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Supplemental Tables

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TABLE S5A-1

Regions, countries, and economies in S&E publications data

(Regions, countries, or economies)

North America	Central America and Caribbean	South America	EU	Other Europe	Middle East	Africa	Asia	Australia and Oceania
Canada	Antigua and Barbuda	Argentina	Austria	Albania	Armenia	Algeria	Afghanistan	Australia
Greenland	Bahamas, The	Bolivia	Belgium	Andorra	Azerbaijan	Angola	Bangladesh	Cook Islands
Mexico	Barbados	Brazil	Bulgaria	Belarus	Bahrain	Benin	Bhutan	Fiji
United States	Belize	Chile	Croatia	Bosnia and Herzegovina	Gaza Strip	Botswana	Brunei	Kiribati
	Costa Rica	Colombia	Cyprus	Holy See (Vatican City)	Georgia	Burkina Faso	Burma	Marshall Islands
	Cuba	Ecuador	Czechia	Iceland	Iran	Burundi	Cambodia	Micronesia, Federated States of
	Dominica	Guyana	Denmark	Kosovo	Iraq	Cabo Verde	China	Nauru
	Dominican Republic	Paraguay	Estonia	Liechtenstein	Israel	Cameroon	India	New Zealand
	El Salvador	Peru	Finland	Moldova	Jordan	Central African Republic	Indonesia	Niue
	Grenada	Suriname	France	Monaco	Kuwait	Chad	Japan	Palau
	Guatemala	Uruguay	Germany	Montenegro[a]	Lebanon	Comoros	Kazakhstan	Samoa
	Haiti	Venezuela	Greece	North Macedonia	Oman	Congo, Democratic Republic of the	Kyrgyzstan	Solomon Islands
	Honduras		Hungary	Norway	Qatar	Congo, Republic of the	Laos	Tonga
	Jamaica		Ireland	Russia	Saudi Arabia	Côte d'Ivoire	Malaysia	Tuvalu
	Nicaragua		Italy	San Marino	Syria	Djibouti	Maldives	Vanuatu
	Panama		Latvia	Serbia[a]	United Arab Emirates	Egypt	Mongolia	
	Puerto Rico		Lithuania	Serbia and Montenegro[b]	West Bank	Equatorial Guinea	Nepal	
	Saint Kitts and Nevis		Luxembourg	Switzerland	Yemen	Eritrea	North Korea	
	Saint Lucia		Malta	Turkey		Eswatini	Pakistan	
	Saint Vincent and the Grenadines		Netherlands	Ukraine		Ethiopia	Papua New Guinea	
	Trinidad and Tobago		Poland			Gabon	Philippines	
			Portugal			Gambia, The	Singapore	
			Romania			Ghana	South Korea	
			Slovakia			Guinea	Sri Lanka	
			Slovenia			Guinea-Bissau	Taiwan	
			Spain			Kenya	Tajikistan	
			Sweden			Lesotho	Thailand	
			United Kingdom			Liberia	Timor-Leste	
						Libya	Turkmenistan	
						Madagascar	Uzbekistan	
						Malawi	Vietnam	
						Mali		
						Mauritania		
						Mauritius		
						Morocco		

TABLE S5A-1

Regions, countries, and economies in S&E publications data

(Regions, countries, or economies)

North America	Central America and Caribbean	South America	EU	Other Europe	Middle East	Africa	Asia	Australia and Oceania
						Mozambique		
						Namibia		
						Niger		
						Nigeria		
						Rwanda		
						São Tomé and Príncipe		
						Senegal		
						Seychelles		
						Sierra Leone		
						Somalia		
						South Africa		
						South Sudan		
						Sudan		
						Tanzania		
						Togo		
						Tunisia		
						Uganda		
						Western Sahara		
						Zambia		
						Zimbabwe		

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Source(s)
National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		1,071,952.00	1,071,952	1,108,034.00	1,108,034	1,155,683.00	1,155,683	1,216,799.00	1,216,799	1,328,748.00	1,328,748	1,493,822.00	1,493,822	1,574,326.00	1,574,326	1,667,152.00	1,667,152	1,755,850.00	1,755,850	1,857,115.00	1,857,115	1,948,805.00	1,948,805	2,051,840.00	2,051,840	2,110,004.00	2,110,004	2,179,056.00	2,179,056	2,264,127.00	2,264,127	2,294,092.00	2,294,092	2,377,180.00	2,377,180	2,465,689.00	2,465,689	2,555,959.00	2,555,959
North America		343,701.57	381,121	344,468.00	381,036	361,459.29	401,732	374,175.25	426,302	403,164.51	459,192	440,152.83	502,308	444,067.44	510,623	453,689.10	524,859	457,749.69	531,839	465,457.98	544,061	476,451.24	559,559	493,431.63	582,615	500,214.82	596,540	502,799.56	606,395	508,336.57	619,177	505,137.63	621,526	502,532.62	626,447	508,460.51	639,090	499,151.14	637,254
Canada	High	33,854.39	41,891	33,374.29	41,224	36,153.20	44,978	38,040.42	49,624	41,974.14	55,136	47,256.69	62,090	49,158.88	65,106	52,152.72	69,435	53,295.51	71,596	55,378.23	74,862	56,294.52	76,690	57,594.93	79,050	59,607.51	82,841	59,902.46	84,559	60,774.68	87,235	60,533.24	87,767	60,045.00	89,219	60,214.84	90,518	59,967.79	92,362
Greenland	High	11.91	23	10.28	21	11.86	27	12.81	37	28.53	47	16.39	46	14.22	50	15.41	52	15.94	51	11.79	39	21.40	70	18.64	79	25.44	99	31.74	110	23.77	106	29.92	125	23.09	106	24.29	105	30.00	119
Mexico	Upper-middle	5,053.71	6,477	5,470.52	6,947	5,986.61	7,608	6,723.17	8,770	7,308.35	9,539	8,306.80	10,780	9,379.34	12,117	9,611.38	12,516	10,459.30	13,636	10,717.65	14,003	11,318.23	14,759	11,859.26	15,654	12,585.07	16,571	13,295.30	17,471	14,345.85	18,741	14,585.58	19,164	15,199.90	20,312	16,004.90	21,378	16,345.64	21,947
United States	High	304,781.56	341,020	305,612.91	340,883	319,307.62	358,181	329,398.86	379,446	353,853.49	407,443	384,572.94	443,943	385,515.00	448,696	391,909.59	459,143	393,978.95	463,386	399,350.31	472,771	408,817.10	486,363	423,958.81	506,948	427,996.80	517,473	429,570.05	525,373	433,192.28	535,617	429,988.89	537,423	427,264.63	541,080	432,216.49	552,148	422,807.71	548,847
Central America and Caribbean		1,799.75	2,592	2,024.45	2,812	1,985.79	2,868	1,944.28	2,984	2,040.62	3,207	2,325.92	3,728	2,692.75	4,290	2,661.24	4,449	2,824.89	4,647	3,105.46	5,012	3,032.78	5,033	3,217.01	5,358	3,355.05	5,703	3,307.76	5,693	3,469.64	5,987	3,125.71	5,759	3,057.01	5,897	3,247.70	6,271	3,013.86	6,193
Antigua and Barbuda	High	0.25	1	1.00	1	2.08	3	1.83	3	0.67	2	1.79	6	1.58	4	5.25	8	5.29	9	3.78	7	2.19	5	0.85	4	2.08	7	2.72	10	1.95	8	3.30	8	7.64	16	5.20	15	5.63	21
Bahamas, The	High	1.70	3	5.19	11	4.13	9	3.66	8	3.03	7	7.37	16	6.12	11	11.14	25	6.05	16	9.83	26	9.20	21	10.77	29	8.01	29	18.89	45	15.56	41	12.77	41	12.91	34	20.40	62	19.77	66
Barbados	High	27.96	41	44.08	58	37.34	57	42.28	66	54.09	84	37.07	66	49.29	77	49.82	73	43.14	71	37.63	72	29.34	69	35.53	81	48.49	99	40.58	89	47.55	95	54.96	100	53.46	105	48.84	99	37.97	85
Belize	Upper-middle	0.62	3	2.00	2	1.91	9	4.76	13	4.92	13	5.83	17	4.83	18	2.23	8	3.44	9	8.33	21	10.71	23	3.26	15	8.28	22	8.56	27	5.16	23	7.64	30	5.88	27	11.38	37	9.11	30
Costa Rica	Upper-middle	123.27	220	167.74	278	163.60	290	152.41	293	218.35	375	219.89	422	220.20	426	227.19	479	248.56	480	252.12	513	261.15	541	265.66	564	310.97	619	276.98	606	363.67	767	361.64	774	388.92	832	496.72	1,002	507.41	1,053
Cuba	Upper-middle	947.60	1,203	994.67	1,267	953.09	1,243	782.43	1,075	781.51	1,074	960.75	1,333	1,199.40	1,626	1,102.09	1,611	1,164.23	1,626	1,418.65	1,885	1,293.15	1,756	1,515.26	2,033	1,521.79	2,083	1,577.61	2,139	1,467.78	2,031	1,324.80	1,872	1,125.62	1,710	1,117.60	1,691	968.74	1,597
Dominica	Upper-middle	0.00	0	4.19	8	2.00	2	4.58	6	2.16	4	5.27	10	4.13	10	3.44	9	5.22	7	4.47	7	8.53	19	6.94	20	11.84	29	11.58	30	10.13	27	10.87	34	11.80	35	12.50	37	12.60	31
Dominican Republic	Upper-middle	13.30	32	7.94	19	7.46	20	12.53	27	13.74	37	12.88	36	17.10	39	20.32	52	17.08	57	15.46	49	17.12	49	19.34	69	25.93	79	39.50	113	42.40	105	34.62	125	34.55	130	54.06	154	49.26	162
El Salvador	Lower-middle	2.95	7	8.39	13	12.78	23	6.68	14	18.14	42	14.77	29	19.24	36	14.59	30	20.19	36	15.24	38	19.74	45	17.51	49	19.17	54	16.39	49	19.94	57	23.71	84	28.80	88	31.65	72	45.44	92
Grenada	Upper-middle	1.04	4	3.79	6	2.42	5	5.40	12	4.18	12	4.69	16	12.48	37	21.64	67	22.75	77	18.53	47	17.49	49	25.68	76	30.47	97	35.16	96	57.36	137	33.25	106	36.13	118	53.06	191	46.17	206
Guatemala	Upper-middle	24.52	50	23.62	48	23.58	47	26.71	64	27.55	74	44.75	105	34.47	77	30.89	84	34.57	93	54.33	120	52.25	123	44.80	122	67.74	174	73.86	184	65.67	179	83.29	241	86.16	243	103.77	266	99.89	257
Haiti	Low	5.21	12	4.69	9	6.03	15	5.60	14	6.32	15	8.33	25	14.05	34	10.85	27	7.27	30	11.67	33	15.05	40	18.15	64	16.54	51	30.38	78	38.08	105	32.87	103	32.62	105	41.52	110	29.18	89
Honduras	Lower-middle	11.37	25	7.95	17	10.37	33	10.78	31	12.46	36	14.02	35	11.33	39	12.07	37	17.73	44	17.07	66	23.63	64	19.09	68	26.74	79	19.55	78	26.87	78	30.85	97	33.38	85	43.62	126	45.10	158
Jamaica	Upper-middle	106.93	143	150.16	186	147.47	193	140.02	185	164.78	220	140.76	200	143.45	197	174.37	244	213.84	283	208.18	284	181.98	272	202.75	285	210.75	296	202.85	298	209.81	314	153.19	275	160.88	282	166.37	286	163.85	285
Nicaragua	Lower-middle	12.14	30	10.86	22	7.73	18	13.91	36	17.20	45	20.36	54	33.28	84	23.12	63	28.04	77	28.13	90	30.04	88	31.32	91	32.35	105	28.75	84	33.78	92	26.17	103	38.09	116	41.43	133	43.67	124
Panama	High	43.25	98	59.24	115	51.09	113	63.62	152	67.40	181	79.02	189	84.57	225	100.51	265	118.48	304	117.94	310	121.90	345	129.77	354	156.26	438	159.41	447	172.08	461	165.04	484	154.45	496	176.81	554	172.88	574
Puerto Rico	High	384.30	622	415.45	638	437.09	672	545.96	860	509.31	852	566.69	1,005	695.26	1,220	677.40	1,189	699.84	1,281	666.44	1,235	715.21	1,338	635.55	1,250	638.95	1,285	579.81	1,220	620.74	1,260	594.95	1,240	607.60	1,328	576.23	1,308	515.42	1,248
Saint Kitts and Nevis	High	1.50	2	1.00	1	0.34	1	0.17	1	0.73	3	1.96	5	2.94	9	1.97	10	4.16	11	2.82	11	4.74	15	4.76	14	10.01	28	12.85	24	13.95	44	17.13	60	21.99	87	28.32	78	25.53	87
Saint Lucia	Upper-middle	2.50	4	2.63	4	2.17	3	0.09	1	1.58	3	2.35	6	3.35	7	2.54	11	2.67	4	2.00	2	2.78	6	5.24	9	1.25	5	3.70	6	0.16	4	3.11	15	1.95	15	2.43	10	3.81	10
Saint Vincent and the Grenadines	Upper-middle	0.42	2	0.00	0	0.12	2	0.83	1	0.13	1	1.33	2	0.70	3	1.60	6	0.00	0	1.63	4	1.02	4	0.05	1	0.92	3	2.03	4	1.51	5	0.46	3	2.42	9	3.71	10	1.22	5
Trinidad and Tobago	High	88.93	121	109.84	146	112.59	166	120.05	175	132.38	204	176.05	244	135.00	201	168.21	259	162.16	254	211.21	329	215.56	328	224.75	351	206.50	316	166.43	283	255.47	385	151.05	272	208.80	322	212.07	325	211.21	338
South America		20,835.27	25,313	22,215.41	26,561	25,405.96	30,430	26,865.50	32,998	29,436.02	36,107	32,926.26	40,317	40,808.64	49,082	44,067.01	53,047	50,647.84	60,599	55,103.12	65,583	59,049.16	70,378	62,889.70	75,289	68,209.84	81,945	71,049.44	85,904	75,384.82	92,257	76,336.51	94,527	80,889.26	101,032	85,066.23	106,128	88,771.03	111,487
Argentina	High	4,385.98	5,430	4,501.47	5,531	4,811.32	5,943	4,598.69	5,964	4,702.95	6,276	4,964.45	6,660	5,587.62	7,411	5,684.67	7,643	6,270.29	8,445	6,897.38	9,233	7,236.62	9,686	7,733.75	10,369	7,842.75	10,688	7,994.13	10,852	8,464.74	11,570	8,370.01	11,550	8,593.36	11,967	8,704.30	12,164	8,811.13	12,480
Bolivia	Lower-middle	38.82	76	41.44	85	44.75	100	50.40	123	44.60	126	62.85	152	68.47	170	85.28	219	94.35	235	85.34	227	77.09	220	84.29	229	85.78	221	89.90	258	91.35	278	86.82	292	92.40	295	88.05	263	102.80	316
Brazil	Upper-middle	12,783.65	15,314	13,944.54	16,223	16,148.98	18,935	17,585.44	20,889	19,814.08	23,364	22,304.02	26,270	28,348.73	32,819	31,059.14	35,934	35,489.96	40,919	38,551.09	44,576	41,666.17	47,734	44,353.74	51,126	48,282.01	55,825	50,497.90	58,792	52,632.41	62,104	53,064.56	63,550	55,181.31	70,115	60,147.96	73,073
Chile	High	1,557.36	2,200	1,633.56	2,306	2,069.52	2,838	2,090.21	3,107	2,239.69	3,376	2,512.22	3,830	3,112.32	4,665	3,265.02	4,911	3,734.74	5,567	3,979.09	5,905	4,111.13	6,317	4,475.84	6,940	4,967.15	7,761	5,038.61	8,071	5,806.96	9,518	6,037.51	9,913	6,639.23	11,249	6,791.32	11,403	7,121.74	12,378
Colombia	Upper-middle	534.68	853	538.62	813	680.56	1,027	715.79	1,132	842.07	1,280	975.42	1,500	1,401.91	2,073	1,587.54	2,395	2,374.14	3,414	2,716.76	3,930	3,168.15	4,526	3,541.21	5,126	4,124.71	6,026	4,589.70	6,597	5,173.66	7,394	5,409.93	7,890	6,292.29	9,016	6,681.57	9,811	7,195.02	10,632

TABLE S5A-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	75.95	141	61.41	125	92.30	169	96.31	195	93.57	206	131.86	288	126.89	293
Guyana	Upper-middle	10.27	20	8.31	17	7.86	18	7.29	15	11.30	23	19.19	28	10.14	25
Paraguay	Upper-middle	11.35	25	17.91	32	12.65	26	15.83	37	25.27	52	26.06	55	27.82	59
Peru	Upper-middle	175.80	285	198.21	311	192.97	324	263.83	467	260.11	480	287.76	548	433.51	805
Suriname	Upper-middle	2.62	5	4.27	11	3.47	9	3.40	7	4.58	12	4.82	14	5.22	9
Uruguay	High	223.82	363	233.94	356	275.16	407	281.74	453	309.75	513	353.69	573	355.82	586
Venezuela	Upper-middle	1,035.17	1,341	1,031.63	1,379	1,066.42	1,435	1,156.68	1,575	1,088.07	1,538	1,283.91	1,787	1,330.20	1,838
Europe		431,690.43	467,900	442,777.11	477,308	456,073.03	494,475	469,777.99	519,453	498,526.84	551,754	545,469.01	603,989	564,587.79	625,993
EU		366,365.51	404,469	372,466.36	409,199	383,951.33	424,679	395,804.45	446,839	420,296.67	475,184	461,700.13	522,573	482,096.49	546,793
Austria	High	6,577.35	8,763	7,034.68	9,261	7,475.58	9,942	7,823.88	10,932	8,080.18	11,595	8,908.29	12,905	9,109.26	13,269
Belgium	High	9,723.01	12,911	10,101.71	13,154	10,402.85	14,016	10,918.31	15,464	11,585.74	16,557	12,776.16	18,456	13,023.65	18,958
Bulgaria	Upper-middle	1,652.95	2,148	1,646.64	2,181	1,688.02	2,266	1,699.24	2,444	1,831.44	2,665	2,000.45	2,914	1,904.57	2,828
Croatia	High	1,711.69	1,950	1,764.98	2,035	1,978.94	2,286	2,254.44	2,717	2,382.48	2,851	2,899.78	3,439	2,868.85	3,452
Cyprus	High	153.51	235	130.78	210	191.59	302	171.76	296	243.78	432	309.17	536	345.94	605
Czechia	High	5,372.85	6,675	5,773.84	7,135	6,098.53	7,542	6,418.06	8,228	7,025.08	9,080	7,871.50	10,143	8,765.33	11,356
Denmark	High	7,160.46	9,722	7,164.41	9,635	7,217.39	9,750	7,478.49	10,691	7,867.99	11,292	8,381.74	12,192	8,590.46	12,747
Estonia	High	459.56	643	520.40	719	506.01	711	566.38	813	633.93	923	712.32	1,043	872.88	1,212
Finland	High	7,442.32	9,383	7,774.78	9,637	7,838.31	9,791	8,015.51	10,539	8,733.97	11,443	9,159.19	12,121	9,269.05	12,476
France	High	49,691.91	61,523	50,482.24	62,031	51,160.55	63,968	52,176.13	67,934	54,779.77	72,061	59,245.82	78,452	61,833.74	82,196
Germany	High	69,002.63	84,740	70,648.69	86,289	71,545.71	89,055	72,368.78	93,809	75,429.31	98,698	83,968.28	109,521	85,233.18	111,975
Greece	High	5,292.20	6,600	5,744.89	7,049	6,428.00	7,818	6,754.36	8,545	7,956.45	9,965	9,226.77	11,545	10,605.54	13,261
Hungary	High	4,399.50	5,814	4,411.01	5,737	4,647.56	6,090	4,640.53	6,451	4,875.73	6,725	5,580.83	7,606	5,561.03	7,604
Ireland	High	2,661.90	3,511	2,827.14	3,630	3,037.19	4,020	3,106.03	4,368	3,846.32	5,357	4,739.54	6,560	4,828.34	6,886
Italy	High	36,055.55	42,977	37,370.98	44,290	39,082.27	46,952	42,162.94	51,837	44,344.85	55,089	47,752.97	59,660	50,333.06	63,071
Latvia	High	288.03	426	341.05	458	363.52	508	278.45	434	294.56	463	450.23	651	389.02	574
Lithuania	High	599.75	795	645.05	837	1,002.13	1,224	958.16	1,242	1,228.67	1,545	1,510.94	1,868	1,760.37	2,145
Luxembourg	High	65.26	105	67.06	115	81.08	136	88.13	172	151.73	255	160.34	285	200.18	401
Malta	High	43.10	62	51.48	72	55.39	74	77.44	109	61.88	91	75.15	142	83.85	157
Netherlands	High	18,713.17	24,151	18,656.09	23,866	19,541.09	25,363	19,944.32	27,346	21,463.30	29,770	24,101.65	33,139	24,604.57	34,459
Poland	High	13,012.68	15,733	14,375.37	17,155	15,629.77	18,612	16,673.97	20,428	18,847.75	22,940	20,290.56	24,627	21,897.69	26,457
Portugal	High	3,343.65	4,371	3,828.88	4,903	4,077.07	5,323	4,630.46	6,261	5,213.10	7,068	5,916.67	8,019	7,174.70	9,751
Romania	Upper-middle	2,405.90	3,102	2,425.92	3,131	2,485.50	3,300	2,712.26	3,766	2,889.46	4,022	3,547.17	4,824	3,711.52	5,055
Slovakia	High	2,103.78	2,694	2,090.61	2,652	2,094.84	2,690	2,134.17	2,914	2,275.89	3,190	2,509.56	3,387	2,591.54	3,609
Slovenia	High	1,664.59	2,068	1,632.95	2,022	1,773.32	2,230	2,095.96	2,721	1,871.99	2,476	2,300.10	3,031	2,332.91	3,087

Region, country, or economy	2007		2008		2009		2010		2011		2012	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	142.56	332	151.14	387	181.71	466	192.82	428	170.21	445	248.53	595
Guyana	10.95	25	10.07	21	9.98	19	20.13	33	11.15	21	13.39	29
Paraguay	29.48	64	32.04	74	34.48	84	35.98	89	49.15	109	56.16	127
Peru	399.52	751	400.26	788	492.22	909	545.12	991	596.85	1,134	637.19	1,226
Suriname	5.83	13	5.10	14	5.53	12	4.66	10	4.21	12	9.51	26
Uruguay	386.69	638	440.38	753	483.26	825	506.87	855	587.07	ne	585.14	1,002
Venezuela	1,410.33	1,931	1,645.37	2,208	1,666.29	2,225	1,484.42	2,038	1,282.23	1,810	1,357.53	1,839
Europe	595,596.97	661,596	619,615.05	689,492	647,776.43	721,553	664,442.79	742,768	692,614.38	776,845	720,830.71	810,749
EU	508,022.04	577,931	528,938.15	602,629	551,184.20	629,433	563,296.31	645,838	585,515.80	674,356	609,159.71	704,124
Austria	9,902.90	14,694	10,329.47	15,589	10,893.44	16,414	11,108.33	17,106	11,767.52	18,453	12,201.72	19,516
Belgium	13,798.70	20,386	14,434.37	21,564	14,951.67	22,599	15,211.50	23,500	15,806.72	24,914	16,548.11	26,256
Bulgaria	2,451.79	3,515	2,336.22	3,358	2,689.90	3,800	2,627.76	3,682	2,475.90	3,559	2,656.48	3,803
Croatia	3,345.26	3,974	3,575.31	4,252	3,937.85	4,757	3,863.66	4,791	4,431.51	5,526	4,294.02	5,596
Cyprus	417.12	723	502.69	884	649.97	1,118	705.92	1,265	758.88	1,366	799.38	1,502
Czechia	9,939.57	12,732	10,604.28	13,644	11,093.78	14,347	12,562.60	16,059	13,396.16	17,103	13,812.95	18,031
Denmark	9,007.63	13,528	9,245.54	14,059	9,760.09	15,020	10,285.53	15,988	11,405.13	17,729	12,390.58	19,372
Estonia	1,065.71	1,457	1,133.18	1,571	1,149.79	1,621	1,400.31	2,013	1,406.07	2,081	1,501.17	2,305
Finland	9,448.99	13,054	9,630.91	13,355	10,002.57	14,006	10,027.04	14,317	10,307.81	14,911	10,520.43	15,549
France	63,610.50	85,683	66,459.77	89,751	68,273.77	93,488	68,745.84	94,997	70,612.25	98,498	72,628.77	102,466
Germany	89,413.66	118,367	91,903.90	122,006	95,453.20	127,548	97,252.08	131,261	100,768.62	136,897	105,433.18	144,603
Greece	11,151.57	14,115	11,817.55	14,911	12,102.77	15,610	11,994.49	15,621	11,958.26	15,925	11,924.42	16,309
Hungary	5,877.07	8,063	6,442.02	8,680	6,034.26	8,357	5,910.15	8,296	6,430.05	9,071	6,519.56	9,450
Ireland	5,491.29	7,802	5,762.49	8,392	6,407.76	9,370	6,976.23	10,195	7,319.96	10,717	7,079.47	10,656
Italy	54,056.39	68,379	56,157.13	71,234	58,354.93	74,532	58,650.95	75,978	60,453.21	79,060	64,351.57	84,611
Latvia	494.93	684	648.81	878	711.61	924	817.22	1,034	1,318.30	1,597	1,200.72	1,502
Lithuania	1,703.50	2,113	2,533.16	2,986	2,304.45	2,780	2,359.50	2,861	2,446.03	3,021	2,285.45	2,937
Luxembourg	219.60	434	322.45	609	395.89	769	457.41	904	595.57	1,103	597.98	1,203
Malta	106.35	160	177.19	248	161.00	235	189.38	284	194.89	295	245.92	393
Netherlands	25,669.59	36,182	26,599.89	37,760	28,565.69	40,884	29,159.31	42,574	30,041.53	44,222	31,045.38	47,256
Poland	22,172.08	26,955	23,942.43	28,730	23,849.79	28,989	24,753.55	30,006	25,734.96	31,313	27,969.55	34,066
Portugal	7,654.28	10,372	8,699.13	11,943	9,536.74	13,023	10,586.89	14,492	11,925.05	16,469	12,967.22	18,122
Romania	5,250.00	6,819	7,180.52	8,902	9,040.43	10,882	10,370.00	12,345	10,055.14	12,175	10,287.10	12,788
Slovakia	2,803.45	3,943	3,282.60	4,519	3,112.35	4,386	3,567.05	4,883	3,847.77	5,284	4,225.70	5,829
Slovenia	2,688.84	3,586	2,985.24	4,008	3,143.24	4,264	3,172.78	4,349	3,613.96	4,951	3,534.43	5,091

Region, country, or economy	2013		2014		2015		2016		2017		2018	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	265.36	669	409.13	930	668.72	1,492	1,162.24	2,206	1,604.01	3,040	2,142.19	3,721
Guyana	13.74	26	13.11	30	9.85	32	13.07	34	15.74	34	13.70	44
Paraguay	59.66	132	61.12	139	93.13	201	98.98	215	135.43	275	97.98	222
Peru	666.70	1,283	744.18	1,497	902.11	1,785	1,064.63	2,046	1,378.89	2,411	1,629.88	2,772
Suriname	15.87	32	7.17	18	13.21	36	21.64	56	15.91	45	17.38	53
Uruguay	594.76	1,040	746.83	1,296	688.05	1,232	841.83	1,437	788.62	1,376	852.23	1,524
Venezuela	1,223.11	1,760	1,234.15	1,785	992.62	1,526	888.26	1,447	840.01	1,450	639.03	1,241
Europe	738,139.33	833,726	760,334.69	862,532	766,785.38	873,666	783,200.43	897,520	792,502.46	914,555	789,395.82	919,860
EU	620,914.79	722,106	635,766.47	743,922	633,308.62	746,627	635,291.76	756,180	635,881.73	764,770	622,125.15	759,022
Austria	12,404.51	20,255	12,660.94	21,015	12,911.21	21,700	12,792.84	22,253	12,850.61	22,543	12,362.28	22,405
Belgium	16,779.18	27,100	17,143.34	28,346	16,724.04	28,725	16,763.94	29,139	16,278.27	29,276	15,688.13	29,280
Bulgaria	2,685.04	3,828	2,676.19	3,867	2,558.33	3,725	2,557.01	3,969	2,808.03	4,343	3,311.27	4,878
Croatia	4,164.84	5,462	4,014.91	5,440	4,050.72	5,534	3,966.92	5,590	4,227.47	5,930	4,276.90	6,143
Cyprus	963.42	1,708	915.53	1,638	935.15	1,730	1,059.28	2,002	1,193.38	2,238	1,245.42	2,469
Czechia	14,044.66	18,541	15,432.41	20,673	16,700.33	22,358	16,604.51	22,536	16,782.25	23,227	15,576.60	22,239
Denmark	12,899.70	20,469	14,145.01	22,631	14,214.95	23,506	14,160.25	23,988	14,345.19	24,563	13,978.80	24,917
Estonia	1,463.31	2,364	1,690.56	2,661	1,578.23	2,625	1,555.17	2,721	1,559.00	2,800	1,414.72	2,799
Finland	10,849.07	16,321	11,314.67	17,276	10,942.46	17,387	11,106.38	17,937	10,768.81	17,740	10,598.94	17,859
France	73,631.77	105,178	73,299.07	106,435	71,925.79	106,099	71,028.47	106,846	70,100.94	107,448	66,352.18	104,354
Germany	105,730.82	146,717	108,473.69	151,366	106,452.92	151,001	108,295.59	154,913	107,803.17	156,158	104,396.12	154,301
Greece	11,881.18	16,367	11,664.94	16,475	11,237.15	16,260	11,156.77	16,439	10,986.92	16,325	10,906.99	16,529
Hungary	6,299.56	9,232	6,728.01	9,851	6,533.46	9,709	6,473.35	9,940	6,645.69	10,101	6,700.92	10,314
Ireland	7,127.84	10,891	7,194.18	11,168	6,847.04	11,055	7,044.16	11,712	7,108.63	11,979	7,174.11	12,555
Italy	67,591.55	89,440	69,720.32	93,285	70,519.39	95,347	70,534.27	96,822	71,485.25	99,130	71,240.28	100,117
Latvia	1,239.28	1,573	1,171.05	1,534	1,474.02	1,926	1,390.79	1,928	1,602.91	2,216	1,417.73	2,058
Lithuania	2,265.95	2,923	2,492.17	3,254	2,464.44	3,312	2,306.22	3,243	2,404.65	3,485	2,267.30	3,426
Luxembourg	770.20	1,463	877.68	1,729	816.12	1,675	857.78	1,746	814.16	1,776	869.10	1,881
Malta	286.34	458	286.42	487	314.53	551	333.94	593	395.95	677	422.02	740
Netherlands	31,504.37	48,451	31,878.57	49,833	31,141.82	49,776	31,014.65	50,971	31,048.39	51,708	30,457.33	52,063
Poland	30,026.08	36,527	31,773.31	38,877	33,116.44	40,658	34,838.68	43,087	34,675.67	43,663	35,662.64	44,997
Portugal	13,974.07	19,601	14,569.91	20,512	14,691.23	21,091	14,348.02	21,238	14,391.44	21,699	14,294.56	22,105
Romania	10,122.54	12,805	10,073.39	12,843	10,917.79	13,805	10,511.40	13,567	11,039.56	14,181	10,345.01	13,570
Slovakia	4,466.05	5,955	5,007.44	6,717	5,062.13	6,901	5,492.66	7,561	5,787.12	7,895	5,321.60	7,524
Slovenia	3,535.77	5,104	3,501.80	5,095	3,557.71	5,347	3,357.55	5,270	3,448.68	5,366	3,206.15	5,300

TABLE S5A-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	24,974.54	29,578	26,436.54	31,026	28,163.47	33,530	29,296.77	36,164	31,810.04	39,487
Sweden	High	14,548.78	18,822	14,738.29	18,925	14,571.20	19,033	14,795.43	20,312	15,321.32	21,181
United Kingdom	High	77,244.90	93,077	73,779.92	88,937	74,814.46	91,633	75,564.08	96,479	79,249.97	102,690
Other Europe		65,324.92	78,672	70,310.76	83,490	72,121.70	86,737	73,973.54	92,789	78,230.17	98,687
Albania	Upper-middle	22.34	36	18.71	31	24.53	43	23.82	47	17.91	46
Andorra	High	0.00	0	2.64	4	0.50	1	4.70	9	1.31	4
Belarus	Upper-middle	1,170.05	1,457	1,260.38	1,566	1,264.88	1,633	1,233.93	1,684	1,225.92	1,665
Bosnia and Herzegovina	Upper-middle	74.59	95	66.14	87	108.91	139	151.74	201	199.34	247
Holy See (Vatican City)	na	1.00	1	0.00	0	0.25	1	0.00	0	4.42	6
Iceland	High	214.51	350	234.81	387	305.66	465	258.25	474	303.88	511
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Liechtenstein	High	15.87	28	7.22	14	6.65	15	15.02	35	19.79	44
Moldova	Lower-middle	191.46	261	151.96	221	150.79	242	160.18	284	126.74	226
Monaco	High	13.84	28	25.93	48	22.94	38	26.67	45	38.43	74
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
North Macedonia	Upper-middle	123.28	155	140.89	177	125.94	181	135.55	198	137.05	212
Norway	High	5,056.22	6,543	5,148.27	6,657	5,169.95	6,755	5,283.46	7,363	5,746.73	8,190
Russia	Upper-middle	32,224.01	37,807	34,401.47	39,914	34,168.43	40,144	32,967.31	40,320	32,771.58	40,492
San Marino	High	1.50	2	1.09	2	0.00	0	0.17	1	0.58	2
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Serbia and Montenegro[b]	Lower-middle	1,413.23	1,639	1,339.05	1,575	1,485.43	1,772	1,446.47	1,788	1,783.06	2,165
Switzerland	High	12,581.18	17,467	12,241.10	16,949	12,412.04	17,685	13,077.35	19,965	14,116.55	21,797
Turkey	Upper-middle	6,830.23	7,638	8,592.57	9,408	10,952.63	11,977	13,450.12	14,865	16,021.82	17,713
Ukraine	Lower-middle	5,391.60	6,575	6,678.51	7,908	5,922.16	7,247	5,738.81	7,390	5,715.04	7,419
Middle East		15,521.75	19,361	15,989.25	19,762	17,468.28	21,594	19,327.66	24,797	21,457.51	27,186
Armenia	Upper-middle	346.29	485	305.85	461	315.85	478	317.38	522	343.09	541
Azerbaijan	Upper-middle	154.76	195	159.12	195	245.05	300	273.20	353	350.20	437
Bahrain	High	82.53	94	82.76	101	67.33	84	130.15	164	139.96	182
Gaza Strip[c]	Lower-middle	19.95	28	17.80	27	45.38	62	37.06	49	47.74	65
Georgia	Lower-middle	256.84	355	226.97	340	251.47	366	244.01	377	295.08	464
Iran	Upper-middle	1,567.77	1,845	1,907.03	2,177	2,769.16	3,139	3,838.54	4,432	5,125.69	5,859
Iraq	Upper-middle	91.98	102	92.61	103	105.64	118	120.19	140	92.74	114
Israel	High	9,245.52	11,651	9,290.11	11,687	9,669.60	12,161	9,844.56	12,946	10,309.14	13,409
Jordan	Upper-middle	538.64	655	540.28	658	593.13	731	654.22	834	742.57	937

Region, country, or economy	2005		2006		2007		2008		2009		2010		2011	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	35,877.12	44,797	39,379.36	49,391	42,297.40	53,473	44,191.24	56,457	47,338.30	60,906	48,988.91	64,100	52,255.99	69,002
Sweden	16,487.74	23,007	16,683.43	23,486	16,771.10	24,295	16,682.90	24,448	17,465.57	25,984	17,760.44	27,026	18,368.45	28,393
United Kingdom	84,940.10	111,219	88,142.47	116,523	91,212.76	122,323	91,357.74	124,171	93,803.37	128,849	93,791.51	130,520	95,820.10	135,062
Other Europe	83,768.89	105,741	82,491.30	104,425	87,574.93	111,369	90,676.90	115,286	96,592.24	122,597	101,146.48	128,452	107,098.58	136,535
Albania	24.48	52	27.22	62	40.88	73	51.85	94	70.35	111	137.23	210	146.82	228
Andorra	4.93	9	5.02	11	6.16	16	1.68	4	2.55	7	1.20	7	0.91	4
Belarus	1,302.20	1,771	1,163.43	1,574	1,300.93	1,764	1,048.25	1,450	1,167.91	1,616	1,061.94	1,516	1,097.17	1,664
Bosnia and Herzegovina	250.03	316	285.90	366	312.53	422	396.82	513	443.34	571	482.17	678	539.74	790
Holy See (Vatican City)	1.00	2	0.00	0	0.38	2	0.50	1	0.13	1	2.28	4	1.76	7
Iceland	359.28	629	376.74	659	382.36	727	422.58	796	483.54	953	559.28	1,086	544.73	1,079
Kosovo	0.00	0	0.00	0	0.00	0	56.50	101	101.32	158	118.29	214	106.73	195
Liechtenstein	33.57	64	33.90	62	24.27	55	39.70	82	25.21	66	39.40	89	39.47	83
Moldova	204.46	351	143.33	293	148.15	275	164.84	302	179.40	328	174.07	300	187.84	342
Monaco	36.54	89	34.08	75	31.12	74	35.39	82	43.84	102	37.92	86	49.33	108
Montenegro[a]	0.00	0	0.00	0	64.39	125	67.19	130	73.23	153	108.55	198	140.31	239
North Macedonia	173.23	256	190.79	289	254.32	379	288.22	412	320.87	473	357.19	518	459.90	641
Norway	6,747.22	9,496	7,140.62	10,271	7,730.01	11,210	7,921.48	11,703	8,796.57	13,017	9,050.18	13,518	9,687.88	14,522
Russia	33,184.30	41,242	29,296.26	36,289	30,268.45	37,395	31,798.41	38,686	32,520.93	39,399	33,827.39	40,418	35,924.38	42,988
San Marino	1.33	3	0.67	2	2.92	5	3.76	12	1.21	4	1.30	6	2.33	9
Serbia[a]	0.00	0	0.00	0	2,875.14	3,526	3,024.86	3,787	3,620.34	4,432	3,988.03	4,953	4,759.40	5,928
Serbia and Montenegro[b]	2,256.34	2,770	2,408.16	2,956	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	15,424.76	23,859	16,402.79	25,587	16,914.50	27,144	17,372.80	28,127	17,985.74	29,404	18,749.79	31,173	19,841.32	33,392
Turkey	17,823.28	19,596	19,688.70	21,650	21,729.57	23,918	22,100.91	24,451	25,155.09	27,795	26,486.52	29,421	27,305.85	30,507
Ukraine	5,941.91	7,673	5,293.69	6,880	5,488.86	7,133	5,881.14	7,515	5,600.68	7,173	5,963.76	7,604	6,262.71	8,083
Middle East	24,222.96	30,693	28,330.09	35,380	32,392.59	40,364	37,090.40	45,871	41,928.94	51,575	47,764.71	59,414	56,358.08	70,653
Armenia	388.10	617	349.34	574	391.91	624	374.22	591	433.78	668	487.46	763	586.85	934
Azerbaijan	348.53	438	279.11	374	414.86	502	477.39	589	624.91	760	595.22	765	638.11	857
Bahrain	161.53	211	180.92	243	172.91	238	156.31	237	189.88	277	211.50	299	179.46	287
Gaza Strip[c]	42.78	68	49.44	75	71.56	107	62.62	96	71.46	96	63.73	98	86.09	122
Georgia	415.56	601	430.80	617	354.30	529	394.36	577	428.38	626	340.43	591	472.67	849
Iran	7,089.89	8,053	10,032.85	11,187	13,352.19	14,873	17,034.49	18,826	20,696.31	22,733	25,319.91	27,780	31,514.73	34,514
Iraq	140.61	182	248.00	316	242.15	308	309.54	407	373.46	495	553.68	693	639.74	836
Israel	10,460.49	13,738	11,009.50	14,436	11,192.87	14,874	11,328.61	15,138	11,173.52	15,004	10,914.56	15,119	11,248.86	15,761
Jordan	785.51	1,033	925.57	1,202	1,073.46	1,418	1,241.30	1,641	1,290.98	1,711	1,448.64	1,954	1,438.91	2,007

Region, country, or economy	2012		2013		2014		2015		2016		2017		2018	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	54,627.90	73,020	54,909.58	74,310	56,559.76	77,373	55,147.04	76,621	55,514.33	78,642	55,432.15	79,551	54,536.59	79,866
Sweden	19,365.66	30,531	20,069.72	32,056	21,116.43	34,112	20,858.16	34,828	20,860.65	35,945	20,768.71	36,571	20,420.56	37,012
United Kingdom	98,144.92	140,438	99,228.41	145,446	99,384.79	149,743	99,616.02	153,429	99,366.17	156,899	99,128.72	160,060	97,680.90	161,910
Other Europe	111,670.99	143,641	117,224.53	151,121	124,568.22	160,938	133,476.76	172,312	147,908.67	189,393	156,620.73	200,791	167,270.67	213,284
Albania	165.75	262	162.65	261	180.39	290	177.80	326	185.87	341	149.54	314	180.36	380
Andorra	3.58	10	5.26	15	4.18	18	8.08	20	7.99	22	2.01	11	3.60	19
Belarus	1,032.04	1,702	1,099.19	1,728	1,056.66	1,739	976.31	1,691	1,008.55	1,822	1,064.90	1,989	1,179.81	2,207
Bosnia and Herzegovina	540.99	824	486.00	742	482.98	755	568.22	893	568.38	931	724.80	1,145	703.79	1,176
Holy See (Vatican City)	3.07	7	2.75	5	3.12	6	4.12	9	1.73	10	4.39	11	4.73	12
Iceland	632.94	1,209	582.95	1,209	596.70	1,281	608.60	1,349	662.79	1,494	629.31	1,482	680.89	1,533
Kosovo	113.40	225	123.34	225	122.23	237	136.84	267	187.91	339	261.45	445	278.43	496
Liechtenstein	32.84	83	31.48	80	40.31	106	30.85	89	41.87	99	33.89	92	30.40	100
Moldova	208.07	374	212.04	377	213.40	401	192.78	372	299.63	516	257.06	475	210.37	413
Monaco	30.16	88	37.72	114	39.69	105	41.94	126	42.92	135	51.35	158	45.12	145
Montenegro[a]	159.29	269	194.71	320	204.37	351	224.17	352	243.51	389	284.38	458	249.51	417
North Macedonia	475.58	675	479.95	682	543.06	781	548.28	806	510.01	784	498.61	817	493.05	795
Norway	10,281.23	15,766	10,378.26	16,143	10,683.94	17,129	10,529.70	17,298	11,179.02	18,691	11,670.76	19,633	11,802.78	20,176
Russia	35,999.98	43,388	38,412.10	46,352	44,366.22	53,001	52,176.06	61,826	62,661.74	73,093	70,825.09	82,314	81,579.36	93,766
San Marino	3.66	14	7.03	22	5.15	17	7.00	23	8.56	27	11.61	30	10.81	33
Serbia[a]	5,879.60	7,383	5,242.49	6,652	5,052.69	6,621	4,872.66	6,490	4,982.05	6,703	4,916.94	6,791	4,523.42	6,521
Serbia and Montenegro[b]	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	21,002.95	35,888	21,596.49	37,165	22,142.67	38,790	21,866.60	39,405	21,952.33	40,285	22,420.65	41,629	21,378.56	41,081
Turkey	28,451.45	32,260	30,813.42	35,008	31,592.93	35,967	33,233.85	38,102	35,510.17	41,005	33,836.33	39,442	33,535.80	39,449
Ukraine	6,654.40	8,623	7,356.73	9,450	7,237.53	9,427	7,272.89	9,527	7,853.62	10,272	8,977.67	11,545	10,379.89	13,075
Middle East	58,991.47	75,621	61,645.33	80,614	67,039.83	89,140	69,215.49	93,840	77,047.03	103,709	83,500.02	112,086	91,365.65	122,902
Armenia	548.17	1,045	539.92	980	544.54	1,006	531.24	1,010	530.82	1,053	511.24	1,045	521.33	1,143
Azerbaijan	679.27	963	470.64	703	395.23	640	451.68	746	593.56	963	736.71	1,093	761.43	1,223
Bahrain	160.77	270	241.31	394	213.26	364	180.26	325	220.98	405	259.34	448	321.51	559
Gaza Strip[c]	82.58	131	96.52	152	95.67	163	78.76	132	72.22	121	103.31	165	95.46	175
Georgia	442.40	896	463.93	854	472.09	862	494.82	962	620.93	1,127	547.49	1,049	550.41	1,166
Iran	32,103.33	35,363	33,171.30	36,851	36,463.16	40,433	37,229.52	41,370	42,855.86	47,548	46,727.38	52,202	48,305.64	54,499
Iraq	825.53	1,134	839.22	1,428	865.95	1,666	894.35	1,825	1,235.96	2,386	2,259.36	3,810	6,073.39	8,086
Israel	11,622.78	16,280	11,395.49	16,235	12,112.79	17,189	12,048.66	17,588	12,244.10	17,915	12,270.41	18,127	12,234.69	18,499
Jordan	1,411.59	2,035	1,437.09	2,036	1,411.34	2,103	1,454.47	2,186	1,710.60	2,554	1,962.14	2,915	2,627.29	3,846

TABLE SSA-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	505.95	625	519.86	628	510.48	626	526.87	703	560.04	753	620.39	827	644.42	848	724.09	946	762.03	1,036	801.40	1,091	744.52	1,042	804.28	1,113	834.56	1,143	881.28	1,248	799.38	1,224	875.06	1,223	825.56	1,345	861.13	1,451	1,003.84	1,624
Lebanon	Upper-middle	377.65	487	411.06	529	372.36	512	459.13	622	481.80	683	558.42	793	631.07	932	648.10	987	729.58	1,089	762.95	1,159	791.37	1,223	873.78	1,379	1,013.01	1,637	1,088.88	1,816	1,206.99	2,021	1,288.51	2,154	1,446.98	2,490	1,537.56	2,646	1,776.31	2,945
Oman	High	212.64	292	240.05	311	244.02	334	297.14	410	308.58	435	322.34	466	349.29	514	410.46	594	408.43	624	462.75	735	513.85	822	602.68	946	606.94	987	678.74	1,099	698.11	1,177	754.13	1,343	793.78	1,440	785.83	1,458	856.43	1,661
Qatar	High	47.06	59	75.56	103	57.68	121	106.60	153	133.67	189	166.39	245	182.78	276	241.07	397	283.57	505	327.66	570	409.10	725	468.42	877	612.79	1,203	810.28	1,709	1,123.97	2,490	1,175.59	2,876	1,389.03	3,334	1,385.20	3,256	1,502.58	3,438
Saudi Arabia	High	1,574.32	1,898	1,566.25	1,850	1,630.65	1,939	1,750.05	2,232	1,746.13	2,199	1,767.14	2,276	1,941.39	2,489	2,068.13	2,719	2,269.92	3,083	2,903.56	4,033	3,642.12	5,736	4,878.75	8,419	5,884.78	10,846	7,257.80	13,234	8,286.60	16,053	8,949.36	17,976	9,458.63	19,028	10,041.39	19,806	10,897.88	21,361
Syria	Low	99.34	150	93.80	129	84.33	136	104.17	170	133.72	206	144.25	247	131.93	231	153.03	253	200.38	327	160.56	285	232.13	405	369.25	448	301.62	515	256.62	444	245.73	404	266.69	407	275.54	406	263.85	399	274.65	413
United Arab Emirates	High	330.44	466	380.58	515	399.54	555	539.87	815	555.02	858	704.31	1,088	824.69	1,286	757.57	1,296	908.14	1,477	1,034.18	1,701	1,265.13	2,030	1,421.83	2,296	1,625.96	2,663	1,765.77	2,901	1,816.50	3,184	2,294.58	4,078	2,484.16	4,534	2,899.67	5,333	3,144.89	5,989
West Bank[c]	Lower-middle	47.23	67	37.08	59	45.48	72	50.68	85	51.21	83	58.40	98	64.30	120	78.44	130	87.22	144	109.26	173	129.58	211	128.53	232	128.55	234	131.78	263	148.61	312	140.48	295	168.83	339	221.65	497	280.49	545
Yemen	Low	22.83	42	42.49	63	27.13	38	33.84	50	41.15	65	48.32	77	54.68	99	45.48	93	62.28	115	83.94	168	101.77	196	105.17	232	106.85	254	118.75	296	139.90	318	107.34	285	119.49	326	126.37	410	137.44	486
Africa		11,870.92	15,213	12,795.37	16,007	13,704.25	17,200	14,387.66	19,091	16,040.58	21,368	17,236.90	23,127	19,694.72	26,397	21,730.46	29,227	23,682.68	31,899	27,854.01	37,396	30,077.49	40,746	33,002.62	45,238	36,036.21	49,848	38,688.29	54,339	42,053.26	60,044	44,776.68	64,283	49,943.09	71,669	54,523.55	78,152	58,823.68	84,569
Algeria	Upper-middle	387.13	548	451.27	641	479.61	663	642.04	902	863.81	1,186	906.93	1,257	1,269.90	1,730	1,404.92	1,956	1,747.56	2,369	2,135.32	2,928	2,140.50	2,952	2,434.58	3,264	3,062.32	3,989	3,503.55	4,544	3,630.37	4,729	4,157.18	5,378	4,527.57	5,972	5,201.61	6,851	5,231.44	6,974
Angola	Lower-middle	7.17	17	10.58	16	15.13	24	5.89	15	9.23	21	10.04	31	12.40	32	10.16	30	10.85	32	13.78	37	14.68	41	17.78	50	22.38	66	23.85	64	33.48	91	31.59	88	39.97	109	55.50	144	30.12	96
Benin	Low	43.48	78	42.37	77	44.73	87	45.92	92	60.84	122	58.94	120	76.79	158	93.03	186	93.93	201	121.83	241	103.47	228	132.00	261	143.66	313	184.00	377	183.15	389	187.97	405	175.83	390	209.42	473	227.74	495
Botswana	Upper-middle	109.79	142	98.82	128	117.17	156	124.59	171	131.92	191	119.19	192	186.28	283	149.26	237	160.63	258	162.66	246	160.99	250	163.72	298	157.49	282	171.81	319	207.35	386	160.83	330	252.46	509	234.51	493	280.57	592
Burkina Faso	Low	48.02	85	64.00	109	73.81	108	75.29	169	70.82	158	70.27	168	103.33	237	111.78	230	120.27	266	132.09	287	128.12	290	155.77	353	206.78	438	176.43	387	196.18	433	229.50	527	220.41	504	216.88	522	251.99	565
Burundi	Low	1.65	5	3.58	7	0.93	4	4.42	12	5.02	11	3.80	10	5.63	14	4.48	20	2.54	10	3.33	10	12.57	33	9.52	27	10.65	33	14.78	35	14.16	41	13.44	49	13.72	49	13.19	59	21.12	77
Cabo Verde	Lower-middle	0.25	1	0.67	2	0.17	1	2.39	7	1.63	3	0.37	2	4.14	12	2.67	6	2.47	9	5.04	15	3.55	16	2.70	6	4.22	17	7.69	27	8.99	34	10.55	34	8.14	33	14.98	43	8.69	33
Cameroon	Lower-middle	120.57	214	151.27	242	190.66	291	207.96	348	213.07	386	280.31	455	318.16	544	337.68	566	329.97	597	359.38	652	374.33	683	428.84	769	438.28	797	523.78	949	604.56	1,058	638.47	1,103	699.72	1,219	800.58	1,408	875.62	1,561
Central African Republic	Low	6.13	14	6.87	12	3.72	10	10.41	25	10.40	24	8.56	21	13.41	27	8.50	23	10.14	23	11.05	30	14.35	29	15.16	34	10.58	37	12.59	34	18.23	46	13.65	40	27.88	65	18.96	46	20.47	62
Chad	Low	3.04	6	3.51	11	4.78	11	4.89	13	11.68	23	9.24	25	10.91	36	4.52	20	6.54	23	9.25	28	4.17	12	7.78	26	5.86	20	5.55	24	7.66	30	12.36	33	12.07	45	16.35	56	15.45	53
Comoros	Low	0.98	2	0.20	2	0.20	1	0.33	2	1.17	2	2.40	6	1.17	2	3.59	9	0.74	2	0.76	3	2.15	6	3.95	11	1.20	5	13.93	20	1.51	5	2.49	8	4.84	18	3.84	12	3.28	18
Congo, Democratic Republic of the	Low	13.01	32	8.88	18	10.52	25	15.24	38	13.74	36	23.05	56	24.69	67	32.41	77	39.47	89	44.55	114	52.24	138	45.50	150	71.43	199	80.77	226	119.87	264	124.13	301	109.19	298	135.94	366	148.72	395
Congo, Republic of the	Lower-middle	17.35	30	16.34	28	23.93	41	33.59	54	39.10	68	45.12	81	45.94	99	47.06	97	50.11	90	42.44	103	48.06	113	51.43	121	57.59	146	58.48	144	76.12	202	69.35	196	79.25	233	74.33	200	66.68	232
Côte d'Ivoire	Lower-middle	76.76	153	80.14	124	78.97	141	97.54	177	106.30	184	100.74	176	98.53	190	120.02	211	165.07	257	154.33	265	156.65	257	182.65	298	187.37	330	164.72	295	180.40	332	191.85	368	170.87	352	197.66	394	248.14	511
Djibouti	Lower-middle	2.00	2	0.64	2	1.28	2	1.33	3	1.88	5	3.71	7	2.71	7	2.28	10	2.82	8	8.12	16	6.87	14	4.24	15	7.42	19	6.84	18	7.51	24	5.71	16	4.19	18	5.13	20	6.16	21
Egypt	Lower-middle	2,704.79	3,242	2,982.45	3,482	3,060.03	3,652	3,414.29	4,245	3,601.33	4,462	3,622.85	4,615	4,004.55	5,080	4,547.63	5,758	4,961.30	6,386	6,131.85	8,007	6,608.36	8,781	7,332.48	10,030	8,345.18	11,546	8,615.90	12,474	9,171.76	13,770	9,820.47	14,850	11,109.22	16,681	11,392.95	17,348	13,326.67	19,933
Equatorial Guinea	Upper-middle	0.00	0	1.67	3	0.46	2	0.82	3	4.10	9	0.74	4	3.22	7	3.30	9	1.23	4	4.29	10	3.68	8	2.01	7	2.32	7	2.31	8	2.36	12	4.28	16	4.99	17	3.33	12	2.60	14
Eritrea	Low	4.58	13	6.68	16	12.33	24	14.30	26	11.69	24	11.76	29	19.12	38	16.55	31	9.50	19	5.96	21	10.47	19	12.93	26	6.25	10	10.52	25	7.45	25	10.67	27	8.70	23	13.65	35	21.37	47
Eswatini	Lower-middle	6.75	13	5.14	9	12.32	20	7.27	15	11.85	17	14.82	27	12.22	27	7.75	22	11.69	23	15.68	36	25.07	53	22.06	55	18.41	48	21.04	53	14.25	45	20.08	62	21.26	71	33.12	88	34.05	105
Ethiopia	Low	162.04	240	169.68	249	201.12	287	210.33	347	212.02	366	223.04	406	277.30	491	336.85	578	362.02	590	414.53	677	446.26	742	505.40	888	649.65	1,063	787.09	1,292	1,026.77	1,646	1,041.68	1,715	1,172.08	1,950	1,657.99	2,690	1,994.44	3,190
Gabon	Upper-middle	23.61	47	28.85	53	29.88	61	26.40	61	31.45	82	49.89	106	41.70	111	33.15	86	41.28	101	51.45	115	42.93	108	57.18	152	50.85	125	54.72	159	59.99	183	63.66	181	60.97	171	62.92	176	63.78	182
Gambia, The	Low	27.79	60	35.31	74	25.90	59	30.79	78	36.92	80	35.85	83	44.67	107	36.46	96	43.22	110	37.72	108	44.89	112	33.81	92	36.78	122	46.59	142	47.02	156	43.15	164	48.02	164	47.17	178	53.83	135
Ghana	Lower-middle	135.62	209	116.26	189	146.22	210	148.73	243	172.48	294	184.89	330	196.46	351	239.77	434	270.87	470	326.12	561	363.82	618	424.26	738	526.68	917	591.89	1,023	645.63	1,184	782.83	1,422	1,099.55	1,774	1,074.54	1,940	1,275.99	2,360
Guinea	Low	3.14	8	14.28	26	10.40	20	5.66	13	10.91	24	7.02	19	15.78	37	14.11	30	12.04	37	11.83	34	11.55	34	11.40	34	11.73	39	10.51	38	22.01	63	29.96	98	38.44	118	38.02	131	27.84	91

TABLE S5A-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	1.48	5	2.23	7	5.09	14	8.01	20	10.64	22	9.39	24
Kenya	Lower-middle	356.83	592	403.73	645	432.13	697	418.00	794	443.44	814	453.39	846
Lesotho	Lower-middle	5.92	10	12.25	15	12.58	17	6.43	11	4.88	15	6.03	17
Liberia	Low	1.00	1	0.00	0	0.69	4	0.50	1	1.42	3	1.08	2
Libya	Upper-middle	61.74	80	47.89	66	40.82	58	53.55	82	66.37	109	79.76	123
Madagascar	Low	57.23	94	60.80	96	41.20	81	65.20	128	48.16	104	56.73	123
Malawi	Low	64.37	113	74.08	119	77.31	119	75.39	134	80.85	153	84.11	162
Mali	Low	16.01	37	28.39	59	32.92	66	36.36	80	34.55	86	40.43	92
Mauritania	Lower-middle	6.67	19	7.27	18	7.10	20	4.95	17	6.39	16	10.96	36
Mauritius	Upper-middle	54.71	70	48.46	68	65.04	81	47.07	65	57.18	81	70.47	96
Morocco	Lower-middle	872.58	1,251	965.54	1,322	956.50	1,313	926.13	1,310	967.27	1,412	913.86	1,340
Mozambique	Low	21.54	38	31.12	54	23.46	40	26.58	59	31.25	70	38.87	79
Namibia	Upper-middle	17.76	34	45.07	64	35.39	56	45.11	72	32.65	65	52.08	114
Niger	Low	23.73	47	28.20	44	20.82	39	23.92	52	22.46	46	21.18	53
Nigeria	Lower-middle	1,049.88	1,231	1,062.31	1,202	1,237.83	1,405	1,312.88	1,528	1,519.82	1,758	1,734.50	1,998
Rwanda	Low	3.19	7	4.14	10	3.73	8	7.16	15	9.13	24	7.28	20
São Tomé and Príncipe	Lower-middle	0.37	2	0.83	3	0.78	4	1.77	5	0.58	3	0.25	1
Senegal	Low	145.79	216	147.97	211	163.14	233	200.71	335	172.33	287	201.37	340
Seychelles	High	5.16	14	2.90	6	5.92	11	9.60	14	5.04	13	4.91	13
Sierra Leone	Low	4.51	10	4.58	8	2.46	8	2.81	5	5.42	10	4.01	8
Somalia	Low	0.30	1	0.00	0	1.71	2	1.83	3	1.14	2	0.00	0
South Africa	Upper-middle	3,897.55	4,768	4,099.38	4,938	4,413.16	5,354	4,267.39	5,554	4,831.02	6,348	5,174.46	6,876
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sudan	Lower-middle	69.66	105	64.18	95	71.02	106	86.57	138	103.90	165	102.94	172
Tanzania	Low	151.68	252	129.98	229	152.40	274	168.29	352	187.92	377	217.73	444
Togo	Low	30.61	46	26.48	37	20.14	31	26.08	49	23.10	46	24.98	45
Tunisia	Lower-middle	649.05	844	796.16	1,012	979.98	1,241	1,065.98	1,360	1,351.70	1,717	1,716.89	2,173
Uganda	Low	131.35	208	136.21	216	131.50	198	140.62	274	207.61	374	216.03	395
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	33.60	77	51.96	102	61.54	98	47.78	102	42.84	95	60.19	129
Zimbabwe	Low	231.01	327	213.85	309	165.61	268	180.57	315	138.17	244	139.50	256
Asia		211,382.33	227,735	233,815.16	249,991	245,283.52	263,443	269,120.23	293,149	316,911.42	343,270	384,847.58	415,124
Afghanistan	Low	4.00	4	1.00	1	4.50	6	8.34	12	5.75	15	9.15	14
Bangladesh	Lower-middle	440.02	597	438.31	591	433.09	604	577.19	820	536.54	824	600.36	930

Region, country, or economy	2006		2007		2008		2009		2010		2011	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	5.74	12	12.14	29	6.29	20	8.29	21	5.80	20	10.38	29
Kenya	488.86	938	554.96	1,081	582.61	1,122	699.27	1,301	693.92	1,394	799.26	1,607
Lesotho	10.92	21	9.75	25	10.42	29	11.05	27	12.18	25	12.64	32
Liberia	3.55	6	2.65	4	2.14	6	2.33	3	3.36	9	9.22	18
Libya	91.25	138	111.64	168	132.26	216	233.71	333	300.02	447	128.24	237
Madagascar	61.62	138	106.01	199	81.92	190	86.60	199	81.22	197	99.46	235
Malawi	87.55	186	130.44	249	112.58	242	105.41	244	127.91	294	142.97	338
Mali	63.38	133	69.10	143	66.60	143	71.49	168	72.45	168	86.33	200
Mauritania	7.28	25	9.21	23	3.94	20	7.30	24	5.23	18	13.44	31
Mauritius	61.03	86	54.09	77	67.39	90	79.93	108	86.65	128	62.84	102
Morocco	968.33	1,408	1,044.23	1,547	1,210.72	1,779	1,456.62	2,014	1,649.46	2,291	1,967.35	2,693
Mozambique	45.02	100	41.50	107	48.70	126	57.04	147	47.98	139	75.34	202
Namibia	34.66	105	40.10	103	33.20	86	33.39	101	38.31	90	49.59	135
Niger	29.42	64	29.74	59	28.05	83	55.00	110	67.24	130	31.39	103
Nigeria	2,178.71	2,480	2,411.91	2,730	2,475.43	2,881	3,079.37	3,586	3,410.64	4,005	3,646.72	4,360
Rwanda	19.01	44	20.71	55	30.00	69	35.70	84	46.10	115	48.57	135
São Tomé and Príncipe	0.97	3	1.31	4	0.00	0	1.78	4	2.23	4	0.00	0
Senegal	168.54	292	206.94	352	211.44	372	184.43	377	198.10	376	277.06	522
Seychelles	8.76	23	12.34	37	10.65	31	6.56	24	11.83	31	9.70	35
Sierra Leone	5.46	13	4.97	14	7.87	18	10.38	22	11.48	31	10.95	30
Somalia	1.03	4	0.00	0	0.58	3	2.75	4	3.24	11	2.89	6
South Africa	5,715.98	7,618	5,938.90	8,043	6,343.81	8,647	7,114.73	9,706	7,601.07	10,419	8,293.80	11,547
South Sudan	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.62	5
Sudan	110.97	196	140.16	251	171.18	270	222.57	359	255.95	419	294.80	485
Tanzania	281.50	560	311.92	612	295.55	586	312.31	676	359.13	771	404.90	838
Togo	29.92	52	30.98	59	44.31	70	42.37	79	49.47	83	50.10	93
Tunisia	1,975.60	2,512	2,338.97	2,964	2,775.88	3,513	3,224.32	4,101	3,509.70	4,506	3,748.72	4,841
Uganda	210.80	428	273.35	520	253.98	527	310.79	659	406.10	820	419.09	875
Western Sahara	0.00	0	0.00	0	1.00	1	1.45	3	0.29	2	0.00	0
Zambia	67.37	155	69.27	176	92.07	204	76.52	195	89.14	234	101.03	266
Zimbabwe	172.45	296	185.25	338	125.81	277	117.14	259	151.36	290	147.07	314
Asia	425,104.94	458,598	463,519.39	500,435	509,760.27	549,877	561,711.44	605,988	608,579.65	659,318	646,636.13	703,191
Afghanistan	13.69	26	14.23	26	12.50	34	26.30	47	27.93	68	39.62	75
Bangladesh	709.05	1,068	992.89	1,430	1,113.74	1,598	1,220.94	1,746	1,480.48	2,118	1,467.45	2,220

Region, country, or economy	2012		2013		2014		2015		2016		2017		2018	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	12.80	35	12.09	37	17.69	57	9.71	35	11.19	50	16.33	54	15.01	50
Kenya	789.97	1,668	874.67	1,847	949.02	2,118	961.87	2,160	1,069.28	2,397	1,179.58	2,650	1,246.76	2,782
Lesotho	21.26	40	15.44	35	11.63	31	17.34	39	20.89	38	21.03	41	18.54	44
Liberia	7.85	20	5.49	19	7.70	22	11.56	47	16.55	66	24.52	69	25.39	80
Libya	153.28	298	207.14	384	190.52	393	181.28	407	144.21	353	172.36	414	161.90	434
Madagascar	94.61	239	115.63	269	121.32	269	121.86	299	108.20	276	138.99	332	127.41	327
Malawi	156.13	372	138.98	368	173.25	437	178.87	474	192.37	551	228.59	627	231.21	669
Mali	86.31	228	65.33	199	73.97	199	71.93	248	86.07	247	100.89	288	90.37	266
Mauritania	12.99	34	15.51	38	13.17	39	14.06	37	20.54	53	16.07	45	20.32	59
Mauritius	117.36	169	126.42	194	122.22	181	119.52	189	162.16	239	168.32	278	126.94	260
Morocco	2,233.72	3,118	2,378.42	3,269	2,900.24	3,863	2,980.65	4,010	3,838.75	4,966	4,707.82	5,928	5,056.77	6,353
Mozambique	63.77	194	69.22	204	86.77	236	105.02	309	108.62	346	133.25	413	139.25	433
Namibia	65.22	164	86.03	206	97.47	233	101.71	269	110.45	291	115.28	300	156.31	373
Niger	30.93	99	31.32	93	48.30	127	57.39	169	56.85	157	58.63	150	55.18	157
Nigeria	3,301.59	4,045	3,349.42	4,159	3,745.83	4,839	3,675.64	4,892	4,018.76	5,597	4,432.57	6,310	5,602.28	7,928
Rwanda	55.14	150	88.83	211	93.92	238	108.91	287	127.71	328	127.10	354	169.52	422
São Tomé and Príncipe	0.52	2	1.16	3	1.24	4	1.42	3	0.87	2	0.88	8	0.73	5
Senegal	273.89	552	296.77	566	323.64	614	368.77	695	367.86	695	368.29	745	388.32	776
Seychelles	10.00	34	16.91	46	9.64	41	19.11	59	12.13	45	11.71	54	9.53	44
Sierra Leone	14.65	40	15.85	42	21.79	63	33.39	100	46.16	138	42.80	140	40.72	138
Somalia	1.43	6	6.31	11	3.82	13	4.45	15	3.34	11	12.23	30	9.74	26
South Africa	9,105.71	12,943	9,709.05	13,979	10,349.90	15,303	10,964.38	16,306	12,045.47	18,178	12,846.08	19,395	13,008.74	20,203
South Sudan	3.42	11	9.80	18	5.51	16	5.51	15	2.01	10	6.40	27	9.08	31
Sudan	266.98	473	342.67	595	236.60	544	259.18	585	376.74	772	324.18	726	397.77	895
Tanzania	392.56	864	406.66	943	536.72	1,177	542.27	1,226	559.83	1,294	610.37	1,399	602.71	1,458
Togo	47.55	85	62.72	110	83.72	150	83.17	150	77.05	152	72.26	136	86.06	179
Tunisia	3,913.32	5,098	4,323.48	5,602	4,615.19	6,085	5,072.55	6,765	5,444.97	7,356	5,877.04	7,939	5,564.86	7,638
Uganda	458.90	974	484.59	1,018	518.21	1,142	611.13	1,290	599.27	1,359	637.56	1,525	673.07	1,574
Western Sahara	0.25	1	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0
Zambia	106.12	301	119.47	327	134.46	383	157.23	423	181.66	496	209.45	567	213.07	550
Zimbabwe	202.94	390	223.58	413	273.00	511	268.98	515	313.80	634	340.45	704	359.33	733
Asia	658,142.44	719,350	698,729.49	764,071	743,206.22	812,291	765,297.98	838,570	814,677.73	894,170	872,281.10	957,680	958,756.24	1,051,211
Afghanistan	34.15	76	27.81	62	34.69	91	22.20	73	81.64	154	91.89	201	111.72	226
Bangladesh	1,990.10	2,914	1,926.67	2,880	2,336.10	3,488	2,240.17	3,390	2,645.70	3,988	2,990.72	4,600	3,135.08	4,857

TABLE SSA-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	1.08	3	1.00	1	6.23	10	3.66	5	9.36	17	5.98	14	17.38	36	8.58	19	6.64	18	11.55	24	17.79	45	17.75	47	17.22	39	28.80	65	28.36	71	25.18	77	42.02	88	44.30	102	52.64	104
Brunei	High	37.73	52	31.33	49	24.10	36	37.66	57	36.62	64	34.14	57	40.16	78	43.07	78	51.82	95	49.64	91	57.16	95	79.35	122	113.35	185	122.80	213	190.14	305	177.77	356	230.04	429	214.24	401	293.91	492
Burma	Lower-middle	14.82	30	10.91	21	11.62	22	11.68	34	16.84	46	51.05	90	28.71	66	38.23	82	60.76	102	88.36	132	58.14	104	96.44	154	40.35	103	35.78	89	45.48	121	73.66	198	112.85	283	141.03	354	230.65	510
Cambodia	Lower-middle	12.15	23	13.24	28	23.24	44	24.71	53	35.55	83	35.52	81	44.75	104	51.93	139	53.11	132	63.68	162	56.13	169	72.35	187	76.50	218	86.96	232	94.57	271	109.36	315	120.62	369	120.26	383	145.74	432
China	Upper-middle	53,064.35	57,857	70,439.37	75,350	74,015.97	79,968	86,912.00	95,154	120,362.55	130,260	165,335.65	177,423	189,949.47	203,829	215,206.94	231,542	249,048.56	267,680	286,371.91	307,974	312,516.81	338,291	326,770.84	355,697	329,015.38	360,520	359,274.07	393,981	390,396.24	427,736	407,974.61	448,690	438,348.74	483,862	473,438.51	523,937	528,263.25	584,407
India	Lower-middle	21,770.72	23,904	22,947.58	25,030	24,853.47	27,139	27,295.91	30,399	29,347.65	32,730	33,516.09	37,354	38,515.35	42,953	43,627.40	48,449	48,998.11	54,370	54,797.65	60,763	62,436.88	69,237	74,142.90	81,974	80,493.30	89,015	86,348.11	95,633	96,425.77	106,612	101,813.08	112,539	112,167.34	123,917	121,631.31	134,241	135,787.79	150,013
Indonesia	Lower-middle	395.72	723	326.74	621	383.91	690	373.93	762	456.90	930	580.13	1,106	682.82	1,259	689.57	1,283	746.01	1,391	1,085.13	1,893	1,427.33	2,415	1,901.49	2,965	2,088.11	3,366	2,825.09	4,292	3,390.49	4,983	4,623.15	6,341	7,354.40	9,434	14,579.71	16,993	26,947.57	30,184
Japan	High	97,047.60	105,145	96,497.65	104,548	98,555.05	107,497	100,691.14	111,984	103,446.22	115,421	111,707.64	124,561	112,126.95	125,860	109,981.66	123,841	108,241.42	122,288	109,131.35	123,577	109,024.97	124,144	111,258.23	127,226	109,643.54	126,358	108,995.98	126,176	105,855.88	123,172	101,306.59	119,150	101,297.30	120,505	101,084.19	121,068	98,792.50	119,942
Kazakhstan	Upper-middle	190.17	244	194.91	248	216.99	287	244.56	354	233.57	343	242.24	363	222.31	319	216.01	346	231.66	347	266.89	413	323.91	460	380.93	527	445.67	655	628.87	943	934.87	1,378	1,171.06	1,733	1,601.18	2,293	1,958.82	2,861	2,367.46	3,411
Kyrgyzstan	Lower-middle	28.88	41	27.97	43	26.96	42	20.70	33	33.11	50	44.83	82	51.20	78	38.24	73	52.57	89	33.71	67	33.83	70	48.83	97	50.45	99	61.43	140	53.41	118	51.24	134	106.78	204	107.10	230	137.06	274
Laos	Lower-middle	8.57	18	7.01	15	13.29	24	17.72	38	37.96	69	23.81	68	39.42	88	28.22	74	34.59	103	41.96	104	42.50	119	49.51	148	61.64	192	71.78	188	56.12	185	71.61	224	88.18	252	76.98	215	86.91	262
Malaysia	Upper-middle	1,326.26	1,630	1,169.43	1,457	1,476.66	1,797	1,769.12	2,277	2,087.59	2,671	2,475.37	3,179	3,245.24	4,110	3,876.96	4,900	5,993.59	7,168	8,801.42	9,591	11,236.54	13,562	13,853.18	16,773	14,459.91	17,942	15,631.66	19,457	17,378.77	21,782	18,635.26	23,402	20,467.76	25,587	22,257.81	27,801	23,661.33	29,917
Maldives	Upper-middle	0.50	1	5.08	10	1.00	1	2.42	9	1.67	4	3.21	10	3.63	5	4.83	14	0.92	8	2.95	6	3.26	9	6.73	16	8.94	21	7.04	15	6.87	19	7.08	24	5.64	17	7.06	28	7.44	28
Mongolia	Lower-middle	26.60	57	26.94	54	26.45	52	37.67	91	35.14	94	38.49	98	49.03	118	110.19	210	93.80	211	100.55	243	92.48	257	103.29	240	129.65	296	164.43	371	116.16	309	104.40	303	118.87	348	146.56	394	140.85	443
Nepal	Low	101.86	164	114.02	188	123.98	193	234.04	331	223.35	338	297.90	437	366.00	528	391.72	577	354.06	526	391.43	598	388.88	667	398.92	719	413.18	732	481.65	843	520.72	930	538.47	986	632.76	1,141	674.78	1,295	792.11	1,427
North Korea	Low	3.61	13	1.13	6	1.48	4	1.33	2	2.93	11	6.78	47	8.74	50	10.51	49	10.53	29	7.28	28	8.25	26	7.52	28	18.18	79	9.23	34	17.55	46	38.53	84	42.31	97	58.71	113	87.42	143
Pakistan	Lower-middle	1,042.38	1,227	1,224.80	1,392	1,365.82	1,568	1,461.93	1,755	1,722.07	2,022	2,334.65	2,696	2,808.75	3,302	3,384.71	4,057	4,093.14	4,950	4,924.35	5,994	5,691.09	7,031	6,456.34	7,968	6,842.22	8,804	7,591.18	9,999	7,810.86	10,545	8,451.51	11,570	9,799.81	13,535	11,487.23	16,131	12,904.31	18,609
Papua New Guinea	Lower-middle	62.74	95	75.77	107	52.90	77	53.85	97	42.84	82	36.11	71	47.37	90	60.65	114	59.00	131	42.02	102	50.45	109	42.60	114	63.06	137	53.72	130	63.60	155	56.24	158	56.56	168	57.68	161	64.12	193
Philippines	Lower-middle	341.78	565	299.89	449	402.99	606	373.34	651	376.10	655	446.63	796	423.32	797	500.28	882	542.52	933	578.44	1,007	662.71	1,111	875.81	1,422	827.64	1,413	933.73	1,610	1,047.44	1,734	1,401.65	2,166	1,684.31	2,550	1,855.39	2,885	2,237.34	3,286
Singapore	High	4,795.54	5,645	4,903.43	5,787	5,491.09	6,520	6,104.85	7,554	7,478.76	9,179	7,982.14	10,008	8,194.44	10,613	8,281.13	10,965	8,749.90	11,821	8,985.24	12,459	9,917.70	13,895	10,212.40	14,599	10,837.09	15,851	11,057.36	16,703	11,334.78	17,524	11,416.75	18,085	11,880.88	18,979	11,840.57	19,467	11,458.63	19,581
South Korea	High	15,905.06	18,074	16,511.27	20,972	20,051.98	22,931	23,608.45	27,498	27,661.76	32,043	31,833.90	37,033	36,859.56	42,581	41,496.30	47,701	44,094.48	50,677	45,913.84	52,875	50,589.14	58,612	53,719.87	62,736	56,267.53	66,012	57,863.47	67,976	60,705.29	71,192	62,645.93	73,457	62,725.09	74,018	63,979.21	75,523	66,376.17	78,744
Sri Lanka	Lower-middle	204.59	272	214.90	285	245.67	318	264.46	405	263.94	413	333.58	515	382.77	575	438.99	683	512.86	741	487.93	752	502.34	777	575.19	862	610.59	962	731.61	1,112	707.91	1,142	746.51	1,230	1,082.79	1,674	1,181.27	1,835	1,347.54	2,047
Taiwan	High	12,297.87	13,491	13,859.59	15,160	14,665.26	16,067	16,031.35	17,878	18,978.45	21,014	22,518.25	24,850	25,146.04	27,726	28,236.52	31,216	29,904.02	33,355	31,818.28	35,528	33,519.82	37,590	35,166.41	39,484	33,964.99	38,636	33,733.18	38,670	32,868.95	37,946	30,222.45	35,634	28,726.09	34,561	27,338.62	33,613	26,092.57	32,815
Tajikistan	Low	33.22	42	32.09	38	37.12	47	33.22	41	38.65	48	30.78	51	27.66	44	32.13	55	32.04	61	23.55	46	41.10	79	41.11	76	47.19	85	63.09	102	39.90	82	57.76	111	50.42	105	60.76	131	62.40	142
Thailand	Upper-middle	1,659.23	2,204	1,790.96	2,277	2,145.65	2,879	2,322.32	3,251	2,732.72	3,780	3,582.79	4,829	4,347.22	5,779	4,880.91	6,494	5,784.65	7,329	6,010.63	7,855	6,874.16	8,873	7,332.78	9,552	7,660.64	10,106	7,720.57	10,254	8,358.95	11,177	8,706.83	11,720	9,740.11	13,155	11,151.54	14,779	12,513.75	16,448
Timor-Leste	Low	0.00	0	0.00	0	0.00	0	1.67	3	0.00	0	2.03	4	3.54	10	3.29	7	1.28	4	1.63	6	1.10	4	3.06	7	6.00	17	6.29	16	12.59	31	8.33	24	8.71	31	14.95	40	13.92	44
Turkmenistan	Lower-middle	6.23	15	5.27	11	5.11	10	3.95	8	4.50	7	3.18	10	3.84	12	4.87	9	1.58	4	3.01	6	5.88	13	12.23	31	13.33	46	6.85	16	18.89	44	6.20	20	2.98	11	7.93	17	3.69	9
Uzbekistan	Lower-middle	357.72	443	400.91	486	348.19	424	296.39	428	363.54	482	332.55	469	288.03	434	346.50	508	302.83	454	338.72	517	391.74	550	378.47	558	327.70	476	347.23	505	337.28	513	294.97	442	382.23	565	338.75	594	353.91	579
Vietnam	Lower-middle	201.25	389	241.82	426	233.68	432	300.66	619	338.81	685	402.45	816	458.48	941	521.62	1,062	783.58	1,447	891.22	1,615	1,100.36	2,011	1,221.39	2,207	1,574.82	2,892	1,893.06	3,431	2,017.61	3,712	2,299.45	4,199	3,063.59	5,371	3,343.23	6,057	4,286.48	7,737
Australia and Oceania		27,610.74	32,969	28,057.69	33,400	28,565.22	34,658	29,853.09	37,703	32,369.92	41,304	36,794.38	46,884	39,291.54	50,364	42,207.53	54,559	43,653.05	57,191	45,864.28	60,756	48,704.33	65,266	52,763.42	70,974	54,330.55	74,628	58,169.28	80,889	60,762.30	85,837	60,826.89	87,717	61,903.32	91,153	61,588.58	92,960	61,691.50	96,173
Australia	High	23,275.99	28,011	23,618.28	28,287	24,160.35	29,530	25,337.60	32,225	27,411.60	35,275	31,348.58	40,179	33,487.61	43,158	36,024.47	46,906	37,173.55	49,147	39,121.67	52,418	41,687.77	56,453	45,026.57	61,255	46,511.75	64,779	50,340.27	70,807	52,666.28	75,407	52,945.01	77,469	53,781.62	80,404	53,428.79	81,985	53,610.22	85,029
Cook Islands	Upper-middle	0.70	2	0.00	0	0.33	1	0.00	0	0.00	0	0.29	1	0.67	1	0.38	4	0.00	0	0.65	3	0.47	2	1.76	8	2.29	7	1.17	5	1.98	10	2.19	7	1.64	7	1.72	8	1.72	5
Fiji	Lower-middle	27.32	47	38.60	51	35.81	50	44.13	76	58.67	92	50.93	82	84.81	132	85.21	152	66.87	117	65.84	125	64.98	122	64.93	137	64.55	145	81.77	176	116.45	225	99.52	215	162.66	300	135.47	277	139.78	307
Kiribati	Lower-middle	0.00	0	0.50	1	0.00	0	0.11	1	0.00	0	2.12	5	1.86	4	2.12	5	0.00	0	0.33	1	0.33	1	0.00	0	1.00	1	1.05	5	1.94	7	1.48	6	2.17	6	2.54	7	0.62	3

