

Appendix table 5-56

**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Netherlands	Poland
<b>World</b>																				
1997	90,867	9,235	1,206	40,419	993	2,295	618	2,393	3,672	1,467	2,936	2,162	14,067	17,963	1,214	1,519	758	8,523	6,105	2,883
2012	211,841	21,286	3,315	91,183	2,783	7,059	2,573	6,323	8,876	3,790	6,455	4,717	28,150	39,161	3,617	2,648	3,033	19,697	15,187	5,524
<b>Canada</b>																				
1997	9,235	na	77	4,898	41	143	31	83	143	59	151	102	829	688	52	85	34	374	311	131
2012	21,286	na	272	10,401	314	641	380	506	639	302	601	401	2,452	2,578	362	255	254	1,414	1,396	496
<b>Mexico</b>																				
1997	1,206	77	na	542	33	61	14	8	17	13	8	4	134	72	5	7	2	45	28	18
2012	3,315	272	na	1,536	169	325	141	142	156	212	82	124	489	457	152	143	62	336	196	179
<b>United States</b>																				
1997	40,419	4,898	542	na	345	849	201	642	830	315	861	678	3,593	5,374	369	470	174	2,747	1,811	657
2012	91,183	10,401	1,536	na	1,062	2,926	1,160	1,828	2,310	1,112	2,084	1,412	8,029	12,129	1,364	898	913	6,702	5,125	1,779
<b>Argentina</b>																				
1997	993	41	33	345	na	124	44	11	18	8	19	15	112	94	4	8	1	71	33	7
2012	2,783	314	169	1,062	na	539	311	166	77	181	159	28	448	490	145	147	40	384	239	168
<b>Brazil</b>																				
1997	2,295	143	61	849	124	na	69	35	60	35	48	37	319	241	23	8	5	183	60	44
2012	7,059	641	325	2,926	539	na	322	316	281	357	257	164	1,150	1,094	277	267	129	779	521	405
<b>Chile</b>																				
1997	618	31	14	201	44	69	na	6	20	3	10	10	81	89	4	2	1	31	13	11
2012	2,573	380	141	1,160	311	322	na	174	112	148	203	62	556	622	162	132	35	382	279	221
<b>Austria</b>																				
1997	2,393	83	8	642	11	35	6	na	91	97	78	71	226	819	59	82	20	225	153	74
2012	6,323	506	142	1,828	166	316	174	na	452	462	410	285	1,032	2,747	387	393	117	1,016	694	490
<b>Belgium</b>																				
1997	3,672	143	17	830	18	60	20	91	na	94	108	71	866	558	83	61	43	319	625	133
2012	8,876	639	156	2,310	77	281	112	452	na	271	396	282	2,169	1,892	329	261	131	1,260	1,822	432
<b>Czech Republic</b>																				
1997	1,467	59	13	315	8	35	3	97	94	na	50	43	243	377	40	31	4	138	96	82
2012	3,790	302	212	1,112	181	357	148	462	271	na	264	220	839	1,145	353	344	103	655	393	590
<b>Denmark</b>																				
1997	2,936	151	8	861	19	48	10	78	108	50	na	138	303	508	79	26	26	256	246	88
2012	6,455	601	82	2,084	159	257	203	410	396	264	na	428	1,017	1,547	319	250	138	904	942	372
<b>Finland</b>																				
1997	2,162	102	4	678	15	37	10	71	71	43	138	na	216	342	41	100	19	179	192	92
2012	4,717	401	124	1,412	28	164	62	285	282	220	428	na	676	1,124	301	210	108	698	554	336
<b>France</b>																				
1997	14,067	829	134	3,593	112	319	81	226	866	243	303	216	na	2,073	244	196	77	1,508	734	472
2012	28,150	2,452	489	8,029	448	1,150	556	1,032	2,169	839	1,017	676	na	5,513	840	586	445	4,146	2,395	1,224
<b>Germany</b>																				
1997	17,963	688	72	5,374	94	241	89	819	558	377	508	342	2,073	na	290	370	104	1,319	1,161	687
2012	39,161	2,578	457	12,129	490	1,094	622	2,747	1,892	1,145	1,547	1,124	5,513	na	1,086	864	649	4,419	4,037	1,726

