = Knowledge Economy Index

NOTES: KEI is simple average of four indexes—EIR, innovation, education, and ICT—composed of several variables each. Scores normalized on scale of 0–10 against all regions/countries/economies. Top 10% of performers receive normalized scores between 9 and 10, decile receives normalized scores between 8 and 9, and so on. Regional scores weighted by country/economy share of region's economic activity according to World Bank gross domestic product on 2005 purchasing power parity basis.

SOURCE: World Bank, Knowledge Assessment Methodology, http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/EXTUNIKAM/0,,menuPK:1414738~pagePK:64168427~piPK:64168435~theSitePK:1414721,00.html, accessed 12 October 2009.

Science and Engineering Indicators 2010

Appendix table 7-1

Primary source of information about current news events, by respondent characteristic: 2008

(Percent)

Characteristic	Newspaper	Magazine	Internet	Book/ other print	Television	Radio	Government agency	Family	Friend/ colleague	Other	Don't know
All adults (*n* = 1,505)	20	1	22	1	47	6	*	2	1	*	*
Sex											
Male (*n* = 713)	19	1	25	1	45	7	*	*	1	*	1
Female (*n* = 792)	21	1	19	*	49	5	0	3	1	0	*
Formal education											
<High school (*n* = 214)	16	1	4	0	67	6	0	2	3	*	1
High school graduate (*n* = 893)	19	1	21	*	49	6	*	2	1	*	*
Baccalaureate (*n* = 259)	21	3	36	1	32	6	0	1	1	0	0
Graduate/professional degree (*n* = 139)	29	0	32	1	28	9	0	1	1	0	0
Science/mathematics education[a]											
Low (*n* = 955)	21	1	12	*	57	5	*	2	1	*	1
Middle (*n* = 268)	15	2	38	2	33	7	0	2	1	*	0
High (*n* = 282)	22	1	39	0	29	8	*	*	1	0	0
Family income (quartile)[b]											
Top (*n* = 271)	24	1	34	1	32	7	0	1	1	1	0
Second (*n* = 348)	17	*	24	1	45	8	0	2	1	0	0
Third (*n* = 313)	21	1	15	1	52	6	*	2	2	0	0
Bottom (*n* = 378)	15	1	15	0	62	3	*	1	1	*	1
Age (years)											
18–24 (*n* = 138)	9	1	38	0	33	13	0	2	4	*	1
25–34 (*n* = 267)	11	1	36	0	42	4	0	3	2	0	1
35–44 (*n* = 279)	16	1	29	1	47	4	0	1	1	1	0
45–54 (*n* = 319)	22	1	18	2	49	6	*	2	*	0	*
55–64 (*n* = 241)	24	1	9	*	55	9	0	*	*	*	*
≥65 (*n* = 261)	35	2	5	*	51	4	*	1	*	0	*
Minor children at home[c]											
Yes (*n* = 530)	18	1	26	*	45	6	0	2	1	0	1
No (*n* = 970)	21	1	20	1	48	6	*	1	1	*	*

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.

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?* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-2

Primary source of information about science and technology, by respondent characteristic: 2008

(Percent)

Characteristic	Newspaper	Magazine	Internet	Book/ other print	Television	Radio	Government agency	Family	Friend/ colleague	Other	Don't know
All adults (*n* = 1,505)	11	11	28	3	40	2	0	2	1	*	2
Sex											
Male (*n* = 713)	10	11	29	3	42	2	0	1	1	1	1
Female (*n* = 792)	12	11	27	3	39	1	0	3	2	*	2
Formal education											
<High school (*n* = 214)	6	4	12	5	63	3	0	1	1	1	4
High school graduate (*n* = 893)	11	11	27	2	43	2	0	2	1	1	2
Baccalaureate (*n* = 259)	13	15	41	4	23	1	0	2	2	0	0
Graduate/professional degree (*n* = 139)	11	17	35	6	24	3	0	1	2	0	1
Science/mathematics education[a]											
Low (*n* = 955)	12	10	19	2	50	2	0	2	1	1	2
Middle (*n* = 268)	9	10	39	3	30	2	0	3	2	*	0
High (*n* = 282)	9	15	46	6	19	2	0	1	2	*	*
Family income (quartile)[b]											
Top (*n* = 271)	11	12	38	2	31	2	0	2	2	0	1
Second (*n* = 348)	10	12	31	5	38	2	0	2	1	*	*
Third (*n* = 313)	11	10	22	2	48	3	0	2	1	*	*
Bottom (*n* = 378)	7	8	22	4	52	1	0	1	2	1	1
Age (years)											
18–24 (*n* = 138)	5	8	46	2	26	3	0	5	2	1	2
25–34 (*n* = 267)	6	7	40	2	37	1	0	*	2	1	3
35–44 (*n* = 279)	10	7	36	2	41	1	0	2	1	*	1
45–54 (*n* = 319)	15	12	23	4	39	3	0	2	1	*	1
55–64 (*n* = 241)	10	16	15	4	48	3	0	1	1	1	1
≥65 (*n* = 261)	16	16	9	4	49	*	0	2	0	0	3
Minor children at home[c]											
Yes (*n* = 530)	9	8	34	3	40	1	0	2	1	*	2
No (*n* = 970)	12	13	24	3	41	2	0	2	1	1	1

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.

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?* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-3

Primary source of information about specific scientific issues, by respondent characteristic: 2008

(Percent)

Characteristic	Newspaper	Magazine	Internet	Book/ other print	Television	Radio	Government agency	Family	Friend/ colleague	Other	Don't know
All adults (*n* = 1,505)	5	5	54	7	21	1	1	1	1	1	2
Sex											
Male (*n* = 713)	5	5	53	7	24	1	*	*	1	2	2
Female (*n* = 792)	6	4	55	7	19	*	1	2	1	1	2
Formal education											
<High school (*n* = 214)	5	2	33	9	40	1	1	*	1	1	7
High school graduate (*n* = 893)	6	5	55	6	21	1	1	2	1	2	2
Baccalaureate (*n* = 259)	5	6	63	6	16	1	0	2	1	1	1
Graduate/professional degree (*n* = 139)	5	6	64	11	7	1	*	1	3	1	1
Science/mathematics education[a]											
Low (*n* = 955)	6	5	45	7	28	*	1	1	1	2	4
Middle (*n* = 268)	3	4	72	5	13	*	0	1	*	1	*
High (*n* = 282)	5	6	68	8	7	1	0	1	2	1	0
Family income (quartile)[b]											
Top (*n* = 271)	6	3	68	6	11	*	1	*	2	*	1
Second (*n* = 348)	3	6	62	8	17	*	0	2	1	1	1
Third (*n* = 313)	7	4	49	5	28	2	1	1	1	1	1
Bottom (*n* = 378)	7	4	40	11	31	*	1	1	0	2	2
Age (years)											
18–24 (*n* = 138)	2	3	70	5	14	*	0	0	2	2	2
25–34 (*n* = 267)	4	4	65	4	15	1	0	1	1	1	4
35–44 (*n* = 279)	4	3	61	5	22	0	0	1	1	1	2
45–54 (*n* = 319)	4	3	54	9	23	*	1	2	1	1	1
55–64 (*n* = 241)	8	6	49	8	21	2	0	1	2	2	1
≥65 (*n* = 261)	12	9	27	9	31	1	1	3	*	3	5
Minor children at home[c]											
Yes (*n* = 530)	3	5	61	5	19	*	*	2	*	1	3
No (*n* = 970)	6	5	50	8	23	1	1	1	1	2	2

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.

NOTES: Responses to *If you wanted to learn about scientific issues such as global warming or biotechnology, where would you get information?* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-4

Public interest in selected issues: 1979–2008

(Percent)

Issue	1979 (*n* = 1,635)	1981 (*n* = 1,631)	1983 (*n* = 2,003)	1985 (*n* = 2,041)	1988 (*n* = 2,005)	1990 (*n* = 1,995)	1992 (*n* = 2,006)	1995 (*n* = 2,000)	1997 (*n* = 1,882)	1999 (*n* = 1,574)	2001 (*n* = 2,025)	2008 (*n* = 1,505)
New medical discoveries												
Very interested	NA	NA	NA	68	72	68	66	69	70	68	65	61
Moderately interested	NA	NA	NA	29	25	29	31	27	26	28	32	33
Not at all interested	NA	NA	NA	3	3	3	3	4	4	4	4	6
Environmental pollution												
Very interested	NA	NA	NA	NA	NA	64	59	53	52	51	48	50
Moderately interested	NA	NA	NA	NA	NA	31	36	41	40	41	43	40
Not at all interested	NA	NA	NA	NA	NA	5	5	6	8	8	8	10
Economic issues and business conditions												
Very interested	35	52	57	48	48	51	57	47	47	42	45	49
Moderately interested	48	37	33	41	42	40	36	42	42	45	45	41
Not at all interested	17	10	10	11	10	10	8	11	11	13	10	10
Local school issues												
Very interested	38	46	47	47	51	50	54	57	58	54	59	48
Moderately interested	37	36	36	39	33	34	35	31	30	34	31	39
Not at all interested	25	18	18	14	15	16	12	12	11	12	10	13
Use of new inventions and technologies												
Very interested	33	33	42	39	40	39	37	43	47	41	43	43
Moderately interested	51	51	45	49	49	49	53	46	44	48	47	45
Not at all interested	15	16	12	12	12	12	10	11	10	10	10	12
Military and defense policy												
Very interested	NA	NA	43	47	47	55	47	37	35	42	38	40
Moderately interested	NA	NA	42	42	42	35	43	46	48	44	44	46
Not at all interested	NA	NA	15	11	11	9	10	17	18	14	18	14
New scientific discoveries												
Very interested	36	37	48	44	43	39	36	44	49	45	47	40
Moderately interested	49	45	41	44	46	49	49	45	42	44	45	46
Not at all interested	15	17	11	12	12	12	15	11	9	11	9	14
International and foreign policy issues												
Very interested	22	35	30	33	33	48	38	21	23	30	28	25
Moderately interested	54	47	47	51	51	40	47	53	50	47	49	48
Not at all interested	24	18	22	16	16	13	15	26	28	23	23	27
Agricultural and farm issues												
Very interested	23	24	NA	30	40	24	NA	21	24	22	29	24
Moderately interested	49	47	NA	48	45	48	NA	53	50	50	46	52
Not at all interested	28	29	NA	22	15	28	NA	26	26	29	25	24

Appendix table 7-4

Public interest in selected issues: 1979–2008

(Percent)

Issue	1979 (*n* = 1,635)	1981 (*n* = 1,631)	1983 (*n* = 2,003)	1985 (*n* = 2,041)	1988 (*n* = 2,005)	1990 (*n* = 1,995)	1992 (*n* = 2,006)	1995 (*n* = 2,000)	1997 (*n* = 1,882)	1999 (*n* = 1,574)	2001 (*n* = 2,025)	2008 (*n* = 1,505)
Space exploration												
Very interested	NA	25	27	29	34	26	22	25	32	29	26	22
Moderately interested	NA	44	45	46	44	48	50	49	45	46	47	45
Not at all interested	NA	31	28	25	22	26	28	27	23	25	27	33

NA = not available, question not asked

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. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1979–2001); and University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-5

Public interest in selected issues, by respondent characteristic: 2008

(Percent)

Characteristic	New medical discoveries			Environmental pollution			Economic issues and business conditions			Local school issues			Use of new inventions and technologies		
	Very interested (*n* = 907)	Moderately interested (*n* = 496)	Not at all interested (*n* = 93)	Very interested (*n* = 751)	Moderately interested (*n* = 600)	Not at all interested (*n* = 142)	Very interested (*n* = 748)	Moderately interested (*n* = 594)	Not at all interested (*n* = 157)	Very interested (*n* = 709)	Moderately interested (*n* = 592)	Not at all interested (*n* = 198)	Very interested (*n* = 626)	Moderately interested (*n* = 680)	Not at all interested (*n* = 193)
All adults	61	33	6	50	40	10	49	41	10	48	39	13	43	45	12
Sex															
Male	58	35	7	48	41	11	54	37	9	44	42	14	52	39	8
Female	63	31	5	51	40	9	45	44	10	52	36	12	34	50	15
Formal education															
<High school	55	30	15	44	40	17	29	44	27	43	39	18	38	36	26
High school graduate	62	33	6	49	40	11	51	41	8	46	42	13	42	48	10
Baccalaureate	62	34	4	53	43	3	61	34	5	55	33	12	50	43	7
Graduate/professional	61	39	*	59	38	3	51	47	2	56	31	13	45	45	10
Science/mathematics education[a]															
Low	58	33	8	49	39	12	43	43	14	45	42	14	39	46	15
Middle	62	32	6	46	44	10	60	35	5	54	33	13	40	54	6
High	66	32	2	57	41	2	58	41	1	52	35	13	59	34	7
Family income (quartile)															
Top	60	36	4	52	41	7	59	36	6	51	37	11	48	44	8
Second	59	40	1	46	47	7	55	40	5	52	39	8	43	48	8
Third	62	31	7	49	43	8	47	45	8	46	41	13	40	51	9
Bottom	63	26	11	53	32	14	38	42	20	42	40	18	41	38	21
Age (years)															
18–24	65	25	10	46	41	13	46	44	10	42	44	14	57	34	9
25–34	54	36	10	43	43	14	47	38	15	54	32	14	42	44	14
35–44	54	40	6	47	44	9	49	42	9	61	28	10	38	49	12
45–54	63	31	6	52	39	9	55	39	6	46	42	11	42	45	13
55–64	62	33	5	57	36	8	49	42	9	41	44	15	42	47	11
≥65	69	29	3	55	37	9	47	42	11	38	45	17	42	47	11
Minor children at home															
Yes	56	38	6	43	47	10	49	39	11	63	32	6	40	45	16
No	63	30	7	54	36	10	50	42	9	39	43	18	45	45	10

Appendix table 7-5

Public interest in selected issues, by respondent characteristic: 2008

(Percent)

Characteristic	Military and defense policy			New scientific discoveries			International and foreign policy issues			Agricultural and farm issues			Space exploration		
	Very interested (*n* = 611)	Moderately interested (*n* = 674)	Not at all interested (*n* = 210)	Very interested (*n* = 607)	Moderately interested (*n* = 675)	Not at all interested (*n* = 213)	Very interested (*n* = 370)	Moderately interested (*n* = 712)	Not at all interested (*n* = 414)	Very interested (*n* = 369)	Moderately interested (*n* = 770)	Not at all interested (*n* = 359)	Very interested (*n* = 326)	Moderately interested (*n* = 665)	Not at all interested (*n* = 508)
All adults	40	46	14	40	46	14	25	48	27	24	52	24	22	45	33
Sex															
Male	46	42	12	44	44	12	32	46	23	29	53	18	29	44	27
Female	35	49	16	36	47	16	18	50	32	19	51	29	14	46	40
Formal education															
<High school	32	46	22	31	40	29	19	30	51	26	45	29	18	34	49
High school graduate	41	45	14	37	48	15	19	51	30	24	53	23	20	45	35
Baccalaureate	44	46	11	51	44	5	33	58	9	22	55	23	30	46	24
Graduate/professional	40	48	12	54	41	5	53	41	6	25	54	20	25	57	18
Science/mathematics education[a]															
Low	37	47	16	34	47	19	19	45	36	26	50	25	17	44	40
Middle	48	37	16	40	49	11	26	56	18	19	56	25	23	47	30
High	42	51	7	60	37	3	41	50	9	23	57	21	35	48	17
Family income (quartile)															
Top	46	47	8	47	45	8	37	50	13	25	56	19	27	46	26
Second	44	46	9	41	49	11	20	59	21	21	59	20	23	49	28
Third	42	44	14	38	49	13	22	47	31	26	49	25	19	44	36
Bottom	32	46	21	34	42	24	19	37	44	27	41	32	18	38	44
Age (years)															
18–24	37	50	13	39	48	13	20	51	29	17	43	40	19	47	34
25–34	30	46	24	40	42	19	14	48	38	19	48	33	19	40	42
35–44	35	50	14	37	50	14	23	49	28	21	59	20	23	50	28
45–54	40	47	12	40	48	12	26	47	27	26	56	19	21	42	37
55–64	50	39	11	39	45	16	34	46	20	29	51	20	26	46	27
≥65	50	39	11	47	41	12	32	49	19	30	53	16	22	46	32
Minor children at home															
Yes	32	51	17	38	47	15	24	43	33	20	52	28	20	43	37
No	45	42	13	41	45	14	25	51	24	26	52	21	22	46	32

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.