TABLE SSA-2

S&E articles in all fields combined, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	2.13	3	2.08	4	1.00	1	3.83	5	0.83	4	3.83	5	3.78	11	1.54	6	0.56	2	1.72	5	3.00	4	1.48	5	1.49	4	1.33	2	1.19	6	3.59	8	1.39	5	0.72	4	2.31	9
Micronesia, Federated States of	Lower-middle	4.29	6	1.08	3	0.00	0	2.26	9	2.40	9	7.96	17	2.00	11	8.38	20	4.31	10	3.04	12	14.18	27	4.94	8	4.63	12	5.85	13	3.33	14	6.75	16	3.81	19	6.58	29	4.37	26
Nauru	Upper-middle	0.00	0	0.33	1	0.00	0	0.00	0	0.23	1	0.50	1	0.27	1	0.00	0	0.00	0	0.67	1	0.00	0	0.74	3	0.50	1	0.34	2	0.37	3	0.33	2	0.47	2	0.00	0	0.00	0
New Zealand	High	4,279.85	5,358	4,378.53	5,417	4,350.00	5,526	4,445.92	6,060	4,872.76	6,698	5,342.03	7,487	5,674.17	7,972	6,064.43	8,556	6,393.61	9,016	6,650.94	9,479	6,905.05	9,985	7,637.86	11,074	7,726.31	11,340	7,714.41	11,740	7,935.41	12,210	7,722.99	12,102	7,907.93	12,543	7,970.15	13,029	7,888.75	13,291
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.08	2	1.00	1	1.61	3	0.00	0	0.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.20	3	0.00	0	0.11	1	0.11	1	0.22	1
Palau	High	2.33	3	3.09	7	1.83	5	1.83	5	2.38	6	10.98	16	4.29	12	5.47	13	3.71	9	2.73	8	5.17	8	1.85	7	2.25	7	4.45	14	4.71	11	5.61	17	3.30	12	5.96	21	6.51	19
Samoa	Upper-middle	6.67	7	7.84	11	7.53	11	4.82	8	4.85	8	4.59	9	12.88	19	4.61	8	2.63	12	5.38	21	5.65	15	5.65	19	2.51	11	4.33	14	12.10	24	11.17	23	7.37	20	10.22	28	11.05	34
Solomon Islands	Lower-middle	5.31	14	2.44	7	1.04	3	3.86	12	2.64	8	2.56	8	6.59	12	4.57	15	2.86	10	3.78	9	9.27	26	7.30	22	4.99	14	4.51	19	8.02	27	13.70	46	14.96	51	10.50	44	13.20	52
Tonga	Upper-middle	2.33	4	0.75	2	1.83	3	1.59	8	3.13	7	0.68	3	4.66	9	1.76	6	0.46	4	2.39	9	1.39	6	1.95	10	1.83	6	1.63	6	0.88	7	2.83	12	2.34	10	4.72	15	4.82	17
Tuvalu	Upper-middle	0.00	0	1.00	1	0.00	0	0.60	1	0.61	2	0.00	0	1.27	3	0.37	2	0.33	1	0.25	1	0.00	0	0.50	1	0.04	1	0.33	1	1.13	6	1.09	2	0.41	3	0.65	2	1.48	3
Vanuatu	Lower-middle	3.82	9	3.17	4	5.48	7	6.53	11	9.81	16	12.48	22	5.68	13	2.61	8	4.15	12	4.89	20	7.08	18	7.88	23	6.40	21	7.82	26	8.33	28	10.63	36	13.13	43	10.46	32	6.45	24
Unassigned	na	7,539.25	17,122	5,891.56	13,646	5,737.65	13,414	11,347.33	24,031	8,800.58	20,388	9,846.16	23,622	9,748.10	24,600	11,287.70	28,505	10,826.12	27,229	8,313.33	18,979	10,702.85	20,880	10,927.03	20,792	9,892.93	18,604	6,527.51	13,785	3,539.67	9,342	2,589.72	8,097	3,929.51	11,495	4,518.83	15,118	4,990.09	17,844

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see **https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups**, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		20718.00	20,718	19254.00	19,254	21220.00	21,220	21847.00	21,847	23689.00	23,689	25607.00	25,607	27800.00	27,800	31784.00	31,784	34941.00	34,941	36010.00	36,010	37562.00	37,562	39664.00	39,664	42193.00	42,193	45102.00	45,102	46498.00	46,498	46985.00	46,985	50611.00	50,611	55529.00	55,529	55128.00	55,128
North America		5806.65	6,375	5038.12	5,526	5516.56	6,078	5614.87	6,397	6373.09	7,198	6162.25	7,015	6214.00	7,180	6771.56	7,920	6875.19	8,046	6427.50	7,693	6524.94	7,792	6390.62	7,744	6631.03	8,090	6309.33	7,918	6299.84	8,136	6405.40	8,325	6544.10	8,643	7015.94	9,356	6825.44	9,411
Canada	High	919.88	1,067	799.97	929	869.95	1,007	896.59	1,098	1044.59	1,272	876.33	1,104	1045.19	1,305	1070.70	1,359	1076.34	1,383	1063.89	1,413	1063.53	1,391	1064.68	1,418	1090.40	1,472	1062.99	1,420	1169.07	1,616	1072.61	1,531	1099.99	1,579	1143.30	1,640	1068.16	1,617
Greenland	High	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.06	1	0.10	1	0.08	1	0.17	2	0.10	2	0.52	3	0.00	0	0.00	0	0.00	0
Mexico	Upper-middle	130.91	174	139.88	168	172.36	219	166.04	235	221.88	293	224.97	315	263.11	367	290.64	419	352.16	461	386.91	487	395.39	507	556.32	694	474.66	610	463.08	599	516.86	667	521.10	671	516.09	680	654.89	831	668.41	860
United States	High	4755.86	5,290	4097.78	4,548	4474.25	4,999	4552.24	5,250	5106.62	5,853	5060.95	5,828	4905.69	5,763	5409.97	6,428	5446.68	6,474	4976.70	6,055	5065.97	6,165	4769.52	5,946	5065.90	6,308	4783.09	6,186	4613.81	6,155	4811.17	6,429	4928.02	6,724	5217.75	7,234	5088.88	7,293
Central America and Caribbean		98.01	125	100.94	121	128.70	168	109.09	151	97.00	136	147.11	212	129.21	192	133.62	205	160.62	230	109.17	177	118.87	191	215.17	299	227.89	314	169.18	256	186.35	270	148.85	245	206.76	334	120.14	213	139.92	259
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Bahamas, The	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.21	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1
Barbados	High	0.69	2	0.00	0	3.25	5	0.00	0	5.00	5	0.58	2	0.00	0	0.33	1	0.10	1	0.00	0	0.00	0	1.00	1	1.00	1	1.00	1	0.00	0	0.00	0	1.08	2	0.00	0	0.10	1
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	1.83	3	2.83	3	0.00	0	0.00	0	0.00	0	0.00	0	1.08	2	0.00	0	0.00	0	1.00	1
Costa Rica	Upper-middle	1.33	4	8.13	13	6.39	14	1.72	6	5.45	14	16.12	29	6.24	17	7.55	20	14.66	28	7.89	20	8.73	21	8.51	23	14.53	32	6.32	18	11.81	30	10.48	23	16.26	39	19.81	46	18.52	40
Cuba	Upper-middle	60.47	67	60.17	64	67.83	81	63.30	76	54.59	64	71.46	80	68.80	85	70.91	101	88.90	110	70.49	91	44.94	68	129.46	168	156.84	195	112.31	146	108.57	139	88.14	127	108.22	153	49.43	86	66.49	110
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0	0.58	2	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.17	1	0.00	0
Dominican Republic	Upper-middle	0.13	1	0.00	0	0.20	1	0.38	2	0.20	1	0.00	0	0.10	1	0.00	0	1.60	3	0.38	2	0.88	3	1.69	4	0.39	3	1.65	4	0.67	3	1.61	5	2.59	8	0.33	2	1.28	3
El Salvador	Lower-middle	0.00	0	1.00	1	0.50	1	0.00	0	0.00	0	0.33	2	0.00	0	0.00	0	0.00	0	0.00	0	0.35	2	0.00	0	0.00	0	0.00	0	0.03	1	0.00	0	0.33	1	0.83	1	0.83	1
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	2.00	2	0.00	0	0.00	0	3.00	3	0.00	0	1.25	2	0.80	1	1.70	4
Guatemala	Upper-middle	0.17	1	0.00	0	1.00	1	0.11	1	2.63	6	0.73	2	2.27	5	0.37	2	0.23	2	1.00	1	0.45	2	2.00	2	0.29	1	0.61	3	1.14	2	1.38	6	10.24	13	6.91	10	4.50	8
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.35	2	0.33	1	0.00	0	0.20	1	0.42	2	2.00	2	3.67	5	0.00	0	0.78	3	0.29	1	0.20	1
Honduras	Lower-middle	2.17	3	1.00	1	2.08	5	2.07	7	1.09	4	0.58	2	1.89	8	0.45	2	2.50	3	0.75	3	2.10	6	0.50	2	0.47	2	0.00	0	0.58	3	2.26	5	0.33	1	2.73	7	0.91	7
Jamaica	Upper-middle	2.58	4	2.00	2	3.17	4	2.72	4	4.12	5	3.92	7	3.00	4	2.25	4	5.83	8	3.36	8	2.92	6	5.50	7	7.02	10	3.53	6	4.50	9	2.86	4	3.29	6	2.42	4	3.50	8
Nicaragua	Lower-middle	0.33	1	1.00	1	0.30	2	0.31	2	1.03	3	3.11	7	2.83	7	0.62	4	0.66	3	1.28	4	0.83	4	2.96	6	2.21	7	1.04	4	0.83	4	1.18	6	0.76	3	3.09	9	0.44	3
Panama	High	0.00	0	0.11	1	0.20	1	0.33	1	0.00	0	4.02	9	1.70	4	1.16	4	1.13	2	2.04	4	3.98	10	6.03	10	3.72	11	4.08	16	8.31	20	4.71	17	4.61	17	1.75	7	6.88	28
Puerto Rico	High	24.42	36	19.18	28	28.82	38	31.63	48	17.22	29	28.46	54	31.93	52	35.19	52	34.85	60	10.35	25	37.86	53	37.98	50	19.90	31	25.07	41	24.06	33	21.22	29	38.75	63	12.42	25	20.61	37
Saint Kitts and Nevis	High	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.79	3	0.00	0	0.00	0	0.00	0	0.19	1	0.07	1	1.00	1	0.08	1	0.28	4	1.55	8	0.20	1	1.43	3
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.33	1	0.33	1	0.33	1	0.00	0	0.00	0	0.00	0	1.25	2	0.83	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	4.72	6	8.35	10	14.96	18	6.52	9	5.00	7	17.45	21	10.12	12	13.67	15	9.67	12	8.96	14	12.42	16	15.69	22	20.19	24	10.56	16	18.89	25	13.65	21	16.70	24	18.96	24	11.19	15
South America		1239.33	1,438	1096.22	1,250	1445.93	1,657	1342.20	1,583	1553.38	1,812	1715.24	1,989	3005.49	3,335	3563.91	3,950	4503.12	4,948	5005.33	5,415	5351.88	5,743	5756.77	6,205	5986.85	6,443	6358.95	6,861	6644.08	7,226	6208.66	6,876	6465.69	7,150	6853.24	7,709	6648.26	7,593
Argentina	High	169.53	202	201.19	230	224.32	267	184.21	230	212.60	275	216.64	276	257.71	327	300.87	364	332.39	401	315.34	388	384.27	461	382.77	472	418.86	519	426.74	511	446.60	553	456.21	570	497.13	603	494.88	608	537.90	660
Bolivia	Lower-middle	1.26	5	2.25	3	1.39	4	7.47	13	1.46	6	2.76	7	3.19	8	4.81	9	6.03	12	6.02	12	5.23	9	3.68	11	3.00	9	4.13	13	2.06	7	3.87	12	1.74	9	4.88	12	2.47	11
Brazil	Upper-middle	886.48	1,010	723.14	803	1004.38	1,107	943.93	1,076	1112.54	1,236	1252.84	1,382	2425.70	2,613	2884.85	3,109	3724.70	3,988	4137.72	4,371	4455.60	4,669	4826.05	5,080	4990.69	5,232	5326.35	5,604	5525.23	5,857	5113.66	5,528	5240.45	5,654	5449.95	5,999	5233.78	5,872
Chile	High	26.86	36	27.74	36	44.72	62	44.68	65	59.50	85	72.31	101	105.76	141	130.69	174	116.77	161	184.30	239	166.08	216	183.03	242	188.99	250	181.36	261	179.92	266	202.07	281	241.18	333	254.21	359	220.74	334
Colombia	Upper-middle	20.15	35	10.28	23	23.79	43	19.19	40	22.38	47	38.21	68	49.23	83	50.25	96	112.49	172	117.50	176	114.39	181	142.27	207	145.40	239	177.09	247	179.91	251	190.50	264	248.84	341	333.05	463	300.68	428

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	1.13	3	0.95	3	2.28	7	2.74	9	2.32	10	0.56	3	3.40	10	2.57	9	3.18	11	5.49	18	1.63	5	3.72	13	4.64	17	7.97	31	15.48	44	27.09	68	47.25	102	74.19	143	99.93	173
Guyana	Upper-middle	0.22	2	0.00	0	0.07	2	0.50	2	2.11	4	0.00	0	2.21	3	1.20	2	0.03	1	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.14	1	0.25	1
Paraguay	Upper-middle	0.75	2	1.33	2	0.67	1	0.00	0	0.25	1	1.27	2	0.20	1	1.78	4	1.03	2	4.39	7	1.78	6	1.67	6	0.94	8	0.54	2	1.53	3	1.58	4	3.89	8	1.76	8	3.02	11
Peru	Upper-middle	43.38	51	36.83	42	32.91	45	39.64	58	28.75	35	20.51	33	34.94	50	35.85	54	45.10	65	63.01	81	39.89	53	65.14	85	75.67	98	80.56	97	59.39	90	84.20	125	74.59	111	125.13	164	149.53	192
Suriname	Upper-middle	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.11	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1
Uruguay	High	10.98	20	16.27	26	19.86	28	13.58	24	21.73	38	16.20	34	26.39	41	21.43	40	32.40	49	33.11	61	47.53	73	47.27	80	50.23	79	54.73	85	67.56	104	54.37	100	59.49	98	63.83	105	73.78	131
Venezuela	Upper-middle	78.59	89	75.91	93	91.54	119	86.27	97	89.75	121	93.96	127	96.76	128	129.60	161	128.99	172	138.45	171	137.49	166	101.17	129	108.31	135	99.30	132	166.39	200	75.10	104	51.14	70	51.21	87	25.86	46
Europe		7102.65	7,725	6914.10	7,450	7415.66	8,079	7827.81	8,652	8026.00	8,901	8931.82	9,859	9088.42	10,078	10314.31	11,390	11195.24	12,447	11589.27	12,843	11370.15	12,648	11947.01	13,315	12932.89	14,423	13429.14	14,906	13067.82	14,789	13439.91	15,220	14119.42	16,006	14174.09	16,451	13996.57	16,508
EU		6310.88	6,940	6083.15	6,650	6401.02	7,084	6658.18	7,497	6710.66	7,569	7493.08	8,430	7677.62	8,663	8922.48	10,031	9768.62	11,044	10036.95	11,324	9988.91	11,299	10400.59	11,826	11123.39	12,681	11782.04	13,340	11332.95	13,147	11632.25	13,492	12098.14	14,093	11839.88	14,221	11754.01	14,387
Austria	High	76.17	103	82.38	111	100.79	145	94.78	131	76.12	107	91.26	144	111.48	171	93.15	146	114.36	173	129.52	208	133.80	225	132.61	230	145.74	249	147.64	254	161.01	277	170.68	301	172.11	304	171.36	319	203.08	368
Belgium	High	201.09	266	193.68	244	206.07	273	225.57	304	259.94	347	286.11	387	290.12	430	333.64	463	334.65	473	322.44	474	338.47	495	303.94	460	340.08	484	387.98	576	402.89	598	416.53	629	396.92	605	383.79	618	373.58	615
Bulgaria	Upper-middle	23.48	28	13.12	21	12.58	17	13.78	21	17.17	25	23.29	36	18.34	28	36.30	43	96.42	112	76.71	85	77.63	92	78.25	91	115.17	134	206.78	227	151.28	173	152.55	172	114.20	140	106.61	128	136.98	179
Croatia	High	23.53	26	23.88	29	32.92	36	36.79	47	44.53	55	76.53	87	36.63	44	95.34	104	154.06	172	181.33	207	96.51	120	172.16	199	162.12	190	127.81	158	140.87	177	148.23	183	129.46	163	142.09	180	141.28	187
Cyprus	High	5.32	8	0.50	1	4.00	5	1.75	3	4.25	5	3.09	6	3.99	6	2.50	3	3.16	8	5.86	12	7.94	19	4.63	7	11.81	26	8.05	19	13.20	22	11.39	20	12.97	27	24.77	46	23.60	41
Czechia	High	183.20	195	204.51	229	204.21	223	162.29	198	176.52	203	158.19	180	218.70	255	478.26	528	512.84	555	552.43	605	627.39	679	641.73	700	649.64	713	757.33	847	574.33	657	670.98	753	695.19	785	619.66	720	560.60	688
Denmark	High	264.17	343	292.12	349	244.95	311	282.68	359	324.36	413	289.07	384	298.44	392	324.12	458	311.48	419	255.72	375	338.34	477	322.76	472	368.64	544	330.24	491	336.04	541	345.62	555	367.28	570	354.76	577	320.54	566
Estonia	High	4.64	7	2.55	6	5.00	9	8.55	13	7.43	9	11.13	16	20.64	28	16.21	21	29.25	42	21.66	27	22.59	26	43.15	50	47.73	56	34.02	52	48.58	72	34.41	49	34.97	58	34.01	56	39.13	63
Finland	High	146.75	188	161.70	191	198.30	240	155.58	186	179.92	214	182.55	224	199.75	242	188.00	231	199.61	259	192.74	250	181.73	239	181.60	243	176.62	249	176.04	239	158.52	224	165.56	238	158.60	226	144.69	234	163.51	265
France	High	786.25	971	746.20	883	701.42	870	729.20	934	764.66	995	764.35	1,004	831.04	1,088	825.98	1,145	884.25	1,208	888.15	1,233	887.57	1,288	863.81	1,221	957.32	1,339	841.00	1,234	924.26	1,359	866.56	1,301	892.47	1,381	918.65	1,472	869.30	1,419
Germany	High	954.11	1,152	987.70	1,181	966.84	1,190	944.40	1,201	951.03	1,201	1099.42	1,388	1004.37	1,325	1010.22	1,339	1076.25	1,441	1104.23	1,458	1085.99	1,468	1129.13	1,561	1275.37	1,719	1271.94	1,699	1238.77	1,751	1260.68	1,780	1289.60	1,864	1256.44	1,925	1294.72	2,098
Greece	High	171.67	192	157.08	184	182.01	209	173.31	207	166.01	202	238.50	277	262.85	297	277.52	312	280.63	319	260.77	307	275.50	335	233.32	281	273.84	326	286.36	357	247.46	296	234.73	299	258.62	329	288.21	368	238.46	321
Hungary	High	114.39	131	88.30	103	116.64	138	107.05	130	98.95	118	130.71	163	112.60	148	85.93	121	88.68	124	136.53	169	80.13	113	100.99	137	111.94	151	109.78	142	91.96	124	99.44	143	113.97	160	91.69	136	127.30	173
Ireland	High	174.54	221	159.86	190	161.56	192	156.22	190	160.69	199	182.91	229	228.62	289	187.25	261	265.38	345	273.11	359	291.17	358	257.63	340	267.59	365	291.88	386	283.91	412	255.75	383	285.33	438	307.45	462	317.20	504
Italy	High	412.50	488	367.43	435	514.77	613	737.22	863	619.24	727	799.10	919	674.75	806	1194.45	1,392	1133.29	1,354	1306.07	1,543	1196.96	1,442	1185.46	1,467	1216.82	1,494	1609.49	1,937	1434.94	1,777	1639.80	2,029	1688.61	2,096	1734.38	2,194	1767.41	2,304
Latvia	High	1.10	2	1.00	1	3.00	3	2.00	3	0.96	3	0.00	0	2.51	7	4.88	6	19.12	22	7.68	11	13.00	13	122.78	131	77.31	81	72.87	81	84.14	98	98.17	110	148.83	175	127.77	151	138.95	181
Lithuania	High	6.71	12	7.63	12	5.76	12	16.05	21	17.19	24	17.73	23	25.66	29	19.06	26	122.33	134	115.97	129	106.03	115	98.80	115	114.56	127	128.85	147	98.63	120	100.92	119	151.48	174	71.53	89	93.44	122
Luxembourg	High	0.00	0	0.00	0	0.00	0	0.03	1	0.70	3	0.00	0	0.89	5	1.49	3	0.79	3	3.75	7	6.17	13	5.10	10	6.91	11	9.75	18	6.18	19	4.96	15	10.71	28	4.16	12	9.29	19
Malta	High	0.00	0	0.00	0	1.00	1	0.00	0	0.67	1	1.00	1	0.20	1	1.00	1	0.00	0	0.00	0	0.70	2	0.43	2	0.10	1	1.33	2	1.38	4	2.44	8	5.83	12	3.87	7	4.80	8
Netherlands	High	393.91	538	308.95	406	361.37	486	366.11	509	357.06	515	381.93	548	416.80	594	454.85	678	423.07	615	399.48	607	403.63	603	429.24	665	434.30	677	450.93	725	502.91	825	454.24	751	506.14	825	414.97	763	460.58	820
Poland	High	235.00	279	294.19	331	279.07	319	255.99	311	330.97	382	395.09	461	357.12	415	459.51	535	610.12	674	617.49	689	670.57	750	717.67	795	773.73	855	860.92	959	983.83	1,081	1044.10	1,127	1084.97	1,216	1128.75	1,254	1019.59	1,187
Portugal	High	85.52	107	97.83	127	109.30	144	99.17	135	113.36	136	123.15	164	197.20	251	211.62	267	239.31	298	252.11	322	307.10	387	305.53	391	349.22	446	331.41	437	311.94	408	347.41	484	364.95	527	420.32	587	411.58	589
Romania	Upper-middle	6.09	9	2.95	5	3.35	5	6.03	11	5.09	12	8.68	19	2.68	7	9.50	20	19.51	28	52.20	61	49.95	56	73.11	86	140.45	161	124.06	153	110.85	139	124.79	147	109.95	137	140.51	168	149.50	191
Slovakia	High	61.16	74	46.46	57	53.70	65	36.24	47	42.74	53	49.99	67	54.43	70	77.38	96	97.90	129	102.15	125	91.91	116	103.32	134	85.50	108	219.87	259	181.85	223	181.92	227	246.49	303	203.12	251	181.73	245
Slovenia	High	12.70	17	16.98	22	20.59	25	33.12	41	22.67	32	39.03	51	34.77	44	73.48	93	133.43	152	126.89	153	117.63	136	136.39	155	126.68	161	102.34	136	103.03	137	101.83	135	120.86	179	81.97	119	93.97	129

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	764.74	865	713.88	803	842.82	974	920.46	1,064	970.07	1,124	1124.00	1,294	1275.29	1,482	1426.75	1,684	1616.96	1,901	1725.28	2,061	1655.38	2,034	1837.96	2,246	1895.41	2,340	1921.50	2,345	1828.10	2,328	1822.12	2,343	1757.40	2,329	1718.30	2,338	1657.48	2,330
Sweden	High	228.14	311	195.03	257	207.95	284	228.50	316	221.82	294	243.60	339	206.17	288	240.68	340	227.64	345	195.06	303	198.38	315	227.54	358	245.29	401	225.41	367	231.34	388	214.67	382	205.00	394	199.41	435	195.75	559
United Kingdom	High	974.07	1,276	917.25	1,169	861.04	1,144	865.31	1,215	776.53	1,099	772.65	1,138	791.52	1,145	799.42	1,205	774.13	1,194	731.59	1,108	726.75	1,155	691.54	1,158	753.50	1,214	746.45	1,218	680.75	1,180	661.78	1,148	775.29	1,351	746.63	1,386	760.67	1,442
Other Europe		791.77	926	830.95	949	1014.63	1,177	1169.63	1,360	1315.34	1,550	1438.74	1,672	1410.80	1,677	1391.83	1,667	1426.62	1,731	1552.32	1,866	1381.24	1,727	1546.42	1,900	1809.50	2,196	1647.10	2,072	1734.87	2,219	1807.66	2,295	2021.32	2,538	2334.21	2,931	2242.56	2,882
Albania	Upper-middle	0.33	1	0.67	2	0.53	2	0.98	3	0.25	1	1.36	3	0.33	1	1.05	3	3.84	7	4.07	6	4.25	6	8.42	10	9.28	12	3.04	4	2.94	5	3.25	5	9.69	12	6.10	12	8.24	18
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	6.00	6	4.12	6	4.27	6	10.25	11	3.25	4	1.92	3	2.00	2	5.20	6	7.67	9	2.17	3	2.17	3	3.70	4	0.00	0	3.08	5	4.85	7	0.68	2	4.08	6	1.51	5	7.46	14
Bosnia and Herzegovina	Upper-middle	0.00	0	0.00	0	0.33	1	0.00	0	0.20	1	0.58	2	0.00	0	1.00	1	7.74	12	5.74	9	5.63	9	8.74	18	18.73	34	10.68	18	11.96	22	14.69	34	10.87	27	18.13	34	22.74	34
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Iceland	High	5.97	12	6.78	10	8.27	11	2.81	7	8.73	14	7.76	14	7.85	15	11.17	21	8.33	15	6.67	13	16.15	24	17.91	24	12.92	28	7.43	13	9.14	21	6.64	16	10.74	18	10.01	20	7.44	20
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.67	1	1.95	4	0.35	2	1.55	3	1.64	8	1.33	5	2.09	5	1.50	4	9.35	17	14.76	23
Liechtenstein	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0
Moldova	Lower-middle	1.75	3	1.09	2	0.70	2	0.13	1	1.25	2	1.25	2	3.50	4	0.83	2	3.00	4	0.75	2	1.00	1	1.78	4	5.58	9	5.60	6	8.07	9	2.40	3	11.01	15	4.84	8	5.45	7
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.83	1	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.26	2	0.00	0	0.00	0	3.80	8	0.88	4	1.69	7	2.16	7	3.05	9	3.81	7	8.38	16	8.41	14
North Macedonia	Upper-middle	1.00	1	1.00	1	2.09	3	0.00	0	0.00	0	0.47	2	2.60	4	2.45	4	3.96	9	1.52	3	2.88	7	15.98	20	8.83	15	13.05	24	14.60	21	12.37	21	25.80	35	23.67	34	17.31	27
Norway	High	102.14	135	97.99	130	90.89	119	108.05	141	130.84	171	141.18	193	148.04	207	170.94	233	160.17	222	157.84	217	150.18	219	168.09	233	184.04	274	152.88	237	160.86	264	159.35	248	139.64	212	152.02	248	134.76	251
Russia	Upper-middle	210.13	294	179.68	197	192.63	215	171.89	200	174.54	205	170.07	194	170.50	213	170.67	210	165.99	196	184.36	216	173.03	205	159.11	195	147.01	177	160.53	204	178.83	222	208.12	257	238.67	305	414.34	509	392.57	490
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	31.21	43	50.54	65	76.55	90	94.75	114	151.60	175	365.43	409	193.47	231	196.55	237	197.13	236	186.22	218	205.90	253	155.37	207
Serbia and Montenegro[b]	Lower-middle	20.00	21	15.10	16	12.15	16	11.40	13	15.52	19	31.59	37	28.87	34	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	132.43	179	139.63	182	122.99	179	151.68	223	133.51	209	173.17	252	172.70	270	169.56	274	239.87	350	186.50	304	171.95	318	176.15	324	246.26	389	243.17	397	249.19	431	235.71	412	264.22	458	315.61	537	300.97	516
Turkey	Upper-middle	302.86	330	372.94	395	572.27	618	704.36	758	840.68	917	895.54	963	869.21	931	816.63	867	759.44	834	915.54	998	752.14	831	821.35	904	790.92	877	825.29	941	865.62	975	931.78	1,062	1066.92	1,203	1086.68	1,215	1073.42	1,234
Ukraine	Lower-middle	9.16	14	11.96	19	7.51	13	8.07	12	6.57	12	13.60	23	5.21	10	11.11	19	15.11	25	9.95	16	5.17	12	8.60	16	18.06	28	24.54	42	28.76	45	29.39	50	48.14	74	76.66	101	93.66	130
Middle East		296.21	380	293.88	361	296.84	371	327.30	425	417.71	524	487.62	613	517.81	670	614.04	768	721.37	921	876.63	1,073	1035.90	1,226	1230.32	1,473	1481.00	1,763	1336.21	1,693	1405.18	1,782	1572.39	2,037	1703.64	2,222	1917.31	2,438	2077.51	2,653
Armenia	Upper-middle	0.00	0	1.00	1	2.00	2	0.00	0	0.00	0	2.00	2	0.50	1	0.00	0	0.00	0	0.42	1	0.00	0	0.15	1	1.20	3	1.99	7	2.33	3	0.83	2	5.00	6	3.17	5	3.13	4
Azerbaijan	Upper-middle	0.17	1	0.25	1	0.00	0	0.50	2	0.00	0	0.00	0	2.33	4	2.00	3	0.00	0	1.00	1	2.67	4	2.39	5	1.12	4	2.47	4	1.80	2	5.02	8	3.66	7	4.10	6	7.07	8
Bahrain	High	1.00	1	0.00	0	0.33	1	0.00	0	2.00	2	1.00	1	0.33	1	0.00	0	2.40	4	0.00	0	1.00	1	0.00	0	1.50	2	0.67	1	0.50	1	0.00	0	1.67	3	1.00	1	0.00	0
Gaza Strip[c]	Lower-middle	0.00	1	0.10	1	1.50	2	0.00	0	0.00	0	0.11	1	0.25	1	1.00	1	1.11	2	0.00	0	0.13	1	0.50	1	0.00	0	1.00	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0
Georgia	Lower-middle	0.00	0	2.50	3	1.00	1	2.40	3	1.00	1	4.25	5	4.00	5	3.58	5	0.14	1	1.00	1	4.80	5	4.19	6	1.53	3	3.31	10	3.35	5	0.14	1	1.00	1	3.11	9	4.28	9
Iran	Upper-middle	41.03	49	39.29	52	60.80	79	84.33	103	141.90	176	210.05	246	288.15	344	337.13	400	425.86	510	581.88	672	719.63	787	852.26	937	1096.83	1,203	955.48	1,078	1044.34	1,167	1167.35	1,307	1297.41	1,442	1443.86	1,630	1531.40	1,738
Iraq	Lower-middle	0.00	0	6.33	8	5.00	5	0.00	0	0.67	2	4.05	6	4.75	7	4.17	5	18.08	20	4.50	5	24.00	25	33.83	38	27.98	31	17.49	34	19.41	39	18.66	38	31.71	73	55.29	99	96.63	141
Israel	High	133.04	176	121.12	152	124.51	158	128.88	171	139.37	179	146.16	187	102.32	148	135.24	174	128.41	183	137.74	185	116.60	152	129.03	175	143.33	189	126.53	175	121.41	159	123.02	174	102.14	157	118.30	173	105.19	166
Jordan	Upper-middle	28.91	33	34.46	39	36.67	40	44.08	52	48.48	55	33.09	38	32.38	42	51.06	70	55.66	67	51.92	62	36.26	46	48.42	60	38.99	52	51.26	72	35.31	67	34.99	63	44.61	81	57.09	86	67.85	94

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	11.70	15	4.05	5	5.00	7	4.38	6	9.23	12	7.17	9	1.75	4	6.34	9	6.37	11	5.19	6	5.22	8	7.02	9	8.77	11	10.80	15	5.43	9	9.50	12	12.83	16	10.67	16	10.33	14
Lebanon	Upper-middle	13.42	16	14.94	17	5.63	7	10.64	13	7.15	10	9.47	13	7.43	11	7.64	12	14.36	21	11.63	20	17.08	33	13.37	25	12.54	22	6.45	16	19.78	30	12.08	25	15.03	32	19.77	29	28.75	50
Oman	High	9.75	17	13.87	19	14.58	18	13.50	18	17.72	21	21.30	30	13.13	19	19.85	25	10.11	13	15.63	19	11.63	17	7.55	13	13.75	20	19.09	31	20.65	34	13.18	27	10.28	20	18.39	29	21.82	47
Qatar	High	1.00	1	1.50	2	1.00	1	0.00	0	1.00	1	0.00	0	0.00	0	0.50	1	2.31	4	0.56	1	1.00	1	2.50	9	1.32	6	1.94	4	4.10	10	3.05	14	4.98	19	4.51	12	5.45	9
Saudi Arabia	High	31.51	36	31.42	36	25.42	29	13.28	20	27.00	30	18.67	22	28.33	32	19.06	24	17.75	25	32.92	44	57.31	87	80.11	127	78.69	147	93.82	188	96.85	211	147.71	327	126.57	322	131.00	305	153.30	324
Syria	Low	20.09	31	15.50	22	7.00	11	18.66	27	14.67	25	20.04	46	15.39	33	14.49	29	23.53	46	15.57	37	24.43	60	33.25	62	33.22	60	24.37	44	18.60	39	16.51	25	27.43	37	16.37	19	13.62	23
United Arab Emirates	High	4.50	7	4.80	7	3.07	5	6.19	12	6.83	15	10.13	15	14.26	23	9.03	14	12.96	20	14.15	25	12.19	15	13.07	17	11.90	20	16.00	27	7.68	22	16.94	32	15.40	30	28.12	58	23.29	44
West Bank[c]	Lower-middle	0.00	0	1.00	1	3.17	4	0.13	1	0.70	2	0.14	1	1.50	2	1.96	3	1.33	3	1.67	3	0.87	3	0.54	3	7.08	8	2.71	6	2.84	9	3.24	7	2.98	7	1.59	5	3.33	5
Yemen	Low	0.00	0	1.75	3	0.17	1	0.33	1	0.00	0	0.00	0	1.00	1	1.00	1	1.00	1	0.88	3	1.08	2	2.13	9	1.25	7	0.85	5	0.47	3	0.17	1	0.95	4	0.97	4	2.06	16
Africa		664.01	868	655.86	833	783.81	995	772.88	1,026	825.81	1,100	780.91	1,065	939.78	1,232	1048.45	1,377	1035.03	1,365	1133.01	1,499	1305.00	1,681	1376.70	1,861	1292.70	1,792	1388.67	1,940	1600.93	2,268	1560.13	2,245	1771.52	2,576	2251.83	3,120	2364.22	3,334
Algeria	Upper-middle	5.75	12	6.04	9	3.15	6	8.69	12	4.81	8	9.83	17	12.99	26	15.08	22	26.05	36	31.70	49	38.61	47	43.47	57	41.96	59	58.70	78	57.25	83	88.00	114	80.27	123	114.85	150	162.50	216
Angola	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.77	2	0.17	1	0.13	1	0.00	0	0.13	1	0.56	3	0.67	2	0.10	1	0.57	1	0.33	1	0.20	2	2.55	11	0.67	3
Benin	Low	4.11	9	1.83	4	3.33	8	6.13	12	6.81	14	5.63	10	9.95	22	8.75	20	11.04	21	18.69	30	12.77	26	21.02	41	14.55	33	14.07	35	18.34	39	24.90	50	13.86	37	24.92	53	22.83	47
Botswana	Upper-middle	19.45	24	6.14	7	16.25	19	11.25	16	12.14	18	3.33	6	7.43	10	11.37	18	9.08	13	7.75	12	14.18	20	7.91	16	4.31	13	14.59	27	4.66	8	5.67	11	9.52	22	10.85	24	9.76	17
Burkina Faso	Low	5.35	10	5.08	8	1.13	5	5.79	16	8.00	23	11.17	28	10.66	26	10.78	30	10.04	24	5.21	11	6.92	19	9.52	18	13.03	27	5.34	15	6.31	16	7.82	26	8.21	30	15.77	46	16.81	41
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.83	2	0.00	0	0.00	0	0.50	1	0.31	2	1.50	6	1.12	5	0.74	4	2.47	11
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	1.30	3	0.17	1	0.10	1	0.00	0	0.00	0
Cameroon	Lower-middle	12.65	19	8.33	14	18.52	29	21.44	32	22.37	33	29.20	46	28.23	43	22.40	34	29.75	48	20.02	30	18.02	28	19.81	39	13.37	26	15.66	30	29.12	54	25.38	44	27.19	52	30.04	57	38.15	59
Central African Republic	Low	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.33	2	0.00	0
Chad	Low	1.00	1	0.58	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.20	1	0.06	1	0.00	0	1.29	3	0.63	1	0.38	1	0.39	3	2.09	6	0.00	0	0.62	4	0.00	0
Comoros	Low	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.17	1	1.33	3	0.00	0	0.00	0	0.00	0	0.90	2	2.46	4	1.22	4	0.86	4	2.11	7	1.96	7	1.60	7	1.84	8	6.80	16	4.74	16	6.92	19	3.91	18
Congo, Republic of the	Lower-middle	0.00	0	0.25	1	1.17	2	1.20	2	0.14	1	0.00	0	1.88	3	3.43	6	0.17	1	1.47	3	0.71	2	1.56	3	0.87	2	1.58	5	0.57	4	1.10	3	3.05	8	3.65	8	0.85	4
Côte d'Ivoire	Lower-middle	9.76	17	5.30	9	8.47	12	4.73	11	4.13	10	5.86	11	6.04	10	11.42	17	14.67	16	8.57	13	11.54	17	3.67	9	8.74	13	8.72	15	12.65	20	5.90	14	6.21	12	13.57	23	16.53	32
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.20	1	0.00	0	0.48	2	0.50	1
Egypt	Lower-middle	84.93	111	80.71	101	67.82	90	61.98	91	60.21	96	52.41	90	65.14	98	99.02	128	134.77	189	163.83	236	171.50	242	220.13	332	187.56	295	236.47	369	258.72	429	270.23	456	284.76	476	415.54	624	415.46	662
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	2.38	8	1.90	4	1.63	3	0.00	0	0.28	2	0.00	0	0.00	0	1.75	3	0.00	0	1.00	1	1.00	1	0.00	0	0.85	3	1.21	2	0.29	1	1.72	3	0.00	0	1.36	3
Eswatini	Lower-middle	0.00	0	0.14	1	0.00	0	0.13	1	0.17	1	0.42	2	1.46	5	1.21	3	1.68	4	1.10	2	0.25	1	1.10	2	0.00	0	0.17	1	0.00	0	0.83	2	0.38	2	0.64	3	0.79	3
Ethiopia	Low	25.87	41	27.32	39	34.85	53	46.23	73	47.98	84	46.93	77	59.57	94	58.84	101	63.51	102	83.85	115	78.45	109	87.65	128	94.35	148	88.26	141	107.52	168	86.58	149	133.12	208	152.53	240	175.82	263
Gabon	Upper-middle	0.00	0	1.50	3	0.00	0	0.70	3	0.46	2	0.68	4	0.54	3	0.17	1	0.00	0	0.25	1	0.90	2	0.08	1	0.97	3	1.67	5	1.93	6	0.14	1	1.95	4	2.70	5	0.77	4
Gambia, The	Low	0.50	1	0.63	1	1.50	2	3.42	5	4.35	6	1.11	3	1.25	3	0.50	2	1.17	3	0.58	3	0.13	1	1.86	4	0.13	1	0.00	0	0.00	0	0.25	1	0.00	0	0.22	3	1.00	2
Ghana	Lower-middle	20.65	30	22.30	29	26.69	33	36.12	51	25.72	40	26.22	40	27.42	39	35.21	59	22.76	35	24.37	38	35.80	56	35.83	55	32.71	57	38.61	62	49.03	82	46.02	83	62.93	108	84.29	153	97.99	189
Guinea	Low	0.00	0	2.83	3	1.00	1	2.50	4	1.00	3	0.00	0	0.33	1	1.45	5	0.33	2	0.43	1	0.63	2	0.10	1	0.17	1	0.67	3	0.90	4	0.00	0	0.06	1	0.58	3	0.10	1

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.20	1	0.25	1	0.20	1	0.00	0	0.76	2	0.00	0	0.67	2	0.00	0
Kenya	Lower-middle	40.00	71	58.34	99	61.32	114	45.56	83	47.35	88	62.51	115	73.60	127	64.61	127	51.43	106	48.23	92	79.76	136	90.03	163	84.04	147	64.26	122	80.12	163	73.38	158	102.28	204	120.92	247	133.26	266
Lesotho	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.33	1	0.75	2	0.17	1	1.67	5	0.64	4	0.40	1	0.52	3	1.00	1	0.57	5	0.29	2	0.79	1	0.25	1	0.63	2	0.00	0
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	2	0.00	0	0.00	0	0.00	0	0.13	1	0.33	1	0.00	0	0.00	0	0.36	2	0.00	0	1.38	3
Libya	Upper-middle	1.33	2	0.00	0	0.00	0	1.67	5	0.00	0	1.33	2	1.00	1	0.63	3	1.50	3	0.43	2	2.58	5	2.23	4	2.23	4	4.57	10	1.69	7	1.81	7	2.70	9	2.67	12	0.58	6
Madagascar	Low	0.17	1	1.22	2	0.04	1	1.06	4	0.25	1	0.42	2	0.94	3	1.46	8	4.03	11	3.54	10	1.76	7	1.82	6	6.95	17	3.39	9	6.71	12	2.00	9	4.39	9	5.07	12	4.57	11
Malawi	Low	5.87	13	8.28	14	5.88	9	3.52	8	3.40	7	3.23	6	5.93	13	9.05	18	5.73	12	2.38	4	5.85	14	8.34	19	13.93	29	6.15	17	5.56	17	9.81	23	8.66	30	11.34	26	10.79	30
Mali	Low	2.08	7	1.33	5	2.22	6	4.25	12	3.67	13	3.94	12	5.22	14	6.55	17	2.80	7	4.66	10	1.72	8	5.91	15	8.20	22	1.53	11	8.29	22	4.01	17	6.96	28	11.68	35	5.82	22
Mauritania	Lower-middle	0.49	3	0.25	1	0.00	0	0.70	3	0.00	0	0.25	1	1.00	3	0.00	0	0.14	1	0.00	0	0.29	1	2.03	4	1.03	3	0.59	2	0.75	1	0.00	0	0.00	0	0.22	2	0.14	1
Mauritius	Upper-middle	6.63	8	3.17	4	1.75	2	2.31	3	1.75	3	3.79	7	1.70	3	1.80	2	1.67	2	3.08	4	4.46	7	2.42	4	4.03	7	5.79	7	4.60	7	2.25	5	4.36	6	4.00	7	2.03	10
Morocco	Lower-middle	19.73	34	27.05	37	32.28	44	25.85	40	22.61	34	23.12	40	19.00	31	18.16	32	27.15	44	16.85	38	14.18	31	18.27	39	19.85	35	21.25	41	37.59	68	35.57	62	48.25	74	54.78	89	62.69	104
Mozambique	Low	1.83	4	0.96	3	2.47	5	1.83	4	3.43	6	2.29	7	2.71	5	1.17	2	1.88	4	1.33	4	1.40	5	2.66	7	3.45	12	4.29	11	2.63	8	4.18	16	6.71	22	9.82	30	6.22	27
Namibia	Upper-middle	0.08	1	1.08	3	1.08	2	1.50	2	1.67	3	0.00	0	0.83	3	0.73	3	0.75	1	1.51	4	2.68	5	3.28	7	0.73	4	2.23	6	0.25	2	1.00	3	1.96	4	4.70	11	2.09	6
Niger	Low	6.95	17	4.00	9	4.78	10	3.10	7	1.45	6	2.82	6	2.30	7	2.49	6	2.67	7	3.86	8	9.86	15	4.64	12	2.52	8	1.81	5	3.03	10	10.71	23	5.52	17	4.55	15	5.97	17
Nigeria	Lower-middle	141.67	174	152.08	178	198.82	237	204.46	244	184.70	221	182.75	223	252.52	294	280.24	314	244.10	282	208.06	246	271.49	304	267.59	315	249.06	299	241.76	286	303.61	362	279.37	333	326.92	427	397.12	511	456.34	586
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.40	2	2.58	5	1.75	5	2.23	7	3.96	13	4.60	16	5.46	14	4.69	13	4.49	20	10.86	30	11.42	34
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	9.94	16	11.06	17	16.40	23	12.65	26	12.19	27	7.17	18	7.21	13	11.94	14	6.04	17	9.97	25	8.08	18	7.87	22	8.05	22	9.08	22	8.80	21	10.39	26	7.98	21	10.05	25	10.92	33
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.75	2	1.25	2	0.00	0	2.08	3	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	1	0.00	0	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.25	1	0.00	0	0.25	1	1.00	1	0.58	2	0.00	0	1.00	1	2.25	3	0.00	0	0.83	2	0.50	1	0.42	2	0.17	1	0.00	0	0.71	1	1.10	2	0.17	1	1.80	8	1.17	7
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.75	1	0.00	0	0.00	0	0.15	1	0.06	1	0.10	1	0.33	1	0.33	1	0.07	1	0.00	0
South Africa	Upper-middle	161.22	185	134.49	160	179.21	211	161.86	199	248.44	295	177.50	217	202.62	245	203.32	253	185.31	233	243.13	297	277.69	332	220.66	288	232.23	302	300.92	385	309.86	392	305.59	397	340.79	454	428.23	557	396.07	534
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sudan	Lower-middle	12.50	15	15.69	17	16.55	20	19.14	26	20.07	28	15.17	29	13.91	25	22.49	31	20.60	28	26.28	41	28.15	42	39.23	49	34.59	47	23.38	41	21.79	41	17.25	41	17.83	45	19.25	59	15.84	51
Tanzania	Low	13.79	20	12.13	17	14.60	25	16.31	32	18.35	29	24.71	39	33.41	54	47.46	63	19.54	28	24.69	40	21.74	38	28.50	52	27.11	45	27.98	41	45.32	67	38.39	67	38.21	75	42.25	88	43.29	92
Togo	Low	0.44	2	0.25	1	0.17	1	2.63	8	2.40	8	2.91	9	4.37	9	0.93	5	0.75	4	1.10	4	3.60	11	2.14	5	3.97	7	4.07	9	3.49	9	0.38	1	4.56	7	3.70	10	1.06	2
Tunisia	Lower-middle	15.78	24	12.53	16	21.44	28	18.18	26	23.58	30	30.62	43	34.31	45	63.53	83	90.19	119	123.09	170	140.35	181	151.25	202	121.03	176	121.04	167	134.80	196	117.81	177	134.90	199	148.56	220	136.68	206
Uganda	Low	4.91	9	5.04	10	9.98	13	8.84	18	11.91	23	10.89	20	11.95	29	6.34	17	12.93	22	19.00	32	12.87	25	32.71	51	21.24	37	24.32	45	21.22	49	32.01	60	35.83	62	33.06	66	44.57	81
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	2.37	8	8.33	17	3.75	5	3.58	6	5.93	8	5.71	8	5.27	9	5.23	7	3.13	6	3.43	5	5.76	8	3.67	8	7.11	14	5.17	11	4.06	11	7.06	14	5.43	12	10.16	28	10.08	25
Zimbabwe	Low	25.67	35	27.22	40	24.71	40	19.60	35	13.43	24	25.07	40	23.11	38	23.13	41	18.44	37	13.24	29	14.55	24	19.40	39	19.45	30	21.13	34	36.76	52	25.29	37	21.29	45	33.57	66	32.99	72
Asia		4050.27	4,394	4018.07	4,266	4316.32	4,627	4578.08	5,039	5204.56	5,722	6174.59	6,731	6597.40	7,181	7960.21	8,625	9028.86	9,789	9578.51	10,340	10492.73	11,340	11412.07	12,332	12287.44	13,314	14675.86	15,749	15677.69	16,862	16148.04	17,427	18227.35	19,591	21620.19	23,181	21439.27	23,305
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.07	1	0.58	2	1.96	5	0.20	1	1.50	2	0.18	2	0.29	2	1.67	6	3.08	8	2.72	12
Bangladesh	Lower-middle	31.45	47	37.77	57	30.61	45	26.57	45	44.07	62	42.18	66	29.49	45	37.85	61	32.04	63	33.49	64	45.41	79	42.05	81	48.87	103	77.24	138	95.23	174	75.13	141	100.68	175	82.39	173	101.48	206

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.25	1	1.00	1	1.00	1	1.53	2	0.81	1	1.58	3	0.60	2	0.00	0	0.13	1	3.00	3	1.29	7	1.38	4	1.50	2	1.74	6	3.23	6	2.33	5	4.14	5	2.49	5	3.25	6
Brunei	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	1.63	3	0.00	0	0.00	0	2.50	3	1.00	1	4.67	6	5.44	7	1.95	3	5.34	8
Burma	Lower-middle	0.00	0	0.00	0	0.00	0	0.13	1	0.40	1	0.42	3	1.48	6	2.94	8	0.85	4	0.47	2	0.30	1	0.56	4	1.98	8	1.74	8	0.33	1	1.82	5	1.13	4	2.46	6	4.22	9
Cambodia	Lower-middle	3.29	7	1.33	2	9.37	13	8.79	13	3.28	9	6.86	13	7.20	15	4.29	10	5.43	11	4.20	9	5.28	10	3.60	5	3.64	8	4.72	11	5.83	14	5.53	15	5.19	20	6.13	20	6.98	31
China	Upper-middle	450.52	560	680.70	751	788.79	889	974.35	1,125	1238.10	1,452	2192.12	2,433	2404.93	2,649	2963.17	3,247	3186.64	3,523	3498.99	3,881	3923.73	4,373	4727.24	5,190	5217.33	5,725	7293.51	7,842	7867.91	8,492	8473.80	9,170	9946.97	10,718	12750.77	13,656	12580.47	13,650
India	Lower-middle	1715.08	1,772	1718.73	1,772	1629.92	1,688	1715.72	1,782	1702.71	1,783	1715.36	1,796	1905.87	2,009	2263.75	2,399	2842.32	2,986	2897.83	3,019	3102.68	3,240	2915.30	3,047	3291.45	3,429	3202.90	3,347	3600.08	3,755	3621.63	3,776	3630.94	3,785	3774.36	3,963	3281.02	3,511
Indonesia	Lower-middle	32.61	67	18.76	36	15.21	34	11.35	35	31.13	64	29.77	63	13.55	39	19.20	49	22.90	57	42.29	82	110.40	169	114.46	167	135.95	189	143.60	201	189.57	271	270.37	339	314.35	407	433.49	542	635.47	747
Japan	High	1190.54	1,302	1004.64	1,095	1170.51	1,256	1132.94	1,287	1399.32	1,526	1253.89	1,434	1174.32	1,351	1167.11	1,363	1298.01	1,505	1284.96	1,481	1195.14	1,398	1198.66	1,418	1163.31	1,412	1163.13	1,406	1140.56	1,370	948.22	1,218	1020.52	1,267	995.93	1,307	1014.82	1,443
Kazakhstan	Upper-middle	0.00	0	0.53	2	0.75	2	0.00	0	2.34	6	4.17	8	1.10	3	1.11	5	1.37	7	0.57	2	7.39	12	5.12	9	4.54	9	9.64	20	7.39	12	5.90	13	18.37	31	25.87	37	31.63	41
Kyrgyzstan	Lower-middle	0.00	0	0.00	0	0.25	1	0.10	1	1.40	4	0.00	0	1.50	2	0.00	0	0.58	2	0.67	2	0.58	2	2.05	5	1.20	3	1.44	6	1.99	5	3.40	9	4.18	9	0.45	3		
Laos	Lower-middle	2.43	3	0.00	0	1.90	4	4.22	11	5.37	11	0.85	4	5.39	13	4.23	10	7.17	18	5.19	14	4.45	15	4.61	13	11.94	34	8.06	20	3.51	14	6.27	14	10.99	27	10.38	29	11.73	34
Malaysia	Upper-middle	64.80	75	44.31	57	53.88	66	49.91	60	61.55	80	53.23	71	76.99	96	109.83	130	124.36	144	198.82	223	233.05	266	324.34	378	338.26	411	398.92	506	433.42	550	452.05	551	547.76	649	612.42	741	593.72	740
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	0.25	1	0.00	0	0.00	0	0.17	1	0.33	1	0.29	1	0.68	3	1.00	3	0.47	2	1.81	5	2.12	8	2.48	8	1.35	6	2.51	11	2.43	7	2.89	7	2.74	9	3.65	10	1.00	5
Nepal	Low	5.05	12	10.51	19	4.98	10	5.21	12	5.25	13	6.82	14	8.27	14	9.28	19	8.63	17	10.13	19	4.27	10	2.58	8	4.67	18	11.43	28	8.78	25	8.83	26	9.71	21	10.13	29	20.97	40
North Korea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.62	1	0.00	0	0.00	0	0.62	1	0.00	0	0.07	1	0.20	1	0.00	0	0.25	2	1.20	2
Pakistan	Lower-middle	44.88	59	36.20	47	44.56	56	54.10	73	55.49	70	61.18	76	85.16	106	176.07	219	148.33	194	174.38	215	221.22	258	253.41	311	280.32	361	373.54	480	298.29	416	305.62	429	365.58	517	471.13	661	525.06	728
Papua New Guinea	Lower-middle	5.42	8	1.75	2	0.50	2	0.50	1	0.17	1	0.00	0	1.87	5	0.50	1	2.63	5	1.33	2	3.20	8	4.17	7	2.00	2	0.50	1	2.92	5	1.28	3	2.19	6	7.85	14	4.20	10
Philippines	Lower-middle	39.90	80	26.76	46	41.54	71	19.01	43	36.76	66	37.86	66	32.29	68	36.36	76	38.12	70	41.83	69	29.47	60	32.07	71	38.02	77	58.32	89	38.40	71	51.31	100	51.49	99	63.62	105	77.44	131
Singapore	High	7.30	10	11.88	15	17.31	24	16.59	32	24.20	39	24.92	43	40.70	63	31.50	60	31.02	56	28.87	49	30.25	65	26.92	53	33.21	56	31.23	64	42.21	84	39.91	79	42.30	74	56.38	102	55.87	119
South Korea	High	179.37	240	172.14	212	216.85	262	239.21	323	267.42	346	330.93	421	327.58	437	503.22	618	638.25	772	644.42	769	778.16	912	781.47	921	866.07	1,005	1022.26	1,176	1138.13	1,306	1059.77	1,223	1187.54	1,389	1360.39	1,555	1327.95	1,495
Sri Lanka	Lower-middle	29.13	36	20.21	30	17.83	23	29.88	43	22.91	36	23.83	38	26.85	40	34.43	58	30.73	53	26.57	45	15.87	43	32.58	55	24.94	46	33.58	59	30.82	64	31.75	70	39.04	68	34.34	63	43.71	81
Taiwan	High	154.27	171	152.44	164	186.36	201	182.46	203	201.09	216	226.26	252	279.08	304	352.82	376	350.60	381	388.47	429	439.24	474	448.69	482	454.23	490	413.49	450	381.06	413	340.00	379	312.68	354	265.72	306	254.20	302
Tajikistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.80	1	0.75	2	0.90	3	1.02	4	1.15	4	0.25	1	0.05	1
Thailand	Upper-middle	78.67	115	67.89	97	70.26	105	84.51	139	112.35	181	129.13	189	149.02	219	213.91	293	227.30	320	256.47	322	295.98	390	442.25	562	300.77	397	355.25	455	343.32	475	389.88	501	537.45	664	568.01	710	749.60	903
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.95	4	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.30	4	0.78	1	0.94	3	0.71	2	0.00	0	0.14	1	0.67	1
Turkmenistan	Upper-middle	0.00	0	0.00	0	0.33	1	0.00	0	0.29	1	0.00	0	0.83	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Uzbekistan	Lower-middle	3.70	5	1.17	2	2.08	3	3.13	5	2.62	5	4.14	10	2.45	6	5.74	11	2.58	9	6.13	13	8.84	19	7.84	13	4.09	8	3.06	9	1.64	6	3.96	5	6.55	14	3.53	9	4.80	12
Vietnam	Lower-middle	11.36	25	9.35	22	11.52	29	17.73	35	26.23	52	27.12	61	21.07	56	19.08	58	28.50	65	27.01	66	32.12	82	36.28	96	54.04	118	58.76	127	38.09	95	40.93	94	57.37	124	68.89	152	99.27	226
Australia and Oceania		1332.64	1,493	1049.17	1,173	1236.80	1,378	1137.56	1,357	1097.36	1,313	1113.69	1,347	1210.90	1,483	1234.37	1,529	1237.24	1,544	1197.12	1,511	1285.50	1,659	1273.19	1,653	1301.15	1,757	1384.42	1,858	1565.68	2,105	1470.97	2,020	1554.91	2,219	1544.93	2,228	1574.13	2,393
Australia	High	999.92	1,124	755.58	855	936.53	1,051	845.59	1,019	796.51	973	813.36	1,012	912.63	1,116	931.11	1,166	880.61	1,152	916.08	1,181	992.71	1,302	965.27	1,271	971.66	1,334	1044.08	1,430	1154.11	1,606	1119.33	1,586	1140.93	1,675	1167.90	1,727	1201.84	1,852
Cook Islands	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	1.00	1	0.85	2	0.00	0	0.69	2	0.00	0	2.00	3	1.95	7	0.50	2	2.28	5	1.00	1	0.77	3	1.20	3	0.81	2	0.00	0	0.64	2	1.00	1	5.75	8	3.33	7	8.80	19
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0

TABLE SSA-3

S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.08	1
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.28	2	0.00	0	0.43	1	0.47	1	0.08	1	0.00	0	0.00	0	0.00	0	0.11	1	0.13	1	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	328.72	393	289.99	333	296.73	340	288.95	379	296.02	379	295.72	380	291.95	403	300.26	402	353.36	459	278.07	375	290.19	385	305.68	419	328.59	468	338.47	492	406.56	600	347.93	512	406.82	604	369.64	577	361.00	589
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	2.00	2	1.75	2	3.20	4	1.61	2	4.00	4	2.00	2	3.75	4	2.50	3	0.00	0	0.00	0	0.33	1	0.29	2	0.00	0	0.00	0	3.17	4	2.10	3	0.00	0	2.36	5	1.77	5
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.17	1	0.25	1	0.50	2	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.75	2	0.00	0	0.09	1	0.00	0	0.17	1	0.13	1	0.00	0	0.17	1	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.33	1	0.63	2
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.33	1	0.62	2	0.00	0	0.00	0	0.50	2	0.83	2	0.67	2	0.75	2	0.00	0	1.87	3	0.33	1	0.27	2	1.40	4	1.20	2	0.00	0
Unassigned	na	128.23	343	87.63	255	79.39	216	137.21	379	94.09	305	93.76	305	96.99	362	143.54	500	184.34	620	93.46	357	77.02	239	62.15	188	52.05	181	50.23	197	50.44	172	30.64	103	17.62	68	31.33	124	62.68	166

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		8937.00	8,937	9895.00	9,895	10243.00	10,243	10978.00	10,978	11611.00	11,611	13053.00	13,053	15108.00	15,108	12800.00	12,800	12235.00	12,235	12953.00	12,953	12455.00	12,455	13638.00	13,638	14640.00	14,640	13663.00	13,663	14170.00	14,170	13992.00	13,992	14161.00	14,161	13023.00	13,023	13924.00	13,924
North America		3246.07	4,414	3514.52	4,648	3377.33	4,615	3863.19	5,409	3854.71	5,553	4291.08	6,114	4770.15	6,921	4286.58	6,346	3990.89	5,866	4324.39	6,445	4182.16	6,429	4389.73	6,741	4498.01	7,042	4236.11	6,784	4152.08	6,731	4241.89	6,861	3992.61	6,893	3858.48	6,567	3993.54	6,899
Canada	High	215.09	421	179.18	372	188.40	388	236.35	492	236.89	514	316.59	638	320.60	738	288.76	722	304.43	723	299.01	792	312.04	947	305.66	940	351.38	1,006	343.22	994	328.90	984	277.00	868	267.95	944	266.28	863	275.04	930
Greenland	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0
Mexico	Upper-middle	103.89	212	132.93	235	135.02	243	181.68	312	109.41	234	142.33	275	143.92	284	165.79	324	144.30	284	141.04	296	130.58	284	231.45	425	119.51	269	123.47	301	156.74	359	136.64	380	127.72	410	120.45	368	133.83	388
United States	High	2927.09	4,073	3202.42	4,317	3053.92	4,264	3445.16	4,956	3508.41	5,189	3832.15	5,616	4305.62	6,396	3832.04	5,852	3542.15	5,363	3884.35	5,956	3739.54	5,943	3852.62	6,159	4027.11	6,565	3769.43	6,276	3666.44	6,180	3828.25	6,386	3596.83	6,391	3471.76	6,120	3584.67	6,405
Central America and Caribbean		7.75	22	10.02	19	5.84	19	5.86	22	5.41	21	6.52	27	10.49	39	10.21	43	6.23	33	9.26	44	8.50	50	6.10	39	6.43	27	13.51	50	10.04	29	14.12	40	6.45	35	12.33	35	11.40	37
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Bahamas, The	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Barbados	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.02	1	0.00	1	0.01	3	0.02	5	0.17	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Costa Rica	Upper-middle	1.00	2	0.50	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.89	3	0.87	2	0.00	0	2.07	3	3.33	5	1.93	2	1.93	4	1.17	3	1.67	3	3.21	6
Cuba	Upper-middle	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.78	3	1.41	5	1.15	3	0.72	2	2.67	5	0.69	2	0.26	2	0.33	1	5.50	7	3.67	6	7.57	13	0.00	0	5.54	9	0.76	4
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.17	1	0.00	0	0.25	1
Guatemala	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.35	3	0.11	1	0.25	1	0.25	1
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Honduras	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.09	1	0.14	1	0.01	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Jamaica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Nicaragua	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.11	2	0.14	1	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Panama	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	2	0.01	2	0.17	2	0.15	2	0.00	0	0.00	0	0.50	1	0.00	0	0.13	1	0.00	0	0.00	0
Puerto Rico	High	6.75	20	8.52	17	5.74	18	5.86	22	3.21	17	5.53	22	7.60	31	8.23	37	5.21	27	5.28	31	6.26	37	5.19	30	3.91	17	4.51	36	3.69	19	4.63	23	4.64	27	4.21	18	6.40	23
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	0.00	0	0.00	0	0.10	1	0.00	0	0.19	2	0.21	2	1.48	3	0.58	2	0.13	1	0.13	2	0.26	3	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.81	4	0.03	1
South America		217.32	428	259.66	514	294.43	561	270.13	616	275.07	637	308.74	746	471.57	1,017	343.61	816	387.90	844	431.88	958	334.22	892	480.21	1,182	361.83	1,042	403.58	1,166	523.46	1,432	475.83	1,389	481.11	1,515	428.87	1,406	538.21	1,593
Argentina	High	52.27	91	76.82	125	86.15	138	68.90	123	66.33	116	69.91	135	97.58	172	71.48	134	91.76	176	85.57	157	85.49	167	118.60	224	75.81	165	81.70	170	94.07	189	85.44	182	93.57	208	81.75	191	99.07	200
Bolivia	Lower-middle	0.00	0	0.00	0	0.00	0	0.22	1	0.09	1	0.00	0	0.32	2	0.00	0	0.08	1	0.07	2	0.00	0	1.08	2	0.25	1	0.00	0	0.33	1	0.00	0	0.18	1	0.00	0	0.00	0
Brazil	Upper-middle	105.81	177	93.88	153	112.74	184	104.01	184	102.70	184	115.57	212	184.41	332	127.94	223	129.60	238	164.72	296	121.92	240	166.31	326	124.98	288	144.60	325	194.41	427	172.57	435	171.37	467	145.33	421	200.06	509
Chile	High	52.23	171	69.79	239	78.50	246	85.88	337	88.11	334	108.01	428	161.64	569	128.49	493	145.55	501	143.49	530	117.57	522	164.51	689	145.00	672	163.49	764	205.43	927	199.09	899	194.99	996	179.21	934	212.89	1,032
Colombia	Upper-middle	0.11	1	1.75	2	2.00	2	1.46	4	4.20	5	1.00	1	3.13	4	0.33	1	7.51	10	4.34	8	2.24	6	6.12	11	4.80	13	7.52	18	15.09	27	10.43	26	12.52	25	12.80	24	12.93	30

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	0.00	0	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.60	2	0.50	1	0.00	0	0.07	2	0.00	0	1.00	1	1.43	3	0.00	0	0.17	1	1.30	6	0.18	2	4.19	7	3.32	11
Guyana	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.00	0
Paraguay	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.04	1	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.12	1	0.00	0	0.00	0	0.00	0	0.06	1
Peru	Upper-middle	0.00	0	0.20	1	0.45	3	1.22	4	1.25	3	1.00	2	1.14	6	1.00	1	1.65	4	0.12	1	0.10	1	5.40	8	0.71	3	0.67	2	0.14	1	0.83	4	0.36	2	3.02	8	0.13	4
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.44	1	0.00	0	0.00	0
Uruguay	High	1.70	4	4.54	7	5.69	12	1.21	4	1.13	3	1.67	3	4.36	7	1.00	1	3.13	4	2.33	3	0.00	0	2.50	3	4.29	6	0.13	1	4.31	6	2.33	3	3.31	5	0.66	3	3.87	5
Venezuela	Upper-middle	5.11	13	12.68	21	8.90	15	7.16	20	10.28	25	11.59	29	19.36	38	12.86	26	8.62	19	31.16	56	5.90	21	14.69	34	4.57	15	5.47	20	9.39	28	3.84	14	4.07	15	1.91	12	5.91	21
Europe		4218.79	5,295	4791.96	5,863	5229.37	6,389	5497.76	6,893	5920.71	7,482	6823.91	8,540	7770.50	9,826	6245.91	8,140	5890.58	7,741	6123.54	8,178	5890.63	7,935	6372.50	8,621	6925.47	9,344	6234.27	8,679	6516.15	9,032	6341.97	8,913	6631.38	9,333	5862.57	8,390	6312.99	9,138
EU		3543.67	4,688	4090.58	5,200	4438.20	5,660	4783.29	6,277	5189.17	6,843	5923.88	7,794	6835.24	9,019	5452.46	7,454	5141.56	7,090	5315.92	7,479	5119.40	7,312	5425.45	7,794	6022.89	8,583	5306.79	7,892	5558.70	8,199	5426.19	8,145	5701.59	8,539	4958.66	7,632	5377.62	8,376
Austria	High	43.32	86	40.61	79	86.76	155	69.90	144	64.82	139	103.73	215	82.15	188	69.93	177	70.70	198	67.62	221	58.48	278	73.26	264	61.85	281	70.07	269	76.07	292	71.67	274	77.22	280	60.94	240	70.14	274
Belgium	High	69.19	120	89.60	132	104.91	166	110.54	229	130.56	251	154.53	322	157.76	344	130.62	301	131.24	292	138.66	357	122.32	398	135.57	432	142.53	453	146.73	449	160.59	505	130.27	444	139.71	445	110.35	430	114.70	413
Bulgaria	Upper-middle	17.31	32	19.81	30	18.25	32	10.83	24	15.79	33	14.16	34	48.45	92	17.27	49	46.54	83	19.97	56	35.30	66	24.23	64	47.38	95	16.30	46	50.61	97	48.98	106	29.15	67	31.70	71	29.89	67
Croatia	High	6.78	10	4.94	13	8.79	21	7.60	13	9.38	20	6.87	17	12.75	31	12.72	27	7.07	17	6.89	25	6.34	38	15.53	53	12.45	62	8.19	42	12.03	54	9.73	56	9.32	51	15.56	65	16.61	79
Cyprus	High	0.00	0	0.00	0	0.45	2	1.12	4	0.11	3	0.59	3	2.18	5	0.08	1	0.15	3	1.14	5	0.17	1	0.25	1	1.12	9	1.24	5	0.38	3	1.17	6	1.31	9	0.72	8	0.87	10
Czechia	High	39.16	59	50.79	74	67.71	108	44.29	84	51.65	98	96.62	170	124.64	223	60.89	136	66.90	136	74.25	160	77.88	170	86.96	186	92.36	192	74.10	157	99.94	211	93.09	204	107.18	234	106.30	245	109.04	267
Denmark	High	56.18	137	42.01	95	61.22	111	69.98	167	68.96	190	72.01	194	85.72	226	53.26	160	46.86	139	46.60	168	53.70	229	62.66	292	78.21	282	57.25	291	73.75	412	72.12	398	71.05	418	67.16	352	79.67	417
Estonia	High	7.02	14	7.70	14	12.12	18	9.28	14	6.50	9	14.30	20	16.71	26	13.40	22	14.32	23	7.25	12	7.41	16	17.18	31	14.31	25	10.66	23	20.05	35	11.33	26	8.65	28	12.29	34	12.45	42
Finland	High	53.75	106	55.56	91	76.79	130	52.39	120	60.26	144	87.65	193	100.77	240	62.86	174	63.26	175	55.52	173	60.19	191	73.18	219	56.81	191	65.37	263	66.94	258	76.98	324	63.29	243	62.82	246
France	High	517.36	910	617.91	966	605.92	1,041	707.98	1,308	808.31	1,559	930.69	1,852	1146.32	2,139	755.88	1,715	801.36	1,646	839.42	1,887	804.03	2,007	754.91	1,920	880.13	2,147	811.77	2,028	767.89	2,084	822.04	2,167	775.54	2,216	669.02	1,934	688.35	2,093
Germany	High	692.81	1,273	781.20	1,316	793.98	1,394	887.22	1,731	1018.09	1,963	1198.50	2,347	1154.59	2,452	1118.79	2,345	1073.24	2,273	997.69	2,362	1005.93	2,542	1054.35	2,679	1251.81	3,061	1053.46	2,843	1034.10	2,891	1005.79	2,864	1096.91	3,082	939.20	2,838	999.06	3,060
Greece	High	46.68	78	56.12	90	81.98	118	59.51	99	72.10	123	73.56	130	116.13	197	53.79	110	59.44	109	76.13	153	49.81	148	64.09	157	74.65	172	59.96	153	72.63	185	63.53	161	87.05	221	51.48	158	54.33	182
Hungary	High	24.13	61	21.35	54	37.16	81	32.89	86	41.77	90	28.33	78	46.13	89	51.87	117	35.87	93	51.64	120	35.68	115	37.29	110	48.96	123	61.18	140	60.85	141	46.89	155	61.53	192	47.75	176	60.02	211
Ireland	High	23.51	46	13.83	24	19.82	40	24.79	57	31.57	78	52.96	119	31.20	109	26.98	88	31.24	102	31.90	121	29.81	142	35.95	166	33.61	139	27.91	112	26.35	132	19.56	110	31.90	171	32.17	156	29.03	148
Italy	High	527.51	867	650.96	990	649.42	995	710.57	1,207	789.10	1,337	827.87	1,499	1040.29	1,811	871.04	1,622	711.80	1,347	931.25	1,757	765.40	1,671	891.50	1,760	899.73	1,830	802.06	1,727	833.88	1,797	752.13	1,731	862.40	1,973	758.29	1,802	856.31	1,983
Latvia	High	1.38	3	2.00	2	0.00	0	4.70	6	0.50	1	3.16	8	0.52	3	0.58	2	1.31	4	2.71	6	2.95	5	6.99	9	5.09	7	3.41	7	2.37	4	4.22	9	2.51	5	2.76	6	2.10	4
Lithuania	High	5.52	10	6.62	10	13.65	19	24.39	40	6.74	19	15.87	26	11.48	24	9.15	14	18.45	25	10.67	17	11.03	18	8.23	19	11.18	18	12.51	22	14.85	33	8.85	24	9.45	27	5.91	23	11.48	29
Luxembourg	High	0.25	1	0.17	1	1.13	2	0.40	1	0.00	0	0.40	1	0.50	2	0.92	2	0.33	1	0.80	4	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.89	3	0.11	1	0.00	0	0.00	0
Malta	High	0.00	0	0.00	0	0.00	0	0.00	0	0.21	2	0.00	0	0.50	1	0.36	1	0.00	0	0.00	0	0.25	1	0.33	1	1.18	5	1.23	5	2.67	8	1.15	6	1.60	11	0.23	6		
Netherlands	High	233.48	495	232.93	457	283.29	550	319.21	716	354.31	813	376.61	879	372.60	935	313.58	813	293.30	713	251.58	748	244.07	856	243.32	830	319.49	1,042	288.06	938	274.21	987	271.48	ne	286.17	1,183	281.54	1,117	289.94	1,149
Poland	High	132.67	199	128.50	197	123.85	197	127.00	243	131.90	270	139.62	271	151.63	313	131.89	274	125.79	275	128.97	309	137.89	362	144.02	387	164.04	393	137.27	350	178.52	453	176.08	452	174.90	523	164.78	491	165.77	498
Portugal	High	19.07	51	20.64	46	21.90	42	30.37	92	34.78	103	30.51	109	68.46	174	33.01	116	49.13	127	28.81	130	31.77	155	38.99	150	68.96	205	44.08	171	52.18	192	40.67	171	46.53	188	32.78	160	59.52	222
Romania	Upper-middle	4.32	11	3.50	7	11.10	19	6.81	13	12.32	29	6.58	15	12.01	30	5.80	23	9.74	23	8.90	31	11.19	39	14.92	41	13.71	34	7.23	32	10.84	66	13.22	44	11.15	60	6.12	31	12.24	43
Slovakia	High	8.06	13	13.75	21	39.17	56	28.36	48	21.16	35	25.67	48	19.89	50	21.92	38	39.44	68	29.05	55	31.24	60	44.28	83	43.16	73	30.22	66	44.23	80	38.72	90	23.25	64	27.38	70	16.05	59
Slovenia	High	3.07	7	1.34	3	4.14	7	4.24	7	6.23	16	8.73	26	4.53	18	3.51	18	4.89	24	2.27	17	4.42	21	3.56	23	5.07	20	7.32	30	3.02	32	3.69	28	5.54	31	2.92	41	4.58	57

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	236.07	456	359.30	602	325.34	596	378.72	775	348.84	778	463.02	955	577.25	1,158	438.11	1,008	443.53	945	425.66	1,076	446.07	1,317	436.48	1,269	518.06	1,402	485.20	1,358	497.38	1,404	446.15	1,331	472.44	1,483	406.09	1,342	429.28	1,385
Sweden	High	73.28	154	90.30	152	82.60	161	78.86	170	81.31	199	117.64	276	155.50	340	95.29	240	109.76	264	81.95	265	122.44	438	121.83	354	110.50	375	103.62	319	100.78	399	126.33	492	127.66	536	124.10	533	134.86	593
United Kingdom	High	701.61	1,234	779.15	1,342	905.97	1,518	981.32	1,798	1021.94	1,897	1073.71	2,059	1294.55	2,537	1098.96	2,215	885.86	1,943	978.28	2,216	968.55	2,343	1048.68	2,480	1050.99	2,576	928.85	2,465	1024.60	2,747	1077.97	2,878	1104.83	3,026	936.46	2,717	1068.29	3,046
Other Europe		675.12	976	701.38	990	791.16	1,140	714.47	1,196	731.54	1,311	900.03	1,570	935.26	1,640	793.45	1,459	749.02	1,328	807.62	1,494	771.23	1,477	947.05	1,746	902.57	1,719	927.48	1,698	957.45	1,843	915.77	1,879	929.78	1,993	903.91	1,965	935.37	2,003
Albania	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.50	1	0.00	0	0.00	0	0.67	1	0.00	0	0.67	1	0.00	0	0.00	0	1.50	2	2.90	4	0.50	1	1.00	2
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	2	0.08	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	0.50	1	0.00	0	0.67	1	1.00	1	4.98	8	0.00	0	0.50	1	2.10	3	0.76	2	0.67	1	0.00	0	3.00	5	1.21	3	0.00	0	1.00	1	0.33	1	1.14	2	1.08	2	2.28	5
Bosnia and Herzegovina	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	2.55	4	0.00	0	0.00	0	0.12	1	2.00	2
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.38	2	0.00	0	0.00	0	1.03	2	0.26	4	0.00	0	0.00	0	0.08	1	0.14	1	0.03	1	0.12	1	0.31	2
Iceland	High	1.94	5	0.70	4	1.76	5	1.01	3	2.83	8	4.21	13	2.72	6	5.99	11	1.92	4	1.10	8	0.83	13	3.46	35	3.51	38	3.46	27	2.14	19	1.10	18	1.53	23	1.45	29	2.53	32
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	2	0.00	0	0.25	1	0.00	0	0.25	1	0.00	0	0.00	0	0.60	3	0.00	0	0.00	0	0.00	0
Liechtenstein	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.80	1	0.00	0	0.00	0
Moldova	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.08	1
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0
North Macedonia	Upper-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.03	1	1.00	1	1.07	4	0.75	1	0.00	0	1.52	3	0.00	0	0.04	2	0.00	0	0.17	1	1.02	2	2.83	4	0.73	3	0.50	1
Norway	High	22.69	42	18.78	36	18.13	34	25.30	66	29.10	76	62.16	117	34.91	82	40.49	102	26.85	60	27.73	61	17.63	56	35.20	101	25.69	65	35.32	82	20.49	87	37.48	113	43.50	154	30.80	112	23.89	90
Russia	Upper-middle	461.75	663	483.44	674	526.27	751	449.80	687	446.47	695	493.89	791	501.41	798	442.45	722	399.37	677	469.59	759	456.55	704	571.67	904	496.20	815	545.15	853	519.89	892	527.72	904	527.18	922	538.20	930	587.47	969
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.01	1	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	29.40	44	49.92	70	31.69	48	41.18	54	36.68	59	44.03	68	21.47	41	86.84	117	32.60	52	33.08	59	21.43	39	24.86	44
Serbia and Montenegro[b]	Lower-middle	8.32	17	10.50	15	10.18	19	15.68	26	19.57	31	12.03	28	41.94	58	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	76.26	150	84.79	150	112.81	197	119.75	299	155.14	409	181.27	467	188.84	498	172.79	464	133.39	368	151.82	491	143.85	528	156.22	510	162.41	533	161.64	509	162.69	595	177.40	698	173.10	784	191.73	746	167.65	720
Turkey	Upper-middle	13.52	20	22.14	31	21.70	30	27.18	47	29.40	50	48.86	62	70.22	106	40.41	71	41.77	56	43.68	68	42.83	75	50.89	85	68.10	116	65.89	117	66.39	117	55.32	102	63.05	113	54.53	98	50.57	102
Ukraine	Lower-middle	90.13	137	81.02	131	99.64	156	74.42	136	44.06	103	97.09	179	93.63	180	57.55	120	93.29	169	81.26	150	64.88	134	89.66	170	99.47	190	94.22	191	94.21	188	80.47	157	80.64	169	63.24	157	72.24	161
Middle East		118.77	200	119.44	206	137.61	225	142.45	263	158.86	271	133.93	269	174.11	317	150.91	290	158.37	309	173.10	341	165.81	324	205.03	437	259.57	556	236.33	543	262.77	608	240.56	557	259.74	584	235.61	570	245.23	627
Armenia	Upper-middle	37.19	51	29.95	44	76.60	43	31.45	47	37.70	58	22.12	52	29.72	58	23.58	55	33.23	65	32.35	60	23.04	40	38.25	57	29.14	58	28.03	48	45.08	70	28.27	44	20.37	29	19.76	35	21.33	52
Azerbaijan	Upper-middle	2.00	2	4.21	5	5.67	6	1.25	2	3.25	5	1.92	8	4.25	5	5.95	10	3.96	6	1.50	3	4.15	6	1.75	3	4.99	7	4.78	6	4.00	4	6.50	7	4.00	5	8.15	10	1.50	2
Bahrain	High	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.25	1	0.33	1	0.00	0	0.00	0
Gaza Strip[c]	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0
Georgia	Lower-middle	6.24	12	9.91	22	8.85	19	6.64	16	10.26	20	19.09	34	14.43	29	9.63	20	8.65	23	12.65	29	10.26	29	10.03	34	8.98	35	8.47	33	12.86	32	9.04	40	14.57	42	12.76	40	10.80	34
Iran	Upper-middle	6.21	8	9.25	10	12.75	15	14.12	19	14.43	22	11.23	16	27.75	33	18.68	27	20.87	27	28.51	39	34.29	51	57.09	85	88.96	117	80.93	113	75.77	102	65.96	90	67.50	92	66.28	86	75.13	115
Iraq	Lower-middle	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.60	4	1.86	6	2.94	5	0.68	5	0.78	8	1.75	8
Israel	High	58.05	113	59.25	117	76.49	135	78.81	162	86.38	153	73.25	152	90.76	176	83.51	166	87.62	179	91.04	193	88.85	187	87.80	222	112.85	272	92.88	265	94.81	274	99.58	273	114.55	276	100.29	269	99.14	295
Jordan	Upper-middle	3.13	4	1.88	3	0.50	1	0.83	2	1.50	2	2.63	5	0.08	1	1.50	2	0.06	1	1.50	2	1.67	3	0.00	0	1.50	3	1.00	1	3.12	4	0.00	0	1.82	5	0.62	3	1.58	4