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**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Nether- lands	Poland
Greece																				
1997	1,214	52	5	369	4	23	4	59	83	40	79	41	244	290	na	23	20	166	83	39
2012	3,617	362	152	1,364	145	277	162	387	329	353	319	301	840	1,086	na	303	75	873	524	405
Hungary																				
1997	1,519	85	7	470	8	8	2	82	61	31	26	100	196	370	23	na	12	161	104	60
2012	2,648	255	143	898	147	267	132	393	261	344	250	210	586	864	303	na	34	548	348	375
Ireland																				
1997	758	34	2	174	1	5	1	20	43	4	26	19	77	104	20	12	na	56	79	8
2012	3,033	254	62	913	40	129	35	117	131	103	138	108	445	649	75	34	na	347	368	181
Italy																				
1997	8,523	374	45	2,747	71	183	31	225	319	138	256	179	1,508	1,319	166	161	56	na	557	275
2012	19,697	1,414	336	6,702	384	779	382	1,016	1,260	655	904	698	4,146	4,419	873	548	347	na	2,083	997
Netherlands																				
1997	6,105	311	28	1,811	33	60	13	153	625	96	246	192	734	1,161	83	104	79	557	na	154
2012	15,187	1,396	196	5,125	239	521	279	694	1,822	393	942	554	2,395	4,037	524	348	368	2,083	na	661
Poland																				
1997	2,883	131	18	657	7	44	11	74	133	82	88	92	472	687	39	60	8	275	154	na
2012	5,524	496	179	1,779	168	405	221	490	432	590	372	336	1,224	1,726	405	375	181	997	661	na
Portugal																				
1997	869	26	2	178	2	46	3	32	75	30	52	35	181	132	48	5	13	116	101	35
2012	4,554	283	159	1,142	168	586	197	310	339	313	295	213	892	850	290	269	65	724	506	383
Spain																				
1997	5,188	167	119	1,357	165	146	79	125	228	64	178	128	1,042	733	103	67	38	642	364	141
2012	18,045	1,154	819	5,319	722	981	615	791	1,047	593	822	629	3,450	3,641	773	498	369	3,182	1,727	880
Sweden																				
1997	5,055	214	18	1,470	28	62	25	92	219	89	447	402	478	744	73	63	31	364	324	204
2012	10,159	808	153	3,103	218	360	200	558	536	403	1,200	931	1,467	2,259	425	350	246	1,228	1,241	491
United Kingdom																				
1997	16,819	1,031	99	5,050	86	285	52	269	565	199	530	311	1,853	2,322	316	212	327	1,365	1,170	308
2012	39,227	3,363	487	13,005	377	1,164	552	1,288	1,925	829	1,676	1,120	5,250	7,141	1,115	677	1,218	4,459	4,065	1,230
Norway																				
1997	1,655	65	5	432	1	35	2	51	65	37	204	147	161	247	51	20	21	115	164	60
2012	4,799	558	66	1,479	139	219	166	297	215	235	725	331	754	959	269	201	101	608	677	309
Russia																				
1997	6,499	239	68	1,518	22	113	9	122	188	133	175	212	861	1,559	52	78	18	503	308	288
2012	7,413	549	246	2,218	171	455	188	431	321	514	286	488	1,433	2,309	376	340	177	988	612	715
Switzerland																				
1997	5,581	314	18	1,778	36	79	12	235	227	99	177	140	1,017	1,521	110	121	32	764	407	151
2012	13,031	1,015	193	4,356	239	530	223	887	811	489	600	464	2,586	4,238	508	389	207	2,003	1,358	669
Iran																				
1997	136	16	0	33	0	2	0	2	5	1	0	0	4	9	2	1	0	4	1	0
2012	2,634	305	85	672	15	105	12	132	152	106	54	103	241	306	94	87	12	266	115	111