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.* Subtotals across each issue do not include "don't know" and "refused" responses. Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-6

Visits to informal science and other cultural institutions: 1981–2008

(Percent)

Institution	1981 (*n* = 1,631)	1983 (*n* = 2,003)	1985 (*n* = 2,041)	1988 (*n* = 2,005)	1990 (*n* = 1,995)	1992 (*n* = 2,006)	1995 (*n* = 2,000)	1997 (*n* = 1,882)	1999 (*n* = 1,574)	2001 (*n* = 2,025)	2008 (*n* = 1,505)
Informal science institution											
Zoo/aquarium	64	49	48	51	51	54	52	51	51	58	50
Natural history museum	37	29	29	30	30	31	29	30	27	30	27
Science/technology museum	39	26	24	26	25	21	28	27	30	30	26
Any informal science institution[a]	72	61	58	59	60	62	61	60	61	66	59
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	32

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. Percent indicates individuals who visited institution at least once.

SOURCES: National Science Foundation, Division of Science Resources 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 2010

Appendix table 7-7

Visits 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* = 1,505)	50	27	26	59	64	32
Sex						
Male (*n* = 713)	48	28	28	57	58	31
Female (*n* = 792)	53	26	24	61	70	34
Formal education						
<High school (*n* = 214)	33	12	8	38	45	9
High school graduate (*n* = 893)	49	24	23	57	63	26
Baccalaureate (*n* = 259)	62	44	40	73	73	54
Graduate/professional degree (*n* = 139)	65	37	48	78	83	68
Science/mathematics education[b]						
Low (*n* = 955)	42	19	18	50	57	20
Middle (*n* = 268)	59	40	36	74	73	50
High (*n* = 282)	66	40	42	76	78	54
Family income (quartile)[c]						
Top (*n* = 271)	60	44	41	75	68	49
Second (*n* = 348)	59	29	31	67	68	36
Third (*n* = 313)	48	17	19	54	60	25
Bottom (*n* = 378)	37	18	16	45	65	21
Age (years)						
18–24 (*n* = 138)	55	28	34	72	74	43
25–34 (*n* = 267)	65	26	23	70	67	31
35–44 (*n* = 279)	62	31	33	67	71	32
45–54 (*n* = 319)	45	32	26	58	60	34
55–64 (*n* = 241)	41	24	25	51	62	31
≥65 (*n* = 261)	31	17	15	37	51	25
Minor children at home[d]						
Yes (*n* = 530)	60	31	28	68	71	30
No (*n* = 970)	44	24	25	54	59	34

[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.
[c]Subtotals do not include "don't know" and "refused" responses.
[d]Subtotals do not add to total *n* because not all respondents answered question.

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.* Percent indicates individuals who visited institution at least once.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-8

Correct answers to scientific terms and concept questions in "factual knowledge of science, scale 1," by respondent characteristic: 1992–2008

(Percent)

Characteristic	1992 (*n* = 1,995)	1995 (*n* = 2,006)	1997 (*n* = 2,000)	1999 (*n* = 1,882)	2001 (*n* = 1,574)	2004[a] (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 1,505)
All adults	59	60	60	61	64	NA	64	64
Sex								
Male	64	65	66	66	69	NA	69	67
Female	55	55	55	57	59	NA	60	60
Formal education								
<High school	44	44	43	44	45	NA	44	43
High school graduate	59	59	60	62	62	NA	62	62
Baccalaureate	73	68	75	77	80	NA	74	76
Graduate/professional	80	77	80	83	80	NA	82	81
Science/mathematics education[b]								
Low	51	50	50	51	53	NA	56	56
Middle	65	66	64	69	69	NA	69	69
High	79	80	83	82	84	NA	82	83
Family income (quartile)								
Top	NA	NA	NA	NA	NA	NA	71	74
Second	NA	NA	NA	NA	NA	NA	69	69
Third	NA	NA	NA	NA	NA	NA	65	61
Bottom	NA	NA	NA	NA	NA	NA	56	54
Age (years)								
18–24	59	63	64	65	66	NA	68	66
25–34	64	64	63	65	68	NA	64	65
35–44	65	64	66	66	66	NA	67	63
45–54	61	62	61	64	68	NA	68	66
55–64	53	51	57	58	61	NA	64	66
≥65	47	47	45	46	49	NA	53	54
Minor children at home								
Yes	64	64	62	62	66	NA	65	63
No	55	57	59	61	62	NA	64	64
Verbal ability[c]								
0–4	NA	NA	NA	NA	NA	NA	44	50
5	NA	NA	NA	NA	NA	NA	60	58
6	NA	NA	NA	NA	NA	NA	66	63
7	NA	NA	NA	NA	NA	NA	70	73
8–10	NA	NA	NA	NA	NA	NA	77	80

NA = not available, question not asked

[a]Not all questions asked in 2004.
[b]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[c]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses.

NOTES: Table includes all years for which data collected. "Don't know" responses and refusals to respond counted as incorrect. "Factual knowledge of science, scale 1" is proportion of correct responses to nine questions 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, Division of Science Resources Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1995–2001); University of Michigan, Survey of Consumer Attitudes (2004); and University of Chicago, National Opinion Research Center, General Social Survey (2006, 2008).

Science and Engineering Indicators 2010

Appendix table 7-9

Correct answers to scientific terms and concept questions: 1985–2008

(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* = 1,505)
The center of the Earth is very hot. (True)	NA	80	79	81	78	82	80	80	78	80	84
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	77
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
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	71[a]
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[a]
All radioactivity is man-made. (False)	NA	65	63	73	72	71	71	76	73	70	70
Antibiotics kill viruses as well as bacteria. (False)	NA	26	30	35	40	43	45	51	54	56	54
Electrons are smaller than atoms. (True)	NA	43	41	46	44	43	46	48	45	53	53
How long does it take for the Earth to go around the Sun? (One year)	NA	45	48	46	47	48	49	54	NA	55	51
Lasers work by focusing sound waves. (False)	NA	36	37	37	40	39	43	45	42	45	49

NA = not available, question not asked

[a]Question about "father's gene" asked of 1,251 survey respondents. Question about "mother's gene" asked of 254 survey respondents.

NOTES: Table includes all years for which data collected. "Don't know" responses and refusals to respond counted as incorrect.

SOURCES: National Science Foundation, Division of Science Resources 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, 2008).

Science and Engineering Indicators 2010

Appendix table 7-10

Correct answers to scientific terms and concept questions, by respondent characteristic: 2008

(Percent)

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)	*It is the mother's gene that decides whether the baby is a boy or a girl.* [b] (False)
All adults (*n* = 1,505)	84	77	72	51	71
Sex					
Male (*n* = 713)	88	82	79	58	67
Female (*n* = 792)	80	73	66	44	75
Formal education					
<High school (*n* = 214)	74	62	50	26	53
High school graduate (*n* = 893)	84	76	70	46	69
Baccalaureate (*n* = 259)	88	86	86	73	92
Graduate/professional (*n* = 139)	95	90	92	85	78
Science/mathematics education[c]					
Low (*n* = 955)	80	70	65	40	60
Middle (*n* = 268)	87	83	77	57	78
High (*n* = 282)	94	95	90	80	92
Family income (quartile)[d]					
Top (*n* = 271)	91	87	83	66	71
Second (*n* = 348)	86	82	77	58	77
Third (*n* = 313)	85	74	66	45	62
Bottom (*n* = 378)	79	71	64	42	63
Age (years)					
18–24 (*n* = 138)	92	87	76	58	70
25–34 (*n* = 267)	85	78	80	59	69
35–44 (*n* = 279)	82	77	69	47	81
45–54 (*n* = 319)	83	78	72	53	78
55–64 (*n* = 241)	87	77	75	56	63
≥65 (*n* = 261)	79	68	61	35	59
Minor children at home[e]					
Yes (*n* = 530)	81	78	72	51	77
No (*n* = 970)	85	77	72	51	68
Verbal ability[f]					
0–4 (*n* = 223)	78	69	58	31	61
5 (*n* = 214)	79	73	64	42	59
6 (*n* = 260)	88	78	71	51	72
7 (*n* = 194)	88	80	81	65	92
8–10 (*n* = 236)	93	90	90	74	69
Factual knowledge of science, scale 2					
Top (*n* = 342)	97	92	96	84	84
Second (n = 462)	90	84	79	58	75
Third (*n* = 363)	78	76	61	37	70
Bottom (*n* = 338)	67	51	48	22	51

Appendix table 7-10

Correct answers to scientific terms and concept questions, by respondent characteristic: 2008

(Percent)

Characteristic	*It is the father's gene that decides whether the baby is a boy or a girl.* [b] (True)	*All radioactivity is man-made.* (False)	*Antibiotics kill viruses as well as bacteria.* (False)	*Electrons are smaller than atoms.* (True)	*Lasers work by focusing sound waves.* (False)
All adults (*n* = 1,505)	62	70	54	53	49
Sex					
Male (*n* = 713)	53	74	47	59	64
Female (*n* = 792)	71	67	60	47	34
Formal education					
<High school (*n* = 214)	44	46	21	27	33
High school graduate (*n* = 893)	64	70	52	52	46
Baccalaureate (*n* = 259)	64	83	75	67	62
Graduate/professional (*n* = 139)	74	85	75	70	64
Science/mathematics education[c]					
Low (*n* = 955)	60	62	44	44	39
Middle (*n* = 268)	61	80	60	58	57
High (*n* = 282)	71	87	76	76	72
Family income (quartile)[d]					
Top (*n* = 271)	65	84	67	63	59
Second (*n* = 348)	69	77	60	57	57
Third (*n* = 313)	56	74	53	52	48
Bottom (*n* = 378)	57	54	34	44	39
Age (years)					
18–24 (*n* = 138)	61	66	43	60	49
25–34 (*n* = 267)	64	66	50	56	49
35–44 (*n* = 279)	66	72	49	52	53
45–54 (*n* = 319)	63	73	59	58	55
55–64 (*n* = 241)	58	79	65	46	50
≥65 (*n* = 261)	58	64	52	43	33
Minor children at home[e]					
Yes (*n* = 530)	69	67	53	51	49
No (*n* = 970)	58	73	54	54	49
Verbal ability[f]					
0–4 (*n* = 223)	47	49	28	44	43
5 (*n* = 214)	62	69	47	46	44
6 (*n* = 260)	61	73	51	52	41
7 (*n* = 194)	76	80	73	59	51
8–10 (*n* = 236)	69	89	76	71	69

Appendix table 7-10

Correct answers to scientific terms and concept questions, by respondent characteristic: 2008

(Percent)

Characteristic	*It is the father's gene that decides whether the baby is a boy or a girl.* [b] (True)	*All radioactivity is man-made.* (False)	*Antibiotics kill viruses as well as bacteria.* (False)	*Electrons are smaller than atoms.* (True)	*Lasers work by focusing sound waves.* (False)
Factual knowledge of science, scale 2					
Top (*n* = 342)	70	94	80	77	79
Second (*n* = 462)	69	76	60	55	53
Third (*n* = 363)	59	65	42	45	32
Bottom (*n* = 338)	47	43	28	32	28

[a]Question asked only of respondents who answered correctly that the earth goes around the sun.
[b]Question about "father's gene" asked of 1,251 survey respondents. Question about "mother's gene" asked of 254 survey respondents.
[c]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[d]Subtotals do not include "don't know" and "refused" responses.
[e]Subtotals do not add to total *n* because not all respondents answered question.
[f]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses. Verbal ability scale questions not asked of all respondents.

NOTES: "Don't know" responses and refusals to respond counted as incorrect. "Factual knowledge of science, scale 2" is proportion of correct responses to nine questions listed below. (For complete questions, see sidebar: "New Science Knowledge Questions Included in the General Social Survey: 2008.")

- What property of water is most important for living organisms?
- Which of the following is a key factor that enables an airplane to lift?
- 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?
- Which 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?
- For which reason may people experience shortness of breath more quickly at the top of a mountain than along a seashore?
- Lightning and thunder happen at the same time, but you see the lightning before you hear the thunder. Explain why this is so.
- 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.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-11

Correct answers to nanotechnology questions, by respondent characteristic: 2008

(Percent)

Characteristic	*Nanotechnology involves manipulating extermely 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* = 711)	63	41	33
Sex			
Male (*n* = 419)	69	46	39
Female (*n* = 292)	52	34	25
Formal education			
<High school (*n* = 49)	62	36	26
High school graduate (*n* = 403)	56	40	31
Baccalaureate (*n* = 164)	68	46	39
Graduate/professional (*n* = 95)	81	41	35
Science/mathematics education[b]			
Low (*n* = 336)	54	35	25
Middle (*n* = 156)	57	40	33
High (*n* = 219)	81	53	46
Family income (quartile)[c]			
Top (*n* = 174)	67	42	35
Second (*n* = 201)	65	47	36
Third (*n* = 143)	59	44	36
Bottom (*n* = 137)	64	33	26
Age (years)			
18–24 (*n* = 78)	70	43	39
25–34 (*n* = 130)	62	46	35
35–44 (*n* = 137)	63	39	31
45–54 (*n* = 165)	56	47	37
55–64 (*n* = 116)	66	36	31
≥65 (*n* = 85)	63	31	25
Minor children at home[d]			
Yes (*n* = 247)	63	46	37
No (*n* = 462)	63	39	31
Factual knowledge of science, scale 1[e] (quartile)			
Top (*n* = 318)	75	52	42
Second (*n* = 224)	58	35	29
Third (*n* = 132)	50	34	26
Bottom (*n* = 37)	31	18	10
How much have you heard about nanotechnology?			
A lot (*n* = 80)	89	74	66
Some (*n* = 224)	72	49	40
Just a little (*n* = 407)	53	31	24

[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.
[c] Subtotals do not include "don't know" and "refused" responses.
[d] Subtotals do not add to total *n* because not all respondents answered question.
[e] Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." See notes to appendix table 7-8 for questions.

NOTE: Questions asked only of the 711 survey respondents who reported that they had heard about nanotechnology.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-12

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* = 1,505)	55	80	76	69	54
Sex					
Male (*n* = 713)	63	77	81	75	64
Female (*n* = 792)	47	82	71	63	43
Formal education					
<High school (*n* = 214)	40	59	55	47	33
High school graduate (*n* = 893)	53	80	77	67	53
Baccalaureate (*n* = 259)	66	92	84	82	61
Graduate/professional degree (*n* = 139)	70	89	82	87	75
Science/mathematics education[a]					
Low (*n* = 955)	47	73	70	61	43
Middle (*n* = 268)	64	86	79	77	60
High (*n* = 282)	70	95	89	88	80
Family income (quartile)[b]					
Top (*n* = 271)	67	88	87	85	67
Second (*n* = 348)	62	87	79	71	59
Third (*n* = 313)	56	77	74	65	53
Bottom (*n* = 378)	37	68	64	58	40
Age (years)					
18–24 (*n* = 138)	45	81	71	69	54
25–34 (*n* = 267)	49	83	78	70	51
35–44 (*n* = 279)	48	81	77	72	45
45–54 (*n* = 319)	63	80	80	72	56
55–64 (*n* = 241)	68	85	80	73	67
≥65 (*n* = 261)	52	68	64	55	51
Minor children at home[c]					
Yes (*n* = 530)	51	80	75	69	48
No (*n* = 970)	57	79	76	69	57
Verbal ability[d]					
0–4 (*n* = 223)	38	64	66	57	38
5 (*n* = 214)	51	74	75	61	46
6 (*n* = 260)	52	83	79	76	58
7 (*n* = 194)	63	94	79	77	57
8–10 (*n* = 236)	73	92	89	84	75
Factual knowledge of science, scale 1[e] (quartile)					
Top (*n* = 387)	77	95	91	90	82
Second (*n* = 425)	58	83	78	78	57
Third (*n* = 405)	43	75	72	56	44
Bottom (*n* = 288)	34	57	53	40	21

Appendix table 7-12

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[f]
All adults (*n* = 1,505)	68	86	20	45	61
Sex					
Male (*n* = 713)	73	88	23	55	67
Female (*n* = 792)	63	84	16	35	56
Formal education					
<High school (*n* = 214)	40	73	3	14	40
High school graduate (*n* = 893)	66	85	15	42	60
Baccalaureate (*n* = 259)	88	94	36	65	74
Graduate/professional degree (*n* = 139)	83	94	44	69	77
Science/mathematics education[a]					
Low (*n* = 955)	59	82	9	33	53
Middle (*n* = 268)	74	88	26	55	68
High (*n* = 282)	91	97	47	71	81
Family income (quartile)[b]					
Top (*n* = 271)	85	95	28	64	74
Second (*n* = 348)	73	91	26	51	67
Third (*n* = 313)	64	88	17	40	59
Bottom (*n* = 378)	48	72	12	27	47
Age (years)					
18–24 (*n* = 138)	60	79	19	42	58
25–34 (*n* = 267)	66	81	21	51	61
35–44 (*n* = 279)	69	89	19	46	61
45–54 (*n* = 319)	71	88	21	41	63
55–64 (*n* = 241)	76	92	21	50	68
≥65 (*n* = 261)	63	84	16	37	54
Minor children at home[c]					
Yes (*n* = 530)	64	84	18	41	59
No (*n* = 970)	70	87	21	47	62
Verbal ability[d]					
0–4 (*n* = 223)	46	69	5	23	45
5 (*n* = 214)	59	83	11	33	55
6 (*n* = 260)	71	91	23	42	64
7 (*n* = 194)	84	95	23	59	70
8–10 (*n* = 236)	86	95	35	65	77

Appendix table 7-12

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[f]
Factual knowledge of science, scale 1[e] (quartile)					
Top (*n* = 387)	93	97	46	78	83
Second (*n* = 425)	76	89	17	50	65
Third (*n* = 405)	56	85	7	27	52
Bottom (*n* = 288)	35	65	2	12	36

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses. Verbal ability scale questions not asked of all respondents.
[e]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." See notes to appendix table 7-8 for questions.
[f]Proportion of correct responses to nine questions in "factual knowledge of science, scale 2"; questions are columns in this table. For complete questions, see sidebar, "New Science Knowledge Questions."