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.21	4	1.03	2	0.25	1	0.13	1	0.00	0	0.00	0	0.00	0	0.41	3	0.46	2	0.46	3	1.01	4	0.68	3
Lebanon	Upper-middle	2.08	4	0.50	1	1.25	2	0.00	0	0.50	2	0.00	0	1.50	3	1.19	3	0.23	2	1.92	5	0.27	2	1.25	2	1.68	6	0.50	1	0.64	3	3.64	8	2.36	9	0.45	6	1.29	6
Oman	High	1.00	1	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.89	2	0.50	1	0.67	2	0.25	1	0.00	0	0.13	1	0.13	1	0.09	2	2.42	3	2.53	5	0.00	0	1.33	2
Qatar	High	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	0.00	0	0.25	1	0.67	3	1.01	12	2.37	22	1.72	15	2.79	20	2.89	23	1.87	8	1.53	4
Saudi Arabia	High	1.88	5	2.50	3	3.75	4	8.49	13	3.31	6	2.00	2	0.50	1	2.00	2	1.02	2	0.64	5	2.04	6	7.51	32	9.29	55	16.31	66	16.37	77	14.29	62	13.84	55	12.32	58	13.92	47
Syria	Low	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.03	1	0.00	0	0.00	0
United Arab Emirates	High	1.00	1	1.00	1	1.75	3	0.25	1	0.35	4	0.53	3	2.77	8	1.75	3	1.00	1	1.89	4	0.58	2	0.68	5	0.54	6	0.33	3	4.53	22	4.44	21	13.48	59	11.32	60	14.92	62
West Bank[c]	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	0.00	0	0.13	1	0.00	0	0.04	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Yemen	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.17	2	1.00	1	1.00	1	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	1.17	2	0.00	0	0.00	0	0.00	0	0.33	2
Africa		50.60	102	40.46	76	67.08	112	58.34	113	56.33	118	60.52	133	85.09	198	70.17	173	49.15	134	68.75	177	88.28	215	84.90	236	117.29	340	107.10	368	155.99	466	138.58	441	141.08	528	121.75	441	134.27	482
Algeria	Upper-middle	3.43	4	1.00	1	0.25	1	0.00	0	3.27	4	4.75	6	5.23	13	3.68	8	0.99	3	3.20	6	6.13	10	5.32	7	13.76	21	6.94	13	11.78	22	3.25	4	6.20	14	2.52	9	2.74	16
Angola	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Benin	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	3.53	6	3.72	5	0.00	0	1.00	1
Botswana	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.43	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.05	3	0.24	5
Burkina Faso	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.24	2	0.00	0	0.24	2	0.79	6	0.14	2	0.00	0	0.00	0	0.61	4	0.33	4	0.45	4	0.52	3	0.52	3
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Cameroon	Lower-middle	1.88	3	0.00	0	0.00	0	0.00	0	0.00	0	1.50	3	0.80	1	0.00	0	0.00	0	0.00	0	0.39	2	0.00	0	1.42	2	0.38	1	0.00	0	1.23	2	1.00	1	2.82	4	1.42	2
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Chad	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.13	1	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.08	1
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Congo, Republic of the	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Côte d'Ivoire	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Egypt	Lower-middle	5.44	10	3.71	6	10.54	14	13.13	17	10.80	18	8.78	18	16.12	27	11.98	20	9.20	13	13.49	18	15.84	20	16.28	25	20.55	33	18.37	28	33.68	51	24.57	43	31.49	55	20.60	36	20.25	33
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eswatini	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Ethiopia	Low	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.02	1	0.00	0	0.19	2	0.25	1	0.25	1	0.53	4	0.08	1	0.06	1	4.08	12	0.84	3	3.20	12	5.50	14
Gabon	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.21	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Ghana	Lower-middle	0.00	0	0.00	0	0.36	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.14	2
Guinea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.75	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Kenya	Lower-middle	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	1.20	2	0.11	1	0.00	0	0.67	1	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.08	1	0.25	1	1.10	2	0.14	2
Lesotho	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Libya	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.50	1	0.00	0	0.00	0	0.00	0	1.25	2	0.00	0	0.14	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0
Madagascar	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.43	1	1.00	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Malawi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mali	Low	0.00	0	0.00	0	0.00	0	1.33	2	1.00	1	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0
Mauritania	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mauritius	Upper-middle	1.00	1	1.75	3	7.92	10	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.57	2	0.00	0	0.00	0	0.00	0	0.00	0	0.64	1	0.64	1	0.00	0	0.00	0
Morocco	Lower-middle	2.09	4	0.45	1	1.67	2	1.00	1	3.18	9	3.93	5	5.61	9	0.49	3	2.80	6	0.75	2	3.00	3	1.25	2	1.82	6	1.01	2	0.33	7	1.44	3	2.90	9	3.58	13	2.79	15
Mozambique	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	2	0.17	1
Namibia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.02	2	0.14	14	0.12	10	0.08	10	0.07	10	0.12	15	0.07	8	0.10	9	0.14	13	0.16	9	0.08	10	0.08	8	0.00	0	0.08	10	0.41	21
Niger	Low	0.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.45	2	0.00	0	0.00	0	2.00	2	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nigeria	Lower-middle	0.50	2	0.17	1	3.33	5	1.33	2	0.00	0	2.00	2	2.42	4	0.50	1	2.40	4	2.60	3	5.83	8	5.13	7	8.54	12	12.55	16	25.77	29	9.20	14	6.95	14	6.27	16	4.02	12
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.92	2	0.00	0	0.13	1	0.00	0	0.00	0	0.50	1	0.10	2
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	0.13	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.80	1	0.67	1	0.00	0	0.00	0	0.00	0	1.67	3	0.00	0	0.06	1	0.17	2	0.34	3	1.50	4	0.92	2
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
South Africa	Upper-middle	35.86	77	32.31	61	41.51	78	39.52	91	30.92	76	36.48	94	48.49	134	46.05	130	30.92	104	40.42	132	51.53	164	51.71	186	64.96	251	63.05	298	79.75	350	85.23	356	83.36	415	75.61	349	84.40	379
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sudan	Lower-middle	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	1.00	1	0.00	0	1.75	2	0.00	0	3.00	3	1.00	1	0.00	0	0.13	1	1.00	1	0.00	0	0.00	0	0.00	0	1.25	2	0.71	4
Tanzania	Low	0.00	0	0.00	0	2.00	2	3.00	3	0.00	0	0.25	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.33	2	0.00	0	0.33	2	0.00	0	0.00	0
Togo	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tunisia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.89	4	0.67	1	1.67	2	1.81	4	0.96	2	2.17	3	1.17	2	2.58	6	3.14	7	3.29	7	2.59	6	0.62	3	0.55	4	4.44	11	4.22	11
Uganda	Low	0.00	0	0.00	0	0.00	0	0.01	1	0.00	0	0.00	0	0.08	1	0.00	0	0.14	1	0.07	1	0.10	1	0.13	1	0.00	0	0.25	1	0.00	0	1.08	2	0.00	0	0.17	1	1.46	3
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	0.03	1	0.07	1	0.00	0	0.01	1	0.00	0	0.00	0	0.08	1	0.70	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.04	1
Zimbabwe	Low	0.03	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	3.00	3
Asia		880.03	1,161	947.62	1,243	915.23	1,224	912.06	1,314	1061.37	1,505	1114.87	1,609	1496.85	2,158	1410.72	2,090	1480.62	2,122	1536.36	2,302	1527.80	2,426	1741.41	2,641	2065.85	3,112	2071.05	3,127	2163.20	3,302	2169.88	3,417	2245.08	3,651	2159.73	3,540	2322.19	3,875
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.35	3	0.00	0
Bangladesh	Lower-middle	1.86	3	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	1.75	2	0.00	0	2.33	3	5.67	6	20.00	20	17.92	21	9.33	10	2.50	3	1.00	1	2.25	4

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Brunei	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Burma	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Cambodia	Lower-middle	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
China	Upper-middle	215.61	284	247.70	317	249.89	330	238.81	347	319.60	433	357.88	495	522.91	718	487.89	686	499.05	709	546.84	798	559.22	841	588.06	874	832.30	1,192	815.65	1,204	845.59	1,218	900.20	1,374	948.47	1,505	872.81	1,452	1041.38	1,752
India	Lower-middle	157.13	216	157.59	218	171.44	219	150.42	228	131.39	206	155.65	243	236.70	348	201.09	296	226.10	338	238.29	367	278.30	417	308.37	449	328.20	494	332.76	516	396.69	630	377.47	599	378.87	640	376.37	606	408.83	708
Indonesia	Lower-middle	1.67	3	0.46	2	1.00	4	4.38	6	3.35	9	1.25	3	2.46	4	3.50	4	1.67	3	6.92	8	1.00	1	1.87	4	4.03	5	1.13	2	2.96	3	1.40	3	5.26	10	0.14	2	1.43	4
Japan	High	439.72	591	453.45	611	416.17	592	441.83	647	501.82	721	505.43	736	566.12	878	559.54	865	597.45	912	513.86	871	463.54	864	592.94	981	587.89	1,051	574.31	998	545.92	1,025	513.97	1,011	572.16	1,123	596.84	1,188	548.53	1,147
Kazakhstan	Upper-middle	2.35	4	8.50	9	4.65	6	4.12	6	2.01	5	0.92	3	2.67	8	0.80	3	1.00	1	1.03	3	1.33	2	1.83	3	5.04	12	7.97	14	7.32	10	10.97	19	11.41	21	10.67	20	16.45	44
Kyrgyzstan	Lower-middle	0.45	1	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.03	1	0.03	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.05	3
Laos	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Malaysia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.45	3	0.00	0	2.50	3	1.33	2	0.83	2	8.00	8	4.74	7	1.77	3	1.00	1	2.41	9	4.21	7	4.27	7	2.73	5	3.23	5	1.52	6
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.14	1	0.00	0	0.00	0	1.00	1	0.22	2	0.00	0	0.42	2	0.61	2	0.00	1	0.17	1
Nepal	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.75	2	1.67	3	1.00	2	0.33	1	0.83	2	0.50	1	1.00	2	0.70	1	0.00	0	1.00	1	0.00	0	2.28	4	1.33	2
North Korea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
Pakistan	Lower-middle	0.25	1	0.50	2	0.33	1	0.00	0	0.10	1	0.00	0	1.88	2	1.53	5	1.42	3	2.58	7	10.13	13	11.03	16	19.96	29	35.91	45	62.00	69	51.04	62	29.26	35	17.85	22	25.25	33
Papua New Guinea	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Philippines	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	2.83	4	0.00	0	0.14	1	0.00	0	0.04	1	0.78	2	0.18	2	0.31	3	0.06	1	0.04	1	0.00	0	0.93	3	0.10	1	0.00	0	0.00	0
Singapore	High	0.83	2	0.00	0	0.00	0	0.81	3	2.34	4	0.00	0	6.32	10	1.17	2	0.77	3	0.64	3	0.61	5	0.15	2	1.27	3	0.26	2	1.00	1	1.23	4	2.24	5	1.30	6	1.02	3
South Korea	High	37.01	65	46.10	75	44.95	76	39.75	82	52.18	116	64.93	156	92.97	178	99.00	222	95.52	196	132.31	252	133.82	302	148.85	318	177.21	371	189.48	374	185.59	380	199.64	435	181.78	432	186.12	463	183.31	477
Sri Lanka	Lower-middle	0.33	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	2.67	3	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.50	1	0.00	0	2.17	3	0.50	1	0.00	0	0.33	1	0.69	2
Taiwan	High	18.30	39	24.30	46	17.83	38	20.24	57	32.79	74	21.02	66	41.64	104	44.31	153	46.62	132	64.95	161	62.23	195	69.34	228	84.70	257	72.22	253	73.49	278	71.58	285	80.66	305	71.43	321	70.35	330
Tajikistan	Low	0.45	2	1.50	2	1.00	1	3.75	5	4.00	5	0.00	0	0.63	2	0.43	3	2.10	4	2.38	5	0.75	2	1.33	3	1.17	2	1.35	5	0.98	6	3.17	5	1.42	2	1.75	2	1.60	3
Thailand	Upper-middle	0.00	1	0.00	0	3.98	10	3.60	8	2.07	6	3.28	11	7.18	14	3.90	20	2.84	10	4.56	16	1.24	6	5.40	16	5.85	19	7.18	20	8.09	31	10.95	34	11.41	49	8.90	43	8.25	51
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Turkmenistan	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Uzbekistan	Lower-middle	3.33	7	7.41	16	1.99	6	2.36	12	5.28	13	4.44	11	6.30	18	4.19	20	2.66	10	6.43	17	7.51	17	6.19	14	6.75	16	8.04	14	5.46	11	8.55	15	8.13	15	3.49	13	5.15	19
Vietnam	Lower-middle	0.53	4	0.10	1	0.00	0	0.00	0	0.00	0	0.07	1	1.00	1	0.00	0	0.58	4	4.58	14	1.35	6	1.13	2	2.26	11	1.42	5	3.82	12	3.25	5	8.09	14	3.86	9	2.63	8
Australia and Oceania		169.78	349	188.25	395	183.86	402	201.53	410	263.97	546	261.57	561	296.39	663	252.73	576	242.85	616	242.08	643	245.74	682	342.97	901	394.51	1,036	352.31	1,019	365.07	1,046	350.37	1,039	382.36	1,188	322.51	1,047	339.97	1,178
Australia	High	150.03	324	175.98	378	165.42	377	192.56	395	248.94	510	241.75	528	281.95	636	244.43	554	233.68	594	228.99	619	232.19	656	326.07	867	372.82	997	334.17	977	339.66	995	330.90	996	355.02	1,121	304.68	992	318.94	1,113
Cook Islands	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-4

S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	19.75	35	12.28	21	18.44	37	8.97	29	15.03	45	19.83	43	14.43	35	8.30	29	9.17	30	13.09	41	13.55	42	16.90	50	21.69	67	18.13	82	25.42	81	19.47	97	27.34	118	17.82	102	21.04	104
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	27.90	107	23.07	83	32.26	116	26.68	86	14.56	62	51.87	140	32.85	137	29.16	131	28.41	134	43.64	94	11.86	43	15.14	47	11.03	37	8.74	32	21.23	72	18.80	76	21.18	109	21.15	106	26.19	141

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see **https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups**, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		164779.00	164,779	165639.00	165,639	169194.00	169,194	176054.00	176,054	186134.00	186,134	192712.00	192,712	204907.00	204,907	214559.00	214,559	224607.00	224,607	234833.00	234,833	241114.00	241,114	257769.00	257,769	271142.00	271,142	277726.00	277,726	290671.00	290,671	292274.00	292,274	296458.00	296,458	300040.00	300,040	306053.00	306,053
North America		59625.76	67,099	59834.78	66,791	60419.44	67,610	62074.15	72,526	65676.05	76,622	65679.67	77,103	67466.90	79,563	68485.54	81,376	68608.32	82,254	70144.74	84,590	69714.19	84,969	73088.53	89,786	75798.93	94,014	75201.93	94,465	76743.38	97,046	74934.40	96,154	72793.62	94,837	71657.65	94,871	70059.10	94,081
Canada	High	5660.69	7,147	5683.06	7,114	5828.05	7,341	6065.35	8,296	6104.89	8,502	6517.63	9,117	6925.77	9,728	7156.39	10,157	7146.19	10,168	7394.98	10,614	7432.58	10,793	7714.42	11,343	8170.52	12,210	8088.53	12,258	8269.70	12,620	8119.86	12,613	7730.56	12,476	7714.00	12,514	7449.31	12,416
Greenland	High	3.95	7	4.78	10	3.30	7	2.64	9	8.17	18	3.13	10	5.17	19	2.73	12	5.95	19	1.10	9	3.30	17	3.20	13	3.84	29	7.30	31	2.78	19	4.72	24	2.97	20	6.02	35	4.73	26
Mexico	Upper-middle	840.57	1,109	917.90	1,143	958.32	1,228	1110.96	1,517	1236.91	1,649	1333.42	1,779	1479.05	2,001	1564.77	2,114	1796.27	2,443	1849.17	2,493	1911.02	2,587	2041.59	2,808	2351.56	3,158	2446.41	3,281	2733.50	3,675	2863.94	3,851	3022.74	4,048	3147.22	4,279	3280.35	4,447
United States	High	53120.55	60,664	53229.04	60,129	53629.77	60,823	54895.20	65,308	58326.08	69,264	57825.48	69,133	59056.91	71,012	59761.66	72,476	59659.92	73,009	60899.49	74,983	60367.28	75,226	63329.32	79,578	65273.01	82,777	64659.69	83,147	65737.40	85,207	63945.88	84,239	62037.36	82,997	60790.41	82,946	59324.72	82,046
Central America and Caribbean		383.59	611	416.66	639	403.97	646	463.64	776	479.44	831	523.43	933	576.32	1,016	596.12	1,128	561.05	1,080	610.75	1,177	628.05	1,188	655.65	1,275	665.46	1,363	631.57	1,335	737.50	1,543	616.95	1,443	589.21	1,430	642.73	1,549	566.72	1,419
Antigua and Barbuda	High	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.47	3	0.11	1	0.25	1	1.56	3	0.00	0	0.18	1	0.18	2	0.75	4	0.00	0	0.25	2	0.72	2	0.27	2	0.50	1	0.70	2
Bahamas, The	High	0.00	0	0.08	2	0.00	0	0.00	0	0.53	2	0.80	2	0.00	0	0.65	2	1.15	5	0.69	3	0.17	1	1.37	3	1.61	7	2.02	10	3.42	12	1.96	7	3.85	21	4.19	16
Barbados	High	4.75	7	2.80	7	4.86	11	3.75	11	2.38	8	3.45	9	6.48	10	6.57	9	11.11	17	1.64	10	2.67	8	4.23	13	1.09	5	2.24	9	4.08	14	5.83	13	5.13	17	2.78	9	5.47	10
Belize	Upper-middle	0.17	1	0.00	0	0.98	4	0.14	1	2.28	5	1.07	4	2.55	11	1.92	6	0.61	2	2.57	10	3.01	8	1.08	6	3.13	8	2.33	9	0.58	4	1.63	11	2.41	12	5.43	20	2.36	10
Costa Rica	Upper-middle	41.49	80	43.08	78	63.78	107	59.40	119	73.38	132	108.80	197	80.05	157	91.01	207	76.00	163	89.74	191	94.94	200	103.38	223	93.89	209	90.23	217	115.30	275	99.87	252	99.41	244	120.81	295	119.36	295
Cuba	Upper-middle	187.42	234	185.21	235	174.88	229	223.20	293	215.33	286	222.87	309	263.50	349	224.24	326	213.47	308	259.04	366	238.87	347	255.07	370	243.06	382	225.06	351	240.43	378	185.81	317	137.45	261	163.23	291	119.15	238
Dominica	Upper-middle	0.00	0	1.10	2	0.00	0	0.00	0	0.83	1	0.27	2	0.46	2	0.80	4	0.17	1	2.42	4	0.27	2	1.95	7	2.85	7	0.50	1	0.92	4	1.94	10	2.64	6	1.58	7	1.93	6
Dominican Republic	Upper-middle	1.37	6	1.45	5	0.81	5	2.20	7	3.26	9	2.00	7	0.20	1	1.58	9	3.52	14	3.17	12	5.26	11	4.66	14	5.37	19	4.55	23	9.48	30	8.72	37	7.15	32	6.26	25	8.36	35
El Salvador	Lower-middle	1.14	2	3.27	4	3.05	5	1.08	2	2.12	6	4.37	9	0.83	3	1.08	3	3.14	9	3.93	11	4.29	11	2.49	9	2.33	6	5.07	14	4.86	14	3.52	7	4.49	15	2.81	9	5.51	14
Grenada	Upper-middle	0.00	0	0.25	1	0.00	0	1.39	5	1.31	3	1.79	6	9.12	26	10.96	30	12.75	38	7.80	18	4.93	13	10.47	24	9.96	26	9.93	24	24.91	55	11.11	39	9.11	29	14.14	51	14.16	56
Guatemala	Upper-middle	15.86	32	12.86	24	12.54	22	11.61	31	6.00	23	16.05	41	7.19	22	5.12	26	9.96	23	18.56	44	27.02	60	15.68	36	26.35	61	22.77	56	21.14	52	22.07	56	21.72	69	27.54	79	21.82	65
Haiti	Low	1.25	2	2.47	6	1.98	5	1.95	7	1.29	4	0.76	3	2.31	7	3.41	10	0.98	6	3.80	13	1.52	7	5.79	27	4.52	16	7.00	21	7.61	30	4.87	23	8.81	33	5.65	24	6.37	22
Honduras	Lower-middle	4.19	11	4.38	9	2.66	12	1.33	5	0.91	6	4.13	9	2.63	8	2.94	10	3.81	10	5.71	16	6.60	18	9.02	27	7.51	21	9.38	34	7.60	28	11.21	27	9.91	31	8.90	37	10.79	37
Jamaica	Upper-middle	9.83	15	21.77	32	19.39	36	11.27	19	16.19	27	14.82	26	22.24	33	21.70	35	17.84	30	22.89	39	23.37	37	33.99	56	16.60	33	28.97	52	34.17	69	17.89	44	24.22	50	20.25	49	16.73	32
Nicaragua	Lower-middle	3.40	10	2.38	5	0.00	0	3.24	7	3.81	12	3.05	15	4.87	20	4.06	13	7.56	21	7.67	24	7.23	21	5.44	22	9.98	30	7.26	21	8.83	27	8.60	31	11.13	42	11.04	45	9.20	38
Panama	High	29.59	69	37.70	82	35.52	83	43.85	102	39.31	107	42.09	112	52.36	146	60.07	173	68.80	182	60.32	173	62.75	186	61.59	188	71.39	227	71.98	231	71.49	219	81.91	272	83.82	278	95.89	296	86.14	297
Puerto Rico	High	66.60	127	83.27	139	69.25	116	79.15	150	91.40	180	74.88	182	98.98	216	128.00	245	104.98	235	96.11	237	117.01	257	117.87	268	138.84	303	110.39	258	125.40	291	126.44	305	124.78	318	115.14	296	107.66	277
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.08	1	0.17	1	0.00	0	0.00	0	1.43	4	0.31	2	0.93	2	1.97	6	2.81	9	0.00	0	4.08	12	3.66	9	5.90	17	4.02	22	5.87	38	10.38	34	7.71	32
Saint Lucia	Upper-middle	1.50	2	0.30	1	0.00	0	0.00	0	0.25	1	0.00	0	0.52	3	0.73	5	0.50	1	0.00	0	0.34	2	0.33	1	0.37	2	0.20	1	0.00	0	0.93	2	1.93	5	0.33	1	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.70	3	0.14	1	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.50	1	0.00	0	0.53	3	0.25	1	0.17	1
Trinidad and Tobago	High	15.62	23	14.28	23	14.10	26	19.90	34	18.73	33	21.76	32	19.79	28	26.58	44	22.22	38	22.72	47	24.83	44	21.06	43	21.53	45	28.00	63	50.63	80	18.28	47	27.19	46	25.95	51	18.93	38
South America		4052.88	4,956	4190.04	4,975	4914.49	5,833	5251.78	6,527	5709.45	7,112	6375.65	7,851	8006.64	9,725	8535.69	10,358	9693.57	11,722	10516.77	12,631	11189.37	13,431	11863.23	14,358	12981.69	15,758	13298.62	16,326	14146.83	17,525	14574.03	18,165	15448.68	19,493	16097.56	20,254	16519.70	21,028
Argentina	High	1082.87	1,306	1076.19	1,285	1143.68	1,376	1145.22	1,469	1182.97	1,559	1209.16	1,620	1473.40	1,914	1433.36	1,894	1601.56	2,117	1797.88	2,349	1881.95	2,462	2059.98	2,677	2190.36	2,863	2071.69	2,796	2178.90	2,939	2089.75	2,864	2142.83	2,968	2186.63	3,095	2210.60	3,152
Bolivia	Lower-middle	13.38	27	11.89	28	14.32	33	19.88	52	16.46	53	23.47	61	27.37	73	43.70	107	44.24	114	36.79	99	38.43	101	44.01	110	33.38	88	38.04	100	38.69	118	31.31	103	25.49	89	29.53	103	34.60	114
Brazil	High	2193.71	2,673	2367.64	2,750	2843.61	3,285	3182.18	3,791	3493.93	4,172	3987.35	4,707	5119.46	5,962	5615.56	6,542	6333.42	7,380	6708.63	7,782	7192.82	8,365	7585.31	8,901	8356.86	9,839	8793.26	10,445	9309.22	11,223	9624.22	11,730	10146.85	12,568	10698.45	13,112	11164.48	13,757
Chile	High	304.78	420	313.69	422	433.83	547	393.93	566	427.30	639	508.61	708	576.44	791	620.64	866	694.10	982	720.14	1,027	762.75	1,096	890.28	1,250	958.18	1,360	984.50	1,422	1073.42	1,601	1146.79	1,700	1147.01	1,799	1169.73	1,838	1219.68	2,006
Colombia	Upper-middle	122.77	196	125.40	180	154.78	230	124.61	223	170.57	273	188.80	303	276.17	422	281.97	443	411.35	609	528.41	763	666.08	931	636.25	955	793.61	1,144	766.07	1,148	866.04	1,283	978.62	1,484	1191.58	1,712	1113.55	1,708	1000.83	1,640

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	21.96	41	10.25	21	29.42	50	21.37	55	24.65	66	42.38	87	39.83	90	51.79	118	53.40	123	74.11	165	64.21	151	63.68	155	83.33	199	82.65	237	106.88	266	127.79	325	197.77	445	239.66	555	271.06	593
Guyana	Upper-middle	2.33	5	2.67	6	3.25	5	1.09	3	1.61	6	1.52	3	2.13	6	2.79	9	2.98	10	2.21	8	6.58	10	4.13	8	1.64	4	2.12	6	2.41	9	2.32	11	7.01	17	2.78	9	3.73	14
Paraguay	Upper-middle	3.73	7	2.31	6	4.39	11	6.15	15	6.06	13	6.70	19	6.37	18	6.70	22	7.01	19	7.37	22	5.18	15	10.19	29	10.36	28	11.67	32	19.08	42	23.42	51	19.28	48	28.58	64	28.83	56
Peru	Upper-middle	59.25	99	57.68	95	59.78	100	92.09	166	87.42	171	94.81	179	176.84	347	145.21	264	108.83	236	115.47	243	146.79	282	155.16	324	147.14	320	153.24	320	165.87	385	174.97	422	199.70	451	255.32	546	247.82	560
Suriname	Upper-middle	0.38	1	0.99	3	0.79	2	1.14	3	2.64	4	2.14	6	1.17	2	0.83	4	2.13	5	1.67	2	1.17	3	0.73	4	3.49	9	3.29	6	1.18	4	3.26	9	6.94	18	5.07	15	7.15	21
Uruguay	High	60.51	104	60.57	87	61.70	93	77.90	128	84.93	141	98.68	158	95.18	164	106.78	175	115.45	204	139.38	236	131.97	241	165.11	282	142.86	266	156.05	293	188.51	344	167.25	330	180.75	351	183.35	343	218.16	413
Venezuela	Upper-middle	187.21	248	160.79	222	179.93	248	186.22	276	210.90	311	212.02	317	212.33	309	226.37	336	318.86	437	384.70	504	291.45	421	248.40	370	260.49	375	236.06	354	196.64	324	204.34	310	183.47	296	184.89	318	112.76	244
Europe		64565.13	71,712	64521.66	70,729	65249.41	72,131	66641.43	76,087	69300.46	79,175	70393.76	80,846	72678.24	83,704	74671.88	86,438	78440.61	90,894	80865.28	93,780	81441.56	95,379	84680.29	99,914	89593.87	106,030	89863.95	106,995	92875.16	110,909	93365.17	112,143	92114.11	111,649	92107.29	112,315	91413.57	112,800
EU		55901.53	63,271	55911.27	62,450	56655.82	63,797	57746.49	67,418	60203.85	70,352	60973.00	71,752	63185.73	74,594	64774.44	76,950	68005.60	80,854	69828.19	83,338	69811.84	84,234	72434.21	88,216	76705.30	93,695	77131.27	94,910	79203.86	97,963	78868.78	98,446	76753.08	97,067	76384.17	97,350	74987.82	97,130
Austria	High	946.05	1,347	985.58	1,349	1058.26	1,458	1075.53	1,636	1079.55	1,701	1029.51	1,686	1107.61	1,833	1200.57	2,008	1306.68	2,243	1343.38	2,343	1391.45	2,460	1442.81	2,624	1545.73	2,830	1568.61	2,984	1603.05	3,134	1599.74	3,178	1577.85	3,300	1590.92	3,323	1492.94	3,265
Belgium	High	1512.47	2,181	1662.42	2,246	1613.58	2,272	1690.38	2,564	1823.91	2,738	1928.57	2,977	1847.16	2,879	1984.15	3,194	2011.99	3,302	2153.73	3,532	2104.80	3,637	2296.81	3,981	2372.47	4,229	2369.53	4,343	2379.47	4,417	2396.03	4,646	2301.56	4,531	2228.17	4,593	2230.92	4,762
Bulgaria	Upper-middle	301.92	374	235.28	306	307.42	420	287.34	385	266.47	379	351.26	473	312.73	436	334.01	473	366.32	530	628.65	791	460.96	605	396.97	574	487.25	673	440.14	648	498.12	722	389.46	587	397.51	633	411.02	613	363.41	591
Croatia	High	180.87	214	171.25	214	165.36	213	192.65	263	206.62	276	213.57	290	257.60	345	323.28	414	412.91	519	327.66	453	310.96	473	314.83	484	358.06	571	327.55	548	311.08	559	300.78	546	355.22	612	345.77	621	363.30	648
Cyprus	High	16.19	27	11.42	22	18.63	32	8.92	23	14.47	25	17.47	40	24.13	51	29.39	60	30.56	64	37.85	76	38.27	80	42.32	96	29.45	160	76.39	153	66.70	150	61.38	172	80.18	195	88.65	207	95.21	250
Czechia	High	748.94	953	782.27	1,003	766.90	982	908.48	1,233	1005.52	1,354	974.31	1,333	1099.96	1,511	1230.46	1,725	1402.09	1,953	1361.96	1,936	1534.91	2,212	1381.53	2,046	1585.78	2,364	1530.56	2,429	1674.14	2,675	1810.96	2,979	1843.01	3,053	1828.11	3,098	1727.08	3,074
Denmark	High	1373.15	1,936	1384.33	1,946	1315.05	1,876	1470.12	2,217	1481.03	2,232	1397.07	2,257	1439.41	2,366	1470.54	2,439	1515.31	2,601	1500.19	2,690	1596.25	2,805	1673.81	3,061	1919.33	3,414	1957.79	3,668	2068.36	3,911	2133.88	4,148	2072.90	4,165	2054.85	4,103	2002.57	4,250
Estonia	High	85.08	128	99.98	143	108.95	146	102.40	161	106.25	188	130.76	215	133.82	218	153.51	245	137.37	240	179.89	291	181.85	300	189.86	328	211.40	406	205.61	409	220.31	432	224.21	447	215.02	472	215.42	512	194.68	515
Finland	High	1053.19	1,425	1102.55	1,452	1143.69	1,508	1156.21	1,647	1223.42	1,741	1160.29	1,697	1209.03	1,759	1220.74	1,891	1293.31	1,962	1240.59	1,962	1230.71	2,016	1317.57	2,147	1357.62	2,292	1318.71	2,316	1367.45	2,432	1326.80	2,456	1275.95	2,403	1272.77	2,482	1225.69	2,479
France	High	8208.53	10,502	8066.28	10,198	7845.32	10,009	7885.28	10,872	8013.73	11,178	8026.31	11,346	8155.81	11,640	8171.04	11,915	8330.56	12,338	8490.50	12,803	8619.92	13,094	8685.71	13,419	8929.98	14,002	9062.04	14,385	9182.59	14,736	8965.41	14,747	8918.77	14,938	8666.95	14,819	8343.07	14,685
Germany	High	9981.24	12,840	9896.78	12,554	9919.53	12,755	10056.95	13,810	10468.35	14,532	10952.80	15,272	11326.20	15,836	11384.10	16,280	11669.54	16,883	11994.88	17,462	11954.54	17,860	12337.30	18,576	13018.62	19,848	12851.72	20,029	13584.84	21,267	13051.18	20,945	12884.88	20,955	12998.79	21,298	12470.56	21,087
Greece	High	635.34	808	678.86	833	763.05	956	760.94	977	861.40	1,111	933.09	1,205	1034.99	1,351	1021.43	1,371	1253.91	1,640	1255.45	1,716	1182.15	1,635	1175.97	1,671	1251.11	1,827	1209.16	1,779	1149.52	1,769	1085.19	1,767	1097.67	1,762	1168.92	1,864	1126.77	1,838
Hungary	High	624.63	834	628.47	826	717.98	926	710.36	1,024	704.40	1,023	855.19	1,184	890.42	1,243	938.43	1,305	1260.63	1,690	988.38	1,399	843.74	1,253	1022.42	1,559	1020.29	1,527	952.71	1,469	1051.34	1,617	998.83	1,609	975.05	1,556	972.59	1,537	891.55	1,536
Ireland	High	356.05	504	378.62	514	374.33	528	378.42	605	428.79	682	526.80	796	502.92	821	576.24	955	625.04	1,057	720.23	1,187	800.56	1,336	874.20	1,445	850.90	1,435	810.10	1,390	808.04	1,412	758.41	1,378	739.23	1,429	722.54	1,410	734.66	1,543
Italy	High	5590.17	6,776	5404.57	6,470	5780.60	6,959	6061.91	7,624	6384.14	7,972	6267.02	8,067	6682.37	8,512	7014.85	9,119	7535.94	9,852	7782.43	10,228	7539.67	10,038	8021.77	10,835	8590.49	11,614	8828.53	12,159	8884.53	12,341	8855.39	12,437	8607.96	12,404	8728.00	12,613	8887.66	12,997
Latvia	High	44.16	65	39.15	55	41.75	65	40.76	69	47.84	76	53.53	76	30.20	56	44.75	71	42.15	81	103.64	138	55.85	92	142.21	186	80.26	132	119.13	175	102.94	166	186.56	271	91.08	174	188.72	276	81.60	182
Lithuania	High	82.75	114	100.90	136	57.93	93	81.20	125	126.87	171	137.10	185	133.73	195	138.57	201	118.87	195	128.93	201	125.72	195	159.09	241	159.77	243	155.25	229	173.50	271	200.88	313	191.60	314	197.24	337	184.80	338
Luxembourg	High	14.97	27	19.57	39	18.82	34	16.48	37	30.88	57	23.42	49	23.73	64	23.98	60	40.15	89	41.16	114	55.30	134	70.09	174	69.73	175	77.13	203	104.19	260	109.61	281	100.76	233	78.82	223	81.28	242
Malta	High	5.66	8	2.78	6	6.43	9	7.24	11	5.88	10	7.83	17	7.12	13	11.22	20	13.46	24	13.06	29	11.63	27	12.70	27	11.79	29	17.07	36	11.61	40	16.37	42	14.09	49	18.98	56	18.79	58
Netherlands	High	2994.79	4,101	2924.95	3,930	3059.60	4,159	3027.97	4,512	3087.14	4,683	3304.84	4,977	3196.35	4,937	3334.15	5,306	3478.61	5,595	3553.46	5,758	3653.46	6,082	3864.31	6,558	4060.30	7,158	4183.37	7,402	4216.37	7,531	4019.83	7,473	3843.75	7,416	3936.93	7,780
Poland	High	1600.13	1,915	1708.94	2,028	1662.72	1,994	1913.63	2,379	1967.58	2,476	2012.88	2,494	2074.17	2,656	2044.83	2,631	2226.55	2,866	2459.29	3,138	2591.91	3,326	2644.03	3,389	2786.04	3,593	3161.20	4,028	3450.81	4,422	3613.65	4,646	3564.32	4,641	3636.01	4,781	3742.51	5,023
Portugal	High	475.05	680	524.40	712	535.48	751	629.17	902	696.93	1,008	730.47	1,075	861.94	1,315	916.39	1,385	1116.79	1,658	1146.25	1,748	1236.62	1,915	1386.99	2,197	1757.84	2,688	1780.54	2,812	1772.17	2,835	1780.52	2,938	1762.40	2,946	1645.74	2,876	1636.49	2,919
Romania	Upper-middle	99.30	149	102.17	139	107.29	140	100.28	163	119.31	188	149.22	197	156.35	216	212.56	300	325.89	441	414.83	546	560.44	696	626.71	800	776.43	960	656.90	889	679.50	933	726.43	995	626.16	892	638.20	896	600.12	922
Slovakia	High	398.25	489	368.34	451	337.90	427	344.00	482	402.63	578	366.92	511	431.29	610	401.67	580	416.77	626	411.89	613	425.81	634	422.16	647	435.57	669	492.03	726	448.71	706	475.52	765	473.76	770	522.40	806	468.92	788
Slovenia	High	259.05	328	174.59	229	199.48	256	186.82	276	186.82	263	254.93	351	228.80	338	248.59	363	340.28	477	298.93	464	293.69	441	275.51	468	346.65	545	355.42	574	345.78	584	347.17	640	307.95	583	345.91	611	337.37	646

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	3967.55	4,816	4321.41	5,069	4375.81	5,254	4478.06	5,675	4732.55	6,074	4914.70	6,456	5477.36	7,192	5520.03	7,356	6006.90	8,111	6234.88	8,482	6262.17	8,788	6890.71	9,783	7532.41	10,796	7470.76	10,800	7570.09	11,059	7910.93	11,622	7330.31	11,183	7167.10	11,120	7030.35	11,291
Sweden	High	2460.37	3,404	2561.34	3,434	2554.18	3,474	2481.38	3,736	2541.08	3,835	2609.59	3,915	2692.34	4,100	2670.32	4,182	2594.39	4,165	2686.62	4,389	2619.15	4,480	2586.05	4,552	2712.71	4,936	2761.29	5,124	2850.01	5,316	2865.38	5,547	2759.52	5,606	2717.66	5,626	2678.65	5,742
United Kingdom	High	11885.90	15,374	11574.05	14,729	11766.40	15,165	11694.18	16,152	12192.77	17,150	11643.54	16,743	11848.19	17,348	12154.64	18,155	12132.62	18,416	12329.49	18,930	12129.34	19,180	12179.77	19,558	12397.32	20,446	12392.03	20,984	12628.66	21,681	12658.28	22,403	12230.81	22,286	12090.19	22,492	12011.72	22,836
Other Europe	High	8603.61	10,704	8610.39	10,284	8593.59	10,587	8894.94	11,651	9096.61	12,100	9420.76	12,535	9492.51	12,732	9897.43	13,412	10435.01	14,164	11037.09	15,000	11629.72	15,915	12246.07	16,949	12888.57	18,086	12732.68	18,216	13671.30	19,460	14496.38	20,776	15361.03	21,931	15723.12	22,685	16425.75	23,643
Albania	Upper-middle	4.73	9	6.00	6	4.37	7	4.90	12	3.39	11	4.82	12	3.20	9	6.62	14	6.46	13	11.84	19	15.31	24	14.16	25	32.90	47	11.77	29	21.38	41	22.95	54	19.95	50	22.58	56	13.57	50
Andorra	High	0.00	0	0.14	1	0.00	0	0.83	2	0.13	1	1.13	2	1.00	1	0.25	1	0.06	1	0.02	1	0.00	0	0.50	1	1.08	3	0.80	2	1.05	5	1.96	5	2.59	5	0.52	2	0.34	4
Belarus	Upper-middle	129.26	153	146.04	179	137.04	177	120.48	168	121.29	165	92.43	143	102.64	134	94.29	131	84.34	118	90.02	135	72.27	121	76.60	121	89.87	155	56.41	114	82.90	142	75.11	132	77.97	137	89.52	165	94.20	191
Bosnia and Herzegovina	Upper-middle	0.50	1	2.25	3	2.77	6	3.53	7	2.96	10	7.55	16	9.43	20	13.71	27	14.24	36	12.29	26	19.31	46	17.65	40	24.65	55	23.33	51	32.03	79	41.50	91	41.80	92	35.75	88	63.42	144
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	1	0.00	0	1.00	1	0.00	0	0.08	1	0.14	1	0.14	1
Iceland	High	36.61	67	38.39	69	50.86	75	43.95	87	52.79	85	51.77	101	52.01	97	57.16	107	65.45	125	59.37	147	53.74	142	57.38	149	78.17	184	87.98	217	61.31	175	77.46	188	84.15	241	69.14	211	69.60	208
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.17	7	6.73	15	7.78	17	6.77	15	10.81	26	8.11	20	15.69	37	13.16	34	17.44	36	14.89	37	19.97	51
Liechtenstein	High	0.00	0	0.25	1	0.00	0	0.26	2	1.08	3	0.14	1	0.75	3	0.00	0	0.63	3	1.35	3	0.28	2	1.24	3	1.01	4	1.56	8	0.90	5	1.60	6	2.00	6	2.88	9	0.88	7
Moldova	Lower-middle	12.29	18	7.83	11	7.42	15	12.12	16	8.90	16	8.31	12	7.59	15	9.76	15	10.24	17	8.37	20	8.58	16	8.48	17	8.77	18	13.49	27	13.40	34	18.56	46	15.47	36	12.98	32	12.86	30
Monaco	High	3.02	4	1.44	4	0.20	1	1.82	5	3.22	11	1.68	6	3.03	5	1.63	7	5.87	13	6.20	14	4.64	9	5.92	14	3.00	12	3.65	15	5.79	25	8.01	30	7.30	31	10.37	35	8.82	30
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	5.64	13	10.64	24	8.84	20	10.27	25	16.40	35	21.88	42	16.58	41	26.84	58	26.19	53	20.51	48	25.21	57	23.45	60
North Macedonia	Upper-middle	7.42	12	13.48	16	10.68	13	7.70	12	10.08	21	10.67	18	5.63	9	19.30	27	26.30	38	30.18	55	28.29	49	26.08	50	51.38	77	29.17	53	48.28	94	36.11	81	40.68	80	28.56	69	36.89	85
Norway	High	744.94	1,007	742.43	991	799.85	1,081	756.08	1,124	810.36	1,225	851.21	1,291	939.15	1,448	995.83	1,565	931.13	1,499	1028.71	1,701	1059.34	1,784	1140.08	1,965	1113.24	2,000	1159.48	2,074	1212.98	2,258	1188.14	2,304	1181.80	2,376	1264.12	2,561	1203.21	2,552
Russia	Upper-middle	4156.27	4,707	3913.02	4,380	3611.59	4,148	3807.77	4,501	3594.33	4,316	3674.95	4,418	3204.09	3,887	3361.01	4,057	3721.56	4,472	3740.28	4,458	4029.28	4,761	4289.08	5,054	4345.70	5,232	4299.50	5,260	4720.94	5,721	5545.95	6,762	5942.14	7,198	6390.56	7,818	7417.20	8,858
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.32	2	0.00	0	0.10	1	0.31	2	0.61	2	0.34	3	0.77	5	1.41	8	1.51	5
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	334.94	410	475.18	576	471.02	577	509.75	609	510.77	644	731.89	906	639.01	807	694.28	890	715.80	912	665.32	882	630.79	851	650.68	938
Serbia and Montenegro[b]	Lower-middle	146.37	177	120.55	151	155.94	180	125.67	165	193.69	240	205.57	267	249.55	307	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	2245.09	3,303	2183.50	3,087	2146.94	3,127	2158.42	3,566	2293.39	3,836	2197.12	3,815	2447.64	4,171	2466.60	4,365	2441.94	4,480	2592.81	4,743	2682.55	5,054	2771.40	5,400	2958.85	5,833	2996.46	6,030	3115.51	6,274	3018.07	6,325	3054.99	6,416	3170.41	6,773	2977.90	6,648
Turkey	Upper-middle	789.32	916	1010.90	1,129	1297.95	1,453	1510.71	1,729	1658.04	1,910	1897.07	2,148	2159.39	2,433	2224.62	2,522	2319.06	2,633	2612.99	2,938	2797.22	3,175	2914.25	3,349	3006.54	3,474	2974.46	3,465	3131.27	3,687	3275.19	3,924	3796.26	4,551	3563.16	4,274	3416.36	4,191
Ukraine	Lower-middle	387.80	471	424.17	486	368.04	438	340.69	434	342.87	433	416.36	516	307.00	409	305.39	419	319.74	431	356.06	465	333.80	442	389.32	521	408.69	548	410.62	572	485.14	664	430.29	628	389.79	592	390.12	595	414.75	658
Middle East		2074.76	2,718	2094.20	2,681	2323.78	2,951	2422.49	3,312	2648.85	3,566	2818.84	3,784	3556.65	4,609	4079.49	5,233	4218.44	5,543	4507.19	5,888	5168.51	6,985	6783.57	9,001	6474.75	8,931	6456.34	9,216	7310.55	10,546	7281.83	10,817	8201.51	11,961	9128.25	13,022	10408.65	14,554
Armenia	Upper-middle	43.82	52	40.42	49	42.87	49	33.39	48	22.91	38	30.63	40	31.11	43	25.20	34	26.98	49	34.11	49	37.09	57	49.12	72	54.27	78	54.84	79	46.43	76	52.00	87	53.74	82	47.08	77	46.73	96
Azerbaijan	Upper-middle	9.66	12	9.04	10	9.17	10	14.58	22	11.36	17	22.31	27	11.38	16	8.58	13	9.87	19	14.29	25	19.95	34	27.68	45	23.06	38	15.79	28	18.11	35	22.74	37	23.01	46	17.12	43	40.67	79
Bahrain	High	9.00	10	8.08	10	7.47	10	12.31	18	8.24	17	18.74	28	17.99	31	13.96	23	14.52	28	12.77	24	14.58	28	15.08	35	11.39	23	17.15	35	15.77	35	17.33	32	16.56	37	11.26	22	15.45	32
Gaza Strip[c]	Lower-middle	2.00	2	0.45	2	4.16	8	1.33	2	2.08	3	1.60	2	4.82	8	9.93	15	2.76	4	10.10	13	10.24	16	9.69	13	6.26	13	9.21	17	9.54	22	5.02	11	5.88	12	4.52	13	5.99	13
Georgia	Lower-middle	39.53	47	28.54	38	18.12	28	12.38	20	17.72	32	35.17	56	36.26	56	27.58	42	33.82	55	40.96	65	38.93	55	36.09	61	43.26	76	29.61	53	49.47	97	54.57	111	41.16	81	52.06	99	51.60	118
Iran	Upper-middle	143.13	186	175.32	210	306.66	360	352.22	434	544.68	651	666.97	804	1275.64	1,452	1804.52	2,061	1879.74	2,166	2053.04	2,320	2524.40	2,883	3873.76	4,301	3395.39	3,827	3315.29	3,736	3770.90	4,228	3787.67	4,257	4505.41	5,073	4985.89	5,630	5714.77	6,448
Iraq	Lower-middle	4.58	7	4.88	7	6.75	8	8.69	12	4.94	9	7.71	13	13.16	18	16.82	24	13.96	23	33.85	49	52.73	75	64.55	91	55.99	95	90.95	148	67.68	144	212.64	310	415.99	560	760.71	915
Israel	Upper-middle	1443.16	1,878	1439.17	1,862	1499.17	1,914	1514.38	2,085	1578.98	2,162	1536.27	2,127	1572.96	2,171	1572.56	2,181	1555.55	2,216	1584.64	2,240	1568.23	2,328	1579.35	2,367	1639.19	2,460	1563.76	2,471	1710.61	2,642	1650.70	2,668	1584.48	2,551	1698.69	2,737	1578.50	2,562
Jordan	Upper-middle	55.21	73	55.10	75	55.63	72	78.59	107	67.75	90	69.72	103	103.79	137	112.96	152	96.78	140	136.60	194	134.20	181	141.33	203	153.79	212	104.11	178	125.31	214	143.48	233	146.22	238	161.10	264	191.48	326

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	87.76	113	83.62	98	97.58	113	86.62	120	89.02	118	110.48	134	81.40	104	92.66	116	113.16	145	94.09	124	81.26	109	104.75	145	92.14	125	98.37	144	70.65	109	76.81	129	72.63	130	64.82	127	114.52	178
Lebanon	Upper-middle	41.04	59	42.33	66	45.27	77	56.83	82	59.08	92	53.96	84	65.09	110	67.27	109	76.16	138	77.47	144	70.05	132	102.02	178	93.11	194	101.84	217	120.88	238	120.90	241	125.62	273	143.10	329	179.31	344
Oman	High	14.89	30	12.47	19	22.16	34	24.82	40	20.50	38	28.69	41	40.48	57	37.05	62	33.81	60	25.61	60	47.54	99	46.90	98	53.19	102	62.69	120	75.17	156	68.08	154	77.21	186	76.61	201	84.29	237
Qatar	High	3.92	7	5.03	7	5.67	7	3.86	6	5.55	11	3.87	9	8.86	16	9.31	22	12.77	27	16.56	41	23.21	58	24.28	70	32.25	99	43.69	146	65.09	217	79.27	254	97.53	314	83.08	258	112.83	288
Saudi Arabia	High	114.52	156	122.28	151	133.40	179	138.18	204	122.72	173	135.91	188	167.44	227	167.50	240	199.98	310	264.16	423	394.55	749	540.19	1,124	647.52	1,421	811.78	1,729	959.48	2,174	964.27	2,378	1035.43	2,566	1121.95	2,491	1214.90	2,603
Syria	Low	17.97	31	21.20	32	25.02	40	24.38	41	29.62	44	25.88	46	25.91	51	40.01	63	45.60	84	33.68	68	41.84	90	54.06	110	62.04	116	58.63	118	50.81	78	37.74	65	40.10	64	47.20	80	61.78	84
United Arab Emirates	High	35.58	55	38.62	55	33.37	57	49.17	90	49.78	89	63.27	105	82.46	145	56.34	119	70.15	139	51.70	117	84.29	162	88.50	177	78.70	159	95.84	201	110.06	249	109.86	244	134.49	315	159.55	412	191.22	482
West Bank[c]	Lower-middle	5.00	8	2.21	5	6.31	12	5.02	9	9.00	12	5.05	11	8.92	27	13.13	25	13.54	31	10.02	22	10.81	27	12.77	40	13.77	31	13.45	37	22.11	49	14.23	36	23.40	43	24.73	52	28.90	56
Yemen	Low	3.50	9	5.46	11	5.00	7	5.76	11	4.90	11	2.59	7	9.00	16	4.12	9	8.90	16	13.54	32	14.60	39	13.43	36	13.51	33	10.04	36	19.20	48	9.50	31	6.00	27	13.52	45	15.01	69
Africa		2134.80	2,968	2268.04	3,022	2290.49	3,164	2524.65	3,763	2515.92	3,861	2796.03	4,306	3430.09	5,186	4015.91	5,971	4123.15	6,153	4844.96	7,148	5397.86	7,964	5859.77	8,910	6225.75	9,543	6064.17	9,837	6430.23	10,516	6738.45	11,372	7220.87	12,110	7878.46	13,159	8841.49	14,324
Algeria	Upper-middle	15.74	31	25.20	38	24.85	40	39.59	67	51.17	83	47.88	81	79.42	131	99.32	157	94.66	160	117.41	194	126.23	207	125.48	212	165.19	254	209.82	317	211.79	322	245.32	375	281.93	431	323.56	498	363.84	553
Angola	Lower-middle	2.41	5	0.00	0	0.53	2	0.64	3	1.67	4	1.77	6	1.78	6	2.99	8	0.54	3	3.56	10	2.13	8	3.48	9	3.40	15	2.67	12	2.97	13	5.33	17	7.68	27	9.95	36	5.05	22
Benin	Low	19.21	37	22.92	42	14.49	30	15.59	39	18.15	45	20.27	41	28.35	58	26.58	63	42.60	93	44.01	101	34.61	90	56.13	110	57.90	119	66.83	151	59.29	140	50.69	120	49.50	123	67.65	154	64.70	146
Botswana	Upper-middle	6.66	14	11.17	18	16.84	31	23.78	36	20.87	37	21.27	38	24.12	45	29.47	54	22.87	56	29.85	55	20.53	44	21.38	60	33.80	76	34.22	81	35.52	93	35.38	85	37.69	108	40.77	114	56.08	135
Burkina Faso	Low	8.83	23	10.88	31	14.56	27	21.58	58	14.26	42	21.19	56	38.88	81	31.00	70	39.96	94	44.11	104	41.50	103	45.64	128	53.65	130	43.47	118	47.88	134	53.11	172	54.81	151	52.41	152	62.76	157
Burundi	Low	1.17	2	0.33	1	0.10	1	0.80	1	0.50	1	1.08	4	0.61	2	0.86	3	0.37	2	0.75	2	3.56	8	1.31	7	3.09	12	2.45	8	0.32	6	3.36	13	4.22	14	2.21	11	3.52	17
Cabo Verde	Lower-middle	0.25	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.56	3	0.33	1	0.53	2	0.31	2	0.75	5	0.00	0	1.97	6	1.83	9	0.78	4	2.31	6	3.35	8	3.35	8	1.15	6
Cameroon	Lower-middle	34.54	76	49.32	92	46.68	84	55.72	111	44.91	114	62.57	127	82.13	181	122.64	221	115.75	244	108.18	238	102.43	249	111.02	275	132.83	316	148.70	322	157.62	329	181.16	379	192.57	428
Central African Republic	Low	0.88	4	1.47	4	0.02	1	3.99	11	4.24	11	2.71	8	6.23	15	2.13	13	1.42	8	3.48	14	7.92	15	8.04	20	4.82	20	5.03	16	5.82	19	4.40	19	7.74	25	5.21	15	7.32	28
Chad	Low	0.00	0	0.20	1	0.33	1	0.76	4	1.25	3	0.81	4	3.26	9	1.41	7	1.75	6	1.59	6	0.67	1	2.10	10	1.48	4	1.14	7	1.42	5	2.17	7	2.53	9	2.08	14	2.72	9
Comoros	Low	0.20	1	0.00	0	0.00	0	0.33	2	0.17	1	0.97	4	0.17	1	0.31	2	0.38	1	0.43	1	1.15	5	2.79	9	0.55	2	0.56	4	0.67	2	1.05	4	0.75	2	0.77	4	1.87	9
Congo, Democratic Republic of the	Low	3.85	11	0.75	4	1.29	6	0.52	4	3.21	12	6.14	19	3.56	14	9.84	24	10.15	30	7.87	19	14.10	41	10.84	42	20.54	67	16.36	66	22.77	70	25.47	94	23.30	84	34.00	104	38.50	121
Congo, Republic of the	Lower-middle	5.30	13	4.92	10	3.10	6	6.03	10	3.77	13	10.82	27	10.42	30	11.06	25	10.83	25	11.90	31	14.95	33	11.64	42	17.39	49	13.22	42	19.30	65	12.28	54	20.66	84	15.46	59	16.12	83
Côte d'Ivoire	Low-middle	17.40	49	16.71	33	14.56	30	28.24	61	26.41	54	22.22	53	23.88	56	28.22	69	33.12	74	31.61	68	40.93	73	40.81	86	40.94	101	41.46	87	54.92	112	40.89	108	40.35	101	53.94	121	83.31	180
Djibouti	Low-middle	0.00	0	0.14	1	0.00	0	0.00	0	0.21	2	0.67	3	0.14	1	0.34	2	0.40	1	1.03	5	0.13	1	1.14	4	0.53	3	1.51	5	1.14	4	0.48	4	0.52	4	0.73	5	1.78	9
Egypt	Lower-middle	341.68	420	353.61	426	329.12	438	426.34	562	405.26	533	419.98	567	508.59	683	563.25	755	643.64	863	997.35	1,334	954.79	1,358	1221.53	1,771	1588.10	2,191	1132.00	1,845	1351.60	2,231	1291.44	2,217	1452.63	2,465	1510.72	2,631	1957.37	3,132
Equatorial Guinea	Upper-middle	0.00	0	0.83	2	0.00	0	0.07	1	1.67	5	0.34	2	0.25	1	0.50	1	0.72	2	1.01	3	1.30	2	0.07	1	0.17	2	0.41	2	1.28	7	1.94	10	2.32	10	0.14	2	0.57	3
Eritrea	Low	0.70	4	2.67	4	1.67	4	2.53	4	0.33	2	2.27	6	2.43	9	2.75	7	1.38	3	0.20	1	0.00	0	1.96	6	2.06	3	3.51	8	2.66	8	3.66	9	0.67	1	1.26	4	5.46	10
Eswatini	Lower-middle	0.75	3	0.33	1	3.00	3	2.00	3	0.33	1	3.50	4	2.73	5	1.29	4	3.84	7	3.29	11	6.40	13	3.82	14	3.51	15	4.23	15	2.92	14	4.28	16	4.17	23	5.79	20	14.31	44
Ethiopia	Low	31.46	56	34.81	61	45.55	70	46.05	82	31.09	70	50.15	110	50.92	120	85.67	157	77.92	138	86.81	153	82.26	156	105.47	204	128.63	231	184.97	341	221.15	370	256.12	424	252.64	459	365.16	629	529.86	796
Gambia, The	Low	9.58	22	12.54	28	12.93	32	13.16	33	14.00	43	22.41	52	20.57	56	16.11	43	18.01	49	20.05	53	15.95	48	20.98	66	20.64	61	18.95	66	21.70	83	25.36	87	21.43	74	23.66	83	22.57	81
Ghana	Lower-middle	8.32	23	13.82	32	7.39	23	12.61	36	15.51	35	16.68	37	22.03	52	21.54	57	25.94	63	20.09	56	24.80	55	16.72	44	22.46	71	22.47	69	18.10	73	18.31	76	22.17	70	27.45	105	11.09	55
Guinea	Low	26.06	45	21.06	44	23.35	47	31.47	61	25.41	67	34.39	81	39.13	88	39.49	93	50.29	110	86.03	165	80.39	153	74.49	135	115.61	209	112.60	217	101.62	219	150.80	321	180.67	362	187.87	384	229.13	482
Guinea	Low	1.44	4	0.82	5	1.24	4	0.69	3	1.64	6	1.66	6	4.88	15	1.82	7	2.88	11	3.26	11	2.55	11	4.59	17	4.50	16	3.51	14	4.59	17	7.57	35	13.18	46	9.36	53	8.02	34

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.92	3	1.52	4	2.23	5	2.69	8	3.12	7	5.72	14	2.84	6	4.71	14	2.87	9	3.03	8	3.57	13	5.82	16	3.46	15	5.26	21	9.26	34	5.23	22	6.09	31	9.23	30	7.31	26
Kenya	Lower-middle	118.23	210	128.87	232	133.19	237	129.28	294	128.15	284	126.39	298	174.13	371	171.98	369	203.30	431	207.07	467	217.79	473	269.20	584	243.52	615	248.77	613	283.15	700	321.30	758	336.14	843	356.89	892	344.66	875
Lesotho	Lower-middle	2.50	3	3.25	4	2.83	5	2.00	2	0.33	1	0.18	2	0.17	1	0.67	3	0.61	2	1.78	6	1.09	4	3.04	10	3.38	10	1.59	7	0.75	4	2.67	9	1.90	5	2.76	10	4.98	14
Liberia	Low	0.00	0	0.00	0	0.45	2	0.00	0	0.33	1	0.00	0	0.55	1	0.00	0	0.25	1	0.00	0	1.05	2	0.36	2	0.31	2	0.75	1	1.36	7	2.91	14	2.59	17	2.64	13	3.87	11
Libya	Upper-middle	1.08	3	7.46	10	7.11	12	3.09	5	7.86	10	6.41	10	11.36	22	14.55	22	7.51	17	13.89	27	24.85	46	23.82	46	13.29	32	12.78	37	14.68	44	13.55	46	12.20	48	12.98	49	13.30	52
Madagascar	Low	19.43	38	14.66	29	14.50	41	15.55	47	19.60	48	32.17	77	31.47	74	46.51	103	30.55	86	27.28	87	41.72	110	41.46	112	42.13	129	61.50	152	37.16	103	48.61	138	39.93	128	53.15	154	46.42	141
Malawi	Low	17.57	35	18.85	37	20.46	36	25.88	50	22.20	55	19.12	49	17.27	46	24.37	60	25.75	69	17.06	62	26.60	83	29.73	97	41.11	120	27.19	102	37.70	120	38.47	133	36.99	138	61.73	179	58.27	185
Mali	Low	5.64	15	10.99	29	9.97	21	9.06	27	9.59	27	13.55	39	17.99	46	11.05	32	20.07	56	12.36	46	13.88	47	20.66	61	17.97	66	21.53	78	13.58	63	23.78	102	21.32	83	22.05	99	24.98	88
Mauritania	Low	2.14	5	1.21	4	1.68	6	0.95	4	1.39	3	0.75	5	1.14	4	1.41	5	0.69	4	1.68	7	1.16	4	3.11	7	5.80	15	4.36	11	2.87	10	1.72	6	2.34	8	2.13	9	4.49	11
Mauritius	Upper-middle	8.51	13	14.75	20	16.50	23	11.42	21	12.97	25	15.15	23	16.01	27	9.20	20	12.28	20	14.68	22	10.09	26	12.87	22	21.93	36	18.23	38	24.31	40	14.08	27	25.30	44	26.59	68	28.85	81
Morocco	Lower-middle	64.68	114	86.27	129	101.94	158	103.02	165	94.51	161	98.21	164	84.23	154	119.06	196	129.53	212	115.73	192	130.35	205	136.36	240	188.90	310	170.10	316	168.82	311	195.96	367	194.08	342	274.06	443	301.78	480
Mozambique	Low	5.02	9	11.72	19	5.04	11	3.42	7	2.40	6	15.14	28	6.74	20	8.79	29	6.26	23	9.79	35	10.69	38	18.50	58	15.71	58	17.75	65	16.90	60	29.58	103	27.33	92	34.18	112	43.49	139
Namibia	Upper-middle	7.06	16	12.83	21	15.86	23	23.41	35	13.67	24	18.58	30	12.93	34	10.21	25	12.56	29	12.33	33	9.48	24	15.39	44	20.78	48	23.71	58	23.42	58	24.24	74	23.48	74	22.36	74	28.78	73
Niger	Low	3.14	8	3.73	9	6.07	12	2.56	6	3.16	12	3.54	12	7.08	16	8.88	18	6.81	28	14.01	33	16.28	42	9.22	34	8.20	33	10.21	35	17.41	50	15.03	56	16.09	56	13.88	53	16.40	50
Nigeria	Lower-middle	238.63	295	199.55	236	180.96	230	266.91	337	228.96	286	244.94	300	460.19	528	615.47	707	528.38	628	717.24	842	891.19	1,026	822.94	995	642.31	824	598.44	772	614.59	866	578.32	859	632.86	971	665.29	1,059	916.26	1,362
Rwanda	Low	0.29	2	2.38	6	0.75	2	0.59	2	0.91	4	2.13	7	2.84	10	5.45	22	5.81	18	5.12	16	4.93	25	13.05	39	14.07	43	11.12	35	11.95	45	20.75	73	21.47	62	21.69	65	19.35	69
São Tomé and Príncipe	Lower-middle	0.00	0	0.50	1	0.25	1	0.22	1	0.20	1	0.25	1	0.50	2	0.00	0	0.00	0	1.00	1	0.13	1	0.00	0	0.52	2	0.16	2	0.60	2	0.00	0	0.00	0	0.36	5	0.46	2
Senegal	Low	34.88	62	20.32	41	21.65	40	33.58	71	28.48	78	41.86	90	32.16	77	41.38	97	32.24	83	26.99	80	28.18	84	43.38	123	48.57	142	68.11	162	61.07	154	56.41	164	77.40	189	71.14	211	60.55	166
Seychelles	High	3.66	8	1.00	2	2.78	5	7.77	11	2.43	5	1.86	3	2.92	8	3.15	12	1.85	8	3.22	14	3.20	13	5.04	18	4.12	18	9.34	23	4.66	20	8.20	24	7.32	24	4.86	25	3.55	20
Sierra Leone	Low	0.34	2	1.00	1	0.73	4	0.48	2	0.00	0	0.00	0	0.72	3	0.25	1	2.97	8	2.50	5	2.39	7	4.12	13	5.21	15	3.07	12	5.19	15	10.68	40	14.30	48	14.24	41	13.52	42
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.18	2	0.00	0	0.18	2	0.00	0	0.63	3	0.44	1	0.25	1	0.11	1	0.60	1	0.24	2	0.00	0	0.61	2
South Africa	Upper-middle	845.01	1,056	905.12	1,087	941.59	1,173	882.86	1,233	954.07	1,364	1017.18	1,475	1110.47	1,630	1129.06	1,699	1266.17	1,900	1245.10	1,935	1455.16	2,222	1539.83	2,400	1562.45	2,504	1755.54	2,853	1843.67	3,031	1950.73	3,384	2035.48	3,570	2160.11	3,764	2173.56	3,821
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.83	3	0.39	5	1.27	3	0.36	2	0.74	3	1.66	5
Sudan	Lower-middle	13.07	30	13.82	26	12.24	24	19.72	38	14.29	37	16.42	34	30.25	56	35.30	76	47.92	78	80.96	118	95.62	139	90.07	151	53.57	100	52.99	112	44.05	122	39.39	105	44.85	129	48.29	138	60.30	159
Tanzania	Low	36.23	70	29.49	55	31.99	66	35.50	93	40.79	108	46.77	126	59.59	150	72.53	186	59.90	152	75.48	187	89.25	217	84.14	235	81.83	228	96.31	277	110.53	311	140.82	370	134.53	396	157.03	400	140.20	405
Togo	Low	5.40	12	3.75	8	6.04	9	4.67	14	2.95	6	6.39	13	6.68	15	8.56	20	9.72	17	7.38	19	9.51	19	15.49	35	7.41	24	9.41	25	11.44	37	12.96	33	12.29	32	9.79	29	20.47	51
Tunisia	Lower-middle	61.99	87	89.91	123	123.25	164	109.01	155	119.13	175	196.46	264	272.71	374	390.58	510	392.69	521	463.78	624	512.04	702	591.40	812	576.01	790	573.35	819	493.91	712	546.46	811	551.10	836	563.57	864	504.47	783
Uganda	Low	57.39	95	39.52	75	26.90	51	46.08	96	78.94	147	50.58	119	62.27	139	122.04	223	79.48	183	95.63	226	132.20	274	111.01	277	129.47	306	136.67	341	139.40	345	137.19	338	159.52	421	179.74	459	188.01	477
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	7.29	20	15.39	33	10.50	24	12.14	33	10.32	32	16.88	46	17.57	47	14.24	49	24.91	66	19.88	54	23.09	78	29.80	89	30.65	102	29.48	103	37.26	122	40.43	121	42.70	142	60.42	180	46.43	143
Zimbabwe	Low	38.48	68	45.73	72	32.32	63	40.31	82	28.62	60	27.67	63	32.30	67	47.56	108	35.84	87	36.86	83	48.28	89	30.79	88	49.52	121	61.28	142	76.52	161	67.09	163	98.38	215	101.33	216	83.85	196
Asia		2612.96	28,985	2647.47	29,158	2802.16	30,980	3025.67	34,479	3326.71	38,428	3760.26	42,756	4235.64	47,780	4729.73	53,273	5154.74	57,989	5574.92	62,910	5904.95	67,401	6582.79	75,369	7021.24	80,817	7686.93	87,828	8238.55	94,496	8574.85	97,578	9048.90	102,852	9348.13	106,228	9884.16	112,261
Afghanistan	Low	1.00	1	0.00	0	0.00	0	2.38	4	0.00	0	1.05	3	1.84	5	0.91	5	3.04	8	1.17	3	3.96	12	6.30	15	4.58	14	1.67	6	3.01	12	1.40	4	7.34	20	5.31	18	6.91	31
Bangladesh	Lower-middle	87.30	120	80.24	105	72.27	105	106.41	169	98.53	171	116.12	199	162.67	257	187.50	297	162.34	267	204.00	331	227.82	374	247.78	414	274.02	486	278.46	492	273.93	531	283.22	580	272.29	566	333.05	714	358.31	749

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	1.67	2	0.00	0	1.48	3	0.57	2	4.99	10	3.18	7	2.12	4	2.38	8	4.03	13	5.47	16	6.70	15	10.91	27	8.39	24	6.60	29	12.64	30	16.92	34	15.80	38
Brunei	High	3.64	7	3.15	7	0.54	3	1.17	3	3.26	8	2.48	6	2.24	10	6.53	14	5.17	12	7.00	16	4.44	13	4.48	13	7.39	23	6.54	28	11.10	31	17.02	45	20.85	60	21.39	57	14.50	42
Burma	Lower-middle	2.58	7	3.67	6	1.87	4	3.73	12	3.10	13	7.10	19	7.24	20	4.33	15	6.37	19	9.57	30	8.97	28	8.27	31	7.16	23	8.04	21	11.27	37	15.59	63	21.48	84	38.34	113	50.46	170
Cambodia	Lower-middle	1.80	4	2.57	6	3.24	8	6.10	11	8.71	22	10.33	24	12.16	29	12.13	38	12.61	35	20.22	56	18.06	72	23.24	77	25.99	83	34.72	92	31.92	106	33.17	112	34.22	121	40.26	130	40.55	128
China	Upper-middle	3848.58	4,382	4335.46	4,922	4941.23	5,660	6200.17	7,313	7727.36	9,044	10597.95	12,271	13382.97	15,209	16095.87	18,333	18359.55	20,961	21096.64	24,130	22606.40	26,466	25906.69	30,526	28832.62	34,027	34076.96	39,430	39137.25	44,564	42472.05	48,357	45896.68	52,216	48090.58	54,731	52040.47	59,258
India	Lower-middle	3457.45	3,770	3732.17	4,011	3879.89	4,220	4601.77	5,075	5096.78	5,593	5805.30	6,371	6433.79	7,102	7188.91	7,887	7673.55	8,486	8573.54	9,427	9618.45	10,668	10755.63	11,920	11524.97	12,857	11977.83	13,455	13566.86	15,207	12638.08	14,347	13814.26	15,660	13834.93	15,700	14075.31	16,091
Indonesia	Lower-middle	101.91	203	86.09	165	107.34	195	100.96	198	103.04	242	149.73	283	161.17	319	173.75	345	168.31	330	214.95	406	219.87	454	289.30	519	300.47	589	406.63	738	402.57	737	520.94	905	714.59	1,131	1055.82	1,478	1466.20	1,986
Japan	High	14378.65	16,033	13673.19	15,197	13892.92	15,498	13607.54	15,765	14144.85	16,458	13812.77	16,083	13749.87	16,223	13895.98	16,295	14064.86	16,554	13870.27	16,384	12990.42	15,640	13099.04	15,918	12260.54	16,283	13396.03	16,493	12737.54	15,732	12441.74	15,629	12360.29	15,627	12114.11	15,410	12000.96	15,324
Kazakhstan	Upper-middle	22.87	32	20.34	28	29.09	36	31.80	46	22.55	36	24.24	46	27.17	48	24.22	41	20.73	39	31.33	54	29.91	50	31.09	57	22.29	45	49.67	84	52.46	110	90.61	152	104.52	185	171.72	267	275.58	396
Kyrgyzstan	Lower-middle	3.84	6	3.77	7	2.25	3	1.40	3	2.67	5	1.79	7	3.40	5	1.60	6	2.01	7	5.56	14	6.29	14	4.74	10	6.11	10	5.54	17	8.27	21	4.15	17	11.44	32	9.11	26	17.71	40
Laos	Lower-middle	0.99	3	0.86	2	4.20	8	1.48	4	2.44	10	9.29	28	10.11	25	4.42	15	6.93	26	19.25	46	10.38	34	15.57	51	13.34	52	23.86	62	15.26	58	17.50	71	19.86	67	18.60	62	25.99	82
Malaysia	Upper-middle	142.69	210	129.88	198	186.72	240	169.48	239	210.16	304	281.00	396	334.02	458	365.30	511	506.60	665	741.79	946	1050.54	1,358	1670.72	2,093	1661.23	2,132	1565.64	2,144	1521.99	2,104	1633.51	2,285	1775.60	2,465	1801.18	2,471	1906.53	2,624
Maldives	Upper-middle	0.50	1	0.50	2	0.00	0	0.33	1	0.00	0	1.40	3	0.00	0	0.52	2	0.00	0	1.00	1	0.00	0	0.43	2	0.35	2	0.17	2	1.64	5	0.82	5	1.34	3	1.87	5	0.80	3
Mongolia	Lower-middle	4.33	9	8.14	18	2.85	7	6.53	23	3.97	19	7.14	25	7.62	28	12.70	39	19.49	53	18.04	59	20.25	59	14.81	52	21.56	66	22.31	71	24.00	73	21.26	77	30.02	106	28.26	90	30.53	99
Nepal	Low	14.01	32	22.35	46	18.36	43	25.46	58	21.69	50	35.21	74	30.74	70	50.51	107	35.18	81	31.56	80	50.48	122	41.27	114	47.90	137	65.07	157	65.39	176	88.04	267	103.61	223	122.90	279	134.74	290
North Korea	Low	0.00	0	0.08	1	0.00	0	0.33	1	0.13	1	0.92	4	0.13	1	0.90	4	1.71	2	1.28	7	1.52	5	0.29	2	0.55	4	0.00	1	0.37	1	1.97	10	2.26	9	0.86	5	2.44	6
Pakistan	Lower-middle	194.50	237	221.17	256	272.37	318	287.65	347	337.91	399	368.60	438	635.68	719	666.84	784	831.39	972	956.50	1,137	1206.16	1,430	1520.79	1,789	1510.89	1,809	1563.50	1,973	1529.74	2,056	1595.42	2,147	1573.35	2,184	1776.89	2,539	1886.13	2,747
Papua New Guinea	Lower-middle	13.55	25	36.79	53	21.74	31	24.86	45	15.40	37	9.59	25	16.10	32	17.09	40	25.17	61	20.66	50	15.24	38	16.79	53	21.39	59	17.36	44	20.72	64	20.32	65	19.50	74	14.43	55	17.68	62
Philippines	Lower-middle	108.10	193	106.79	162	115.15	184	107.85	209	97.36	181	118.92	214	108.47	228	108.38	223	120.74	243	124.36	254	129.96	277	197.57	377	135.01	314	220.46	424	171.21	391	292.29	522	254.97	503	269.82	556	274.08	546
Singapore	High	278.14	370	274.64	359	351.75	464	374.76	535	517.62	743	609.34	883	636.47	947	699.25	1,070	697.55	1,095	791.97	1,269	885.55	1,515	924.90	1,585	1012.84	1,813	1082.97	1,924	1057.99	1,959	1041.44	1,975	1073.33	2,060	1090.11	2,112	1043.01	2,020
South Korea	High	2005.40	2,317	2138.98	2,456	2389.55	2,748	2826.69	3,350	3216.03	3,849	3323.39	4,005	3659.93	4,381	4588.87	5,384	5264.16	6,121	5336.64	6,280	5927.06	7,020	6700.62	7,922	7000.99	8,321	7488.16	8,834	7864.41	9,257	7981.16	9,454	7807.34	9,285	7744.68	9,232	8125.47	9,625
Sri Lanka	Lower-middle	42.18	59	48.75	61	42.96	65	51.39	85	51.79	87	64.39	102	57.02	95	77.33	132	81.95	131	80.81	131	74.93	144	96.00	153	100.08	170	94.32	172	125.42	207	134.89	221	160.21	261	190.55	326	194.37	346
Taiwan	High	1013.21	1,169	1153.39	1,331	1225.35	1,374	1269.30	1,493	1621.65	1,867	1646.96	1,942	1855.92	2,169	1942.30	2,287	2217.95	2,655	2341.66	2,811	2488.86	2,995	2752.67	3,305	2777.46	3,372	2844.64	3,486	2754.15	3,420	2528.45	3,226	2439.30	3,177	2454.31	3,259	2369.85	3,161
Tajikistan	Low	6.33	7	3.07	4	4.06	8	1.90	3	1.35	3	2.00	2	3.47	6	1.36	3	3.53	7	0.59	3	3.25	8	5.73	14	9.00	13	3.23	9	3.06	9	4.15	9	4.72	14	4.76	17	6.56	22
Thailand	Upper-middle	265.98	425	250.91	387	329.29	518	391.55	660	402.18	686	565.24	883	904.71	1,316	1007.17	1,461	1106.18	1,558	1097.29	1,606	1252.13	1,829	1267.82	1,850	1381.71	2,045	1371.62	2,025	1539.85	2,310	1518.54	2,298	1535.48	2,401	1769.81	2,652	1967.40	2,981
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.67	2	0.20	1	0.13	1	0.00	0	0.92	2	0.10	1	1.83	5	1.85	5	3.10	7	0.20	2	2.31	8	4.84	13	2.99	12
Turkmenistan	Upper-middle	1.50	3	0.95	4	1.25	2	0.33	1	0.67	1	0.53	2	0.23	2	2.20	3	0.25	1	0.00	0	1.13	3	0.20	1	0.10	1	0.00	0	2.26	4	0.01	1	0.00	0	3.14	4	1.09	2
Uzbekistan	Lower-middle	94.96	111	98.87	116	88.00	108	77.46	98	68.30	83	52.54	74	55.63	88	49.71	79	50.60	80	47.11	73	59.50	82	62.83	91	53.17	78	47.91	72	43.47	82	32.94	56	45.33	74	47.64	91	34.41	87
Vietnam	Lower-middle	30.91	68	34.70	80	40.27	94	44.47	121	45.74	141	63.89	175	69.22	187	79.76	229	104.59	276	102.77	274	129.49	346	157.64	385	188.99	471	220.73	579	249.93	616	303.36	700	329.79	797	381.96	916	459.34	1,098
Australia and Oceania		5108.56	6,246	5058.82	6,118	5152.67	6,379	5052.41	6,703	5250.40	7,130	5546.26	7,555	6079.13	8,201	6262.92	8,597	6589.12	9,152	6800.09	9,552	7016.74	10,074	7425.49	10,761	7716.27	11,546	8549.88	12,746	8787.61	13,324	8751.61	13,527	9108.56	14,222	8602.79	13,753	8839.70	14,392
Australia	High	4223.57	5,224	4202.66	5,098	4297.27	5,350	4187.91	5,600	4384.80	5,970	4583.83	6,305	5111.36	6,938	5145.88	7,192	5503.37	7,758	5686.10	8,115	5831.58	8,545	6237.93	9,218	6431.41	9,872	7198.35	10,968	7468.27	11,522	7419.20	11,732	7784.47	12,382	7340.39	11,952	7602.62	12,667
Cook Islands	Upper-middle	0.00	0	0.72	1	0.00	0	0.00	0	0.00	0	0.29	1	0.67	1	0.00	0	0.00	0	0.29	1	0.17	1	0.85	3	0.14	1	0.58	2	0.00	0	0.49	2	0.22	1	0.11	1	0.25	1
Fiji	Upper-middle	2.63	5	6.00	8	8.50	14	5.45	15	5.44	16	7.55	21	8.91	20	15.94	29	7.65	20	11.98	28	9.80	22	8.17	29	12.11	34	13.04	29	10.79	33	17.06	45	33.91	67	14.63	47	14.00	55
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.30	1	1.25	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	1.38	3	0.38	1	0.22	1	0.33	1	0.00	0

TABLE SSA-5

S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.83	4	0.50	1	1.38	2	0.25	1	0.00	0	0.00	0	0.00	0	0.20	1	0.07	1	0.33	1	0.17	1	0.11	1	0.56	2	0.10	1	0.13	1
Micronesia, Federated States of	Lower-middle	1.29	3	0.42	2	0.00	0	0.58	3	1.10	4	1.42	6	0.62	4	2.92	7	1.20	2	0.53	4	4.29	7	2.00	2	2.05	5	0.73	3	1.57	6	2.14	5	1.52	5	1.80	7	0.91	4
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.22	1	0.00	0	0.00	0
New Zealand	High	879.44	1,111	846.60	1,078	845.07	1,112	854.73	1,226	854.27	1,294	949.33	1,437	950.26	1,428	1092.53	1,588	1073.25	1,628	1094.40	1,663	1165.71	1,775	1171.53	1,837	1263.46	1,972	1330.97	2,129	1299.04	2,165	1294.94	2,185	1270.63	2,192	1234.23	2,196	1209.64	2,182
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0
Palau	High	0.00	0	0.92	4	0.50	2	0.13	1	0.98	3	1.70	3	1.37	4	0.49	2	0.42	2	1.67	3	1.56	3	0.58	2	1.19	4	1.34	3	1.33	2	2.58	7	0.45	3	1.06	4	1.34	3
Samoa	Upper-middle	1.00	1	0.72	2	0.00	0	1.21	3	0.52	2	0.33	1	0.98	3	1.00	1	0.90	5	2.76	13	1.28	5	1.28	6	1.33	6	0.43	3	1.20	6	2.84	7	4.45	11	2.27	6	3.18	9
Solomon Islands	Lower-middle	0.38	3	0.50	1	0.00	0	0.84	4	0.00	0	0.00	0	1.00	2	1.01	5	0.25	1	0.50	1	0.73	3	1.45	6	1.71	4	1.48	5	2.12	7	4.93	18	5.52	14	3.69	17	3.83	15
Tonga	Upper-middle	0.25	1	0.00	0	0.33	1	0.71	3	1.03	4	0.00	0	0.14	1	0.20	1	0.07	1	0.55	2	0.40	2	0.17	1	0.57	2	0.00	0	0.00	0	1.65	5	0.20	2	0.17	1	0.18	2
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.60	1	0.11	1	0.00	0	0.29	1	0.12	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	1.00	1	1.00	1	0.14	1	1.31	5	1.32	5	1.85	6	1.33	4	2.01	5	1.32	6	1.23	3	1.35	5	2.25	5	2.54	6	1.75	5	5.30	14	6.08	16	3.99	9	3.63	10
Unassigned	na	706.91	1,678	783.32	1,663	413.59	1,094	1297.78	2,697	726.72	1,600	888.10	1,820	777.39	1,690	641.73	1,504	818.00	1,914	793.30	1,731	1511.77	2,683	1583.68	2,743	1474.03	2,471	772.62	1,532	401.20	1,105	270.71	1,060	532.54	1,644	467.13	1,921	557.91	2,435