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**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Nether- lands	Poland
Israel																				
1997	2,869	186	21	1,596	10	31	9	27	48	26	42	36	279	448	14	62	10	183	106	39
2012	4,558	508	61	2,535	151	206	174	233	149	196	244	80	600	990	204	177	33	541	436	239
Saudi Arabia																				
1997	225	21	0	79	2	2	0	3	9	2	1	3	11	12	2	3	0	4	3	4
2012	3,048	219	26	734	6	34	7	28	41	31	25	33	164	300	49	15	15	129	94	38
Turkey																				
1997	600	22	3	201	6	5	1	6	13	3	8	10	45	62	5	10	0	34	24	10
2012	2,997	287	147	1,209	153	263	141	302	193	274	205	155	467	657	303	257	34	495	337	308
Egypt																				
1997	472	21	3	179	2	0	2	6	10	4	0	10	14	61	0	5	1	29	19	6
2012	2,138	117	94	489	9	105	6	106	103	101	18	98	158	380	104	87	12	168	36	102
South Africa																				
1997	856	58	3	274	10	15	6	25	32	7	11	9	60	126	6	5	8	37	31	16
2012	3,352	392	78	1,318	159	229	182	204	171	194	239	72	541	596	166	173	47	337	389	236
China																				
1997	3,699	299	8	1,300	9	26	6	41	42	11	64	53	225	417	32	34	5	166	131	18
2012	31,081	2,324	270	14,759	207	524	195	458	463	419	542	316	1,713	2,753	330	323	238	925	968	487
India																				
1997	1,649	106	22	662	14	36	5	12	30	8	24	33	171	260	6	30	1	104	76	16
2012	7,332	474	211	2,504	75	305	47	195	218	261	110	163	791	1,029	160	162	84	501	300	313
Japan																				
1997	9,011	559	14	4,002	31	95	11	70	124	78	110	100	537	954	36	118	24	344	265	149
2012	16,591	1,124	162	6,157	194	334	233	415	342	380	369	282	1,515	2,196	302	277	121	1,066	664	473
Singapore																				
1997	505	27	1	161	1	1	3	4	3	0	3	5	7	12	1	1	4	5	2	0
2012	4,359	197	14	1,382	6	48	7	54	54	32	56	35	207	253	41	9	31	120	137	45
South Korea																				
1997	1,813	68	11	1,115	12	14	3	24	16	1	25	32	102	125	20	28	9	92	48	22
2012	10,079	550	181	5,437	52	240	53	184	183	238	103	220	592	918	193	166	72	479	270	257
Taiwan																				
1997	1,128	72	1	768	2	8	0	0	3	1	0	6	35	47	1	4	0	36	10	3
2012	4,659	410	139	2,438	138	245	185	256	131	267	184	207	450	586	280	215	43	407	234	287
Australia																				
1997	4,789	390	13	1,729	14	41	9	57	69	21	95	51	298	472	11	18	26	185	182	47
2012	16,575	1,659	206	5,455	244	508	271	545	524	337	595	329	1,555	2,199	286	251	231	1,105	1,174	447
New Zealand																				
1997	1,078	111	3	390	5	10	1	16	16	7	29	14	53	76	3	7	4	31	30	6
2012	3,156	270	97	1,076	25	121	30	136	180	106	95	124	277	409	98	98	48	264	184	119