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 7-13

Correct answers to scientific process questions: 1988–2008

(Percent)

Question	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* = 1,505)
Understanding of probability[a]	64	61	64	63	62	64	67	64	69	65
If the first three children are healthy, the fourth child will have illness.	84	78	80	77	78	78	78	NA	NA	NA
If the first child has illness, the next three will not.	86	81	83	81	81	82	84	82	86	82
Each of the couple's children will have the same risk of illness.	72	70	71	72	71	74	75	73	75	73
If the couple has only three children, none will have illness.	87	81	83	79	79	81	84	NA	NA	NA
Understanding of experiment[b]	NA	NA	NA	26	36	34	38	46	42	38
Understanding of scientific inquiry[c]	NA	NA	NA	26	34	32	39	39	41	35
Understanding of scientific study[d]	17	18	21	16	23	21	26	23	25	22

NA = not available, question not asked

[a]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)

[b]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.)

[c]To be classified as understanding scientific inquiry, survey respondent had to: (1) *answer correctly the two probability questions stated in footnote a* 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 b).*

[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 counted as incorrect.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1988–2001); University of Michigan, Survey of Consumer Attitudes (2004); and University of Chicago, National Opinion Research Center, General Social Survey (2006, 2008).

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Appendix table 7-14

Correct answers to scientific process questions, by respondent characteristic: 2008

(Percent)

Characteristic	Probability	Experiment	Scientific inquiry	Scientific study
All adults (*n* = 1,505)	65	38	35	22
Sex				
Male (*n* = 713)	66	37	37	24
Female (*n* = 792)	63	39	33	20
Formal education				
<High school (*n* = 214)	38	14	8	6
High school graduate (*n* = 893)	65	35	31	15
Baccalaureate (*n* = 259)	77	52	52	39
Graduate/professional (*n* = 139)	79	65	69	57
Science/mathematics education[a]				
Low (*n* = 955)	58	29	25	11
Middle (*n* = 268)	68	47	43	32
High (*n* = 282)	83	57	59	48
Family income (quartile)[b]				
Top (*n* = 271)	76	54	51	39
Second (*n* = 348)	71	41	42	24
Third (*n* = 313)	61	34	28	15
Bottom (*n* = 378)	51	24	21	14
Age (years)				
18–24 (*n* = 138)	64	39	34	22
25–34 (*n* = 267)	63	39	37	24
35–44 (*n* = 279)	62	40	34	21
45–54 (*n* = 319)	70	42	40	25
55–64 (*n* = 241)	69	41	41	29
≥65 (*n* = 261)	58	24	22	8
Minor children at home[c]				
Yes (*n* = 530)	63	38	36	25
No (*n* = 970)	66	38	34	20
Verbal ability[d]				
0–4 (*n* = 223)	42	16	12	4
5 (*n* = 214)	57	33	24	10
6 (*n* = 260)	74	37	35	20
7 (*n* = 194)	77	47	46	30
8–10 (*n* = 236)	79	62	62	43
Factual knowledge of science, scale 1[e](quartile)				
Top (*n* = 387)	84	59	62	47
Second (*n* = 425)	68	43	37	20
Third (*n* = 405)	61	26	23	13
Bottom (*n* = 288)	35	16	9	2

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses. Verbal ability scale questions not asked of all respondents.
[e]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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 counted as incorrect.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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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?*	*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?* [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 Card 4. Which one of the pictures on the bottom part of the card shows what she should use for the second pot?* [b]
All adults (*n* = 1,314)	77	66	51	51
Sex				
Male (*n* = 630)	80	70	54	49
Female (*n* = 684)	73	63	49	53
Formal education				
<High school (*n* = 186)	51	37	24	43
High school graduate (*n* = 802)	78	66	50	49
Baccalaureate (*n* = 213)	87	84	72	58
Graduate/professional (*n* = 113)	91	81	71	65
Science/mathematics education[d]				
Low (*n* = 850)	70	57	41	47
Middle (*n* = 232)	85	75	63	52
High (*n* = 232)	91	90	75	63
Family income (quartile)[e]				
Top (*n* = 224)	90	82	70	56
Second (*n* = 306)	82	74	56	56
Third (*n* = 295)	80	66	51	52
Bottom (*n* = 352)	66	51	36	43
Age (years)				
18–24 (*n* = 126)	75	67	51	43
25–34 (*n* = 231)	79	71	52	51
35–44 (*n* = 236)	76	70	51	50
45–54 (*n* = 274)	80	69	54	50
55–64 (*n* = 216)	81	71	61	55
≥65 (*n* = 231)	67	48	39	55
Minor children at home[e]				
Yes (*n* = 459)	74	68	51	48
No (*n* = 851)	78	66	52	53
Verbal ability[f]				
0–4 (*n* = 198)	55	45	30	36
5 (*n* = 187)	71	63	41	36
6 (*n* = 219)	87	69	57	56
7 (*n* = 164)	89	78	61	57
8–10 (*n* = 204)	90	79	72	67
Understanding of probability[g] (*n* = 1,314)	86	77	60	59
Understanding of experiment[g] (*n* = 1,314)	90	82	68	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? [b]	*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[c]
All adults (*n* = 1,314)	51	57	29	46
Sex				
Male (*n* = 630)	49	59	30	46
Female (*n* = 684)	53	56	28	46
Formal education				
<High school (*n* = 186)	43	32	7	27
High school graduate (*n* = 802)	49	56	25	44
Baccalaureate (*n* = 213)	58	74	50	61
Graduate/professional (*n* = 113)	65	75	54	65
Science/mathematics education[d]				
Low (*n* = 850)	47	47	17	37
Middle (*n* = 232)	52	72	43	56
High (*n* = 232)	63	79	57	66
Family income (quartile)[e]				
Top (*n* = 224)	56	75	47	59
Second (*n* = 306)	56	67	40	54
Third (*n* = 295)	52	54	18	41
Bottom (*n* = 352)	43	47	18	36
Age (years)				
18–24 (*n* = 126)	43	68	27	46
25–34 (*n* = 231)	51	63	34	49
35–44 (*n* = 236)	50	57	30	46
45–54 (*n* = 274)	50	62	33	48
55–64 (*n* = 216)	55	60	32	49
≥65 (*n* = 231)	55	33	16	35
Minor children at home[e]				
Yes (*n* = 459)	48	59	30	46
No (*n* = 851)	53	56	29	46

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? [b]	*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[c]
Verbal ability[f]				
0–4 (*n* = 198)	36	39	10	28
5 (*n* = 187)	36	42	13	30
6 (*n* = 219)	56	64	31	50
7 (*n* = 164)	57	71	40	56
8–10 (*n* = 204)	67	75	51	64
Understanding of probability[g] (*n* = 1,314)	59	66	37	54
Understanding of experiment[g] (*n* = 1,314)	62	74	47	61

[a] 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.

[b] Question included under both reasoning/life sciences and experiment /controlling variables because correct answer can be reached by either method.

[c] Proportion of correct responses to questions in "Experiment/controlling variables" group.

[d] Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.

[e] Subtotals for "Family income" do not include "don't know" and "refused" responses. Subtotals for "Minor children at home" do not add to total *n* because not all respondents answered question.

[f] Measure based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge. Categories represent number of correct responses. Verbal ability scale questions not asked of all respondents.

[g] See footnotes to appendix table 7-13 for explanation of understanding of probability and experiment.

NOTES: *n*'s lower than in other tables because show cards could not be administered to subset of respondents interviewed by telephone. All questions multiple choice. "Don't know" responses and refusals to respond counted as incorrect. For complete questions, see sidebar: "New Science Knowledge Questions."

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-16

Public assessment of astrology, by respondent characteristic: 1979–2008

(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* = 1,505)
All adults													
Very scientific	8	10	8	6	6	7	7	7	7	9	6	5	5
Sort of scientific	34	35	31	31	29	29	28	29	29	31	26	26	28
Not at all scientific	50	51	57	60	60	62	60	59	59	56	66	65	63
Don't know	9	4	4	3	5	3	5	5	5	4	2	4	4
Sex													
Male													
Very scientific	7	9	7	5	5	6	7	7	7	9	5	5	4
Sort of scientific	30	29	29	25	23	25	24	27	25	27	21	23	28
Not at all scientific	54	58	60	67	67	66	65	63	63	60	72	68	64
Don't know	9	4	3	3	5	2	4	2	5	4	2	4	4
Female													
Very scientific	8	10	9	7	6	7	7	7	7	8	6	5	6
Sort of scientific	37	41	32	36	35	32	32	31	32	36	30	29	29
Not at all scientific	46	44	55	53	55	58	56	55	56	52	61	63	62
Don't know	9	5	4	3	5	3	6	7	5	4	3	4	3
Formal education													
<High school													
Very scientific	11	13	14	11	7	12	11	11	13	14	10	10	7
Sort of scientific	34	37	38	35	31	34	30	37	34	35	38	41	37
Not at all scientific	39	40	43	50	49	49	46	42	41	45	50	42	46
Don't know	16	10	5	4	12	5	13	10	13	6	2	8	10
High school graduate													
Very scientific	7	10	8	6	6	6	8	7	7	9	7	5	6
Sort of scientific	37	38	29	32	32	31	28	30	30	35	29	29	31
Not at all scientific	50	50	60	59	61	61	61	60	60	52	62	62	60
Don't know	6	2	3	3	2	2	3	4	3	4	2	4	3
Baccalaureate													
Very scientific	1	3	4	2	4	3	6	2	2	4	2	2	1
Sort of scientific	23	26	25	24	19	19	34	21	20	25	17	16	20
Not at all scientific	67	69	68	72	75	76	60	75	76	69	80	78	78
Don't know	9	3	3	1	2	3	*	2	3	2	1	4	1
Graduate/professional degree													
Very scientific	5	5	1	*	1	3	2	4	2	3	*	*	3
Sort of scientific	15	23	23	19	17	14	22	15	19	13	16	12	16
Not at all scientific	76	69	74	78	80	82	74	78	77	83	83	84	81
Don't know	4	3	2	2	2	*	2	2	2	*	1	4	0

Appendix table 7-16

Public assessment of astrology, by respondent characteristic: 1979–2008

(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* = 1,505)
Age (years)													
18–24													
Very scientific	9	13	10	10	5	14	9	11	7	17	10	5	5
Sort of scientific	40	43	39	36	37	37	33	38	40	39	36	34	44
Not at all scientific	47	42	51	54	56	49	53	50	50	42	52	56	49
Don't know	4	3	*	0	2	1	5	1	3	1	2	5	2
25–34													
Very scientific	7	7	6	6	6	4	9	6	5	10	6	8	7
Sort of scientific	36	39	32	32	32	33	30	32	30	33	33	28	29
Not at all scientific	52	51	60	60	61	62	59	59	61	54	60	60	62
Don't know	4	3	1	1	2	1	2	3	3	3	1	4	2
35–44													
Very scientific	6	11	8	6	5	7	4	4	7	7	4	5	4
Sort of scientific	37	32	29	31	26	27	32	26	32	32	24	28	30
Not at all scientific	53	54	61	60	68	64	61	66	59	58	69	65	62
Don't know	5	3	2	2	1	3	3	4	1	3	2	2	3
45–54													
Very scientific	8	7	5	4	7	6	4	4	5	5	4	3	5
Sort of scientific	28	40	32	26	25	27	26	28	23	27	18	24	24
Not at all scientific	54	50	59	66	64	63	67	65	67	66	74	70	69
Don't know	10	3	5	4	4	4	3	4	5	3	3	3	2
55–64													
Very scientific	10	8	11	5	5	3	8	7	10	6	6	3	4
Sort of scientific	32	33	24	33	25	18	20	17	27	27	25	24	25
Not at all scientific	44	56	56	56	59	77	66	69	58	62	66	68	67
Don't know	15	3	9	5	10	2	6	7	6	5	3	5	4
65+													
Very scientific	5	12	11	6	5	7	10	11	11	6	6	5	5
Sort of scientific	26	24	26	27	29	27	22	31	20	31	26	21	23
Not at all scientific	50	52	55	60	53	60	55	47	57	54	64	68	65
Don't know	19	12	8	6	13	6	12	11	13	9	3	7	8

Appendix table 7-16

Public assessment of astrology, by respondent characteristic: 1979–2008

(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* = 1,505)
Factual knowledge of science, scale 1[a] (quartile)													
Top													
Very scientific	NA	NA	NA	NA	NA	2	3	2	2	3	NA	2	3
Sort of scientific	NA	NA	NA	NA	NA	20	18	21	21	20	NA	14	18
Not at all scientific	NA	NA	NA	NA	NA	76	78	76	75	75	NA	82	78
Don't know	NA	NA	NA	NA	NA	2	1	1	1	2	NA	1	1
Second													
Very scientific	NA	NA	NA	NA	NA	5	6	6	6	13	NA	5	6
Sort of scientific	NA	NA	NA	NA	NA	30	28	25	27	31	NA	25	27
Not at all scientific	NA	NA	NA	NA	NA	63	64	66	65	54	NA	66	66
Don't know	NA	NA	NA	NA	NA	2	2	3	2	2	NA	4	1
Third													
Very scientific	NA	NA	NA	NA	NA	8	11	8	9	9	NA	7	6
Sort of scientific	NA	NA	NA	NA	NA	30	30	38	35	38	NA	33	35
Not at all scientific	NA	NA	NA	NA	NA	60	55	50	54	49	NA	55	57
Don't know	NA	NA	NA	NA	NA	2	4	3	2	4	NA	5	2
Bottom													
Very scientific	NA	NA	NA	NA	NA	10	8	11	13	10	NA	5	5
Sort of scientific	NA	NA	NA	NA	NA	34	34	31	31	38	NA	36	37
Not at all scientific	NA	NA	NA	NA	NA	50	45	44	38	42	NA	50	45
Don't know	NA	NA	NA	NA	NA	6	14	14	18	10	NA	8	13
Understanding of scientific inquiry[b]													
Understands scientific inquiry													
Very scientific	NA	NA	NA	NA	NA	NA	2	3	4	4	2	4	4
Sort of scientific	NA	NA	NA	NA	NA	NA	24	26	22	29	19	19	20
Not at all scientific	NA	NA	NA	NA	NA	NA	74	70	73	66	78	75	74
Don't know	NA	NA	NA	NA	NA	NA	1	1	2	1	1	2	2
Doesn't understand scientific inquiry													
Very scientific	NA	NA	NA	NA	NA	NA	9	9	9	12	8	5	6
Sort of scientific	NA	NA	NA	NA	NA	NA	29	31	32	33	31	31	33
Not at all scientific	NA	NA	NA	NA	NA	NA	55	53	53	49	58	58	57
Don't know	NA	NA	NA	NA	NA	NA	6	7	7	6	3	5	4

* = <0.5% responded; NA = not available, question not asked

[a]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." See notes to appendix table 7-8 for questions.
[b]See notes to appendix table 7-13 for explanation of 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.

SOURCES: National Science Foundation, Division of Science Resources 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, 2008).