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see **https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups**, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		73974.00	73,974	74976.00	74,976	80628.00	80,628	81221.00	81,221	86631.00	86,631	96694.00	96,694	100394.00	100,394	102868.00	102,868	105682.00	105,682	109873.00	109,873	111678.00	111,678	120061.00	120,061	125273.00	125,273	131216.00	131,216	137197.00	137,197	142913.00	142,913	145237.00	145,237	147635.00	147,635	158570.00	158,570
North America		14152.60	15,927	13227.17	14,957	16486.91	18,528	15139.94	17,421	15627.99	18,107	16639.61	19,208	16712.70	19,272	17157.54	19,991	17589.62	20,493	17293.78	20,520	17856.70	21,236	18754.62	22,463	18700.77	22,757	19089.52	23,313	18881.42	23,543	18714.48	23,989	18589.27	24,139	18402.02	24,236	18198.63	24,409
Canada	High	1533.58	1,901	1524.17	1,865	1720.51	2,117	1717.20	2,160	1820.55	2,349	1907.17	2,462	2084.75	2,655	2029.60	2,647	2084.24	2,686	2223.79	2,887	2170.36	2,802	2381.85	3,072	2402.52	3,173	2318.23	3,069	2279.84	3,080	2408.89	3,379	2293.61	3,205	2327.71	3,365	2300.44	3,408
Greenland	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	1	0.00	0	0.00	0	0.00	0
Mexico	Upper-middle	259.36	336	273.59	343	285.23	379	349.56	447	387.83	515	440.51	570	352.36	442	477.49	594	514.10	649	540.47	662	524.11	663	523.23	661	565.75	713	627.68	792	642.52	809	657.65	853	697.94	901	824.15	1,059	848.09	1,086
United States	High	12359.66	13,993	11429.41	13,063	14481.17	16,344	13073.18	15,127	13419.61	15,655	14291.93	16,629	14275.58	16,556	14650.45	17,170	14991.28	17,558	14529.52	17,391	15162.23	18,171	15849.54	19,176	15732.51	19,319	16143.62	19,914	15959.06	20,129	15647.87	20,316	15397.72	20,563	15250.15	20,392	15050.10	20,495
Central America and Caribbean		70.61	138	75.28	131	66.56	125	79.25	128	92.80	154	69.60	131	71.39	122	92.98	155	92.18	160	101.53	163	78.44	133	97.61	178	113.13	195	78.85	137	83.25	169	71.70	154	72.84	156	89.65	181	76.49	160
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Bahamas, The	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Barbados	High	1.53	3	1.00	1	0.50	1	1.25	2	2.00	3	1.50	3	2.00	3	0.93	2	1.00	1	0.00	0	0.40	1	0.77	2	0.40	1	1.17	2	1.02	4	1.00	1	2.04	5	2.13	4	1.07	2
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Costa Rica	Upper-middle	3.93	19	4.79	20	5.29	20	2.25	6	4.36	9	1.83	5	1.94	5	3.70	7	8.03	12	3.67	5	3.34	9	8.57	15	4.16	12	3.64	9	7.10	21	4.42	15	5.16	20	15.82	22	11.18	19
Cuba	Upper-middle	43.07	78	38.94	67	33.87	63	44.84	76	49.76	80	31.52	60	35.46	58	44.71	78	41.07	78	42.17	75	26.68	50	40.14	79	45.72	85	31.83	59	21.61	50	25.19	54	27.88	59	26.02	64	23.46	64
Dominica	Upper-middle	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.10	1	0.27	1	0.38	1	0.00	0	0.14	1	0.10	1	0.13	1	0.00	0
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.07	1	0.00	0	0.00	0	0.17	1	0.14	1	0.00	0	0.20	1
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.61	2	0.00	0	0.00	0
Guatemala	Upper-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.25	0	0.00	0	0.67	1	1.00	1	0.00	0	0.00	0	0.25	1	0.00	0	1.61	2	0.00	0	0.00	0	0.17	1	0.34	2	1.27	3
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1
Honduras	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.03	1	0.00	0	0.00	0	0.00	0
Jamaica	Upper-middle	5.88	10	10.02	12	11.70	14	8.64	12	7.00	7	12.16	18	6.87	9	5.74	8	7.12	10	9.00	10	7.40	8	7.17	8	8.90	11	10.70	13	7.53	11	0.80	2	3.68	6	1.65	4	8.21	12
Nicaragua	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.38	3	0.00	0	0.00	0	0.00	0	0.30	1	0.00	0	0.30	2	0.25	2	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.14	1
Panama	High	0.37	2	0.00	0	0.00	0	0.20	1	2.09	7	0.55	2	1.10	5	0.62	4	1.47	3	1.27	3	0.25	1	0.75	3	2.93	9	0.24	2	1.05	3	2.70	9	4.19	9	2.94	8	3.25	8
Puerto Rico	High	13.58	22	13.94	20	10.87	19	19.61	26	24.07	40	17.33	34	22.89	41	32.10	51	29.46	47	42.83	65	34.68	55	32.78	55	41.74	60	26.79	40	39.34	68	30.82	55	25.45	46	32.71	60	22.30	43
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	2.23	5	5.35	9	4.33	9	2.47	5	3.22	8	4.33	7	0.67	1	3.18	5	4.04	9	2.30	4	5.30	7	6.82	14	7.08	12	4.10	12	5.51	13	6.35	15	3.42	6	7.92	17	5.15	9
South America		1707.78	2,003	1699.60	1,935	1893.74	2,185	1971.60	2,300	1963.48	2,335	2306.22	2,666	2356.07	2,753	2544.16	2,947	2787.27	3,222	2784.00	3,217	2759.90	3,229	2925.94	3,404	3017.80	3,538	3165.71	3,715	3236.67	3,911	3165.13	3,934	3349.91	4,220	3735.07	4,591	3978.92	4,891
Argentina	High	446.36	527	342.16	413	389.54	474	384.33	485	308.66	423	376.29	481	328.60	450	351.98	488	416.07	544	391.58	526	385.31	529	427.47	558	393.18	537	433.92	570	411.84	561	437.78	613	449.46	616	456.08	639	466.24	647
Bolivia	Lower-middle	0.40	1	0.00	0	0.00	0	0.38	2	0.65	4	0.00	0	0.17	1	0.92	3	0.63	3	0.75	2	0.10	1	1.07	3	0.00	0	1.24	3	0.47	3	1.52	5	1.13	6	0.17	1	1.00	4
Brazil	Upper-middle	898.71	1,064	1021.33	1,157	1154.67	1,318	1171.02	1,350	1279.77	1,473	1490.95	1,698	1651.23	1,859	1769.69	1,981	1893.75	2,131	1907.91	2,136	1906.01	2,161	1996.40	2,256	2158.26	2,442	2227.69	2,551	2343.52	2,758	2278.31	2,749	2391.67	2,973	2713.86	3,254	2880.85	3,425
Chile	High	155.40	197	162.77	203	165.19	220	206.31	266	160.72	216	170.48	233	171.62	239	162.09	239	166.13	230	205.14	278	190.66	263	218.97	302	216.16	296	239.18	323	224.33	306	219.13	312	273.38	399	242.63	364	291.65	452
Colombia	Upper-middle	37.35	60	29.62	44	43.46	64	34.26	62	44.34	79	48.22	79	46.55	81	55.31	97	102.44	159	112.29	163	133.21	196	152.43	211	120.10	195	134.08	209	142.38	230	140.60	239	145.50	218	200.54	304	220.36	346

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	0.00	0	0.17	1	0.30	1	0.83	2	0.00	0	3.46	5	0.41	4	1.61	7	0.37	2	1.96	4	2.00	2	0.67	2	0.74	4	3.17	7	9.90	26	11.04	43	17.61	49	21.28	62	26.30	86
Guyana	Upper-middle	1.00	1	2.17	3	2.00	2	2.00	2	3.00	3	11.42	12	0.50	1	1.00	1	4.13	5	2.00	2	2.00	2	1.00	1	1.08	2	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.75	2
Paraguay	Upper-middle	1.13	4	0.63	1	0.83	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.53	2	2.42	3	0.13	1	0.34	2	2.75	3	0.44	1	0.75	1	0.43	3	1.07	3	0.88	2
Peru	Upper-middle	0.47	3	1.71	4	2.33	3	5.85	12	2.53	8	10.11	22	7.65	10	2.21	8	2.78	10	1.99	7	1.83	6	2.80	8	3.53	9	3.85	9	4.67	14	7.96	22	10.00	23	15.10	32	14.37	36
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Uruguay	High	23.02	32	10.82	17	9.50	16	14.83	23	16.92	27	13.89	21	17.82	29	20.78	32	27.92	51	23.55	39	19.07	32	28.88	54	21.21	37	25.91	37	26.56	49	24.10	48	28.54	48	46.49	72	33.49	65
Venezuela	Upper-middle	143.95	174	128.25	149	125.91	161	151.63	186	146.88	181	181.41	215	131.53	164	178.57	215	172.92	205	136.30	178	117.28	152	96.13	123	103.19	133	92.93	122	72.56	100	43.95	69	32.19	56	37.85	67	43.04	70
Europe		33441.37	35,554	33775.72	35,802	34150.62	36,395	34034.84	36,803	35367.21	38,247	36003.75	39,140	35382.38	38,525	36846.50	40,297	37074.11	40,452	37586.74	41,327	37774.43	41,715	39090.30	43,374	39632.02	44,232	41447.97	46,313	40893.66	46,102	42329.34	48,210	43072.08	49,319	42699.85	49,365	42845.49	49,965
EU		25761.59	28,162	25845.21	28,180	26418.58	29,012	26216.44	29,327	27318.67	30,610	28098.54	31,621	28273.05	31,926	29108.56	33,132	29326.57	33,207	29641.50	33,837	29771.22	34,101	30969.57	35,661	31723.65	36,745	32840.87	38,158	32360.01	37,994	33327.33	39,578	33710.10	40,387	33195.55	40,313	33176.80	40,702
Austria	High	408.50	565	448.44	590	434.62	587	486.95	708	555.06	782	495.00	704	500.83	703	522.31	764	554.77	805	572.66	874	564.81	828	543.36	814	566.14	879	625.68	954	657.83	1,021	643.35	1,046	653.93	1,031	729.69	1,143	639.51	1,025
Belgium	High	648.53	897	589.49	811	629.35	890	658.39	951	662.57	965	716.92	1,018	636.46	940	673.57	1,003	645.77	996	632.75	986	732.44	1,146	760.09	1,219	782.85	1,232	815.23	1,298	837.00	1,334	852.00	1,415	823.52	1,444	810.85	1,417	769.90	1,395
Bulgaria	Upper-middle	197.26	246	160.28	217	171.68	226	172.74	239	187.81	267	191.81	270	193.04	262	215.57	297	249.28	336	194.52	286	214.80	294	233.23	321	229.62	314	267.51	347	196.47	274	202.91	282	148.12	230	175.50	246	336.33	429
Croatia	High	129.17	152	135.75	154	145.39	177	150.40	186	169.87	213	209.60	241	173.52	210	209.01	248	209.62	250	190.90	237	197.82	246	214.85	283	213.86	276	207.01	283	176.53	247	168.56	248	164.74	231	208.74	287	196.45	283
Cyprus	High	6.33	10	6.52	12	17.33	22	6.47	9	12.67	18	12.57	22	20.08	29	28.43	44	19.04	34	35.91	61	30.53	52	35.88	54	29.08	60	49.91	76	44.37	68	48.07	73	36.37	61	35.12	57	44.51	86
Czechia	High	604.62	763	630.22	759	665.50	810	639.50	827	705.64	914	887.40	1,116	796.85	998	901.97	1,173	1027.52	1,295	897.56	1,178	904.52	1,164	1089.38	1,382	999.36	1,290	1141.43	1,488	1031.76	1,399	1098.46	1,518	1067.37	1,450	1076.45	1,493	1053.29	1,523
Denmark	High	319.93	425	321.44	420	336.71	445	360.14	493	336.86	476	392.89	542	347.15	480	362.02	519	330.46	499	379.54	552	386.87	559	442.65	644	442.15	688	460.21	711	494.53	786	496.07	825	485.69	810	465.25	809	459.86	816
Estonia	High	21.13	29	23.87	32	33.56	44	26.20	38	30.26	44	36.78	50	46.56	58	59.31	74	46.93	64	53.64	70	54.77	79	60.91	85	66.05	92	62.48	101	70.93	110	82.18	123	59.19	104	72.25	122	62.66	102
Finland	High	375.71	466	378.61	459	356.51	474	311.29	429	365.27	489	347.15	480	339.32	499	359.87	546	356.47	531	371.23	547	407.49	605	362.61	557	362.32	591	414.26	645	417.06	668	437.52	737	394.61	693	402.85	720	403.34	773
France	High	3526.50	4,367	3494.59	4,368	3494.35	4,415	3406.10	4,480	3401.19	4,562	3501.80	4,739	3631.57	4,920	3682.49	5,101	3855.45	5,276	3685.13	5,168	3694.79	5,194	3771.93	5,362	3917.71	5,510	3981.27	5,759	3867.07	5,665	3964.60	5,858	3907.51	6,005	3773.59	5,886	3591.22	5,730
Germany	High	5502.56	6,655	5395.67	6,504	5192.52	6,394	5100.19	6,572	5383.95	7,021	5529.51	7,161	5543.40	7,250	5643.86	7,494	5716.67	7,553	5939.24	7,894	5990.79	7,967	6185.55	8,263	6445.59	8,716	6471.81	8,783	6500.97	8,840	6678.56	9,246	6556.06	9,162	6672.38	9,313	6426.31	9,183
Greece	High	304.91	382	314.29	456	398.40	482	380.91	471	426.98	528	410.13	533	491.76	611	502.26	649	496.14	650	482.58	635	428.68	573	438.25	575	417.79	573	428.37	598	416.48	607	449.46	630	431.18	626	407.52	597	488.18	712
Hungary	High	586.85	739	546.29	683	602.52	745	486.12	657	533.91	697	514.93	690	513.24	670	427.91	590	482.99	642	440.61	614	430.13	564	433.93	601	439.81	620	415.57	589	427.96	596	468.53	654	439.82	626	473.24	645	478.09	675
Ireland	High	121.54	163	147.12	191	164.88	218	194.57	267	189.23	266	204.79	284	216.95	291	239.10	322	287.56	386	290.77	412	348.46	519	382.72	541	361.20	507	355.88	539	341.81	499	326.37	531	317.82	532	322.97	537	345.14	581
Italy	High	2254.32	2,681	2457.83	2,877	2506.97	2,962	2603.15	3,147	2653.31	3,229	2627.77	3,194	2535.90	3,103	2705.71	3,390	2655.00	3,324	2641.83	3,356	2535.84	3,268	2680.09	3,450	2668.30	3,512	2887.04	3,813	2881.12	3,869	2993.06	4,070	3118.34	4,262	2907.45	4,117	3108.90	4,381
Latvia	High	59.83	67	58.61	70	88.10	97	48.08	58	41.36	54	38.50	44	34.22	41	54.45	61	49.43	62	64.24	76	39.38	48	53.21	65	76.85	95	71.14	83	76.32	92	104.73	133	74.62	94	60.43	64	56.34	80
Lithuania	High	71.92	85	47.91	56	77.75	91	55.68	69	65.51	87	54.96	73	92.04	113	88.34	108	135.82	159	171.50	202	128.56	150	144.11	172	141.58	164	166.85	192	175.64	209	209.46	247	132.91	173	140.75	185	146.83	191
Luxembourg	High	2.63	4	1.83	3	0.67	2	3.07	4	0.24	2	1.47	3	4.03	9	9.65	17	10.39	18	11.27	25	6.99	17	13.94	31	16.26	40	19.46	39	26.24	44	20.19	37	21.31	52	20.61	59	17.55	61
Malta	High	0.13	1	2.00	2	2.22	4	1.75	2	0.33	1	1.50	2	0.25	1	1.00	1	0.00	0	0.00	0	1.00	1	1.00	1	0.33	1	1.40	2	5.47	9	8.48	14	3.81	6	8.13	13	8.52	14
Netherlands	High	937.02	1,241	963.83	1,279	947.91	1,254	969.07	1,295	982.15	1,346	1034.85	1,408	942.63	1,318	908.35	1,292	906.72	1,297	993.37	1,441	1040.46	1,505	996.76	1,503	941.10	1,471	1057.32	1,626	999.20	1,558	971.96	1,550	1096.20	1,747	1008.28	1,613	1000.61	1,654
Poland	High	1480.62	1,725	1461.13	1,711	1581.19	1,839	1786.34	2,111	1802.91	2,173	1856.63	2,224	1990.62	2,393	1971.55	2,386	1975.34	2,361	1904.57	2,299	1817.98	2,192	1986.16	2,354	2281.74	2,710	2445.18	2,914	2192.18	2,701	2389.15	2,950	2696.21	3,244	2699.79	3,304	2768.38	3,402
Portugal	High	268.73	346	358.20	466	338.09	457	389.66	531	428.08	585	489.66	650	569.97	742	616.44	817	690.19	902	670.51	880	733.84	981	785.02	1,059	892.79	1,231	871.44	1,178	799.45	1,172	790.87	1,164	735.41	1,146	757.11	1,205
Romania	Upper-middle	547.81	637	635.81	746	618.29	786	617.62	749	616.80	760	726.85	870	698.18	863	739.19	889	877.95	1,039	1000.75	1,188	1115.19	1,299	1105.62	1,271	1082.82	1,281	1167.77	1,397	1105.03	1,302	1221.44	1,545	1464.83	1,678	1394.43	1,592	1536.64	1,765
Slovakia	High	259.57	328	246.99	319	220.12	283	209.07	295	226.50	311	299.47	383	233.89	323	265.33	382	342.13	451	250.16	365	207.86	303	346.83	474	277.13	397	295.68	420	278.55	371	261.20	392	240.43	369	255.68	392	268.87	424
Slovenia	High	152.06	184	171.97	210	174.85	211	183.24	231	159.33	214	178.77	227	182.92	238	213.21	268	227.92	300	219.99	302	203.97	299	202.30	298	218.67	304	231.27	343	223.42	320	249.55	372	226.06	354	222.48	350	201.27	333

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	2400.49	2,830	2465.81	2,901	2702.74	3,212	2581.18	3,190	2776.66	3,414	3013.53	3,751	3055.64	3,789	3415.99	4,230	3011.72	3,873	3202.55	4,131	3236.77	4,225	3294.51	4,359	3580.63	4,715	3588.62	4,836	3564.68	4,909	3473.71	4,889	3676.81	5,237	3467.27	5,024	3569.48	5,184
Sweden	High	658.76	854	722.71	906	730.87	943	655.59	892	788.04	1,029	735.43	987	757.35	1,040	682.11	979	635.06	933	664.68	1,002	685.37	1,057	694.31	1,079	722.49	1,123	765.78	1,226	826.57	1,319	785.95	1,304	798.68	1,357	811.94	1,401	756.59	1,380
United Kingdom	High	3914.74	4,766	3597.99	4,416	3785.52	4,669	3732.97	4,782	3816.17	4,963	3587.85	4,789	3766.79	4,956	3656.02	4,995	3603.98	4,896	3659.34	5,049	3694.44	5,071	3761.54	5,313	3647.21	5,244	3553.95	5,297	3653.35	5,563	3822.35	6,001	3883.09	6,090	3856.50	6,171	3684.91	6,190
Other Europe		7679.78	8,584	7930.50	8,828	7732.04	8,682	7818.41	9,073	8048.54	9,362	7905.22	9,339	7109.33	8,373	7737.95	9,054	7747.54	9,068	7945.24	9,324	8003.22	9,387	8120.73	9,601	7908.36	9,525	8607.00	10,247	8533.65	10,256	9002.02	11,111	9361.98	11,412	9504.30	11,664	9648.69	11,926
Albania	Upper-middle	5.67	9	3.83	7	2.42	6	0.33	2	0.50	1	0.92	4	0.25	1	1.00	1	0.19	1	0.92	3	5.29	8	6.55	9	6.13	9	5.57	8	5.10	9	1.80	3	6.75	15	4.77	13	6.74	10
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	149.59	186	149.42	181	147.52	179	138.17	177	133.63	163	128.06	171	131.02	170	129.95	168	103.15	131	109.91	139	109.18	134	88.99	115	92.08	116	93.91	130	103.99	141	85.68	129	68.94	116	73.20	123	82.10	136
Bosnia and Herzegovina	Upper-middle	2.00	2	1.00	1	1.14	2	2.62	6	1.20	3	2.39	5	2.22	8	3.97	11	6.74	9	8.08	12	8.03	12	7.69	18	5.81	15	9.01	17	5.70	17	7.42	14	9.11	18	15.20	31	15.12	29
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.50	3
Iceland	High	3.75	6	7.24	10	10.44	13	4.67	8	3.57	7	1.91	4	4.75	12	8.11	12	8.00	19	6.74	10	11.19	17	9.41	14	12.24	17	10.07	19	12.82	24	13.63	25	9.54	22	12.18	26	14.12	34
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	3.32	9	4.50	11	5.75	16	4.95	13	5.13	17	4.55	13	2.62	9	4.07	12	5.91	17	10.22	28	14.75	31
Liechtenstein	High	1.50	3	3.42	5	1.00	1	2.87	5	3.07	4	2.08	3	5.27	9	2.19	4	1.92	5	2.95	8	1.04	2	1.27	4	2.90	7	4.03	7	5.56	12	3.02	9	5.39	11	5.07	12	2.58	11
Moldova	Lower-middle	71.19	86	50.84	66	47.12	65	43.05	81	42.20	71	51.88	91	32.82	71	27.43	61	52.10	90	46.49	72	43.99	67	44.63	72	40.41	73	37.27	68	40.21	76	26.20	57	49.96	87	35.73	61	33.68	63
Monaco	High	1.48	3	7.98	12	2.68	4	0.00	0	3.07	4	5.73	8	0.10	1	1.46	4	1.00	1	1.08	5	3.80	10	3.11	7	0.70	2	0.47	2	1.33	2	3.93	5	2.04	4	2.78	5	2.26	5
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.19	7	3.14	4	1.61	5	1.67	6	4.55	9	3.39	9	7.42	15	5.99	11	3.73	5	5.32	11	4.14	11	6.39	14
North Macedonia	Upper-middle	29.85	36	40.35	55	25.85	51	35.52	55	19.60	34	19.18	31	21.56	35	24.61	53	24.62	39	22.30	34	20.21	33	24.24	35	24.60	33	18.58	25	24.63	34	27.81	37	25.09	32	17.98	27	21.53	29
Norway	High	197.25	245	201.14	252	146.47	195	154.68	235	206.42	280	223.31	300	212.97	300	232.27	308	197.32	275	204.35	305	204.18	296	209.03	311	210.89	330	212.39	336	216.05	351	220.47	375	231.97	392	228.74	415	234.55	429
Russia	Upper-middle	4899.41	5,299	5032.74	5,442	4783.40	5,213	4830.68	5,358	4605.65	5,146	4484.84	5,092	3711.43	4,186	4026.18	4,555	4015.18	4,484	4083.81	4,570	4090.28	4,554	4286.61	4,792	3852.80	4,332	4282.81	4,788	4239.12	4,804	4823.59	5,475	5090.96	5,796	5342.81	6,141	5381.25	6,240
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	248.28	304	275.49	336	318.69	382	309.66	372	342.07	406	409.68	478	414.68	475	386.52	462	369.17	457	366.28	461	338.01	455	314.55	428
Serbia and Montenegro[b]	Lower-middle	188.80	212	166.27	185	156.47	187	197.62	236	230.17	269	223.15	263	212.69	252	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	965.54	1,259	935.99	1,221	951.37	1,254	964.30	1,342	1098.23	1,529	1086.58	1,539	1064.06	1,555	1015.73	1,505	1047.83	1,535	1058.39	1,588	1122.13	1,670	1136.35	1,745	1208.44	1,870	1220.17	1,849	1315.91	1,954	1239.85	2,041	1202.49	1,940	1196.58	1,942	1133.62	1,840
Turkey	Upper-middle	505.01	561	623.90	693	714.58	793	791.72	883	1021.79	1,143	1014.02	1,134	1200.65	1,308	1473.98	1,608	1424.09	1,571	1536.71	1,713	1510.06	1,699	1422.91	1,617	1467.85	1,707	1694.84	1,964	1604.13	1,874	1619.01	1,979	1825.79	2,135	1766.14	2,061	1904.47	2,258
Ukraine	Lower-middle	658.74	810	706.38	820	741.58	862	652.18	829	679.44	873	661.17	861	509.53	652	540.58	688	583.45	719	538.71	659	556.74	677	528.35	679	565.30	733	591.23	754	563.96	728	552.65	753	456.43	628	449.73	622	499.49	711
Middle East		978.44	1,194	1139.04	1,341	1307.75	1,537	1522.54	1,815	1673.41	1,970	1984.21	2,346	2224.22	2,581	2719.80	3,099	2896.53	3,314	3196.61	3,682	3618.49	4,272	4199.35	5,168	4788.49	6,156	4929.74	6,320	5315.08	6,970	5692.87	7,613	6016.27	8,008	6237.55	8,331	6971.91	9,247
Armenia	Upper-middle	39.31	43	36.64	41	28.94	34	43.50	49	46.74	54	51.23	60	54.01	62	71.35	78	58.86	65	38.07	44	56.16	66	31.10	41	40.85	54	39.43	54	50.83	62	45.70	58	49.04	59	38.88	49	50.61	65
Azerbaijan	Upper-middle	38.68	47	40.73	48	37.23	43	39.94	46	47.73	57	67.19	76	48.77	54	47.71	56	59.46	68	122.10	134	113.11	131	120.46	142	97.14	126	89.10	119	60.28	79	49.45	69	57.08	88	80.28	113	97.74	132
Bahrain	High	0.00	0	0.00	0	2.06	3	1.00	1	1.00	1	1.42	3	1.00	1	1.00	1	1.75	4	0.00	0	0.33	1	2.98	5	1.50	2	3.81	8	2.14	6	3.29	9	2.83	6	3.27	9	4.33	17
Gaza Strip[c]	Lower-middle	6.00	6	5.10	6	11.85	16	15.87	19	11.46	15	8.00	13	5.63	12	15.03	20	15.92	26	16.90	20	6.50	8	8.50	13	9.03	20	10.69	18	6.53	14	9.99	15	8.90	11	6.14	12	6.36	11
Georgia	Lower-middle	20.93	27	21.30	31	21.96	36	11.63	19	18.67	30	23.06	31	25.25	34	19.53	25	17.05	26	15.80	25	18.62	30	10.72	20	26.02	35	13.03	22	11.87	18	19.86	30	8.11	17	8.86	15	18.37	30
Iran	Upper-middle	353.94	374	489.79	518	591.69	621	781.91	832	927.17	986	1180.33	1,254	1436.18	1,532	1846.16	1,959	2006.93	2,143	2261.10	2,427	2522.17	2,704	2975.58	3,205	3388.03	3,654	3462.89	3,742	3662.75	3,945	3968.24	4,293	4150.80	4,487	4309.43	4,693	4665.57	5,115
Iraq	Lower-middle	4.75	5	7.33	8	2.92	4	8.75	10	6.83	10	8.99	14	9.84	15	18.99	25	19.48	29	22.39	30	33.76	45	33.01	52	56.28	91	66.81	128	86.42	178	66.37	182	74.33	165	106.16	193	223.56	355
Israel	High	323.89	428	330.86	411	371.97	465	384.07	498	358.23	457	370.00	496	383.11	490	390.14	512	410.88	520	364.29	474	369.88	496	381.81	519	335.06	451	398.91	538	410.54	591	432.19	602	447.56	640	411.33	615	475.77	684
Jordan	Upper-middle	32.92	42	39.90	51	53.68	69	42.90	61	40.39	54	45.52	69	61.93	94	74.53	111	61.85	91	70.57	89	61.09	105	66.24	102	61.20	102	55.05	104	52.78	102	71.42	135	110.25	179		

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	19.66	28	25.95	31	21.51	29	23.29	29	25.15	35	35.34	44	29.78	38	37.75	45	42.76	58	31.27	44	34.77	55	26.13	37	26.70	43	39.04	56	44.19	63	25.53	41	29.98	47	43.60	65	48.90	78
Lebanon	Upper-middle	8.72	16	5.79	11	6.60	16	4.70	8	5.10	13	7.48	21	12.74	33	8.08	21	16.23	30	11.70	23	13.47	27	19.53	38	20.35	43	26.69	68	27.80	65	40.98	93	42.22	98	38.38	92	50.36	111
Oman	High	8.30	14	8.00	12	9.69	18	10.15	19	8.34	14	8.10	15	7.89	17	4.44	6	13.24	18	17.85	25	19.54	30	19.41	38	21.33	52	26.05	52	35.22	63	33.71	68	35.83	77	50.45	101	38.31	89
Qatar	High	4.17	6	2.17	4	2.50	3	4.13	6	11.95	15	8.92	13	4.62	9	5.11	9	6.21	10	4.75	8	9.06	16	8.86	16	17.23	41	17.86	51	25.30	80	46.40	133	66.31	164	71.57	181	78.50	178
Saudi Arabia	High	98.93	129	95.53	134	129.50	169	119.34	170	125.97	187	135.88	195	111.54	157	123.58	164	114.95	167	164.18	252	288.24	506	421.93	894	606.25	1,404	590.41	1,298	742.28	1,647	798.63	1,862	889.78	1,975	867.57	1,970	919.12	2,049
Syria	Low	5.30	9	5.58	9	4.80	7	12.45	18	13.62	20	6.65	9	12.35	15	6.64	11	10.50	14	11.22	17	25.82	29	24.95	32	28.93	37	20.70	24	18.92	22	21.27	32	16.24	26	20.98	32	7.33	12
United Arab Emirates	High	10.50	17	13.56	19	5.83	10	9.92	29	11.23	20	18.56	34	13.72	25	28.59	55	17.28	33	16.88	35	21.75	38	37.75	67	39.03	82	49.66	102	50.64	96	63.87	133	67.78	135	87.36	173	156.16	269
West Bank[c]	Lower-middle	2.00	2	3.13	4	4.75	6	5.17	7	5.97	7	2.70	8	2.36	8	2.92	5	7.42	10	15.47	22	16.97	23	7.93	15	5.90	16	7.44	23	9.46	23	6.92	18	11.67	20	15.32	35	10.90	33
Yemen	Low	0.54	3	7.68	10	0.35	2	3.83	6	7.87	12	4.83	11	3.52	11	5.75	15	6.23	12	8.13	15	6.50	15	9.11	20	7.78	21	0.98	7	8.73	19	5.42	13	5.02	19	6.55	29	9.75	44
Africa		998.17	1,256	1011.17	1,244	1156.46	1,413	1190.43	1,531	1317.53	1,723	1262.65	1,637	1464.71	1,891	1580.20	2,054	1501.85	1,954	1581.14	2,123	1767.12	2,373	1927.48	2,657	2005.76	2,858	2181.04	3,137	2127.73	3,166	2444.85	3,605	2674.43	3,908	2918.77	4,264	3189.86	4,657
Algeria	Upper-middle	31.77	49	29.33	50	40.31	67	54.20	86	63.44	104	74.86	109	115.11	171	106.20	160	131.21	195	134.62	210	138.77	207	147.89	216	192.28	276	202.52	270	203.11	282	231.02	332	248.95	377	271.77	402	329.42	491
Angola	Lower-middle	0.33	1	0.08	1	0.17	1	0.00	0	0.28	2	0.22	1	0.00	0	0.17	1	0.00	0	0.20	1	0.67	1	0.31	2	0.22	1	0.22	1	0.10	1	0.00	0	0.00	0	0.99	4	0.15	2
Benin	Low	0.00	0	0.00	0	0.38	1	1.00	1	5.63	6	1.13	2	1.17	2	2.35	3	1.81	3	1.17	2	0.44	1	1.27	3	1.55	4	1.67	2	0.00	0	0.17	2	2.96	8	3.77	5	1.42	3
Botswana	Upper-middle	7.08	9	9.50	14	11.20	15	9.00	9	17.71	21	12.11	17	13.95	18	9.35	14	9.68	15	7.43	12	4.08	7	7.24	11	10.51	14	5.85	11	8.79	12	4.57	9	9.20	18	7.89	17	6.11	17
Burkina Faso	Low	0.00	0	0.00	0	2.00	2	0.00	0	5.00	7	0.00	0	0.33	1	3.37	7	2.07	4	2.75	7	1.35	4	2.88	7	4.80	9	2.74	8	3.81	7	2.66	7	4.26	8	3.62	8	4.78	9
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.67	3	0.25	2	0.59	4	0.00	0	0.00	0	0.80	3	0.13	1	0.00	0	0.08	1
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0	0.07	1	0.00	0	0.00	0	0.00	0	0.00	0
Cameroon	Lower-middle	3.37	5	4.75	6	6.72	11	6.89	11	7.28	14	9.92	20	12.70	25	14.86	31	14.76	34	12.34	26	14.17	27	17.90	34	13.56	31	17.11	38	13.99	28	16.11	39	19.73	47	17.78	38	20.36	48
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0
Chad	Low	0.00	0	0.33	1	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.10	1
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	1	0.00	0	0.00	0	0.00	0	0.00	0	0.23	2
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.13	1	1.73	3	0.00	0	1.20	2	0.90	3	0.00	0	0.46	2	0.30	1	1.19	2	0.70	3	0.18	1	1.93	6	1.67	4	1.56	4	4.16	9	1.54	9	1.85	6
Congo, Republic of the	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.25	1	0.00	0	0.00	0	0.50	2	0.18	1	0.00	0	0.00	0	0.25	1	1.00	2
Côte d'Ivoire	Lower-middle	3.08	10	3.35	5	5.16	12	1.13	3	4.36	10	5.58	11	3.37	7	8.44	14	5.27	13	6.99	11	6.67	11	5.94	13	7.13	18	4.02	10	3.88	8	4.31	12	9.82	17	4.86	8	6.13	21
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.20	1	0.65	2	1.13	2	0.00	0	0.00	0	1.00	1	0.19	1	0.00	0	0.07	1	0.18	2	0.00	0
Egypt	Lower-middle	543.19	620	550.25	607	628.81	700	641.06	760	643.77	763	639.07	756	699.51	827	734.91	870	733.99	874	733.98	917	789.93	1,003	753.30	1,031	785.14	1,144	901.29	1,340	920.40	1,413	1031.56	1,577	1134.31	1,684	1315.58	1,918	1458.86	2,078
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	3	0.00	0	0.00	0	0.50	2	0.00	0	0.25	1	0.00	0	0.00	0	0.35	2	0.00	0	0.00	0	0.31	2	0.67	1
Eswatini	Lower-middle	0.00	0	0.00	0	0.17	1	0.14	1	0.00	0	2.00	2	0.00	0	0.00	0	1.00	1	1.33	2	0.20	1	0.25	1	0.20	1	1.33	2	0.17	1	0.25	1	0.50	1	0.10	1	0.00	0
Ethiopia	Low	7.89	14	6.33	9	5.94	9	4.82	8	2.76	5	4.47	9	8.16	17	7.01	12	7.52	12	5.93	9	8.69	12	12.45	24	18.34	25	18.59	29	16.72	31	22.20	33	22.28	45	36.65	70	38.07	85
Gabon	Upper-middle	0.50	1	0.00	0	0.00	0	0.00	0	0.20	1	0.41	2	0.43	1	0.00	0	0.00	0	0.50	1	0.00	0	0.50	2	0.00	0	0.46	2	0.48	2	0.30	1	1.75	5	1.12	7	0.56	2
Gambia, The	Low	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.12	2	0.00	0	0.00	0
Ghana	Lower-middle	2.25	3	4.00	4	1.50	2	5.42	9	2.17	3	5.39	9	6.10	9	6.03	8	3.93	8	8.22	14	6.44	7	8.28	11	8.65	11	9.40	18	8.82	21	5.79	20	12.49	33	9.62	24	16.59	33
Guinea	Low	0.00	0	0.00	0	0.00	0	0.00	0	1.75	3	0.00	0	0.14	1	0.00	0	0.49	3	0.20	1	0.00	0	0.00	0	0.50	1	0.21	1	0.29	1	0.71	2	0.00	0	1.00	1	0.00	0

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Kenya	Lower-middle	6.90	9	9.05	13	6.73	10	11.30	18	6.54	12	7.48	12	1.78	4	6.72	11	3.22	7	11.58	20	5.21	9	10.83	24	15.59	32	7.59	14	2.69	12	2.70	9	14.69	22	12.21	26	14.53	27
Lesotho	Lower-middle	0.00	0	0.25	1	1.00	1	0.00	0	1.10	2	0.00	0	0.00	0	1.25	2	0.25	1	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	1.00	1	0.33	2	2.00	2	2.17	3	0.50	1
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0
Libya	Upper-middle	1.83	3	2.50	3	5.53	7	3.98	7	7.32	14	3.46	6	10.80	15	19.33	26	6.43	13	16.06	24	18.76	34	14.69	29	9.44	37	14.41	28	8.58	21	4.96	18	7.75	24	7.25	29	5.77	29
Madagascar	Low	0.82	2	1.13	4	0.49	2	0.29	1	0.75	4	1.33	3	0.63	3	0.33	1	0.46	2	2.19	5	1.25	3	0.21	2	0.82	6	1.74	6	0.98	4	0.81	3	0.88	3	0.81	2	1.68	5
Malawi	Low	0.07	1	0.33	2	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.65	2	0.00	0	0.08	1	0.58	2	0.74	3	0.25	1	0.12	2	0.00	0	0.13	1	0.17	1	0.25	1	0.26	3
Mali	Low	0.00	0	0.00	0	0.00	0	0.00	0	1.14	2	0.20	2	0.49	2	0.00	0	0.25	1	0.23	2	0.46	2	0.13	1	0.18	2	0.34	2	1.12	5	0.14	1	0.41	1	0.10	1	0.37	2
Mauritania	Lower-middle	0.00	0	0.50	2	0.87	2	0.53	3	0.71	4	1.10	7	0.20	1	0.87	3	1.48	7	1.74	7	0.00	0	0.62	3	0.20	1	0.20	1	0.20	1	0.20	1	0.39	4	1.89	9	0.97	7
Mauritius	Upper-middle	7.00	7	4.07	5	2.92	4	5.00	6	5.92	7	4.18	6	4.00	4	5.35	6	5.02	6	5.33	9	5.70	10	2.34	4	7.55	12	6.47	11	6.68	10	8.63	17	6.49	16	10.95	24	8.31	28
Morocco	Lower-middle	95.07	165	96.96	155	91.41	143	85.55	145	86.37	160	75.92	133	78.79	144	96.89	178	86.50	147	71.65	140	138.64	226	163.07	257	123.07	195	133.84	209	122.48	193	124.57	221	116.91	194	133.61	213	202.31	303
Mozambique	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.63	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.06	1	0.75	4	0.39	3	0.87	4	0.60	2
Namibia	Upper-middle	0.00	0	0.00	0	0.00	0	0.25	1	0.17	1	0.29	1	0.33	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.13	1	0.57	3	1.12	5	0.42	2	1.31	6	0.25	1
Niger	Low	0.17	1	0.00	0	0.00	0	0.00	0	1.33	2	0.00	0	0.00	0	1.47	2	0.00	0	0.00	0	2.00	2	0.33	1	0.08	1	0.00	0	0.24	2	0.00	0	0.92	5	0.23	2	0.00	0
Nigeria	Lower-middle	33.77	44	28.98	35	36.25	45	24.50	36	69.66	84	46.83	55	46.33	62	58.42	71	45.03	56	67.58	88	70.23	93	49.17	81	45.27	74	53.90	90	58.70	101	69.68	127	86.24	152	100.66	182	105.63	192
Rwanda	Low	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.31	2	0.75	1	0.06	1	1.20	2	0.80	5	1.14	6
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	2.58	4	3.82	7	3.93	9	6.88	13	6.00	11	6.55	12	5.06	12	10.27	18	7.80	12	10.88	24	8.03	17	17.22	26	19.74	35	18.22	35	18.55	28	19.49	30	14.69	20	8.07	21	9.70	23
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.31	1	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	1	0.13	1
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
South Africa	Upper-middle	176.48	216	194.59	243	228.91	270	235.23	290	272.53	354	252.44	322	333.99	412	350.37	439	295.69	381	350.14	465	388.97	509	542.85	683	556.51	735	534.79	748	490.72	685	594.46	784	622.67	842	580.59	808	616.96	898
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0
Sudan	Lower-middle	2.00	3	0.08	1	1.07	5	3.03	5	0.70	3	1.46	5	0.78	3	2.43	18	1.77	9	7.28	16	5.50	18	10.66	27	11.77	28	9.66	24	9.66	28	10.48	31	6.07	29	6.89	25	11.04	44
Tanzania	Low	0.33	1	0.00	0	2.00	2	3.87	9	3.50	4	3.43	8	2.35	4	2.33	4	0.67	1	2.49	6	0.67	2	5.87	10	5.30	12	5.96	14	3.67	11	3.55	11	8.65	20	3.63	12	6.78	14
Togo	Low	0.00	0	1.00	1	0.20	1	0.60	1	1.34	3	0.00	0	0.00	0	1.20	2	1.00	1	0.00	0	0.00	0	0.16	2	0.00	0	0.00	0	0.35	2	0.00	0	0.17	1	0.40	1	0.51	2
Tunisia	Lower-middle	69.03	90	56.29	80	72.30	99	81.86	115	95.41	133	99.61	139	112.85	167	126.96	178	131.83	175	114.03	158	142.88	200	147.66	210	164.94	235	219.90	294	215.70	319	271.31	405	305.53	452	362.81	539	303.89	480
Uganda	Low	0.00	0	0.00	0	0.14	1	0.00	0	0.67	1	0.25	1	0.00	0	0.61	3	0.80	3	1.29	5	1.75	2	0.08	1	0.33	1	0.25	1	0.32	2	3.66	10	2.79	8	1.05	10	3.28	10
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	0.33	1	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1	1.00	1	0.50	1	0.00	0	1.17	2	0.50	1	0.00	0	0.00	0	0.90	2	0.00	0	0.23	2	0.08	1	0.10	1	0.73	4
Zimbabwe	Low	2.31	4	3.71	8	0.00	0	2.17	4	0.00	0	0.63	3	2.79	4	1.07	2	1.10	4	0.50	3	1.00	1	0.00	0	1.00	1	2.33	4	1.69	5	5.47	8	3.88	5	4.41	8	8.16	16
Asia		21263.08	22,210	22801.86	23,825	24387.54	25,515	25813.13	27,215	29133.41	30,691	36967.03	38,654	40776.16	42,649	40443.40	42,548	42295.50	44,506	45758.63	48,360	46194.54	49,218	51347.85	54,730	55234.86	59,026	58482.01	62,486	64724.49	69,056	68856.68	73,187	69457.90	74,637	71568.69	76,944	81250.02	86,968
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.83	1	0.00	0	0.33	1	0.00	0	0.00	0	0.21	2	0.29	1
Bangladesh	Lower-middle	18.11	26	29.93	49	32.43	51	39.95	58	30.11	53	44.79	70	38.07	53	46.54	77	40.04	72	44.88	72	59.89	84	63.79	104	75.58	114	67.07	118	64.58	125	82.78	149	78.13	146	84.86	172	102.97	203

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.07	1	0.21	2	0.25	1	0.00	0	0.00	0	0.00	0	0.65	2	0.25	1	0.00	0	0.00	0	0.00	0
Brunei	High	1.75	3	2.40	5	1.56	4	1.88	3	4.30	6	1.45	3	2.05	3	0.87	2	1.88	3	0.50	1	2.59	5	4.97	12	7.61	15	5.31	15	6.38	15	6.46	25	9.01	19	6.20	12	10.10	17
Burma	Lower-middle	0.25	1	0.00	0	0.00	0	0.67	3	1.92	6	1.53	6	0.45	2	1.11	3	0.10	1	1.30	3	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.88	6	0.79	4	1.07	7	2.02	11
Cambodia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.47	3	0.65	2	0.93	3	0.13	1	0.00	0	0.00	0	0.29	2	0.00	0	0.64	3	0.67	4
China	Upper-middle	6761.84	7,095	7861.42	8,240	8571.41	9,018	9531.98	10,094	12317.66	13,026	15518.48	16,254	17694.62	18,543	20401.29	21,394	21323.70	22,397	23668.47	24,988	23637.82	25,209	26753.24	28,574	29213.95	31,106	32180.68	34,383	37098.05	39,666	39753.78	42,608	41376.87	44,533	42587.57	45,986	50752.88	54,615
India	Lower-middle	2890.86	3,056	3191.55	3,375	3594.27	3,818	3985.34	4,343	4227.82	4,599	4437.75	4,841	5305.80	5,770	6083.94	6,646	6006.13	6,532	6452.88	7,058	6721.56	7,399	7657.15	8,469	8058.98	8,903	8681.75	9,566	9737.83	10,731	10021.79	11,170	10119.26	11,277	10780.06	12,048	11481.14	12,829
Indonesia	Lower-middle	9.50	30	10.09	26	14.02	32	13.46	38	13.84	44	28.46	65	20.04	54	14.87	49	17.62	46	29.96	64	35.47	71	48.69	91	99.61	155	99.32	170	119.05	212	163.41	232	170.40	257	401.95	512	703.08	844
Japan	High	8342.28	8,832	8246.48	8,750	8375.41	8,956	8194.85	8,873	8140.55	8,854	12226.78	13,012	12080.44	12,914	8012.73	8,781	8098.47	8,906	7962.28	8,816	7472.97	8,319	7706.62	8,631	8038.20	9,062	7899.49	8,954	7734.37	8,869	7729.00	8,902	7279.88	8,683	7540.47	8,829	7267.13	8,678
Kazakhstan	Upper-middle	47.88	53	36.94	43	38.08	43	47.57	61	55.46	68	63.08	73	49.65	55	36.03	45	47.97	54	44.56	50	50.49	63	34.55	45	48.17	65	63.70	90	63.57	92	64.34	90	75.77	110	93.88	139	86.99	135
Kyrgyzstan	Lower-middle	0.50	1	1.00	2	1.65	3	0.00	0	0.17	1	2.49	6	1.48	3	0.17	1	0.20	1	3.75	5	0.50	1	2.19	11	2.30	10	2.73	10	1.15	3	1.17	3	1.81	5	0.03	1	0.50	2
Laos	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.55	2	0.07	1	0.30	1	0.20	1	0.37	2	0.02	1	0.25	1	0.00	0	0.00	0	0.31	3	0.00	0	0.35	3
Malaysia	Upper-middle	125.59	190	135.86	195	125.00	171	195.08	349	170.04	301	230.29	406	281.29	474	314.36	505	476.36	652	662.19	963	1003.44	1,460	1192.19	1,690	1156.48	1,718	1035.11	1,392	1150.49	1,520	1309.30	1,720	1334.02	1,688	1264.45	1,635	1386.03	1,735
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	1.70	5	4.58	7	3.93	8	0.79	3	1.93	7	1.12	4	0.96	2	1.57	4	2.31	7	2.09	9	3.24	9	1.51	3	2.61	10	3.67	13	1.91	4	2.20	8	3.12	9	3.35	10	7.19	16
Nepal	Low	0.60	1	0.70	2	2.16	4	1.17	3	0.71	5	3.49	8	3.33	8	1.27	9	0.60	5	2.70	10	4.65	13	1.67	12	7.03	20	4.77	17	1.85	12	5.43	13	9.83	26	10.01	19	8.26	15
North Korea	Low	1.33	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	8	0.65	3	0.46	3	0.33	2	0.38	3	0.13	1	0.53	2	0.17	1	0.28	2	1.74	5	0.81	5	4.06	7	5.55	13
Pakistan	Lower-middle	109.45	127	101.56	119	140.85	160	150.40	182	183.86	209	223.48	260	317.90	383	357.80	449	464.64	555	523.41	636	598.85	767	540.36	687	582.58	789	655.01	881	513.42	707	646.23	902	675.56	982	718.38	1,083	743.39	1,174
Papua New Guinea	Lower-middle	0.37	2	0.95	2	0.00	0	0.20	1	0.00	0	0.13	1	0.45	3	1.45	3	0.00	0	1.29	3	0.50	1	0.63	3	0.31	2	0.57	3	1.00	1	1.44	3	0.29	1	0.00	0	0.00	0
Philippines	Lower-middle	3.51	9	5.23	11	3.43	7	13.18	22	5.77	10	10.66	23	3.11	12	7.99	15	8.14	19	4.84	19	8.60	22	16.95	31	16.92	37	11.56	31	13.62	29	12.38	26	17.54	43	24.82	56	39.46	67
Singapore	High	221.01	273	237.81	308	246.26	309	298.80	384	320.90	406	331.57	440	349.80	464	398.72	519	505.07	654	631.48	794	686.55	887	802.24	1,047	831.92	1,119	888.87	1,231	917.96	1,330	938.44	1,376	908.99	1,376	758.81	1,232	722.81	1,231
South Korea	High	1625.37	1,758	1736.64	1,895	2006.42	2,199	2003.51	2,237	2190.45	2,457	2261.90	2,568	2781.92	3,199	2955.53	3,319	3187.57	3,572	3503.46	3,969	3691.68	4,263	4090.92	4,827	4330.68	5,097	4343.44	5,113	4695.90	5,488	5112.27	5,991	4766.97	5,642	4682.87	5,539	5147.69	6,092
Sri Lanka	Lower-middle	7.70	14	4.67	9	3.63	6	3.00	8	4.50	10	8.28	16	9.20	15	10.48	22	14.18	27	13.57	30	5.81	21	9.06	25	10.33	29	12.43	38	20.22	55	21.98	38	17.99	32	26.27	47	23.23	41
Taiwan	High	967.10	1,029	1051.36	1,122	1060.95	1,141	1125.79	1,217	1230.15	1,320	1298.56	1,420	1517.70	1,635	1438.99	1,560	1695.37	1,838	1773.66	1,942	1733.27	1,936	1897.17	2,083	2108.08	2,363	1856.93	2,134	1947.09	2,230	1778.81	2,101	1725.81	2,061	1748.10	2,115	1724.18	2,121
Tajikistan	Low	7.00	7	5.00	5	2.00	2	3.00	3	9.00	9	3.18	6	4.00	4	8.03	12	8.45	12	8.04	12	8.10	11	8.21	11	5.97	7	9.19	12	5.00	7	4.82	10	6.71	9	5.64	11	8.79	14
Thailand	Upper-middle	79.92	107	109.32	147	127.16	189	162.97	225	179.71	249	217.48	311	292.80	404	313.84	443	360.90	511	379.68	491	397.70	534	430.99	553	536.92	678	553.44	715	522.88	671	568.29	748	604.24	800	628.54	836	779.09	1,008
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Turkmenistan	Upper-middle	0.00	0	0.00	0	0.80	1	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Uzbekistan	Lower-middle	31.32	37	38.19	44	31.22	34	32.94	44	34.91	47	41.77	51	10.88	20	23.17	32	22.96	33	24.46	35	33.96	42	37.15	44	26.19	34	24.77	37	16.89	23	18.38	35	19.49	32	21.76	35	15.26	24
Vietnam	Lower-middle	8.14	21	10.18	23	4.90	13	6.59	20	9.67	20	9.82	29	9.14	24	13.47	37	15.65	40	19.71	51	35.07	83	46.55	93	73.05	144	81.80	157	88.97	183	111.53	232	152.30	286	174.36	310	231.23	430
Australia and Oceania		1107.24	1,241	1067.75	1,331	1023.60	1,306	1201.73	1,560	1167.69	1,516	1153.78	1,528	1226.96	1,574	1308.94	1,747	1268.66	1,757	1459.05	1,996	1518.38	2,074	1642.46	2,291	1708.39	2,416	1790.84	2,604	1884.03	2,732	2081.46	3,139	1952.91	3,048	1895.29	3,074	1931.86	3,310
Australia	High	951.19	1,153	921.74	1,151	871.57	1,117	1044.76	1,365	1014.92	1,317	993.02	1,318	1039.04	1,340	1108.76	1,484	1064.03	1,502	1243.29	1,720	1302.32	1,795	1395.30	1,966	1489.89	2,118	1535.89	2,264	1652.25	2,417	1803.34	2,736	1730.07	2,741	1659.41	2,745	1669.74	2,943
Cook Islands	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	1.07	2	0.00	0	2.40	3	3.00	5	3.33	5	7.34	12	3.25	4	3.91	8	2.63	5	5.27	11	0.42	2	3.92	7	1.05	5	3.15	8	1.98	6	2.90	8	1.17	6	2.95	10	4.12	9
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-6

S&E articles in chemistry, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	154.65	212	146.02	196	149.63	212	153.98	217	149.44	214	153.41	232	184.43	254	196.26	284	202.00	295	210.48	311	214.42	320	243.24	355	217.45	332	251.80	380	229.80	341	275.02	438	221.67	349	232.93	372	256.93	416
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.22	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.08	3
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	254.71	578	158.42	364	154.82	353	267.53	562	287.48	654	307.14	656	179.41	452	174.49	399	172.26	439	111.52	293	109.99	271	75.40	198	71.79	180	50.42	128	50.66	146	56.49	182	51.40	166	88.13	319	126.82	331

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		55801.00	55,801	60755.00	60,755	68232.00	68,232	81921.00	81,921	104911.00	104,911	133836.00	133,836	141547.00	141,547	171509.00	171,509	189748.00	189,748	212033.00	212,033	236660.00	236,660	227079.00	227,079	224111.00	224,111	212956.00	212,956	215245.00	215,245	222488.00	222,488	235916.00	235,916	249203.00	249,203	273608.00	273,608
North America		18504.69	20,467	18696.52	20,722	21108.79	23,676	25643.34	28,730	29884.91	33,531	35959.45	40,470	35279.73	40,273	39855.06	45,933	37524.99	43,992	37686.75	44,655	38070.81	45,237	38002.03	45,537	37819.07	45,877	37251.02	45,978	35624.23	44,653	37415.49	47,009	36030.48	46,113	37233.27	47,885	39130.61	51,107
Canada	High	2038.68	2,489	2152.77	2,674	2631.90	3,289	3341.01	4,139	4137.68	5,091	5329.00	6,532	5266.86	6,584	6743.83	8,393	5966.77	7,692	6340.81	8,193	6059.23	7,851	5909.70	7,757	6092.87	8,096	5752.92	7,875	5557.66	7,757	5570.13	7,866	5393.64	7,798	5251.67	7,649	5567.65	8,200
Greenland	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0
Mexico	Upper-middle	160.52	188	169.93	216	189.71	242	335.28	418	609.18	734	713.53	848	766.46	911	748.70	923	809.59	ne	845.58	1,040	873.34	1,069	851.48	1,043	848.75	1,041	1110.22	1,346	1093.13	1,337	1077.95	1,311	1092.05	1,366	1120.87	1,403	1190.23	1,502
United States	High	16305.49	18,140	16373.82	18,241	18287.19	20,624	21967.05	24,772	25138.05	28,408	29916.92	33,979	29246.41	33,698	32362.53	37,650	30748.63	36,328	30500.36	36,476	31138.24	37,353	31240.85	37,770	30877.36	37,800	30387.88	37,818	28973.44	36,644	30767.41	38,957	29544.29	38,069	30860.73	39,980	32372.73	42,593
Central America and Caribbean		19.28	29	17.35	26	24.98	38	65.70	86	59.90	86	86.83	134	90.72	152	124.21	190	115.99	204	113.40	197	135.77	234	118.18	221	137.81	234	171.30	262	184.47	282	154.41	244	148.32	252	200.40	299	243.01	380
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1
Bahamas, The	High	1.00	1	1.00	1	0.33	1	0.00	0	0.00	0	1.50	3	0.50	1	0.00	0	0.25	1	1.58	4	1.50	2	0.50	1	0.00	0	0.00	0	0.33	1	0.13	1	0.00	0	0.00	0	0.00	0
Barbados	High	0.00	0	2.00	2	2.25	3	5.00	5	4.50	5	2.00	2	1.00	1	2.20	3	5.39	7	0.07	1	0.00	0	2.70	5	0.00	0	2.00	2	2.25	3	3.00	3	4.67	5	2.00	2	3.00	3
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.12	1	0.00	0	0.25	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	1.10	2	0.00	0	0.40	1	0.00	0
Costa Rica	Upper-middle	0.25	1	2.13	4	1.33	2	1.50	3	5.67	8	6.58	11	9.83	16	5.63	12	3.72	7	2.20	3	5.13	9	7.02	18	22.84	30	28.13	38	28.59	38	33.74	44	31.28	44	33.65	49	67.48	87
Cuba	Upper-middle	6.01	11	5.44	9	10.15	18	13.70	25	11.51	21	38.48	64	39.10	65	45.71	71	55.42	94	38.04	73	64.00	119	49.38	97	62.32	115	87.85	138	86.28	131	58.29	99	50.39	92	61.08	102	102.22	165
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.25	1	0.46	3	0.00	0
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.41	2	0.33	1	0.00	0	0.00	0	1.25	2	0.20	1	1.00	1	0.17	1	0.83	2	0.00	0	0.63	2	0.61	4	0.75	2	1.55	8
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.63	1	0.33	1	1.00	1	0.33	1	0.83	2	2.00	2	1.17	2
Grenada	Upper-middle	0.00	0	0.29	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.50	1	0.00	0	0.33	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Guatemala	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.25	1	1.00	1	0.70	2	2.33	3	1.75	3	4.50	6	2.83	5	3.96	9	6.17	9	6.07	9	10.13	13	9.47	13
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	1.33	2	0.00	0	0.17	1	0.00	0	0.38	2	0.25	1	0.17	1	0.00	0
Honduras	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.25	1	0.33	1	0.50	1	0.00	0	0.10	1	1.45	3	0.00	0	2.20	3	0.20	1	0.00	0	3.50	4	2.54	7
Jamaica	Upper-middle	4.00	6	0.00	0	3.33	4	8.50	9	6.75	8	9.33	11	6.17	8	9.83	11	16.20	21	18.99	24	14.92	19	11.42	15	9.75	17	17.20	21	16.42	20	12.47	17	12.08	15	16.00	18	16.21	20
Nicaragua	Lower-middle	0.00	0	1.00	1	0.25	1	0.00	0	0.25	1	0.50	1	0.50	1	0.50	1	1.38	2	0.00	0	0.97	5	0.17	1	1.00	2	0.17	1	0.00	0	0.25	1	3.77	6	0.17	1	4.27	6
Panama	High	0.50	1	0.00	0	0.00	0	0.00	0	0.50	1	0.50	1	1.17	3	0.00	0	1.57	6	4.43	17	2.60	11	2.33	10	7.82	15	5.22	11	10.24	17	4.52	9	3.59	8	6.19	14	7.33	19
Puerto Rico	High	5.92	8	3.50	6	6.33	8	29.25	32	24.13	32	20.50	31	25.34	46	49.93	75	23.31	52	26.30	44	27.78	44	20.71	38	18.50	32	15.24	28	19.56	36	17.35	32	21.73	47	39.31	57	19.86	39
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.50	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	1.00	1	2.00	2	3.00	1	7.75	12	4.92	7	6.58	8	5.45	9	9.33	14	6.92	13	19.33	27	15.75	20	19.78	30	7.50	13	11.33	15	13.63	23	15.67	21	12.67	17	24.58	30	7.58	11
South America		750.96	892	783.22	926	1023.76	1,213	1090.60	1,311	1548.77	1,858	1761.82	2,157	2301.58	2,780	2521.55	3,090	2975.90	3,610	3140.92	3,754	3380.67	4,081	3782.13	4,567	4423.03	5,250	4399.36	5,309	5067.40	6,141	5097.07	6,216	5759.82	7,008	6441.90	7,843	7878.47	9,408
Argentina	High	67.30	86	46.20	63	76.74	103	42.25	69	92.51	130	126.81	182	158.43	216	173.49	242	227.41	328	213.76	302	248.84	337	266.88	370	274.49	358	250.70	332	315.46	420	269.62	377	321.00	432	329.76	451	345.28	463
Bolivia	Lower-middle	0.00	0	0.00	0	0.50	1	0.00	0	1.00	1	0.25	1	1.17	3	0.25	2	1.83	2	0.67	1	1.45	3	0.91	4	0.42	3	0.56	2	3.00	3	2.58	7	3.08	8	3.40	5	5.58	9
Brazil	Upper-middle	597.05	693	647.07	746	825.78	953	906.87	1,042	1257.58	1,437	1378.19	1,620	1754.16	2,044	1891.57	2,228	2258.89	2,629	2333.02	2,673	2536.40	2,907	2824.65	3,263	3233.92	3,713	3319.44	3,863	3657.48	4,290	3536.08	4,189	3868.80	4,581	4228.80	5,093	4840.72	5,722
Chile	High	34.88	54	40.42	57	55.95	76	73.85	105	111.11	168	129.67	190	169.49	258	216.19	317	229.11	343	271.77	376	225.59	352	281.44	423	267.65	411	308.13	468	366.64	567	362.49	572	462.05	691	415.44	656	502.02	746
Colombia	Upper-middle	11.85	21	5.31	13	12.32	22	32.63	51	32.05	59	40.07	64	79.04	112	100.08	151	140.61	196	198.98	264	199.63	280	280.14	384	461.98	563	340.23	465	464.65	611	577.23	727	554.38	712	626.39	818	1017.12	1,259

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	2.00	3	0.00	0	0.17	1	1.00	2	1.00	1	1.34	5	7.50	16	7.03	13	3.71	8	7.12	15	16.07	25	5.78	16	14.28	34	20.33	39	50.47	93	138.34	232	294.64	431	406.73	604	760.01	1,000
Guyana	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.25	1	0.00	0	0.05	1	0.00	0	0.00	0
Paraguay	Upper-middle	0.00	0	4.00	5	0.25	1	1.00	1	6.83	8	5.02	10	6.62	9	4.33	5	6.54	9	5.86	10	4.74	8	6.48	10	5.25	7	13.81	18	11.86	16	25.38	31	21.25	30	26.07	33	16.38	23
Peru	Upper-middle	0.00	0	0.13	1	0.17	1	0.00	0	2.09	5	3.05	9	8.50	13	12.80	21	14.41	28	12.64	21	19.31	28	28.17	37	23.03	37	23.43	38	41.45	56	74.32	123	107.92	188	197.94	245	277.85	325
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.73	2	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1
Uruguay	High	7.25	11	7.07	11	10.83	13	6.90	13	9.78	21	16.59	23	20.08	30	27.97	41	21.18	41	37.65	67	41.43	74	47.74	76	64.73	101	60.51	96	81.56	123	75.70	103	93.12	130	68.83	96	76.82	109
Venezuela	Upper-middle	30.63	41	33.03	49	41.05	59	26.10	41	34.82	60	60.84	84	96.60	124	87.83	121	71.70	94	59.46	88	87.22	122	39.94	61	76.77	107	61.50	85	74.58	99	35.52	64	34.02	77	38.55	85	36.61	93
Europe		20207.88	21,735	21437.10	23,004	24191.85	26,203	28137.41	30,685	34253.86	37,351	43338.67	47,284	46735.39	51,089	56650.35	62,015	59486.75	65,299	63565.42	69,788	69018.85	75,672	68618.19	75,652	70058.81	77,405	70988.21	78,897	71224.38	79,630	72913.84	81,811	72255.87	81,721	74828.64	85,200	75158.20	86,658
EU		17887.90	19,455	18577.41	20,190	21234.40	23,251	24648.50	27,184	30117.31	33,210	38516.77	42,492	41516.57	45,955	50333.37	55,878	53261.96	59,196	56732.29	63,119	61008.88	67,860	60672.15	67,949	61322.54	68,969	61850.52	70,154	62049.11	70,810	61979.70	71,370	59727.55	69,517	59220.39	70,100	59736.45	71,566
Austria	High	364.83	465	428.11	533	538.07	685	633.20	782	672.43	847	988.22	1,246	1117.60	1,408	1394.70	1,805	1457.11	1,904	1651.68	2,096	1730.81	2,225	1768.07	2,343	1868.31	2,461	1863.36	2,498	1803.97	2,499	1897.88	2,638	1777.22	2,520	1799.37	2,553	1762.78	2,559
Belgium	High	460.69	563	479.71	595	554.20	715	664.96	825	744.58	954	1009.10	1,289	1095.79	1,434	1226.45	1,598	1370.70	1,819	1352.31	1,772	1394.89	1,900	1458.88	2,024	1508.14	2,074	1400.99	2,004	1357.36	1,991	1376.61	1,986	1347.65	2,000	1255.71	1,893	1318.36	2,004
Bulgaria	Upper-middle	46.83	62	79.62	106	78.31	107	101.11	149	120.66	164	97.52	130	112.86	164	237.14	298	237.77	301	183.19	239	279.95	361	299.75	370	251.14	311	224.50	273	205.14	260	249.92	315	253.10	331	293.42	370	377.01	464
Croatia	High	117.88	128	80.19	89	77.96	88	236.98	258	205.74	222	356.38	380	357.68	379	398.05	454	427.53	461	489.37	534	461.06	508	504.05	568	482.38	539	408.96	476	375.93	451	402.52	488	389.34	471	409.46	495	457.31	545
Cyprus	High	36.42	43	22.37	35	31.82	46	32.80	53	48.78	81	69.97	109	98.94	142	90.43	139	109.57	175	126.73	191	121.90	181	151.16	230	180.92	261	185.04	283	178.67	271	159.51	249	218.22	327	225.94	343	181.54	292
Czechia	High	210.54	255	251.89	308	287.14	348	402.09	482	472.96	568	668.70	779	802.32	954	1123.91	1,305	1249.68	1,444	1275.34	1,498	1544.26	1,782	1655.51	1,915	1481.28	1,759	1608.54	1,934	1586.28	1,977	1814.48	2,245	1644.85	2,071	1754.92	2,186	1545.74	1,974
Denmark	High	239.38	317	251.70	323	288.45	379	307.43	408	388.89	514	469.37	645	545.49	751	634.07	861	610.33	882	719.75	1,038	772.66	1,149	797.18	1,169	893.87	1,297	930.66	1,367	932.52	1,367	934.01	1,408	969.98	1,484	874.08	1,407	981.66	1,603
Estonia	High	10.58	12	10.87	17	18.45	22	25.74	31	29.68	35	43.66	57	47.35	62	62.72	77	84.05	107	89.80	111	150.13	184	151.28	187	137.80	182	152.51	201	191.66	257	174.23	240	185.91	268	196.71	280	190.55	290
Finland	High	615.42	705	546.07	635	716.01	828	759.62	902	1014.80	1,189	1218.59	1,432	1379.82	1,633	1480.32	1,818	1386.48	1,715	1509.51	1,859	1549.23	1,953	1525.97	1,953	1502.76	2,000	1638.57	2,210	1542.82	2,106	1589.63	2,264	1540.90	2,245	1472.08	2,154	1494.49	2,225
France	High	2590.27	3,060	2421.86	2,858	3055.68	3,641	3278.17	3,984	3848.92	4,685	5254.36	6,397	5546.64	6,859	6492.52	8,149	7142.52	9,025	7338.10	9,379	7742.90	10,039	7756.55	10,163	8190.22	10,889	7923.51	10,770	8274.49	11,296	7992.88	11,179	7375.35	10,499	7200.68	10,515	7017.72	10,385
Germany	High	3162.20	3,765	3398.08	3,991	3505.12	4,250	4197.10	5,079	5005.33	6,075	6738.47	8,053	7019.82	8,471	8239.58	10,120	9294.46	11,236	10026.12	12,122	11053.26	13,369	10549.37	12,989	10800.21	13,410	10853.78	13,489	11022.71	13,760	10690.59	13,579	10337.44	13,217	9940.86	12,906	10388.50	13,400
Greece	High	581.57	680	547.37	639	671.40	777	724.60	874	1008.82	1,196	1293.86	1,531	1468.36	1,738	1739.43	2,078	1848.87	2,177	1863.03	2,267	1827.09	2,234	1750.98	2,215	1884.84	2,418	1799.72	2,305	1924.16	2,484	1829.48	2,414	1744.70	2,340	1624.51	2,205	1745.95	2,328
Hungary	High	187.03	240	201.11	265	218.50	292	245.93	337	322.33	407	422.63	538	444.79	565	657.03	801	564.63	724	652.95	812	575.35	753	696.11	888	703.91	903	771.10	963	717.30	925	605.47	794	726.47	933	704.36	920	766.17	979
Ireland	High	144.83	182	155.47	191	226.29	262	296.56	367	479.76	566	654.16	818	750.62	943	896.88	1,158	876.06	1,137	1000.41	1,307	1075.41	1,387	942.57	1,267	920.14	1,273	890.20	1,228	846.49	1,206	786.38	1,168	903.39	1,341	866.08	1,303	873.94	1,272
Italy	High	2049.62	2,333	2191.44	2,498	2445.88	2,868	2900.05	3,395	3461.92	4,082	4287.17	5,044	4249.83	5,092	5190.25	6,361	5313.20	6,492	5767.53	6,962	5906.17	7,380	5954.41	7,430	5834.30	7,388	6517.29	8,175	6407.53	8,176	6471.94	8,371	6335.93	8,243	6619.14	8,601	6308.29	8,327
Latvia	High	21.58	25	34.52	39	12.62	15	25.28	30	18.92	22	68.00	73	54.86	60	52.93	56	82.02	92	94.33	99	159.33	174	191.15	204	181.10	206	169.15	193	152.27	186	219.69	260	230.72	273	183.51	221	233.37	260
Lithuania	High	48.14	56	36.32	41	43.98	51	43.52	52	93.55	107	87.13	101	129.34	140	132.88	148	115.64	129	110.86	128	171.72	203	114.28	138	169.85	209	138.38	166	144.72	186	179.72	227	141.91	183	176.07	221	195.69	254
Luxembourg	High	5.83	7	1.00	1	3.33	7	13.75	20	22.57	34	28.50	43	55.86	96	65.03	106	108.23	168	130.34	212	167.36	283	192.73	298	202.31	353	252.06	403	288.35	471	264.00	427	248.20	407	251.77	411	284.27	432
Malta	High	4.00	5	0.50	1	4.50	5	5.33	6	3.50	5	7.58	10	11.50	16	20.83	22	31.93	38	27.98	32	46.92	56	37.89	45	44.30	54	45.35	70	41.35	55	47.51	74	57.73	77	60.16	90	64.22	95
Netherlands	High	881.49	1,107	940.93	1,171	1032.85	1,329	1148.48	1,512	1463.43	1,905	1833.40	2,372	1870.50	2,473	2321.53	3,006	2421.50	3,206	2590.30	3,434	2583.17	3,527	2605.28	3,531	2498.66	3,452	2423.93	3,463	2367.60	3,414	2258.45	3,305	2054.26	3,119	2083.16	3,182	2148.46	3,343
Poland	High	391.40	467	499.37	582	622.98	757	489.32	628	1089.20	1,293	918.74	1,115	1284.62	1,512	1729.00	2,013	1927.52	2,208	1555.56	1,838	2130.88	2,460	2026.19	2,357	2513.91	2,914	2355.01	2,780	2694.60	3,206	2918.99	3,502	3061.81	3,643	2713.82	3,375	3021.66	3,681
Portugal	High	302.72	344	331.88	372	361.84	428	532.99	620	568.83	680	660.87	791	844.55	1,008	1164.11	1,401	1209.74	1,525	1360.41	1,655	1504.43	1,873	1869.96	2,278	1855.29	2,325	1909.02	2,377	2065.88	2,569	2107.67	2,618	1802.95	2,342	1948.47	2,506	1925.16	2,549
Romania	Upper-middle	108.56	133	100.83	126	114.35	153	122.37	170	176.31	247	311.50	394	268.32	356	700.00	825	819.57	955	1149.78	1,307	1607.62	1,784	1309.96	1,508	1139.50	1,376	1072.36	1,270	925.40	1,123	1130.94	1,385	1085.90	1,327	927.51	1,147	1090.63	1,310
Slovakia	High	76.57	101	104.93	132	93.27	125	110.15	151	129.16	186	223.18	269	231.86	276	274.47	338	315.02	380	338.03	417	394.92	498	434.41	526	499.07	596	514.89	593	465.87	554	591.60	711	565.62	699	494.06	616	495.58	635
Slovenia	High	189.92	213	165.80	179	195.20	220	310.96	341	237.32	274	258.20	308	269.07	320	312.90	400	319.29	399	354.50	440	344.66	428	362.22	448	353.04	446	332.89	427	348.15	447	368.51	478	282.93	392	355.02	478	334.88	485

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	1216.09	1,362	1417.87	1,599	1763.49	2,045	2145.90	2,491	2821.11	3,251	3242.92	3,830	3730.28	4,389	4706.61	5,680	4726.32	5,748	5534.54	6,679	5709.74	7,077	5961.31	7,398	5834.69	7,399	5619.07	7,265	5441.11	7,149	5039.45	6,788	4805.74	6,636	4905.87	6,727	4727.74	6,716
Sweden	High	676.58	834	625.24	756	723.17	914	849.13	1,053	961.98	1,202	1164.97	1,489	1187.52	1,525	1387.57	1,817	1293.31	1,732	1423.03	1,914	1612.76	2,191	1714.82	2,369	1844.33	2,524	1848.13	2,635	1893.37	2,693	1873.44	2,781	1874.17	2,820	1772.88	2,735	1768.70	2,784
United Kingdom	High	3154.02	3,693	3252.37	3,823	3549.56	4,270	4044.97	4,957	4705.83	5,875	6139.58	7,719	6535.40	8,348	7602.01	9,790	7918.92	10,356	8016.80	10,586	8390.29	11,112	7890.11	10,784	7546.28	10,587	8001.56	11,471	7853.43	11,468	8004.23	11,864	7765.16	11,849	8110.76	12,562	8036.08	12,887
Other Europe		2319.98	2,698	2859.69	3,296	2957.45	3,430	3488.92	4,154	4136.55	4,962	4821.90	5,827	5218.82	6,289	6316.98	7,763	6224.79	7,737	6833.14	8,488	8009.97	9,821	7946.04	9,852	8736.27	10,770	9137.69	11,300	9175.27	11,391	10934.13	13,456	12528.32	15,102	15608.25	18,356	15421.75	18,371
Albania	Upper-middle	0.11	1	0.00	0	0.00	0	0.00	0	0.45	2	0.67	2	1.00	1	0.33	1	1.00	4	3.95	7	13.56	26	21.82	38	20.23	37	24.72	45	20.82	39	28.12	57	31.70	54	17.27	29	41.97	64
Andorra	High	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.67	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.75	2	0.45	2	0.33	1	0.57	2
Belarus	Upper-middle	68.56	80	81.44	93	62.16	70	57.77	63	97.15	108	83.74	95	70.07	80	111.57	127	68.67	78	102.59	119	113.79	135	90.90	106	93.23	111	118.09	144	88.77	110	69.52	95	66.53	90	80.53	122	71.35	118
Bosnia and Herzegovina	Upper-middle	1.83	3	3.17	6	5.67	7	8.92	14	12.23	19	30.97	36	18.11	23	42.62	55	60.85	68	46.43	53	76.34	95	97.09	122	124.32	147	76.61	102	88.94	115	88.79	111	104.83	139	75.20	104	91.02	135
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.67	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Iceland	High	7.40	15	3.50	8	4.73	10	10.91	23	11.35	25	18.90	40	19.25	33	29.17	54	38.15	76	59.54	112	66.63	128	79.28	125	83.04	133	69.70	112	64.91	120	76.44	139	97.93	162	77.20	138	91.76	166
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	3.70	5	2.90	5	8.14	16	14.52	28	11.68	23	12.87	21	9.43	17	11.53	21	20.28	37	28.14	42	24.53	48
Liechtenstein	High	0.58	2	0.00	0	0.50	1	0.33	1	1.61	3	1.00	2	0.83	2	2.08	5	10.75	17	6.90	13	10.00	22	9.23	18	6.00	11	5.39	11	10.75	17	7.95	12	9.78	15	5.88	13	10.75	24
Moldova	Lower-middle	6.00	9	6.17	8	2.83	5	3.50	6	5.84	13	8.67	19	8.74	18	8.98	16	8.04	14	6.95	12	12.28	19	7.37	15	11.94	22	7.83	13	14.18	25	13.93	24	7.78	11	13.04	24	10.10	17
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.17	2	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.17	1	1.00	1	0.53	2	0.00	0	0.00	0	1.67	3
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	17.38	27	17.13	27	15.00	23	34.12	50	41.73	49	53.15	67	59.70	78	57.82	73	65.13	82	46.42	54	66.11	81	57.33	70
North Macedonia	Upper-middle	18.92	23	14.67	17	18.75	24	16.50	19	26.44	31	36.01	50	26.43	41	51.86	63	56.01	70	76.92	88	91.54	111	131.75	165	128.50	154	99.89	128	137.95	161	128.59	167	80.19	121	135.33	173	117.42	154
Norway	High	147.26	189	182.14	250	181.72	235	252.84	345	335.33	435	456.20	580	606.29	792	689.82	952	755.90	1,101	843.98	1,216	937.35	1,287	822.85	1,133	892.69	1,259	808.92	1,199	820.43	1,226	849.96	1,278	868.32	1,328	929.37	1,406	1003.14	1,545
Russia	Upper-middle	840.99	950	937.80	1,052	1017.62	1,130	970.14	1,121	1077.25	1,248	1227.56	1,438	1083.32	1,253	1265.73	1,471	1291.36	1,496	1320.01	1,508	1708.29	1,941	1553.92	1,798	1800.04	2,072	2041.76	2,368	2618.44	2,964	3754.31	4,210	4792.05	5,345	6991.08	7,620	6381.46	7,076
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.50	2	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	253.21	314	226.33	283	373.38	461	432.01	514	665.39	782	739.97	872	623.71	741	407.74	537	520.03	669	494.14	626	555.11	699	481.89	625
Serbia and Montenegro[b]	Lower-middle	125.58	147	176.62	207	106.22	132	159.96	196	101.05	128	271.66	329	160.95	206	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	545.91	696	589.22	753	628.85	836	831.51	1,120	977.10	1,323	1182.84	1,621	1274.61	1,755	1437.66	2,089	1464.31	2,105	1636.37	2,347	1650.26	2,394	1673.52	2,497	1713.16	2,581	1754.01	2,675	1746.27	2,698	1702.03	2,648	1630.72	2,536	1553.96	2,492	1600.54	2,609
Turkey	Upper-middle	225.20	263	198.98	244	248.26	304	399.18	470	688.58	797	871.10	993	1142.94	1,285	1365.41	1,567	1347.71	1,524	1655.43	1,886	1728.02	2,013	1917.02	2,210	1997.54	2,313	2187.21	2,519	2305.67	2,637	2401.69	2,802	2668.33	3,103	2987.48	3,433	3029.67	3,467
Ukraine	Lower-middle	331.64	355	665.48	720	680.14	733	777.37	835	801.49	879	632.09	689	804.28	865	1037.84	1,124	874.38	944	682.80	752	1127.65	1,233	819.15	915	1061.43	1,160	1247.09	1,364	781.94	885	1214.81	1,347	1608.87	1,780	2092.22	2,268	2406.54	2,585
Middle East		983.32	1,236	974.35	1,220	1236.13	1,520	1422.03	1,790	1921.04	2,369	2278.10	2,836	2896.26	3,584	3784.05	4,694	5084.88	6,136	5629.01	6,741	6605.68	8,020	7066.69	8,630	6383.15	8,177	6223.24	8,290	6418.70	8,813	6841.62	9,558	7111.72	9,953	7732.23	10,911	8960.07	12,598
Armenia	Upper-middle	16.57	21	7.50	8	9.31	13	10.77	13	13.98	18	17.42	21	10.92	14	10.67	16	9.66	12	14.74	17	24.05	32	21.44	28	13.18	17	56.36	66	23.16	32	28.12	39	33.38	43	34.28	47	48.28	64
Azerbaijan	Upper-middle	4.67	6	4.83	6	6.20	8	12.00	12	8.50	10	23.88	28	13.08	15	19.33	21	24.17	29	80.42	97	33.23	43	71.47	80	172.75	183	40.88	49	41.05	48	32.79	40	59.23	76	80.08	97	31.59	42
Bahrain	High	2.50	3	3.33	4	5.33	6	6.67	8	5.96	8	7.67	10	13.25	17	8.75	9	19.03	28	21.62	29	40.75	52	31.57	43	19.85	34	21.95	43	14.82	27	16.50	26	12.51	28	27.75	50	39.29	67
Gaza Strip[c]	Lower-middle	0.00	0	0.00	0	3.33	4	0.00	0	1.00	1	1.00	1	2.00	2	4.75	5	4.33	5	4.83	6	10.50	14	6.92	9	17.50	21	16.42	21	4.58	7	7.35	15	8.08	15	34.95	40	16.14	29
Georgia	Lower-middle	8.23	10	13.29	16	20.27	23	19.77	23	25.07	38	26.83	37	24.88	36	19.70	23	15.49	20	29.47	34	38.23	46	45.50	51	48.12	54	28.43	37	27.42	34	27.60	36	29.32	39	39.40	47	36.17	49
Iran	Upper-middle	100.29	121	114.86	131	217.49	242	306.33	347	522.44	587	787.02	867	930.48	1,024	1707.77	1,877	2584.07	2,798	3039.91	3,267	3516.71	3,805	3665.42	3,951	2640.14	2,930	2419.55	2,726	2602.01	2,972	2756.04	3,133	2929.00	3,342	3061.98	3,522	3171.55	3,669
Iraq	Limited	3.00	3	4.08	5	1.50	2	17.00	17	3.33	4	3.00	3	35.71	45	21.60	27	39.95	55	41.65	58	103.12	123	116.12	145	147.99	187	89.56	162	128.26	253	113.57	250	172.90	343	319.87	574	675.27	1,010
Israel	High	683.58	863	644.35	817	794.27	984	780.20	1,023	970.25	1,218	991.84	1,292	1254.17	1,588	1245.43	1,631	1467.24	1,913	1276.55	1,685	1428.98	1,926	1315.70	1,813	1501.22	2,024	1358.99	1,859	1429.60	1,941	1323.42	1,868	1331.41	1,859	1402.85	1,940	1330.72	1,889
Jordan	Upper-middle	16.39	22	24.13	34	16.92	24	46.33	55	61.44	74	81.74	97	84.68	113	125.31	175	183.02	240	182.87	239	289.35	382	261.05	343	213.57	295	238.63	310	212.51	294	281.04	372	299.90	427	392.72	544	576.01	802