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**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Iran	Israel	Saudi Arabia	Turkey	Egypt	South Africa	China	India	Japan	Singapore	South Korea	Taiwan	Australia	New Zealand
<b>World</b>																					
1997	869	5,188	5,055	16,819	1,655	6,499	5,581	136	2,869	225	600	472	856	3,699	1,649	9,011	505	1,813	1,128	4,789	1,078
2012	4,554	18,045	10,159	39,227	4,799	7,413	13,031	2,634	4,558	3,048	2,997	2,138	3,352	31,081	7,332	16,591	4,359	10,079	4,659	16,575	3,156
<b>Canada</b>																					
1997	26	167	214	1,031	65	239	314	16	186	21	22	21	58	299	106	559	27	68	72	390	111
2012	283	1,154	808	3,363	558	549	1,015	305	508	219	287	117	392	2,324	474	1,124	197	550	410	1,659	270
<b>Mexico</b>																					
1997	2	119	18	99	5	68	18	0	21	0	3	3	3	8	22	14	1	11	1	13	3
2012	159	819	153	487	66	246	193	85	61	26	147	94	78	270	211	162	14	181	139	206	97
<b>United States</b>																					
1997	178	1,357	1,470	5,050	432	1,518	1,778	33	1,596	79	201	179	274	1,300	662	4,002	161	1,115	768	1,729	390
2012	1,142	5,319	3,103	13,005	1,479	2,218	4,356	672	2,535	734	1,209	489	1,318	14,759	2,504	6,157	1,382	5,437	2,438	5,455	1,076
<b>Argentina</b>																					
1997	2	165	28	86	1	22	36	0	10	2	6	2	10	9	14	31	1	12	2	14	5
2012	168	722	218	377	139	171	239	15	151	6	153	9	159	207	75	194	6	52	138	244	25
<b>Brazil</b>																					
1997	46	146	62	285	35	113	79	2	31	2	5	0	15	26	36	95	1	14	8	41	10
2012	586	981	360	1,164	219	455	530	105	206	34	263	105	229	524	305	334	48	240	245	508	121
<b>Chile</b>																					
1997	3	79	25	52	2	9	12	0	9	0	1	2	6	6	5	11	3	3	0	9	1
2012	197	615	200	552	166	188	223	12	174	7	141	6	182	195	47	233	7	53	185	271	30
<b>Austria</b>																					
1997	32	125	92	269	51	122	235	2	27	3	6	6	25	41	12	70	4	24	0	57	16
2012	310	791	558	1,288	297	431	887	132	233	28	302	106	204	458	195	415	54	184	256	545	136
<b>Belgium</b>																					
1997	75	228	219	565	65	188	227	5	48	9	13	10	32	42	30	124	3	16	3	69	16
2012	339	1,047	536	1,925	215	321	811	152	149	41	193	103	171	463	218	342	54	183	131	524	180
<b>Czech Republic</b>																					
1997	30	64	89	199	37	133	99	1	26	2	3	4	7	11	8	78	0	1	1	21	7
2012	313	593	403	829	235	514	489	106	196	31	274	101	194	419	261	380	32	238	267	337	106
<b>Denmark</b>																					
1997	52	178	447	530	204	175	177	0	42	1	8	0	11	64	24	110	3	25	0	95	29
2012	295	822	1,200	1,676	725	286	600	54	244	25	205	18	239	542	110	369	56	103	184	595	95
<b>Finland</b>																					
1997	35	128	402	311	147	212	140	0	36	3	10	10	9	53	33	100	5	32	6	51	14
2012	213	629	931	1,120	331	488	464	103	80	33	155	98	72	316	163	282	35	220	207	329	124
<b>France</b>																					
1997	181	1,042	478	1,853	161	861	1,017	4	279	11	45	14	60	225	171	537	7	102	35	298	53
2012	892	3,450	1,467	5,250	754	1,433	2,586	241	600	164	467	158	541	1,713	791	1,515	207	592	450	1,555	277
<b>Germany</b>																					
1997	132	733	744	2,322	247	1,559	1,521	9	448	12	62	61	126	417	260	954	12	125	47	472	76
2012	850	3,641	2,259	7,141	959	2,309	4,238	306	990	300	657	380	596	2,753	1,029	2,196	253	918	586	2,199	409