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Appendix table 7-17

Public assessment of benefits and harms of scientific research, by respondent characteristic: 2008

(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* = 1,505)	43	25	16	7	3	7
Sex						
Male (*n* = 713)	45	24	16	8	3	5
Female (*n* = 792)	41	27	16	6	2	9
Formal education						
<High school (*n* = 214)	18	32	21	12	4	13
High school graduate (*n* = 893)	40	25	17	8	3	7
Baccalaureate (*n* = 259)	59	24	11	1	3	3
Graduate/professional degree (*n* = 139)	70	17	9	2	0	3
Science/mathematics education[a]						
Low (*n* = 955)	36	25	18	9	2	10
Middle (*n* = 268)	38	34	16	6	4	2
High (*n* = 282)	68	19	9	2	1	1
Family income (quartile)[b]						
Top (*n* = 271)	66	20	10	1	2	1
Second (*n* = 348)	48	29	10	5	3	5
Third (*n* = 313)	33	29	15	13	2	7
Bottom (*n* = 378)	25	30	22	9	4	10
Age (years)						
18–24 (*n* = 138)	31	23	28	9	2	7
25–34 (*n* = 267)	36	29	18	7	4	6
35–44 (*n* = 279)	44	27	15	6	3	5
45–54 (*n* = 319)	49	24	11	6	2	7
55–64 (*n* = 241)	48	27	10	6	2	6
≥65 (*n* = 261)	42	21	17	6	2	11
Minor children at home[c]						
Yes (*n* = 530)	43	26	16	6	2	8
No (*n* = 970)	43	25	16	7	3	6
Factual knowledge of science, scale 1[d] (quartile)						
Top (*n* = 387)	63	21	10	3	2	1
Second (*n* = 425)	48	24	16	6	2	3
Third (*n* = 405)	35	27	19	8	3	7
Bottom (*n* = 288)	16	31	20	11	2	20

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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?* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-18

Attitudes toward science and technology, by region/country: Most recent year

(Percent)

	United States (2004 or 2008)[a]						Japan (2001)						South Korea (2008)						Russia (1996 or 2003)[b]			
Statement	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	53	53	13	34
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.	89	36	53	7	1	3	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	19	19	26	55
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.	46	9	38	43	8	3	62	8	54	24	1	13	73	14	59	22	3	2	30	30	48	22

Appendix table 7-18

Attitudes toward science and technology, by region/country: Most recent year

(Percent)

	China (2001 or 2007)[c,d]					India (2004)				Malaysia (2004)[d]				EU-25 (2005)						
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	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly 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	74	74	4	22	78	32	46	14	5	1	2
With the application of science and new technology, work will become more interesting.	70	70	15	2	13	61	61	10	30	70	70	3	27	69	24	45	18	7	3	3
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	77	35	42	12	6	2	2
Reservations about science																				
We depend too much on science and not enough on faith.	16	16	33	28	24	NA	NA	NA	NA	27	27	33	40	39	12	27	26	17	12	4
It is not important for me to know about science in my daily life.	17	NA	NA	74	9	NA	NA	NA	NA	2	2	76	22	37	14	23	16	26	19	1
Science makes our way of life change too fast.	73	NA	NA	16	11	75	75	7	18	66	66	6	28	59	21	38	18	15	5	2

Appendix table 7-18

Attitudes toward science and technology, by region/country: Most recent year

(Percent)

	United States (2008)							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?	68	43	25	16	7	3	7	40	13	27	28	15	6	11	71	33	39	22	2	0	4

	Russia (1996 or 2003)[b]					China (2007)[c]					Malaysia (2004)				EU-25 (2005)						
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	Not sure	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?	59	59	30	5	6	62	62	17	7	14	69	69	6	25	52	16	36	29	10	3	5

NA = not available, question not asked or different response categories offered
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 for following items from 2004 survey: "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. . ." Responses to other items are from 2008 survey.
[b]Russian responses for "Science and technology are making our lives healthier . . ." and "We depend too much on science . . ." from 1996 survey. Responses for "Have the benefits . . ." and "Science makes our way of life change . . ." from 2003 survey.
[c]China's responses to the 2007 survey include "Promise of science" questions and "We depend too much on science…"; China's responses to the 2001 survey include "It is not important for me…" and "Science makes our way of life…"
[d]Chinese respondents to 2001 survey were given different categories (Agree, Basically agree, Don't agree, Don't know), with no neutral category.
[e]Malaysian 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 and included in this table.

NOTES: "Benefit versus harm" data for United States, Japan, South Korea, Russia, and EU-25 are responses to questions or statements that included words "benefit" and "harm." Russian response category "more benefits" is aggregate of "undoubtedly more benefits" and "probably more benefits"; Russian category "more harms" is aggregate of "undoubtedly more harms" and "probably more harms." EU-25 survey provided statement, "The benefits of science are greater than any harmful effects it may have," and asked respondent to indicate one of following response categories: strongly agree, tend to agree, neither agree nor disagree, tend to disagree, strongly disagree, don't know. 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." Detail may not add to total 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 (2008); Japan—Government of Japan, National Institute of Science and Technology Policy, Ministry of Education, Culture, Sports, Science and Technology, The 2001 Survey of Public Attitudes Toward and Understanding of Science and Technology in Japan (2002); South Korea—Korea Science Foundation, Survey of Public Attitudes Toward and Understanding of Science and Technology (2006, 2008); 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—National Council of Applied Economic Research, India Science Survey (2004); Malaysia—Malaysian Science and Technology Information Centre, Public Awareness of Science and Technology Malaysia 2004 (2005); and EU—European Commission, Research Directorate-General, Eurobarometer 224/Wave 63.1: Europeans, Science and Technology (2005).

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Appendix table 7-19

Public assessment of whether science and technology result in more opportunities for next generation, by respondent characteristic: 2008

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 1,505)	36	53	7	1	3
Sex					
Male (*n* = 713)	35	55	8	1	2
Female (*n* = 792)	37	51	7	1	4
Formal education					
<High school (*n* = 214)	27	55	12	1	6
High school graduate (*n* = 893)	36	53	8	1	2
Baccalaureate (*n* = 259)	39	55	4	*	2
Graduate/professional degree (*n* = 139)	50	46	3	1	1
Science/mathematics education[a]					
Low (*n* = 955)	32	54	9	1	4
Middle (*n* = 268)	38	54	6	1	1
High (*n* = 282)	46	49	3	1	1
Family income (quartile)[b]					
Top (*n* = 271)	48	47	5	0	1
Second (*n* = 348)	37	54	7	1	2
Third (*n* = 313)	33	56	9	*	2
Bottom (*n* = 378)	35	49	11	3	3
Age (years)					
18–24 (*n* = 138)	46	44	8	1	1
25–34 (*n* = 267)	39	48	10	*	3
35–44 (*n* = 279)	33	57	6	*	4
45–54 (*n* = 319)	34	55	7	1	3
55–64 (*n* = 241)	36	51	10	1	1
≥65 (*n* = 261)	33	59	4	1	3
Minor children at home[c]					
Yes (*n* = 530)	36	50	9	1	4
No (*n* = 970)	36	55	7	1	2
Factual knowledge of science, scale 1[d] (quartile)					
Top (*n* = 387)	45	46	8	1	1
Second (*n* = 425)	38	56	4	1	2
Third (*n* = 405)	31	57	9	1	2
Bottom (*n* = 288)	28	52	10	1	9

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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*. Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-20

Public assessment of whether science makes life change too fast, by respondent characteristic: 2008

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 1,505)	9	38	43	8	3
Sex					
Male (*n* = 713)	8	37	44	8	2
Female (*n* = 792)	9	38	41	8	4
Formal education					
<High school (*n* = 214)	16	48	25	3	8
High school graduate (*n* = 893)	8	38	45	7	2
Baccalaureate (*n* = 259)	6	32	48	12	2
Graduate/professional degree (*n* = 139)	6	28	45	17	3
Science/mathematics education[a]					
Low (*n* = 955)	10	41	38	6	4
Middle (*n* = 268)	8	36	44	11	1
High (*n* = 282)	3	28	54	14	1
Family income (quartile)[b]					
Top (*n* = 271)	5	32	49	13	1
Second (*n* = 348)	8	35	47	9	1
Third (*n* = 313)	10	45	36	7	2
Bottom (*n* = 378)	13	38	39	5	5
Age (years)					
18–24 (*n* = 138)	11	38	41	9	2
25–34 (*n* = 267)	6	37	45	8	4
35–44 (*n* = 279)	9	37	43	7	4
45–54 (*n* = 319)	10	36	42	9	2
55–64 (*n* = 241)	8	36	44	9	3
≥65 (*n* = 261)	8	44	40	6	3
Minor children at home[c]					
Yes (*n* = 530)	10	39	39	8	4
No (*n* = 970)	8	37	45	8	3
Factual knowledge of science, scale 1[d] (quartile)					
Top (*n* = 387)	3	29	54	13	1
Second (*n* = 425)	8	35	47	8	2
Third (*n* = 405)	11	45	35	6	3
Bottom (*n* = 288)	14	43	29	4	9

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." See notes to appendix table 7-8 for questions.

NOTES: Responses to *Science makes our way of life change too fast.* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-21

Public opinion on whether federal government should fund basic scientific research: 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)	2004 (*n* = 2,025)	2006 (*n* = 1,864)	2008 (*n* = 1,505)
Strongly agree	9	16	18	14	17	22	21	19	29	32	25
Agree	70	65	63	63	61	57	61	62	53	55	59
Disagree	16	14	15	18	17	15	13	14	15	8	11
Strongly disagree	*	1	1	2	2	3	2	1	2	1	1
Don't know	5	4	4	3	3	3	3	4	1	3	5

* = <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. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources 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, 2008).

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Appendix table 7-22

Public opinion on whether federal government should fund basic research, by respondent characteristic: 2008

(Percent)

Characteristic	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
All adults (*n* = 1,505)	25	59	11	1	5
Sex					
Male (*n* = 713)	27	59	11	1	3
Female (*n* = 792)	23	59	10	1	7
Formal education					
<High school (*n* = 214)	20	54	16	*	9
High school graduate (*n* = 893)	23	60	12	1	5
Baccalaureate (*n* = 259)	27	62	6	1	4
Graduate/professional degree (*n* = 139)	40	56	3	0	1
Science/mathematics education[a]					
Low (*n* = 955)	22	58	12	1	7
Middle (*n* = 268)	19	68	10	1	3
High (*n* = 282)	39	54	5	1	1
Family income (quartile)[b]					
Top (*n* = 271)	30	61	7	1	1
Second (*n* = 348)	27	64	6	1	2
Third (*n* = 313)	25	57	14	1	3
Bottom (*n* = 378)	20	58	15	1	5
Age (years)					
18–24 (*n* = 138)	26	61	11	0	2
25–34 (*n* = 267)	21	60	12	1	6
35–44 (*n* = 279)	22	64	8	*	5
45–54 (*n* = 319)	25	57	11	1	5
55–64 (*n* = 241)	30	57	9	1	4
≥65 (*n* = 261)	27	55	12	0	6
Minor children at home[c]					
Yes (*n* = 530)	23	62	9	1	6
No (*n* = 970)	26	58	11	1	4
Factual knowledge of science, scale 1[d] (quartile)					
Top (*n* = 387)	40	53	6	*	2
Second (*n* = 425)	23	63	10	1	3
Third (*n* = 405)	20	62	13	1	4
Bottom (*n* = 288)	14	57	15	1	13

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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.* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-23

Public assessment of federal government spending, by policy area: 1981–2008

(Percent)

Policy area	1981 (n = 1,611)	1983 (n = 1,631)	1985 (n = 2,003)	1988 (n = 2,041)	1990 (n = 2,005)	1992 (n = 1,995)	1997 (n = 2,000)	1999 (n = 1,882)	2001 (n = 1,574)	2002 (n = 2,765)	2004 (n = 2,812)	2006 (n = 2,992)	2008 (n = 2,023)
Improving health care													
Too little	61	NA	68	67	75	79	68	71	70	73	77	72	75
Too much	6	NA	3	2	3	4	7	6	4	5	6	7	8
Improving education													
Too little	62	71	73	76	77	81	76	75	76	75	75	73	74
Too much	6	5	3	4	4	4	6	6	5	5	5	5	5
Assistance to the poor[a]													
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	66	69	68	69
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	6	8	7
Reducing pollution													
Too little	52	54	69	76	76	72	65	65	63	60	63	67	66
Too much	14	11	6	4	5	7	8	7	6	8	7	7	8
Spending for Social Security													
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	59	64	61	59
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	5	4	6
Improving mass transportation													
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	34	38	46
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	10	9	8
Supporting scientific research[b]													
Too little	31	NA	29	34	30	34	34	37	36	34	38	41	38
Too much	18	NA	18	15	16	19	14	14	14	13	12	11	11
Improving national defense[c]													
Too little	34	19	11	11	15	15	23	31	29	33	33	26	24
Too much	26	47	50	52	40	40	32	25	25	20	26	38	39
Exploring space													
Too little	18	17	9	17	9	12	14	15	11	12	14	14	14
Too much	42	39	45	43	52	50	45	46	48	36	38	35	36
Assistance to other countries													
Too little	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	9	10	11
Too much	NA	NA	NA	NA	NA	NA	NA	NA	NA	66	64	62	60

Appendix table 7-23

Public assessment of federal government spending, by policy area: 1981–2008

(Percent)

Policy area	1981 (n = 1,611)	1983 (n = 1,631)	1985 (n = 2,003)	1988 (n = 2,041)	1990 (n = 2,005)	1992 (n = 1,995)	1997 (n = 2,000)	1999 (n = 1,882)	2001 (n = 1,574)	2002 (n = 2,765)	2004 (n = 2,812)	2006 (n = 2,992)	2008 (n = 2,023)
Helping older people													
Too little	74	NA	73	76	75	73	66	71	73	NA	NA	NA	NA
Too much	3	NA	3	2	2	3	5	4	3	NA	NA	NA	NA
Helping low-income people													
Too little	45	NA	54	55	57	56	43	49	53	NA	NA	NA	NA
Too much	24	NA	13	12	15	17	23	19	15	NA	NA	NA	NA

NA = not available, question not asked

[a]Question asked of 1,407 survey respondents in 2002, 1,411 respondents in 2004, 1,508 respondents in 2006, 1,019 respondents in 2008.
[b]Question asked of 1,358 survey respondents in 2002 and 1,401 respondents in 2004.
[c]Question asked of 1,021 survey respondents in 1988.

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.* Two versions of this question with different response categories administered. Table combines data for following sets of categories: space exploration program/space exploration; improving and protecting environment/environment; improving and protecting nation's health/health; improving nation's education system/education; military, armaments, and defense/national defense; assistance to other countries/foreign aid. Table includes all years for which data collected. Detail does not add to total because "about right amount" and "don't know" responses not shown.

SOURCES: National Science Foundation, Division of Science Resources 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 (2002–08).

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Appendix table 7-24

Public assessment of federal government spending, by policy area and respondent characteristic: 2008

(Percent)

Characteristic	Improving health care		Improving education		Assistance to the poor		Reducing pollution		Spending for Social Security	
	Too little	Too much	Too little	Too much	Too little	Too much	Too little	Too much	Too little	Too much
All adults (*n* = 2,023)	75	8	74	5	69	7	66	8	59	6
Sex										
Male (*n* = 929)	73	9	71	7	65	9	66	9	56	7
Female (*n* = 1,094)	76	6	76	3	73	6	66	8	61	4
Formal education										
<High school (*n* = 297)	69	10	62	6	74	6	55	11	54	7
High school graduate (*n* = 1,176)	76	7	73	5	72	7	64	9	64	5
Baccalaureate (*n* = 355)	74	9	82	4	57	14	72	8	49	7
Graduate/professional degree (*n* = 194)	75	7	79	5	63	4	81	4	49	6
Science/mathematics education[a]										
Low (*n* = 955)	76	7	71	6	73	6	62	9	61	5
Middle (*n* = 268)	81	8	82	3	59	10	69	9	61	5
High (*n* = 282)	74	7	76	5	63	11	74	6	48	9
Family income (quartile)[b]										
Top (*n* = 369)	72	7	76	5	60	8	70	9	54	6
Second (*n* = 474)	75	10	78	5	70	10	66	8	61	6
Third (*n* = 424)	81	6	72	6	75	7	67	9	63	7
Bottom (*n* = 507)	74	8	67	4	78	5	61	8	65	5
Age (years)										
18–24 (*n* = 184)	76	7	70	2	76	6	72	6	56	8
25–34 (*n* = 347)	75	9	77	4	74	5	72	5	56	10
35–44 (*n* = 379)	72	8	79	4	69	8	67	9	62	6
45–54 (*n* =414)	78	8	78	3	66	9	64	10	63	4
55–64 (*n* = 314)	78	6	73	9	71	9	66	8	65	3
≥65 (*n* = 385)	68	8	60	9	61	8	54	12	47	3
Minor children at home[c]										
Yes (*n* = 695)	71	9	73	4	71	7	66	7	60	7
No (*n* = 1,321)	77	7	74	6	68	8	66	9	58	5
Factual knowledge of science, scale 1[d] (quartile)										
Top (*n* = 387)	70	11	73	7	58	14	71	9	50	7
Second (*n* = 425)	81	6	76	4	69	6	72	6	58	6
Third (*n* = 405)	80	7	74	6	73	5	62	9	66	5
Bottom (*n* = 288)	72	5	72	4	75	5	52	11	64	4

Appendix table 7-24
Public assessment of federal government spending, by policy area and respondent characteristic: 2008
(Percent)