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	25.20	35	26.65	36	33.25	43	26.08	41	29.90	40	47.54	60	55.92	72	73.28	95	67.83	100	104.78	150	106.74	156	140.04	200	88.08	122	82.95	140	86.22	155	92.16	141	98.92	161	90.03	142	232.80	310
Lebanon	Upper-middle	19.04	25	18.14	24	20.57	30	35.02	44	56.55	74	62.99	104	78.33	136	98.38	155	99.39	147	148.36	213	127.21	197	166.45	266	206.89	304	185.36	287	202.21	316	231.44	361	234.19	339	201.59	318	288.69	440
Oman	High	5.42	9	8.50	13	14.67	23	16.17	22	26.46	38	15.71	23	24.00	37	37.54	63	39.82	68	56.42	97	47.50	85	70.16	105	76.38	120	80.23	129	56.23	101	76.69	125	97.42	157	74.69	130	140.77	216
Qatar	High	0.00	0	2.42	7	2.28	6	3.83	9	9.28	15	7.08	14	17.77	35	27.63	56	49.93	98	40.70	77	70.68	128	71.93	142	145.09	289	234.69	456	248.28	501	257.89	575	270.80	567	251.52	544	259.90	537
Saudi Arabia	High	77.65	92	72.89	90	56.13	75	77.07	101	87.29	108	81.37	113	140.51	177	186.87	255	239.02	314	345.01	470	470.38	706	665.73	1,003	737.91	1,209	984.97	1,581	1006.65	1,735	1181.58	2,090	1079.77	2,004	1169.05	2,258	1510.92	2,730
Syria	Low	0.75	2	1.00	1	1.62	5	0.25	1	11.58	18	2.00	2	18.60	23	9.17	15	38.64	52	14.98	20	9.79	18	8.91	18	16.08	31	9.15	14	2.73	8	10.21	16	7.77	15	13.41	17	12.25	15
United Arab Emirates	High	19.10	27	28.36	44	32.00	47	61.29	83	86.29	135	117.23	182	183.51	266	180.66	303	195.29	308	213.28	339	267.04	406	373.55	539	317.27	485	339.55	546	309.04	529	381.24	665	412.49	744	493.46	840	523.32	968
West Bank[c]	Lower-middle	1.00	2	0.00	0	1.00	1	2.00	3	1.00	1	3.33	4	4.20	6	5.00	7	6.58	10	6.75	9	10.93	17	19.47	26	13.25	22	16.29	24	11.37	19	15.48	27	22.71	38	28.08	48	47.73	72
Yemen	Low	0.00	0	0.00	0	0.00	0	1.25	2	0.70	2	0.45	2	4.25	6	2.20	5	1.40	3	6.68	16	10.48	20	15.28	29	7.87	21	19.28	38	12.58	33	8.49	32	11.93	35	16.53	57	18.68	57
Africa		410.06	494	415.93	500	635.41	741	506.44	629	817.24	989	940.43	1,158	1249.09	1,532	1600.88	2,016	1864.06	2,356	2484.90	3,088	2681.28	3,329	3120.41	3,817	3713.98	4,493	4282.66	5,237	4319.21	5,416	5099.93	6,328	6077.19	7,474	7293.36	8,884	7493.61	9,247
Algeria	Upper-middle	25.65	33	58.30	67	54.02	61	61.74	81	95.58	113	143.74	173	235.70	287	276.68	354	288.10	365	374.23	476	386.59	500	580.57	702	638.43	765	710.88	869	734.39	899	851.43	1,060	926.98	1,166	1102.00	1,392	1078.92	1,375
Angola	Lower-middle	0.06	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.58	2	0.92	3	1.17	2	0.67	1	3.22	4	1.08	3	1.43	3
Benin	Low	0.17	1	0.00	0	0.10	1	0.00	0	0.00	0	0.17	1	0.00	0	0.20	1	0.75	2	1.45	3	4.33	5	0.44	2	2.88	5	4.33	7	4.17	6	3.70	9	6.68	14	13.01	26	4.61	12
Botswana	Upper-middle	1.00	1	1.00	1	1.33	2	1.67	3	5.94	9	1.67	3	19.25	24	6.80	13	7.65	13	7.58	10	3.42	5	12.48	16	8.08	11	6.71	8	8.33	11	14.00	28	18.90	37	21.08	33	23.13	35
Burkina Faso	Low	0.00	0	0.00	0	0.50	1	0.33	1	0.00	0	0.00	0	1.37	4	1.50	2	1.33	2	0.58	2	0.75	2	0.56	4	1.25	4	3.13	7	0.33	3	3.62	7	8.31	11	2.77	5	11.73	15
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.35	5
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.33	3	1.00	1	0.00	0	1.50	2	0.00	0	0.87	2	0.20	1	0.50	1	1.75	3	0.20	1	0.00	0	1.00	1	0.75	2
Cameroon	Lower-middle	1.38	3	1.25	3	1.83	3	3.50	5	1.67	2	10.16	13	3.11	4	4.95	8	13.95	23	12.76	18	6.83	10	9.60	13	16.05	29	17.56	28	15.62	27	14.39	28	26.27	38	17.58	31	46.01	74
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Chad	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.50	1	0.14	1	0.00	0	0.67	3	0.39	3	0.17	1	0.25	1	0.11	1	0.38	1	1.95	5
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.14	1	0.00	0	0.00	0	0.00	0	0.10	1
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.73	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	2	0.10	1	0.33	1	0.39	1
Congo, Republic of the	Lower-middle	1.00	1	0.00	0	0.00	0	0.00	0	0.33	1	1.00	1	0.33	1	0.00	0	1.00	1	0.25	1	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.33	2	0.33	1	1.45	3	0.31	2
Côte d'Ivoire	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.87	2	0.71	2	0.00	0	0.00	0	2.00	2	0.50	1	2.00	4	2.67	3	1.25	2	0.75	2	1.00	1	1.33	2	2.60	6	13.59	16
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	2	0.39	3	0.00	0	0.00	0	0.00	0	0.00	0	1.08	3
Egypt	Lower-middle	177.09	196	161.49	185	204.81	227	184.17	218	217.44	262	285.73	342	309.29	374	440.79	547	511.73	643	720.58	886	733.58	893	724.03	876	879.73	1,037	938.70	1,165	807.27	1,072	927.29	1,223	1183.04	1,516	1004.25	1,340	1337.01	1,749
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	1.00	1	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.50	1	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	1.79	3	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.38	1	0.00	0
Eswatini	Lower-middle	0.00	0	0.00	0	1.83	3	0.33	1	0.00	0	0.00	0	1.00	1	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2	0.70	2	1.13	2	1.50	2	2.33	3	1.94	6
Ethiopia	Low	1.00	1	0.00	0	0.00	0	0.00	0	0.25	1	0.96	3	3.08	6	0.75	2	2.25	3	10.20	17	21.48	35	12.33	23	36.52	49	16.76	28	24.65	40	66.57	95	32.24	54	53.81	79	64.94	98
Gabon	Upper-middle	0.00	0	0.50	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.33	1	0.50	1	0.00	0	0.00	0	0.33	1	0.00	0	0.25	1	0.50	1	0.25	1	0.00	0	0.00	0
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	0.20	1	1.00	1	0.75	3	0.25	1	0.25	1	0.00	0	0.20	1
Ghana	Lower-middle	0.33	1	0.50	1	0.00	0	0.00	0	1.25	2	2.33	3	0.67	2	2.08	5	4.17	7	10.19	16	8.87	12	10.67	17	28.13	35	14.05	25	15.57	28	23.08	35	31.94	50	44.79	69	82.35	114
Guinea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	2	0.25	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.00	0	0.33	1	0.00	0

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Kenya	Lower-middle	1.83	3	0.00	0	0.55	2	2.50	3	0.00	0	2.67	3	1.50	3	8.50	10	1.00	1	22.23	29	10.83	16	16.36	22	6.75	13	32.50	48	28.44	43	34.99	46	46.55	65	57.50	72	38.40	60
Lesotho	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	2.17	3	0.00	0	1.00	1	0.92	3	2.04	3	0.74	2
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.25	1	0.00	0	0.00	0	0.50	1	0.00	0	1.07	2	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	1.13	2
Libya	Upper-middle	7.33	9	3.50	5	0.00	0	3.00	3	3.83	10	3.33	4	8.75	11	10.38	17	21.79	31	36.19	45	72.06	90	15.88	24	28.60	45	44.27	62	44.52	67	34.47	66	25.13	42	23.75	48	25.74	55
Madagascar	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2	1.00	2	1.33	2	2.17	6	0.25	1	1.32	3	1.91	4	3.25	4	6.23	8	7.42	9	5.17	7	2.00	3	3.42	4	7.50	12
Malawi	Low	0.50	1	0.50	1	0.00	0	0.00	0	1.50	2	1.33	2	0.50	1	2.50	4	1.00	1	1.00	1	2.70	4	3.33	4	5.54	10	3.65	7	10.03	12	12.39	16	4.19	8	5.44	11	3.65	8
Mali	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.14	1	0.00	0	0.79	4	1.22	6	1.10	2	0.78	4	1.33	3	1.39	4	0.71	2
Mauritania	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.43	1	0.37	2	1.00	2	0.25	1	0.33	3
Mauritius	Upper-middle	10.20	12	3.50	4	16.00	16	3.50	4	10.75	13	7.67	8	13.33	14	18.20	22	16.39	18	16.75	19	29.67	31	16.95	19	14.75	16	38.75	44	28.77	33	24.08	26	34.92	39	32.52	37	28.48	35
Morocco	Lower-middle	27.75	34	23.18	33	15.29	24	22.42	33	25.59	38	38.45	58	43.74	66	58.92	83	100.69	149	187.51	238	166.29	215	304.45	370	482.88	573	395.94	466	560.70	651	780.45	867	1027.14	1,150	1523.44	1,669	1476.22	1,625
Mozambique	Low	0.00	0	0.00	0	0.00	0	1.00	1	0.25	1	0.38	1	0.78	3	0.00	0	1.25	2	0.92	2	0.00	0	3.01	6	0.50	1	1.83	7	0.82	3	0.73	2	1.33	2	1.08	3	3.87	9
Namibia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	3.93	9	1.33	2	1.50	2	4.85	6	7.19	12	5.45	9	10.48	16	24.50	31	22.37	33	24.54	43	31.50	45	37.58	50
Niger	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.50	1	0.25	1	0.83	1	0.00	0	0.67	2	0.00	0	0.50	1	0.61	2	2.60	6	0.64	2	0.37	2
Nigeria	Lower-middle	2.50	3	3.00	3	5.13	6	9.92	12	12.48	16	16.44	19	12.35	19	27.65	34	29.21	43	61.83	77	81.34	93	114.03	146	105.80	129	158.66	202	166.02	224	186.42	260	246.44	332	303.16	416	428.60	576
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	2.00	2	1.00	2	1.83	3	1.17	2	5.37	7	1.50	2	3.20	5	2.12	5	1.72	5	3.78	8	4.40	11	8.25	16	20.99	31
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	1.83	3	0.00	0	0.13	1	0.37	2	0.17	1	1.88	5	2.00	5	4.48	9	3.00	10	8.91	15	10.65	17	14.41	26	20.69	36	11.81	24	22.26	34	31.09	44	31.73	45	49.07	65	96.34	129
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.33	3	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.06	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	1.00	1	0.50	1	1.00	1	0.00	0
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.70	2	0.25	1	0.50	1
South Africa	Upper-middle	93.17	121	108.73	131	214.60	245	156.44	189	291.48	332	233.52	285	335.75	396	417.08	500	419.55	489	488.09	584	499.85	601	669.94	783	617.04	724	811.42	957	676.61	825	920.20	1,083	966.20	1,169	1311.97	1,574	1065.58	1,309
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0
Sudan	Lower-middle	3.25	4	1.50	2	0.00	0	1.08	2	2.00	2	1.27	3	3.75	7	2.83	6	8.22	11	11.26	15	19.20	28	20.00	31	23.85	47	106.61	141	21.85	42	43.07	75	109.78	148	80.05	103	142.58	185
Tanzania	Low	0.00	0	0.50	1	0.00	0	0.33	1	4.00	4	2.17	4	2.33	3	6.15	10	5.96	11	10.48	18	5.70	9	11.31	24	10.14	16	16.01	25	18.58	26	9.21	18	11.98	21	19.32	36	22.38	41
Togo	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.67	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.14	1	1.82	4	1.79	5
Tunisia	Lower-middle	43.68	56	47.98	61	119.29	151	50.63	68	138.11	175	180.10	225	239.49	300	290.77	375	404.17	520	482.65	611	579.02	733	537.93	687	736.72	916	881.18	1,093	1067.20	1,347	1042.85	1,331	1271.19	1,607	1523.32	1,901	1366.89	1,744
Uganda	Low	0.00	0	0.00	0	0.00	0	0.83	1	2.00	2	0.50	1	3.60	4	8.83	11	10.67	13	8.68	16	14.93	23	22.98	31	26.01	33	26.52	33	12.97	15	21.64	29	11.51	21	25.22	38	36.26	49
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	0.33	1	0.00	0	0.50	1	1.00	1	0.00	0	0.50	1	4.92	6	0.81	2	1.58	4	6.50	11	2.40	5	2.69	7	5.04	10	7.58	15	9.62	13
Zimbabwe	Low	10.33	11	0.50	1	0.00	0	1.25	2	0.00	0	1.11	2	0.00	0	2.33	3	0.83	2	2.00	2	2.00	2	4.28	9	4.33	6	4.88	12	9.33	19	4.95	11	8.88	12	6.17	11		
Asia		13326.21	14,192	16631.08	17,524	18206.61	19,331	2276.55	24,060	33433.03	35,317	45070.92	47,640	48642.41	51,547	61049.99	64,704	77112.16	81,261	94555.03	99,119	111620.04	116,667	101669.20	107,150	96784.14	102,589	84694.85	90,920	87556.60	94,209	90295.05	97,364	103746.99	111,506	110868.23	119,262	129783.18	139,444
Afghanistan	Low	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.50	1	0.00	0	0.50	1	0.00	0	1.00	1	1.17	2	0.05	1	1.00	1	0.83	2	0.00	0	6.60	14	12.82	23	6.53	10
Bangladesh	Lower-middle	8.75	12	9.77	14	7.83	10	101.43	106	38.28	49	52.14	72	54.83	80	251.46	317	206.16	251	271.42	326	417.35	483	270.39	329	563.97	652	403.52	477	649.26	758	601.22	707	782.07	906	1076.75	1,272	947.75	1,121

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	1.00	3	0.75	2	1.00	2	0.01	1	0.50	3	1.00	1	1.17	2	2.50	6	2.00	2	4.50	5	2.00	4	3.70	5
Brunei	High	3.00	3	0.67	2	1.42	3	1.33	2	0.17	1	1.00	1	0.25	1	1.00	1	0.33	1	2.25	4	3.21	6	3.37	7	7.68	18	14.52	19	21.22	30	23.13	44	36.62	55	31.80	52	15.78	22
Burma	Lower-middle	0.00	0	1.00	1	0.00	0	0.25	1	0.50	1	31.92	33	3.00	3	8.25	10	7.83	9	51.50	52	30.58	32	59.50	60	4.42	7	4.17	7	0.58	2	14.88	17	36.38	47	35.47	40	96.48	105
Cambodia	Low-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.67	3	0.00	0	1.65	3	0.68	2	1.18	5	0.33	1	0.00	0	1.03	3	0.33	1	2.50	3	3.78	6	1.58	5	3.26	12	10.32	20
China	Upper-middle	3981.39	4,327	6881.20	7,241	7063.37	7,524	8612.80	9,262	15484.17	16,385	23315.50	24,596	25704.78	27,169	31809.43	33,678	45742.35	48,090	59038.98	61,809	72858.97	75,918	59357.20	62,591	55074.68	58,577	43211.46	47,107	43150.71	47,387	42066.56	46,795	49232.21	54,601	53159.83	58,889	69932.36	76,854
India	Lower-middle	726.02	871	687.64	799	1037.74	1,162	1449.03	1,626	1802.98	2,035	2187.04	2,480	2678.63	3,039	3984.93	4,432	5168.38	5,655	6384.03	6,931	8095.84	8,678	10891.96	11,592	10490.02	11,235	12003.33	12,804	14448.37	15,299	19209.66	20,163	22548.98	23,638	22727.38	23,941	25004.48	26,513
Indonesia	Lower-middle	8.04	14	8.52	12	13.15	21	12.99	29	15.83	22	30.17	50	40.50	59	58.10	91	100.47	151	257.79	329	260.41	366	590.79	690	454.60	556	674.63	792	929.48	1,092	1181.57	1,314	1520.74	1,684	2967.89	3,230	3108.43	3,401
Japan	High	4537.43	4,798	4526.49	4,826	5037.39	5,416	5590.97	6,037	6512.03	7,071	7522.12	8,265	7134.97	7,934	8544.23	9,463	8874.37	9,848	9407.93	10,448	9754.39	10,853	9468.16	10,575	9780.78	10,953	9521.80	10,686	9119.20	10,360	8435.64	9,697	9719.10	11,167	9497.81	10,958	9243.29	10,882
Kazakhstan	Upper-middle	1.00	1	1.00	1	2.00	2	5.10	6	2.42	3	3.00	3	3.17	5	4.83	7	3.33	4	9.50	12	17.43	21	31.18	37	38.28	49	31.33	46	111.99	148	126.50	181	140.49	206	159.03	229	210.15	317
Kyrgyzstan	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	1.00	2	2.33	4	0.00	0	1.58	3	1.67	2	1.67	3	0.50	1	2.75	4	1.33	2	1.34	4	0.00	0	0.38	2	5.50	7	4.83	8	3.12	7
Laos	Low-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.33	1	0.00	0	0.00	0	0.00	0	2.67	6	1.50	4	0.50	1	1.17	7	0.13	1	0.50	3	4.33	9	1.41	5	0.65	3	1.92	5	0.83	2
Malaysia	Upper-middle	238.43	254	126.96	144	125.02	144	327.18	359	362.36	411	466.34	523	544.30	628	964.98	1,091	1664.74	1,822	2242.37	2,438	3181.03	3,491	3465.79	3,826	3105.55	3,455	3087.00	3,527	3351.25	3,911	3596.18	4,131	3228.21	3,741	3906.06	4,583	3522.22	4,262
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	1.10	2	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.50	1	0.00	0
Mongolia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.25	2	4.96	6	53.08	59	3.50	6	7.25	8	14.09	20	6.43	10	5.23	11	3.37	8	16.33	26	2.82	7	4.71	12	15.28	31	6.15	18
Nepal	Low	1.00	1	0.33	1	1.00	1	0.17	1	1.75	3	2.27	6	3.08	6	10.40	15	7.33	13	7.13	12	3.92	6	7.50	12	15.93	19	3.50	5	10.57	14	6.29	9	6.99	14	27.61	35	24.62	31	37.00	46
North Korea	Low	0.33	2	0.00	0	0.08	1	0.00	0	0.33	1	2.36	18	1.69	12	1.18	5	3.92	6	0.17	1	0.00	0	0.79	3	2.29	8	1.46	6	4.09	9	6.99	14	3.84	9	1.95	5	4.19	9
Pakistan	Lower-middle	21.07	24	38.00	45	39.56	43	101.93	114	189.60	214	351.38	394	335.18	395	440.86	531	570.49	695	797.63	949	812.61	989	705.29	889	785.70	1,012	939.57	1,215	807.64	1,104	885.34	1,196	1239.69	1,641	1583.60	2,162	2019.68	2,834
Papua New Guinea	Lower-middle	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.17	1	0.14	1	0.00	0	1.50	2	0.25	1	1.92	4	0.00	0	1.00	1	0.50	2	2.18	4	2.58	5	2.77	5	1.96	7	1.38	6
Philippines	Lower-middle	3.21	7	7.63	10	17.42	21	15.36	24	16.70	21	15.89	28	18.47	28	45.66	57	39.65	52	41.88	55	62.46	75	91.01	110	110.62	130	57.80	81	156.21	171	79.11	102	313.08	335	399.82	429	564.84	602
Singapore	High	800.08	903	771.69	891	894.40	1,052	1227.08	1,479	1616.54	1,918	1682.56	2,069	1537.29	1,964	1778.13	2,293	1664.37	2,212	1804.31	2,426	1928.77	2,620	1914.66	2,674	2088.31	2,926	2049.67	2,978	1918.04	2,925	1842.56	2,898	2050.67	3,213	1911.84	3,074	1794.88	3,078
South Korea	High	1412.28	1,534	1673.99	1,813	1980.27	2,182	2866.80	3,129	4015.51	4,379	5132.73	5,628	6043.89	6,611	6620.21	7,287	6215.55	6,897	6580.90	7,295	6218.95	7,009	6723.37	7,527	6519.61	7,437	5798.95	6,658	5878.90	6,692	5776.20	6,642	5901.10	6,823	6209.04	7,238	6427.76	7,541
Sri Lanka	Lower-middle	1.00	4	2.00	2	4.50	5	4.17	7	2.78	10	14.72	26	57.00	70	69.87	93	67.95	78	77.04	97	111.11	128	120.48	137	107.39	124	212.31	240	84.41	108	96.50	127	181.87	226	249.15	294	323.95	383
Taiwan	High	1479.22	1,570	1762.50	1,844	1811.62	1,910	2040.84	2,180	2895.95	3,048	3821.88	4,041	3970.53	4,222	5631.58	5,968	5998.17	6,400	6604.20	7,018	6618.65	7,046	6809.31	7,232	6432.93	6,839	5378.05	5,831	5398.03	5,849	4739.02	5,280	4700.93	5,288	4464.80	5,062	4124.96	4,795
Tajikistan	Low	0.00	0	0.00	0	0.00	0	1.15	3	0.25	1	0.33	1	0.20	1	0.46	3	0.00	0	0.00	0	0.00	0	0.75	2	0.50	1	0.00	0	0.00	0	0.18	2	0.33	1	1.58	5	3.50	6
Thailand	Upper-middle	95.37	111	117.63	138	160.63	197	204.57	244	440.53	514	403.43	484	442.11	517	626.21	716	611.74	689	784.48	887	890.29	996	868.15	985	767.04	880	804.71	922	1043.50	1,180	1005.86	1,142	1161.66	1,317	1544.06	1,707	1521.61	1,718
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.96	4
Turkmenistan	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.25	1	0.00	0	0.75	2	0.00	0	0.00	0	0.00	0
Uzbekistan	Lower-middle	2.00	2	0.50	1	0.00	0	1.00	1	4.50	5	1.00	1	3.20	4	46.42	48	15.17	18	6.42	8	58.38	59	9.08	11	7.13	8	3.29	5	2.70	4	2.17	4	28.17	30	31.90	39	37.62	44
Vietnam	Lower-middle	5.58	7	12.58	15	9.21	14	10.24	16	28.51	37	26.87	41	58.75	96	83.39	119	138.26	205	172.27	232	280.33	376	266.65	373	416.96	569	485.33	667	441.63	643	585.01	807	864.78	1,159	841.03	1,146	809.67	1,163
Australia and Oceania		1375.75	1,644	1603.06	1,913	1556.30	1,928	2157.79	2,641	2676.25	3,269	3909.20	4,664	3723.71	4,578	4828.10	5,859	4535.71	5,621	4406.48	5,568	4815.40	6,195	4366.25	5,774	4574.86	6,074	4782.76	6,438	4728.17	6,546	4574.53	6,505	4661.85	6,825	4479.63	6,816	4789.35	7,601
Australia	High	1207.59	1,448	1384.02	1,653	1334.40	1,658	1923.07	2,347	2333.54	2,851	3475.07	4,127	3245.40	3,989	4277.75	5,191	3892.45	4,855	3801.75	4,834	4173.02	5,389	3770.69	5,015	3946.21	5,275	4069.83	5,551	3965.84	5,621	3962.02	5,722	3902.56	5,855	3753.67	5,868	4068.28	6,611
Cook Islands	Low-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	0.33	1	2.25	3	1.50	2	0.00	0	5.25	9	6.00	11	7.17	13	9.70	16	7.03	10	3.83	5	9.02	14	3.91	9	4.44	14	12.71	24	33.32	48	21.03	30	51.55	59	22.20	29	24.85	38
Kiribati	Low-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-7

S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.25	2	0.00	0	0.80	1	0.00	0	0.33	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	167.82	204	216.80	268	219.90	281	234.72	322	337.46	445	426.88	558	470.14	627	539.86	694	636.23	802	599.98	778	632.36	841	590.65	791	623.97	835	699.80	906	727.86	970	589.97	815	707.74	987	702.34	1,013	696.22	1,040
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.00	1	0.00	0	0.00	0	0.25	1	1.00	1	1.50	2	0.00	0	0.75	1	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0	0.67	1	0.00	0
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	222.86	612	196.39	546	248.16	660	321.13	776	316.00	816	490.57	1,486	628.10	2,052	1094.80	3,140	1047.56	2,880	451.08	1,162	328.50	826	335.92	788	216.15	550	162.60	442	121.84	341	96.06	279	123.78	339	125.35	388	171.50	508

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		126194.00	126,194	136191.00	136,191	145651.00	145,651	156612.00	156,612	184156.00	184,156	225046.00	225,046	235803.00	235,803	246782.00	246,782	271482.00	271,482	291248.00	291,248	316254.00	316,254	336586.00	336,586	342192.00	342,192	362113.00	362,113	373604.00	373,604	383919.00	383,919	401637.00	401,637	421715.00	421,715	433363.00	433,363
North America		41435.33	44,590	39815.20	43,030	45366.03	49,525	47115.54	52,410	55696.39	61,892	64266.94	71,775	60069.56	68,518	59302.54	67,938	63576.60	72,335	63052.93	72,070	68363.05	78,329	68788.97	79,136	69163.55	80,457	69725.80	82,180	70092.33	84,282	66927.20	82,093	68177.51	84,666	69109.13	86,637	65341.43	84,502
Canada	High	4187.71	4,962	3956.02	4,657	5070.69	5,982	5060.85	6,257	6234.18	7,707	7415.40	9,127	7319.16	9,205	7461.35	9,411	8323.86	10,428	8228.40	10,318	9273.49	11,773	8438.25	10,773	8887.41	11,410	8960.69	11,711	9363.29	12,531	9139.23	12,357	9632.53	13,286	9375.62	13,083	8864.89	12,884
Greenland	High	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.48	2	0.25	1	0.14	1	0.00	0	0.00	0	0.00	0	0.27	2	0.00	0	0.83	1	0.05	1	0.00	0	0.08	2	0.00	0	0.56	6
Mexico	Upper-middle	604.63	731	705.25	849	769.88	953	850.62	1,090	989.37	1,260	1056.57	1,326	1345.72	1,705	1273.10	1,593	1574.03	1,935	1647.32	2,024	1747.58	2,176	2041.90	2,485	1844.02	2,310	1940.06	2,403	1962.48	2,471	1956.68	2,440	2143.87	2,747	2152.17	2,726	2172.22	2,776
United States	High	36642.82	39,594	35153.93	38,172	39525.46	43,477	41204.07	46,097	48472.84	54,185	55794.50	62,841	51404.43	59,230	50567.95	58,495	53678.70	61,537	53177.21	61,251	57341.97	66,165	58308.56	67,440	58432.12	68,480	58824.21	69,806	58766.52	71,386	55831.29	69,115	56401.03	70,803	57581.34	72,855	54303.77	70,913
Central America and Caribbean		69.60	101	88.52	131	106.77	168	142.88	206	141.24	230	193.82	294	224.67	347	198.79	324	208.95	347	211.99	371	212.29	354	211.40	362	222.89	396	382.68	567	262.46	436	237.47	398	234.56	427	267.35	448	279.22	488
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0
Bahamas, The	High	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	0.00	0	0.00	0	0.00	0	0.09	1	1.50	2	0.00	0	0.14	2	0.18	2	0.39	2	0.98	3
Barbados	High	0.67	2	3.00	3	2.50	3	1.25	3	2.50	4	0.83	2	1.50	2	0.25	1	0.13	1	4.46	6	0.50	1	1.83	4	4.08	9	2.06	5	1.97	5	1.53	5	5.22	8	2.63	4	2.21	5
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	1.00	1	0.20	1	0.00	0	0.00	0	0.13	1	0.83	2	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0
Costa Rica	Upper-middle	3.83	5	0.00	0	1.80	6	2.87	4	4.67	12	4.20	11	2.63	8	16.54	28	14.13	27	9.53	27	20.60	37	14.25	33	22.89	48	26.00	48	20.04	32	35.33	68	38.04	76	68.22	102	64.08	113
Cuba	Upper-middle	28.37	41	36.62	59	29.79	49	49.72	71	28.93	49	47.70	78	49.63	87	35.37	70	73.01	119	56.09	104	48.69	81	71.28	119	66.41	116	209.42	279	80.13	140	94.45	147	53.65	102	72.97	120	72.67	136
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	1.00	1	0.00	0	0.00	0	0.00	0	1.17	2	2.86	5	0.00	0	0.25	1
Dominican Republic	Upper-middle	0.00	0	0.33	1	1.20	3	1.33	2	2.21	6	1.20	5	1.33	2	0.83	2	0.92	3	1.67	5	1.35	4	0.13	1	1.74	5	1.83	4	2.06	5	0.25	1	0.33	1	2.37	5	4.65	10
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.09	1	3.00	3	5.79	9	5.50	6	9.81	14	4.00	6	5.83	9	3.08	5	3.00	4	2.62	6	1.78	4	2.40	4	5.80	10	4.33	5	27.24	33
Grenada	Upper-middle	0.00	0	2.00	2	0.00	0	0.00	0	0.40	1	0.13	1	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.75	1	0.00	0	0.24	2	0.20	1	0.00	0	0.28	2
Guatemala	Upper-middle	0.38	1	0.20	1	0.29	1	0.00	0	0.36	1	1.00	1	1.58	3	0.00	0	0.72	2	1.81	3	1.00	1	0.90	5	0.38	2	3.03	5	2.93	8	0.23	2	2.90	9	4.15	10	1.42	4
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.08	2	1.13	2	0.10	1	0.50	2	0.38	1	1.38	3	0.00	0	2.87	5	1.30	3	0.46	2	1.82	6	1.60	5	0.00	0
Honduras	Lower-middle	0.20	1	0.00	0	0.14	1	0.25	1	0.33	1	0.00	0	2.84	5	0.40	2	0.20	1	2.09	5	1.89	3	0.66	4	1.13	5	0.98	6	3.75	7	0.63	3	9.53	13	2.62	9	4.45	9
Jamaica	Upper-middle	5.00	5	2.07	3	11.38	16	6.83	8	5.88	8	1.83	5	3.25	7	5.83	11	5.48	10	9.67	15	1.63	3	9.05	13	3.00	5	5.33	7	6.42	9	13.67	18	10.88	19	8.71	14	1.97	4
Nicaragua	Lower-middle	0.00	0	0.00	0	1.67	3	1.40	4	2.95	6	2.33	3	3.25	6	1.79	5	2.71	7	3.17	9	2.00	6	2.25	6	2.69	5	1.00	2	4.25	5	0.49	3	2.23	5	1.71	4	14.50	19
Panama	High	0.00	0	1.83	4	0.50	1	0.87	3	1.90	7	2.75	5	3.42	8	3.10	9	3.75	9	4.78	10	6.68	18	3.44	9	10.51	26	11.81	20	20.76	42	6.57	16	8.89	22	6.89	28	10.79	34
Puerto Rico	High	26.21	38	32.80	46	48.11	72	59.69	87	68.13	100	99.24	138	128.56	182	105.94	149	70.29	111	80.24	131	83.62	139	73.66	123	76.99	131	92.93	151	82.37	140	69.54	111	59.15	107	74.17	125	49.13	90
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.33	2	0.00	0	0.40	2	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	1.00	1
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Trinidad and Tobago	High	4.84	8	8.67	11	9.40	14	18.33	23	22.38	36	26.94	39	19.82	27	19.71	35	26.50	43	32.95	51	37.58	51	28.42	41	29.85	39	19.73	26	34.72	41	10.39	14	31.38	43	16.42	22	23.09	29
South America		1900.83	2,205	2188.56	2,518	2101.11	2,497	2597.03	3,112	2769.92	3,332	3337.74	4,002	4076.20	4,846	3554.09	4,303	4394.65	5,308	5345.37	6,331	5530.92	6,711	6188.07	7,372	6244.82	7,571	7310.57	8,736	7108.15	8,814	7632.52	9,437	7994.54	10,023	8462.71	10,472	8734.29	10,939
Argentina	High	266.64	319	382.81	450	312.97	381	358.97	471	328.97	440	407.50	514	605.82	743	382.62	499	449.08	570	511.78	680	581.42	764	548.86	730	559.63	742	565.70	758	615.78	809	641.10	842	751.37	974	688.39	908	611.12	851
Bolivia	Lower-middle	4.70	8	3.70	7	2.11	5	1.81	7	7.28	11	5.24	10	3.20	10	2.19	7	2.98	7	5.17	11	3.86	11	3.83	8	5.20	10	8.02	15	5.72	18	6.88	20	6.34	18	5.43	15	11.52	28
Brazil	Upper-middle	1333.31	1,507	1459.93	1,650	1396.71	1,604	1813.31	2,095	1951.81	2,261	2372.58	2,746	2709.68	3,110	2573.20	2,996	3041.84	3,540	3921.72	4,456	3761.37	4,350	4387.30	5,016	4277.91	4,940	5155.37	5,906	4706.65	5,614	5264.72	6,283	5152.46	6,235	5535.88	6,617	5756.56	6,920
Chile	High	141.81	177	138.72	180	196.53	257	203.74	268	213.63	298	256.91	363	325.93	472	250.62	369	367.71	551	364.01	517	457.08	707	398.16	590	510.58	798	462.03	716	605.01	990	603.92	949	763.31	1,251	702.62	1,134	712.18	1,229
Colombia	Upper-middle	36.49	62	52.49	70	51.32	78	69.91	110	115.19	150	107.78	158	190.90	273	167.54	264	317.68	427	350.09	521	503.94	705	637.90	881	639.46	861	877.26	1,143	895.96	1,164	832.76	1,109	900.68	1,192	1027.49	1,371	1040.05	1,401

TABLE S5A-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002
		Fractional count	Whole count	Fractional count	Whole count	Fractional count
Ecuador	Upper-middle	2.00	2	2.20	6	10.73
Guyana	Upper-middle	0.00	0	0.33	1	0.00
Paraguay	Upper-middle	1.00	1	2.25	3	0.08
Peru	Upper-middle	3.83	7	12.18	20	4.57
Suriname	Upper-middle	0.00	0	0.00	0	0.00
Uruguay	High	8.67	11	10.64	15	17.30
Venezuela	Upper-middle	102.58	141	123.31	167	108.80
Europe		39838.95	42,692	43696.82	46,590	46617.32
EU		32960.96	35,735	34581.02	37,505	37140.07
Austria	High	538.47	673	580.53	705	555.55
Belgium	High	758.73	935	860.99	1,053	913.59
Bulgaria	Upper-middle	104.63	128	173.74	221	143.00
Croatia	High	169.53	184	194.35	205	227.50
Cyprus	High	16.66	23	16.70	22	10.50
Czechia	High	302.67	383	342.73	423	422.58
Denmark	High	537.18	680	521.78	670	589.63
Estonia	High	42.01	52	54.45	64	44.12
Finland	High	691.47	775	822.98	946	877.88
France	High	4343.46	5,162	4528.35	5,388	5220.32
Germany	High	6360.76	7,265	6424.13	7,421	6551.84
Greece	High	613.58	721	739.00	878	825.56
Hungary	High	358.76	445	314.63	379	368.69
Ireland	High	234.44	278	280.66	338	380.21
Italy	High	3358.61	3,780	3643.96	4,145	4091.59
Latvia	High	26.65	33	35.20	39	59.68
Lithuania	High	104.79	114	144.74	174	150.31
Luxembourg	High	2.50	3	4.58	9	8.97
Malta	High	4.75	8	9.85	13	3.48
Netherlands	High	1756.41	2,184	1846.44	2,258	1907.78
Poland	High	1285.25	1,436	1664.64	1,849	1731.83
Portugal	High	455.76	545	579.19	688	525.03
Romania	Upper-middle	430.74	504	311.73	408	342.79
Slovakia	High	65.86	82	80.32	106	101.70
Slovenia	High	231.21	254	237.58	269	296.89

	2003		2004		2005		2006		2007	
Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
14	2.50	5	6.04	9	14.31	24	5.59	13	3.22	9
0	0.00	0	0.25	1	0.00	0	0.00	0	0.67	1
1	0.00	0	1.00	1	1.50	3	6.00	6	0.61	2
8	16.05	27	12.58	23	24.59	42	25.75	39	20.56	51
0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
23	12.88	21	12.46	23	20.12	32	24.31	35	24.17	35
158	117.86	175	120.70	174	127.20	188	179.02	252	127.69	187
50,331	48610.48	53,614	53134.68	58,839	64155.72	70,761	66325.88	73,234	70888.35	78,077
40,822	39488.36	44,157	43455.39	48,800	53661.15	60,132	56333.53	63,292	60140.01	67,498
713	733.37	971	775.66	1,034	1048.49	1,379	1046.54	1,398	1200.03	1,589
1,160	905.51	1,256	1050.31	1,476	1332.45	1,835	1324.44	1,827	1411.74	1,973
193	186.03	255	203.62	298	350.84	495	262.62	367	376.07	526
250	257.60	292	209.30	240	395.56	438	299.56	347	428.14	474
21	19.36	37	30.93	69	55.96	105	44.82	87	72.47	131
532	497.90	621	510.63	665	869.75	1,083	1078.71	1,308	1169.21	1,376
787	639.40	878	719.93	1,002	860.60	1,147	866.30	1,205	930.67	1,338
53	46.09	59	58.43	76	96.06	126	142.72	174	164.50	195
1,014	953.66	1,133	942.56	1,143	1347.63	1,603	1168.05	1,429	1214.77	1,503
6,360	5529.96	6,915	5754.29	7,406	6705.87	8,570	7352.85	9,426	7579.37	9,800
7,904	6934.09	8,624	7471.40	9,476	8969.85	11,310	9414.20	11,939	10025.63	12,659
971	936.96	1,117	1067.07	1,250	1234.97	1,496	1469.88	1,770	1654.31	1,978
461	424.59	541	386.73	495	454.31	608	518.77	651	506.80	654
482	315.93	431	450.57	597	809.05	1,039	604.60	786	770.66	1,003
4,755	4599.27	5,426	4742.50	5,730	5760.28	6,870	6276.90	7,513	6777.30	8,145
79	23.93	33	33.96	44	68.00	85	63.81	85	91.51	111
169	142.20	172	199.64	231	342.40	381	388.43	421	429.99	482
12	12.47	21	18.07	28	23.15	40	25.79	47	31.74	54
6	7.83	11	8.03	10	13.50	29	15.89	29	19.10	28
2,428	1981.60	2,642	2307.68	3,158	2817.93	3,754	2877.25	3,935	2928.81	4,002
1,970	1521.14	1,811	2064.60	2,371	2507.54	2,940	2768.89	3,161	2896.55	3,285
646	679.53	843	750.11	932	1085.45	1,356	1231.75	1,518	1456.19	1,764
442	527.92	688	521.52	689	769.15	997	969.76	1,211	1428.94	1,723
137	120.90	160	97.96	129	256.04	325	211.79	269	357.38	446
345	360.98	426	297.17	361	394.66	476	407.77	479	489.47	558

2008		2009		2010		2011		2012	
Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
8.20	23	11.45	26	15.63	30	11.37	24	26.73	49
0.00	0	0.33	1	1.50	2	0.00	0	0.63	2
1.83	3	1.53	3	0.64	2	8.12	17	3.13	7
23.41	43	18.28	39	54.14	80	38.54	66	50.29	89
1.00	1	0.13	1	0.00	0	0.83	2	0.67	2
28.44	45	33.55	50	45.27	65	44.03	72	52.68	74
152.46	214	127.32	187	106.08	163	109.12	168	117.92	173
76963.78	84,859	81957.22	90,357	87974.80	97,119	89421.92	99,111	97438.38	108,137
66084.81	74,173	70393.95	79,031	75519.26	84,932	76775.78	86,675	83772.73	94,812
1268.17	1,742	1390.65	1,886	1552.06	2,089	1509.56	2,049	1718.75	2,344
1577.76	2,248	1814.11	2,505	1820.29	2,577	1959.30	2,809	2140.06	3,105
242.05	339	398.39	523	250.03	343	285.76	396	242.28	330
415.22	463	547.96	627	634.18	714	571.94	657	536.45	632
78.73	142	137.98	221	147.30	236	147.08	247	141.17	223
1130.40	1,388	1435.24	1,692	1869.83	2,136	2015.89	2,296	2061.92	2,364
920.25	1,340	1135.72	1,603	1130.04	1,663	1434.02	2,051	1523.11	2,184
226.19	259	172.89	210	247.06	297	208.84	257	286.29	354
1258.53	1,566	1296.07	1,623	1311.76	1,689	1314.80	1,672	1369.54	1,798
8209.03	10,719	8629.26	11,315	8981.26	11,815	9133.05	12,133	9852.31	13,235
11084.64	14,013	11799.09	14,661	12805.53	16,081	12985.46	16,257	15061.59	18,887
1603.30	1,947	1669.08	2,049	1792.20	2,213	1824.48	2,276	1800.21	2,247
559.42	705	502.08	636	669.94	811	626.84	762	692.62	878
768.00	1,022	750.67	1,026	873.15	1,184	890.51	1,236	873.57	1,259
7116.28	8,636	7586.29	9,169	8316.01	10,150	8443.30	10,431	9270.98	11,509
185.66	211	119.02	139	181.75	202	243.08	275	249.54	288
887.27	964	627.15	684	761.47	819	783.43	847	582.72	663
30.32	61	38.48	87	38.94	83	54.75	101	66.86	138
21.33	33	14.64	23	28.28	41	20.32	30	31.83	44
3282.84	4,516	3416.23	4,690	3694.96	5,166	3472.10	4,892	3815.81	5,503
3743.82	4,204	3672.79	4,115	4112.47	4,560	3900.29	4,366	4741.71	5,251
1384.59	1,749	1747.89	2,161	1929.31	2,458	2098.61	2,662	2355.72	3,012
2272.19	2,603	2943.89	3,245	3189.57	3,509	2683.16	3,004	2758.98	3,104
366.08	449	378.51	461	504.06	592	600.28	717	861.58	984
445.11	542	486.02	588	495.82	630	620.40	773	534.50	701

2013		2014		2015		2016		2017		2018	
Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
23.25	50	59.92	115	83.80	193	168.93	297	239.68	402	344.37	540
0.17	1	0.83	2	0.00	0	1.04	3	2.25	5	0.00	0
5.03	10	6.33	17	7.55	16	14.47	23	17.13	28	15.06	25
51.46	96	62.93	109	77.97	132	95.08	144	129.97	193	148.52	212
2.37	4	0.00	0	1.15	4	0.00	0	1.00	1	0.00	0
46.47	75	56.93	81	42.32	65	79.70	106	57.31	90	51.44	85
113.46	164	91.12	149	70.36	136	61.16	123	55.56	117	43.46	98
100461.69	112,184	107110.66	119,960	110659.91	124,495	113657.38	129,143	117741.41	134,348	113838.28	132,078
85299.70	97,370	90397.19	103,756	92241.21	106,659	92769.83	108,865	95260.48	112,387	89745.90	108,501
1755.65	2,429	1647.53	2,394	1865.79	2,654	1899.52	2,813	1803.88	2,637	1735.90	2,630
2183.12	3,154	2184.99	3,242	2122.61	3,337	2199.84	3,457	2197.00	3,524	2011.52	3,391
248.87	350	289.62	403	260.17	358	359.74	473	423.14	556	602.44	721
548.45	667	550.49	679	619.84	783	530.12	680	676.85	834	657.88	843
196.47	302	175.49	274	202.33	307	215.22	337	213.28	347	220.64	388
2024.74	2,387	2446.22	2,889	2773.11	3,298	2548.24	3,055	2793.21	3,401	2302.70	2,959
1630.84	2,347	1796.78	2,604	1995.16	2,917	1792.71	2,769	1940.80	2,965	1900.98	3,154
199.90	264	292.14	370	252.52	353	268.11	370	235.51	323	218.85	356
1476.32	1,959	1589.00	2,189	1606.77	2,251	1506.64	2,215	1551.97	2,261	1453.06	2,227
10184.52	13,883	9936.66	13,843	9903.27	14,005	9604.98	14,010	9696.84	14,155	8715.98	13,352
14158.66	18,080	15375.68	19,822	15716.64	20,432	17158.45	22,321	16511.90	21,644	16129.37	21,736
1917.55	2,440	1856.57	2,397	1997.07	2,615	1989.10	2,626	1762.56	2,367	1642.68	2,245
633.59	832	741.83	960	770.46	971	686.96	923	809.13	1,024	814.12	1,066
891.02	1,319	1011.07	1,435	971.45	1,482	955.09	1,482	900.07	1,407	851.35	1,423
10039.95	12,515	11179.84	14,081	12161.03	15,319	11444.90	14,766	12219.89	15,766	11633.31	15,367
228.55	268	278.26	328	261.21	317	238.66	300	335.82	402	283.63	342
595.02	677	653.48	743	503.52	618	474.97	597	574.43	724	414.53	562
94.41	178	108.39	195	101.20	199	113.51	222	126.75	244	122.36	240
43.74	59	35.73	51	34.48	52	42.83	57	63.59	81	59.38	85
3797.58	5,453	3808.86	5,667	3630.41	5,531	3716.66	5,890	3957.77	6,108	3720.02	6,066
5126.36	5,737	5655.42	6,322	5840.37	6,555	6334.47	7,220	6813.66	7,808	6547.18	7,562
2529.52	3,299	2620.11	3,416	2787.58	3,626	2674.39	3,587	2548.66	3,480	2380.34	3,446
2812.86	3,189	2562.57	2,926	2599.25	2,950	2282.81	2,684	3214.91	3,598	2256.72	2,637
814.50	947	1115.62	1,291	1021.23	1,185	1046.00	1,234	1314.97	1,547	960.78	1,191
582.64	736	566.07	721	609.78	806	512.39	698	527.86	726	447.43	644

TABLE SSA-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	1627.56	1,873	1908.07	2,190	2242.65	2,645	2369.26	2,911	2795.95	3,467	3533.76	4,310	4039.46	4,979	4327.68	5,375	4622.96	5,801	5223.35	6,522	5545.81	7,029	5940.05	7,595	6353.59	8,173	6615.67	8,586	7239.92	9,487	6789.88	9,062	6591.84	9,146	6423.29	9,078	6551.74	9,335
Sweden	High	1406.27	1,630	1337.84	1,613	1382.18	1,696	1590.93	2,006	1678.21	2,126	1946.62	2,477	2005.43	2,617	1906.56	2,546	2051.72	2,678	2265.54	3,061	2342.86	3,193	2438.35	3,349	2740.48	3,751	2887.74	4,021	3042.51	4,334	2976.34	4,330	3055.66	4,618	3013.28	4,641	3025.60	4,829
United Kingdom	High	7132.25	8,221	6921.85	8,074	7164.23	8,526	7169.92	8,858	8308.55	10,395	9611.26	12,223	9456.55	12,202	9494.41	12,406	10332.93	13,517	10194.95	13,490	10293.34	13,926	10570.15	14,265	11108.57	15,218	11081.46	15,573	11636.34	16,930	11867.77	17,666	12526.00	19,164	12609.45	19,693	12085.41	19,721
Other Europe		6877.99	7,867	9115.80	10,192	9477.25	10,906	9122.12	11,177	9679.29	11,831	10494.57	12,744	9992.36	12,206	10748.34	12,995	10878.97	13,344	11563.28	14,011	12455.54	15,199	12646.13	15,467	13665.65	16,870	15161.99	18,671	16713.47	20,642	18418.70	22,604	20887.55	25,572	22480.93	27,412	24092.38	29,390
Albania	Upper-middle	1.00	1	1.12	3	1.67	2	0.67	1	1.77	3	1.83	3	5.55	9	4.23	9	7.25	11	13.57	17	21.38	26	17.22	28	16.58	26	21.13	33	18.22	28	16.73	27	12.95	21	22.30	36	19.61	33
Andorra	High	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	2.32	4	0.71	2	0.50	1	1.21	3	0.00	0	0.87	2
Belarus	Upper-middle	180.48	210	293.33	332	344.42	423	237.46	336	272.43	366	273.27	357	266.29	357	306.32	395	210.56	287	222.78	289	178.07	252	182.31	232	201.17	285	174.74	243	134.96	205	132.28	202	175.80	261	159.59	254	186.51	281
Bosnia and Herzegovina	Upper-middle	1.35	4	7.36	11	12.92	21	14.58	21	8.43	13	25.25	37	20.42	33	29.08	45	30.25	38	55.85	78	53.04	72	70.33	96	72.53	110	96.98	134	70.82	102	118.09	160	87.90	133	162.68	231	110.92	182
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.46	2	0.00	0	0.00	0
Iceland	High	14.04	18	10.82	15	20.31	30	16.30	23	11.42	14	22.79	29	28.57	45	38.31	68	31.93	55	42.28	79	38.19	71	39.72	81	52.25	85	50.12	99	55.13	109	66.10	130	80.51	157	58.53	139	48.40	113
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	8.33	12	13.50	18	21.33	37	21.93	33	22.25	42	31.77	50	20.89	37	28.30	43	48.44	72	37.85	70	50.99	84
Liechtenstein	High	3.00	4	1.13	2	2.44	6	1.70	3	4.79	9	7.15	13	7.49	14	1.83	4	9.34	14	2.35	8	4.56	12	4.38	11	7.77	14	5.21	10	6.22	16	1.84	7	9.56	16	4.50	9	2.15	5
Moldova	Lower-middle	19.59	24	25.33	34	24.46	36	25.54	41	16.97	26	46.13	66	23.20	38	29.16	42	22.44	39	38.68	60	31.02	45	26.95	45	27.90	41	31.83	47	24.26	39	28.50	47	101.99	146	62.38	89	24.52	48
Monaco	High	0.06	1	0.08	1	3.07	4	1.00	1	1.92	4	2.29	6	4.45	8	2.50	7	0.47	2	3.77	9	2.77	7	4.57	7	2.15	4	3.95	11	6.37	11	1.67	5	2.20	6	3.70	10	0.91	4
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	11.03	19	10.00	14	11.68	19	13.02	27	18.73	36	19.95	29	27.41	45	27.52	48	32.03	48	57.22	87	51.26	75	45.03	71
North Macedonia	Upper-middle	13.84	17	18.58	23	6.17	10	23.20	37	11.78	17	21.28	35	25.76	45	37.12	60	23.26	36	27.29	48	48.94	75	43.33	65	59.76	84	81.64	105	52.81	74	58.59	83	56.40	76	61.98	98	57.64	82
Norway	High	430.20	544	510.47	624	485.57	603	520.03	696	566.78	762	803.12	1,046	840.12	1,165	924.22	1,232	910.65	1,249	1167.28	1,549	1246.86	1,662	1400.88	1,867	1592.70	2,155	1632.34	2,241	1707.66	2,399	1782.94	2,519	1906.83	2,723	2056.80	2,937	1932.03	2,831
Russia	Upper-middle	3480.22	3,903	4963.14	5,643	5389.92	6,014	4460.99	5,402	4670.94	5,607	4547.50	5,460	3841.97	4,513	3975.03	4,640	3848.03	4,467	3845.84	4,411	3971.60	4,520	3962.76	4,551	4088.33	4,731	4623.65	5,296	6475.23	7,354	7812.58	8,797	8881.47	10,013	10032.66	11,254	12098.62	13,539
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	3	0.50	1	0.67	1	1.54	4	3.08	9	3.07	10	3.33	9	1.03	4	6.13	14	5.73	12	3.96	12
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	276.54	340	338.84	416	386.05	470	522.70	625	667.45	794	864.84	1,024	832.15	995	759.11	912	672.82	844	847.01	1,045	842.83	1,061	661.76	860
Serbia and Montenegro[b]	Lower-middle	173.03	202	142.10	166	140.22	179	128.43	170	180.13	219	217.79	268	310.98	367	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	969.08	1,216	970.82	1,232	993.95	1,343	1208.83	1,644	1258.76	1,772	1619.42	2,243	1616.01	2,323	1872.81	2,644	1942.01	2,846	1878.63	2,757	2268.25	3,381	2227.54	3,303	2496.44	3,716	2635.81	3,971	2714.16	4,216	2774.18	4,297	2717.23	4,361	2766.90	4,387	2666.15	4,428
Turkey	Upper-middle	691.90	790	870.17	988	1003.49	1,139	1351.66	1,566	1624.65	1,862	1769.42	2,022	2116.04	2,434	2419.07	2,735	2574.82	2,964	3065.82	3,475	3196.21	3,639	3099.47	3,581	3085.90	3,635	3685.21	4,329	3351.45	3,992	3753.78	4,469	4518.66	5,345	4879.58	5,733	4560.68	5,429
Ukraine	Lower-middle	900.20	ne	1301.36	1,421	1048.65	1,209	1131.48	1,374	1048.53	1,280	1136.84	1,363	885.52	1,046	820.69	974	909.90	1,092	787.41	921	836.92	1,001	856.77	1,021	1051.73	1,242	1222.67	1,431	1284.61	1,491	1136.76	1,377	1376.05	1,666	1291.21	1,614	1621.64	1,976
Middle East		2047.00	2,441	2065.45	2,435	2230.15	2,694	2751.75	3,374	3167.74	3,863	3666.36	4,532	4354.21	5,273	4798.16	5,871	6017.22	7,194	7314.70	8,719	9095.21	10,749	10562.91	12,667	11021.75	13,466	11518.96	14,555	12579.78	16,134	12872.06	16,911	15256.09	19,944	16499.11	21,383	17018.06	22,248
Armenia	Upper-middle	47.47	56	31.68	40	31.75	41	29.48	39	35.47	47	49.92	64	40.93	55	51.20	71	48.85	64	45.06	58	49.01	61	118.90	141	62.17	77	46.32	62	32.20	53	51.66	72	33.10	50	33.46	50	33.93	56
Azerbaijan	Upper-middle	24.92	29	22.20	24	54.82	60	41.77	56	50.72	69	49.01	62	51.45	68	41.98	48	46.75	57	52.19	76	95.34	117	65.51	84	68.53	86	56.07	73	48.92	70	60.03	75	59.43	86	73.86	90	128.97	170
Bahrain	High	16.19	20	22.00	26	5.00	8	27.92	32	18.70	25	18.83	22	22.04	27	32.03	46	15.35	26	27.42	35	31.09	42	24.00	32	20.95	35	25.12	43	23.12	38	15.46	27	19.11	36	35.68	55	69.00	103
Gaza Strip[c]	Lower-middle	3.00	4	0.75	3	1.75	4	2.00	3	11.33	15	8.67	14	10.17	15	9.13	16	5.96	13	9.73	16	10.60	16	14.70	19	7.88	14	11.52	20	17.87	26	13.75	21	8.52	14	12.18	21	14.91	27
Georgia	Lower-middle	9.67	11	17.45	22	18.37	22	18.67	23	29.40	43	12.75	21	20.25	27	20.53	29	35.34	42	33.74	43	43.78	57	33.44	40	18.01	26	29.73	42	32.90	46	20.34	27	47.56	65	39.59	62	49.34	82
Iran	Upper-middle	365.58	440	409.38	476	540.38	620	891.54	1,029	1098.66	1,261	1492.97	1,728	2090.01	2,338	2415.64	2,714	3469.95	3,809	4399.82	4,826	6154.54	6,679	7095.98	7,751	7215.31	7,911	7282.56	8,133	8056.54	8,989	7742.55	8,730	9617.47	10,834	10522.52	11,818	10452.26	11,957
Iraq	Lower-middle	25.83	29	19.00	19	20.58	25	16.33	23	18.58	22	23.10	30	35.89	47	30.92	45	54.50	77	59.92	80	85.89	108	133.02	178	166.44	232	184.37	342	182.21	386	220.10	488	269.12	570	413.56	841	942.01	1,439
Israel	High	779.03	908	811.73	950	805.96	1,008	876.84	1,110	1029.17	1,282	1083.79	1,372	1091.48	1,390	1106.42	1,422	1171.75	1,498	1258.75	1,593	1035.99	1,361	1187.22	1,545	1194.96	1,578	1229.85	1,651	1317.13	1,743	1393.95	1,875	1345.99	1,862	1353.58	1,868	1318.38	1,860
Jordan	Upper-middle	130.87	150	138.62	164	124.49	144	148.40	179	161.83	210	147.07	188	161.83	210	205.80	265	239.78	307	244.41	323	252.67	342	238.71	321	208.70	300	218.83	303	199.82	296	216.77	314	278.16	403	295.03	447	381.35	548

TABLE SSA-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	132.14	151	115.10	135	113.92	137	116.54	146	127.86	157	129.28	170	157.06	198	157.39	210	151.78	204	149.58	213	163.69	221	164.78	222	177.43	234	190.74	267	170.60	246	201.20	280	186.85	278	183.48	296	169.34	296
Lebanon	Upper-middle	57.41	76	42.90	55	60.22	76	52.59	82	64.71	93	72.84	109	83.27	136	76.24	131	95.32	149	86.54	135	116.39	169	134.77	203	157.30	244	213.72	324	198.52	309	231.04	350	286.22	441	270.70	416	314.81	454
Oman	High	37.13	51	45.80	60	46.21	60	45.94	64	59.55	87	62.29	92	62.18	99	81.05	116	69.61	114	90.68	146	89.71	142	104.43	169	109.76	198	99.62	190	103.70	196	179.25	292	149.06	266	154.94	286	163.57	298
Qatar	High	9.18	11	10.95	21	18.27	28	15.20	27	21.98	37	28.99	49	29.11	52	28.09	60	53.60	101	67.38	119	81.81	155	101.56	186	139.18	254	168.41	341	283.94	561	274.40	616	342.19	739	318.51	645	356.80	729
Saudi Arabia	High	303.21	386	276.87	324	267.12	320	304.40	365	281.71	342	308.80	395	324.97	407	341.18	443	342.14	467	496.66	678	506.89	805	706.57	1,218	911.85	1,571	1152.59	2,023	1311.30	2,464	1466.83	2,857	1754.59	3,353	1815.74	3,450	1804.54	3,422
Syria	Low	9.20	13	13.33	16	7.96	15	8.57	16	19.08	27	18.49	28	12.21	23	28.65	37	18.53	25	14.21	26	26.40	37	29.88	42	32.78	47	20.81	37	19.51	32	32.26	44	24.62	38	33.93	48	26.13	45
United Arab Emirates	High	79.21	109	77.91	110	97.87	129	137.36	189	116.95	172	142.98	214	149.68	235	147.49	261	184.54	307	258.36	421	328.50	538	381.81	613	500.35	782	564.19	868	557.07	893	720.62	1,171	800.55	1,313	904.03	1,462	749.19	1,286
West Bank[c]	Lower-middle	13.72	16	8.27	13	10.53	20	15.75	26	12.02	22	12.48	22	8.17	13	18.46	29	6.71	17	14.25	25	14.51	24	21.03	34	16.16	29	18.39	32	17.92	38	26.63	50	26.75	53	27.25	47	35.23	64
Yemen	Low	3.25	6	1.50	2	4.96	8	2.46	4	0.25	1	4.08	6	3.53	7	5.97	10	6.74	16	6.01	17	8.43	16	6.58	13	14.01	24	6.13	21	6.51	19	5.21	20	7.12	25	11.07	35	8.30	32
Africa		1281.00	1,544	1324.30	1,587	1450.71	1,762	1552.03	1,919	2075.19	2,560	2195.98	2,793	2333.05	2,968	2642.66	3,371	2834.08	3,674	3600.24	4,655	3778.03	4,930	4141.57	5,436	4727.45	6,132	5506.66	7,257	5787.13	7,767	6099.34	8,203	7680.04	10,233	8449.00	11,277	8851.54	11,932
Algeria	Upper-middle	110.42	138	105.27	138	111.95	139	173.63	220	289.05	356	227.66	294	335.64	417	343.59	451	452.77	587	586.63	760	590.31	787	699.84	893	913.44	1,126	1112.12	1,380	1046.11	1,307	1284.01	1,562	1341.87	1,630	1675.23	2,059	1408.89	1,770
Angola	Lower-middle	0.50	1	1.00	1	4.47	7	0.14	1	0.14	1	0.57	3	3.11	7	0.42	2	0.00	0	1.17	2	0.40	2	0.38	2	1.95	5	2.88	6	1.96	5	2.86	7	0.42	2	4.77	11	2.00	2
Benin	Low	1.47	3	1.33	3	2.92	5	2.00	4	1.50	3	1.08	3	0.14	1	1.64	4	1.00	1	1.67	3	0.83	2	0.77	3	1.70	6	2.22	5	4.49	8	9.29	18	9.08	15	10.57	24	14.98	34
Botswana	Upper-middle	5.33	7	6.57	9	3.25	5	11.33	14	8.58	16	10.23	19	25.36	38	14.81	21	18.92	26	13.52	22	24.91	30	16.05	31	17.55	29	19.37	34	18.79	30	12.48	20	47.04	76	19.22	44	23.36	53
Burkina Faso	Low	0.92	2	0.70	3	1.25	2	5.13	13	2.57	4	1.42	4	2.04	5	1.32	4	7.15	14	7.70	14	3.70	10	4.93	11	8.87	21	15.35	34	10.66	25	14.76	36	10.24	23	10.52	25	9.83	24
Burundi	Low	0.11	1	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.83	2	0.00	0	0.33	1	0.00	0	0.15	2	0.25	1	0.17	1	0.50	3	0.57	2	0.25	2	0.38	2	0.51	4	0.55	4
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.00	0	0.75	2	0.00	0	0.50	1	0.33	1	0.00	0	0.58	2	0.33	1	0.42	2	0.75	3	0.92	4	1.08	5	1.56	4
Cameroon	Lower-middle	7.26	12	11.70	16	8.00	11	9.94	14	9.41	17	10.40	17	12.06	21	14.12	20	21.51	37	29.91	49	29.84	49	31.84	46	31.30	46	31.72	52	36.53	60	39.82	64	53.76	82	70.99	101	65.88	107
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.80	1	0.79	2	0.76	2	0.82	2	0.00	0	0.00	0	1.50	2	1.25	2
Chad	Low	0.25	1	0.00	0	0.50	1	0.50	1	0.49	3	0.00	0	0.20	1	0.20	1	0.10	1	0.15	2	0.50	1	0.00	0	0.00	0	0.17	1	0.13	1	0.50	1	1.24	6	1.08	2	1.14	4
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	4.20	5	0.00	0	0.00	0	0.67	1	0.54	3
Congo, Democratic Republic of the	Low	0.22	1	0.00	0	0.33	1	1.38	3	0.89	2	1.73	4	0.25	1	0.00	0	0.33	1	3.19	8	0.45	2	1.42	3	0.69	3	1.97	6	3.09	7	2.72	9	2.99	6	6.28	13	3.93	11
Congo, Republic of the	Lower-middle	0.00	0	0.88	2	1.00	1	0.00	0	1.25	2	0.50	1	1.04	4	0.33	1	0.40	1	1.08	3	0.26	1	1.07	2	0.75	2	4.55	9	3.71	7	0.55	2	2.75	5	1.68	4	1.62	5
Côte d'Ivoire	Lower-middle	3.10	4	2.33	4	2.20	3	3.20	7	1.01	5	3.33	6	0.75	2	4.89	7	3.60	4	6.98	13	3.21	6	6.99	12	5.02	8	4.06	11	5.23	10	5.67	13	3.63	7	4.56	9	10.19	21
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.13	1	0.00	0	0.50	1	0.00	0	0.50	1	0.25	1	0.33	1	0.13	1	1.40	4	0.95	3	0.33	1	0.88	2	0.63	3	1.42	3
Egypt	Lower-middle	424.65	508	489.81	565	481.85	571	514.57	611	671.51	774	574.67	706	672.56	828	723.42	888	737.22	947	911.65	1,181	982.23	1,298	1019.07	1,372	1174.89	1,603	1371.88	1,921	1453.38	2,103	1541.84	2,299	1796.23	2,672	1927.59	2,854	2227.99	3,220
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.10	1	0.00	0	0.00	0	0.05	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.00	0	1.13	2	0.00	0	0.17	1	0.00	0	1.00	2	1.83	3	0.33	1	0.17	1	1.33	2	2.00	2	0.00	0	0.35	2	0.00	0	0.54	3	0.38	2	0.00	0
Eswatini	Lower-middle	0.17	1	0.50	1	1.00	1	1.17	2	0.33	1	1.08	3	2.08	3	1.33	2	0.00	0	1.33	2	2.00	4	4.27	6	2.67	4	0.67	1	1.33	3	0.52	3	2.16	5	0.45	2	1.74	6
Ethiopia	Low	1.67	3	3.55	6	4.25	7	7.68	12	4.63	10	6.79	16	10.43	19	11.67	23	9.15	18	31.06	51	16.17	31	20.91	52	15.09	34	32.56	71	42.26	88	41.72	78	57.63	120	84.47	164	100.95	194
Gabon	Upper-middle	0.00	0	0.13	1	0.00	0	0.50	1	0.00	0	0.00	0	0.53	2	0.75	2	2.08	5	1.53	3	0.11	1	1.70	5	0.56	4	0.81	4	0.86	5	0.21	2	1.31	7	1.47	4	3.23	13
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.96	3	1.33	2	0.90	2	0.00	0	0.17	1	0.00	0	0.17	1
Ghana	Lower-middle	9.75	11	5.50	6	8.42	11	8.60	11	15.14	19	13.60	20	13.61	20	24.01	40	53.50	79	60.93	79	43.99	65	32.05	47	44.33	66	41.13	62	45.40	79	45.82	79	56.66	98	71.13	128	93.44	156	85.00	158
Guinea	Low	0.00	0	0.08	1	0.00	0	0.00	0	0.13	1	0.21	2	0.50	1	0.00	0	0.00	0	0.00	0	0.33	1	0.75	1	0.00	0	0.25	1	0.00	0	0.34	2	0.38	2	0.10	1	0.06	1

TABLE SSA-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0
Kenya	Lower-middle	5.20	8	7.27	12	17.11	22	9.32	18	13.30	22	15.89	25	9.21	17	11.82	27	11.74	27	25.85	44	17.11	36	26.32	49	24.07	49	32.11	60	31.31	68	42.59	84	38.17	96	44.32	100	54.82	110
Lesotho	Lower-middle	1.25	3	0.00	0	0.00	0	0.33	1	0.21	2	1.08	3	1.33	2	0.10	1	0.67	2	0.50	1	0.97	2	0.50	1	1.69	4	1.17	2	0.33	2	0.17	1	0.50	1	0.00	0	1.73	3
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.33	1	0.67	1	0.00	0	0.33	1	0.00	0	0.13	1	0.73	3	0.83	1	0.42	2
Libya	Upper-middle	13.00	18	13.00	18	9.78	15	20.25	26	23.21	32	30.18	42	24.17	32	34.10	46	40.35	54	31.10	50	36.92	57	19.37	33	36.44	58	45.50	76	51.67	92	47.38	89	33.02	77	59.04	104	43.83	91
Madagascar	Low	0.00	0	0.14	1	1.00	1	0.00	0	0.50	1	0.00	0	0.17	1	1.83	3	0.88	3	2.66	5	0.67	2	3.90	8	3.30	8	2.56	6	5.83	11	5.01	11	5.06	10	7.57	15	4.74	9
Malawi	Low	0.33	1	1.13	2	3.33	4	0.00	0	1.17	2	0.56	2	1.66	3	0.17	1	3.91	8	6.96	13	2.74	8	4.28	9	2.52	7	6.65	15	4.80	11	3.06	9	5.19	12	7.80	16	2.93	9
Mali	Low	1.00	1	1.25	2	0.00	0	0.33	1	1.21	3	1.00	2	0.93	3	1.73	4	0.87	3	4.27	13	0.67	3	1.72	5	1.38	6	2.00	5	2.93	7	0.78	4	1.92	4	1.62	8	4.43	13
Mauritania	Lower-middle	0.33	1	0.00	0	0.58	2	0.00	0	0.67	1	0.33	1	0.25	1	0.33	1	0.33	1	1.04	4	0.53	3	0.63	2	0.80	2	2.35	6	1.36	5	1.25	5	0.83	3	0.83	1	2.98	8
Mauritius	Upper-middle	4.67	5	5.31	8	4.83	7	10.83	12	4.50	5	2.16	5	3.50	4	2.50	3	5.00	5	2.90	4	4.25	6	2.25	4	11.48	14	7.52	12	10.30	14	17.29	22	36.81	45	40.45	51	14.03	18
Morocco	Lower-middle	91.82	117	86.93	113	105.32	134	81.11	112	122.23	164	116.29	156	106.55	154	139.64	204	130.80	196	149.06	206	154.97	248	166.38	250	168.27	266	262.37	380	360.34	476	263.56	378	740.41	891	933.72	1,109	962.48	1,133
Mozambique	Low	1.00	1	2.67	4	3.00	3	4.83	8	2.00	4	1.91	6	3.09	7	3.03	7	1.83	6	5.96	8	2.08	6	3.33	6	2.58	7	1.87	4	5.24	11	1.12	8	2.44	8	4.09	11	4.94	16
Namibia	Upper-middle	2.50	3	1.25	2	0.33	1	1.58	3	0.33	1	8.40	13	1.70	4	5.83	8	2.84	7	2.17	6	0.82	3	3.43	8	4.23	11	6.42	16	9.81	18	6.53	12	13.94	30	8.91	27	19.43	38
Niger	Low	0.53	2	2.75	0	0.00	0	0.45	2	0.93	4	0.70	2	0.70	3	0.67	2	2.08	4	1.39	5	4.48	12	1.42	3	0.51	3	2.23	6	2.06	7	2.79	11	2.53	10	2.75	8	3.15	7	1.56	10
Nigeria	Lower-middle	59.24	63	43.95	51	77.19	90	77.65	90	131.77	149	110.79	133	96.45	121	115.12	133	132.49	165	236.82	275	233.83	272	263.45	324	277.99	338	292.64	375	359.64	484	383.96	506	499.21	697	477.57	684	776.76	1,083
Rwanda	Low	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	1.50	2	5.25	7	3.95	5	4.03	6	1.88	4	3.34	9	1.58	4	3.84	8	2.43	8	1.88	11	4.06	19	9.05	18
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	3.95	7	2.61	6	3.73	7	5.87	14	4.09	8	2.71	7	3.50	11	2.51	10	4.32	16	7.24	22	6.17	14	7.03	16	8.22	19	11.20	25	7.15	19	16.52	34	16.71	39	18.74	37	25.50	49
Seychelles	High	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	5.00	5	0.00	0	0.83	2	0.00	0	0.00	0	0.58	2	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.00	0	1.00	1	0.00	0	0.33	1	2.75	4	0.00	0	0.50	1	0.00	0	0.00	0	1.00	2	0.00	0	0.76	2	1.14	2	0.07	1	0.57	2	0.00	0	1.92	5	0.64	7	1.44	9
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.25	1	0.50	1	0.00	0	1.17	2	0.00	0
South Africa	Upper-middle	405.47	469	433.64	494	434.64	517	457.25	541	513.73	646	732.16	907	742.82	909	842.28	1,041	700.91	865	861.14	1,089	1067.85	1,312	977.74	1,254	1299.56	1,588	1230.13	1,567	1348.20	1,744	1260.11	1,625	1755.44	2,242	1610.71	2,158	1609.52	2,216
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	2	0.20	1	1.00	1	0.25	1	0.00	0	0.17	1	0.50	2	0.00	0
Sudan	Lower-middle	7.25	10	0.33	1	1.33	2	3.08	5	3.63	8	6.83	9	5.63	11	13.03	18	9.23	15	9.33	22	9.54	18	22.88	36	16.58	29	19.59	38	16.40	50	15.87	44	29.14	65	27.77	76	30.47	91
Tanzania	Low	8.23	12	3.25	4	9.22	12	7.62	10	10.04	13	14.32	24	2.63	6	3.88	9	12.08	18	9.93	20	13.69	22	23.10	35	11.20	30	14.54	40	16.71	37	25.34	59	20.35	50	27.99	63	30.41	63
Togo	Low	0.50	1	0.00	0	0.50	1	0.00	0	0.58	2	0.20	1	0.00	0	1.00	1	3.25	4	2.32	5	0.00	0	1.13	2	1.33	3	2.56	5	1.03	3	2.60	5	1.19	5	1.84	5	1.41	7
Tunisia	Lower-middle	85.11	112	74.73	97	108.75	149	110.39	153	207.08	270	229.86	313	230.36	318	291.10	390	430.60	561	555.87	705	506.52	685	719.99	927	587.63	781	870.35	1,100	821.22	1,062	941.36	1,226	1007.08	1,340	1193.46	1,579	1224.38	1,631
Uganda	Low	4.07	6	3.75	5	9.17	11	2.43	6	11.68	20	45.04	55	1.83	3	11.18	18	8.04	13	11.65	24	9.46	22	21.55	40	14.77	27	16.23	31	15.91	30	16.92	34	23.04	48	15.63	37	12.30	35
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.25	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	2.50	4	1.25	2	17.96	20	1.04	3	2.98	5	12.28	17	2.67	5	2.75	6	9.72	12	11.00	15	2.92	5	4.25	6	6.50	15	6.88	13	11.09	19	5.90	12	12.97	24	13.61	27	11.66	23
Zimbabwe	Low	16.75	19	11.00	15	11.08	15	14.27	24	9.62	14	9.53	15	12.31	20	9.28	15	5.17	10	7.38	11	7.22	15	7.25	13	18.95	28	11.97	19	19.28	29	20.58	33	24.30	43	25.80	46	34.03	60
Asia		36225.81	38,208	43641.76	45,588	43984.17	46,471	49342.43	52,675	62296.66	66,107	81013.08	85,556	91929.10	97,075	98235.40	103,780	110334.03	116,466	122988.95	129,683	134296.78	141,949	148540.96	156,942	145198.57	154,677	158753.20	169,290	162269.83	173,652	171311.82	183,868	180219.60	194,208	192775.87	207,981	210664.06	227,600
Afghanistan	Low	1.00	1	0.00	0	1.50	2	0.00	0	0.00	0	0.50	1	0.20	1	1.33	2	0.00	0	0.25	1	0.25	1	3.58	6	2.75	5	2.20	3	2.00	3	0.67	2	5.37	8	7.45	16	9.95	20
Bangladesh	Lower-middle	66.69	88	44.80	62	68.06	87	56.24	80	64.92	100	62.69	96	84.11	124	84.44	122	184.95	240	145.41	205	138.87	191	183.05	268	242.31	361	337.23	469	309.12	428	264.00	402	331.99	502	316.75	512	422.04	631

TABLE SSA-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.25	2	1.33	2	6.83	10	1.75	2	1.67	3	1.00	1	2.83	5	1.25	2	0.00	0	1.63	3	2.25	4	2.62	4	0.57	2	5.27	9	7.20	9
Brunei	High	4.07	5	1.20	2	2.17	4	3.33	4	4.42	7	1.41	5	9.15	20	5.94	9	5.48	9	7.44	16	2.04	4	6.47	11	13.92	20	11.70	20	45.54	74	32.41	85	38.16	94	21.55	59	111.19	153
Burma	Lower-middle	0.11	1	0.00	0	0.00	0	0.17	1	0.00	0	0.50	2	5.25	6	6.90	9	24.67	28	12.25	15	2.38	4	12.57	19	7.10	11	4.33	6	7.79	15	4.92	14	9.66	19	6.57	16	12.81	23
Cambodia	Low-middle	0.00	0	1.50	2	0.00	0	0.13	1	2.33	3	1.00	2	0.67	2	1.32	5	2.80	8	2.33	5	2.69	10	2.77	8	2.41	11	2.43	8	5.29	18	4.62	14	5.51	20	5.38	23	7.41	22
China	Upper-middle	13776.79	14,478	20210.73	20,894	19611.06	20,594	22346.47	23,651	32477.18	34,105	46726.58	48,805	54519.33	56,938	58459.13	61,264	66356.27	69,589	76501.38	80,311	83643.95	88,152	95401.96	100,456	88307.66	93,908	97847.36	104,299	101656.04	109,065	109337.51	117,683	115495.76	124,982	123617.24	134,537	134541.80	146,814
India	Lower-middle	2291.19	2,567	2184.95	2,399	2545.42	2,758	2513.96	2,823	3008.14	3,360	3880.26	4,353	5008.11	5,606	4974.12	5,554	6145.77	6,788	6927.60	7,666	7823.22	8,656	9552.13	10,542	12080.46	13,195	13013.63	14,276	14554.47	15,813	14561.93	15,941	17300.52	18,959	20846.47	22,609	23849.77	25,921
Indonesia	Lower-middle	58.77	82	61.08	92	70.89	106	46.13	75	73.46	116	75.30	130	103.67	189	97.71	162	127.65	210	154.30	275	268.34	403	250.96	433	346.16	562	583.75	804	531.54	771	779.73	1,069	1074.98	1,396	2251.12	2,606	5641.33	6,192
Japan	High	12325.05	13,156	12221.11	13,129	12342.52	13,456	13848.70	15,308	14496.17	16,092	15745.91	17,564	16376.99	18,317	16751.08	18,760	17102.49	19,126	18202.27	20,284	18154.94	20,327	17731.58	19,885	17718.73	19,945	18799.03	21,226	16345.43	18,767	16483.27	19,025	15215.10	17,961	15598.67	18,390	14951.81	18,113
Kazakhstan	Upper-middle	17.18	24	32.71	37	36.69	42	38.82	52	32.23	44	37.51	51	26.69	33	27.98	36	31.90	46	31.35	42	60.13	84	50.46	64	73.35	95	118.64	161	185.38	245	246.95	371	310.83	431	356.23	546	384.76	622
Kyrgyzstan	Lower-middle	4.88	5	12.39	16	4.03	6	1.10	2	10.49	14	12.12	20	14.29	18	5.07	8	7.50	12	2.33	3	2.40	3	9.66	16	7.24	12	6.94	13	6.22	11	5.92	11	8.07	14	14.59	23	13.43	27
Laos	Lower-middle	0.00	0	0.00	0	2.13	3	2.10	3	18.00	19	1.11	4	1.79	4	0.70	3	1.86	7	2.37	5	4.43	10	3.65	10	5.92	18	6.69	15	6.71	18	6.35	20	7.12	14	8.78	20	6.12	16
Malaysia	Upper-middle	136.53	165	143.35	178	308.26	361	351.03	424	367.20	467	461.14	569	603.00	751	716.01	887	1169.08	1,386	1415.25	1,699	1964.84	2,380	2506.96	3,027	2873.19	3,557	3122.89	3,880	3574.41	4,418	4112.60	5,042	4544.31	5,601	3784.96	4,805	3947.00	5,134
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.50	1	0.33	1	0.00	0	0.00	0	0.00	0	0.03	1	0.00	0	1.24	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.07	1	0.07	1	0.04	1
Mongolia	Lower-middle	1.85	4	1.38	2	1.33	3	2.43	4	4.96	12	6.43	12	10.64	16	15.54	25	11.33	19	16.88	32	16.60	31	31.35	44	23.23	36	11.16	27	15.33	27	23.08	40	11.75	24	15.51	35	16.01	43
Nepal	Low	9.75	11	6.43	10	11.83	14	2.98	6	10.66	19	19.48	35	9.83	18	11.32	21	14.21	26	16.57	32	17.84	34	17.84	34	26.89	49	14.15	43	27.63	63	36.55	66	49.94	93	45.83	94	42.34	96
North Korea	Low	0.55	5	0.25	1	0.33	1	1.00	1	0.35	2	1.66	10	1.42	7	0.98	6	1.84	7	1.35	6	1.00	2	1.34	7	7.03	32	3.51	14	3.18	14	3.55	9	8.13	23	12.33	35	18.11	30
Pakistan	Lower-middle	46.40	66	36.92	52	47.57	62	54.15	78	75.86	97	115.29	134	137.50	185	179.77	233	232.63	308	300.44	400	412.04	601	488.99	749	582.48	878	697.65	1,048	791.93	1,210	1061.22	1,657	1201.49	1,879	1458.84	2,319		
Papua New Guinea	Lower-middle	5.00	5	4.92	7	1.00	2	2.60	3	2.00	3	0.25	1	0.00	0	1.83	3	0.83	2	4.67	5	1.29	3	3.50	4	2.50	5	3.10	7	0.90	2	6.45	11	3.86	6	5.27	10		
Philippines	Lower-middle	22.81	28	19.07	25	22.43	31	16.86	30	17.19	27	27.64	46	29.18	46	36.38	65	27.62	51	49.09	84	63.72	102	53.40	86	60.79	103	87.52	136	89.60	146	260.64	315	248.09	312	185.84	261	224.96	295
Singapore	High	1386.77	1,557	1417.36	1,588	1480.19	1,696	1617.41	1,917	2073.65	2,437	2217.42	2,643	2141.57	2,688	2101.51	2,661	2389.93	3,022	2169.21	2,836	2592.08	3,370	2589.50	3,372	2646.09	3,604	2777.17	3,886	2937.16	4,159	3013.44	4,452	3247.18	4,803	3316.41	5,029	3252.65	5,183
South Korea	High	3001.42	3,312	3806.34	4,338	3780.44	4,228	4382.10	5,014	4893.14	5,599	5741.42	6,647	6167.19	7,150	7637.86	8,709	8539.17	9,649	8758.30	9,917	10070.64	11,460	10231.73	11,718	11234.82	12,921	11773.06	13,528	12448.31	14,333	13001.63	15,165	13004.59	15,030	13313.94	15,320	13810.24	16,078
Sri Lanka	Lower-middle	15.67	20	8.92	15	23.26	28	28.80	51	34.74	64	31.56	57	54.69	70	68.13	95	87.00	122	41.75	74	42.35	66	43.39	81	58.22	95	64.46	106	95.34	143	114.65	168	265.18	330	196.75	270	273.05	353
Taiwan	High	2776.11	2,929	3135.20	3,293	3208.06	3,398	3628.27	3,884	4176.99	4,479	5214.78	5,552	5877.72	6,264	6232.78	6,671	6664.60	7,174	7147.19	7,698	7580.48	8,156	7847.33	8,461	7172.71	7,875	7898.08	8,612	7115.41	7,859	6161.94	6,920	5897.02	6,772	5389.21	6,306	5097.77	6,114
Tajikistan	Low	1.00	1	2.00	2	3.50	4	1.57	2	0.00	0	1.33	3	2.40	3	1.38	2	3.54	10	1.19	4	4.92	9	4.75	6	6.30	11	3.14	6	2.99	5	9.39	18	3.08	12	5.05	11	7.09	15
Thailand	Upper-middle	207.83	250	220.25	272	347.79	433	338.00	449	360.04	473	512.29	664	667.48	842	718.60	915	1074.64	1,297	949.04	1,147	1297.86	1,544	1366.53	1,644	1532.72	1,804	1304.02	1,563	1241.46	1,517	1425.84	1,747	1517.57	1,884	1721.62	2,107	1596.88	1,982
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	2	1.29	4
Turkmenistan	Upper-middle	0.00	0	3.00	3	0.60	1	0.00	0	0.00	0	0.11	1	0.25	1	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	0.33	1	2.00	2	3.23	7	0.25	1	0.60	2	0.13	1	0.10	1
Uzbekistan	Lower-middle	43.73	47	45.31	49	42.82	47	28.06	38	47.93	56	34.25	44	34.52	41	35.75	49	27.81	40	34.41	47	29.79	42	31.34	49	25.79	36	31.02	42	34.81	43	24.27	38	44.04	59	21.88	38	26.83	42
Vietnam	Lower-middle	26.67	41	20.59	31	20.29	29	28.99	59	43.01	77	81.83	124	34.61	68	60.10	102	96.75	162	97.16	166	167.90	272	191.09	308	229.97	406	340.47	579	322.46	598	400.27	708	506.66	911	504.61	960	925.97	1,603
Australia and Oceania		2423.05	2,837	2663.29	3,062	2700.26	3,262	2956.79	3,668	3253.48	4,103	4292.05	5,334	4550.95	5,712	4840.10	6,143	5257.90	6,698	5563.04	7,254	6033.41	7,928	7495.32	9,598	7154.76	9,443	7669.01	10,364	8054.23	11,154	7953.82	11,338	8140.44	11,936	8168.37	12,507	8335.77	13,259
Australia	High	2149.19	2,517	2326.76	2,670	2440.97	2,956	2613.70	3,239	2889.73	3,656	3873.09	4,790	4038.76	5,046	4314.97	5,467	4618.32	5,909	4915.10	6,446	5349.43	7,054	6649.54	8,558	6367.07	8,423	6920.11	9,390	7196.80	10,028	7199.07	10,328	7330.21	10,792	7330.02	11,338	7427.20	11,953
Cook Islands	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	1.00	1	4.42	6	0.86	1	4.33	11	9.87	13	4.75	8	9.43	14	8.17	19	10.08	18	8.17	11	9.39	14	9.37	14	10.50	17	19.73	27	19.91	33	13.77	32	16.12	29	22.02	37	22.46	40
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.58	1	0.00	0	0.00	0	0.20	1	0.33	1	0.17	1

TABLE SSA-8

S&E articles in engineering, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.13	1	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.83	3	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.47	2
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	272.86	340	332.11	404	258.43	323	338.75	459	353.38	467	412.72	571	501.93	697	516.46	718	629.38	827	639.44	858	673.75	936	834.84	1,145	776.69	1,092	727.83	1,038	837.52	1,205	739.56	1,088	793.16	1,221	815.15	1,247	884.85	1,404
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.20	1
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	2	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	972.44	2,168	707.10	1,676	1094.48	2,467	1543.08	3,173	1620.71	3,613	1924.31	4,869	1939.37	5,199	2321.91	6,217	1894.80	4,722	1213.56	2,808	969.51	2,123	1234.89	2,414	1019.83	2,060	784.44	1,715	339.42	884	224.87	599	276.83	715	242.05	730	300.35	912