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**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzer- land	Iran	Israel	Saudi Arabia	Turkey	Egypt	South Africa	China	India	Japan	Singa- pore	South Korea	Taiwan	Australia	New Zealand
Greece																					
1997	48	103	73	316	51	52	110	2	14	2	5	0	6	32	6	36	1	20	1	11	3
2012	290	773	425	1,115	269	376	508	94	204	49	303	104	166	330	160	302	41	193	280	286	98
Hungary																					
1997	5	67	63	212	20	78	121	1	62	3	10	5	5	34	30	118	1	28	4	18	7
2012	269	498	350	677	201	340	389	87	177	15	257	87	173	323	162	277	9	166	215	251	98
Ireland																					
1997	13	38	31	327	21	18	32	0	10	0	0	1	8	5	1	24	4	9	0	26	4
2012	65	369	246	1,218	101	177	207	12	33	15	34	12	47	238	84	121	31	72	43	231	48
Italy																					
1997	116	642	364	1,365	115	503	764	4	183	4	34	29	37	166	104	344	5	92	36	185	31
2012	724	3,182	1,228	4,459	608	988	2,003	266	541	129	495	168	337	925	501	1,066	120	479	407	1,105	264
Netherlands																					
1997	101	364	324	1,170	164	308	407	1	106	3	24	19	31	131	76	265	2	48	10	182	30
2012	506	1,727	1,241	4,065	677	612	1,358	115	436	94	337	36	389	968	300	664	137	270	234	1,174	184
Poland																					
1997	35	141	204	308	60	288	151	0	39	4	10	6	16	18	16	149	0	22	3	47	6
2012	383	880	491	1,230	309	715	669	111	239	38	308	102	236	487	313	473	45	257	287	447	119
Portugal																					
1997	na	164	73	245	40	48	58	0	10	1	1	1	5	10	3	18	1	1	2	8	3
2012	na	1,340	333	1,013	237	315	384	110	178	27	242	93	161	359	201	237	22	132	228	336	95
Spain																					
1997	164	na	164	879	84	254	273	0	82	6	24	9	21	89	53	117	3	69	9	70	22
2012	1,340	na	1,109	3,886	565	888	1,323	206	444	106	407	129	310	794	477	791	99	417	382	929	191
Sweden																					
1997	73	164	na	697	403	301	250	1	41	12	16	2	14	98	37	253	14	19	8	180	32
2012	333	1,109	na	2,311	1,061	520	819	100	287	37	237	46	327	829	229	581	96	230	194	736	97
United Kingdom																					
1997	245	879	697	na	301	606	814	33	272	42	130	36	206	409	206	863	73	100	57	919	201
2012	1,013	3,886	2,311	na	1,209	1,210	2,693	323	772	328	594	293	925	3,231	930	1,908	540	883	613	3,810	758
Norway																					
1997	40	84	403	301	na	119	95	1	24	0	4	4	9	20	5	50	2	5	1	47	8
2012	237	565	1,061	1,209	na	330	401	21	210	14	176	15	245	336	106	295	34	54	168	397	52
Russia																					
1997	48	254	301	606	119	na	295	1	157	2	28	6	20	93	72	428	1	119	18	75	11
2012	315	888	520	1,210	330	na	691	106	310	24	294	90	206	766	369	685	39	476	407	416	102
Switzerland																					
1997	58	273	250	814	95	295	na	3	143	5	26	11	32	91	67	302	5	58	31	130	27
2012	384	1,323	819	2,693	401	691	na	164	365	64	323	123	309	750	348	789	124	400	360	864	202
Iran																					
1997	0	0	1	33	1	1	3	na	0	1	1	0	0	5	7	11	0	0	2	13	1
2012	110	206	100	323	21	106	164	na	15	32	168	87	64	162	144	93	26	143	87	253	110