Characteristic	Improving mass transportation		Supporting scientific research		Improving national defense		Exploring space		Assistance to other countries	
	Too little	Too much	Too little	Too much	Too little	Too much	Too little	Too much	Too little	Too much
All adults (*n* = 2,023)	46	8	38	11	24	39	14	36	11	60
Sex										
Male (*n* = 929)	52	9	39	10	23	42	19	32	12	61
Female (*n* = 1,094)	41	7	36	11	25	37	9	40	9	59
Formal education										
<High school (*n* = 297)	37	11	34	14	21	41	10	47	17	51
High school graduate (*n* = 1,176)	43	7	33	12	27	36	13	39	8	64
Baccalaureate (*n* = 355)	54	8	47	7	20	43	16	25	9	59
Graduate/professional degree (*n* = 194)	64	2	52	4	13	53	21	27	21	45
Science/mathematics education[a]										
Low (*n* = 955)	43	8	33	12	26	35	10	42	9	62
Middle (*n* = 268)	49	7	38	8	22	46	20	29	10	62
High (*n* = 282)	56	7	51	4	18	43	23	22	11	56
Family income (quartile)[b]										
Top (*n* = 369)	55	7	44	7	24	41	16	30	12	62
Second (*n* = 474)	41	5	40	10	25	39	17	32	9	63
Third (*n* = 424)	48	8	35	12	22	41	10	42	9	65
Bottom (*n* = 507)	40	8	31	14	24	38	10	44	14	50
Age (years)										
18–24 (*n* = 184)	35	12	36	10	14	48	19	30	23	39
25–34 (*n* = 347)	46	5	35	14	18	42	12	36	14	53
35–44 (*n* = 379)	41	9	35	9	20	41	12	31	8	60
45–54 (*n* =414)	48	6	39	10	27	36	12	41	8	69
55–64 (*n* = 314)	51	8	38	14	32	32	20	37	9	68
65+ (*n* = 385)	51	7	41	7	29	37	10	42	7	63
Minor children at home[c]										
Yes (*n* = 695)	41	7	37	10	21	40	13	33	11	58
No (*n* = 1,321)	49	8	38	11	26	39	14	38	11	61
Factual knowledge of science, scale 1[d] (quartile)										
Top (*n* = 387)	63	6	48	6	19	44	23	24	8	61
Second (*n* = 425)	46	8	38	9	26	35	17	35	10	65
Third (*n* = 405)	39	8	33	12	24	42	8	45	8	63
Bottom (*n* = 288)	34	8	28	12	26	33	8	42	15	50

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses. Science/mathematics education asked of 1,505 survey respondents.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." See notes to appendix table 7-8 for questions. Questions asked to 1,505 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*. Detail does not add to total because "about the right amount" and "do not know" responses not shown. See notes to appendix table 7-23 for explanation of policy area categories.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-25
Public confidence in institutional leaders: 1973–2008
(Percent)

Year (number)	Military	Medicine	Scientific community	U.S. Supreme Court	Education	Organized religion	Banks and financial institutions	Major companies	Organized labor	Executive branch of federal government	Congress	Television	Press	Mean[a]
2008 (*n* = 1,365)	51	39	39	31	29	20	19	16	12	10	10	9	9	23
2006 (*n* = 1,989)	47	40	41	33	28	24	30	18	12	16	12	9	10	24
2004 (*n* = 876)	58	38	42	32	29	23	29	18	13	22	15	10	9	26
2002 (*n* = 912)	56	37	37	36	26	19	22	17	12	27	14	9	10	25
2000 (*n* = 1,896)	40	44	41	32	27	28	29	28	13	13	13	10	10	25
1998 (*n* = 1,911)	36	45	40	31	27	27	26	26	11	13	10	10	9	24
1996 (*n* = 1,925)	39	45	40	28	23	25	24	24	11	10	7	10	11	23
1994 (*n* = 2,011)	37	42	39	31	25	25	18	26	11	11	8	10	10	23
1993 (*n* = 1,057)	41	40	37	30	22	22	14	21	8	11	6	12	11	22
1991 (*n* = 1,017)	61	48	40	37	30	25	12	20	11	27	18	15	16	29
1990 (*n* = 899)	33	45	38	34	27	23	17	26	11	24	16	14	14	25
1989 (*n* = 1,035)	33	47	41	35	30	22	18	25	9	20	17	14	17	26
1988 (*n* = 997)	35	52	39	35	30	21	27	25	11	16	16	14	19	26
1987 (*n* = 1,819)	34	51	41	35	36	30	27	28	12	17	16	12	19	28
1986 (*n* = 1,470)	31	47	39	30	28	25	21	25	9	21	16	15	19	25
1984 (*n* = 989)	36	50	44	33	28	30	30	30	8	19	13	13	17	27
1983 (*n* = 1,599)	30	52	42	27	28	28	23	24	8	13	10	12	13	24
1982 (*n* = 1,860)	29	45	35	30	35	33	26	21	13	17	13	15	18	25
1980 (*n* = 1,468)	28	53	41	24	30	35	32	27	15	12	9	15	22	26
1978 (*n* = 1,532)	30	46	36	28	28	30	32	21	11	12	13	14	20	24
1977 (*n* = 1,530)	36	53	41	36	40	40	42	27	15	27	19	18	25	31
1976 (*n* = 1,499)	40	54	42	34	37	30	39	21	11	13	13	18	28	29
1975 (*n* = 1,490)	35	51	37	30	31	24	31	19	10	13	13	18	24	25
1974 (*n* = 1,484)	39	61	45	33	49	44	NA	31	19	14	17	23	25	33
1973 (*n* = 1,504)	32	54	37	31	37	34	NA	29	15	29	23	18	23	30

NA = not available, question not asked

[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 (1973–2008).

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Appendix table 7-26

Familiarity with nanotechnology, by respondent characteristic: 2008

(Percent)

Characteristic	How much respondents have heard about nanotechnology				Don't know
	A lot	Some	Just a little	Nothing at all	
All adults (*n* = 1,505)	5	15	28	49	3
Sex					
Male (*n* = 713)	9	20	30	38	3
Female (*n* = 792)	2	10	26	60	3
Formal education					
<High school (*n* = 214)	3	4	14	70	8
High school graduate (*n* = 893)	5	13	29	52	2
Baccalaureate (*n* = 259)	6	26	31	35	2
Graduate/professional degree (*n* = 139)	11	23	34	28	4
Science/mathematics education[a]					
Low (*n* = 955)	3	9	25	60	4
Middle (*n* = 268)	7	17	34	40	2
High (*n* = 282)	12	32	31	24	1
Family income (quartile)[b]					
Top (*n* = 271)	8	24	32	34	2
Second (*n* = 348)	5	18	33	41	3
Third (*n* = 313)	6	12	26	56	*
Bottom (*n* = 378)	3	9	26	59	4
Age (years)					
18–24 (*n* = 138)	9	16	28	44	4
25–34 (*n* = 267)	6	12	31	48	2
35–44 (*n* = 279)	5	18	25	51	1
45–54 (*n* = 319)	3	19	30	46	2
55–64 (*n* = 241)	7	15	29	47	2
≥65 (*n* = 261)	4	7	22	59	8
Minor children at home[c]					
Yes (*n* = 530)	5	14	27	51	3
No (*n* = 970)	5	15	28	48	3
Factual knowledge of science, scale 1[d] (quartile)					
Top (*n* = 387)	12	34	36	19	0
Second (*n* = 425)	4	13	33	48	2
Third (*n* = 405)	3	6	25	63	2
Bottom (*n* = 288)	*	2	11	76	10

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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?* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

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Appendix table 7-27

Public assessment of benefits and harms of nanotechnology, by respondent characteristic: 2008

(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* = 1,505)	38	12	9	40
Sex				
Male (*n* = 713)	45	12	10	33
Female (*n* = 792)	31	13	9	47
Formal education				
<High school (*n* = 214)	19	14	21	46
High school graduate (*n* = 893)	37	12	9	42
Baccalaureate (*n* = 259)	48	11	6	35
Graduate/professional degree (*n* = 139)	55	14	1	31
Science/mathematics education[a]				
Low (*n* = 955)	29	13	12	46
Middle (*n* = 268)	44	12	9	34
High (*n* = 282)	60	11	2	27
Family income (quartile)[b]				
Top (*n* = 271)	53	12	5	30
Second (*n* = 348)	41	10	10	39
Third (*n* = 313)	36	16	10	38
Bottom (*n* = 378)	30	14	18	38
Age (years)				
18–24 (*n* = 138)	41	19	14	26
25–34 (*n* = 267)	39	14	9	38
35–44 (*n* = 279)	40	11	12	38
45–54 (*n* = 319)	37	16	8	40
55–64 (*n* = 241)	45	8	6	40
≥65 (*n* = 261)	28	7	7	58
Minor children at home[c]				
Yes (*n* = 530)	38	13	11	38
No (*n* = 970)	38	12	8	42
Factual knowledge of science, scale 1[d] (quartile)				
Top (*n* = 387)	63	11	6	21
Second (*n* = 425)	38	16	8	38
Third (*n* = 405)	25	13	13	49
Bottom (*n* = 288)	21	7	13	59
How much have you heard about nanotechnology?				
A lot (*n* = 80)	81	8	5	6
Some (*n* = 224)	67	11	9	13
Just a little (*n* = 407)	44	13	7	36
Nothing at all (*n* = 746)	24	13	12	52
Don't know (*n* = 48)	0	5	1	94

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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?* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-28

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]Percent based on respondents who had heard or read about stem cells.

SOURCE: BBVA Foundation, BBVA Foundation International Study on Attitudes Towards Stem Cell Research and Hybrid Embryos (2008), fieldwork April–June 2007 and January–February 2008.

Science and Engineering Indicators 2010

Appendix table 7-29

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* = 1,505)	21	49	22	2	6
Sex					
Male (*n* = 713)	20	52	22	1	4
Female (*n* = 792)	22	47	22	2	8
Formal education					
<High school (*n* = 214)	17	47	24	2	10
High school graduate (*n* = 893)	20	48	25	2	6
Baccalaureate (*n* = 259)	27	51	17	1	4
Graduate/professional degree (*n* = 139)	30	55	9	1	5
Science/mathematics education[a]					
Low (*n* = 955)	19	48	23	2	8
Middle (*n* = 268)	23	52	21	2	3
High (*n* = 282)	29	51	18	*	2
Family income (quartile)[b]					
Top (*n* = 271)	29	50	16	1	4
Second (*n* = 348)	18	54	22	1	5
Third (*n* = 313)	18	52	23	2	5
Bottom (*n* = 378)	19	44	28	3	6
Age (years)					
18–24 (*n* = 138)	14	43	39	3	1
25–34 (*n* = 267)	14	53	27	1	5
35–44 (*n* = 279)	19	54	19	1	6
45–54 (*n* = 319)	25	48	20	2	5
55–64 (*n* = 241)	30	46	19	1	5
≥65 (*n* = 261)	24	48	12	1	15
Minor children at home[c]					
Yes (*n* = 530)	19	47	27	2	6
No (*n* = 970)	23	50	19	1	6
Factual knowledge of science, scale 1[d] (quartile)					
Top (*n* = 387)	28	52	16	1	3
Second (*n* = 425)	24	50	22	1	3
Third (*n* = 405)	15	50	25	2	8
Bottom (*n* = 288)	17	43	25	2	14

* = <0.5% responded

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." See notes to appendix table 7-8 for questions.

NOTES: Responses to *The quality of science and mathematics education in American schools is inadequate.* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-30

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* = 1,505)
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. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources 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 2010

Appendix table 7-31

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* = 1,505)	6	32	36	22	4
Sex					
Male (*n* = 713)	8	43	32	13	4
Female (*n* = 792)	4	22	39	30	5
Formal education					
<High school (*n* = 214)	7	35	29	20	9
High school graduate (*n* = 893)	6	31	37	23	3
Baccalaureate (*n* = 259)	5	40	34	19	3
Graduate/professional degree (*n* = 139)	9	27	41	16	7
Science/mathematics education[a]					
Low (*n* = 955)	6	29	36	23	5
Middle (*n* = 268)	6	39	34	19	2
High (*n* = 282)	6	36	36	19	3
Family income (quartile)[b]					
Top (*n* = 271)	9	34	35	20	2
Second (*n* = 348)	5	35	36	21	4
Third (*n* = 313)	5	34	39	21	2
Bottom (*n* = 378)	7	28	36	22	7
Age (years)					
18–24 (*n* = 138)	5	33	37	25	1
25–34 (*n* = 267)	4	36	37	19	5
35–44 (*n* = 279)	3	35	37	22	4
45–54 (*n* = 319)	9	32	34	21	4
55–64 (*n* = 241)	9	28	35	25	3
≥65 (*n* = 261)	7	31	35	19	8
Minor children at home[c]					
Yes (*n* = 530)	6	35	34	20	5
No (*n* = 970)	6	31	36	22	4
Factual knowledge of science, scale 1[d] (quartile)					
Top (*n* = 387)	8	32	41	17	2
Second (*n* = 425)	5	32	36	23	3
Third (*n* = 405)	5	34	31	26	4
Bottom (*n* = 288)	7	31	34	19	9

[a]Low = ≤5 high school and college science/math courses; middle = 6–8 courses; high = ≥9 courses.
[b]Subtotals do not include "don't know" and "refused" responses.
[c]Subtotals do not add to total *n* because not all respondents answered question.
[d]Proportion of correct responses to nine questions in "factual knowledge of science, scale 1." 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.* Detail may not add to total because of rounding.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2008).

Science and Engineering Indicators 2010

Appendix table 7-32

Public attitudes toward scientific research on 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* = 1,505)
Strongly agree	5	5	9	7	7	6	6	6
Agree	48	45	44	43	39	42	38	32
Disagree	28	31	28	33	34	34	34	36
Strongly disagree	14	14	14	13	15	14	17	22
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. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources 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 2010

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)
United States	62	233	30	55	248	51	63	283	33	58	290	41
Alabama	58	227	20	58	238	36	66	275	23	60	278	27
Alaska	NA	NA	NA	55	247	50	NA	NA	NA	56	294	44
Arizona	55	230	24	43	246	48	58	281	28	47	289	40
Arkansas	69	225	18	67	245	46	71	268	18	69	282	31
California	37	228	24	27	247	52	37	277	26	31	287	39
Colorado	NA	NA	NA	60	249	54	NA	NA	NA	65	296	48
Connecticut	72	242	39	64	252	57	74	291	42	69	293	44
Delaware	NA	NA	NA	54	249	53	NA	NA	NA	56	294	43
District of Columbia	5	254	62	6	262	73	4	300	56	3	S	S
Florida	NA	NA	NA	48	250	54	NA	NA	NA	48	289	37
Georgia	52	230	27	46	246	46	57	279	27	46	288	37
Hawaii	18	227	25	17	244	46	17	274	22	14	278	28
Idaho	85	227	21	81	245	45	88	280	28	82	287	38
Illinois	56	235	30	56	248	50	61	285	35	60	291	41
Indiana	87	235	32	78	249	52	85	285	32	77	290	40
Iowa	91	233	27	86	245	46	NA	NA	NA	88	288	38
Kansas	79	237	34	73	252	58	84	287	36	76	295	46
Kentucky	86	223	19	84	238	34	87	272	22	86	282	29
Louisiana	53	230	22	47	240	37	52	275	18	52	283	28
Maine	96	230	23	95	243	43	97	281	31	96	287	35
Maryland	51	236	34	50	251	55	57	286	38	51	300	53
Massachusetts	77	239	36	75	257	65	79	284	34	75	305	58
Michigan	77	237	34	71	244	44	79	285	34	75	285	35
Minnesota	82	238	36	78	252	58	88	290	41	81	297	48
Mississippi	49	222	15	45	239	34	55	268	14	47	279	24
Missouri	80	233	27	77	245	45	83	277	25	75	288	36
Montana	87	231	26	83	247	49	90	288	39	85	291	41
Nebraska	81	230	27	75	244	45	87	285	33	80	291	41
Nevada	59	226	21	43	243	43	60	273	24	47	282	32
New Hampshire	NA	NA	NA	91	250	53	NA	NA	NA	94	289	39
New Jersey	NA	NA	NA	57	255	63	NA	NA	NA	57	298	51
New Mexico	37	227	22	29	242	43	38	274	23	32	285	33
New York	52	238	32	53	251	56	56	284	33	55	290	39
North Carolina	61	238	34	55	251	56	65	287	37	56	295	46
North Dakota	90	232	26	87	248	49	91	285	33	89	295	44
Ohio	80	235	29	75	250	53	85	285	34	76	291	42
Oklahoma	65	229	20	58	242	39	69	274	22	59	280	25
Oregon	81	227	24	71	241	40	82	284	34	73	289	39
Pennsylvania	NA	NA	NA	77	249	53	NA	NA	NA	76	293	44
Rhode Island	75	232	28	70	242	41	79	275	26	70	284	35
South Carolina	55	233	28	57	248	50	57	277	27	56	293	44
South Dakota	NA	NA	NA	83	245	46	NA	NA	NA	86	292	43

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)
Tennessee	74	227	23	69	240	36	75	269	20	67	282	30
Texas	43	241	39	36	253	59	48	286	35	38	300	53
Utah	84	230	25	80	244	45	88	277	27	82	286	36
Vermont	98	232	29	94	247	50	96	281	31	95	292	42
Virginia	64	237	32	58	251	53	66	283	32	61	296	47
Washington	NA	NA	NA	65	248	51	NA	NA	NA	69	291	42
West Virginia	94	224	18	93	237	33	95	267	18	94	271	19
Wisconsin	NA	NA	NA	77	250	54	NA	NA	NA	80	292	42
Wyoming	89	231	27	84	246	48	90	278	25	86	290	39