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

TABLE SSA-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		38805.00	38,805	39175.00	39,175	39879.00	39,879	41866.00	41,866	46390.00	46,390	49631.00	49,631	50251.00	50,251	53714.00	53,714	53408.00	53,408	57556.00	57,556	59504.00	59,504	63317.00	63,317	64223.00	64,223	70871.00	70,871	74016.00	74,016	71931.00	71,931	77276.00	77,276	79864.00	79,864	78413.00	78,413
North America		12245.71	14,083	12168.32	13,919	12744.90	14,849	13310.17	15,884	15727.73	18,758	15411.98	18,861	15671.39	19,182	16075.16	19,796	14904.04	18,859	15853.87	20,153	16429.75	20,806	16723.53	21,343	16966.50	21,977	18587.35	24,205	18495.45	24,468	17398.32	23,511	18461.07	25,093	18315.17	25,217	18012.50	25,165
Canada	High	1656.85	2,152	1602.13	2,074	1675.43	2,228	1541.82	2,226	1896.96	2,780	1862.51	2,830	2002.42	2,978	2102.33	3,130	2013.62	3,111	2153.62	3,327	2093.10	3,275	2343.81	3,613	2323.83	3,681	2394.56	3,897	2469.81	4,054	2345.39	3,942	2411.82	4,064	2203.55	3,892	2332.97	4,229
Greenland	High	1.63	4	0.79	3	2.00	6	2.18	11	1.46	3	3.08	8	3.14	12	6.33	18	4.76	13	3.13	13	9.04	32	8.91	38	9.33	39	6.82	39	10.13	51	14.68	63	7.85	48	7.96	37	9.25	43
Mexico	Upper-middle	380.78	480	344.60	435	369.17	480	451.08	607	415.81	571	431.20	611	452.08	635	461.45	634	476.01	651	498.67	711	571.50	779	510.28	715	596.11	831	610.62	872	594.98	836	602.62	844	656.24	924	748.60	1,043	714.05	1,008
United States	High	10206.46	11,965	10220.80	11,897	10698.30	12,706	11315.08	13,805	13413.50	16,293	13115.18	16,339	13213.75	16,510	13505.05	16,960	12409.65	16,125	13198.46	17,254	13756.11	17,835	13860.52	18,162	14037.23	18,686	15575.36	20,739	15420.53	20,897	14435.63	20,096	15385.17	21,476	15355.06	21,650	14956.23	21,454
Central America and Caribbean		84.81	132	122.80	169	90.81	147	120.64	193	168.14	263	143.14	243	167.43	297	107.20	213	160.73	294	146.81	266	156.29	302	120.12	239	154.50	306	116.22	267	161.93	329	153.79	324	172.00	359	146.45	339	173.10	361
Antigua and Barbuda	High	0.25	1	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.10	1	0.50	1	0.00	0	0.00	0	0.03	1	0.00	1	0.00	1	0.00	1	0.00	0
Bahamas, The	High	0.70	2	0.33	1	0.24	2	0.92	2	0.17	1	0.73	2	0.45	2	1.71	5	0.67	2	0.33	1	0.85	3	2.12	10	1.51	5	0.71	5	3.02	11	1.77	6	2.33	6	3.91	18	4.04	16
Barbados	High	0.50	1	1.75	2	1.03	4	0.92	3	1.50	2	2.75	5	1.83	3	0.14	1	2.11	3	0.83	2	1.10	5	1.63	3	3.67	5	3.08	12	3.53	9	1.80	4	3.47	7	0.34	5	0.40	3
Belize	Upper-middle	0.00	0	2.00	2	0.12	2	0.71	3	0.25	1	1.06	4	0.67	2	0.00	0	1.48	3	0.20	1	1.14	2	0.42	1	2.51	7	1.01	4	0.70	3	0.44	3	0.80	5	2.28	6	0.59	3
Costa Rica	Upper-middle	23.31	33	52.20	68	34.49	49	35.17	51	73.00	88	23.37	39	61.22	97	28.17	49	42.66	68	58.74	88	43.22	77	32.05	60	58.65	98	25.47	54	42.94	82	53.93	96	53.31	92	42.55	100	55.54	107
Cuba	Upper-middle	14.06	21	20.67	28	11.51	25	5.76	12	13.35	24	18.00	32	26.87	40	12.78	22	19.55	36	16.18	29	20.94	41	17.36	31	14.81	28	12.44	30	21.82	47	18.46	34	23.92	57	20.66	47	31.48	64
Dominica	Upper-middle	0.00	0	0.10	1	0.00	0	1.50	2	0.00	0	1.25	2	0.75	1	0.00	0	1.00	1	0.00	0	2.11	5	0.00	0	0.60	2	0.00	0	0.58	5	0.00	1	0.17	2	0.00	1	0.17	2
Dominican Republic	Upper-middle	0.17	1	0.20	1	0.24	2	0.45	2	0.00	0	1.38	3	2.25	4	0.53	2	1.44	4	0.09	1	0.95	3	0.00	0	0.70	3	1.68	5	1.08	7	0.74	4	0.63	4	3.56	12	2.12	8
El Salvador	Lower-middle	0.00	0	1.00	1	1.20	4	1.75	3	11.41	23	1.34	3	4.40	7	2.27	5	1.50	2	1.17	3	1.75	4	3.93	8	1.48	8	1.70	5	0.31	2	1.18	5	3.14	12	3.22	5	1.65	6
Grenada	Upper-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.67	2	0.00	0	0.03	1	0.38	2	0.00	1	0.20	2	0.27	3
Guatemala	Upper-middle	0.42	2	0.50	1	0.00	0	0.62	3	3.93	10	1.98	7	1.38	3	0.78	3	0.62	3	0.89	3	0.62	3	1.51	5	1.97	8	0.74	5	0.46	2	1.79	8	2.08	7	4.31	9	1.56	8
Haiti	Low	0.20	1	0.00	0	0.12	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	1.30	5	1.15	4	0.33	1	0.78	3	0.93	3	0.55	3	1.22	6	0.38	1	1.88	4
Honduras	Lower-middle	0.50	1	0.00	0	0.00	0	0.17	1	0.00	0	0.50	3	0.00	0	0.17	1	0.25	1	0.84	4	0.13	1	0.40	2	1.40	5	0.25	1	0.29	1	1.19	6	0.25	1	1.48	3	1.21	4
Jamaica	Upper-middle	8.13	9	6.02	9	9.85	16	21.95	29	12.12	22	10.66	18	5.42	11	5.50	13	11.44	21	8.92	14	8.85	17	5.46	9	4.67	8	8.55	18	13.84	25	6.73	14	6.44	14	3.09	7	8.60	16
Nicaragua	Lower-middle	1.97	5	0.89	4	0.53	2	2.50	3	2.23	4	1.42	4	2.78	7	1.81	7	6.42	17	2.06	10	1.89	7	0.46	3	0.93	6	2.84	7	3.68	14	2.62	11	1.34	7	6.48	15	2.29	7
Panama	High	2.17	6	6.79	11	4.59	10	6.09	13	8.06	21	13.47	25	6.78	20	13.37	31	17.52	42	12.06	38	16.70	51	9.95	31	18.02	55	17.53	51	15.71	46	15.56	43	12.45	42	13.62	49	12.44	43
Puerto Rico	High	28.82	49	27.57	40	22.63	39	32.79	57	30.90	49	38.81	74	41.99	85	29.32	61	38.74	82	38.10	64	40.38	77	30.78	59	25.10	56	26.01	58	34.35	72	35.46	82	39.74	87	27.43	64	27.39	65
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.12	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.67	1	0.00	0	0.03	1	0.00	0	0.00	0	0.45	1	0.86	2
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.09	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0	0.03	1	0.45	3	0.00	0	0.00	1	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.12	2	0.00	0	0.00	0	0.00	0	0.00	0	0.06	1	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.20	1	0.03	1	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	3.63	5	2.78	6	3.03	8	9.25	13	11.05	21	26.41	36	10.45	18	10.58	15	15.23	23	6.39	15	13.86	25	12.42	21	16.83	29	13.24	24	18.51	34	10.74	25	20.88	36	12.33	23	20.77	33
South America		920.66	1,165	987.40	1,231	1107.91	1,443	1357.10	1,714	1293.94	1,713	1490.86	1,994	1503.73	1,993	1649.05	2,165	1777.41	2,339	2052.98	2,659	2010.20	2,628	2314.36	3,014	2485.76	3,225	2851.07	3,697	2842.72	3,792	2784.67	3,744	3055.98	4,164	3230.45	4,369	3273.06	4,479
Argentina	High	279.12	340	302.92	361	337.82	408	336.87	434	390.59	516	449.09	585	409.13	532	452.95	605	534.05	706	623.65	802	596.54	782	631.84	827	685.77	902	679.92	907	623.73	882	734.14	991	670.95	939	721.57	1,003	713.58	992
Bolivia	Lower-middle	2.26	8	6.05	12	4.25	13	4.70	11	3.30	9	4.21	17	4.18	12	5.18	18	5.21	16	5.68	25	3.85	19	5.29	20	7.32	22	6.71	24	7.97	29	8.51	43	12.70	44	6.90	27	10.73	32
Brazil	Upper-middle	367.00	497	367.84	482	455.39	620	713.40	868	554.25	739	650.97	868	643.38	879	774.23	991	762.44	1,005	925.47	1,206	882.81	1,153	1123.71	1,446	1157.03	1,471	1568.29	1,958	1518.35	1,952	1428.21	1,896	1673.51	2,207	1772.37	2,321	1816.56	2,396
Chile	High	118.97	161	141.16	183	129.62	192	142.99	223	168.21	257	168.38	267	217.77	331	225.24	347	219.93	344	240.98	367	259.00	400	266.90	423	319.13	492	270.24	468	334.76	562	319.44	543	317.70	574	347.85	621	338.29	633
Colombia	Upper-middle	37.11	52	34.99	49	51.16	72	44.59	65	43.58	68	49.22	81	82.12	121	74.31	113	97.64	133	129.52	188	137.08	196	129.81	190	164.78	247	172.52	256	191.59	281	145.64	233	189.59	302	191.42	302	202.58	324

TABLE S5A-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	4.75	10	5.39	10	7.36	16	11.31	25	9.51	23
Guyana	Upper-middle	0.13	1	0.50	2	0.25	1	0.00	0	0.00	0
Paraguay	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.17	4
Peru	Upper-middle	4.81	12	8.29	15	15.15	29	7.05	19	21.19	41
Suriname	Upper-middle	0.10	1	0.50	1	0.00	0	0.20	1	0.13	1
Uruguay	High	9.88	19	18.81	27	15.66	25	17.79	32	27.01	43
Venezuela	Upper-middle	96.53	113	100.96	129	91.26	120	78.20	109	75.00	111
Europe		17463.84	19,308	16671.96	18,391	17085.81	19,070	17360.52	19,854	17738.12	20,528
EU		13569.68	15,548	13196.20	15,038	13495.33	15,640	13917.45	16,529	13915.12	16,908
Austria	High	208.41	318	262.57	410	209.43	342	201.38	357	245.52	437
Belgium	High	255.50	378	243.54	358	304.69	468	270.97	451	279.04	472
Bulgaria	Upper-middle	32.94	47	32.56	54	50.53	77	41.27	61	41.73	82
Croatia	High	157.18	169	135.11	145	161.97	174	153.86	170	166.87	196
Cyprus	High	0.00	0	1.34	3	1.28	5	4.35	7	4.47	6
Czechia	High	213.13	261	188.75	249	218.64	283	253.05	351	250.01	344
Denmark	High	344.90	505	346.61	516	373.81	556	371.54	606	302.09	522
Estonia	High	56.96	76	61.52	81	57.42	83	61.30	85	77.85	103
Finland	High	267.37	371	334.96	425	232.16	346	279.44	409	293.03	440
France	High	2001.23	2,771	2066.77	2,752	1927.64	2,749	2067.56	3,060	2083.15	3,159
Germany	High	2399.52	3,215	2306.70	3,094	2182.55	3,124	2265.57	3,364	2364.93	3,650
Greece	High	218.38	298	185.57	250	221.37	284	224.07	321	228.98	336
Hungary	High	114.07	154	115.72	145	147.74	179	155.91	202	177.09	249
Ireland	High	111.62	158	112.99	160	110.47	182	99.59	156	114.22	193
Italy	High	1346.56	1,647	1307.67	1,574	1398.07	1,754	1620.79	2,070	1614.72	2,137
Latvia	High	5.69	11	6.93	10	2.53	5	3.95	8	6.09	11
Lithuania	High	49.90	63	39.18	48	45.64	55	36.08	46	74.49	86
Luxembourg	High	2.28	5	2.27	5	3.29	9	1.48	6	12.81	23
Malta	High	0.50	2	0.53	3	5.95	10	4.13	10	0.78	3
Netherlands	High	668.01	930	636.88	893	675.24	974	705.83	1,079	636.03	1,021
Poland	High	553.14	624	527.06	596	635.86	729	648.46	773	615.01	740
Portugal	High	139.87	181	158.93	198	191.30	276	199.01	271	192.13	268
Romania	Upper-middle	36.07	55	36.53	59	34.86	66	45.94	74	34.51	71
Slovakia	High	57.71	69	48.84	61	65.89	85	62.49	91	52.41	77
Slovenia	High	22.85	35	33.54	41	31.24	46	68.24	84	53.52	73

Region, country, or economy	2005		2006		2007		2008		2009		2010		2011	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	10.30	27	13.15	28	10.59	29	19.30	47	10.57	38	12.49	34	13.00	37
Guyana	2.17	4	1.06	2	0.50	1	0.00	0	0.40	1	0.00	0	0.00	0
Paraguay	0.33	2	0.48	3	0.00	0	0.50	2	0.33	1	0.20	1	0.29	3
Peru	10.99	37	25.82	62	15.46	41	33.54	70	23.64	79	21.49	57	25.85	72
Suriname	0.58	2	1.17	2	1.13	2	0.20	1	1.62	3	0.00	0	0.74	2
Uruguay	23.64	43	17.38	31	17.32	36	29.14	52	28.31	53	26.88	56	34.16	71
Venezuela	120.98	164	88.09	124	72.14	110	75.46	115	62.81	95	69.84	109	82.79	118
Europe	19887.01	23,011	19616.17	22,958	20595.36	24,164	21349.61	24,986	22834.66	26,913	23867.65	27,923	24364.57	28,730
EU	15837.68	19,142	15569.79	19,051	16399.25	20,193	16906.42	20,774	18163.20	22,486	18664.40	23,037	19113.36	23,780
Austria	246.43	455	218.34	442	262.01	507	299.17	581	333.37	663	294.78	615	359.70	739
Belgium	327.48	578	306.62	547	341.46	616	377.74	694	358.56	702	377.50	706	393.93	740
Bulgaria	51.96	88	46.20	86	76.86	123	59.72	103	68.68	131	71.27	121	64.95	113
Croatia	199.18	222	161.79	197	189.42	219	166.25	204	193.14	244	211.76	246	254.04	300
Cyprus	5.04	13	3.66	12	6.79	14	7.16	17	12.29	31	20.96	56	10.19	24
Czechia	218.33	318	247.67	377	256.31	365	280.87	416	331.44	484	341.94	500	316.04	480
Denmark	339.17	591	357.41	655	347.98	648	341.28	644	387.85	715	394.49	761	384.03	758
Estonia	58.27	82	91.60	116	113.44	153	112.93	159	103.04	148	134.14	202	122.93	192
Finland	343.87	504	326.14	513	367.52	573	360.32	583	351.05	578	312.56	520	409.16	694
France	2330.71	3,646	2317.74	3,628	2382.14	3,784	2337.18	3,839	2530.76	4,159	2629.06	4,277	2692.35	4,393
Germany	2709.16	4,053	2411.39	3,883	2570.20	4,156	2726.08	4,372	2802.69	4,676	2917.53	4,830	2971.33	5,018
Greece	300.61	424	281.27	418	295.71	430	279.50	418	300.15	449	319.48	484	320.27	493
Hungary	196.01	269	181.59	250	188.40	287	212.27	297	251.86	342	246.63	351	269.19	364
Ireland	119.09	226	134.90	224	146.75	260	129.49	243	165.01	323	146.20	289	152.64	301
Italy	1743.81	2,294	1837.14	2,444	1913.51	2,572	2277.45	3,011	2304.75	3,071	2262.72	3,070	2293.38	3,140
Latvia	7.77	10	6.93	15	7.08	12	9.15	17	12.34	18	14.02	26	18.99	29
Lithuania	70.50	79	70.70	94	71.75	89	48.14	68	57.83	72	54.32	69	81.18	104
Luxembourg	12.64	24	8.07	18	6.22	16	5.89	17	11.03	27	12.19	39	12.53	32
Malta	4.56	13	5.03	13	4.39	7	9.00	17	9.25	13	6.85	15	13.30	23
Netherlands	752.34	1,190	693.15	1,201	792.30	1,364	726.25	1,288	857.35	1,503	812.18	1,503	798.03	1,422
Poland	699.16	828	678.75	829	650.85	814	845.11	1,008	865.32	1,056	940.07	1,137	933.57	1,136
Portugal	255.05	347	301.54	422	353.63	504	361.35	535	470.05	675	366.89	577	462.26	708
Romania	57.66	107	42.65	88	52.92	111	57.55	112	72.04	137	91.48	169	138.93	204
Slovakia	69.93	105	87.49	135	67.92	97	85.77	142	99.97	162	84.47	133	81.76	139
Slovenia	98.57	121	76.85	96	101.87	145	82.26	116	84.18	126	98.56	132	95.43	127

Region, country, or economy	2012		2013		2014		2015		2016		2017		2018	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	11.74	44	18.37	44	21.80	65	28.27	89	52.57	133	51.25	126	55.56	150
Guyana	0.93	2	0.44	1	0.58	5	0.00	0	0.02	1	0.77	3	0.83	4
Paraguay	1.96	5	0.50	2	2.45	4	0.43	2	0.13	1	0.80	4	3.57	9
Peru	31.16	80	30.31	90	30.83	98	22.30	81	37.73	111	44.16	120	54.02	134
Suriname	0.17	1	2.27	4	0.60	3	0.81	6	4.30	10	0.32	3	0.20	3
Uruguay	41.22	70	32.58	61	40.00	70	46.00	81	43.87	79	51.78	88	39.82	73
Venezuela	64.55	94	68.92	112	70.04	109	50.93	81	52.92	99	41.28	88	37.32	75
Europe	25164.05	29,745	26103.82	31,318	27206.37	32,850	26607.28	32,176	28115.93	34,299	27897.44	34,377	27438.48	34,201
EU	20010.93	24,935	20241.89	25,773	20990.46	26,942	20261.68	26,173	20976.11	27,579	20393.13	27,327	19712.02	26,875
Austria	343.64	719	339.84	778	367.03	807	324.81	821	412.42	991	392.63	944	361.74	935
Belgium	406.42	775	415.79	825	445.92	893	381.56	868	375.83	879	392.15	938	332.06	871
Bulgaria	63.99	118	80.23	133	72.11	126	91.58	143	56.40	108	66.16	107	57.37	106
Croatia	249.51	314	237.77	288	168.14	233	208.23	276	176.00	243	200.86	277	205.00	303
Cyprus	12.18	46	13.71	33	21.56	49	16.00	59	26.48	81	27.07	83	28.52	86
Czechia	377.29	552	382.88	566	476.41	717	435.80	688	477.72	746	471.09	763	481.20	786
Denmark	438.08	863	426.39	893	430.30	904	429.96	936	418.26	964	444.71	982	368.95	923
Estonia	120.77	173	108.99	179	148.89	225	88.61	153	98.51	174	92.55	178	69.48	152
Finland	390.70	668	407.54	743	417.28	802	400.80	769	441.02	883	382.69	767	365.39	784
France	2652.69	4,543	2864.22	4,887	2837.83	5,006	2658.00	4,858	2802.95	5,189	2789.61	5,228	2655.27	5,194
Germany	3102.32	5,364	3155.81	5,527	3361.69	5,912	3256.25	5,874	3394.58	6,233	3244.91	6,168	3230.10	6,313
Greece	335.81	506	343.98	537	351.42	568	315.49	536	347.73	626	327.53	579	368.76	656
Hungary	246.47	337	197.67	290	222.68	344	242.95	345	243.27	355	229.15	351	206.68	339
Ireland	178.07	346	163.72	326	170.66	357	137.25	322	178.25	418	151.81	365	151.11	380
Italy	2684.25	3,637	2461.37	3,472	2233.79	3,352	2507.61	3,635	2557.30	3,787	2354.34	3,659	2305.09	3,652
Latvia	23.72	28	17.34	23	19.73	31	13.33	24	22.84	35	20.23	45	13.12	28
Lithuania	57.92	83	53.51	79	69.20	112	60.27	92	61.07	103	52.05	99	45.13	92
Luxembourg	10.54	32	14.59	46	14.38	53	19.51	58	11.77	41	21.49	66	18.10	50
Malta	8.53	20	8.04	26	6.03	19	13.70	35	16.48	44	11.75	29	21.42	47
Netherlands	864.64	1,606	854.45	1,652	943.98	1,825	909.11	1,796	854.24	1,814	854.31	1,823	841.08	1,839
Poland	965.80	1,198	892.30	1,146	929.82	1,183	977.72	1,233	1060.04	1,379	1071.28	1,387	1017.58	1,353
Portugal	413.10	686	522.03	825	703.63	1,042	514.08	885	495.99	858	491.38	862	422.80	779
Romania	131.36	210	161.18	250	159.34	248	164.76	252	174.40	270	178.56	280	146.52	270
Slovakia	76.29	131	74.65	135	95.83	155	108.03	176	117.40	205	111.62	202	154.60	241
Slovenia	105.91	152	89.22	142	103.38	167	130.76	208	113.43	170	96.74	163	109.35	186

TABLE SSA-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	812.08	1,018	866.59	1,058	939.27	1,187	907.48	1,206	855.05	1,209	1115.59	1,530	1219.03	1,703	1186.62	1,668	1288.07	1,871	1341.73	1,995	1479.96	2,167	1684.44	2,478	1679.92	2,531	1779.57	2,734	1921.04	2,988	1751.11	2,736	1832.77	2,991	1775.03	2,920	1695.93	2,923
Sweden	High	392.08	589	423.52	640	395.18	624	394.10	661	439.14	729	453.08	800	441.76	810	456.99	830	492.93	924	521.10	993	509.81	984	517.87	1,031	535.83	1,122	584.02	1,249	571.67	1,259	566.38	1,316	622.55	1,463	588.08	1,402	556.66	1,436
United Kingdom	High	3101.73	4,040	2713.02	3,568	2871.33	3,898	2769.61	4,051	2699.43	4,130	3051.69	4,710	3014.38	4,748	3188.22	5,099	2927.53	4,843	3266.38	5,374	3512.55	5,649	3260.93	5,426	3535.20	5,855	3591.07	6,343	3726.72	6,642	3538.04	6,450	3586.40	6,857	3553.32	6,809	3482.99	6,991
Other Europe		3894.16	4,678	3475.76	4,228	3590.48	4,503	3443.07	4,512	3822.99	5,039	4049.33	5,386	4046.38	5,490	4196.10	5,705	4443.19	6,031	4671.46	6,441	5203.26	6,948	5251.21	7,159	5153.12	7,220	5861.93	8,212	6215.92	8,655	6345.61	8,908	7139.82	9,897	7504.31	10,321	7726.46	10,721
Albania	Upper-middle	4.67	7	3.98	6	2.18	5	4.57	6	2.95	5	5.50	9	2.87	8	3.02	6	9.11	20	5.04	12	10.21	21	10.01	16	9.52	21	7.87	13	1.89	6	13.24	28	5.63	16	3.59	14	4.15	11
Andorra	High	0.00	0	0.00	0	0.50	1	0.50	1	0.50	1	0.25	1	0.33	1	0.00	0	0.00	0	0.27	2	0.41	3	0.00	0	0.28	2	1.27	4	0.14	1	0.59	3	0.15	2	0.20	1	0.27	1
Belarus	Upper-middle	25.80	36	13.42	24	7.27	13	10.60	23	19.66	33	12.29	24	12.83	26	10.77	21	14.50	25	10.47	19	15.32	27	15.25	25	9.04	15	28.01	41	46.13	59	16.90	34	18.37	33	9.67	25	35.91	51
Bosnia and Herzegovina	Upper-middle	1.00	1	1.00	1	1.50	2	2.25	3	1.64	4	3.59	7	1.06	3	4.20	6	1.34	4	2.13	7	5.61	11	8.08	15	8.38	17	2.56	8	4.05	11	6.37	13	4.83	11	8.21	21	11.33	26
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.33	1	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Iceland	High	28.22	45	32.61	56	54.34	90	36.07	70	50.91	79	72.44	118	40.60	81	62.01	115	46.67	105	52.36	101	51.68	116	56.62	136	62.87	129	55.21	121	80.53	176	66.91	150	68.02	176	74.22	201	82.11	188
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.13	2	0.00	0	0.40	1	1.90	5	1.39	3	1.30	4	2.38	6	4.45	10	3.34	6	6.80	12
Liechtenstein	High	0.00	0	0.25	1	0.00	0	0.00	0	0.17	1	0.11	1	0.00	0	0.00	0	0.00	0	0.25	1	0.33	1	0.13	1	0.13	1	0.67	3	0.00	0	1.63	4	0.00	0	0.00	0	0.12	1
Moldova	Lower-middle	2.13	3	0.33	1	1.56	3	0.17	1	1.88	3	0.00	0	1.71	3	1.50	2	2.53	4	0.36	2	2.11	4	3.63	6	2.00	4	3.07	7	11.43	18	3.01	6	9.56	17	9.79	16	6.42	8
Monaco	High	4.08	9	5.77	11	6.45	12	11.13	22	14.94	26	12.38	32	11.92	29	9.27	22	14.21	30	13.44	35	9.84	21	13.40	30	5.79	15	7.37	21	6.07	16	5.41	14	6.28	14	5.76	18	6.37	26
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.33	2	1.25	4	1.35	6	3.33	5	1.98	5	4.14	12	3.51	7	7.96	17	5.21	16	4.63	12	6.80	16	5.63	16
North Macedonia	Upper-middle	0.00	0	2.00	2	2.00	2	1.00	1	2.90	4	1.70	4	5.89	10	3.89	7	5.85	12	5.09	8	6.40	9	2.62	5	3.73	11	7.14	17	5.48	13	5.51	15	7.35	19	4.64	19	6.22	18
Norway	High	477.16	673	437.85	623	535.90	774	438.73	693	512.36	831	601.05	1,008	509.64	909	651.07	1,103	639.25	1,126	809.30	1,388	772.71	1,336	837.42	1,449	839.58	1,513	955.03	1,741	936.12	1,724	867.92	1,693	1056.40	2,000	1043.80	1,961	997.53	1,990
Russia	Upper-middle	2554.17	2,908	2150.30	2,457	2176.55	2,534	2087.51	2,508	2276.64	2,787	2298.45	2,767	2356.79	2,855	2310.23	2,775	2510.39	3,033	2538.10	3,067	3019.19	3,510	2866.76	3,391	2786.99	3,349	3253.81	3,937	3556.15	4,261	3644.23	4,362	4273.76	5,012	4458.69	5,268	4726.69	5,558
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.00	1
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	32.90	45	31.79	51	30.44	49	50.17	74	51.50	72	64.11	99	59.27	95	68.05	92	83.56	116	78.03	124	79.14	125	81.66	135
Serbia and Montenegro[b]	Lower-middle	18.45	21	11.11	13	13.60	19	23.37	27	25.77	37	18.38	27	35.25	48	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	447.58	665	422.51	643	405.40	662	452.46	779	496.89	849	520.08	931	594.74	1,076	553.38	1,081	653.81	1,207	677.12	1,293	627.87	1,261	747.14	1,456	733.79	1,468	764.43	1,590	781.56	1,687	801.93	1,790	807.57	1,842	843.65	1,874	812.81	1,955
Turkey	Upper-middle	139.66	184	213.67	257	224.94	298	215.96	286	237.95	302	328.84	409	314.71	394	388.88	485	344.26	437	339.36	444	334.05	449	378.29	505	395.02	536	454.64	640	475.13	662	553.66	714	531.18	738	615.90	799	583.92	769
Ukraine	Lower-middle	191.25	223	180.96	212	158.29	192	158.75	210	177.84	238	174.26	231	158.06	222	163.66	232	167.89	227	185.25	248	293.77	356	257.66	322	225.60	307	256.67	319	233.94	302	267.15	350	263.60	353	335.91	421	357.04	455
Middle East		371.20	509	388.40	523	375.04	497	422.90	627	440.92	648	591.02	883	596.62	895	717.07	1,078	698.91	1,055	1052.89	1,509	1002.09	1,454	1158.20	1,619	1394.42	1,954	1676.07	2,362	1866.07	2,675	1966.69	2,864	2006.81	2,990	2135.29	3,133	1912.05	2,927
Armenia	Upper-middle	0.34	1	4.00	5	5.19	8	3.19	6	5.38	7	7.25	10	5.44	8	1.02	5	2.13	5	6.15	14	6.54	13	7.48	12	5.43	10	13.03	22	6.87	13	6.11	13	16.58	29	15.10	32	11.09	22
Azerbaijan	Upper-middle	8.50	10	6.73	9	4.19	7	7.05	11	11.98	15	12.57	18	6.97	11	5.38	11	30.39	39	14.95	24	22.02	29	32.36	36	18.55	26	16.54	21	18.28	26	19.77	30	25.19	35	23.81	33	30.29	45
Bahrain	High	2.00	2	3.00	3	5.75	7	7.60	8	0.20	1	8.37	15	5.28	8	7.75	11	3.98	7	7.75	10	6.43	9	5.43	8	2.32	4	6.80	11	3.97	6	5.26	8	2.00	2	11.96	19	5.08	7
Gaza Strip[c]	Upper-middle	0.50	1	0.00	0	2.33	3	1.50	2	0.00	0	1.00	1	0.00	0	0.33	1	1.83	3	0.00	0	4.17	5	4.47	6	2.17	3	1.00	3	3.95	7	2.42	4	4.38	6	3.21	4	1.33	2
Georgia	Lower-middle	7.24	13	7.63	15	9.61	13	16.51	25	14.55	21	6.96	11	16.89	24	23.08	32	16.84	26	13.63	23	14.09	25	18.41	34	11.37	19	18.63	28	11.86	23	9.49	21	17.39	36	13.05	30	12.78	35
Iran	Upper-middle	32.31	47	19.81	32	23.03	37	41.77	72	68.21	105	100.85	137	108.76	170	168.30	240	141.10	200	358.75	477	345.76	438	457.71	573	573.33	679	640.53	781	712.53	866	783.44	946	805.81	985	893.30	1,084	878.42	1,079
Iraq	Lower-middle	4.00	4	1.07	2	1.00	1	2.50	3	0.00	0	3.11	7	5.42	8	5.00	8	8.33	10	14.08	18	17.98	23	20.45	31	14.71	24	48.11	63	49.56	72	88.22	119	42.96	72	35.16	72	61.77	117
Israel	High	200.02	269	195.16	255	184.84	242	170.04	250	191.01	281	181.66	287	238.82	344	201.70	309	213.99	324	218.66	342	197.15	306	190.61	306	184.11	299	196.12	330	262.65	423	226.75	368	260.39	436	239.68	415	255.24	464
Jordan	Upper-middle	11.42	15	13.13	16	6.90	12	15.30	27	11.07	19	28.53	44	19.13	30	20.17	38	25.73	44	11.70	23	11.73	30	14.87	25	10.77	27	21.77	39	19.18	46	36.57	61	26.57	56	17.29	38	23.70	48

TABLE SSA-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	13.93	18	22.26	32	11.03	13	14.55	23	14.60	23	33.41	55	22.96	34	49.30	65	30.79	49	77.20	103	24.09	39	59.55	70	110.47	137	101.47	126	73.62	107	136.21	174	80.92	114	91.63	137	54.29	89
Lebanon	Upper-middle	6.92	9	4.25	5	4.61	6	3.85	8	6.74	11	10.66	22	11.47	15	13.48	23	5.71	16	11.14	18	8.93	17	4.00	11	11.45	22	16.61	29	17.44	38	17.98	44	18.87	53	21.83	49	20.16	51
Oman	High	8.39	15	12.12	23	8.98	19	22.59	37	13.19	27	32.98	62	20.14	41	48.87	79	31.95	64	41.18	75	56.98	98	60.90	103	60.53	97	51.54	86	68.25	121	35.79	73	45.29	86	56.20	89	56.37	92
Qatar	High	7.00	9	4.25	7	5.67	8	8.50	13	1.70	4	9.17	16	2.25	3	12.28	23	11.37	24	36.86	57	22.16	37	12.87	25	17.60	28	10.72	30	64.85	100	18.44	38	32.03	69	20.06	43	25.03	51
Saudi Arabia	High	45.12	66	74.06	93	63.22	76	74.92	100	68.75	90	89.36	129	85.33	130	103.46	158	109.00	158	167.64	232	162.78	262	199.68	305	245.25	421	442.51	674	417.24	672	420.65	745	423.60	746	502.53	835	357.44	676
Syria	Low	5.63	9	1.00	1	6.13	9	5.91	10	5.17	6	10.95	21	3.43	7	6.45	14	3.86	9	2.95	9	10.98	22	8.72	13	7.91	16	7.63	15	9.68	16	5.16	12	12.31	17	7.75	12	4.41	9
United Arab Emirates	High	17.84	26	17.67	27	31.56	43	25.51	42	27.24	46	50.46	82	40.66	76	46.41	84	60.31	101	64.77	108	83.35	134	52.81	85	110.37	165	69.11	124	110.89	191	139.03	243	177.61	287	175.69	288	101.19	192
West Bank[c]	Lower-middle	0.03	1	0.00	0	1.00	1	0.28	2	0.80	4	1.45	5	1.47	4	1.23	4	1.08	2	2.08	5	1.13	2	1.23	4	1.58	5	2.12	5	0.18	2	2.83	4	1.17	2	0.38	1	2.64	5
Yemen	Low	0.33	2	2.27	6	0.00	0	1.32	4	0.33	1	2.28	5	2.20	6	2.86	9	0.50	3	3.39	7	5.82	12	6.65	11	6.50	18	11.85	29	15.05	33	12.58	33	13.75	39	6.67	20	10.81	23
Africa		574.28	796	639.05	878	667.10	896	710.42	1,048	697.77	1,047	820.04	1,241	789.53	1,213	843.08	1,299	835.27	1,372	987.36	1,580	1000.71	1,624	1059.36	1,695	1122.56	1,796	1328.33	2,160	1424.44	2,369	1426.73	2,354	1639.31	2,689	1734.99	2,833	1757.96	2,852
Algeria	Upper-middle	12.10	22	22.27	37	20.80	35	29.64	49	27.83	40	53.01	71	24.63	43	39.45	72	37.72	65	47.51	79	51.66	77	48.37	75	67.96	92	86.35	122	94.89	132	79.85	112	108.33	156	136.99	192	105.01	150
Angola	Lower-middle	0.95	3	1.92	5	7.67	10	4.64	9	2.43	5	2.25	9	1.56	5	3.53	7	3.60	7	1.69	7	4.45	10	7.39	17	6.17	14	7.35	14	7.53	23	4.15	9	4.60	15	14.89	27	3.13	13
Benin	Low	0.50	2	0.00	0	1.67	3	1.63	4	0.00	0	2.91	7	0.25	1	0.60	3	1.07	5	4.49	12	3.63	9	1.53	9	3.50	8	6.38	12	6.94	22	5.93	18	9.45	22	7.31	24	9.29	24
Botswana	Upper-middle	12.80	16	6.00	10	4.78	11	8.18	17	10.99	20	11.93	24	16.03	33	17.01	32	9.99	20	9.25	18	6.98	12	8.25	13	4.30	10	5.97	15	9.62	23	5.17	23	6.31	19	8.89	26	24.67	47
Burkina Faso	Low	2.50	6	1.37	3	2.00	2	4.65	13	2.43	5	1.50	2	2.80	6	1.67	4	0.77	4	4.39	9	4.17	8	3.25	11	5.33	10	9.47	20	3.69	10	7.05	18	5.35	17	5.52	15	9.00	26
Burundi	Low	0.25	1	0.42	2	0.00	0	0.70	4	0.00	0	0.55	3	0.00	0	0.61	2	0.75	2	0.00	0	0.98	3	0.17	1	0.00	0	2.00	2	4.06	10	0.11	1	0.10	1	0.17	2	0.68	3
Cabo Verde	Lower-middle	0.00	0	0.17	1	0.00	0	1.24	4	0.25	1	0.00	0	1.00	3	0.50	1	0.13	1	0.63	4	0.58	5	0.17	1	0.20	1	1.28	6	2.47	10	3.63	11	1.56	8	3.62	11	1.81	6
Cameroon	Lower-middle	7.64	17	4.40	11	4.50	8	13.96	23	8.30	18	11.44	22	16.66	30	10.56	20	15.40	30	15.15	24	22.29	38	18.13	31	27.93	43	31.68	56	28.30	49	39.04	52	25.59	46	39.81	69	44.53	69
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.04	1	1.50	2	1.18	3	0.08	1	1.00	1	0.00	0	0.38	2	0.90	4	0.14	1	0.50	2	0.48	2	0.11	1	0.14	1
Chad	Low	0.54	2	0.90	5	0.25	1	0.00	0	0.67	3	2.54	9	2.14	9	1.31	5	1.59	6	1.67	6	1.78	6	0.91	4	0.77	3	0.98	4	1.01	3	0.36	3	0.76	4	0.71	3	0.86	4
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.15	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Congo, Democratic Republic of the	Low	0.33	1	0.33	1	0.00	0	0.10	1	0.25	1	1.18	3	3.46	11	4.35	10	1.42	6	1.92	11	2.62	10	3.03	8	1.01	5	3.13	10	3.42	9	3.34	15	5.81	18	5.69	20	3.45	13
Congo, Republic of the	Lower-middle	0.00	0	0.43	2	0.00	0	2.60	3	0.00	0	1.06	2	0.81	3	1.42	3	4.73	8	0.67	6	1.71	7	3.33	8	3.29	7	5.12	11	2.40	10	1.62	8	2.46	10	8.38	19	2.40	8
Côte d'Ivoire	Lower-middle	4.03	7	0.31	2	0.58	2	3.61	10	3.25	7	4.09	8	3.05	9	2.14	7	5.13	11	3.30	5	5.16	12	6.26	9	6.00	14	5.28	11	7.58	16	4.33	9	8.14	18	4.59	12	11.61	28
Djibouti	Lower-middle	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.28	1	0.00	0	0.21	2	0.73	3	0.66	3	0.36	2	0.00	0	1.30	5	1.32	2	0.26	2	1.74	5	0.54	1
Egypt	Lower-middle	92.27	123	108.29	145	90.97	115	120.66	160	98.18	131	122.99	174	128.05	172	152.67	214	120.14	173	145.06	224	170.83	243	186.19	272	209.84	325	268.14	404	234.53	384	285.73	460	315.54	502	302.72	483	315.37	496
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	2.32	5	0.51	2	2.78	7	1.83	5	5.70	14	2.17	6	5.38	9	2.73	6	0.33	2	0.89	5	1.77	5	0.27	2	0.25	1	0.95	5	0.40	3	0.87	7	0.33	3	0.26	3	0.76	4
Eswatini	Lower-middle	0.00	0	0.00	0	1.00	1	0.67	2	2.00	2	1.00	1	1.57	4	0.13	1	1.00	1	0.72	2	3.45	5	0.13	1	1.00	1	0.10	1	0.00	0	0.00	0	0.00	0	0.17	2	0.13	1
Ethiopia	Low	3.35	10	5.03	12	8.80	18	7.18	19	10.21	24	8.49	21	15.31	35	17.55	43	11.85	38	10.94	27	26.94	52	12.79	30	18.94	46	16.41	45	25.82	65	30.93	79	26.74	73	39.55	103	47.79	116
Gabon	Upper-middle	0.42	2	1.33	2	1.75	3	1.00	3	0.17	1	1.22	2	0.00	0	0.31	3	1.88	5	1.19	6	0.08	1	0.59	4	1.37	5	4.82	13	3.34	12	2.63	6	1.68	7	8.33	14	1.44	8
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.30	3	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.25	2	0.00	1	0.20	2	0.18	2	0.14	2
Ghana	Lower-middle	3.52	9	3.40	6	2.25	3	0.38	3	4.92	6	6.66	14	4.54	10	4.24	11	12.19	21	10.03	19	7.83	17	12.57	26	13.65	30	16.91	36	15.75	35	19.56	40	26.89	53	25.23	56	29.15	71
Guinea	Low	0.33	1	0.73	2	0.37	2	0.13	2	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	1.10	3	0.20	1	1.09	2	0.10	1	0.00	0	0.25	1	0.17	3	0.60	3	0.48	5	1.95	6

TABLE SSA-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.45	2	0.00	0	0.08	1	0.14	1	0.49	2	1.01	4	1.39	5
Kenya	Lower-middle	14.71	25	22.36	34	22.73	33	22.61	40	12.89	30	21.83	42	12.36	30	30.36	60	16.03	38	25.89	50	30.71	61	32.17	52	32.06	70	41.52	95	38.71	90	32.91	83	29.37	85	56.13	115	38.80	107
Lesotho	Lower-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.11	1	0.00	0	0.05	1	0.50	1	0.58	2	1.00	2	0.00	0	0.33	1	0.00	0	0.00	0	0.93	1	0.00	0	0.00	0	1.42	3	1.48	4
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.63	1	0.00	0	1.09	3
Libya	Upper-middle	4.00	6	3.83	4	1.10	2	1.28	4	5.46	11	9.52	16	5.13	12	9.14	15	5.45	18	17.16	31	18.97	40	7.04	18	7.29	18	10.37	31	3.25	13	13.59	31	9.16	20	10.53	20	15.65	28
Madagascar	Low	2.89	7	4.00	11	1.73	3	4.54	12	1.93	3	0.63	2	2.47	7	3.24	8	2.59	9	5.18	15	4.31	15	3.67	16	3.58	10	3.76	14	4.69	25	4.38	13	5.27	18	3.69	18	3.34	19
Malawi	Low	0.00	0	1.00	1	3.00	4	2.67	3	2.33	4	4.32	9	2.75	5	3.09	6	3.50	5	2.91	6	3.03	8	9.13	16	4.30	7	3.49	8	4.96	12	2.40	6	6.17	13	4.97	12	10.64	22
Mali	Low	0.33	1	1.00	1	2.13	5	1.80	5	0.73	2	0.00	0	0.65	2	0.33	1	1.79	5	0.79	2	2.50	10	1.75	9	0.99	5	2.40	9	1.07	6	0.95	4	2.61	10	2.07	7	2.80	9
Mauritania	Low	0.00	0	0.17	1	0.48	2	0.00	0	0.70	2	0.89	3	0.27	2	1.52	4	0.13	1	0.25	1	0.14	1	0.25	1	0.14	1	0.91	5	1.18	7	0.91	3	1.59	4	0.86	4	1.29	5
Mauritius	Upper-middle	2.50	3	0.17	1	0.20	1	1.17	2	1.29	2	2.25	3	1.40	3	1.83	2	0.00	0	0.98	4	2.17	4	2.31	9	1.14	4	2.54	8	5.78	13	2.16	5	4.98	11	2.54	5	3.50	8
Morocco	Lower-middle	49.88	76	64.99	102	39.86	70	38.89	68	59.38	92	41.16	80	48.69	91	38.75	84	56.91	116	42.53	98	43.86	105	41.45	98	45.54	99	55.17	129	66.44	153	53.56	122	81.24	162	99.68	194	93.49	170
Mozambique	Low	3.00	4	3.21	7	0.87	3	1.30	5	5.32	8	8.20	11	3.34	7	2.79	7	6.74	21	3.86	14	3.53	12	5.34	14	3.84	9	2.30	10	8.73	23	7.60	18	4.98	16	10.19	28	5.92	21
Namibia	Upper-middle	3.20	5	24.16	28	4.83	9	5.01	9	4.02	12	10.47	28	6.47	24	8.44	23	6.43	16	7.29	20	4.73	14	2.38	10	6.50	16	8.94	27	9.12	25	7.49	27	9.37	31	7.44	27	12.96	44
Niger	Low	1.83	3	0.40	1	2.00	2	2.02	8	0.50	2	2.84	9	2.51	8	1.66	4	2.89	12	9.32	18	2.66	8	3.19	17	3.29	9	4.16	11	2.34	8	3.25	12	2.21	8	3.54	12	2.47	11
Nigeria	Lower-middle	48.29	54	37.37	44	41.18	49	41.24	52	66.84	82	66.39	91	70.32	87	77.78	87	71.12	91	92.06	113	92.27	115	112.38	142	110.37	140	147.48	185	183.21	240	205.18	255	206.73	275	215.81	282	216.59	296
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.50	1	2.00	2	0.00	0	0.50	1	1.00	1	1.75	3	1.50	2	0.32	2	1.04	2	0.92	4	0.20	1	1.95	6	1.42	6	0.71	3	4.28	12	2.45	12
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	2
Senegal	Low	2.92	5	4.28	7	6.76	12	6.00	12	5.03	8	11.19	26	6.32	14	3.95	10	8.93	22	6.60	16	8.39	24	9.07	30	13.45	30	12.67	25	10.50	26	7.98	27	14.48	48	13.86	43	12.25	36
Seychelles	High	0.50	1	1.00	1	2.64	4	0.50	1	0.56	2	1.62	5	0.78	4	1.08	4	2.48	6	1.10	2	0.58	2	0.28	3	0.59	3	2.60	7	0.68	4	2.52	10	1.11	4	2.51	8	1.11	5
Sierra Leone	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	2	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.26	2	1.08	2
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.20	1
South Africa	Upper-middle	240.85	314	261.44	340	332.18	418	302.77	446	284.93	443	297.76	449	307.36	480	286.70	447	292.04	482	372.68	606	330.67	533	370.49	627	361.77	617	379.28	686	433.10	781	408.03	725	518.34	909	483.88	848	505.56	910
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sudan	Lower-middle	1.21	3	1.27	3	0.13	1	0.90	2	0.00	0	1.82	7	1.67	4	3.82	6	3.00	5	1.81	5	6.72	23	7.29	13	6.34	10	3.67	10	3.35	10	4.63	11	4.04	13	2.98	15	6.40	20
Tanzania	Low	9.57	12	7.02	15	8.70	15	19.15	33	16.40	27	19.86	34	12.38	31	22.04	41	18.31	37	13.97	32	16.97	43	13.12	30	10.64	32	11.01	38	23.36	60	17.78	48	20.98	52	26.07	72	20.14	54
Togo	Low	0.67	2	0.17	1	0.00	0	0.63	3	1.33	2	1.50	2	1.20	2	0.57	2	0.28	2	1.79	5	0.00	0	0.00	0	0.75	1	0.53	2	0.11	1	1.73	5	0.74	3	1.48	5	0.79	5
Tunisia	Lower-middle	27.63	40	25.97	44	27.68	41	26.71	38	22.65	33	64.96	94	43.31	61	53.79	73	80.44	108	100.33	141	88.38	122	96.84	129	113.61	153	140.44	192	136.81	192	132.66	186	131.54	192	135.45	201	145.98	212
Uganda	Low	2.91	5	3.14	5	1.83	4	2.18	7	3.07	6	4.03	9	8.14	14	7.18	13	5.68	12	6.38	14	11.29	26	7.98	14	10.00	18	8.39	18	11.09	28	15.57	26	15.15	29	7.00	21	8.40	28
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	1.53	4	2.67	5	3.75	5	3.79	8	2.18	5	5.12	9	3.55	7	0.80	5	2.62	6	2.24	8	1.07	6	1.74	6	1.58	7	0.73	6	3.19	13	3.18	11	3.56	14	3.53	11	3.56	12
Zimbabwe	Low	10.53	18	11.65	22	13.17	21	21.31	30	19.82	30	10.71	15	19.84	28	20.18	28	14.39	23	8.52	19	8.61	15	14.91	29	10.82	23	12.56	19	15.95	26	9.08	19	12.19	25	18.15	36	24.72	43
Asia		5178.28	5,899	6306.42	7,007	5989.21	6,769	6626.45	7,700	8219.10	9,517	8822.79	10,240	9482.54	11,031	10922.60	12,551	11181.49	12,937	12053.16	13,948	12584.21	14,670	14716.45	17,009	14378.53	16,785	17351.55	20,250	19147.60	22,414	18643.18	21,977	20797.76	24,472	23507.55	27,382	23103.39	27,221
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.25	1	0.13	1	2.78	5	0.00	0	0.00	0	0.00	0	2.00	2	0.58	3	1.33	2	2.02	6	16.56	24
Bangladesh	Lower-middle	15.85	20	14.58	17	14.10	21	11.63	18	11.88	22	9.06	19	11.42	24	9.70	17	18.69	39	19.72	31	14.30	30	14.16	35	24.37	53	26.82	55	27.39	56	32.55	66	35.08	78	40.61	93	45.79	95

TABLE SSA-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.33	1	0.00	0	0.73	3	0.00	0	0.50	1	0.50	2	0.40	3	0.05	1	0.25	1	0.94	3	0.43	3	1.78	5	0.42	2	4.44	9	0.99	5	0.76	6	2.58	8	1.78	5	1.07	4
Brunei	High	10.25	14	4.18	7	5.83	7	12.87	20	4.81	11	4.38	9	3.98	8	2.24	7	3.63	8	4.90	14	3.50	8	2.15	7	13.46	21	7.93	19	11.29	22	6.13	19	14.65	29	16.46	40	21.12	50
Burma	Lower-middle	1.34	3	0.59	2	2.68	4	1.83	3	2.74	7	2.04	8	1.95	5	2.79	9	4.39	11	2.50	7	2.16	7	5.74	12	3.10	9	1.97	7	4.07	16	4.21	10	6.37	16	5.07	15	7.75	27
Cambodia	Low	0.00	0	1.50	2	0.00	0	0.20	1	0.00	0	0.55	2	0.00	0	2.15	4	4.08	10	2.63	6	0.69	2	0.30	2	0.70	5	0.42	2	2.83	9	5.03	12	0.65	4	3.89	9	4.26	14
China	Upper-middle	2140.93	2,394	3026.28	3,294	2534.53	2,814	3031.73	3,489	4080.11	4,635	4780.73	5,414	5174.28	5,838	6165.10	6,960	6109.73	6,947	6919.05	7,840	6992.30	8,016	8587.59	9,746	8591.51	9,821	10814.38	12,368	12116.67	13,943	12212.32	14,147	13935.95	16,072	16337.34	18,765	15462.99	18,122
India	Lower-middle	623.03	707	646.97	726	684.19	770	681.92	800	724.75	851	798.70	946	865.79	1,027	1074.56	1,237	1058.26	1,260	1157.08	1,382	1193.19	1,413	1600.36	1,896	1468.02	1,762	1680.38	2,043	1896.98	2,298	1866.37	2,243	1844.53	2,241	1934.32	2,327	2040.56	2,454
Indonesia	Lower-middle	29.85	77	17.49	48	27.86	56	28.42	64	33.30	84	40.12	84	40.88	96	60.85	122	48.88	128	57.45	137	75.46	154	87.11	165	106.21	205	103.76	222	129.89	237	129.28	254	145.70	316	174.51	340	248.94	411
Japan	High	1693.78	2,010	1828.09	2,162	1941.76	2,327	2069.28	2,582	2399.98	2,952	2251.73	2,860	2303.09	3,019	2340.58	3,022	2635.92	3,357	2460.31	3,199	2605.21	3,373	2582.38	3,392	2230.16	3,083	2434.92	3,389	2413.65	3,367	2140.97	3,050	2335.80	3,358	2426.56	3,521	2294.37	3,394
Kazakhstan	Upper-middle	14.98	20	12.94	23	8.79	15	12.85	19	5.51	14	11.06	24	13.99	26	8.83	19	13.67	27	11.43	27	26.65	40	32.16	41	20.91	34	29.41	55	70.12	94	46.69	91	31.68	64	38.31	75	62.13	109
Kyrgyzstan	Low	3.87	6	1.44	4	1.03	6	1.83	6	3.24	5	4.15	9	9.98	20	9.16	19	7.81	20	3.35	10	6.66	14	7.74	20	4.52	14	10.89	25	6.96	23	8.79	34	25.19	43	11.73	36	12.45	37
Laos	Low	0.00	0	0.14	0	0.00	0	0.33	1	0.75	2	0.10	1	3.00	7	1.50	2	0.17	1	1.33	3	0.18	1	0.00	0	1.37	6	2.26	5	1.45	5	2.60	9	1.81	6	2.14	6	3.57	8	3.48	12
Malaysia	Upper-middle	22.93	37	24.29	34	25.47	44	24.11	44	34.95	54	39.97	67	70.36	96	76.74	112	132.38	176	142.99	192	168.08	238	252.54	335	199.03	280	297.52	417	411.91	589	277.55	430	276.69	430	283.53	438	286.84	451
Maldives	Upper-middle	0.00	0	2.08	5	0.00	0	0.80	3	0.25	1	0.10	1	2.14	7	0.31	3	0.10	1	0.25	1	0.75	3	5.71	13	0.59	3	1.00	5	2.37	9	2.53	8	2.14	10	2.26	7		
Mongolia	Lower-middle	6.07	12	4.59	12	3.68	10	5.94	19	5.51	14	6.90	20	5.75	17	8.76	29	9.25	33	12.94	35	11.16	41	10.78	31	8.70	32	16.48	54	15.07	53	11.75	42	21.45	60	17.14	55	15.33	58
Nepal	Low	7.99	16	4.48	11	6.17	14	3.59	12	3.32	10	9.09	20	8.02	20	5.80	15	4.97	12	5.68	16	4.92	18	16.46	31	8.11	23	9.87	28	16.52	49	20.50	64	23.20	76	26.97	78	17.68	54
North Korea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.37	2	0.33	1	0.00	0	0.96	3	0.00	0	0.17	1	0.51	3	0.00	0	1.17	2	0.54	3	1.96	6	1.17	2	6.84	12
Pakistan	Lower-middle	13.24	25	19.53	28	16.40	31	12.21	21	10.60	20	20.31	29	21.11	30	23.80	42	21.83	40	30.76	54	48.90	73	63.00	103	72.42	110	92.26	137	117.22	172	133.11	202	144.17	225	140.86	249	181.88	302
Papua New Guinea	Lower-middle	2.64	8	2.41	5	1.47	5	5.60	11	3.72	9	2.94	8	2.58	5	2.81	5	4.67	11	1.47	6	1.49	5	2.15	7	4.38	11	2.16	7	2.00	7	3.96	8	3.00	8	2.20	6	1.33	5
Philippines	Lower-middle	28.28	44	27.66	41	28.94	38	29.20	51	31.66	62	31.39	52	28.77	47	35.34	62	30.81	62	44.19	75	44.92	69	55.14	90	39.66	65	57.69	101	52.72	107	68.05	122	84.63	135	82.16	154	90.19	149
Singapore	High	28.47	38	36.72	44	27.78	35	32.26	52	49.41	73	37.58	65	25.82	40	75.47	105	43.76	74	57.20	86	90.76	141	75.70	125	72.02	159	102.35	199	125.26	249	104.28	238	126.16	264	118.20	294	144.34	298
South Korea	High	192.71	249	295.16	358	320.00	387	330.05	436	438.05	593	390.60	541	458.27	620	480.43	643	539.96	767	547.44	781	687.31	953	712.41	967	796.15	1,102	928.03	1,238	974.56	1,305	907.03	1,246	1044.17	1,389	1113.95	1,472	1107.28	1,502
Sri Lanka	Lower-middle	9.55	14	12.58	19	3.50	6	5.50	13	3.91	10	9.04	13	10.64	22	8.43	26	13.24	23	9.75	22	9.68	17	13.24	24	12.79	30	11.63	29	22.27	46	16.31	32	20.75	43	29.87	64	25.27	50
Taiwan	High	278.75	335	264.66	334	288.02	346	277.29	355	343.40	464	313.16	423	345.76	464	441.03	580	394.47	580	462.85	690	477.78	687	478.21	725	555.72	824	535.86	822	563.29	864	472.01	756	475.19	748	474.82	798	744.93	1,061
Tajikistan	Low	5.68	9	5.10	6	4.67	6	8.02	10	6.68	8	4.27	8	4.00	7	5.50	6	0.00	0	2.10	3	5.34	7	1.76	3	2.17	6	10.02	16	5.62	8	5.16	13	4.26	12	3.10	11	3.44	14
Thailand	Upper-middle	27.46	52	31.92	49	29.70	49	30.05	64	31.60	64	35.35	74	55.43	102	58.47	106	57.63	93	63.63	123	68.39	139	72.25	134	93.55	167	98.28	176	94.63	165	114.77	207	127.12	223	127.91	214	146.19	255
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.50	1	0.50	1	0.00	0	0.00	0	0.00	0	0.21	2	0.39	2	0.25	1	0.16	2	0.25	1	0.27	2	0.30	3	0.08	1
Turkmenistan	Upper-middle	1.53	5	0.00	0	0.25	1	0.17	1	1.00	1	0.00	0	0.07	1	0.33	1	0.00	0	1.00	1	1.17	2	0.33	1	1.40	5	1.17	3	1.73	4	0.19	2	0.27	2	0.67	3	1.00	1
Uzbekistan	Lower-middle	5.49	8	8.80	11	4.99	7	1.43	3	10.38	13	2.58	8	4.84	9	2.08	3	3.23	7	9.02	18	6.95	10	9.09	18	4.77	10	24.79	31	4.28	8	4.58	12	10.21	15	18.75	27	23.29	34
Vietnam	Lower-middle	13.27	25	12.39	27	6.33	14	6.93	22	17.76	36	13.10	38	12.87	34	17.45	48	18.11	50	21.42	58	33.78	81	29.43	78	35.39	85	44.84	106	52.79	127	45.31	100	50.09	129	67.62	167	83.75	183
Australia and Oceania		1805.03	2,227	1766.04	2,201	1644.34	2,145	1779.89	2,405	1882.43	2,631	2085.40	2,920	1976.64	2,918	2325.28	3,310	2073.52	3,131	2298.90	3,439	2349.14	3,585	2773.04	4,086	2468.26	4,018	2730.98	4,398	2790.93	4,581	2908.14	4,775	2972.55	4,988	2833.19	4,882	2682.37	4,858
Australia	High	1455.31	1,814	1367.14	1,749	1276.35	1,701	1403.48	1,942	1517.89	2,181	1672.84	2,389	1579.54	2,352	1882.39	2,717	1674.41	2,549	1838.59	2,818	1875.38	2,885	2264.19	3,385	1969.31	3,286	2251.89	3,699	2251.68	3,831	2343.43	3,975	2454.34	4,245	2322.19	4,140	2199.47	4,105
Cook Islands	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	2	0.00	0	0.10	2	0.00	0	0.30	1	0.78	4	0.99	3	0.38	1	1.58	8	0.42	2	0.60	3	1.08	4	0.50	2
Fiji	Upper-middle	4.63	10	5.58	9	1.83	4	1.60	4	3.37	7	12.76	16	6.87	10	7.31	12	2.59	7	5.11	9	1.59	5	4.03	12	4.51	16	5.08	16	8.85	21	7.54	16	8.78	21	6.14	20	7.24	25
Kiribati	Lower-middle	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.06	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.07	1	0.56	4	0.50	1	1.00	2	0.00	0	0.00	0

TABLE SSA-9

S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.13	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.56	4	0.00	0	0.44	1	0.33	1	1.00	1	0.00	0	1.25	2	0.00	0	0.00	0	0.09	2	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.67	1	0.00	0	1.00	2	0.73	2	0.83	2	0.26	2	2.64	4	2.08	4	1.00	1	3.00	3	2.50	3	1.33	2	1.60	2	0.54	4	2.00	2	0.65	2	1.27	4	1.10	2
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.00	0	0.00	0	0.04	1	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	342.10	448	388.83	489	365.15	498	369.31	525	358.27	545	392.33	620	385.11	646	429.35	699	390.26	656	450.64	705	465.11	807	497.32	833	487.81	855	468.06	854	522.65	917	550.76	958	502.80	922	497.08	930	467.48	906
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.09	2	0.00	0	0.00	0	0.11	1	0.22	1
Palau	High	0.00	0	2.17	3	0.00	0	0.46	2	1.00	2	2.28	6	0.36	2	2.22	4	2.38	3	0.75	2	0.00	0	0.60	2	1.06	3	1.18	5	2.38	8	1.59	6	1.63	6	1.91	7	3.95	10
Samoa	Upper-middle	0.00	0	0.37	2	1.00	1	0.50	1	0.00	0	0.76	4	0.06	1	0.00	0	0.13	1	0.17	1	0.58	2	1.10	3	0.58	3	0.90	3	0.49	5	0.25	1	0.21	2	0.18	2	0.69	4
Solomon Islands	Lower-middle	1.47	4	0.62	3	0.00	0	2.24	4	0.67	2	1.72	6	2.82	6	0.83	3	0.80	3	0.41	2	0.78	2	1.12	5	0.14	1	0.62	3	0.17	3	0.44	2	0.37	3	0.22	2	0.28	2
Tonga	Upper-middle	0.08	1	0.00	0	0.00	0	0.31	2	0.00	0	0.20	1	0.15	2	0.43	1	0.00	0	0.14	1	0.13	1	0.57	1	0.00	0	0.00	0	0.09	2	0.20	1	0.25	1	0.71	3	0.25	1
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.75	4	0.00	0	0.20	1	0.25	1	0.00	0
Vanuatu	Lower-middle	1.32	5	0.17	1	0.00	0	0.00	0	0.50	1	1.68	4	0.83	3	0.00	0	0.44	3	1.10	7	0.94	3	0.82	4	1.66	6	0.88	5	0.99	4	1.01	6	1.73	10	2.04	8	0.99	4
Unassigned	na	161.19	388	124.61	308	173.88	407	177.90	415	221.87	580	378.76	991	446.94	1,067	479.21	1,165	427.02	1,033	275.37	648	103.95	276	87.37	251	88.42	257	125.61	310	80.48	236	42.19	137	54.58	196	63.47	229	60.08	237

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see **https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups**, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		327762.00	327,762	331761.00	331,761	340867.00	340,867	353463.00	353,463	375487.00	375,487	404581.00	404,581	423748.00	423,748	435899.00	435,899	451859.00	451,859	469467.00	469,467	484597.00	484,597	513105.00	513,105	539464.00	539,464	553620.00	553,620	577308.00	577,308	583578.00	583,578	600045.00	600,045	598566.00	598,566	604125.00	604,125
North America		111802.18	120,561	112817.89	121,114	115228.93	124,146	116171.90	128,721	123130.45	136,521	130882.19	145,321	135348.48	150,706	136985.90	153,336	140508.80	158,035	143174.98	161,946	145994.82	166,582	152822.96	174,881	157385.30	181,336	158133.07	184,050	162856.83	190,473	164862.10	194,259	165780.18	197,529	165537.68	198,791	165653.22	200,655
Canada	High	10242.42	12,261	10175.74	12,150	10236.55	12,394	10824.28	13,801	11533.65	14,902	12708.88	16,444	13459.92	17,516	14003.46	18,400	14799.42	19,728	15388.47	20,737	15696.97	21,418	16341.75	22,396	17295.14	23,870	17513.07	24,769	18039.74	25,857	18226.45	26,490	18142.31	27,116	18649.37	28,261	19147.42	29,404
Greenland	High	2.00	2	3.00	4	1.61	1	3.82	9	16.03	18	4.02	11	2.18	8	2.39	5	1.88	7	5.90	11	6.72	13	3.74	9	8.10	19	12.33	24	5.96	20	4.55	18	8.11	22	8.12	21	12.16	31
Mexico	Upper-middle	1303.00	1,491	1338.94	1,532	1578.62	1,782	1559.83	1,830	1667.87	1,999	1894.38	2,240	2176.47	2,597	2213.40	2,652	2236.60	2,778	2325.79	2,885	2302.87	2,914	2277.28	2,942	2566.05	3,221	2659.43	3,361	3076.75	3,837	3134.74	4,002	3275.05	4,264	3053.73	4,067	3101.69	4,162
United States	High	100254.76	108,963	101300.21	109,559	103411.94	112,281	103783.98	116,090	109912.90	123,051	116274.91	130,485	119709.91	134,717	120766.64	136,788	123470.90	140,517	125454.83	143,655	127988.27	147,853	134200.20	155,334	137516.00	160,492	137948.24	162,778	141734.38	168,120	143496.36	171,761	144354.71	174,582	143826.45	175,453	143391.95	176,575
Central America and Caribbean		769.08	969	884.38	1,094	842.21	1,065	629.46	870	706.62	994	765.25	1,085	1038.26	1,439	999.67	1,492	1060.60	1,532	1364.70	1,862	1241.01	1,757	1329.40	1,887	1343.11	1,940	1334.75	1,953	1328.53	1,955	1251.95	1,999	1155.49	1,895	1216.91	2,075	1001.63	1,923
Antigua and Barbuda	High	0.00	0	1.00	1	2.00	2	1.83	3	0.50	1	1.32	3	1.27	2	5.00	7	3.68	5	2.94	5	1.92	3	0.17	1	0.13	1	2.22	9	0.54	3	1.57	4	6.37	12	3.85	16	3.85	16
Bahamas, The	High	0.00	0	0.78	3	1.56	4	1.05	2	0.50	1	1.08	5	4.33	5	3.80	8	1.00	3	4.07	10	0.64	4	6.09	10	1.97	7	7.88	12	4.61	10	4.46	12	3.71	9	5.09	9	2.83	10
Barbados	High	9.08	12	11.69	18	6.02	10	9.92	19	15.91	31	12.03	22	21.94	38	19.60	33	11.46	24	12.41	25	7.79	28	9.05	22	12.37	35	13.76	29	16.89	38	18.79	44	18.97	42	17.11	44	10.83	35
Belize	Upper-middle	0.45	2	0.00	0	0.82	3	1.68	3	0.25	1	0.59	3	0.78	3	0.00	0	0.33	1	2.20	4	2.08	7	0.76	7	2.26	5	2.43	7	3.04	11	2.64	10	0.60	5	1.77	5	1.98	10
Costa Rica	Upper-middle	21.31	36	23.09	44	25.71	53	28.63	66	25.51	66	30.27	71	28.44	68	31.80	82	43.68	97	44.79	110	40.54	102	43.78	113	30.15	89	41.96	119	55.06	141	42.42	130	60.16	163	71.60	173	57.60	188
Cuba	Upper-middle	509.80	582	562.79	653	532.03	615	295.55	341	341.64	409	408.63	492	619.02	741	574.13	752	552.66	655	825.28	934	747.99	842	813.84	914	822.23	930	793.29	895	766.01	871	736.54	855	610.99	712	592.08	713	425.29	554
Dominica	Upper-middle	0.50	0	2.74	4	2.00	2	2.08	3	1.33	3	0.42	2	0.92	5	0.31	2	0.06	1	3.33	6	1.99	9	3.39	11	6.00	18	5.10	12	4.72	15	5.48	19	9.46	22	9.21	21
Dominican Republic	Upper-middle	6.63	18	4.96	11	3.51	7	6.67	12	6.48	18	3.13	13	10.89	27	12.38	32	8.76	29	7.20	23	5.67	20	7.23	38	10.58	30	19.12	54	19.58	41	14.89	56	14.68	57	21.88	70	19.30	68
El Salvador	Lower-middle	1.81	5	2.78	6	7.41	10	3.51	8	3.38	9	3.90	9	6.22	15	5.35	14	5.49	10	6.00	17	4.94	15	7.39	25	10.07	32	5.81	19	10.80	32	11.10	53	11.34	40	13.67	40	7.21	31
Grenada	Upper-middle	1.04	4	0.25	1	0.26	2	2.51	5	2.14	7	2.77	9	2.20	8	2.51	9	9.68	35	9.34	37	9.23	27	11.65	32	11.29	44	17.88	64	20.79	65	26.97	70	21.71	73	34.68	125	25.67	126
Guatemala	Upper-middle	5.49	11	6.76	17	9.76	23	13.18	27	11.36	27	23.06	48	16.47	35	15.74	39	18.13	51	25.86	56	14.00	40	20.01	62	24.45	78	33.56	89	27.26	88	36.90	129	30.82	104	34.27	112	41.54	123
Haiti	Low	3.26	8	2.22	3	3.93	8	3.65	7	4.70	10	6.74	20	8.58	21	4.57	10	5.12	18	5.54	13	8.94	22	5.84	22	10.13	28	15.40	42	20.64	55	23.16	66	17.20	50	32.61	76	18.39	55
Honduras	Lower-middle	1.50	3	1.41	5	3.32	10	5.18	12	6.98	16	7.09	16	3.35	15	6.55	16	7.32	20	6.77	34	10.10	28	5.16	23	9.86	33	7.77	33	7.67	25	14.22	46	11.65	33	19.26	50	19.61	56
Jamaica	Upper-middle	60.24	77	90.20	103	70.61	82	58.44	75	88.46	112	66.12	86	71.78	92	83.57	110	98.19	119	97.30	126	91.26	136	100.52	133	131.51	166	107.64	148	87.79	121	63.13	126	61.01	108	78.03	131	73.79	131
Nicaragua	Lower-middle	3.56	10	2.78	6	3.80	7	2.35	10	4.85	13	7.15	16	10.84	28	7.08	18	6.71	22	8.92	29	10.99	27	14.89	38	11.22	40	12.19	39	13.16	34	8.74	37	14.41	44	15.64	48	11.27	42
Panama	High	5.83	9	10.22	12	9.21	14	4.88	12	11.97	29	10.10	19	10.84	19	15.44	24	19.74	40	22.10	39	16.70	35	29.25	59	22.06	54	34.84	80	29.83	68	36.33	83	20.35	74	31.44	98	26.00	88
Puerto Rico	High	95.66	147	108.26	157	111.04	159	145.61	223	141.06	227	129.72	209	177.43	285	145.18	265	213.73	361	197.04	347	197.07	357	170.22	331	155.30	312	150.66	303	157.22	303	156.06	318	174.52	331	159.41	339	162.00	337
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.14	1	0.00	0	0.23	1	1.71	4	0.51	4	0.87	5	3.03	8	0.68	4	1.50	3	2.94	10	4.45	13	6.79	10	7.04	23	10.36	29	13.47	37	16.29	41	14.56	46
Saint Lucia	Upper-middle	0.50	1	0.00	0	0.17	1	0.00	0	0.00	0	0.25	1	0.50	1	0.58	2	1.17	2	2.00	2	2.33	3	2.00	2	0.05	1	1.50	3	0.13	3	1.63	9	2.77	8	1.93	7	2.61	8
Saint Vincent and the Grenadines	Upper-middle	0.42	2	0.00	0	0.00	0	0.83	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	0.50	1	0.05	1	0.67	2	1.00	3	0.64	2	0.46	3	1.89	6	3.46	9	0.31	2
Trinidad and Tobago	High	42.54	54	52.44	61	48.91	67	41.91	58	39.36	54	49.17	67	41.96	69	58.03	86	51.14	82	83.33	116	61.07	104	76.93	120	62.39	99	49.16	85	68.55	103	44.14	84	53.39	92	53.38	87	67.80	121
South America		5594.60	6,499	6057.82	6,899	6930.02	7,862	7316.14	8,580	8394.09	9,685	9345.58	10,800	11854.22	13,527	13146.03	15,092	14987.52	17,171	16248.46	18,629	17373.47	19,992	18882.96	21,748	20343.05	23,577	20436.54	23,916	21285.62	25,038	21427.02	25,659	22117.65	26,693	22458.04	27,395	22919.64	28,345
Argentina	High	1061.67	1,261	1116.95	1,297	1161.85	1,344	1094.99	1,347	1116.35	1,388	1120.64	1,434	1219.15	1,570	1204.24	1,615	1285.31	1,717	1433.27	1,932	1582.18	2,108	1651.57	2,221	1540.82	2,168	1759.11	2,454	1761.56	2,464	1743.47	2,468	1754.25	2,550	1684.04	2,492	1704.89	2,641
Bolivia	Lower-middle	6.89	14	12.04	22	12.48	24	10.50	21	6.87	22	16.93	27	16.20	36	15.72	36	21.46	46	17.07	43	14.69	44	12.37	45	20.64	52	14.83	58	17.98	62	16.34	65	19.13	63	13.73	52	19.32	69
Brazil	High	3674.48	4,198	4044.18	4,513	4687.91	5,288	5049.80	5,792	6060.72	6,813	6813.98	7,675	8941.92	9,946	10124.92	11,317	11479.50	12,772	12458.85	13,893	13377.69	15,003	14658.41	16,456	15997.19	17,995	15680.46	17,826	16141.02	18,415	16133.74	18,778	16379.19	19,251	16625.70	19,731	17080.40	20,385
Chile	High	421.98	547	407.84	536	498.41	620	523.55	683	542.01	697	618.84	812	748.29	937	806.29	1,026	918.17	1,213	934.39	1,216	930.99	1,274	1001.35	1,381	1095.66	1,504	1128.58	1,661	1301.50	1,975	1290.28	1,982	1346.44	2,172	1428.68	2,333	1439.44	2,506
Colombia	Upper-middle	107.43	165	145.86	200	197.18	271	208.38	293	248.30	339	300.86	430	387.54	534	445.82	607	611.55	857	672.30	936	713.24	ne	843.86	1,152	938.96	1,312	1119.31	1,525	1278.44	1,765	1355.03	1,878	1591.29	2,207	1641.06	2,371	1625.03	2,400

TABLE S5A-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	30.68	44	22.91	34	27.48	40	42.23	67	35.89	63	44.94	76
Guyana	Upper-middle	3.54	5	1.47	3	1.06	5	3.03	5	1.77	4	0.75	3
Paraguay	Upper-middle	2.21	7	6.94	13	5.18	8	7.69	20	7.57	21	8.41	15
Peru	Upper-middle	40.21	70	57.37	84	67.26	93	79.63	120	80.15	138	92.14	158
Suriname	Upper-middle	1.14	2	1.11	4	2.18	6	1.89	2	1.48	6	0.79	3
Uruguay	High	59.60	94	58.08	84	78.25	108	70.18	102	73.73	111	80.80	131
Venezuela	Upper-middle	184.80	229	183.06	231	190.75	243	224.27	305	219.25	285	246.51	328
Europe		138265.26	146,358	140578.74	147,722	141742.20	149,667	144516.58	155,584	151813.94	163,252	162290.81	174,608
EU		125570.36	133,806	127119.35	134,487	127036.42	135,172	128431.43	139,554	134625.64	146,339	143181.62	155,880
Austria	High	2650.64	3,227	2792.72	3,400	2978.59	3,581	2882.15	3,700	2917.41	3,905	2966.60	4,040
Belgium	High	3716.36	4,550	3700.00	4,518	3664.50	4,573	3751.95	4,938	3775.88	5,077	4024.66	5,505
Bulgaria	Upper-middle	469.68	502	487.65	535	450.91	509	468.18	551	475.83	568	494.71	597
Croatia	High	590.38	630	677.97	724	795.45	855	859.10	952	962.43	1,048	963.68	1,072
Cyprus	High	21.71	28	15.32	24	24.89	38	19.01	34	25.99	52	34.31	71
Czechia	High	1872.16	2,032	2068.51	2,218	2112.22	2,275	2116.51	2,380	2242.14	2,542	2309.45	2,613
Denmark	High	2730.53	3,405	2675.35	3,343	2652.34	3,267	2576.65	3,476	2831.21	3,786	2925.95	4,012
Estonia	High	82.93	119	82.23	129	76.51	124	94.21	160	108.89	173	95.46	156
Finland	High	2734.63	3,306	2735.43	3,281	2515.13	3,023	2439.74	3,152	2551.91	3,306	2492.00	3,249
France	High	15518.25	17,393	15495.77	17,280	14860.39	16,802	14940.45	17,524	15740.49	18,550	16370.33	19,368
Germany	High	22695.94	25,572	23804.89	26,581	23703.50	26,761	23049.31	27,049	23927.97	28,287	25060.85	29,864
Greece	High	1603.90	1,877	1724.55	1,971	1933.86	2,204	2089.63	2,499	2549.85	3,020	2956.19	3,509
Hungary	High	1373.89	1,631	1452.78	1,728	1404.53	1,689	1378.10	1,714	1506.58	1,895	1745.02	2,176
Ireland	High	898.75	1,122	955.97	1,175	941.80	1,216	985.83	1,319	1142.30	1,562	1195.86	1,591
Italy	High	13090.20	14,659	13577.21	15,075	13561.97	15,259	14282.62	16,424	14674.37	17,130	15565.13	18,285
Latvia	High	21.53	33	33.27	43	27.19	44	18.37	38	20.33	38	26.59	60
Lithuania	High	40.67	68	28.92	52	307.15	351	274.08	313	301.66	347	297.42	349
Luxembourg	High	27.94	45	27.44	44	28.63	47	29.25	60	39.24	69	46.29	77
Malta	High	18.56	25	24.02	31	15.31	19	37.09	50	27.84	37	19.69	32
Netherlands	High	7120.17	8,506	6978.56	8,290	7132.01	8,605	7336.29	9,240	7963.73	10,087	8754.78	11,085
Poland	High	3896.55	4,182	4440.09	4,696	5192.36	5,497	5709.78	6,152	6422.46	6,887	7145.75	7,717
Portugal	High	618.11	749	623.76	753	674.07	839	792.35	1,032	859.81	1,156	960.98	1,257
Romania	Upper-middle	395.91	434	429.68	454	462.12	500	523.36	588	583.58	661	593.33	693
Slovakia	High	662.54	738	670.79	763	583.08	658	596.33	716	616.51	765	617.27	759
Slovenia	High	308.93	366	311.40	388	322.16	388	356.05	463	341.62	421	372.42	482

Region, country, or economy	2006		2007		2008		2009		2010		2011	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	42.79	78	46.56	81	43.84	90	51.01	112	53.36	106	45.25	106
Guyana	3.73	9	3.05	8	0.43	1	2.33	3	4.77	10	1.72	5
Paraguay	4.42	15	14.22	28	11.57	34	13.63	37	16.72	47	20.81	38
Peru	123.91	212	112.70	193	132.73	252	194.13	322	200.86	346	199.06	384
Suriname	1.38	3	1.13	4	1.63	6	0.87	4	2.33	4	0.91	3
Uruguay	95.81	157	77.28	138	96.06	169	76.60	144	94.12	167	106.78	194
Venezuela	269.07	362	294.12	392	389.26	503	394.02	513	382.52	496	340.89	462
Europe	168315.47	181,433	171943.93	186,292	173774.87	189,277	179078.17	195,303	180347.31	198,098	187759.83	206,576
EU	148643.90	162,193	151651.44	166,463	152999.93	169,007	156995.67	173,826	157757.83	176,046	163326.97	182,873
Austria	2955.85	4,016	2935.95	4,222	2853.06	4,221	2951.28	4,380	2869.92	4,401	3136.79	4,876
Belgium	4142.98	5,763	4256.91	5,981	4352.68	6,309	4463.48	6,576	4488.47	6,751	4478.62	7,028
Bulgaria	437.02	553	479.54	589	438.58	568	455.91	569	441.53	579	447.61	577
Croatia	1034.17	1,158	1071.04	1,193	1056.75	1,211	1231.93	1,390	1268.58	1,460	1433.56	1,640
Cyprus	27.41	63	32.59	60	47.69	95	59.17	114	64.85	154	80.27	171
Czechia	2485.84	2,867	2536.88	2,955	2441.16	2,912	2540.71	3,034	2776.32	3,310	2980.36	3,522
Denmark	3024.19	4,239	3169.44	4,512	3339.63	4,755	3421.75	4,931	3576.12	5,210	3921.28	5,652
Estonia	104.56	185	118.16	196	120.62	205	112.46	213	146.28	267	136.79	268
Finland	2374.98	3,194	2314.45	3,170	2343.40	3,264	2457.29	3,416	2419.12	3,449	2415.57	3,494
France	16545.17	19,805	16984.46	20,461	17155.71	20,834	17269.26	21,257	17411.22	21,705	17752.41	22,381
Germany	25629.29	30,687	26148.03	31,748	25940.82	31,780	26288.69	32,582	26223.89	32,979	27171.63	34,418
Greece	3417.41	4,077	3459.72	4,220	3693.77	4,527	3726.80	4,642	3753.13	4,676	3825.32	4,844
Hungary	1676.70	2,155	1696.66	2,184	1740.89	2,223	1617.40	2,127	1620.92	2,205	1683.57	2,271
Ireland	1338.05	1,892	1511.46	2,047	1589.30	2,310	1800.41	2,564	1929.91	2,745	2093.11	2,939
Italy	16352.26	19,319	16927.70	20,226	17420.70	21,041	17517.51	21,425	17785.28	22,175	18155.03	22,810
Latvia	37.10	71	27.77	51	56.69	93	68.08	106	64.71	113	112.42	165
Lithuania	273.91	346	271.76	363	232.62	315	264.46	352	214.78	330	192.33	296
Luxembourg	46.11	97	42.27	104	66.86	147	64.65	126	64.53	139	67.69	160
Malta	19.13	49	28.84	50	68.01	93	58.18	90	55.93	85	70.55	108
Netherlands	9225.48	11,901	9313.78	12,128	9468.61	12,529	10502.86	14,055	10762.65	14,600	11174.59	15,369
Poland	7822.53	8,532	7296.87	8,038	6978.95	7,734	6930.13	7,809	6793.27	7,707	6978.47	8,017
Portugal	1078.57	1,453	1074.75	1,496	1309.93	1,836	1520.41	2,062	1730.41	2,322	2197.17	2,902
Romania	652.03	763	676.98	835	860.79	1,060	1040.48	1,265	1087.11	1,402	1194.50	1,498
Slovakia	628.45	817	562.35	770	636.66	850	654.49	855	717.56	923	662.84	866
Slovenia	393.65	518	357.84	490	431.08	603	605.96	783	601.97	811	719.45	931