Appendix table 5-56

**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzer- land	Iran	Israel	Saudi Arabia	Turkey	Egypt	South Africa	China	India	Japan	Singa- pore	South Korea	Taiwan	Australia	New Zealand
Israel																					
1997	10	82	41	272	24	157	143	0	na	3	21	4	25	29	16	129	6	19	4	87	11
2012	178	444	287	772	210	310	365	15	na	13	208	19	164	323	156	313	61	92	163	343	44
Saudi Arabia																					
1997	1	6	12	42	0	2	5	1	3	na	8	18	2	2	4	17	0	3	1	4	1
2012	27	106	37	328	14	24	64	32	13	na	121	669	32	300	243	91	62	129	36	118	20
Turkey																					
1997	1	24	16	130	4	28	26	1	21	8	na	0	2	9	0	33	0	5	1	8	3
2012	242	407	237	594	176	294	323	168	208	121	na	146	170	321	194	251	37	163	216	257	99
Egypt																					
1997	1	9	2	36	4	6	11	0	4	18	0	na	3	7	8	40	3	6	2	2	0
2012	93	129	46	293	15	90	123	87	19	669	146	na	24	137	108	184	7	160	94	79	86
South Africa																					
1997	5	21	14	206	9	20	32	0	25	2	2	3	na	11	12	25	3	2	1	81	12
2012	161	310	327	925	245	206	309	64	164	32	170	24	na	274	152	234	14	61	149	486	70
China																					
1997	10	89	98	409	20	93	91	5	29	2	9	7	11	na	60	592	99	135	89	180	28
2012	359	794	829	3,231	336	766	750	162	323	300	321	137	274	na	522	3,004	1,419	1,464	1,228	2,706	271
India																					
1997	3	53	37	206	5	72	67	7	16	4	0	8	12	60	na	128	12	51	17	45	8
2012	201	477	229	930	106	369	348	144	156	243	194	108	152	522	na	606	196	845	324	451	122
Japan																					
1997	18	117	253	863	50	428	302	11	129	17	33	40	25	592	128	na	32	395	115	351	64
2012	237	791	581	1,908	295	685	789	93	313	91	251	184	234	3,004	606	na	262	1,523	780	1,024	133
Singapore																					
1997	1	3	14	73	2	1	5	0	6	0	0	3	3	99	12	32	na	4	20	59	10
2012	22	99	96	540	34	39	124	26	61	62	37	7	14	1,419	196	262	na	223	142	504	69
South Korea																					
1997	1	69	19	100	5	119	58	0	19	3	5	6	2	135	51	395	4	na	20	37	13
2012	132	417	230	883	54	476	400	143	92	129	163	160	61	1,464	845	1,523	223	na	391	424	135
Taiwan																					
1997	2	9	8	57	1	18	31	2	4	1	1	2	1	89	17	115	20	20	na	28	5
2012	228	382	194	613	168	407	360	87	163	36	216	94	149	1,228	324	780	142	391	na	415	111

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**Internationally coauthored S&E articles, by selected country/economy pairs: 1997 and 2012**

Country/economy and year	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzer- land	Iran	Israel	Saudi Arabia	Turkey	Egypt	South Africa	China	India	Japan	Singa- pore	South Korea	Taiwan	Australia	New Zealand	
Australia																						
1997	8	70	180	919	47	75	130	13	87	4	8	2	81	180	45	351	59	37	28	na	246	
2012	336	929	736	3,810	397	416	864	253	343	118	257	79	486	2,706	451	1,024	504	424	415	na	902	
New Zealand																						
1997	3	22	32	201	8	11	27	1	11	1	3	0	12	28	8	64	10	13	5	246	na	
2012	95	191	97	758	52	102	202	110	44	20	99	86	70	271	122	133	69	135	111	902	na	

na = not applicable.

NOTES: Article counts are from the set of journals covered by the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles are classified by the year they entered the database, rather than the year of publication, and are assigned to a country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating country/economy is credited one count). Detail adds to more than world total because of articles with three or more country/economy coauthors. Countries/economies with less than 1% of internationally coauthored articles in 2012 are omitted.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, and The Patent Board™, special tabulations (2013) from Thomson Reuters, SCI and SSCI, [http://thomsonreuters.com/products\\_services/science/](http://thomsonreuters.com/products_services/science/).

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