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 2010

Appendix table 8-2

Average science NAEP scores and achievement-level results for grades 4 and 8 white students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)
United States	61	158	36	57	161	38	64	159	38	60	159	38
Alabama	59	156	33	58	156	31	67	155	31	59	152	29
Alaska	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arizona	56	155	33	47	155	30	60	156	33	49	156	33
Arkansas	71	155	30	70	157	32	73	152	29	71	155	30
California	37	149	25	30	156	33	35	147	25	32	154	32
Colorado	NA	NA	NA	65	163	41	NA	NA	NA	64	166	46
Connecticut	73	165	44	69	163	42	73	163	44	68	163	44
Delaware	NA	NA	NA	56	162	38	NA	NA	NA	58	162	40
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	NA	NA	NA	49	161	38	NA	NA	NA	50	155	32
Georgia	51	158	36	48	161	39	57	156	34	52	159	38
Hawaii	18	149	26	17	155	31	16	147	25	15	152	29
Idaho	85	156	32	83	159	33	88	161	41	86	161	40
Illinois	59	166	45	56	162	39	61	162	41	60	161	39
Indiana	85	158	35	74	158	33	86	158	37	80	156	34
Iowa	92	160	37	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kentucky	88	154	31	85	160	39	88	152	30	87	155	33
Louisiana	50	157	31	48	159	35	55	152	29	53	153	31
Maine	97	162	38	96	160	37	97	158	35	96	158	35
Maryland	53	160	38	51	162	40	57	159	39	52	160	40
Massachusetts	79	168	48	75	167	45	80	164	44	75	168	48
Michigan	77	161	39	69	162	40	81	162	41	73	163	43
Minnesota	82	162	38	80	162	38	87	163	44	79	166	47
Mississippi	49	151	24	46	151	24	56	148	24	49	150	25
Missouri	79	163	40	77	164	42	83	159	38	77	161	39
Montana	87	162	39	85	163	41	89	166	46	87	165	45
Nebraska	82	155	30	NA	NA	NA	86	162	42	NA	NA	NA
Nevada	61	151	25	47	151	25	64	150	28	53	150	28
New Hampshire	NA	NA	NA	93	162	38	NA	NA	NA	96	163	41
New Jersey	NA	NA	NA	58	164	42	NA	NA	NA	57	165	45
New Mexico	36	156	33	31	160	37	37	158	37	34	157	36
New York	55	161	37	NA	NA	NA	57	162	42	NA	NA	NA
North Carolina	61	158	33	58	160	36	65	156	35	61	155	31
North Dakota	88	162	39	88	163	39	89	163	42	88	166	47
Ohio	80	161	37	74	164	43	87	163	43	79	162	41
Oklahoma	65	157	32	59	157	33	70	155	30	61	155	32
Oregon	82	153	30	70	157	32	83	158	37	77	159	37
Pennsylvania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island	75	157	32	72	155	30	81	154	32	74	156	33
South Carolina	54	156	33	54	162	39	59	153	29	56	159	35
South Dakota	NA	NA	NA	84	162	39	NA	NA	NA	85	165	45

Appendix table 8-2

Average science NAEP scores and achievement-level results for grades 4 and 8 white students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)	White students (%)	Average scale score	Students ≥proficient (%)
Tennessee	73	154	31	69	158	34	77	153	30	74	153	31
Texas	43	161	38	38	165	44	46	159	37	43	160	38
Utah	85	159	34	82	160	37	88	158	36	84	158	37
Vermont	96	160	39	96	160	38	97	159	39	96	162	41
Virginia	63	164	42	61	170	53	66	159	37	61	165	45
Washington	NA	NA	NA	71	158	34	NA	NA	NA	75	160	39
West Virginia	94	150	25	94	152	24	96	147	24	94	148	24
Wisconsin	NA	NA	NA	78	164	42	NA	NA	NA	80	165	45
Wyoming	89	158	34	85	160	35	90	158	35	87	161	39

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

Science and Engineering Indicators 2010

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)
United States	17	203	4	17	222	15	17	243	5	17	259	11
Alabama	39	203	4	37	213	10	33	240	3	35	246	4
Alaska	NA	NA	NA	5	227	22	NA	NA	NA	4	271	15
Arizona	4	207	6	5	219	16	4	244	7	5	266	15
Arkansas	28	194	2	22	217	12	26	227	2	22	254	9
California	10	194	3	7	218	15	9	235	4	7	253	10
Colorado	NA	NA	NA	6	224	20	NA	NA	NA	7	272	21
Connecticut	14	210	7	13	220	15	13	247	4	13	255	7
Delaware	NA	NA	NA	33	230	20	NA	NA	NA	31	265	10
District of Columbia	87	188	2	84	209	8	87	231	3	88	245	6
Florida	NA	NA	NA	21	225	15	NA	NA	NA	23	259	11
Georgia	41	204	5	38	222	13	39	244	4	43	261	11
Hawaii	2	211	6	3	230	24	2	S	S	2	S	S
Idaho	1	S	S	1	S	S	1	S	S	1	S	S
Illinois	22	202	4	19	216	9	20	252	8	16	253	7
Indiana	9	211	10	10	224	14	10	256	7	12	259	9
Iowa	3	216	11	5	224	17	NA	NA	NA	4	257	11
Kansas	8	208	4	8	226	21	7	245	10	8	267	16
Kentucky	12	196	2	11	219	12	11	250	6	10	257	11
Louisiana	44	205	4	49	219	11	44	239	2	43	258	7
Maine	1	S	S	2	221	17	1	S	S	2	S	S
Maryland	39	202	6	35	223	17	33	244	6	37	265	13
Massachusetts	7	213	7	7	232	26	7	258	9	8	264	13
Michigan	17	199	3	21	216	12	14	239	3	18	244	5
Minnesota	6	208	12	8	222	16	4	S	S	7	260	14
Mississippi	50	198	2	52	217	9	43	237	1	51	251	4
Missouri	17	202	4	19	218	12	15	238	3	19	253	6
Montana	*	S	S	1	S	S	*	S	S	1	S	S
Nebraska	6	193	5	7	211	9	4	247	6	7	240	5
Nevada	11	203	4	8	219	16	9	244	5	10	255	12
New Hampshire	NA	NA	NA	2	226	25	NA	NA	NA	2	S	S
New Jersey	NA	NA	NA	14	232	25	NA	NA	NA	17	264	14
New Mexico	2	S	S	3	220	18	2	S	S	3	264	12
New York	21	210	5	19	225	18	23	251	8	19	258	10
North Carolina	31	215	9	28	224	15	29	252	7	30	266	14
North Dakota	2	S	S	2	S	S	1	S	S	1	S	S
Ohio	17	206	2	18	225	18	13	251	7	18	258	9
Oklahoma	10	205	4	11	220	10	9	245	5	9	258	9
Oregon	3	196	6	3	219	16	2	S	S	3	272	28
Pennsylvania	NA	NA	NA	14	222	18	NA	NA	NA	15	257	13
Rhode Island	8	200	3	8	219	16	7	240	4	9	250	9
South Carolina	42	203	4	36	221	14	41	247	4	38	265	15
South Dakota	NA	NA	NA	2	221	15	NA	NA	NA	1	S	S

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)
Tennessee	24	198	4	26	214	9	22	235	3	28	254	7
Texas	15	220	10	15	230	21	12	250	7	15	271	16
Utah	1	S	S	1	S	S	1	S	S	1	S	S
Vermont	*	S	S	2	S	S	1	S	S	1	S	S
Virginia	28	211	5	26	228	18	25	253	6	26	268	15
Washington	NA	NA	NA	6	222	17	NA	NA	NA	5	264	16
West Virginia	5	205	5	5	223	19	4	247	7	4	250	4
Wisconsin	NA	NA	NA	10	212	10	NA	NA	NA	10	247	6
Wyoming	1	S	S	2	S	S	1	S	S	1	S	S

NA = not available; * = rounds to zero; 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 8-4

Average science NAEP scores and achievement-level results for grades 4 and 8 black students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)
United States	17	121	6	17	128	7	17	120	6	17	123	7
Alabama	40	123	5	38	121	4	30	116	5	37	114	3
Alaska	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arizona	5	124	7	5	127	4	5	127	9	5	125	7
Arkansas	25	117	4	23	119	4	24	112	3	24	113	3
California	11	117	5	8	122	6	9	111	5	8	120	6
Colorado	NA	NA	NA	6	139	11	NA	NA	NA	6	133	12
Connecticut	14	126	5	13	129	6	14	119	6	14	124	6
Delaware	NA	NA	NA	33	136	8	NA	NA	NA	32	134	10
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	NA	NA	NA	22	130	7	NA	NA	NA	24	118	6
Georgia	42	122	6	38	131	8	38	122	6	38	125	8
Hawaii	2	135	10	3	133	7	3	139	14	2	S	S
Idaho	1	S	S	1	S	S	1	S	S	1	S	S
Illinois	21	125	6	18	122	5	20	119	4	21	120	4
Indiana	10	126	8	16	126	5	9	126	6	13	119	4
Iowa	3	S	S	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kentucky	10	129	6	11	138	13	10	125	7	10	130	7
Louisiana	48	120	5	48	126	6	41	110	3	44	120	5
Maine	1	S	S	2	S	S	1	S	S	1	S	S
Maryland	37	123	6	35	128	7	33	123	7	38	123	6
Massachusetts	6	140	12	9	136	10	8	131	11	9	133	10
Michigan	15	118	5	22	123	4	13	117	5	20	128	8
Minnesota	7	119	6	9	128	8	5	S	S	9	120	5
Mississippi	49	115	2	52	117	2	43	114	3	50	114	3
Missouri	17	130	9	17	135	9	14	120	5	19	124	6
Montana	*	S	S	1	S	S	*	S	S	1	S	S
Nebraska	6	123	4	NA	NA	NA	6	118	7	NA	NA	NA
Nevada	10	120	6	11	125	7	7	120	6	9	115	4
New Hampshire	NA	NA	NA	2	S	S	NA	NA	NA	1	S	S
New Jersey	NA	NA	NA	18	130	8	NA	NA	NA	21	131	11
New Mexico	2	S	S	3	136	9	2	S	S	3	129	14
New York	19	130	7	NA	NA	NA	23	124	7	NA	NA	NA
North Carolina	32	126	5	27	129	7	29	120	5	29	122	6
North Dakota	2	S	S	1	S	S	1	S	S	2	S	S
Ohio	17	129	6	20	130	7	11	127	8	16	124	7
Oklahoma	10	127	6	11	126	5	10	125	8	11	120	7
Oregon	3	122	6	4	136	10	2	S	S	3	127	10
Pennsylvania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island	8	124	6	8	122	5	6	128	9	7	122	5
South Carolina	44	120	4	41	131	8	39	120	5	40	127	6
South Dakota	NA	NA	NA	2	S	S	NA	NA	NA	2	S	S

Appendix table 8-4

Average science NAEP scores and achievement-level results for grades 4 and 8 black students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)	Black students (%)	Average scale score	Students ≥proficient (%)
Tennessee	24	118	4	27	131	8	21	117	5	23	119	7
Texas	15	132	9	13	133	8	13	119	5	16	125	8
Utah	1	S	S	2	S	S	1	S	S	1	S	S
Vermont	2	S	S	1	S	S	1	S	S	1	S	S
Virginia	29	137	10	25	140	12	25	130	9	26	133	10
Washington	NA	NA	NA	6	137	10	NA	NA	NA	5	137	15
West Virginia	5	128	7	5	135	9	4	121	6	4	128	11
Wisconsin	NA	NA	NA	11	126	5	NA	NA	NA	10	120	6
Wyoming	2	S	S	2	S	S	1	S	S	1	S	S

NA = not available; * = rounds to zero; 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 8-5

Average mathematics NAEP scores and achievement-level results for grades 4 and 8 Hispanic students in public schools, by state: 2000 and 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)
United States	16	207	7	21	227	22	14	252	8	19	264	15
Alabama	1	S	S	3	218	17	1	S	S	2	249	3
Alaska	NA	NA	NA	4	232	26	NA	NA	NA	4	274	23
Arizona	33	204	5	44	220	15	32	248	6	39	262	12
Arkansas	3	S	S	9	230	22	2	S	S	7	256	8
California	40	201	4	54	218	15	41	242	6	48	256	10
Colorado	NA	NA	NA	30	224	19	NA	NA	NA	25	264	13
Connecticut	11	210	6	18	223	18	10	249	7	15	254	10
Delaware	NA	NA	NA	10	234	25	NA	NA	NA	9	267	17
District of Columbia	8	190	6	9	220	19	7	236	5	9	251	9
Florida	NA	NA	NA	25	238	33	NA	NA	NA	24	270	21
Georgia	3	217	12	9	229	20	2	S	S	7	266	16
Hawaii	2	S	S	4	224	19	2	S	S	2	264	15
Idaho	11	207	6	13	224	18	8	250	7	14	264	16
Illinois	20	211	6	19	223	19	15	258	11	18	265	13
Indiana	3	S	S	7	233	26	3	S	S	7	267	20
Iowa	3	S	S	6	230	25	NA	NA	NA	6	261	13
Kansas	9	213	13	13	234	29	5	263	12	10	269	16
Kentucky	1	S	S	2	221	15	1	S	S	2	S	S
Louisiana	2	S	S	2	234	31	2	S	S	2	S	S
Maine	*	S	S	1	S	S	1	S	S	1	S	S
Maryland	5	216	11	8	233	28	4	263	20	7	272	21
Massachusetts	10	203	7	11	231	23	8	246	8	10	270	19
Michigan	3	S	S	3	230	26	3	S	S	3	259	11
Minnesota	2	S	S	7	229	22	4	S	S	4	269	18
Mississippi	1	S	S	2	S	S	1	S	S	1	S	S
Missouri	2	S	S	3	234	26	1	S	S	3	270	17
Montana	2	S	S	3	241	40	1	S	S	2	S	S
Nebraska	9	205	4	14	220	15	6	242	5	11	261	11
Nevada	21	207	7	40	221	18	21	249	8	34	257	11
New Hampshire	NA	NA	NA	4	232	27	NA	NA	NA	3	264	14
New Jersey	NA	NA	NA	20	234	29	NA	NA	NA	19	271	20
New Mexico	50	207	6	58	222	16	48	251	5	52	260	10
New York	21	207	6	20	230	25	14	251	10	18	264	15
North Carolina	3	220	12	10	235	28	2	S	S	8	273	23
North Dakota	1	S	S	2	S	S	1	S	S	1	S	S
Ohio	2	S	S	3	231	25	1	S	S	2	276	25
Oklahoma	7	211	5	9	227	22	5	260	13	8	259	8
Oregon	9	202	10	17	217	12	8	248	6	15	261	14
Pennsylvania	NA	NA	NA	6	229	28	NA	NA	NA	6	264	17
Rhode Island	14	197	3	19	220	15	10	240	3	17	251	7
South Carolina	2	S	S	4	227	21	1	S	S	3	272	23
South Dakota	NA	NA	NA	2	228	21	NA	NA	NA	2	269	18

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)
Tennessee	2	S	S	3	222	15	1	S	S	4	264	13
Texas	38	223	14	45	236	30	36	262	13	44	277	23
Utah	9	205	6	15	220	16	6	244	6	12	256	12
Vermont	*	S	S	1	S	S	1	S	S	1	S	S
Virginia	4	224	16	8	235	28	4	263	16	6	275	24
Washington	NA	NA	NA	15	225	19	NA	NA	NA	14	263	13
West Virginia	1	S	S	1	S	S	*	S	S	1	S	S
Wisconsin	NA	NA	NA	8	229	27	NA	NA	NA	6	268	18
Wyoming	7	214	9	10	229	23	5	257	8	8	274	22