Region, country, or economy	2012		2013		2014		2015		2016		2017		2018	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	74.63	147	65.01	152	85.99	180	118.14	273	179.55	350	286.97	506	218.73	418
Guyana	3.78	11	5.59	11	3.53	5	5.47	16	4.49	10	7.42	12	5.04	18
Paraguay	22.65	51	19.18	55	16.15	46	27.16	82	35.91	87	35.13	94	22.55	78
Peru	217.78	407	227.21	421	257.86	495	340.36	621	373.31	678	388.74	706	446.82	796
Suriname	3.42	8	6.11	14	3.89	7	5.73	10	9.32	24	7.81	20	8.88	24
Uruguay	89.80	188	108.96	208	132.56	286	115.64	248	153.80	306	124.49	289	165.68	361
Venezuela	337.72	438	302.19	423	285.14	398	275.66	409	270.96	404	214.29	344	182.86	331
Europe	195584.23	215,742	199709.35	220,938	203908.32	226,278	203984.84	227,823	207800.65	233,309	203114.86	230,327	201037.32	230,043
EU	168677.07	189,738	171447.35	193,778	174458.45	198,068	173199.47	198,250	174992.91	201,832	171456.08	200,076	168280.28	198,779
Austria	3083.42	5,038	3092.30	5,219	3237.35	5,503	3237.81	5,675	3165.91	5,664	3033.57	5,729	3002.02	5,799
Belgium	4678.44	7,480	4712.91	7,733	4971.73	8,390	4813.77	8,478	4887.25	8,826	4691.98	8,780	4470.35	8,816
Bulgaria	491.00	639	510.27	671	492.25	660	547.21	739	512.58	730	517.51	831	451.98	781
Croatia	1342.47	1,614	1361.18	1,622	1381.46	1,649	1241.09	1,564	1158.00	1,522	1162.67	1,561	1160.11	1,585
Cyprus	100.94	222	110.76	264	137.73	290	129.38	304	153.34	375	195.93	444	182.97	468
Czechia	2973.30	3,625	2764.50	3,456	3152.40	3,982	3050.87	3,926	2993.08	4,023	2765.06	3,859	2538.20	3,597
Denmark	4305.67	6,267	4573.27	6,709	5251.96	7,785	5056.85	7,871	5254.92	8,234	5271.82	8,562	5090.97	8,447
Estonia	137.65	270	172.45	343	145.34	325	151.51	372	171.55	393	190.11	426	168.54	396
Finland	2546.59	3,725	2390.30	3,612	2571.16	3,918	2520.96	4,062	2681.99	4,212	2489.01	4,194	2486.60	4,155
France	18380.65	23,534	18194.85	23,630	18225.81	24,047	18147.54	24,323	18428.57	25,064	18024.72	25,198	17860.22	25,434
Germany	27859.01	35,974	28395.18	36,990	28492.35	37,457	28004.31	37,548	28738.37	38,846	28578.33	39,336	27163.76	38,115
Greece	3442.10	4,613	3413.28	4,622	3236.82	4,595	3021.38	4,412	2908.26	4,353	3037.37	4,609	2945.79	4,536
Hungary	1597.83	2,250	1497.55	2,198	1719.76	2,415	1548.10	2,282	1581.22	2,396	1485.14	2,351	1460.52	2,325
Ireland	2072.55	2,996	2175.10	3,177	2228.69	3,311	2159.87	3,347	2209.93	3,526	2270.47	3,724	2355.45	4,058
Italy	19765.16	24,861	20360.85	25,893	20664.52	26,587	20214.12	26,724	20610.03	27,624	20392.02	28,006	20649.53	28,666
Latvia	104.27	165	150.52	240	98.65	178	106.27	196	111.42	239	132.16	256	131.47	244
Lithuania	240.89	366	254.59	395	257.15	411	293.51	469	306.68	524	312.94	544	333.64	578
Luxembourg	68.21	178	74.22	177	87.98	250	79.04	252	108.22	311	88.48	323	84.53	335
Malta	96.92	166	105.48	165	114.13	195	125.94	226	126.45	238	133.92	247	153.18	276
Netherlands	11561.05	16,489	11883.04	17,171	11989.22	17,634	12199.79	18,250	12057.35	18,535	11944.32	18,836	11599.80	18,781
Poland	6894.27	8,086	7358.70	8,513	7415.87	8,683	7267.50	8,637	7430.86	8,967	6770.10	8,517	6657.21	8,448
Portugal	2241.14	3,066	2547.88	3,466	2713.58	3,776	2936.56	4,154	2892.75	4,285	2930.95	4,513	3052.31	4,698
Romania	1064.69	1,423	1204.66	1,637	1607.22	2,104	1670.28	2,167	1559.50	2,093	1155.83	1,777	1197.45	1,807
Slovakia	680.85	937	642.57	869	722.96	1,002	735.59	1,030	793.21	1,154	725.53	1,038	713.62	1,037
Slovenia	624.92	918	636.96	948	609.02	896	616.24	952	611.22	1,020	632.58	1,046	565.92	1,021

TABLE SSA-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	8816.61	9,658	8805.13	9,602	9012.43	9,920	9329.97	10,598	9751.28	11,117	11078.91	12,625	11908.73	13,776	12247.72	14,251	12673.65	14,949	12853.47	15,286	13404.01	16,227	13753.83	16,815	14113.49	17,523	14223.60	17,977	14723.89	18,874	14910.95	19,482	15534.09	20,438	15524.18	20,949	14870.07	20,490
Sweden	High	5527.74	6,765	5501.72	6,719	5192.05	6,428	5117.20	6,695	5098.37	6,799	5477.42	7,372	5383.89	7,286	5655.24	7,857	5507.03	7,810	5793.21	8,250	5643.42	8,353	5751.19	8,678	5858.22	9,146	6199.17	9,775	6379.65	10,306	6409.43	10,641	6366.31	10,866	6466.22	11,309	6172.88	11,085
United Kingdom	High	28065.14	31,847	26998.21	30,548	26411.26	30,403	26377.86	31,386	27165.95	32,835	28590.59	34,877	29628.45	36,463	30452.27	38,129	30174.29	38,465	30725.26	39,654	29841.93	39,423	30740.00	41,287	32351.35	43,822	32441.22	45,021	31829.80	45,504	32003.60	47,212	31639.87	47,957	30533.16	48,047	30761.20	49,170
Other Europe		12694.90	14,800	13459.39	15,537	14709.76	16,999	16085.15	19,173	17188.30	20,767	19109.19	22,900	19671.57	23,734	20292.49	24,953	20774.94	25,659	22082.50	27,407	22589.48	28,342	24432.86	30,722	26907.15	33,904	28262.00	35,559	29449.87	37,570	30785.37	39,559	32807.73	42,460	31658.78	41,998	32757.05	43,546
Albania	Upper-middle	2.00	2	1.67	3	7.46	12	4.73	12	3.88	11	3.14	9	7.37	19	8.94	18	14.74	23	16.44	26	22.55	39	27.84	50	38.49	63	48.90	73	73.25	109	51.89	90	56.45	106	33.21	92	41.64	110
Andorra	High	0.00	0	2.00	2	0.00	0	2.71	4	0.69	2	3.56	6	2.10	5	3.77	10	0.63	2	2.27	4	0.79	4	0.16	2	0.22	2	0.17	3	0.50	5	3.37	6	3.25	9	0.96	7	1.33	9
Belarus	Upper-middle	47.69	66	51.07	60	65.60	88	46.16	59	41.82	69	43.64	72	68.83	108	50.56	85	56.30	100	46.20	88	45.26	72	59.74	105	55.28	98	108.97	152	86.75	147	109.22	164	101.43	171	133.23	212	176.22	267
Bosnia and Herzegovina	Upper-middle	57.85	60	46.24	51	77.01	83	110.28	122	164.23	181	161.77	176	207.46	237	180.29	218	230.32	271	253.70	298	236.41	305	233.42	331	199.19	305	173.03	267	193.36	281	191.53	299	208.56	335	254.06	388	222.88	362
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	1.67	2	0.00	0	0.00	0	0.00	0	0.50	1	0.13	1	1.00	1	1.00	1	0.94	2	0.09	1	2.04	4	2.97	7	1.51	7	2.68	6	1.09	3
Iceland	High	66.66	105	82.63	137	96.03	139	77.36	152	99.81	175	120.85	206	132.53	220	98.36	201	133.71	248	151.57	298	182.48	335	143.99	286	168.93	318	164.87	338	173.90	378	159.98	385	175.15	398	171.26	404	189.61	443
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	26.21	46	60.06	86	43.85	80	29.54	53	35.88	67	35.70	58	39.55	74	47.40	89	58.19	100	81.45	135	73.68	129
Liechtenstein	High	0.20	1	0.00	0	0.75	2	2.11	9	4.30	13	11.90	22	7.11	12	4.37	14	8.70	18	4.63	18	12.21	27	11.29	26	5.28	22	5.09	19	3.64	22	7.70	28	4.62	25	5.32	25	3.31	18
Moldova	Lower-middle	3.27	5	1.69	5	1.38	3	6.04	9	6.93	11	12.21	21	3.42	12	5.67	11	6.02	13	8.04	14	13.40	25	12.46	22	10.81	24	17.81	34	17.40	47	15.98	42	23.35	57	30.88	72	24.16	62
Monaco	High	3.59	8	8.99	17	9.77	14	11.15	15	11.22	22	9.45	25	8.31	19	9.26	21	10.99	27	12.30	26	12.43	31	17.45	38	11.66	39	15.12	49	16.05	41	15.01	52	16.18	60	21.30	62	13.19	45
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	3.34	8	10.74	25	15.75	36	12.22	29	14.77	32	20.88	38	27.05	54	33.13	64	35.42	65	32.46	64	46.60	90	42.07	77
North Macedonia	Upper-middle	26.94	30	28.45	34	30.31	35	21.77	30	34.56	51	56.94	71	65.26	86	68.75	89	102.83	134	103.72	147	80.91	113	125.53	162	127.50	181	147.87	203	177.68	259	173.77	250	152.23	241	103.94	198	134.03	235
Norway	High	1912.07	2,325	1868.19	2,276	1702.31	2,122	1846.41	2,392	1848.40	2,511	2138.14	2,849	2096.95	2,921	2250.42	3,182	2451.52	3,460	2563.64	3,709	2509.36	3,759	2627.77	3,950	2834.30	4,306	2832.70	4,329	2870.46	4,609	2872.46	4,805	3127.63	5,260	3135.15	5,411	3346.36	5,724
Russia	Upper-middle	2134.72	2,371	2208.19	2,407	2235.04	2,487	2217.84	2,556	2043.72	2,419	2131.41	2,474	2121.60	2,446	2131.80	2,478	2123.56	2,476	2223.03	2,561	2263.15	2,646	2723.67	3,185	3435.04	3,881	3688.89	4,191	4226.08	4,887	4834.94	5,614	6633.85	7,519	7507.51	8,495	8758.83	9,841
San Marino	High	1.50	2	1.09	2	0.00	0	0.17	1	0.58	2	1.33	3	0.67	2	1.75	3	2.71	6	0.71	3	0.23	2	0.44	3	0.14	3	2.31	7	0.47	2	5.34	14	1.67	8	1.80	5	3.67	11
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	797.11	906	823.93	976	1036.23	1,197	1097.09	1,315	1223.68	1,438	1355.20	1,641	1312.08	1,601	1326.38	1,710	1155.84	1,541	1107.69	1,495	1120.39	1,570	998.03	1,466
Serbia and Montenegro[b]	Lower-middle	423.33	450	448.08	480	525.65	570	486.54	523	601.55	666	800.34	889	788.92	893	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	4487.53	5,748	4280.95	5,573	4310.01	5,688	4345.04	6,205	4628.80	6,721	4844.96	7,080	5106.76	7,537	5205.42	7,974	5252.01	8,139	5397.38	8,544	5455.09	8,825	5966.58	9,762	6318.81	10,590	6461.46	10,841	6418.70	11,217	6512.27	11,624	6675.21	12,234	6918.43	12,986	6598.77	12,881
Turkey	Upper-middle	3226.57	3,396	4161.73	4,317	5372.01	5,571	6665.03	6,988	7499.79	7,913	8589.37	9,025	8878.28	9,365	9312.88	9,832	9351.64	9,929	9993.88	10,622	10453.41	11,103	10930.64	11,548	12064.12	12,756	12885.92	13,672	13398.27	14,216	14033.71	14,964	13740.56	14,903	11188.81	12,392	10861.77	12,068
Ukraine	Lower-middle	300.98	339	268.43	294	272.27	307	241.81	292	196.34	259	180.18	239	176.01	252	159.79	250	167.88	235	192.85	252	147.25	225	232.88	347	224.49	329	333.97	455	392.26	554	556.61	742	687.76	892	901.81	1,131	1266.39	1,507
Middle East		5059.14	5,791	5086.35	5,689	5314.88	6,114	5733.81	6,845	6103.54	7,315	6846.43	8,148	7741.92	9,177	8580.29	10,188	9251.37	11,017	10354.73	12,348	10870.80	13,271	12561.71	15,403	14133.37	17,262	15308.60	18,877	16748.83	20,877	16991.75	21,685	18952.55	24,249	20094.96	25,733	21933.27	28,238
Armenia	Upper-middle	30.58	39	25.96	31	30.42	39	24.39	29	24.52	29	30.28	37	34.26	49	21.09	41	22.16	38	39.16	55	43.33	63	47.03	66	63.17	85	52.73	74	67.71	95	69.65	95	52.66	96	67.47	114	50.03	110
Azerbaijan	Upper-middle	4.27	6	5.29	7	51.23	53	58.38	61	127.15	133	72.28	76	41.87	47	181.62	186	178.89	187	174.35	184	131.01	148	130.38	151	131.27	143	86.14	98	29.22	40	28.22	51	126.08	158	146.54	172	97.37	135
Bahrain	High	37.67	38	30.39	38	25.47	30	53.40	67	69.83	85	77.72	96	89.37	118	73.67	102	62.37	93	82.90	126	66.66	95	63.42	103	60.15	107	107.04	157	114.49	170	84.88	152	118.88	204	110.08	188	124.18	207
Gaza Strip[c]	Lower-middle	2.43	6	3.23	5	5.20	9	0.75	3	4.50	8	2.48	5	4.12	7	3.26	11	8.92	13	8.49	14	6.55	13	8.33	19	8.86	17	16.28	29	21.08	34	17.38	34	12.03	24	13.26	29	18.42	43
Georgia	Lower-middle	16.68	24	19.03	25	20.82	31	20.74	34	29.52	48	153.14	176	117.15	137	87.74	106	88.72	101	97.62	118	46.64	97	67.95	147	62.82	120	61.95	108	107.62	154	121.33	180	151.26	225	118.87	185	107.34	193
Iran	Upper-middle	235.55	263	279.86	314	475.85	520	676.09	769	820.42	923	1408.72	1,557	2058.71	2,222	2776.24	3,010	3456.63	3,779	4304.04	4,648	4832.96	5,241	6290.86	6,751	6412.78	7,908	8324.50	8,896	9221.03	9,821	9252.48	9,872	10549.40	11,237	11351.60	12,190	11425.13	12,332
Iraq	Lower-middle	42.67	44	31.42	33	53.59	58	49.67	56	40.93	45	62.98	76	100.77	118	95.53	115	109.58	131	141.56	173	171.11	201	144.26	177	189.57	238	176.97	257	134.50	226	114.00	197	144.44	271	446.02	592	1533.26	1,807
Israel	High	3265.74	3,761	3173.06	3,651	3216.81	3,735	3247.93	3,908	3353.96	4,040	3315.96	4,038	3385.13	4,149	3444.88	4,279	3200.90	4,040	3233.06	4,130	3047.08	4,076	3124.29	4,233	3271.68	4,345	3213.24	4,372	3339.12	4,600	3392.56	4,829	3582.49	5,129	3339.50	4,937	3397.49	5,077
Jordan	Upper-middle	162.69	190	141.23	157	168.39	201	155.11	187	189.09	228	210.58	260	266.89	325	227.91	291	284.01	358	307.64	393	352.22	439	331.49	450	310.31	446	365.95	520	362.67	531	346.61	547	405.92	605	499.59	744	651.95	976

TABLE SSA-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	117.91	151	132.90	158	127.28	158	152.28	209	154.38	223	175.93	241	172.34	237	195.84	256	213.55	291	206.25	274	217.69	311	181.80	254	193.83	292	203.68	293	201.88	311	184.16	322	189.73	341	201.05	367	184.64	346
Lebanon	Upper-middle	173.32	205	205.54	237	169.88	212	225.44	285	203.63	273	247.96	303	268.71	340	279.92	373	316.29	416	301.70	422	301.33	435	293.22	444	352.29	554	362.43	601	397.93	670	423.05	694	507.27	866	565.62	964	602.77	1,036
Oman	High	90.43	105	103.27	111	79.14	89	101.74	121	89.82	110	85.25	107	98.95	127	106.32	135	121.27	159	132.49	172	115.69	163	187.61	254	163.92	233	220.34	302	201.14	291	198.19	316	194.16	331	167.62	283	166.09	222
Qatar	High	19.33	21	40.50	42	49.42	56	59.80	72	62.10	76	91.76	111	102.42	131	122.63	156	105.68	153	110.83	174	135.79	222	142.67	239	167.38	297	194.46	381	246.60	556	274.62	670	295.92	769	312.30	805	351.41	859
Saudi Arabia	High	705.64	780	639.65	699	712.94	785	731.37	855	753.30	885	698.69	825	766.38	917	762.01	931	827.67	1,057	926.48	1,177	1083.26	1,447	1229.25	1,859	1370.86	2,181	1525.08	2,472	1869.98	3,139	1999.75	3,455	2114.07	3,748	2214.94	3,943	2524.93	4,387
Syria	Low	19.47	25	19.93	23	11.56	17	17.45	30	17.58	30	25.44	43	13.92	28	20.50	41	26.61	50	28.12	51	42.65	79	42.91	80	60.00	119	70.83	124	68.31	121	78.57	132	92.73	134	79.97	126	95.74	152
United Arab Emirates	High	115.76	144	131.56	162	102.72	139	135.21	200	134.40	210	149.51	239	184.04	288	148.24	253	186.20	311	195.11	321	209.92	374	216.08	398	242.90	452	254.83	465	281.13	535	321.79	676	311.73	737	348.51	879	483.33	1,140
West Bank[c]	Lower-middle	6.32	10	4.14	9	1.40	4	6.44	11	7.84	14	12.37	18	15.00	27	14.00	23	16.98	25	32.11	51	29.20	53	29.71	52	37.67	62	34.59	59	38.80	76	40.69	79	46.31	98	69.06	128	83.79	153
Yemen	Low	13.18	16	17.42	21	12.95	14	17.63	20	20.55	26	25.38	33	21.88	29	15.78	22	24.96	38	32.82	54	37.74	58	30.44	69	33.91	88	37.58	83	45.61	83	43.84	95	57.48	112	42.95	118	35.39	113
Africa		3195.37	3,895	3545.08	4,202	3546.15	4,229	3785.48	4,749	4073.65	5,189	4576.36	5,826	5178.59	6,687	5471.77	7,158	6189.78	8,080	7060.55	9,295	7714.04	10,385	8772.84	11,669	9416.21	12,624	9988.75	13,459	11368.12	15,498	11956.48	16,562	12394.05	17,422	12340.64	17,788	12990.28	19,035
Algeria	Upper-middle	12.75	25	19.01	33	19.54	25	20.17	36	25.00	47	23.77	36	33.02	54	28.35	53	50.03	84	77.67	132	71.98	115	69.97	106	128.18	193	113.48	169	146.29	202	256.02	335	214.28	347	164.37	270	187.92	299
Angola	Lower-middle	2.81	5	3.58	5	1.96	3	0.46	2	2.70	7	1.24	5	2.34	7	2.14	9	3.58	16	6.07	13	3.65	13	5.02	15	6.89	21	7.42	23	11.96	31	14.60	41	18.84	47	12.85	36	12.78	38
Benin	Low	9.86	15	10.97	18	12.44	21	8.23	16	15.85	35	20.74	42	21.24	47	29.85	52	21.55	50	31.37	56	25.53	60	29.93	60	48.44	106	54.90	97	62.16	124	54.55	120	48.16	111	47.17	121	69.21	139
Botswana	Upper-middle	16.64	20	18.71	25	8.02	14	16.88	26	8.29	14	15.40	28	29.74	44	20.47	35	15.47	31	30.23	53	26.19	66	23.52	53	40.48	73	60.21	119	30.49	77	56.77	119	43.51	99	59.40	138
Burkina Faso	Low	26.81	36	29.20	52	44.36	59	28.81	56	29.85	58	25.92	55	39.62	93	48.59	89	51.05	108	50.64	106	56.53	109	59.75	122	83.50	172	74.45	141	106.97	207	117.99	215	105.12	218	91.75	205	93.32	208
Burundi	Low	0.13	1	0.00	0	0.00	0	0.25	1	1.00	3	1.17	2	0.93	4	1.51	10	0.58	3	0.58	4	1.48	6	3.12	8	4.83	10	7.63	15	5.86	12	5.43	16	6.08	17	3.72	20	5.97	22
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.17	1	0.48	2	0.88	1	0.00	0	0.92	2	0.08	1	0.15	2	0.48	2	1.00	2	0.00	0	0.00	0	0.62	2	0.17	2	1.33	7	1.42	7	1.73	6	1.44	7
Cameroon	Lower-middle	24.21	38	43.71	64	53.06	75	46.32	79	48.50	86	57.51	85	63.73	99	56.96	100	55.41	100	84.96	158	85.06	154	110.09	196	130.67	215	169.38	281	179.92	288	224.20	352	215.55	353	203.75	381	225.90	425
Central African Republic	Low	4.75	9	3.90	6	2.69	6	4.03	6	3.20	4	4.50	6	7.14	11	3.12	5	3.38	5	3.32	8	4.88	10	3.32	7	3.88	11	5.08	9	9.65	19	5.74	13	16.63	33	10.66	22	7.21	20
Chad	Low	0.00	0	0.00	0	3.69	8	2.48	5	8.87	12	4.60	8	3.53	12	1.05	2	2.57	8	2.22	8	0.75	2	1.90	6	2.05	7	2.49	8	4.35	16	5.67	11	4.91	18	8.47	23	6.15	21
Comoros	Low	0.78	1	0.20	2	0.00	0	0.00	0	1.00	1	1.43	2	1.00	1	3.29	7	0.37	1	0.17	1	1.00	1	1.00	1	0.54	2	4.00	4	0.70	2	0.82	2	1.85	7	1.70	5	0.16	1
Congo, Democratic Republic of the	Low	8.13	17	7.36	11	5.18	10	8.71	19	7.89	18	9.97	19	11.69	27	15.16	35	22.17	41	23.53	61	25.91	63	23.38	76	42.92	105	48.20	109	78.12	145	74.39	140	54.56	132	66.53	159	77.55	191
Congo, Republic of the	Lower-middle	9.68	13	9.08	10	15.53	22	20.21	31	29.44	42	26.87	41	23.07	41	26.78	52	23.69	40	20.33	44	20.87	47	25.79	54	28.54	67	27.67	58	45.94	100	47.62	113	39.90	103	33.64	88	34.64	106
Côte d'Ivoire	Lower-middle	33.63	52	43.12	55	41.24	68	45.35	65	60.83	81	50.56	71	51.80	84	51.20	77	68.75	96	64.54	100	56.89	92	89.58	129	86.81	129	75.60	122	76.62	130	94.64	153	70.59	141	70.40	139	62.79	132
Djibouti	Lower-middle	1.00	1	0.50	1	1.28	2	1.00	2	1.17	2	2.92	3	1.23	4	0.53	3	2.22	6	6.04	7	4.95	6	0.98	5	6.05	10	2.55	5	2.88	7	1.42	3	2.47	9	1.00	1	0.47	2
Egypt	Lower-middle	419.77	510	439.69	523	434.02	531	551.40	702	556.68	738	606.50	834	697.16	939	778.48	1,054	959.76	1,291	1228.74	1,664	1555.35	2,113	1931.46	2,554	2153.90	2,869	2288.49	3,042	2543.40	3,534	2730.08	3,864	3104.67	4,426	3035.79	4,436	3354.02	4,955
Equatorial Guinea	Upper-middle	0.00	0	0.83	1	0.46	2	0.75	2	2.18	3	0.00	0	2.97	6	2.37	6	0.50	2	1.27	5	1.00	2	1.94	6	3.15	5	1.65	5	0.74	3	2.35	6	2.17	6	2.02	8	1.76	8
Eritrea	Low	0.23	2	1.13	2	0.63	2	3.60	7	3.58	4	3.05	8	5.55	10	4.24	9	1.71	4	1.37	5	2.88	4	2.83	7	1.43	3	2.84	5	1.35	6	4.76	7	2.93	8	6.57	12	10.35	20
Eswatini	Lower-middle	1.00	1	0.00	0	1.23	4	2.17	3	2.51	5	2.40	7	2.63	6	2.04	9	0.52	3	4.24	11	3.68	12	2.62	14	5.65	16	5.97	16	4.22	17	7.77	27	8.54	27	18.08	44	9.06	27
Ethiopia	Low	76.12	93	74.85	93	81.32	99	75.62	108	86.17	121	76.68	117	92.39	131	104.20	155	125.40	183	123.11	199	151.69	240	172.82	276	252.32	370	339.00	467	462.08	654	429.51	650	512.99	747	696.87	996	779.98	1,137
Gabon	Upper-middle	12.53	20	9.91	12	10.67	18	9.30	18	12.74	24	15.36	31	16.93	43	12.51	30	11.92	29	22.76	39	20.63	47	28.75	60	19.60	37	20.37	51	24.58	57	27.54	65	24.09	53	17.20	46	25.50	52
Gambia, The	Low	18.97	36	20.87	34	13.98	29	14.30	33	14.94	35	16.56	41	19.01	44	13.17	32	15.62	43	16.05	48	17.99	52	14.27	41	12.31	44	19.11	62	26.41	74	23.48	81	24.10	84	17.22	63	19.45	71
Ghana	Lower-middle	49.36	74	41.24	72	43.89	61	36.51	64	57.78	101	64.22	118	59.81	115	68.59	134	64.97	121	75.83	147	91.62	184	136.96	279	170.60	345	218.29	387	243.07	458	292.57	543	401.25	692	351.31	661	402.21	756
Guinea	Low	1.37	3	9.03	13	6.67	11	1.34	3	5.24	8	4.45	7	9.55	17	8.51	15	7.66	19	5.02	14	6.79	15	4.04	10	5.34	17	5.34	17	14.58	35	20.90	54	20.49	58	20.77	58	17.04	45

TABLE SSA-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.56	2	0.71	3	2.61	8	5.32	12	7.52	15	2.83	8	2.90	6	7.43	15	3.43	11	4.25	12	1.86	5	4.36	12	6.64	15	6.64	15	7.85	21	3.58	10	4.61	17	5.34	17	5.28	15
Kenya	Lower-middle	113.42	179	122.55	174	131.87	189	126.69	227	172.62	276	161.13	255	152.82	273	195.34	362	213.48	378	241.03	415	214.33	472	227.05	491	257.27	515	319.21	663	321.52	718	317.22	737	338.12	770	357.62	845	399.32	926
Lesotho	Lower-middle	0.33	1	1.25	2	2.08	3	1.62	3	0.77	3	3.19	8	0.92	1	1.68	9	0.84	4	2.48	7	1.11	5	1.79	8	3.13	11	1.77	7	2.97	11	6.65	17	4.09	9	4.56	11	4.04	12
Liberia	Low	0.00	0	0.00	0	0.24	2	0.50	1	0.08	1	1.08	2	1.00	1	1.40	2	0.17	1	0.33	1	1.47	5	6.74	12	4.35	13	2.60	11	4.55	12	8.11	30	9.74	38	15.05	43	14.76	53
Libya	Upper-middle	23.82	28	15.53	21	10.20	13	13.08	21	6.02	9	9.08	12	20.05	29	17.02	24	21.74	38	92.74	117	101.37	140	27.44	51	30.61	64	37.57	72	35.14	83	34.51	82	32.89	76	29.44	74	30.02	91
Madagascar	Low	29.47	35	36.99	43	20.54	25	37.97	50	17.58	31	13.96	25	16.13	30	30.10	45	30.82	47	21.46	35	20.95	35	29.91	55	26.51	51	25.69	52	44.61	73	39.69	71	37.08	67	47.41	88	40.47	86
Malawi	Low	33.21	51	33.91	49	37.98	56	32.04	55	42.09	69	43.19	75	41.31	84	64.20	118	53.23	114	52.64	122	66.43	141	59.97	143	66.15	163	71.61	183	83.30	218	87.96	234	110.13	304	112.56	324	113.19	342
Mali	Low	5.97	11	13.38	20	16.82	29	16.69	27	11.49	27	18.69	31	34.30	59	45.56	81	38.38	65	42.20	81	43.88	83	46.75	88	49.84	101	30.28	71	36.58	76	33.92	97	43.99	100	48.04	105	43.88	103
Mauritania	Lower-middle	1.71	6	3.30	7	2.83	6	0.22	1	0.00	0	3.58	7	1.47	5	1.92	3	0.62	3	0.64	1	2.26	4	4.80	9	0.60	5	4.59	10	2.64	6	9.47	19	10.84	21	7.82	15	9.09	20
Mauritius	Upper-middle	2.29	4	4.75	8	1.25	2	4.68	8	7.51	13	10.77	13	4.19	10	3.21	9	4.57	10	6.21	11	1.35	7	6.07	15	10.11	20	11.18	24	22.15	35	20.18	40	15.49	30	10.70	32	7.70	27
Morocco	Lower-middle	220.71	252	259.32	296	285.21	322	271.99	307	223.33	266	226.70	271	286.53	342	325.92	383	357.68	417	501.69	573	612.46	686	680.16	747	733.88	837	790.96	887	996.85	1,097	965.82	1,099	815.70	949	777.75	931	706.99	862
Mozambique	Low	7.54	15	9.99	17	8.09	14	7.41	21	10.74	32	9.54	22	18.45	39	22.49	52	21.09	51	26.34	63	17.44	54	31.09	88	23.95	76	29.03	81	39.23	104	44.87	123	51.19	162	50.94	172	50.43	165
Namibia	Upper-middle	2.84	5	0.17	1	3.14	6	7.25	11	2.61	5	1.96	6	5.35	10	5.59	14	3.70	8	1.89	7	5.55	14	8.25	26	10.02	29	16.61	38	17.22	51	18.97	58	20.51	59	14.07	45	15.08	62
Niger	Low	9.25	12	13.41	16	5.52	9	9.48	20	7.22	11	6.47	12	14.48	27	9.38	18	9.01	20	12.31	24	10.99	23	7.22	22	11.05	31	9.36	26	12.77	26	17.00	46	19.99	39	22.91	39	21.54	46
Nigeria	Lower-middle	407.44	457	478.76	513	550.54	581	531.54	574	638.99	709	847.68	922	985.97	1,075	996.26	1,103	1085.71	1,222	1208.75	1,396	1223.47	1,482	1440.74	1,703	1303.25	1,550	1355.73	1,616	1438.90	1,752	1302.34	1,667	1291.65	1,736	1308.39	1,782	1369.11	1,918
Rwanda	Low	1.90	4	0.60	2	2.38	4	2.47	5	4.85	14	3.24	7	10.49	22	10.28	22	10.79	30	14.99	37	16.47	46	21.48	58	22.26	58	57.93	119	54.34	123	60.12	145	69.68	171	59.63	161	84.96	195
São Tomé and Príncipe	Lower-middle	0.37	2	0.33	2	0.53	3	1.55	4	0.38	2	0.00	0	0.47	1	1.31	4	0.00	0	0.20	1	2.10	3	0.00	0	0.00	0	0.00	0	0.14	1	1.42	3	0.87	2	0.41	2	0.00	0
Senegal	Low	79.92	100	89.75	108	93.93	112	105.25	147	91.60	119	99.51	132	90.37	125	114.35	155	120.09	166	89.08	142	101.28	154	137.42	205	111.17	193	120.52	191	146.46	241	176.62	274	152.85	231	148.16	239	104.95	211
Seychelles	High	0.64	3	0.07	1	0.25	1	0.00	0	0.88	4	0.69	3	2.11	6	2.66	8	3.32	9	1.11	4	1.58	6	3.24	10	2.00	6	2.12	8	0.67	4	2.02	9	1.38	9	1.49	11	2.88	9
Sierra Leone	Low	1.05	3	1.12	2	1.48	3	0.00	0	1.00	1	3.43	6	2.07	5	1.91	8	2.23	4	2.74	7	6.32	18	5.65	13	7.30	20	7.31	18	12.79	39	17.94	49	22.51	67	22.24	72	18.42	66
Somalia	Low	0.30	1	0.00	0	0.71	1	1.50	2	0.14	1	0.00	0	0.83	3	0.00	0	0.40	1	1.00	2	1.45	5	1.70	3	1.03	4	2.14	4	2.42	8	2.12	9	1.31	6	7.77	19	6.05	14
South Africa	Upper-middle	1047.73	1,247	1080.97	1,266	1001.95	1,192	1043.89	1,313	1098.44	1,395	1202.88	1,560	1240.71	1,655	1267.78	1,737	1519.52	2,087	1638.00	2,226	1625.70	2,318	1814.17	2,523	2045.58	2,942	2136.70	3,090	2360.35	3,520	2464.43	3,751	2649.77	4,073	2657.34	4,226	2746.98	4,547
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.24	2	3.22	10	4.27	9	3.87	9	2.01	7	1.24	6	4.91	19	6.06	20
Sudan	Lower-middle	23.38	33	27.74	39	32.16	40	34.99	53	57.86	74	53.58	76	47.39	73	52.73	84	62.04	96	66.63	111	69.68	118	79.03	135	89.18	153	93.82	166	89.33	172	96.28	206	131.50	252	104.61	213	87.20	210
Tanzania	Low	57.89	101	60.69	111	52.98	105	52.53	123	66.55	151	76.48	161	126.15	241	127.05	243	136.79	271	144.17	312	151.45	334	192.64	378	194.23	409	190.87	419	252.50	535	241.02	509	248.83	522	248.24	555	255.87	594
Togo	Low	21.70	26	17.81	20	11.32	15	14.10	17	10.87	19	12.06	17	13.68	20	17.22	25	26.28	34	25.48	37	29.86	42	26.84	38	29.65	41	40.80	57	55.86	82	59.06	87	46.85	82	47.51	70	54.66	84
Tunisia	Lower-middle	206.08	234	314.93	338	329.37	354	442.13	487	470.92	521	587.27	656	682.60	758	700.35	793	777.75	879	799.45	916	896.26	1,020	884.84	1,015	861.35	996	766.51	908	833.32	986	994.39	1,175	872.59	1,065	841.72	1,025	853.76	1,066
Uganda	Low	50.68	74	66.87	91	71.06	96	62.97	113	78.31	140	85.16	150	93.38	182	90.41	190	107.74	229	133.51	275	160.23	351	188.02	397	197.45	440	214.07	431	259.91	547	315.64	664	272.76	620	296.62	726	294.95	704
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	14.31	31	19.44	36	16.22	29	14.88	30	13.63	31	13.55	34	28.65	68	33.98	84	37.40	89	30.63	92	42.71	110	47.32	131	47.84	129	53.78	151	54.96	165	76.64	212	86.48	228	81.14	238	98.42	257
Zimbabwe	Low	100.34	134	73.84	98	50.96	82	44.41	79	43.38	77	42.87	84	56.81	99	41.06	82	31.96	81	22.21	69	41.90	96	40.07	93	46.10	102	50.12	103	62.73	152	63.01	140	71.49	170	79.18	198	79.80	197
Asia		51063.56	54,039	51834.36	54,656	56074.71	59,185	60567.18	64,943	67590.47	72,186	75441.53	80,821	78667.58	84,650	82192.55	88,796	88831.24	96,312	94394.62	102,829	100351.04	110,809	108925.51	120,529	118597.51	130,975	127782.57	140,458	139641.23	152,095	142715.86	156,124	150398.15	165,148	151746.09	167,534	155921.45	172,261
Afghanistan	Low	1.00	1	0.00	0	2.00	2	2.47	4	4.42	13	3.10	5	8.07	13	4.26	10	6.48	19	14.35	28	12.48	35	14.53	30	18.67	41	16.20	36	15.44	50	15.90	55	15.29	47	20.35	67	24.73	70
Bangladesh	Lower-middle	118.35	149	139.09	167	120.28	148	137.19	173	145.99	184	159.26	212	195.05	273	222.64	304	264.34	355	303.52	418	328.80	499	398.74	604	459.94	691	402.63	638	545.53	830	550.68	811	518.97	834	404.75	709	448.11	760

TABLE SSA-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	1.00	1	0.00	0	1.25	2	0.00	0	2.17	4	0.67	1	0.17	2	1.50	2	2.96	6	6.21	15	6.10	16	6.67	15	5.77	14	6.49	19	12.23	30	10.16	33	9.23	24
Brunei	High	4.17	5	2.08	3	2.00	2	3.67	6	3.33	10	10.27	16	8.91	17	8.16	20	18.01	34	13.05	20	20.17	30	42.08	51	42.58	60	49.32	71	58.54	80	47.85	68	33.64	59	40.36	54	29.15	60
Burma	Lower-middle	8.92	14	5.54	11	6.48	12	3.33	8	6.18	15	5.36	12	6.16	16	7.75	19	5.97	17	6.72	17	6.26	25	8.31	22	11.86	32	11.02	29	14.38	34	24.31	63	27.50	80	42.34	127	39.77	116
Cambodia	Lower-middle	4.94	9	4.84	13	8.13	20	5.77	16	19.13	43	11.79	31	17.47	41	22.99	58	20.48	48	23.21	58	24.11	62	30.28	71	31.79	85	33.84	89	33.01	87	47.10	130	59.67	158	46.05	142	52.30	152
China	Upper-middle	7603.59	8,274	8246.39	8,935	11345.32	12,144	14409.72	15,630	18192.61	19,613	23045.42	24,955	25392.20	27,632	27871.87	30,605	32191.39	35,365	34313.23	37,978	34684.26	39,590	36291.19	41,673	41458.85	47,294	50111.47	56,036	57389.31	62,944	60357.89	66,413	64658.47	71,595	67142.86	74,839	69223.13	76,788
India	Lower-middle	4256.52	4,500	4621.51	4,846	5108.36	5,360	5674.13	6,037	5857.26	6,295	6600.76	7,118	7489.05	8,079	8084.62	8,748	8729.46	9,494	10057.67	10,950	12079.36	13,253	14816.35	16,135	16896.42	18,334	17364.24	18,956	18364.35	20,130	18839.93	20,709	19954.36	22,138	19462.19	21,704	19064.00	21,462
Indonesia	Lower-middle	80.31	118	83.69	89	48.31	90	70.81	137	88.55	156	111.52	199	118.00	214	100.64	191	112.95	209	129.44	258	127.70	263	132.48	291	205.12	407	242.64	459	294.68	503	380.42	657	568.68	895	982.81	1,299	1838.03	2,311
Japan	High	30958.64	32,607	30091.05	31,552	30129.62	31,712	29575.13	31,661	30832.36	32,924	30752.96	32,992	29791.92	32,000	29414.88	31,719	28545.40	30,941	28895.29	31,362	29872.80	32,579	31864.23	34,767	31592.35	34,683	30096.95	33,156	31806.72	34,776	30383.73	33,562	30770.41	34,311	29643.23	33,391	30042.73	33,913
Kazakhstan	Upper-middle	3.66	7	6.57	8	7.63	14	17.98	33	15.33	28	5.78	15	12.74	30	10.50	18	11.41	26	5.28	17	7.27	17	8.88	19	19.42	38	42.72	76	75.30	135	102.04	158	118.07	201	135.26	244	190.25	292
Kyrgyzstan	Lower-middle	0.75	1	2.51	4	1.34	2	2.50	3	3.17	4	5.49	8	4.37	8	5.97	13	4.03	8	6.27	12	5.37	14	5.00	9	11.16	22	13.91	30	12.98	27	8.30	20	21.67	43	26.99	62	28.00	65
Laos	Lower-middle	5.15	12	4.43	10	4.74	8	6.75	13	9.08	22	7.42	20	12.24	30	15.25	35	13.10	38	7.70	19	15.10	38	15.16	39	18.54	57	20.96	59	14.73	47	26.99	77	25.79	84	22.55	62	24.19	77
Malaysia	Upper-middle	376.53	419	341.70	380	310.30	352	373.99	441	479.67	556	534.61	634	600.91	723	608.25	750	899.97	1,075	849.48	1,066	1043.71	1,326	1291.61	1,679	1613.51	2,102	1914.80	2,504	1977.17	2,608	2032.75	2,816	2223.63	3,051	2256.72	3,149	2472.42	3,465
Maldives	Upper-middle	0.00	0	1.00	1	0.00	0	0.25	1	1.00	1	1.71	6	3.50	4	0.57	2	0.14	1	1.18	3	0.77	2	1.17	4	1.38	4	3.23	5	2.31	4	1.36	4	0.91	3	1.06	6	2.76	13
Mongolia	Lower-middle	5.54	13	1.23	4	6.55	11	7.26	16	6.47	17	7.09	19	9.08	25	10.70	26	9.87	25	21.85	46	15.34	46	11.00	32	15.54	41	13.29	42	13.38	46	13.65	53	16.54	60	16.59	56	18.37	68
Nepal	Low	41.51	62	57.30	80	61.81	83	168.67	204	164.09	206	200.02	242	279.22	343	278.69	350	260.14	329	290.69	380	273.89	409	274.45	432	263.36	384	327.59	457	337.17	485	326.55	496	347.34	539	370.38	617	461.71	731
North Korea	Low	0.00	0	0.02	1	0.06	1	0.00	0	1.20	3	0.46	3	1.22	2	0.14	1	1.21	3	0.62	2	1.55	2	1.40	3	0.17	1	0.00	0	0.66	4	1.29	3	2.90	5	1.07	4	3.57	8
Pakistan	Lower-middle	448.77	484	586.10	621	634.16	679	634.55	701	687.96	775	898.74	1,004	872.03	981	971.91	1,079	1160.37	1,317	1404.22	1,647	1533.58	1,812	1855.41	2,126	1967.53	2,247	2094.12	2,447	2306.27	2,704	2283.67	2,757	2773.14	3,297	3110.97	3,758	3221.27	3,975
Papua New Guinea	Lower-middle	27.81	37	23.70	30	24.03	32	16.42	30	15.01	22	16.21	25	19.90	35	31.09	51	17.48	38	12.01	30	18.78	39	13.37	33	25.73	50	25.42	59	25.83	51	21.48	62	16.48	46	19.58	53	21.93	63
Philippines	Lower-middle	47.48	83	41.72	64	51.25	90	63.99	116	61.06	116	89.74	158	71.81	152	99.11	184	121.36	203	119.84	214	131.26	232	218.89	363	195.82	363	202.80	383	235.20	389	260.83	467	245.76	484	288.50	543	334.29	630
Singapore	High	763.34	903	737.91	889	802.21	969	858.47	1,104	1080.16	1,352	1115.99	1,417	1163.21	1,541	1134.94	1,550	1226.40	1,760	1240.30	1,837	1319.94	1,991	1421.34	2,227	1530.08	2,411	1671.55	2,707	1739.22	2,819	1933.76	3,171	2009.76	3,356	2008.12	3,465	2037.44	3,605
South Korea	High	2618.20	2,900	2817.28	3,117	3108.61	3,430	3927.39	4,417	4665.61	5,210	5725.66	6,398	6333.80	7,047	6936.66	7,702	8281.62	9,189	9562.69	10,558	11195.66	12,381	12056.10	13,419	13277.08	14,882	14178.87	15,814	14914.66	16,634	15454.82	17,459	16268.50	18,210	16577.64	18,546	16828.99	18,867
Sri Lanka	Lower-middle	70.94	83	78.92	96	98.57	117	93.10	122	96.44	125	107.99	155	96.80	145	118.72	171	146.00	205	166.86	235	165.55	242	197.17	287	200.29	310	213.52	311	241.06	325	236.86	366	267.79	416	302.92	446	314.09	458
Taiwan	High	2814.71	3,002	3101.32	3,306	3281.68	3,498	3605.75	3,953	4145.89	4,504	4637.44	5,021	4789.67	5,241	4907.34	5,414	5288.96	5,860	5386.17	5,986	5832.17	6,570	6225.93	6,963	6621.28	7,384	6787.51	7,669	6981.92	7,849	6943.46	7,943	6766.84	7,834	6298.33	7,450	6051.79	7,216
Tajikistan	Low	1.67	3	0.00	0	0.33	1	0.33	1	1.50	2	1.00	1	2.40	5	0.85	3	2.84	6	2.62	7	1.78	6	1.62	5	3.79	11	5.62	12	3.34	9	6.29	9	9.32	15	8.38	16	6.52	13
Thailand	Upper-middle	752.85	929	827.06	955	861.21	1,032	845.46	1,073	931.51	1,195	1319.30	1,618	1281.18	1,615	1243.11	1,598	1383.20	1,818	1457.31	1,951	1520.89	1,983	1606.92	2,228	1862.02	2,589	1778.75	2,486	2046.48	2,787	2018.77	2,887	2336.18	3,319	2234.53	3,292	2763.61	3,889
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	1.17	2	0.00	0	0.78	1	1.42	3	1.59	4	0.14	1	1.63	6	0.10	1	1.00	1	0.98	4	2.58	7	5.71	12	4.62	13	2.77	11	4.17	8	5.05	13
Turkmenistan	Upper-middle	0.37	2	0.40	1	0.75	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.67	1	0.00	0	0.60	1	0.92	2	0.00	0	0.00	0	0.04	1	0.00	0
Uzbekistan	Lower-middle	15.25	16	22.00	26	12.00	14	10.58	17	17.92	22	9.27	13	4.84	11	8.50	16	9.34	17	8.07	15	13.29	21	17.15	24	18.59	24	18.05	23	21.38	33	15.68	21	41.54	51	18.30	29	24.60	37
Vietnam	Lower-middle	32.10	71	28.99	56	35.98	73	50.35	114	56.35	119	56.40	140	78.26	187	70.21	157	92.80	196	91.86	207	95.15	238	96.83	232	127.56	322	128.86	312	157.84	345	168.39	416	194.02	462	248.88	570	339.40	736
Australia and Oceania		8647.44	9,979	8984.54	10,240	9091.73	10,488	9107.20	10,976	10002.98	12,141	10615.40	12,935	11611.60	14,259	12055.66	15,118	12747.89	16,157	13426.81	17,286	13981.06	18,279	15383.32	20,084	16361.25	21,437	17407.98	23,376	18304.53	24,912	19013.57	26,315	19248.85	27,207	19376.93	27,912	19592.92	28,858
Australia	High	7337.82	8,529	7730.28	8,875	7799.89	9,066	7853.11	9,532	8517.02	10,478	9060.15	11,137	9966.02	12,381	10372.39	13,134	11030.60	14,094	11578.00	15,104	12045.11	15,995	13212.29	17,534	14081.46	18,804	15258.04	20,732	16095.93	22,252	16768.83	23,550	17076.14	24,529	17095.69	25,044	17332.89	25,967
Cook Islands	Upper-middle	0.50	1	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.00	0	0.13	1	1.33	2	0.11	1	0.00	0	0.28	2	0.00	0	0.53	2	0.76	2
Fiji	Upper-middle	10.15	18	7.67	10	6.06	9	18.13	23	12.16	17	3.75	8	22.59	28	9.69	22	4.97	13	6.75	21	9.71	20	10.68	32	11.23	27	10.06	41	15.53	39	8.29	35	13.20	47	20.95	56	17.70	43
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.33	2	0.00	0	0.50	3	0.50	1	1.13	4	0.45	2

TABLE SSA-10

S&E articles in health sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	1.00	1	0.58	2	1.00	1	2.33	3	0.00	0	3.33	4	1.29	3	0.79	3	0.00	0	1.05	3	0.50	1	0.41	2	0.00	0	1.00	1	0.60	2	1.00	1	0.33	2	0.28	2	0.29	3
Micronesia, Federated States of	Lower-middle	2.00	2	0.00	0	0.00	0	0.53	3	0.20	1	3.63	5	0.00	0	1.82	7	0.27	2	0.38	3	6.62	14	0.44	3	0.42	2	1.03	3	0.77	2	1.12	5	1.64	12	3.01	17	0.14	12
Nauru	Upper-middle	0.00	0	0.33	1	0.00	0	0.00	0	0.23	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.74	3	0.50	1	0.34	2	0.33	2	0.33	2	0.25	1	0.00	0	0.00	0
New Zealand	High	1284.59	1,548	1237.69	1,464	1278.23	1,550	1224.52	1,625	1465.57	1,903	1531.24	2,065	1609.00	2,144	1662.56	2,328	1708.03	2,400	1836.53	2,624	1912.82	2,734	2147.53	3,044	2260.67	3,226	2130.48	3,299	2179.46	3,375	2220.58	3,530	2144.69	3,464	2241.42	3,739	2228.91	3,794
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.08	2	0.00	0	1.61	3	0.00	0	0.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	2.00	2	0.00	0	1.17	2	1.25	2	0.40	1	7.00	7	1.83	3	2.43	6	0.85	3	0.21	2	1.39	2	0.67	3	0.00	0	1.93	6	0.00	0	0.70	2	1.23	3	2.40	8	0.58	3
Samoa	Upper-middle	3.67	4	4.00	4	0.67	3	1.00	1	0.33	2	0.00	0	3.42	5	0.61	2	0.61	5	1.11	5	0.00	0	2.64	7	0.60	2	1.17	4	3.08	4	3.61	7	2.55	6	4.37	13	2.95	9
Solomon Islands	Lower-middle	1.72	5	1.23	2	0.13	1	0.20	1	1.48	4	0.33	1	0.77	2	1.23	5	0.98	4	1.04	2	2.47	10	3.36	8	3.05	8	0.93	5	3.43	10	5.45	16	6.25	24	3.48	13	6.97	26
Tonga	Upper-middle	2.00	2	0.75	2	0.50	1	0.57	3	2.10	3	0.14	1	3.20	4	1.14	4	0.39	3	1.50	5	0.22	1	1.21	8	0.77	3	1.09	4	0.48	3	0.25	3	0.24	3	1.92	6	0.31	3
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.99	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	1	0.00	0	0.38	2	0.09	1	0.00	0	0.40	1	0.14	1
Vanuatu	Lower-middle	2.00	3	2.00	2	3.75	4	5.56	8	3.50	4	4.75	6	2.50	3	0.94	3	1.20	2	0.23	2	2.22	6	3.22	9	0.18	1	1.46	8	4.55	15	2.53	8	1.82	5	1.36	6	0.83	6
Unassigned	na	3365.86	7,467	2051.84	4,848	2096.17	4,879	5635.25	11,658	3671.25	8,675	3817.44	8,865	3991.88	9,213	4523.20	10,297	4506.93	10,784	4363.97	9,433	6723.46	12,295	6666.48	11,997	6299.98	11,171	3520.38	6,947	1865.99	4,732	1374.44	4,184	2287.45	6,413	2679.90	8,515	3075.27	10,889

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		29985.00	29985	36495.00	36,495	34392.00	34,392	36398.00	36,398	41685.00	41,685	47890.00	47,890	49697.00	49,697	53265.00	53,265	55105.00	55,105	56018.00	56,018	56915.00	56,915	60571.00	60,571	61455.00	61,455	64131.00	64,131	69761.00	69,761	71017.00	71,017	78387.00	78,387	87932.00	87,932	107082.00	107,082
North America		6353.81	7,154	6653.58	7,410	6253.39	7,178	6550.37	7,595	6674.03	7,801	7852.66	9,193	7552.25	8,968	7442.15	8,834	7521.77	8,924	7044.79	8,396	7462.62	8,861	7295.32	8,771	7296.86	8,881	7462.33	9,281	7148.68	9,104	7014.74	9,213	6700.50	9,101	7163.11	9,711	6797.08	9,544
Canada	High	467.69	564	518.58	622	457.47	585	523.87	681	618.46	810	766.70	993	766.09	991	862.97	1,108	890.81	1,140	907.73	1,159	864.70	1,099	1017.24	1,269	974.64	1,255	1131.78	1,441	949.60	1,276	963.95	1,314	922.76	1,308	903.39	1,328	901.45	1,344
Greenland	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mexico	Upper-middle	119.75	151	165.60	208	166.34	207	198.45	256	180.80	234	187.18	244	250.21	311	260.11	330	268.00	323	285.11	344	465.27	539	297.06	359	444.91	523	429.35	519	425.46	520	367.51	434	381.51	487	383.76	497	398.83	494
United States	High	5766.37	6,512	5969.40	6,670	5629.58	6,494	5828.06	6,817	5874.77	6,900	6898.78	8,139	6535.95	7,843	6319.06	7,583	6362.96	7,657	5851.95	7,063	6132.64	7,421	5981.02	7,333	5877.32	7,291	5901.20	7,519	5773.62	7,531	5683.29	7,634	5396.23	7,526	5875.96	8,143	5496.80	7,932
Central America and Caribbean		39.05	56	37.26	54	43.68	57	43.38	65	26.15	43	44.76	65	32.32	49	30.39	49	43.92	71	44.87	76	52.13	78	32.85	51	46.50	77	31.58	61	43.40	68	34.48	62	28.28	62	14.59	42	24.78	57
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Bahamas, The	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Barbados	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	2	0.00	0	0.00	0	0.33	2	0.00	0	0.50	1
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Costa Rica	Upper-middle	1.00	1	0.50	1	0.00	0	0.67	2	1.17	2	0.00	0	0.60	1	2.75	3	0.07	1	2.00	2	0.17	1	0.00	0	0.00	0	3.58	5	0.06	1	1.50	3	3.87	6	1.45	3	1.19	2
Cuba	Upper-middle	11.06	19	15.31	26	17.35	25	14.70	30	10.05	19	14.54	29	10.08	19	7.84	15	11.31	26	17.77	36	15.51	27	7.64	14	11.22	26	7.15	21	6.16	12	10.88	29	14.34	35	6.50	20	7.97	26
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	0.20	1	0.73	2	1.22	5	0.53	2	0.79	3	0.37	2	1.07	4	0.83	3	0.39	2
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	1.00	1	0.57	1	0.00	0	0.00	0
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Guatemala	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	1	0.00	0	0.00	0	0.00	0	0.14	1
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Honduras	Lower-middle	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Jamaica	Upper-middle	0.00	0	0.00	0	0.63	1	0.00	0	0.00	0	2.00	3	1.00	1	0.50	1	2.50	3	0.70	2	0.00	0	1.33	2	2.00	4	0.50	1	0.25	1	0.00	0	0.20	1	0.42	3	3.39	8
Nicaragua	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.50	2	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Panama	High	1.17	2	0.00	0	0.00	0	0.08	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	3.67	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Puerto Rico	High	23.82	33	20.44	25	19.37	24	27.61	33	13.01	18	26.39	30	20.63	28	18.27	26	29.44	39	19.92	28	32.21	43	19.65	28	27.43	35	19.40	30	30.37	43	20.73	27	6.90	12	5.38	13	8.28	15
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	2.00	2	1.00	2	6.00	6	0.33	1	1.58	3	1.83	3	0.00	0	0.93	3	0.50	1	2.83	4	2.67	3	3.00	3	0.46	2	0.00	0	5.53	7	0.00	0	1.00	1	0.00	0	2.92	5
South America		384.26	467	556.54	658	516.82	601	916.92	1,059	536.46	661	728.27	865	809.27	951	813.99	961	1081.79	1,268	969.05	1,137	1650.82	1,852	932.10	1,116	1499.75	1,706	1182.94	1,393	1766.03	2,020	1526.38	1,766	1518.40	1,791	1784.60	2,098	1717.32	2,016
Argentina	High	99.13	119	89.26	113	91.63	114	91.82	119	92.31	124	99.82	132	104.07	144	95.90	125	139.47	194	111.57	161	151.32	191	121.33	160	164.07	206	117.56	157	165.23	220	139.19	191	144.83	196	145.08	186	258.94	316
Bolivia	Lower-middle	0.00	0	1.13	2	0.24	2	0.25	1	0.36	2	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.81	3	0.17	1	0.33	1	0.40	1	0.00	1	0.25	1
Brazil	Upper-middle	238.03	292	384.40	443	370.80	426	735.27	845	391.84	476	555.52	643	645.61	740	634.17	718	846.53	962	726.55	822	1368.17	1,489	674.61	788	1175.39	1,309	892.91	1,029	1367.72	1,522	1227.72	1,391	1159.16	1,345	1433.21	1,661	1206.27	1,413
Chile	High	16.58	23	25.66	29	23.19	29	34.32	41	25.58	32	25.86	39	23.28	34	29.73	42	36.63	52	43.67	62	35.05	57	31.89	45	38.87	64	36.08	52	44.93	64	40.60	67	47.12	86	68.64	113	68.36	110
Colombia	Upper-middle	5.50	7	10.66	16	6.21	13	17.68	26	9.10	15	11.77	19	12.55	23	15.03	36	40.59	60	51.18	77	65.60	97	50.99	82	74.30	115	104.54	149	118.08	166	82.04	113	126.63	158	98.95	136	139.54	186

TABLE SSA-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	2.46	4	6.08	7	0.25	1	2.83	4	1.45	3	0.23	2	0.00	0	2.70	4	0.00	0	0.25	1	0.00	0	0.83	2	0.00	0	0.00	0	3.51	12	4.91	11	11.25	22	9.04	19	15.76	26
Guyana	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Paraguay	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.60	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Peru	Upper-middle	1.00	1	1.33	3	1.33	2	2.14	7	1.97	6	0.95	5	1.14	4	3.03	8	0.96	5	1.65	4	3.40	10	1.23	4	4.36	9	2.05	7	5.55	13	9.64	16	9.49	16	10.18	17	9.63	17
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Uruguay	High	2.10	4	1.58	3	0.67	1	2.27	5	0.00	0	5.17	6	1.17	2	0.58	2	0.37	2	0.64	3	2.00	2	3.25	6	4.68	9	3.05	6	4.19	6	7.51	12	7.69	14	4.51	7	7.44	14
Venezuela	Upper-middle	19.46	26	36.42	48	22.52	27	30.34	39	13.86	20	28.71	40	21.45	33	32.84	48	17.09	28	33.55	42	24.77	34	47.98	60	37.48	43	25.96	38	56.66	72	14.43	22	11.83	20	14.80	25	11.13	20
Europe		10534.73	11,483	13513.67	14,542	12134.34	13,292	12223.59	13,748	13729.62	15,441	13512.27	15,089	12670.54	14,051	13323.61	14,735	14765.91	16,273	14871.21	16,420	13714.04	15,283	14918.82	16,638	16297.36	18,115	16450.87	18,417	18493.20	20,689	18902.20	21,198	22132.84	24,590	23302.38	26,193	27401.01	30,618
EU		7841.64	8,792	9906.84	10,986	8312.27	9,440	9021.97	10,350	10147.69	11,662	10194.57	11,634	9558.27	11,455	10432.37	11,948	11624.94	13,253	11425.90	13,125	10503.74	12,187	11238.23	13,104	12412.08	14,364	12524.06	14,644	14009.45	16,357	13914.76	16,403	14762.27	17,412	15630.51	18,743	15902.59	19,265
Austria	High	143.15	207	159.07	223	181.88	246	183.60	278	197.72	303	260.09	376	266.21	371	251.07	378	334.05	480	282.18	376	285.86	396	280.60	390	285.93	404	259.88	401	330.85	471	379.08	559	370.55	577	386.57	608	341.15	550
Belgium	High	144.51	197	232.83	277	162.53	225	161.90	246	211.27	307	172.89	270	197.59	311	280.90	402	273.83	400	284.37	397	219.25	359	230.13	365	312.48	469	255.33	403	298.16	459	302.96	499	286.43	465	273.17	459	285.70	514
Bulgaria	Upper-middle	37.50	58	57.03	76	47.89	63	40.97	67	58.55	83	65.65	91	41.09	60	67.68	105	53.60	74	76.77	111	52.99	78	77.62	99	75.39	104	117.26	151	98.02	131	92.65	128	102.28	140	129.39	172	219.03	275
Croatia	High	28.23	35	29.77	35	45.22	50	34.90	47	54.12	70	47.83	62	34.55	51	48.88	69	101.54	128	81.04	99	68.98	91	80.37	101	97.11	129	104.86	128	95.38	131	65.52	90	84.24	125	93.64	119	107.83	136
Cyprus	High	0.17	1	1.17	2	0.50	1	0.00	0	1.00	2	0.40	2	3.85	8	1.33	3	2.84	8	7.20	17	2.64	6	3.52	7	5.35	8	5.28	12	4.16	8	5.13	9	6.05	12	4.48	11	8.01	19
Czechia	High	138.77	183	230.01	280	191.59	234	187.83	243	228.82	316	293.98	389	214.27	296	263.06	368	421.33	539	462.59	575	500.06	603	515.06	645	731.17	875	733.73	874	1049.50	1,257	1081.00	1,287	1355.77	1,566	1284.18	1,515	1373.67	1,638
Denmark	High	81.33	125	85.24	117	77.12	118	84.81	111	105.94	157	118.48	161	100.24	142	135.74	189	128.21	184	160.57	216	125.85	178	136.54	200	170.74	230	196.82	280	165.65	242	185.24	272	136.36	219	167.11	263	131.99	208
Estonia	High	9.92	12	16.91	21	11.14	12	15.19	20	12.32	17	24.95	29	25.30	29	37.59	44	45.61	57	50.69	67	50.39	72	67.78	86	71.45	98	64.57	80	48.90	72	44.72	66	53.02	84	39.11	60	29.36	56
Finland	High	108.01	127	236.69	257	163.23	185	161.45	192	214.12	263	126.73	160	155.13	193	123.74	167	129.58	181	188.26	242	132.72	190	156.40	206	140.50	206	165.40	246	174.68	257	150.54	226	169.91	262	165.28	251	180.79	299
France	High	1118.58	1,442	1473.17	1,817	1085.05	1,396	1174.05	1,627	1309.46	1,800	1328.39	1,839	1337.93	1,857	1299.19	1,838	1691.21	2,272	1702.15	2,361	1476.87	2,083	1479.43	2,152	1691.22	2,376	1707.56	2,407	1643.25	2,409	1562.05	2,311	1423.35	2,161	1418.31	2,289	1361.22	2,193
Germany	High	2100.48	2,579	2576.77	3,175	2377.00	2,988	2713.34	3,459	2676.91	3,470	2905.09	3,600	2881.44	3,584	2933.84	3,676	2920.93	3,666	2434.82	3,129	2129.15	2,833	2321.09	3,072	2349.24	3,106	2272.75	3,107	2460.77	3,297	2665.57	3,595	2575.30	3,539	2647.08	3,691	2525.47	3,655
Greece	High	79.55	109	109.79	134	78.84	103	102.13	134	88.12	124	137.50	180	122.10	173	148.67	204	152.59	205	185.79	265	147.10	203	152.49	212	241.87	307	178.95	230	187.22	249	166.09	229	262.97	339	170.73	212	262.10	362
Hungary	High	90.76	128	119.82	146	75.06	96	140.33	179	111.91	160	179.28	217	103.61	144	177.94	221	178.21	226	98.70	141	190.69	237	124.96	172	130.48	188	250.18	305	150.54	207	160.38	213	121.14	198	166.36	235	235.14	310
Ireland	High	33.78	44	63.13	77	56.36	69	57.78	79	87.06	116	68.99	92	47.94	68	71.05	93	66.94	90	66.53	84	64.33	99	73.05	103	91.43	133	84.50	129	76.13	120	68.09	105	76.40	121	72.06	117	67.30	125
Italy	High	509.31	614	621.57	755	450.63	547	518.67	645	632.23	800	540.63	696	550.37	717	718.95	900	833.33	1,021	839.50	1,055	753.05	971	799.54	1,037	838.78	1,073	948.54	1,220	1028.63	1,346	1098.34	1,410	1056.50	1,395	1253.83	1,635	1258.29	1,666
Latvia	High	26.77	34	23.75	31	35.48	43	30.04	38	36.07	51	27.59	39	25.72	35	29.32	39	47.11	57	27.56	35	25.22	34	108.97	120	97.64	119	91.93	115	81.57	100	103.83	123	79.97	97	167.65	202	136.83	168
Lithuania	High	22.58	33	27.89	32	53.44	61	35.60	45	37.68	51	48.76	63	47.89	61	33.91	41	66.58	73	44.90	58	35.65	47	54.18	65	40.18	50	43.69	56	57.76	75	53.87	71	58.77	68	59.27	79	67.95	98
Luxembourg	High	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	4.75	6	5.58	9	2.52	6	2.50	6	6.82	16	4.88	13	13.01	28	14.41	26	21.45	32	10.23	23	13.48	26	15.03	28	10.51	24	9.13	22
Malta	High	1.00	1	0.00	0	0.00	0	1.00	1	0.50	1	0.20	1	2.40	4	1.00	1	2.00	2	4.00	4	4.51	8	3.20	4	1.40	2	3.10	4	3.38	5	4.57	6	1.63	3	2.05	4	11.43	19
Netherlands	High	253.84	331	302.19	382	227.91	292	258.86	350	252.43	360	269.24	367	264.65	383	295.80	422	285.36	410	323.71	447	256.00	383	247.20	363	268.48	411	242.01	376	225.82	365	257.00	423	227.69	405	234.66	452	214.73	405
Poland	High	376.46	474	559.24	684	373.23	474	475.54	597	631.08	789	676.81	833	507.96	629	543.98	698	556.10	712	723.43	855	625.81	761	813.84	966	1001.52	1,144	1010.13	1,198	1325.49	1,547	1189.47	1,431	1619.10	1,868	1800.30	2,104	2271.96	2,610
Portugal	High	133.40	176	187.97	230	265.70	295	183.24	247	332.82	408	205.22	273	434.41	540	201.01	275	383.58	491	258.86	358	337.55	442	234.32	327	293.66	395	422.61	554	327.68	431	325.46	451	342.57	471	350.04	500	325.35	489
Romania	Upper-middle	101.16	123	148.91	179	130.34	153	105.45	134	123.39	168	126.73	164	87.49	133	198.95	249	191.91	237	209.14	255	274.92	327	308.26	360	282.69	345	270.81	327	496.25	583	503.42	605	745.27	843	1114.32	1,230	950.24	1,065
Slovakia	High	93.06	125	121.58	148	89.96	107	125.89	157	144.53	187	161.84	207	124.48	162	156.98	214	195.40	250	185.32	236	211.61	262	284.16	356	234.94	297	266.86	336	454.63	555	428.22	529	497.64	634	529.96	687	549.08	695
Slovenia	High	86.07	101	122.43	137	96.76	114	85.26	102	119.68	141	114.01	136	116.43	146	173.30	224	178.04	234	152.49	199	144.44	191	197.87	253	173.86	241	148.36	207	150.95	204	130.45	182	143.16	207	127.69	196	122.00	184

TABLE SSA-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	389.83	500	657.85	787	505.65	625	600.21	746	731.32	912	711.38	908	659.72	849	721.18	906	782.53	1,022	812.12	1,068	867.51	1,125	815.31	1,061	965.86	1,275	859.56	1,174	1132.72	1,484	857.13	1,223	974.73	1,375	879.41	1,317	947.16	1,420
Sweden	High	349.98	430	385.58	461	286.97	347	280.90	373	374.49	490	353.38	471	294.35	419	274.91	405	284.12	407	349.48	494	287.62	417	319.10	463	359.91	533	410.89	604	427.21	650	429.49	642	432.13	698	401.88	673	382.35	646
United Kingdom	High	1382.64	1,664	1359.48	1,636	1241.19	1,545	1263.04	1,633	1373.15	1,799	1223.80	1,668	1305.13	1,766	1239.89	1,693	1315.92	1,799	1409.89	1,924	1228.09	1,738	1340.20	1,888	1444.40	2,055	1387.04	2,044	1503.97	2,281	1591.01	2,440	1544.28	2,380	1681.47	2,697	1521.32	2,638
Other Europe		2693.91	3,136	3606.84	4,007	3822.07	4,265	3201.63	3,860	3581.93	4,363	3317.70	4,037	2712.26	3,271	2891.24	3,434	3140.96	3,726	3445.30	4,017	3210.29	3,732	3680.59	4,298	3885.28	4,531	3926.80	4,618	4483.74	5,281	4987.44	5,839	7370.57	8,252	7671.87	8,702	11498.42	12,682
Albania	Upper-middle	0.83	2	0.20	1	1.00	1	0.67	1	0.25	1	0.00	0	0.65	3	1.00	1	0.49	2	2.33	3	1.90	3	0.43	3	1.17	3	1.58	6	1.50	3	2.18	3	1.21	3	2.23	6	3.85	9
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	59.59	78	57.61	72	94.08	120	74.47	113	81.68	139	76.15	99	44.27	71	56.39	71	51.20	66	54.53	64	45.60	63	47.13	69	47.67	67	59.17	80	61.98	86	54.71	84	62.67	100	70.26	117	78.31	140
Bosnia and Herzegovina	Upper-middle	0.50	1	0.00	0	2.00	4	0.33	1	4.69	8	3.98	7	2.67	5	3.22	9	2.17	7	6.32	9	4.53	8	7.94	13	8.20	18	4.18	12	7.46	14	8.25	14	21.20	32	29.70	44	44.65	59
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Iceland	High	0.00	0	0.75	2	0.14	1	2.80	4	1.00	3	2.50	4	0.67	2	2.70	7	1.58	3	6.25	9	2.93	5	12.25	16	6.00	13	3.42	6	5.03	10	2.88	6	3.20	8	10.33	19	9.00	14
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	2	1.72	4	5.04	10	6.85	15	5.19	12	5.75	15	4.41	8	4.10	8	2.83	9	18.70	24	18.52	27
Liechtenstein	High	1.00	1	1.79	3	0.00	0	1.37	4	0.50	1	3.14	6	3.57	6	5.03	8	3.06	10	3.00	4	1.95	4	2.20	5	1.67	2	0.00	0	1.50	5	3.17	11	3.51	6	2.14	5	2.30	9
Moldova	Lower-middle	4.36	6	4.58	7	7.37	12	5.52	9	5.85	8	7.95	13	1.76	6	4.71	12	6.83	15	4.23	11	7.32	15	4.79	10	2.45	8	2.87	11	3.38	10	8.12	18	7.81	11	11.73	21	18.74	34
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.58	4	4.33	6	5.00	6	5.45	8	1.83	3	3.65	8	2.57	8	3.90	9	2.33	3	9.38	15	3.79	8	7.12	9
North Macedonia	Upper-middle	1.08	2	5.20	6	3.13	4	3.55	4	5.67	7	3.42	5	4.63	6	6.00	9	6.33	7	5.57	8	3.36	4	6.81	9	6.00	7	1.95	3	8.43	12	5.26	8	8.59	15	13.48	17	10.37	14
Norway	High	103.41	127	103.58	129	101.72	125	90.33	123	101.42	139	128.55	174	139.20	182	138.54	185	119.15	165	147.22	196	149.46	194	133.76	194	211.17	278	179.50	233	213.79	309	166.40	250	154.66	254	203.38	328	164.98	306
Russia	Upper-middle	1449.12	1,682	2018.94	2,216	2283.26	2,510	1833.09	2,186	1777.32	2,177	1635.25	1,998	1153.48	1,383	1148.02	1,357	1425.35	1,635	1516.25	1,713	1500.09	1,692	1758.16	1,964	1871.98	2,085	1813.84	2,073	2231.37	2,519	2078.19	3,231	5021.70	5,447	5106.47	5,547	8750.33	9,322
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.29	2
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	165.67	205	103.29	136	156.57	184	118.44	151	150.19	186	174.80	212	204.62	251	184.80	231	167.45	206	191.38	233	150.76	196	175.43	222
Serbia and Montenegro[b]	Lower-middle	78.30	88	44.40	56	77.61	87	42.04	59	114.29	142	124.81	154	140.72	180	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	185.93	257	252.33	340	224.13	300	192.87	287	282.30	396	291.36	415	225.59	459	320.89	442	323.66	467	320.99	483	253.26	375	270.69	437	257.75	421	279.24	447	291.29	480	332.42	550	283.67	469	317.96	547	259.21	461
Turkey	Upper-middle	119.30	149	183.77	211	293.11	326	275.01	308	568.87	621	391.89	442	456.49	507	627.99	693	619.28	696	730.75	814	717.92	806	745.62	839	789.64	915	872.50	995	933.62	1,064	858.31	1,004	1036.50	1,172	1091.52	1,249	1000.74	1,175
Ukraine	Lower-middle	689.67	787	933.68	1,021	734.53	824	681.60	819	638.09	790	648.71	797	438.64	527	413.16	512	473.81	576	484.58	585	392.44	469	531.95	637	487.94	589	495.61	607	531.10	653	493.55	617	562.27	699	639.41	775	954.58	1,138
Middle East		208.54	264	311.94	380	307.39	365	325.93	427	376.81	468	426.11	525	493.71	605	648.85	778	944.53	1,087	1145.32	1,330	1410.78	1,657	1700.21	2,026	1779.43	2,188	1863.03	2,381	2077.59	2,739	2082.88	2,802	2387.20	3,161	2542.95	3,395	3535.74	4,582
Armenia	Upper-middle	3.83	5	7.27	9	17.75	18	9.67	11	8.32	11	19.79	25	13.67	16	8.83	11	10.80	13	5.03	9	8.28	11	11.42	14	9.45	12	8.56	15	8.80	9	5.17	8	10.88	16	10.33	14	12.41	19
Azerbaijan	Upper-middle	2.50	4	1.33	2	7.50	8	8.58	17	4.17	9	9.42	13	7.90	12	5.83	8	5.90	10	13.72	19	21.17	27	16.33	22	13.88	17	12.73	18	12.21	18	14.92	24	21.96	30	23.69	33	26.59	36
Bahrain	High	0.00	0	3.00	3	2.25	3	3.83	5	4.03	6	4.00	4	4.33	5	9.83	11	5.50	7	9.21	10	8.83	11	10.85	14	10.03	12	6.85	12	8.01	19	4.03	8	6.48	14	8.66	15	12.78	27
Gaza Strip[c]	Lower-middle	0.00	0	0.00	0	0.00	0	0.86	2	0.00	0	1.50	2	3.00	3	1.73	3	0.00	0	0.00	0	0.00	0	0.45	2	1.20	3	2.58	4	3.96	8	0.80	1	3.37	6	1.51	4	4.50	6
Georgia	Lower-middle	1.53	3	6.27	9	4.11	5	4.74	8	5.40	9	6.93	9	7.13	9	9.88	12	8.21	10	8.72	11	5.30	6	7.81	9	8.67	10	7.29	8	11.43	13	3.80	5	5.38	6	3.94	5	10.69	14
Iran	Upper-middle	32.33	39	63.17	72	82.88	93	108.07	130	179.29	205	166.25	188	239.41	275	380.42	421	646.77	697	814.56	875	1029.87	1,107	1226.34	1,320	1241.22	1,352	1300.19	1,447	1451.38	1,616	1424.11	1,608	1611.42	1,799	1653.11	1,877	1663.39	1,876
Iraq	Lower-middle	1.50	2	0.25	1	0.00	0	0.75	1	1.00	1	6.50	9	4.50	5	2.75	4	12.38	16	11.67	16	16.83	21	23.56	30	33.10	59	33.61	68	40.05	85	60.25	125	112.98	224	938.30	1,121		
Israel	High	110.17	145	149.89	186	126.83	158	124.03	165	97.02	126	143.85	183	120.62	154	125.03	166	134.87	170	108.41	144	120.91	157	104.96	137	113.51	152	96.46	123	108.16	145	93.38	136	134.39	185	142.54	195	123.41	194
Jordan	Upper-middle	8.75	11	14.25	17	10.54	14	7.96	13	8.63	12	14.41	19	16.67	20	14.54	18	19.92	25	18.45	22	32.46	44	36.05	49	31.98	43	39.50	49	24.75	40	38.46	60	45.49	63	39.35	64	89.26	123

TABLE SSA-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	8.00	8	10.17	11	5.13	6	9.13	10	7.33	10	5.00	8	12.07	14	17.03	21	12.70	21	17.56	23	15.18	18	16.34	29	12.53	18	20.88	25	12.30	19	23.62	33	16.46	26	21.61	35	17.66	31
Lebanon	Upper-middle	0.33	1	1.53	3	1.00	2	2.39	5	1.82	3	2.17	3	3.13	7	6.14	13	3.88	7	6.14	13	7.00	19	13.30	23	9.21	18	13.18	24	19.54	30	11.54	30	15.34	38	16.98	30	28.05	53
Oman	High	2.00	2	1.00	1	6.25	7	3.54	6	4.58	6	6.12	9	4.58	10	6.37	9	17.13	24	11.18	18	9.40	14	10.21	18	14.43	20	8.00	13	9.85	19	13.40	32	14.74	32	24.50	45	33.41	69
Qatar	High	0.33	1	3.17	4	0.00	0	0.25	1	3.92	5	0.25	1	2.00	2	0.25	2	4.25	8	3.40	6	2.38	4	11.88	19	14.11	30	16.54	35	31.30	87	32.21	89	36.02	83	49.07	96	60.06	117
Saudi Arabia	High	28.92	34	39.56	48	31.48	38	34.95	45	45.09	54	31.23	42	40.56	53	47.39	61	59.22	78	93.27	131	113.49	190	174.34	301	214.47	400	244.79	483	270.88	560	294.77	605	301.06	627	298.22	600	353.19	722
Syria	Low	0.00	0	0.75	2	0.00	0	0.25	1	0.80	5	0.67	2	2.00	3	1.87	4	1.60	4	1.65	4	3.00	3	6.70	8	10.27	13	1.58	3	2.46	5	5.58	7	3.33	6	9.95	14	7.30	10
United Arab Emirates	High	4.33	6	9.33	12	10.17	13	6.42	11	4.91	8	12.33	19	7.45	11	8.23	14	10.44	16	21.08	35	17.74	32	30.59	49	46.28	66	46.61	77	60.51	99	73.06	122	97.10	168	120.69	215	144.15	259
West Bank[c]	Lower-middle	3.50	4	0.00	0	1.00	2	0.52	2	0.50	1	0.96	3	2.43	4	0.50	2	0.58	2	0.25	1	2.42	6	4.25	5	1.78	5	0.95	4	6.25	11	2.93	9	1.56	6	2.83	5	4.73	13
Yemen	Low	0.50	1	1.00	1	0.50	1	0.00	0	0.00	0	0.25	1	0.25	2	0.46	2	0.00	0	0.33	1	1.68	6	1.56	4	2.84	6	3.25	11	2.20	9	1.05	5	1.97	10	2.98	16	3.85	18
Africa		272.51	339	434.80	522	346.72	426	411.78	523	445.23	560	428.06	554	464.10	569	479.30	629	591.80	761	793.30	1,017	766.56	996	708.60	954	886.23	1,229	903.00	1,266	1047.41	1,492	965.07	1,356	1105.86	1,577	1282.80	1,809	1882.12	2,506
Algeria	Upper-middle	25.28	34	34.09	43	25.08	38	38.37	51	61.26	85	46.55	73	73.92	97	78.27	107	106.02	141	178.02	230	143.24	195	128.44	170	168.35	232	199.38	262	214.74	292	161.18	219	195.22	255	190.13	254	311.19	398
Angola	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.58	2	0.00	0	0.00	0	0.00	0	0.00	0
Benin	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.20	1	0.00	0	0.00	0	0.70	2	0.25	2
Botswana	Upper-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	1.17	2	0.00	0	0.33	1	0.00	0	1.00	3	2.00	2	1.25	2	0.00	0	1.83	3	2.25	4	9.77	13	7.93	12	7.48	15
Burkina Faso	Low	0.00	0	0.67	1	0.00	0	1.17	2	0.22	2	0.38	2	1.21	4	1.47	3	0.00	0	0.72	2	1.17	3	0.00	0	7.85	10	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.20	1
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.42	2
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0
Cameroon	Lower-middle	0.00	0	1.00	1	0.00	0	0.00	0	2.58	4	4.27	5	2.55	4	2.15	6	3.92	8	2.64	7	1.96	4	4.04	9	2.80	4	3.78	6	7.80	11	6.65	11	7.50	13	6.96	13	10.56	17
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.20	1	0.83	1	0.00	0
Chad	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.19	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.45	2	0.42	2
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.75	1
Congo, Republic of the	Lower-middle	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.60	1	0.00	0	0.00	0	0.00	0	0.00	0	0.11	2	0.00	0	0.00	0	2.00	2	0.00	0
Côte d'Ivoire	Lower-middle	0.00	0	0.67	1	0.00	0	1.83	3	0.00	0	0.25	1	0.11	1	0.67	1	1.33	3	1.10	3	0.00	0	0.20	1	1.25	2	0.38	1	0.25	1	1.23	4	0.33	2	1.67	8	1.68	5
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Egypt	Lower-middle	132.33	145	246.04	267	204.46	235	228.94	262	230.84	270	225.83	257	199.17	225	236.12	288	259.47	312	315.06	380	299.95	385	280.61	375	289.79	425	320.83	491	312.74	491	289.75	460	310.56	489	347.28	526	390.24	594
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.24	2	0.73	3
Eswatini	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	2	1.00	1	0.00	0
Ethiopia	Low	0.00	0	0.07	1	1.25	2	0.00	0	0.00	0	0.42	2	0.00	0	1.29	2	1.33	2	0.00	0	0.00	0	1.42	2	0.33	1	0.00	0	6.45	16	5.20	14	10.12	23	15.31	28	24.55	50
Gabon	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.33	2	0.00	0	0.00	0
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Ghana	Lower-middle	0.00	0	1.00	1	3.00	3	2.00	2	1.25	2	2.00	2	2.00	2	0.00	0	3.93	5	3.89	5	2.50	3	2.00	4	2.46	4	4.07	8	4.36	10	5.05	8	6.49	13	4.80	8	8.53	16
Guinea	Low	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.20	1

TABLE S5A-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002
		Fractional count	Whole count	Fractional count	Whole count	Fractional count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00
Kenya	Lower-middle	1.40	2	0.00	0	0.00
Lesotho	Lower-middle	0.00	0	0.00	0	0.00
Liberia	Low	0.00	0	0.00	0	0.00
Libya	Upper-middle	2.00	2	0.00	0	0.33
Madagascar	Low	0.33	1	0.00	0	0.00
Malawi	Low	0.00	0	0.00	0	0.00
Mali	Low	0.00	0	0.00	0	0.00
Mauritania	Lower-middle	0.00	0	0.00	0	0.00
Mauritius	Upper-middle	0.17	1	0.00	0	0.00
Morocco	Lower-middle	49.02	75	55.19	84	29.66
Mozambique	Low	0.00	0	0.17	1	0.00
Namibia	Upper-middle	0.00	0	0.00	0	0.00
Niger	Low	0.17	1	0.00	0	0.00
Nigeria	Lower-middle	8.00	8	11.75	13	15.00
Rwanda	Low	0.00	0	0.00	0	0.00
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00
Senegal	Low	1.00	1	1.33	2	0.00
Seychelles	High	0.00	0	0.00	0	0.00
Sierra Leone	Low	1.00	1	0.00	0	0.00
Somalia	Low	0.00	0	0.00	0	0.00
South Africa	Upper-middle	32.31	42	52.94	66	50.60
South Sudan	Low	0.00	0	0.00	0	0.00
Sudan	Lower-middle	0.00	0	0.00	0	1.17
Tanzania	Low	1.00	1	0.33	1	0.00
Togo	Low	0.00	0	0.67	2	0.00
Tunisia	Lower-middle	17.51	24	25.68	37	15.17
Uganda	Low	0.00	0	1.00	1	0.00
Western Sahara	na	0.00	0	0.00	0	0.00
Zambia	Lower-middle	0.00	0	0.00	0	0.00
Zimbabwe	Low	1.00	1	1.00	1	0.00
Asia		11617.93	12,253	14257.89	14,793	13954.35
Afghanistan	Low	0.00	0	0.00	0	0.00
Bangladesh	Lower-middle	10.27	17	10.23	12	6.25