NA = not available; * = rounds to zero; 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: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)
United States	16	121	7	20	132	10	14	125	9	17	127	10
Alabama	1	S	S	2	S	S	1	S	S	2	S	S
Alaska	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arizona	32	118	7	40	123	5	30	125	6	37	123	6
Arkansas	3	S	S	5	136	10	2	S	S	4	136	12
California	40	110	4	49	124	6	42	112	4	45	122	7
Colorado	NA	NA	NA	26	138	13	NA	NA	NA	25	134	12
Connecticut	11	130	7	13	130	9	10	122	8	15	123	7
Delaware	NA	NA	NA	9	142	14	NA	NA	NA	7	136	15
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	NA	NA	NA	24	144	17	NA	NA	NA	22	131	14
Georgia	3	136	13	8	136	14	3	127	10	6	127	15
Hawaii	2	S	S	3	137	13	2	S	S	3	131	11
Idaho	11	122	6	13	131	6	9	131	13	10	131	10
Illinois	17	124	8	22	130	9	13	126	7	15	130	9
Indiana	3	S	S	5	138	13	3	S	S	4	131	10
Iowa	2	S	S	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kentucky	1	S	S	2	150	23	*	S	S	1	S	S
Louisiana	1	S	S	2	S	S	2	S	S	1	S	S
Maine	1	S	S	1	S	S	*	S	S	1	S	S
Maryland	4	134	12	7	139	13	4	125	12	5	132	14
Massachusetts	9	121	7	11	134	8	6	121	7	10	133	9
Michigan	3	130	9	5	137	11	3	S	S	4	132	11
Minnesota	3	S	S	5	135	9	3	S	S	4	133	14
Mississippi	1	S	S	1	S	S	1	S	S	1	S	S
Missouri	2	S	S	4	150	25	1	S	S	3	150	23
Montana	2	S	S	2	S	S	2	S	S	2	S	S
Nebraska	8	128	9	NA	NA	NA	6	134	14	NA	NA	NA
Nevada	22	126	7	33	127	8	20	120	8	31	122	6
New Hampshire	NA	NA	NA	3	142	12	NA	NA	NA	2	S	S
New Jersey	NA	NA	NA	15	137	10	NA	NA	NA	15	133	12
New Mexico	49	131	10	55	132	10	49	129	9	51	129	9
New York	20	129	6	NA	NA	NA	14	116	9	NA	NA	NA
North Carolina	3	135	10	8	136	12	2	S	S	6	132	13
North Dakota	1	S	S	1	S	S	1	S	S	1	S	S
Ohio	2	S	S	2	146	22	1	S	S	1	142	24
Oklahoma	7	135	14	9	137	11	4	129	7	8	132	16
Oregon	9	114	6	16	127	5	9	127	11	13	129	9
Pennsylvania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island	13	110	2	17	122	5	10	114	4	15	115	4
South Carolina	1	S	S	3	140	13	1	S	S	3	130	16
South Dakota	NA	NA	NA	2	S	S	NA	NA	NA	2	S	S

Appendix table 8-6

Average science NAEP scores and achievement-level results for grades 4 and 8 Hispanic students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)	Hispanic students (%)	Average scale score	Students ≥proficient (%)
Tennessee	1	S	S	3	137	15	1	S	S	2	S	S
Texas	37	130	11	46	141	14	37	131	12	38	131	11
Utah	9	124	9	12	133	10	6	128	11	10	130	12
Vermont	1	S	S	1	S	S	*	S	S	1	S	S
Virginia	4	137	15	7	151	22	4	133	12	6	141	22
Washington	NA	NA	NA	13	132	7	NA	NA	NA	10	128	8
West Virginia	1	S	S	1	S	S	*	S	S	1	S	S
Wisconsin	NA	NA	NA	7	138	12	NA	NA	NA	6	133	13
Wyoming	6	140	13	10	142	14	5	145	18	7	145	21

NA = not available; * = rounds to zero; 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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)
United States	S	S	S	5	254	59	4	287	40	5	296	49
Alabama	1	S	S	1	S	S	*	S	S	1	S	S
Alaska	NA	NA	NA	7	237	37	NA	NA	NA	8	282	33
Arizona	3	S	S	3	253	59	2	S	S	3	303	52
Arkansas	1	S	S	2	236	41	1	S	S	1	S	S
California	10	221	19	11	251	56	12	283	34	12	293	46
Colorado	NA	NA	NA	4	247	53	NA	NA	NA	3	297	48
Connecticut	3	239	36	5	255	64	2	S	S	3	307	61
Delaware	NA	NA	NA	3	261	70	NA	NA	NA	4	309	65
District of Columbia	1	S	S	2	S	S	2	S	S	1	S	S
Florida	NA	NA	NA	2	255	59	NA	NA	NA	2	293	48
Georgia	2	S	S	4	255	63	2	S	S	2	S	S
Hawaii	67	214	12	63	233	31	67	260	15	70	268	20
Idaho	1	S	S	2	S	S	1	S	S	1	S	S
Illinois	2	S	S	4	257	62	3	S	S	5	303	55
Indiana	1	S	S	1	S	S	1	S	S	1	S	S
Iowa	2	S	S	2	S	S	NA	NA	NA	2	S	S
Kansas	1	S	S	2	260	67	2	S	S	2	302	52
Kentucky	1	S	S	1	S	S	1	S	S	1	S	S
Louisiana	1	S	S	1	S	S	1	S	S	2	S	S
Maine	2	S	S	2	S	S	1	S	S	1	S	S
Maryland	4	230	27	6	261	68	6	297	49	5	313	66
Massachusetts	4	237	36	6	259	66	4	292	44	5	315	74
Michigan	1	S	S	3	261	69	2	S	S	2	S	S
Minnesota	7	213	12	5	239	43	4	S	S	5	283	34
Mississippi	1	S	S	1	S	S	1	S	S	1	S	S
Missouri	1	S	S	1	S	S	1	S	S	2	S	S
Montana	1	S	S	1	S	S	1	S	S	1	S	S
Nebraska	1	S	S	1	S	S	1	S	S	1	S	S
Nevada	6	227	22	7	242	43	6	273	25	8	285	36
New Hampshire	NA	NA	NA	3	258	64	NA	NA	NA	1	S	S
New Jersey	NA	NA	NA	8	267	78	NA	NA	NA	7	314	69
New Mexico	1	S	S	2	S	S	2	S	S	1	S	S
New York	5	241	36	8	260	69	6	280	37	6	302	53
North Carolina	1	S	S	2	253	60	2	S	S	3	299	50
North Dakota	1	S	S	1	S	S	1	S	S	1	S	S
Ohio	1	S	S	2	S	S	1	S	S	2	S	S
Oklahoma	1	S	S	2	247	48	2	S	S	2	S	S
Oregon	4	236	35	5	249	53	4	285	38	5	299	53
Pennsylvania	NA	NA	NA	3	259	66	NA	NA	NA	3	314	66
Rhode Island	3	217	18	3	244	41	3	267	20	4	282	31
South Carolina	1	S	S	1	S	S	1	S	S	1	S	S
South Dakota	NA	NA	NA	1	S	S	NA	NA	NA	1	S	S

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)
Tennessee	1	S	S	1	S	S	1	S	S	2	S	S
Texas	3	248	47	3	263	70	3	292	44	3	309	67
Utah	3	219	18	2	244	44	3	262	20	3	277	32
Vermont	1	S	S	2	S	S	1	S	S	2	S	S
Virginia	4	247	46	5	256	60	4	293	44	5	299	53
Washington	NA	NA	NA	11	250	54	NA	NA	NA	10	289	41
West Virginia	*	S	S	1	S	S	1	S	S	1	S	S
Wisconsin	NA	NA	NA	3	245	50	NA	NA	NA	3	290	40
Wyoming	1	S	S	1	S	S	1	S	S	1	S	S

NA = not available; * = rounds to zero; 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: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)
United States	S	S	S	4	156	34	4	152	34	4	155	34
Alabama	*	S	S	1	S	S	1	S	S	1	S	S
Alaska	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arizona	2	S	S	2	157	40	2	S	S	2	S	S
Arkansas	1	S	S	2	S	S	1	S	S	1	S	S
California	11	140	18	10	153	32	12	142	25	13	152	30
Colorado	NA	NA	NA	3	157	32	NA	NA	NA	3	158	37
Connecticut	2	S	S	4	166	44	2	S	S	4	163	42
Delaware	NA	NA	NA	3	167	48	NA	NA	NA	3	165	47
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	NA	NA	NA	2	162	35	NA	NA	NA	2	149	29
Georgia	3	154	35	3	162	46	2	S	S	2	163	50
Hawaii	67	132	13	66	140	16	67	126	11	68	133	12
Idaho	2	S	S	1	S	S	1	S	S	2	S	S
Illinois	3	S	S	3	168	49	5	159	35	3	164	46
Indiana	1	S	S	1	S	S	1	S	S	1	S	S
Iowa	1	S	S	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kentucky	1	S	S	1	S	S	1	S	S	1	S	S
Louisiana	1	S	S	1	S	S	1	S	S	1	S	S
Maine	1	S	S	1	S	S	1	S	S	1	S	S
Maryland	6	154	31	6	161	41	5	165	46	5	165	46
Massachusetts	4	159	38	5	165	47	5	156	42	5	166	45
Michigan	2	S	S	3	161	35	1	S	S	2	S	S
Minnesota	5	130	8	5	148	26	4	S	S	6	137	15
Mississippi	1	S	S	1	S	S	1	S	S	1	S	S
Missouri	1	S	S	1	S	S	1	S	S	1	S	S
Montana	1	S	S	1	S	S	1	S	S	1	S	S
Nebraska	2	S	S	NA	NA	NA	1	S	S	NA	NA	NA
Nevada	5	145	20	7	146	19	6	145	23	6	150	28
New Hampshire	NA	NA	NA	2	S	S	NA	NA	NA	1	S	S
New Jersey	NA	NA	NA	9	165	44	NA	NA	NA	7	172	53
New Mexico	1	S	S	1	S	S	2	S	S	1	S	S
New York	5	152	29	NA	NA	NA	6	133	19	NA	NA	NA
North Carolina	1	S	S	2	156	32	2	S	S	2	157	40
North Dakota	1	S	S	1	S	S	1	S	S	1	S	S
Ohio	1	S	S	1	S	S	1	S	S	1	S	S
Oklahoma	1	S	S	1	S	S	2	S	S	2	S	S
Oregon	3	S	S	6	154	30	3	162	42	4	154	35
Pennsylvania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island	4	132	16	2	141	18	3	134	18	3	141	20
South Carolina	1	S	S	1	S	S	1	S	S	1	S	S
South Dakota	NA	NA	NA	1	S	S	NA	NA	NA	1	S	S

Appendix table 8-8

Average science NAEP scores and achievement-level results for grades 4 and 8 Asian students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)	Asian students (%)	Average scale score	Students ≥proficient (%)
Tennessee	1	S	S	1	S	S	1	S	S	1	S	S
Texas	3	156	32	3	165	45	3	156	40	3	161	41
Utah	3	141	18	3	147	21	3	S	S	3	139	19
Vermont	1	S	S	1	S	S	2	S	S	1	S	S
Virginia	3	166	52	5	169	50	5	165	46	5	161	38
Washington	NA	NA	NA	8	154	29	NA	NA	NA	7	149	26
West Virginia	*	S	S	1	S	S	*	S	S	1	S	S
Wisconsin	NA	NA	NA	3	148	25	NA	NA	NA	3	153	33
Wyoming	1	S	S	1	S	S	1	S	S	1	S	S

NA = not available; * = rounds to zero; 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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)
United States	49	223	20	49	238	36	50	271	23	49	279	29
Alabama	49	219	13	49	228	25	49	263	15	49	265	15
Alaska	NA	NA	NA	49	237	37	NA	NA	NA	48	283	32
Arizona	47	219	15	49	230	27	49	266	18	51	274	23
Arkansas	49	216	13	49	237	35	49	259	13	52	274	22
California	49	213	13	50	229	28	49	260	16	49	270	23
Colorado	NA	NA	NA	49	239	38	NA	NA	NA	48	286	37
Connecticut	48	233	29	49	242	43	47	278	30	49	283	34
Delaware	NA	NA	NA	50	241	40	NA	NA	NA	49	281	29
District of Columbia	51	192	5	51	214	13	53	234	5	54	248	8
Florida	NA	NA	NA	49	241	38	NA	NA	NA	51	277	26
Georgia	51	218	16	50	234	30	50	265	18	50	274	23
Hawaii	51	217	14	49	236	34	48	265	16	48	270	22
Idaho	50	225	19	49	240	38	47	277	25	51	282	32
Illinois	48	222	17	50	235	33	48	278	28	50	279	29
Indiana	49	232	28	47	244	45	50	281	26	48	284	33
Iowa	48	230	24	49	241	40	NA	NA	NA	49	284	33
Kansas	49	231	26	49	247	48	49	283	32	50	289	39
Kentucky	50	219	15	50	234	29	49	269	18	49	277	24
Louisiana	49	217	13	50	230	24	53	257	10	52	272	18
Maine	49	227	20	50	241	40	49	281	29	51	285	32
Maryland	49	220	20	50	239	37	48	272	27	50	284	35
Massachusetts	50	232	29	49	251	55	48	278	29	51	296	48
Michigan	49	228	26	49	237	35	50	277	28	48	275	27
Minnesota	50	232	29	48	245	47	50	287	38	49	292	43
Mississippi	52	211	8	49	227	20	49	253	7	52	264	12
Missouri	50	228	22	49	238	37	48	270	19	50	279	28
Montana	48	226	21	49	242	42	48	287	36	50	287	36
Nebraska	51	225	23	48	236	35	47	277	27	49	282	32
Nevada	49	218	13	50	230	27	50	264	17	49	270	22
New Hampshire	NA	NA	NA	47	247	49	NA	NA	NA	50	287	38
New Jersey	NA	NA	NA	50	247	49	NA	NA	NA	49	288	38
New Mexico	50	211	10	48	227	23	50	260	12	48	267	16
New York	51	224	18	51	242	42	52	270	22	48	280	29
North Carolina	50	230	24	50	241	39	49	275	26	50	283	33
North Dakota	49	229	23	49	243	41	48	282	30	50	290	39
Ohio	50	228	21	49	243	43	49	280	29	49	283	33
Oklahoma	50	223	14	50	236	31	48	269	17	51	273	18
Oregon	49	222	20	49	234	32	48	278	28	48	283	33
Pennsylvania	NA	NA	NA	50	243	44	NA	NA	NA	49	283	35
Rhode Island	49	223	19	49	235	32	48	270	22	48	275	27
South Carolina	48	219	15	50	238	36	50	265	17	52	282	31
South Dakota	NA	NA	NA	49	240	38	NA	NA	NA	48	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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)
Tennessee	49	219	16	49	231	26	50	260	14	51	271	20
Texas	51	230	23	49	242	39	49	275	25	50	285	32
Utah	48	227	21	49	238	37	51	272	23	48	280	30
Vermont	50	231	29	49	245	47	49	282	30	50	290	40
Virginia	50	227	22	49	242	39	50	274	22	47	286	34
Washington	NA	NA	NA	48	241	41	NA	NA	NA	50	285	35
West Virginia	49	223	15	49	235	30	48	268	17	49	269	16
Wisconsin	NA	NA	NA	49	243	46	NA	NA	NA	48	284	34
Wyoming	47	227	22	49	243	43	49	276	23	48	286	34

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: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)
United States	50	143	23	49	147	24	50	145	25	50	145	25
Alabama	48	143	21	49	142	19	50	139	20	50	137	17
Alaska	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arizona	48	140	20	50	138	15	48	142	19	50	139	19
Arkansas	49	142	20	49	146	22	50	142	20	48	142	20
California	50	130	12	50	135	15	52	126	13	50	135	17
Colorado	NA	NA	NA	48	153	29	NA	NA	NA	49	152	31
Connecticut	49	153	30	49	153	30	50	149	30	49	151	32
Delaware	NA	NA	NA	48	151	24	NA	NA	NA	49	150	26
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	NA	NA	NA	49	149	23	NA	NA	NA	51	140	19
Georgia	48	139	19	50	147	23	50	140	19	48	142	23
Hawaii	49	135	13	50	142	18	49	131	13	48	135	13
Idaho	48	149	24	49	152	25	49	154	31	48	154	31
Illinois	48	150	29	50	147	25	50	145	25	50	146	24
Indiana	50	152	28	50	150	25	49	153	31	51	147	25
Iowa	50	156	32	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kentucky	49	150	26	50	156	33	48	146	23	49	151	28
Louisiana	49	138	16	48	140	17	51	133	15	51	136	16
Maine	52	158	34	49	157	32	49	155	30	50	156	32
Maryland	49	143	22	50	149	26	50	144	24	50	144	24
Massachusetts	47	157	36	47	158	36	49	157	37	48	160	39
Michigan	50	150	27	50	149	26	49	154	33	50	154	32
Minnesota	47	154	31	49	155	30	48	157	37	48	155	36
Mississippi	51	132	11	50	132	10	50	132	12	49	130	12
Missouri	49	154	30	48	156	33	50	152	30	50	151	29
Montana	51	157	31	48	157	33	45	160	38	51	161	40
Nebraska	53	147	23	NA	NA	NA	47	154	31	NA	NA	NA
Nevada	49	141	17	50	138	15	49	139	19	49	138	18
New Hampshire	NA	NA	NA	50	159	33	NA	NA	NA	49	161	38
New Jersey	NA	NA	NA	50	153	30	NA	NA	NA	49	150	28
New Mexico	51	139	15	48	139	17	51	135	15	49	135	15
New York	51	146	22	NA	NA	NA	49	144	26	NA	NA	NA
North Carolina	48	144	20	48	146	21	50	142	22	52	143	20
North Dakota	51	156	30	47	157	30	48	157	34	49	161	40
Ohio	48	153	28	47	154	30	50	157	36	52	154	33
Oklahoma	50	148	23	48	148	22	49	146	22	49	144	21
Oregon	49	147	25	50	149	24	49	153	31	48	152	29
Pennsylvania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island	49	145	22	47	145	21	49	145	24	48	144	23
South Carolina	48	139	17	47	147	23	51	137	17	51	144	20
South Dakota	NA	NA	NA	49	155	30	NA	NA	NA	50	158	37

Appendix table 8-10

Average science NAEP scores and achievement-level results for grades 4 and 8 female students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)	Female students (%)	Average scale score	Students ≥proficient (%)
Tennessee	49	144	22	50	149	24	48	142	20	51	144	22
Texas	51	142	19	49	147	22	50	141	21	49	141	20
Utah	49	151	26	48	153	29	52	151	28	48	152	30
Vermont	47	158	36	50	157	34	49	156	35	50	161	39
Virginia	49	154	30	50	160	38	50	147	26	49	153	32
Washington	NA	NA	NA	49	151	25	NA	NA	NA	49	153	30
West Virginia	50	148	23	50	149	20	49	144	20	49	144	20
Wisconsin	NA	NA	NA	48	156	32	NA	NA	NA	50	156	35
Wyoming	50	152	26	50	154	27	49	154	31	48	157	33

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)
United States	51	225	25	51	240	41	50	273	26	51	281	33
Alabama	51	216	14	51	229	27	51	265	17	51	267	21
Alaska	NA	NA	NA	51	238	38	NA	NA	NA	52	282	33
Arizona	53	219	16	51	233	34	51	271	22	49	277	30
Arkansas	51	216	14	51	238	38	51	256	14	48	274	26
California	51	212	13	50	231	31	51	259	17	51	270	25
Colorado	NA	NA	NA	51	242	44	NA	NA	NA	52	287	38
Connecticut	52	235	33	51	243	46	53	283	36	51	282	35
Delaware	NA	NA	NA	50	242	40	NA	NA	NA	51	285	34
District of Columbia	49	191	6	49	213	14	47	235	6	46	248	8
Florida	NA	NA	NA	51	243	43	NA	NA	NA	49	278	29
Georgia	49	220	19	50	236	33	50	265	19	50	275	26
Hawaii	49	215	15	51	233	33	52	260	16	52	267	20
Idaho	50	224	20	51	242	42	53	277	27	49	285	36
Illinois	52	224	23	50	239	40	52	272	24	50	282	33
Indiana	51	234	31	53	246	48	50	282	33	52	286	37
Iowa	52	233	28	51	244	46	NA	NA	NA	51	287	37
Kansas	51	233	31	51	249	54	51	283	35	50	291	41
Kentucky	50	220	19	50	237	33	51	271	22	51	280	30
Louisiana	51	219	14	50	230	25	47	260	12	48	273	20
Maine	51	232	25	50	244	43	51	282	32	49	288	37
Maryland	51	223	23	50	242	43	52	272	27	50	287	38
Massachusetts	50	235	33	51	254	60	52	279	31	49	300	53
Michigan	51	230	30	51	238	39	50	278	29	52	278	30
Minnesota	50	236	36	52	249	54	50	287	39	51	292	44
Mississippi	48	210	10	51	228	22	51	255	10	48	266	16
Missouri	50	228	24	51	240	40	52	272	23	50	282	32
Montana	52	231	27	51	245	47	52	284	37	50	287	39
Nebraska	49	225	25	52	240	40	53	282	33	51	285	37
Nevada	51	221	18	50	233	33	50	266	20	51	271	24
New Hampshire	NA	NA	NA	53	250	54	NA	NA	NA	50	288	38
New Jersey	NA	NA	NA	50	250	55	NA	NA	NA	51	290	43
New Mexico	50	216	14	52	229	26	50	259	13	52	268	19
New York	49	227	23	49	244	45	48	273	27	52	281	31
North Carolina	50	230	26	50	243	43	51	277	28	50	285	36
North Dakota	51	231	27	51	248	50	52	282	31	50	293	43
Ohio	50	232	28	51	246	49	51	281	32	51	286	38
Oklahoma	50	225	17	50	238	34	52	271	20	49	277	24
Oregon	51	225	25	51	238	38	52	282	34	52	285	37
Pennsylvania	NA	NA	NA	50	245	50	NA	NA	NA	51	289	42
Rhode Island	51	225	25	51	236	36	52	268	21	52	276	29
South Carolina	52	221	20	50	236	36	50	264	17	48	281	33
South Dakota	NA	NA	NA	51	242	43	NA	NA	NA	52	290	41

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 2007

	4th grade						8th grade					
	2000			2007			2000			2007		
State	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)
Tennessee	51	221	20	51	234	31	50	263	19	49	277	26
Texas	49	233	28	51	243	41	51	272	23	50	287	37
Utah	52	227	24	51	241	42	49	275	26	52	282	34
Vermont	50	232	29	51	248	51	51	279	31	50	292	43
Virginia	50	232	26	51	245	44	50	276	28	53	289	40
Washington	NA	NA	NA	52	244	46	NA	NA	NA	50	285	37
West Virginia	51	224	19	51	238	35	52	265	17	51	271	21
Wisconsin	NA	NA	NA	51	245	48	NA	NA	NA	52	287	40
Wyoming	53	230	27	51	244	46	51	276	24	52	288	37

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: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)
United States	50	147	29	51	151	30	50	151	32	50	149	30
Alabama	52	143	22	51	143	22	50	146	26	50	138	21
Alaska	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arizona	52	139	23	50	140	20	52	147	27	50	141	21
Arkansas	51	147	26	51	148	26	50	143	24	52	146	27
California	50	128	14	50	138	19	48	131	16	50	138	19
Colorado	NA	NA	NA	52	157	35	NA	NA	NA	51	158	38
Connecticut	51	159	39	51	156	35	50	156	39	51	153	34
Delaware	NA	NA	NA	52	153	29	NA	NA	NA	51	154	32
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	NA	NA	NA	51	151	28	NA	NA	NA	49	142	24
Georgia	52	145	25	50	148	27	50	144	26	52	145	28
Hawaii	51	137	18	50	142	19	51	130	15	52	138	17
Idaho	52	156	34	51	157	34	51	161	44	52	161	42
Illinois	52	151	33	50	148	28	50	151	33	50	150	31
Indiana	50	156	36	50	153	29	51	156	36	49	154	33
Iowa	50	162	40	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kentucky	51	154	31	50	159	38	52	153	33	51	154	33
Louisiana	51	141	20	52	145	24	49	136	20	49	141	23
Maine	48	164	42	51	162	40	51	160	39	50	159	37
Maryland	51	146	27	50	148	28	50	147	30	50	145	27
Massachusetts	53	164	46	53	162	40	51	159	40	52	162	42
Michigan	50	155	37	50	154	34	51	156	37	50	156	37
Minnesota	53	159	37	51	158	37	52	161	44	52	161	43
Mississippi	49	134	15	50	134	15	50	136	18	51	135	16
Missouri	51	159	38	52	160	39	50	155	37	50	157	37
Montana	49	163	42	52	162	40	55	167	48	49	162	43
Nebraska	47	152	30	NA	NA	NA	53	161	43	NA	NA	NA
Nevada	51	143	21	50	141	19	51	143	24	51	139	20
New Hampshire	NA	NA	NA	50	163	41	NA	NA	NA	51	163	43
New Jersey	NA	NA	NA	50	155	33	NA	NA	NA	51	157	38
New Mexico	49	141	19	52	142	19	49	143	24	51	141	21
New York	49	149	26	NA	NA	NA	51	146	30	NA	NA	NA
North Carolina	52	149	26	52	151	29	50	148	29	48	145	25
North Dakota	49	164	43	53	163	42	52	161	42	51	165	46
Ohio	52	157	34	53	159	39	50	162	43	48	157	38
Oklahoma	50	153	29	52	151	28	51	151	29	51	149	30
Oregon	51	150	29	50	152	29	51	155	36	52	155	36
Pennsylvania	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island	51	150	29	53	148	25	51	150	30	52	149	29
South Carolina	52	141	23	53	150	27	49	143	23	49	146	25
South Dakota	NA	NA	NA	51	161	40	NA	NA	NA	50	164	45

Appendix table 8-12

Average science NAEP scores and achievement-level results for grades 4 and 8 male students in public schools, by state: 2000 and 2005

	4th grade						8th grade					
	2000			2005			2000			2005		
State	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)	Male students (%)	Average scale score	Students ≥proficient (%)
Tennessee	51	146	27	50	152	29	52	149	28	49	146	28
Texas	49	148	26	51	152	28	50	145	26	51	145	26
Utah	51	157	35	52	158	36	48	158	39	52	155	36
Vermont	53	162	41	50	162	41	51	161	42	50	163	42
Virginia	51	156	34	50	162	42	50	155	33	51	157	37
Washington	NA	NA	NA	51	155	32	NA	NA	NA	51	155	36
West Virginia	50	150	25	50	153	27	51	149	27	51	150	27
Wisconsin	NA	NA	NA	52	159	38	NA	NA	NA	50	160	42
Wyoming	50	160	37	50	161	38	51	158	36	52	161	40

NA = not available

NAEP = National Assessment of Educational Progress

SOURCE: National Center for Education Statistics, NAEP (various years).

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Appendix table 8-13
Coefficient of variation for estimates of employed S&E doctorate holders, by state: 1997, 2001, and 2006

State	Employed S&E doctorate holders			Coefficient of variation for employed S&E doctorate holders (%)		
	1997	2001	2006	1997	2001	2006
United States	516,560	572,800	618,370	0.3	0.2	0.3
Alabama	6,610	5,330	5,900	5.8	7.4	6.6
Alaska	1,110	1,200	1,110	14.5	13.0	12.7
Arizona	6,280	7,070	8,410	5.9	5.9	4.8
Arkansas	2,320	2,560	2,840	10.4	9.9	9.5
California	70,490	80,870	87,370	1.7	1.5	1.5
Colorado	10,740	11,780	13,150	4.4	4.3	4.4
Connecticut	8,770	9,490	10,330	5.3	4.9	4.7
Delaware	3,710	3,540	3,110	8.6	8.3	8.8
District of Columbia	11,800	14,200	13,330	4.5	4.6	4.0
Florida	13,330	15,740	17,630	4.3	3.9	3.8
Georgia	9,880	11,990	12,940	4.8	4.3	4.3
Hawaii	2,550	2,580	2,850	9.4	9.3	9.3
Idaho	2,030	2,230	2,840	11.2	10.8	10.0
Illinois	21,260	22,110	24,110	3.2	3.4	3.4
Indiana	7,570	9,580	9,870	5.3	4.7	4.9
Iowa	4,120	4,390	4,890	7.5	7.2	7.1
Kansas	3,770	3,970	4,250	7.8	9.0	8.2
Kentucky	4,110	4,590	4,990	7.1	7.5	6.3
Louisiana	5,360	5,290	5,470	6.6	7.0	7.1
Maine	2,150	1,990	2,350	11.7	11.9	11.4
Maryland	21,020	22,730	26,220	3.2	3.3	3.7
Massachusetts	23,330	29,100	32,360	3.1	2.9	2.6
Michigan	15,050	17,380	17,900	3.9	3.8	3.5
Minnesota	9,810	11,410	11,850	4.7	4.6	5.1
Mississippi	3,000	3,170	3,310	8.8	8.4	7.6
Missouri	9,490	9,280	9,230	5.0	5.1	4.9
Montana	1,690	1,440	1,990	11.1	13.9	10.8
Nebraska	3,010	2,890	2,970	9.6	9.4	9.2
Nevada	1,620	2,030	2,620	12.4	11.8	9.5
New Hampshire	2,230	2,470	2,440	10.2	9.2	10.3
New Jersey	20,440	22,740	20,840	3.2	3.1	3.5
New Mexico	7,480	7,750	8,330	5.6	5.4	5.3
New York	40,080	43,980	45,840	2.3	2.3	2.3
North Carolina	13,730	16,760	18,880	3.9	3.9	3.6
North Dakota	1,350	1,080	1,380	11.6	15.2	14.2
Ohio	18,700	20,070	20,540	3.5	3.4	3.1
Oklahoma	4,580	4,360	4,420	7.2	7.1	6.9
Oregon	6,210	7,040	8,280	6.3	5.9	5.4
Pennsylvania	23,940	26,140	29,090	3.1	3.0	3.1
Rhode Island	2,450	2,640	3,020	10.0	9.9	9.2
South Carolina	4,780	5,130	5,920	7.0	6.8	6.6
South Dakota	1,060	1,000	1,050	13.7	16.1	15.1
Tennessee	8,520	8,980	9,980	5.3	4.9	4.6
Texas	28,570	32,490	35,970	2.8	2.7	2.7
Utah	4,800	4,820	5,540	7.6	7.0	6.8
Vermont	1,750	1,750	1,700	11.7	11.5	11.9
Virginia	15,250	17,460	19,790	4.0	3.9	3.5
Washington	13,360	14,760	16,920	4.1	4.1	3.4
West Virginia	1,980	1,890	2,020	10.1	11.2	11.7
Wisconsin	8,460	8,720	9,500	5.2	5.6	5.6
Wyoming	860	840	730	16.2	17.0	17.6
Puerto Rico	660	1,410	1,690	11.5	10.6	9.2

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 S&E doctorate holders in academia, by state: 1997, 2001, and 2006

State	S&E doctorate holders in academia			Coefficient of variation for S&E doctorate holders in academia (%)		
	1997	2001	2006	1997	2001	2006
United States	245,670	261,780	290,730	0.4	0.7	0.7
Alabama	4,640	3,050	3,430	6.7	9.5	7.8
Alaska	450	530	580	19.9	20.9	18.7
Arizona	3,050	3,340	4,010	8.0	8.0	7.0
Arkansas	1,520	1,640	1,940	12.1	12.0	10.8
California	26,050	26,790	29,070	2.8	2.8	2.9
Colorado	4,550	5,120	5,540	6.7	5.9	7.0
Connecticut	4,000	4,420	4,770	7.6	7.9	6.7
Delaware	750	840	950	19.7	17.2	16.7
District of Columbia	2,210	2,840	2,580	9.5	9.7	9.8
Florida	6,850	8,250	9,590	6.1	5.5	5.6
Georgia	5,780	6,450	7,750	6.1	5.8	5.2
Hawaii	1,380	1,570	1,670	11.0	12.3	11.6
Idaho	780	980	1,490	18.3	15.7	13.6
Illinois	10,620	11,090	11,860	4.6	4.4	4.3
Indiana	4,680	5,710	6,190	6.8	6.4	6.4
Iowa	3,100	3,220	3,530	8.7	7.8	8.6
Kansas	2,260	2,270	2,600	9.6	11.0	10.3
Kentucky	3,040	3,240	3,610	8.2	9.2	7.8
Louisiana	3,580	3,470	3,470	8.0	8.7	8.1
Maine	1,340	1,200	1,210	14.9	15.9	16.2
Maryland	6,400	6,100	7,590	5.7	6.4	6.7
Massachusetts	11,810	13,390	14,980	4.1	4.1	3.9
Michigan	7,850	8,820	9,410	5.2	5.2	4.7
Minnesota	4,490	5,540	5,730	6.4	6.7	7.0
Mississippi	1,940	2,000	2,020	11.1	11.6	9.1
Missouri	5,770	5,710	5,750	6.5	6.7	6.5
Montana	1,020	810	1,230	14.1	17.2	13.6
Nebraska	2,360	1,960	1,900	10.6	10.8	11.6
Nevada	980	1,260	1,620	17.1	14.6	12.6
New Hampshire	1,130	1,240	1,270	14.1	12.6	13.0
New Jersey	5,290	5,860	6,500	6.4	6.8	5.6
New Mexico	2,450	2,910	2,220	9.3	8.5	10.6
New York	20,900	21,770	23,110	3.1	3.3	3.0
North Carolina	7,740	9,050	10,310	5.2	5.1	5.3
North Dakota	900	660	970	13.9	21.0	16.5
Ohio	9,750	9,920	10,620	4.7	5.5	4.2
Oklahoma	2,680	2,800	2,890	9.0	9.0	9.2
Oregon	2,690	3,250	3,620	9.0	8.2	8.1
Pennsylvania	12,150	13,590	16,210	4.2	4.1	4.3
Rhode Island	1,730	1,730	2,040	12.2	13.3	10.9
South Carolina	3,230	3,030	3,720	8.7	9.2	8.5
South Dakota	700	640	690	15.9	18.6	19.9
Tennessee	4,720	4,800	5,640	6.9	6.6	7.0
Texas	13,760	14,270	17,170	4.0	3.9	3.7
Utah	3,080	3,100	3,580	9.7	8.7	8.2
Vermont	1,140	1,050	1,050	14.8	17.0	15.7
Virginia	5,830	7,180	8,050	6.2	5.8	5.4
Washington	5,410	6,390	7,190	6.2	6.1	5.6
West Virginia	1,190	1,150	1,320	13.4	14.7	14.5
Wisconsin	5,390	5,210	5,970	6.4	6.8	6.7
Wyoming	560	570	520	21.0	21.2	21.5
Puerto Rico	640	1,070	1,270	11.6	11.4	10.4

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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