	2003		2004		2005		2006		2007	
Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0	2.50	3	0.40	2	0.25	1	2.13	3	1.25	2
0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1	1.20	2	6.83	9	3.43	5	1.00	1	2.75	6
0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0
0	0.00	0	0.00	0	0.00	0	0.00	0	0.57	2
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0	0.20	1	0.50	1	0.00	0	0.00	0	0.00	0
0	0.00	0	0.50	1	1.00	1	1.33	2	2.00	2
42	38.15	55	44.48	62	33.57	59	26.68	38	28.62	48
0	0.33	2	0.00	0	0.00	0	0.00	0	0.63	2
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0	0.50	1	0.00	0	0.68	2	0.00	0	0.00	0
15	17.63	20	17.25	18	16.43	20	25.63	28	19.70	28
0	0.00	0	0.00	0	0.00	0	0.58	2	0.00	0
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0	0.33	1	0.00	0	0.00	0	1.71	3	0.38	1
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
63	36.31	57	34.14	46	39.20	55	60.72	76	39.38	53
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2	2.00	2	0.00	0	0.00	0	0.11	1	0.00	0
0	0.00	0	0.00	0	0.00	0	3.17	5	0.75	1
0	0.25	1	0.00	0	0.00	0	0.00	0	0.33	1
25	38.81	58	40.88	56	52.23	70	59.20	77	60.29	82
0	1.00	1	2.00	2	0.67	1	0.83	2	1.00	3
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0
0	0.00	0	1.83	4	0.40	1	0.08	1	0.20	2
14,638	14949.87	15,778	18803.02	19,732	23815.09	24,851	26908.99	28,003	29604.25	30,792
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
9	4.76	9	10.08	16	9.13	14	11.38	14	19.06	27

2008		2009		2010		2011		2012	
Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2.10	3	2.00	2	0.25	1	0.33	1	0.58	2
0.00	0	0.67	1	1.00	1	0.00	0	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
9.08	13	8.28	11	7.99	12	2.25	4	3.73	6
0.00	0	0.00	0	0.00	0	1.67	3	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.08	1
0.00	0	0.00	0	0.00	0	0.00	0	0.25	1
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.71	2	0.00	0	2.20	3	0.60	1	7.93	9
30.88	56	38.83	65	35.57	57	35.68	65	71.82	105
0.00	0	0.00	0	0.00	0	0.40	1	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.20	1
0.00	0	0.00	0	2.00	2	0.00	0	0.00	0
24.70	30	46.17	57	54.76	68	36.98	46	49.55	75
0.00	0	0.11	1	0.00	0	0.00	0	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.33	1	0.46	2	0.50	1	0.00	0	2.50	3
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.00	0	0.00	0	0.50	1	0.00	0	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
62.03	87	86.11	117	90.17	117	122.05	161	149.62	202
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.98	3	1.63	4	0.58	2	1.75	6	4.55	12
1.50	2	0.00	0	0.00	0	0.33	1	0.12	1
0.08	1	0.00	0	0.00	0	0.50	2	0.25	1
80.64	110	105.68	138	119.30	156	86.34	120	118.27	163
0.67	1	0.00	0	0.83	2	0.00	0	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.25	1	1.00	1	0.00	0	0.00	0	1.33	2
0.50	2	0.17	1	0.08	1	0.00	0	1.07	2
29305.71	30,550	30323.87	31,595	30915.42	32,284	34141.82	35,653	32594.76	34,178
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
9.17	18	16.32	26	37.91	55	26.50	41	38.78	51

2013		2014		2015		2016		2017		2018	
Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.67	1	2.91	7	3.47	7	3.85	6	2.60	8	4.42	7
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
8.48	16	11.14	19	4.20	10	4.66	15	4.57	15	4.59	15
0.00	0	0.00	0	0.00	0	0.00	0	0.63	1	0.20	1
0.13	1	0.23	2	0.00	0	0.00	0	0.00	0	0.00	0
0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.50	1
0.00	0	0.10	1	0.00	0	0.50	1	0.00	0	0.00	0
1.00	1	0.00	0	2.04	4	3.25	4	5.32	7	3.58	5
85.76	126	96.86	136	49.00	75	92.68	121	166.16	208	280.39	325
0.00	0	0.00	0	0.00	0	0.00	0	0.25	3	0.17	1
0.00	0	2.24	6	0.58	4	0.17	1	2.73	8	1.25	2
0.00	0	0.00	0	0.00	0	1.92	4	0.67	1	0.67	2
53.23	79	67.32	100	69.43	100	83.13	132	96.87	175	285.53	414
0.17	1	0.08	1	0.00	0	0.00	0	0.40	3	0.14	2
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.00	0	2.73	6	1.07	2	1.73	4	1.26	3	1.95	5
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
114.14	159	162.54	239	196.40	250	156.36	230	216.13	320	373.29	502
0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0
1.50	2	3.25	9	5.38	17	3.86	17	7.30	21	9.31	28
1.19	2	1.88	8	2.77	9	3.98	7	4.64	7	3.04	5
0.14	1	1.33	2	1.20	5	0.14	1	0.30	1	0.25	1
108.00	149	141.26	201	156.37	218	205.47	294	190.41	266	147.27	220
0.00	0	2.21	5	0.10	1	1.42	4	0.21	3	2.74	7
0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
0.00	0	1.00	1	0.00	0	0.50	2	2.33	4	2.08	6
0.00	0	0.00	0	0.33	1	0.25	1	0.50	1	1.80	2
35247.52	37,032	38087.18	40,105	39505.17	41,630	43534.41	45,904	50716.01	53,376	64744.02	67,847
0.17	1	0.43	1	0.00	0	0.00	0	0.45	2	0.25	1
39.69	55	22.95	39	32.73	43	67.97	92	63.17	95	143.68	184

TABLE SSA-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1
Brunei	High	0.00	0	0.00	0	1.33	2	0.00	0	1.33	2	0.83	2	1.00	1	1.00	1	0.00	0	0.00	0	2.00	2	1.00	1	0.33	1	1.36	3	0.33	2	5.44	9	13.31	21	20.56	31	20.31	33
Burma	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	1.00	1	0.37	2	0.20	1	0.00	0	0.28	2	0.32	3	0.63	1	1.33	3	0.11	1	2.63	5
Cambodia	Lower-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.20	1	0.00	0	0.00	0	0.10	1	0.36	2	0.33	1
China	Upper-middle	3898.06	4,149	5940.25	6,146	5477.31	5,776	6141.10	6,545	9312.21	9,835	13928.72	14,524	15767.12	16,423	17483.06	18,210	17902.56	18,635	19323.13	20,086	19442.84	20,303	21535.52	22,520	20601.24	21,572	22745.89	23,886	25115.17	26,387	25903.91	27,350	28018.11	29,602	30452.69	32,260	34219.27	36,277
India	Lower-middle	1183.85	1,288	1240.07	1,332	1296.82	1,399	1407.81	1,568	1415.58	1,582	1527.60	1,683	1632.42	1,799	1959.93	2,140	2187.87	2,403	2233.99	2,480	2410.48	2,647	2664.71	2,928	2804.67	3,104	3109.64	3,450	3315.48	3,694	4123.89	4,496	4435.72	4,853	7288.64	7,816	12652.75	13,304
Indonesia	Lower-middle	7.23	13	4.68	8	4.98	9	8.90	17	7.73	18	10.64	21	13.45	19	7.47	17	11.53	22	12.63	24	16.40	31	50.28	81	29.99	57	70.31	114	57.50	100	162.37	206	541.05	641	1663.38	1,794	4893.27	5,213
Japan	High	4611.02	4,960	4900.37	5,223	4816.13	5,209	4933.61	5,388	4985.34	5,518	4963.15	5,503	5361.95	5,937	5586.07	6,197	5062.28	5,620	4728.57	5,247	4612.20	5,134	4770.55	5,351	4302.31	4,865	4221.31	4,815	4038.16	4,674	3518.04	4,142	3472.29	4,153	3390.56	4,104	3141.76	3,930
Kazakhstan	Upper-middle	11.58	13	8.33	9	21.79	25	7.78	12	17.88	21	15.70	23	8.18	12	17.44	23	12.00	15	14.06	20	18.51	22	25.63	32	24.76	35	42.09	61	50.18	71	59.89	82	98.41	145	114.91	164	201.20	263
Kyrgyzstan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.93	2	2.50	3	0.67	1	0.00	0	0.53	2	0.10	1	0.10	1	1.67	2	1.46	3	0.53	2	0.33	1	4.23	6
Laos	Lower-middle	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.83	3	0.00	0	0.00	0	0.50	1	0.00	0	0.13	1	0.17	1	0.17	1	1.39	6
Malaysia	Upper-middle	25.41	31	42.50	56	47.29	57	37.10	43	68.50	81	78.73	95	135.99	153	140.71	169	155.70	199	353.17	412	460.27	557	946.09	1,062	825.66	983	903.44	1,067	1272.06	1,475	1211.20	1,399	2350.84	2,625	2693.65	3,030	4048.03	4,586
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	2.57	5	0.20	1	0.77	2	1.68	4	2.18	4	3.33	4	1.53	3	0.25	1	0.38	1	1.36	2	0.77	2	8.11	9	29.68	38	68.73	79	2.82	6	2.80	7	2.69	5	17.17	24	4.58	8
Nepal	Low	0.40	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.75	2	1.08	3	0.56	2	1.58	5	2.50	7	2.14	7	1.58	11	1.64	6	1.21	7	6.26	12	1.28	9	1.83	4
North Korea	Low	1.00	1	0.61	2	0.00	0	0.00	0	0.00	0	0.00	0	0.77	3	1.47	5	0.17	2	0.13	1	0.13	1	0.63	3	1.85	11	0.25	1	0.10	1	1.04	5	4.29	9	3.37	7	4.49	9
Pakistan	Lower-middle	16.76	22	14.02	16	12.43	17	11.70	17	11.20	14	26.47	35	23.52	31	46.13	65	57.62	74	63.89	82	106.45	134	83.32	123	155.82	216	136.97	213	178.75	267	292.66	410	213.92	322	221.18	377	350.00	581
Papua New Guinea	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.45	2	0.25	1	0.90	2	1.25	2
Philippines	Lower-middle	2.17	3	0.00	0	0.00	0	0.00	0	2.25	3	2.20	3	1.33	2	0.35	3	2.73	5	1.50	2	4.92	6	2.71	5	0.81	5	7.04	14	9.43	15	54.88	62	58.95	68	76.41	83	127.48	143
Singapore	High	260.34	308	287.73	327	309.36	355	327.21	375	277.84	331	252.94	316	295.70	369	274.97	352	279.79	360	249.87	346	309.11	412	245.15	353	234.11	348	229.18	359	236.61	366	257.90	391	298.90	468	302.03	523	294.15	516
South Korea	High	1125.72	1,259	1219.67	1,349	1361.09	1,534	1294.04	1,510	1957.81	2,226	2240.23	2,525	2609.42	2,925	2942.68	3,300	2889.57	3,626	2083.15	2,398	2045.74	2,403	2498.24	2,876	2407.24	2,800	2425.45	2,905	2561.96	3,047	2412.15	2,881	2451.42	2,918	2542.52	2,998	2636.02	3,181
Sri Lanka	Lower-middle	1.33	2	0.00	0	1.53	3	1.42	3	3.35	6	8.80	11	7.42	11	7.79	9	2.30	4	3.79	10	5.72	11	2.23	6	5.50	11	4.83	7	2.80	4	4.55	10	9.85	15	18.20	29	17.20	24
Taiwan	High	430.38	463	539.91	567	545.38	578	707.16	760	660.23	703	648.99	708	935.66	1,007	956.79	1,021	1133.34	1,192	990.01	1,049	1182.56	1,271	984.34	1,066	881.67	964	899.46	981	886.49	993	959.10	1,058	783.43	913	880.55	1,019	756.88	930
Tajikistan	Low	3.00	3	2.00	2	4.00	4	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.47	3	2.00	3	1.43	2	1.00	1	2.27	5	2.93	5	5.60	8
Thailand	Upper-middle	15.98	22	17.12	22	16.88	25	46.13	66	44.08	62	67.04	92	84.48	113	129.68	178	164.87	210	211.14	255	204.17	248	262.69	302	200.45	242	275.73	315	269.03	324	398.80	448	589.68	651	848.51	924	970.31	1,073
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.08	3	0.00	0
Turkmenistan	Upper-middle	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0
Uzbekistan	Lower-middle	8.58	11	22.85	24	26.70	28	14.29	18	21.09	22	26.43	29	8.25	11	18.09	23	18.41	25	22.84	35	15.53	22	9.83	13	15.04	23	10.18	19	12.40	19	15.94	22	14.06	20	16.56	24	16.82	24
Vietnam	Lower-middle	2.27	6	7.37	10	3.30	7	4.67	10	2.36	9	4.15	8	9.10	16	9.28	17	11.73	19	11.83	20	35.96	53	20.08	37	30.69	62	51.15	78	49.46	79	83.00	141	98.26	173	94.23	170	228.12	346
Australia and Oceania		378.02	475	452.29	543	450.37	575	446.71	592	529.47	705	700.45	911	628.94	858	764.29	996	698.47	965	739.36	1,020	890.55	1,219	775.09	1,127	1018.82	1,427	939.73	1,384	1044.62	1,540	946.75	1,508	934.42	1,532	1076.33	1,826	913.98	1,667
Australia	High	329.85	409	404.17	481	407.95	517	401.05	529	479.66	638	648.86	846	567.82	778	672.98	890	621.34	863	647.68	907	824.23	1,140	697.05	1,023	887.28	1,275	858.19	1,276	973.81	1,432	848.39	1,373	824.50	1,389	992.36	1,713	813.34	1,520
Cook Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	1.00	1	1.08	4	0.00	0	0.08	1	1.00	1	2.00	2	3.40	4	0.00	0	1.95	4	2.25	3	0.00	0	5.00	5	3.00	5
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.75	1	0.00	0

TABLE SSA-11

S&E articles in materials science, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	48.17	68	48.12	62	42.41	60	45.65	65	49.81	73	51.42	82	60.12	98	90.24	118	77.13	105	91.60	122	65.31	96	76.05	119	128.14	165	81.54	117	68.86	117	96.11	146	109.91	157	78.22	131	96.64	165
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	196.15	419	277.04	592	384.95	770	529.44	1,016	564.20	1,028	382.33	778	136.89	355	158.18	421	151.10	406	86.24	223	52.10	151	66.19	178	35.29	118	49.98	130	52.89	139	39.34	130	45.09	173	49.23	163	65.96	191

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		27679.00	27,679	27519.00	27,519	27993.00	27,993	29021.00	29,021	31313.00	31,313	33513.00	33,513	35411.00	35,411	38284.00	38,284	41525.00	41,525	44792.00	44,792	45031.00	45,031	48714.00	48,714	52493.00	52,493	57843.00	57,843	59992.00	59,992	57151.00	57,151	56489.00	56,489	59354.00	59,354	61138.00	61,138
North America		7137.89	8,397	6886.36	8,178	7011.89	8,221	7207.00	8,746	7448.92	8,980	8123.73	9,866	8489.44	10,320	9175.20	11,166	9265.98	11,451	9757.31	12,028	9459.04	11,711	9648.60	12,160	10132.25	12,765	10442.60	13,371	10388.50	13,527	10171.67	13,158	10212.63	13,292	10474.70	13,773	10135.89	13,429
Canada	High	750.71	1,028	735.44	1,009	791.24	1,064	823.59	1,190	877.29	1,255	945.04	1,390	1030.52	1,517	1073.63	1,548	1141.80	1,701	1236.78	1,807	1190.83	1,745	1168.22	1,756	1199.68	1,792	1242.27	1,915	1242.87	1,949	1193.74	1,850	1156.92	1,804	1109.33	1,807	1146.71	1,850
Greenland	High	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mexico	Upper-middle	116.79	158	128.85	182	138.32	198	139.10	196	152.49	228	198.58	281	179.65	249	219.98	307	197.49	295	261.41	355	243.45	335	220.09	323	310.98	436	359.64	475	353.23	481	373.21	491	323.89	434	377.57	504	395.39	527
United States	High	6270.38	7,455	6022.08	7,210	6082.33	7,209	6244.31	7,643	6418.89	7,809	6980.11	8,539	7279.27	8,915	7881.60	9,680	7926.69	9,848	8259.11	10,278	8024.75	10,019	8260.29	10,472	8621.59	10,941	8840.48	11,420	8792.40	11,543	8604.73	11,216	8731.82	11,473	8987.80	11,913	8594.80	11,493
Central America and Caribbean		18.08	25	19.58	28	25.58	34	20.84	35	14.43	22	21.08	32	26.33	40	18.68	28	31.99	50	36.45	56	33.28	55	23.92	39	32.07	55	29.51	55	34.45	59	34.34	63	31.88	54	48.11	88	36.73	67
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Bahamas, The	High	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.25	4	0.50	1	0.25	1	2.13	3	3.00	3	0.00	0
Barbados	High	1.00	1	1.00	1	2.00	3	1.33	2	3.50	4	1.83	3	0.50	1	3.00	4	1.00	1	1.75	2	1.00	2	0.83	2	1.33	2	1.33	2	0.33	1	0.00	0	0.00	0	2.50	3	0.50	1
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.75	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
Cuba	Upper-middle	1.50	2	1.00	1	2.00	2	1.33	3	0.00	0	1.20	2	3.00	6	1.63	3	3.08	6	2.50	3	1.62	5	2.33	3	1.00	1	1.00	3	3.88	7	3.64	9	5.08	10	16.28	24	11.12	20
Dominica	Upper-middle	5.67	6	5.67	9	12.50	15	2.77	6	5.35	8	10.79	14	9.33	14	7.63	11	15.82	25	15.86	22	17.45	26	8.00	14	15.09	27	5.20	13	11.93	20	16.64	28	3.60	8	9.81	22	7.32	16
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.67	2	0.67	2	1.73	4	1.42	4	2.33	6	1.50	4	2.08	5	0.17	1
Grenada	Upper-middle	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1
Guatemala	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.50	2	0.33	1	1.00	1	0.00	0	0.00	0
Honduras	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.50	2
Jamaica	Upper-middle	0.83	2	0.75	2	2.50	5	2.50	3	0.00	0	2.17	4	1.67	4	0.17	1	3.50	7	4.92	9	1.96	4	2.25	5	3.00	5	2.00	3	2.83	5	2.20	3	2.00	3	0.58	2	2.83	5
Nicaragua	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Panama	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.33	1	0.40	1	0.80	2	0.00	0
Puerto Rico	High	9.08	14	9.67	13	5.58	8	11.90	20	4.58	9	5.08	9	11.83	15	4.75	7	8.58	11	9.09	17	9.33	15	9.50	13	9.56	15	14.08	22	10.39	16	7.12	12	12.33	19	10.64	22	8.17	15
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	0.00	0	0.00	0	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	2.33	3	1.42	2	0.33	1	1.00	1	2.00	2	2.00	3	1.50	2	2.00	2	1.17	2	5.13	6
South America		553.84	718	544.26	693	631.47	799	691.23	882	699.82	904	697.44	919	812.86	1,028	879.75	1,151	1025.72	1,325	1098.01	1,390	1088.74	1,421	1207.89	1,552	1243.72	1,624	1372.42	1,777	1515.34	2,024	1607.01	2,135	1639.42	2,195	1823.54	2,437	1800.48	2,361
Argentina	High	107.02	140	97.29	120	110.88	135	105.40	133	110.54	146	101.49	141	121.43	157	127.37	185	149.98	211	155.78	217	166.79	224	184.33	241	183.63	254	158.50	209	183.82	260	189.13	253	182.08	245	240.46	320	220.38	287
Bolivia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.46	2	0.00	0	0.50	2	0.00	0	0.00	0	0.45	2
Brazil	Upper-middle	302.84	397	306.61	394	350.20	444	399.95	517	427.37	546	440.78	567	481.80	611	516.77	659	589.12	752	661.57	837	627.75	824	715.81	924	725.40	940	842.58	1,073	937.99	1,228	965.61	1,267	994.99	1,301	1082.14	1,458	1116.08	1,471
Chile	High	77.09	111	73.62	101	84.61	130	92.67	143	88.12	138	87.78	151	122.82	180	133.66	215	148.15	229	158.60	246	162.33	256	177.83	271	177.82	278	188.09	298	209.21	347	230.00	391	237.20	410	247.79	420	271.28	445
Colombia	Upper-middle	14.38	24	24.83	33	26.79	38	27.67	43	26.56	36	17.57	26	38.33	51	44.09	60	53.28	82	51.96	72	71.04	103	69.44	102	94.78	152	112.48	175	112.57	174	144.26	223	140.13	209	127.77	198	114.31	188

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	2.00	2	1.50	2	0.25	1	1.33	3	0.95	3	1.83	3	1.67	3	1.83	4	4.09	9	4.83	6	3.83	8	2.45	6	9.17	21	27.26	53	15.50	29
Guyana	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Paraguay	Upper-middle	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.50	1	0.00	0	0.25	1	1.00	1	0.00	0	8.85	11	1.17	2
Peru	Upper-middle	1.00	1	1.00	1	0.58	2	1.58	4	1.38	3	2.00	3	2.58	6	3.18	7	0.96	3	4.83	8	5.17	9	2.08	4	5.17	13	4.46	7	10.03	15	7.73	15	14.53	20	10.85	20	12.50	21
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0
Uruguay	High	6.42	11	6.75	14	13.00	20	10.00	16	4.53	8	7.48	16	5.58	8	11.66	19	10.88	20	18.23	32	15.67	24	15.00	23	15.46	27	13.79	23	23.34	41	25.41	35	25.59	41	38.21	55	23.53	34
Venezuela	Upper-middle	45.08	60	34.17	50	44.42	57	53.97	62	39.33	56	37.85	53	40.06	56	47.19	70	72.41	100	44.20	57	37.67	55	41.07	55	37.38	50	46.97	70	34.55	59	40.68	63	35.73	58	40.21	62	25.27	45
Europe		13939.61	15,291	13328.05	14,718	13584.30	14,805	13776.45	15,366	14735.18	16,575	15731.18	17,754	15906.60	17,783	16838.12	18,902	18180.04	20,443	18790.19	21,125	19166.01	21,582	20519.44	23,216	21478.98	24,366	22354.02	25,669	22834.76	26,432	22681.30	26,093	22312.35	25,838	22001.58	25,669	21748.06	25,479
EU		11078.49	12,512	10241.74	11,706	10370.85	11,667	10647.73	12,286	11094.88	12,841	11802.20	13,723	12614.48	14,561	13272.57	15,421	14351.93	16,709	14632.42	17,055	14708.05	17,183	15636.86	18,430	16699.19	19,601	17129.18	20,432	17343.99	20,925	17130.83	20,607	16578.75	20,155	16280.03	19,935	15721.58	19,468
Austria	High	193.56	248	200.65	264	177.22	236	207.15	276	228.97	308	256.44	357	283.30	395	279.84	412	340.44	498	319.12	459	331.15	484	343.77	503	416.19	601	420.67	625	428.09	641	429.97	667	452.92	723	474.66	727	452.22	726
Belgium	High	273.20	367	254.19	342	247.02	339	250.27	360	297.99	403	306.03	425	326.96	443	343.40	481	402.40	555	366.11	529	367.98	532	363.82	529	370.35	552	379.57	555	366.72	566	356.54	560	371.11	578	356.04	565	318.31	528
Bulgaria	Upper-middle	72.46	100	79.33	105	59.04	74	57.93	90	63.25	92	75.57	110	71.20	105	93.79	130	100.24	132	109.36	145	118.08	152	104.13	147	136.35	176	130.42	175	113.15	153	114.00	164	124.89	175	107.69	156		
Croatia	High	62.25	78	59.58	72	59.75	66	55.53	68	64.15	76	94.25	117	79.42	100	106.17	127	113.02	141	111.63	138	127.23	158	128.86	177	150.11	197	119.74	165	145.68	193	155.84	206	155.82	219	116.50	154	142.11	206
Cyprus	High	12.50	18	15.67	23	9.50	15	12.25	21	21.42	34	18.50	25	21.05	35	31.17	50	28.59	47	33.83	53	41.46	61	31.45	54	29.08	45	39.67	63	28.17	45	41.96	62	28.37	40	31.37	53	27.16	45
Czechia	High	200.65	267	172.15	238	198.73	253	228.93	299	214.64	276	203.91	282	252.95	330	350.48	471	325.77	426	302.11	428	373.67	515	364.54	489	409.60	547	478.98	634	476.27	648	570.65	735	469.13	657	410.59	602	382.12	599
Denmark	High	117.82	151	119.39	158	126.83	163	136.41	184	129.52	182	125.78	183	122.68	184	117.59	180	116.56	175	117.41	187	139.09	218	134.28	201	143.42	224	133.72	219	157.13	248	159.50	256	157.44	247	176.16	292	140.48	237
Estonia	High	14.17	18	15.83	21	17.83	22	17.25	21	20.83	28	28.25	33	23.92	29	50.25	60	34.17	41	41.45	48	40.62	50	37.38	46	35.04	42	32.32	38	43.94	55	24.69	32	28.77	41	39.61	54	29.85	41
Finland	High	126.52	170	110.87	146	114.95	146	128.84	180	180.18	229	122.44	173	141.66	195	189.47	256	194.06	257	172.83	252	194.40	274	205.32	303	200.85	293	229.54	339	246.48	364	228.60	355	244.73	364	218.33	343	169.22	279
France	High	2127.24	2,582	1895.57	2,379	2065.23	2,501	2022.21	2,592	2125.66	2,737	2175.47	2,818	2335.91	2,978	2386.93	3,125	2495.39	3,324	2550.26	3,445	2634.27	3,524	2711.29	3,714	2882.19	3,903	2843.33	3,938	2852.59	4,025	2765.36	3,919	2723.49	3,908	2627.60	3,841	2441.66	3,618
Germany	High	1943.17	2,442	1569.80	2,046	1578.85	2,021	1630.48	2,189	1641.78	2,221	1749.28	2,342	1821.13	2,479	1883.52	2,592	2079.24	2,839	2034.05	2,789	2020.56	2,820	2289.09	3,152	2474.78	3,354	2587.96	3,582	2567.15	3,628	2600.30	3,636	2571.14	3,702	2518.00	3,656	2542.89	3,634
Greece	High	221.64	272	198.69	245	239.60	285	251.68	313	283.22	355	292.97	359	297.49	374	294.18	383	382.66	468	328.32	415	348.28	453	300.11	399	349.51	475	353.44	476	313.29	450	326.77	474	268.91	427	276.82	399	266.26	414
Hungary	High	249.63	318	238.11	299	236.61	288	219.12	286	224.78	310	208.73	293	236.30	336	224.23	317	273.62	353	272.84	356	247.83	322	291.22	376	297.36	404	308.64	417	284.58	384	303.14	404	320.57	440	275.85	390	308.47	422
Ireland	High	92.30	130	74.78	115	71.16	103	76.49	120	79.12	123	90.58	153	113.00	178	97.71	170	112.28	192	123.71	207	122.28	200	150.13	235	126.34	192	123.95	214	116.42	204	99.51	189	98.61	177	122.62	216	109.47	198
Italy	High	1124.69	1,395	1292.55	1,550	1244.40	1,491	1312.88	1,630	1362.82	1,686	1498.44	1,855	1553.93	1,953	1670.98	2,090	1756.92	2,212	1915.44	2,401	1770.97	2,244	1940.00	2,477	2097.57	2,696	2147.12	2,796	2212.15	2,924	2221.36	2,977	2071.07	2,800	2101.69	2,836	2021.94	2,800
Latvia	High	14.17	15	11.50	13	12.00	13	12.17	15	5.92	7	15.25	16	7.50	8	34.67	37	16.82	20	14.33	15	15.01	16	25.00	29	21.47	23	21.67	23	24.25	27	31.25	33	25.33	27	17.37	20	15.83	18
Lithuania	High	54.28	64	58.50	71	78.46	87	77.33	91	64.85	77	72.92	83	75.50	84	107.65	117	85.41	94	67.38	79	65.04	75	71.42	80	79.75	90	55.19	69	64.22	75	63.22	78	56.55	66	70.67	83	43.83	52
Luxembourg	High	1.50	2	2.50	3	1.50	2	1.53	4	3.17	6	1.17	3	3.54	6	3.33	8	8.10	13	11.82	22	17.92	30	27.00	40	20.41	33	32.69	54	39.09	66	41.47	69	30.45	62	27.79	60	44.53	77
Malta	High	0.50	1	0.50	1	1.25	2	0.50	1	0.00	0	1.50	2	1.00	2	6.25	7	1.67	2	2.50	4	1.67	2	1.00	1	5.36	8	4.20	5	8.67	11	6.33	7	7.17	10	8.23	12	6.14	9
Netherlands	High	343.13	458	298.93	396	290.14	377	336.51	476	276.30	413	373.42	509	358.92	514	345.92	497	376.40	533	376.25	549	338.61	529	345.97	522	388.49	584	388.10	584	394.11	602	382.07	577	398.12	610	360.39	562	364.89	595
Poland	High	489.82	592	526.64	669	522.98	632	577.48	716	577.13	739	608.25	764	614.18	788	694.41	852	748.50	946	840.63	1,044	748.74	954	866.70	1,096	1054.96	1,298	1016.63	1,274	1033.51	1,324	1143.07	1,435	1064.68	1,371	979.97	1,301	1015.92	1,354
Portugal	High	133.82	170	171.18	213	169.73	212	166.60	212	214.50	275	228.37	288	258.91	337	236.03	310	308.19	403	351.18	474	376.20	494	427.98	592	467.44	621	433.63	596	511.29	726	422.92	604	434.31	523	386.66	556	346.80	516
Romania	Upper-middle	138.53	190	132.52	179	191.99	248	192.43	272	186.57	248	228.75	312	248.05	333	263.93	366	446.74	583	532.54	665	518.85	671	603.41	764	603.48	789	618.30	883	569.03	794	542.36	768	495.81	729	477.57	709	439.11	685
Slovakia	High	59.00	71	47.92	63	60.33	77	71.62	93	50.33	68	55.38	72	58.43	85	111.94	142	101.48	132	92.53	125	89.36	125	123.33	161	116.55	148	135.44	175	111.55	153	136.39	179	146.20	194	90.03	143	80.54	124
Slovenia	High	87.44	106	61.08	83	81.39	103	64.03	82	77.11	94	107.26	135	102.16	124	107.57	135	104.96	142	97.50	134	109.98	156	128.82	170	133.79	185	139.93	204	135.51	196	118.48	174	120.79	169	116.16	174	130.91	205

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	941.97	1,133	878.31	1,076	917.02	1,096	941.55	1,205	1059.66	1,311	1062.60	1,332	1248.43	1,574	1279.90	1,631	1387.41	1,761	1390.24	1,810	1399.25	1,835	1430.43	1,916	1561.01	2,094	1632.21	2,228	1703.27	2,325	1484.75	2,076	1405.95	1,993	1427.56	2,037	1347.55	1,951
Sweden	High	221.03	301	232.63	295	248.17	317	243.33	329	269.84	360	302.58	404	340.86	442	292.33	403	298.37	421	311.38	450	328.46	474	295.78	445	300.03	450	329.77	502	366.80	566	370.74	573	378.79	601	387.59	624	389.47	623
United Kingdom	High	1761.53	2,200	1522.36	1,908	1349.17	1,719	1355.23	1,798	1371.17	1,855	1498.12	2,031	1616.12	2,193	1668.93	2,335	1712.53	2,383	1745.63	2,470	1821.11	2,549	1894.65	2,697	1827.73	2,632	1992.33	2,939	2010.11	3,041	1988.44	3,024	2019.89	3,131	2059.31	3,188	2036.21	3,211
Other Europe		2861.12	3,296	3086.31	3,537	3213.45	3,599	3128.73	3,658	3640.30	4,343	3928.98	4,703	3292.12	3,903	3565.55	4,237	3828.11	4,555	4157.77	4,926	4457.96	5,243	4882.58	5,768	4779.79	5,761	5224.85	6,435	5490.77	6,749	5550.47	6,707	5733.60	6,966	5721.55	7,004	6026.48	7,440
Albania	Upper-middle	0.00	0	0.00	0	2.00	2	1.50	2	0.50	1	0.00	0	0.00	0	0.83	2	2.00	2	0.50	1	2.87	5	8.00	9	7.00	8	12.67	16	10.42	15	7.92	9	4.25	5	7.28	10	12.27	20
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	82.04	97	70.58	81	62.98	76	63.83	74	63.08	72	76.85	86	73.07	86	70.31	86	63.67	81	74.08	92	78.87	93	78.43	93	75.43	88	66.58	86	70.08	88	78.30	99	89.53	107	72.67	95	71.25	90
Bosnia and Herzegovina	Upper-middle	4.67	7	0.83	2	1.33	2	1.67	4	1.17	2	4.67	9	8.33	10	12.50	14	6.92	12	6.67	10	13.75	19	10.57	17	11.31	17	14.37	23	17.87	29	20.42	33	14.51	29	23.03	35	26.68	37
Holy See (Vatican City)	na	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Iceland	High	1.42	3	4.50	6	4.17	5	3.34	6	3.92	7	3.25	6	3.50	4	5.00	7	7.13	14	5.16	10	11.62	21	6.17	9	7.17	12	3.95	8	9.67	15	3.70	10	11.90	23	3.33	6	7.08	13
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	6.25	8	3.00	4	11.83	14	7.83	11	7.53	11	12.62	21	12.45	21	10.00	15	7.98	15	16.23	26	14.72	24
Liechtenstein	High	0.40	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Moldova	Lower-middle	5.50	6	5.33	6	3.50	4	4.67	6	1.00	2	8.50	10	5.67	8	4.17	7	5.83	9	8.92	13	6.00	11	16.08	20	29.83	39	22.33	31	26.41	33	23.25	28	15.12	19	18.25	23	13.50	16
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	1.00	1	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	4.75	6	2.00	2	6.75	11	9.83	12	18.67	26	19.25	24	22.17	27	14.90	22	24.42	31	15.72	22	18.67	27	16.83	25
North Macedonia	Upper-middle	3.00	4	6.75	7	8.33	12	7.33	8	4.00	5	2.96	5	5.83	7	7.90	12	6.17	11	7.50	11	7.50	11	13.57	22	11.37	18	8.33	11	13.83	23	13.98	25	18.25	29	14.93	29	11.67	20
Norway	High	90.23	122	104.00	142	106.93	136	107.51	147	112.54	160	123.49	171	152.35	200	165.70	231	165.59	242	206.92	294	177.34	264	196.41	283	202.68	325	227.85	389	223.14	399	199.84	325	220.81	370	189.50	329	219.04	354
Russia	Upper-middle	1929.66	2,152	2034.56	2,246	2212.72	2,414	2173.81	2,455	2483.72	2,921	2628.14	3,073	1804.10	2,078	1955.37	2,214	2146.25	2,410	2228.68	2,517	2426.82	2,719	2435.40	2,721	2357.12	2,640	2423.04	2,742	2750.32	3,096	3017.27	3,404	3126.15	3,518	3059.16	3,508	3321.73	3,869
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	2	0.00	0	0.00	0	0.83	2	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	204.00	254	176.29	235	208.87	275	232.82	308	283.30	382	267.31	367	255.54	363	231.45	350	231.56	320	219.16	312	214.83	307
Serbia and Montenegro[b]	Lower-middle	57.58	68	66.17	82	85.75	101	70.85	92	88.43	114	101.47	131	124.30	159	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	209.68	300	190.88	266	223.21	301	222.40	327	231.15	339	261.36	386	279.44	415	280.37	441	302.33	480	309.35	470	292.46	459	359.64	551	370.59	610	433.71	715	462.13	766	487.22	794	469.11	780	487.59	812	443.21	748
Turkey	Upper-middle	172.24	205	154.09	194	196.70	237	234.90	267	354.61	405	375.75	442	498.54	567	498.68	580	566.66	652	707.44	814	805.22	920	949.16	1,110	915.98	1,127	1241.61	1,528	1143.18	1,403	1005.20	1,244	1076.32	1,323	1058.38	1,332	1129.17	1,436
Ukraine	Lower-middle	304.69	365	448.60	522	305.57	351	236.91	304	296.19	362	342.37	427	337.00	418	354.98	440	371.04	460	383.69	464	381.04	475	499.35	599	496.72	583	479.75	589	504.42	614	426.42	517	444.78	543	536.87	629	516.22	619
Middle East		648.81	864	725.86	948	770.62	988	820.57	1,096	957.24	1,244	1062.78	1,371	1314.86	1,627	1352.30	1,679	1530.70	1,908	1591.75	2,029	1822.86	2,361	2418.55	3,119	2747.97	3,577	2929.81	3,938	3220.42	4,419	2963.01	4,073	3155.00	4,246	3461.36	4,611	3896.15	5,195
Armenia	Upper-middle	7.25	11	6.00	7	19.08	24	11.58	14	28.08	33	15.23	20	19.33	24	23.67	28	18.33	22	45.75	52	49.00	56	59.58	67	48.58	54	55.50	63	37.17	49	59.92	66	49.83	55	46.48	53	61.44	71
Azerbaijan	Upper-middle	10.75	13	15.33	18	17.00	21	14.75	16	16.67	21	20.39	23	28.17	34	26.00	34	34.50	42	45.78	60	54.67	72	51.46	69	58.83	73	50.33	72	64.32	88	89.79	111	89.83	123	112.97	149	114.86	149
Bahrain	High	5.67	8	3.25	5	3.00	3	3.50	4	3.17	4	5.25	8	4.25	6	3.50	5	8.00	10	1.00	2	10.50	16	1.92	6	9.17	15	9.50	11	5.38	10	4.20	6	2.33	4	4.00	5	6.31	9
Gaza Strip[c]	Lower-middle	0.00	0	0.00	0	2.00	2	1.50	2	0.00	0	2.50	5	2.25	3	0.70	2	2.25	3	2.25	3	1.33	2	5.50	6	2.83	4	2.60	4	2.58	4	1.33	2	1.25	2	6.00	9	6.23	11
Georgia	Lower-middle	60.46	72	48.50	56	60.96	74	60.05	70	71.92	84	73.17	92	77.67	95	59.96	77	97.34	117	100.75	122	50.86	67	160.83	181	149.44	169	180.59	206	130.75	154	154.66	180	234.33	258	150.51	171	167.05	193
Iran	Upper-middle	86.37	102	108.71	122	128.83	140	146.93	167	228.27	257	339.49	384	495.36	536	559.29	609	598.53	655	699.67	783	821.07	928	1215.96	1,390	1346.95	1,556	1375.54	1,633	1534.35	1,792	1416.87	1,632	1520.35	1,724	1811.34	2,076	1894.12	2,190
Iraq	Low-income	1.50	2	2.25	4	0.50	1	1.00	2	1.20	2	1.58	4	10.00	13	8.67	10	15.79	19	1.88	3	12.33	17	13.44	17	27.75	39	28.09	52	30.82	55	28.29	60	40.66	75	47.76	76	149.27	198
Israel	High	318.44	458	361.69	512	328.70	463	343.42	503	351.84	506	321.18	477	378.95	539	400.17	568	412.35	581	379.96	562	400.28	590	404.39	586	402.33	591	424.93	605	481.09	706	384.31	584	407.90	636	440.31	653	399.89	631
Jordan	Upper-middle	14.96	21	18.08	20	31.83	41	32.67	41	49.18	63	55.58	70	59.46	67	58.85	75	77.95	100	59.16	80	74.07	92	90.75	123	125.63	165	94.81	137	103.24	139	74.78	100	93.57	130	100.84	148	145.16	198

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	38.50	49	37.42	48	30.92	41	27.92	36	20.58	33	21.23	32	23.67	34	17.42	29	26.42	40	17.42	30	29.50	42	25.75	39	24.67	36	39.42	60	44.95	69	33.08	55	40.92	72	38.44	78	45.23	75
Lebanon	Upper-middle	10.00	10	12.50	16	8.33	10	16.08	23	12.20	15	10.53	16	17.08	23	15.58	21	14.92	25	18.17	27	18.62	27	19.91	32	31.65	46	31.63	48	27.34	48	33.15	51	24.76	42	29.58	50	50.02	73
Oman	High	13.00	17	11.45	18	19.92	26	18.33	30	26.57	39	22.38	31	22.79	34	20.13	32	21.50	28	24.42	41	37.83	51	20.17	30	24.06	33	19.40	29	28.94	44	22.20	46	22.45	41	21.16	52	26.42	50
Qatar	High	0.00	0	0.67	1	3.00	4	1.67	4	6.00	7	4.00	4	3.96	6	10.00	16	10.53	20	11.37	23	8.42	19	17.41	39	10.40	25	13.14	32	21.96	52	14.99	34	18.31	35	20.35	46	17.03	41
Saudi Arabia	High	63.17	77	78.43	101	79.46	101	98.50	137	94.86	137	118.04	158	122.93	163	116.63	156	148.14	208	144.38	213	214.23	361	281.50	514	427.40	757	546.39	1,041	641.54	1,255	561.73	1,115	539.93	1,026	536.14	1,028	548.29	1,074
Syria	Low	2.67	4	1.00	1	3.50	6	3.00	5	0.00	0	2.33	3	2.67	5	2.17	3	6.33	8	2.00	2	1.17	2	4.00	5	3.50	4	2.98	7	4.75	6	4.00	4	3.83	5	3.20	4	5.25	7
United Arab Emirates	High	10.75	20	14.50	17	27.08	33	35.00	50	40.33	56	40.72	54	38.08	52	26.42	40	30.62	48	32.53	49	34.73	49	36.69	59	50.85	81	46.25	67	48.75	91	69.21	124	60.54	118	78.15	138	235.53	344
West Bank[c]	Lower-middle	5.33	6	2.33	4	5.00	6	3.67	5	4.88	6	6.33	8	5.25	7	2.67	4	2.25	4	1.75	3	0.33	1	1.00	2	0.60	2	2.67	5	2.83	5	2.92	5	0.25	1	6.25	8	13.30	21
Yemen	Low	0.00	0	3.75	5	1.50	2	1.00	1	1.50	2	2.83	3	3.00	3	0.50	1	4.95	10	3.53	5	3.92	6	8.29	16	3.33	8	6.04	15	9.67	18	7.58	10	3.95	10	7.89	20	10.77	23
Africa		385.94	483	477.87	588	500.98	609	579.94	730	577.54	735	643.06	813	650.70	819	691.87	861	855.19	1,085	898.40	1,121	969.18	1,237	1088.52	1,431	1148.84	1,561	1315.90	1,791	1453.20	1,993	1381.69	1,886	1567.11	2,094	1619.52	2,186	1813.23	2,423
Algeria	Upper-middle	26.58	35	36.54	53	52.42	66	50.13	68	49.58	69	78.47	110	99.23	124	98.13	120	127.38	159	118.69	156	164.82	212	178.83	232	194.23	243	223.98	283	265.73	329	282.75	351	303.91	382	323.88	418	378.81	470
Angola	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	1.00	2	0.50	1
Benin	Low	1.67	3	1.00	1	0.50	1	2.33	4	1.33	2	1.00	1	6.42	9	2.67	4	2.00	2	4.50	6	4.17	6	6.33	8	0.33	1	9.96	14	1.75	3	4.63	7	4.96	8	6.01	10	9.39	13
Botswana	Upper-middle	7.83	9	5.42	7	7.50	8	3.25	5	6.00	7	4.00	6	5.00	8	3.00	3	8.83	10	4.83	8	5.20	9	8.50	13	9.17	16	10.00	20	12.99	23	11.10	21	10.16	20	9.45	17	3.79	10
Burkina Faso	Low	1.44	2	0.00	0	1.50	2	0.50	1	0.00	0	1.79	5	0.70	2	1.00	1	0.60	1	4.92	9	3.08	6	7.00	9	13.17	17	11.85	18	7.83	11	5.50	8	10.83	14	12.42	15	11.75	14
Burundi	Low	0.00	0	1.50	2	0.00	0	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.17	1	1.00	1	0.00	0	0.00	0	0.33	2	0.00	0	0.00	0	1.58	6	0.33	1
Cameroon	Lower-middle	3.00	3	2.25	4	3.25	5	5.50	8	8.75	12	9.67	12	6.50	12	8.96	14	9.79	13	13.42	17	18.08	27	17.03	26	17.50	27	24.46	34	24.33	32	19.11	27	18.85	28	38.20	53	29.95	46
Central African Republic	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.50	1	0.25	1	0.60	2	0.00	0	0.00	0	2.33	4
Chad	Low	1.25	2	0.50	1	0.00	0	0.33	1	0.00	0	0.00	0	1.33	2	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.00	1	1.00	1
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.33	1	0.17	1	0.20	1	0.00	0
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.00	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.67	1	0.00	0	1.00	1	0.00	0
Congo, Republic of the	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	1.00	1	0.00	0	2.79	4	0.08	1	2.83	4	0.00	0	1.00	1	1.00	1	0.00	0	0.83	2	0.00	0	0.00	0	2.00	2	1.00	1	2.00	3
Côte d'Ivoire	Lower-middle	0.83	2	3.50	5	0.00	0	3.33	4	1.00	1	2.00	2	1.17	3	1.92	4	17.10	18	9.83	11	10.33	12	8.73	11	9.00	9	8.43	11	4.83	9	8.00	8	4.33	5	10.42	14	7.00	9
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Egypt	Lower-middle	86.42	101	104.50	120	122.38	142	188.13	233	201.25	243	156.24	193	139.31	168	142.71	169	193.83	241	199.87	242	185.39	246	202.42	272	236.50	351	258.71	417	260.18	418	233.50	367	278.74	422	248.32	388	295.54	451
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2	0.50	1	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.67	2	1.25	2
Eswatini	Lower-middle	0.33	1	1.00	2	1.00	2	0.33	1	3.00	3	1.08	3	0.25	1	0.00	0	0.33	1	1.00	2	3.58	9	1.58	3	1.58	4	2.00	4	0.75	2	0.06	1	0.00	0	1.33	3	0.79	3
Ethiopia	Low	1.00	1	2.00	2	0.00	0	0.67	2	0.00	0	3.08	5	0.50	1	3.17	6	4.00	7	7.50	12	5.08	10	8.67	15	6.67	10	8.19	14	8.41	17	6.93	14	7.25	13	17.54	38	17.01	31
Gabon	Upper-middle	0.50	1	1.50	2	0.50	1	1.00	1	0.67	2	1.00	1	0.00	0	0.33	1	1.00	1	2.13	4	1.00	1	1.08	3	2.83	4	0.75	2	1.00	2	0.58	2	2.23	4	2.50	4	0.67	1
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.20	1	0.00	0	0.00	0	2.40	4	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1
Ghana	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	2	0.10	1	0.25	1	0.50	2	1.00	1	1.46	3	2.03	5	5.42	8	3.33	6	4.73	11	6.42	10	7.91	13	11.77	20	20.53	30
Guinea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1	1.00	1	0.00	0	0.00	0	0.33	1	0.33	1	0.33	1	0.00	0	2.98	4	0.50	1	0.33	1

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Kenya	Lower-middle	2.00	3	3.58	6	1.58	3	1.25	2	1.50	2	0.00	0	0.00	0	0.50	1	0.77	3	4.58	7	2.00	2	3.53	6	6.25	8	8.19	12	4.76	9	5.42	9	10.42	13	2.24	4	12.74	20
Lesotho	Lower-middle	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.25	1	0.50	1	0.25	1	0.25	1	0.42	2	0.00	0	0.00	0	0.00	0	0.00	0
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	1	0.00	0	0.54	1	0.25	1	0.00	0
Libya	Upper-middle	1.50	2	0.00	0	0.50	1	1.75	3	1.00	1	2.00	3	1.83	2	0.58	2	2.83	5	2.67	4	4.00	4	1.63	4	3.29	8	0.92	3	2.03	7	5.50	17	5.25	10	1.25	4	4.29	11
Madagascar	Low	0.00	0	0.00	0	0.00	0	0.50	1	1.50	2	2.50	3	0.79	2	1.33	2	1.92	6	1.33	2	0.00	0	0.67	2	1.50	2	1.50	2	1.50	2	1.00	1	2.54	4	0.05	1	1.67	2
Malawi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.50	1	0.00	0	0.00	0	1.25	2	0.00	0	0.00	0	0.00	0	0.67	2	0.38	1	0.88	3	1.21	2	1.33	3	0.96	3
Mali	Low	0.00	0	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.70	3	2.67	3	0.50	1	0.00	0	1.67	3	1.50	2	1.50	4	1.33	2	1.00	2	0.50	1
Mauritania	Lower-middle	1.33	2	0.83	2	0.67	2	1.50	2	2.42	5	1.71	5	2.25	6	2.17	4	0.00	0	0.00	0	0.00	0	0.50	1	0.50	1	1.00	1	0.50	1	0.00	0	1.25	2	1.00	1	0.75	1
Mauritius	Upper-middle	2.13	4	4.17	6	3.83	5	1.50	2	0.00	0	1.00	2	4.00	5	0.50	1	5.83	7	7.33	9	4.90	6	2.00	2	5.67	9	4.83	6	1.58	3	3.00	3	3.75	7	7.33	8	4.92	6
Morocco	Lower-middle	80.52	101	106.98	127	95.87	115	112.38	138	101.71	136	124.25	150	116.50	144	100.90	133	126.59	172	128.63	164	156.26	203	156.18	206	126.68	177	157.02	205	178.99	235	199.38	259	249.15	307	227.57	275	321.09	379
Mozambique	Low	1.00	1	0.00	0	1.00	1	1.00	1	1.33	2	0.33	1	0.53	2	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	1.00	1	0.30	1	1.13	3	1.17	2	0.53	3	1.70	3	2.48	6
Namibia	Upper-middle	0.50	1	0.00	0	0.00	0	1.00	1	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	1.75	3	2.88	4	1.46	3	2.17	4	2.13	4	2.50	3	2.00	3
Niger	Low	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	1.00	1	1.33	2	1.33	3	0.00	0	0.25	1	0.00	0	0.50	1	1.67	2	1.67	4	0.83	2	2.50	4	1.00	2	2.42	6
Nigeria	Lower-middle	16.67	22	18.25	20	18.50	22	14.58	19	12.50	14	20.25	23	20.08	24	17.67	22	30.92	39	39.17	44	39.00	44	62.67	71	61.83	70	55.71	66	86.45	104	70.85	86	71.72	93	84.74	112	99.05	138
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	1.00	3	0.50	3	1.25	4	0.00	0	1.54	5	0.89	4
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	1.00	1	3.00	4	0.67	2	4.20	7	3.50	6	3.75	8	5.80	9	4.29	9	6.90	12	5.42	9	7.33	10	11.79	21	9.13	14	13.39	26	16.10	27	18.27	30	24.13	36	16.82	31	20.47	34
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.16	4	0.00	0	0.20	1
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
South Africa	Upper-middle	88.45	116	112.71	142	112.66	142	103.26	134	104.03	139	121.53	155	133.16	180	162.58	205	160.43	214	176.13	232	156.21	214	197.57	282	230.46	325	283.53	400	333.68	496	264.64	408	263.76	410	281.21	433	273.45	439
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1
Sudan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.25	1	1.00	1	0.00	0	1.00	1	0.17	1	2.33	3	2.50	3	1.88	5	3.35	8	3.74	10	0.96	4	2.90	7	2.25	7	3.89	12
Tanzania	Low	0.50	1	2.00	2	1.50	3	1.00	1	0.00	0	0.00	0	1.00	1	1.33	2	1.00	1	2.13	5	0.70	2	0.83	2	0.67	1	2.67	5	1.55	3	1.68	5	5.33	7	4.73	10	2.88	7
Togo	Low	0.50	1	0.00	0	0.00	0	1.00	2	1.25	2	0.00	0	1.00	1	0.33	1	1.00	2	1.00	1	0.00	0	1.33	3	0.00	0	0.45	2	1.00	1	0.92	3	0.00	0	0.00	0	0.50	1
Tunisia	Lower-middle	56.98	74	61.80	75	71.33	89	75.26	92	71.30	88	98.51	123	93.46	121	126.66	156	138.93	173	150.17	186	184.18	226	194.83	254	196.84	274	203.45	263	213.12	270	215.38	282	253.74	324	278.43	368	261.80	345
Uganda	Low	0.00	0	1.58	3	1.33	2	0.00	0	0.00	0	1.83	3	0.00	0	3.23	4	3.00	3	0.17	1	2.00	4	0.00	0	1.33	3	2.75	5	2.00	3	1.08	2	2.98	9	4.47	11	5.79	10
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	0.50	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.33	1	0.00	0	0.00	0	1.00	1	1.13	2	0.00	0	0.00	0	0.38	1	0.61	2	0.75	3	1.00	4	0.50	1
Zimbabwe	Low	1.50	3	2.75	4	1.50	2	0.25	1	1.33	2	1.75	3	1.00	1	2.92	4	3.03	6	3.88	5	0.70	2	2.67	6	2.50	3	2.00	3	4.00	4	4.21	6	3.75	6	7.24	11	5.75	7
Asia		4272.25	4,851	4759.63	5,292	4877.72	5,463	5298.84	6,051	5856.31	6,655	6250.56	7,131	7357.31	8,329	8471.06	9,530	9730.08	10,954	11806.59	13,134	11695.80	13,059	12978.28	14,629	14859.67	16,685	18570.93	20,692	19578.01	21,896	17440.08	19,666	16721.96	19,027	19088.15	21,644	20890.40	23,613
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	1.00	1	38.58	48	25.41	32	32.09	37
Bangladesh	Lower-middle	6.42	9	6.17	7	11.17	16	8.17	10	9.00	11	8.17	10	5.50	6	4.67	8	14.50	18	16.08	21	18.08	24	22.48	32	17.63	30	19.72	34	25.83	45	25.03	34	22.13	38	67.13	83	24.31	37

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
Brunei	High	4.25	7	3.38	5	5.75	7	4.33	6	3.75	5	3.50	4	1.00	2	5.08	7	7.17	12	2.83	5	1.33	2	4.00	7	4.75	6	4.58	8	4.67	7	1.32	5	3.75	6	2.58	5	1.45	3
Burma	Lower-middle	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.58	2	0.20	1	0.67	1	0.00	0	0.00	0	0.50	1	1.53	3
Cambodia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	2	0.00	0	0.10	1	0.00	0	0.00	0	0.20	1	0.20	2	0.79	3
China	Upper-middle	1596.47	1,869	1981.36	2,255	1995.47	2,268	2236.34	2,619	2757.75	3,215	2962.17	3,422	3729.09	4,270	4451.49	5,064	5238.83	5,937	6803.73	7,613	6470.59	7,290	7144.33	8,057	8430.99	9,440	11279.73	12,526	12038.00	13,401	10192.83	11,556	9596.83	10,973	10224.90	11,740	10981.07	12,692
India	Lower-middle	453.01	531	447.32	526	517.31	605	526.63	627	532.57	620	609.79	730	683.54	823	840.13	977	981.22	1,151	1141.65	1,337	1200.78	1,398	1443.55	1,702	1569.74	1,858	1836.87	2,172	2037.43	2,388	2243.77	2,576	2247.51	2,591	3641.34	4,048	4684.72	5,138
Indonesia	Lower-middle	2.75	6	3.00	6	4.28	9	2.92	8	4.42	11	5.25	9	8.17	12	7.83	12	5.63	11	13.33	23	14.16	26	10.34	19	16.83	29	35.19	53	23.29	36	29.31	51	39.69	59	85.97	108	104.65	126
Japan	High	1250.00	1,406	1295.39	1,483	1235.51	1,387	1332.31	1,539	1361.79	1,570	1302.43	1,503	1225.53	1,562	1420.78	1,652	1458.25	1,704	1517.35	1,790	1565.19	1,843	1583.76	1,893	1670.04	2,008	1777.06	2,132	1790.58	2,178	1681.86	2,067	1612.60	1,984	1770.44	2,167	1644.43	2,052
Kazakhstan	Upper-middle	11.70	13	18.50	21	11.25	15	25.83	28	29.00	33	15.92	20	21.83	23	21.72	27	17.83	21	27.50	30	41.25	44	39.06	50	44.81	54	58.67	68	76.62	99	99.48	127	91.88	127	132.86	188	117.75	154
Kyrgyzstan	Lower-middle	1.00	1	2.00	2	0.00	0	0.00	0	4.00	5	0.00	0	3.50	4	3.00	3	4.00	4	2.25	3	1.33	2	1.33	2	1.50	2	0.92	2	4.00	4	2.00	2	6.95	9	9.08	16	11.00	14
Laos	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.60	2	0.00	0	0.00	0
Malaysia	Upper-middle	18.62	23	22.92	26	20.03	24	22.67	31	18.00	24	33.70	40	57.22	65	59.88	72	92.73	114	134.72	161	175.25	214	220.89	281	279.39	366	374.13	490	339.19	455	260.35	341	267.88	358	217.83	298	291.09	376
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	3.50	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	0.00	0	2.50	3	1.00	1	2.06	4	0.33	1	0.95	3	0.00	0	0.00	0	1.50	2	2.33	3	4.50	6	2.50	3	6.50	8	5.62	9	8.33	12	8.21	11	8.04	11	6.00	8	7.67	11
Nepal	Low	0.50	1	0.00	0	0.50	1	0.33	1	1.00	1	1.00	2	0.75	2	1.33	2	2.25	3	0.33	1	1.50	3	1.00	2	0.00	0	1.33	2	3.00	5	3.08	5	4.33	6	1.03	3	1.58	3
North Korea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.92	4	0.54	3	0.29	2	1.75	5	0.08	1	1.25	3	0.83	2	1.50	3	0.33	2	0.58	3	3.50	4	6.25	10	4.25	7	11.00	14	13.07	16
Pakistan	Lower-middle	6.75	9	11.29	15	9.76	18	12.08	18	23.79	32	37.27	48	73.59	95	100.50	122	135.68	177	183.04	251	206.14	273	259.04	364	271.88	395	293.64	416	374.42	523	339.25	459	367.35	504	415.26	579	487.32	693
Papua New Guinea	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	1.17	2	0.25	1	0.17	1	1.00	1	0.17	1	0.00	0	0.00	0	0.33	1	0.00	0	2.50	3	2.50	5	0.33	1	0.00	0	2.00	3	0.58	2
Philippines	Lower-middle	5.50	7	3.67	5	7.37	11	5.50	9	2.20	4	5.58	8	4.58	8	6.08	9	3.83	6	4.85	10	5.42	9	7.24	14	10.68	14	8.07	12	19.29	25	34.20	42	40.12	50	43.74	52	28.56	39
Singapore	High	116.37	177	156.19	212	159.96	220	165.25	228	141.94	200	138.33	198	137.23	212	153.88	233	148.59	236	159.21	250	156.38	262	160.30	259	171.47	272	166.04	285	183.05	327	173.15	293	160.44	278	143.93	263	168.37	309
South Korea	High	391.00	460	412.80	507	482.58	574	530.56	657	486.26	612	567.73	717	634.77	797	718.03	890	845.60	1,026	839.42	1,060	848.90	1,085	923.09	1,215	1091.11	1,450	1264.09	1,645	1187.24	1,583	1175.29	1,519	1129.78	1,477	1183.94	1,538	1172.97	1,549
Sri Lanka	Lower-middle	2.00	3	0.20	1	0.00	0	0.83	2	0.08	1	5.58	8	5.13	9	4.38	6	3.17	6	6.30	11	2.17	4	6.17	8	3.06	6	6.69	10	5.54	10	4.50	11	11.87	18	12.28	15	11.87	16
Taiwan	High	329.48	396	305.66	367	318.16	371	327.48	391	370.87	447	419.09	503	510.04	604	518.88	634	609.06	752	676.86	844	649.68	808	699.86	861	782.04	957	869.14	1,064	803.62	983	652.01	844	505.20	712	462.29	680	412.64	676
Tajikistan	Low	5.00	5	4.50	5	10.83	12	8.50	9	10.00	12	14.25	21	6.50	7	3.00	5	3.00	4	3.50	6	7.83	10	6.50	9	4.67	8	10.42	13	9.08	13	5.67	7	5.99	9	11.22	14	4.17	6
Thailand	Upper-middle	14.17	17	11.46	16	18.87	23	26.08	34	20.08	27	38.28	52	59.38	69	62.58	77	57.86	81	119.16	141	149.17	170	225.98	257	248.95	279	278.51	328	318.18	382	218.43	273	228.03	285	236.57	290	283.60	337
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Turkmenistan	Upper-middle	0.50	1	0.25	1	0.00	0	0.95	3	1.33	3	0.75	3	1.58	4	1.33	2	0.83	2	1.50	3	1.08	5	4.08	9	6.69	20	2.83	9	4.67	13	2.00	6	0.75	2	1.75	4	0.25	1
Uzbekistan	Lower-middle	23.25	25	17.83	20	24.58	28	11.60	17	27.40	31	24.28	31	27.83	34	29.17	36	24.67	30	38.50	45	35.42	47	39.17	53	44.95	58	58.91	77	68.13	94	58.08	74	44.17	61	55.75	75	69.50	85
Vietnam	Lower-middle	33.33	40	53.25	62	43.33	52	47.42	59	48.67	62	55.42	67	59.75	75	54.57	71	107.70	137	110.90	143	137.67	172	167.44	214	181.07	224	214.89	259	247.06	311	222.68	301	283.04	368	323.63	446	331.88	451
Australia and Oceania		599.82	769	552.81	732	529.66	703	509.14	709	642.29	860	597.38	855	621.22	876	629.47	899	754.91	1,106	725.53	1,041	721.28	1,072	760.66	1,126	812.68	1,194	784.49	1,205	905.53	1,409	830.10	1,282	820.57	1,307	794.23	1,277	770.99	1,292
Australia	High	519.08	677	456.29	617	428.10	574	427.19	606	548.37	739	505.28	724	524.94	730	531.95	764	649.44	943	606.35	883	604.43	892	643.06	952	686.87	1,016	649.13	1,004	781.54	1,222	706.54	1,105	699.37	1,137	682.33	1,110	663.19	1,130
Cook Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	0.33	1	0.00	0	2.50	3	1.08	3	1.00	2	1.00	1	1.00	3	0.00	0	1.00	2	1.00	1	0.67	2	2.50	3	0.67	1	2.00	2	1.00	1	4.50	5	1.92	3	3.00	1	1.00	1
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-12

S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	80.41	108	96.52	125	99.07	133	80.87	119	92.91	133	91.10	141	95.28	160	97.52	151	103.98	179	118.19	173	116.19	191	115.10	202	125.14	199	133.36	218	123.00	225	118.56	196	119.28	187	110.90	178	106.80	175
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	122.46	269	224.58	471	60.78	132	116.98	236	381.27	762	385.80	779	231.68	536	227.54	549	150.39	370	87.77	200	74.82	159	68.15	170	36.82	89	43.32	104	61.77	143	41.80	114	28.09	83	42.80	117	45.07	123

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		14702.00	14,702	15630.00	15,630	16356.00	16,356	17516.00	17,516	18965.00	18,965	20780.00	20,780	23188.00	23,188	25100.00	25,100	26718.00	26,718	29466.00	29,466	29807.00	29,807	33406.00	33,406	33309.00	33,309	37314.00	37,314	40331.00	40,331	41707.00	41,707	48824.00	48,824	53147.00	53,147	61733.00	61,733
North America		5791.37	6,220	5160.00	5,550	5627.33	6,102	5666.57	6,291	6521.16	7,230	7182.24	8,034	6653.74	7,546	6995.86	7,985	7122.97	8,111	7401.34	8,537	6989.86	8,189	7853.11	9,195	7010.30	8,395	7189.14	8,804	7517.93	9,346	7535.53	9,558	8029.20	10,512	8741.55	11,497	8543.30	11,950
Canada	High	1128.31	1,317	1029.54	1,183	1076.86	1,280	1123.17	1,408	1190.91	1,502	1488.15	1,874	1328.52	1,697	1345.53	1,739	1333.13	1,728	1328.19	1,762	1291.74	1,760	1338.23	1,832	1375.92	1,887	1359.11	1,897	1371.52	1,970	1431.97	2,063	1510.99	2,282	1565.28	2,393	1671.59	2,625
Greenland	High	4.17	9	1.20	3	3.75	7	1.04	4	2.63	7	3.68	12	3.10	9	2.40	12	2.97	11	1.33	5	1.13	4	1.61	12	1.16	6	3.09	11	2.75	10	1.36	10	2.47	10	1.60	10	2.17	11
Mexico	Upper-middle	79.55	105	108.05	139	122.99	158	167.57	201	192.72	225	185.50	232	206.75	257	244.70	312	255.35	323	264.11	330	316.59	376	360.03	443	359.14	449	423.10	515	437.91	542	512.96	628	474.60	604	638.04	794	664.79	876
United States	High	4579.35	5,002	4021.21	4,421	4423.73	4,892	4374.79	5,003	5134.91	5,847	5504.91	6,336	5115.37	5,976	5403.24	6,316	5531.51	6,420	5807.71	6,838	5380.40	6,460	6153.24	7,351	5274.07	6,498	5403.83	6,825	5705.75	7,307	5589.24	7,382	6041.14	8,189	6536.63	8,919	6204.74	9,174
Central America and Caribbean		30.45	46	46.73	63	29.75	50	38.05	72	40.90	66	41.20	74	38.64	67	54.60	99	49.94	84	62.88	117	53.08	107	62.43	120	67.39	137	57.34	128	76.05	152	51.36	115	61.29	136	93.43	178	83.72	192
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Bahamas, The	High	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.25	1	0.37	1	0.23	2	0.99	3	0.77	2	1.33	3	0.00	0	0.91	4	1.31	5	1.18	2	2.55	8	0.71	3	1.06	3	3.47	8
Barbados	High	1.67	2	4.42	5	1.00	1	1.60	2	2.32	4	1.83	4	1.00	1	2.79	4	0.83	2	2.25	5	0.75	2	1.36	3	4.48	7	3.12	6	1.50	2	2.67	6	0.10	1	7.11	15	1.93	7
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.51	2	0.94	3	2.65	4	0.33	1	0.31	2	0.00	0	0.50	1	0.40	1	0.00	0	0.25	1	1.21	4	0.79	4	0.75	2	0.74	2	1.50	5	0.85	3
Costa Rica	Upper-middle	13.11	18	24.18	34	7.32	14	12.63	20	11.18	21	9.04	18	4.97	9	13.95	28	11.83	19	13.84	28	14.11	26	13.98	25	13.66	25	18.10	35	25.71	45	16.30	34	20.71	39	30.14	51	24.05	51
Cuba	Upper-middle	1.60	3	2.00	2	3.54	5	4.29	8	3.21	5	7.49	10	7.76	14	10.60	18	9.39	12	10.94	20	18.69	30	17.09	31	15.38	28	15.81	30	14.29	27	7.63	18	14.04	31	16.73	30	12.63	31
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.58	1	0.00	0	0.00	0	0.07	1	0.00	0	0.00	0
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.83	1	0.50	1	0.69	3	0.99	3	1.00	1	0.35	2	0.33	2	2.00	4
El Salvador	Lower-middle	0.00	0	0.00	0	0.20	1	0.00	0	0.14	1	0.00	0	0.00	0	0.06	1	0.00	0	0.00	0	0.08	1	0.00	0	0.60	1	0.29	1	0.83	1	0.47	4	0.33	1	1.47	2	0.09	1
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.17	1	0.00	0	0.00	0	0.42	2	0.30	2	0.00	0	1.72	5	0.29	1	0.40	3	1.16	7	1.38	5
Guatemala	Upper-middle	0.00	0	0.20	1	0.00	0	0.00	0	0.31	2	0.10	1	0.67	1	0.90	4	0.79	3	0.40	1	1.21	4	0.50	2	2.57	7	0.67	4	1.13	3	0.30	4	0.75	4	0.33	1	0.66	3
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.81	2	0.00	0	1.00	3	0.00	0	0.10	1	0.00	0	0.00	0	1.02	3	1.00	1	0.00	0	0.00	0	0.50	2
Honduras	Lower-middle	1.83	3	0.00	0	0.00	0	1.05	3	1.98	5	0.71	3	0.45	2	1.31	5	0.75	2	0.33	2	0.49	3	1.49	5	1.17	3	0.25	1	0.35	2	0.10	3	0.29	1	0.60	3	1.10	3
Jamaica	Upper-middle	1.33	2	3.75	4	4.08	6	5.13	8	2.20	3	3.00	3	1.60	2	1.00	1	2.83	3	3.38	5	2.00	2	2.93	4	1.96	5	0.14	1	2.85	4	4.47	8	1.80	5	2.49	5	4.14	9
Nicaragua	Lower-middle	0.50	1	0.67	2	0.43	1	1.53	5	0.48	3	1.58	3	4.63	10	1.38	4	0.50	2	2.16	6	1.84	9	2.46	5	1.65	6	1.16	4	1.27	5	1.29	6	0.85	2	0.16	3	0.30	3
Panama	High	0.50	1	0.25	1	0.77	3	1.88	8	1.82	3	2.28	6	2.04	4	0.39	2	1.42	7	3.86	9	2.62	7	7.53	20	4.49	12	3.37	12	2.90	13	2.93	11	3.14	12	5.41	17	2.73	18
Puerto Rico	High	7.08	12	6.52	10	8.41	15	6.76	14	9.17	14	6.05	13	8.48	16	11.37	20	10.53	22	16.95	30	7.98	21	12.20	19	12.68	27	5.79	18	13.98	32	5.26	16	8.94	18	15.57	29	12.49	31
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.40	4	0.89	2	0.64	2	0.51	2	0.00	0	0.27	2
Saint Lucia	Upper-middle	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.10	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.20	1	0.00	0	0.20	1
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	1	0.00	0	0.13	1	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	2.83	4	4.75	6	3.00	4	1.67	3	6.83	8	6.11	8	5.33	6	8.62	13	9.92	13	6.40	8	1.33	4	1.53	4	6.79	11	3.45	6	4.67	7	3.62	5	7.36	13	9.37	13	14.45	21
South America		261.26	325	295.01	366	410.65	492	320.04	401	398.94	503	419.02	555	695.86	850	899.56	1,067	894.78	1,064	1123.42	1,344	1139.90	1,330	1341.88	1,555	1551.40	1,801	1796.70	2,104	2045.14	2,411	2108.02	2,518	2511.99	3,077	2728.40	3,274	3063.78	3,752
Argentina	High	44.11	51	44.63	55	53.40	67	57.05	66	63.27	77	68.04	91	102.68	128	108.44	135	119.53	148	128.50	160	125.46	164	148.19	177	164.88	210	186.96	244	292.59	358	177.61	218	243.07	316	226.92	294	278.61	356
Bolivia	Lower-middle	7.47	9	2.25	3	3.93	8	2.10	5	2.58	6	2.28	6	5.46	11	4.37	10	4.69	11	5.26	12	5.12	11	2.82	8	8.39	20	3.89	13	5.87	15	4.84	11	7.88	25	4.34	12	5.69	18
Brazil	Upper-middle	144.81	186	176.80	216	267.69	316	175.93	212	228.54	290	250.55	318	452.90	535	624.01	710	598.74	688	791.12	901	840.74	925	1003.22	1,118	1163.48	1,283	1360.70	1,507	1490.66	1,681	1599.44	1,812	1834.06	2,122	2026.26	2,313	2204.57	2,596
Chile	High	36.82	46	38.79	46	49.37	60	54.31	76	62.37	86	52.73	81	81.29	112	106.14	152	110.35	149	108.06	159	106.24	157	114.19	166	125.49	191	143.43	212	141.86	217	166.15	259	205.44	330	218.04	347	245.15	401
Colombia	Upper-middle	5.38	7	5.62	12	3.39	8	6.35	11	14.71	22	7.62	20	18.24	31	31.84	51	22.61	33	45.00	77	38.77	68	37.21	64	46.49	77	54.97	94	63.21	103	89.88	151	120.57	199	143.72	214	178.72	269

TABLE SSA-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	5.00	7	5.58	8	4.17	7	4.24	7	3.27	7	2.84	6	1.52	4	6.60	11	5.08	9	2.58	10	2.06	9	4.28	12	2.83	10	7.07	22	8.94	28	23.06	53	38.71	84	38.50	92	67.40	128
Guyana	Upper-middle	1.50	2	1.00	1	1.03	2	0.00	0	0.25	1	0.33	1	0.29	2	0.25	1	0.50	1	0.20	1	0.58	2	0.67	2	0.33	1	1.33	2	1.83	3	0.50	2	0.33	1	0.38	2	0.17	1
Paraguay	Upper-middle	0.87	2	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.84	4	0.00	0	1.16	5	0.00	0	2.60	6	1.78	7	2.27	6
Peru	Upper-middle	2.60	3	6.83	11	8.56	13	2.17	5	4.58	10	4.12	10	3.77	12	4.95	12	6.94	17	6.71	18	5.93	17	11.31	27	7.19	23	9.06	33	16.16	46	18.71	56	15.83	48	32.93	63	43.47	92
Suriname	Upper-middle	1.00	1	0.33	1	0.50	1	0.00	0	0.00	0	0.50	1	1.50	2	0.75	1	0.00	0	0.25	1	0.00	0	0.00	0	1.62	4	0.00	0	0.00	0	0.00	0	0.13	1	0.81	3	0.25	1
Uruguay	High	3.00	3	1.83	4	1.67	4	4.75	6	5.89	10	10.96	14	5.22	9	4.10	9	8.44	17	14.06	26	6.21	11	7.94	12	17.07	26	10.74	18	12.92	25	14.11	29	24.50	45	17.37	32	24.09	38
Venezuela	Upper-middle	8.70	14	11.35	15	16.95	19	13.13	18	13.34	19	19.05	30	22.98	34	8.10	14	17.88	28	35.29	29	8.80	13	11.71	22	12.78	18	18.54	29	9.94	21	13.72	20	18.87	29	17.35	36	13.40	35
Europe		4808.87	5,223	5218.54	5,640	5388.80	5,859	6064.55	6,668	6297.67	6,972	6491.19	7,280	7905.26	8,767	8275.75	9,150	8840.92	9,737	9478.51	10,531	9604.11	10,718	10600.72	11,883	11079.96	12,473	11934.06	13,509	12909.24	14,684	12985.22	14,976	15215.61	17,662	16117.74	18,876	18439.88	21,978
EU		4291.44	4,717	4584.23	5,041	4681.86	5,184	5212.99	5,862	5433.85	6,141	5581.21	6,410	6649.42	7,550	6925.55	7,848	7443.66	8,400	7929.33	9,046	8010.47	9,194	8816.68	10,166	9274.57	10,745	10040.26	11,712	10892.29	12,776	10902.72	13,005	12981.33	15,577	13418.08	16,291	15178.42	18,864
Austria	High	68.44	90	82.37	117	70.41	108	81.83	126	87.48	126	103.70	165	120.31	201	162.30	254	149.00	235	156.05	265	159.32	254	164.77	259	181.00	297	199.40	337	205.47	367	227.34	384	234.51	464	255.47	474	308.74	578
Belgium	High	106.53	141	124.87	171	124.83	174	160.89	220	177.71	248	180.54	248	172.08	257	218.26	313	182.20	259	198.89	303	211.78	338	217.61	331	221.76	355	231.57	394	250.69	423	259.88	441	300.06	552	261.01	529	299.63	599
Bulgaria	Upper-middle	18.23	23	15.40	21	5.77	10	17.85	26	18.02	27	11.58	18	16.77	26	27.78	40	15.90	27	33.48	54	29.70	50	51.51	72	36.61	53	31.94	51	37.14	54	35.75	56	46.01	75	48.39	86	44.45	69
Croatia	High	34.48	38	30.16	34	21.54	27	33.70	36	48.33	52	65.33	78	146.82	160	123.75	141	128.71	148	134.56	154	101.47	120	184.37	214	150.18	181	121.65	156	95.03	124	112.24	146	130.66	182	144.24	193	143.83	218
Cyprus	High	0.00	0	3.00	3	2.50	3	5.36	9	5.41	9	3.38	5	2.12	4	5.45	7	11.48	17	17.09	30	7.28	21	7.85	17	7.59	15	14.46	34	21.98	40	15.06	37	26.23	44	17.51	34	31.10	59
Czechia	High	31.04	38	71.74	86	70.89	87	115.00	141	141.88	168	116.34	146	150.46	181	173.87	209	181.25	225	255.32	310	305.78	366	302.74	363	296.54	368	295.76	380	372.26	483	396.47	522	476.76	638	534.77	726	555.26	791
Denmark	High	161.37	210	160.54	214	129.02	193	145.23	199	167.81	251	156.60	234	185.98	282	198.51	296	204.80	307	218.21	353	214.03	336	225.63	374	231.03	378	239.98	422	289.45	529	291.90	514	331.68	646	359.70	695	383.70	782
Estonia	High	11.37	17	17.91	22	13.03	16	26.49	33	27.91	37	36.01	51	61.08	71	56.72	69	50.11	60	70.52	79	56.49	79	75.19	92	54.86	70	57.72	73	50.22	70	60.97	88	60.45	100	72.09	109	40.95	86
Finland	High	328.76	370	323.75	370	338.36	383	341.88	416	410.96	488	390.82	475	385.41	472	380.83	483	358.79	441	370.59	473	420.78	533	391.95	496	401.04	536	387.47	520	412.86	564	408.59	546	441.56	644	449.67	669	479.68	733
France	High	406.98	496	386.61	486	452.07	565	464.23	622	490.58	664	475.46	683	614.43	832	569.77	798	690.88	931	713.86	1,008	591.46	878	722.21	1,058	713.24	1,068	833.33	1,244	955.45	1,458	848.80	1,350	1067.64	1,703	950.47	1,621	1124.40	1,918
Germany	High	559.30	693	590.13	721	632.14	815	617.85	818	581.11	813	691.28	980	689.20	969	779.49	1,095	795.79	1,118	829.01	1,207	781.85	1,183	978.82	1,412	951.27	1,412	1032.10	1,565	1031.94	1,625	1083.37	1,763	1239.26	2,040	1381.01	2,245	1412.35	2,448
Greece	High	111.76	135	156.75	192	158.02	181	176.65	219	235.19	274	176.53	210	287.73	333	245.44	297	256.92	303	316.51	375	294.57	356	280.78	361	318.33	384	340.07	436	333.24	424	302.74	415	327.01	447	351.98	479	364.79	558
Hungary	High	17.45	23	24.47	31	31.39	43	24.52	38	22.32	30	27.18	47	44.36	65	35.11	55	34.40	55	88.27	127	64.61	100	69.81	92	98.13	136	105.88	143	100.84	135	96.40	142	112.21	179	119.51	184	129.16	198
Ireland	High	39.99	58	42.21	61	47.70	62	50.23	68	50.65	73	49.32	72	78.42	106	71.89	104	75.60	108	81.15	117	80.18	125	127.53	182	107.17	156	110.94	168	107.08	187	92.70	169	121.04	220	126.61	211	152.89	288
Italy	High	256.54	305	304.57	359	321.83	382	376.98	464	395.27	491	401.14	500	536.08	657	510.38	659	588.24	731	631.99	819	659.17	828	690.12	874	773.25	1,002	902.75	1,196	1102.46	1,472	1070.91	1,470	1321.14	1,846	1385.13	1,881	1619.37	2,280
Latvia	High	2.87	5	7.17	9	3.20	4	6.23	8	3.50	5	44.66	50	43.67	44	30.19	34	7.58	11	51.55	55	84.27	92	91.91	99	86.87	92	101.24	115	77.18	83	118.68	138	123.31	148	153.74	175	123.77	145
Lithuania	High	3.12	7	13.14	14	8.45	11	11.91	15	13.88	20	31.48	39	49.50	58	64.96	77	39.04	49	40.53	55	59.39	71	69.49	78	67.78	83	55.65	65	80.15	95	81.09	106	106.49	147	80.73	118	106.31	152
Luxembourg	High	0.00	0	1.00	1	0.29	1	0.20	1	2.58	5	2.18	6	1.13	2	3.53	5	3.28	5	9.92	17	6.53	14	5.88	11	8.17	17	13.21	26	15.23	29	14.91	22	10.33	21	14.01	24	11.75	40
Malta	High	2.13	3	1.10	2	4.17	5	4.79	7	2.00	3	0.13	1	1.00	1	0.13	2	1.50	2	0.14	1	5.44	9	2.78	6	2.35	4	2.42	6	2.62	5	6.45	14	4.47	7	7.23	13	6.15	16
Netherlands	High	206.34	278	208.35	279	236.64	310	198.82	286	213.87	317	231.40	337	285.14	407	290.04	449	314.07	467	331.90	525	329.87	531	328.24	542	341.30	612	395.95	695	468.80	816	425.17	739	546.52	996	507.15	986	625.57	1,212
Poland	High	192.39	215	183.86	196	259.48	289	269.90	296	288.63	329	278.77	320	325.68	381	351.88	405	428.37	476	514.04	586	502.80	589	576.71	656	643.08	722	818.28	903	892.87	987	960.88	1,060	1328.55	1,468	1578.58	1,751	1953.08	2,162
Portugal	High	75.63	97	96.71	128	108.33	136	129.02	167	142.18	187	150.03	194	199.59	251	243.85	317	310.24	399	295.93	376	317.41	411	362.43	468	345.30	465	408.61	548	459.30	627	491.85	668	512.82	755	525.15	757	615.79	939
Romania	Upper-middle	11.47	16	9.30	12	9.15	22	9.02	16	7.30	23	8.82	20	20.24	36	29.17	44	69.20	88	119.13	150	174.14	196	148.86	185	180.50	209	190.41	228	161.92	203	197.50	254	158.36	226	187.57	260	206.45	285
Slovakia	High	18.22	24	49.02	53	37.20	47	39.61	51	28.79	42	39.09	47	49.66	62	77.75	94	124.74	140	104.37	128	108.12	136	126.61	158	158.40	198	201.55	243	171.11	216	189.56	242	257.45	323	219.66	291	205.95	284
Slovenia	High	23.23	27	11.58	14	28.05	31	20.78	24	20.65	25	34.97	48	48.22	73	76.81	93	70.65	93	72.46	109	69.04	99	78.39	116	91.09	135	89.93	127	87.37	142	92.97	142	102.36	180	88.12	165	99.32	180

TABLE SSA-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	322.42	371	390.41	448	385.46	461	449.89	543	510.51	620	493.03	625	655.48	800	710.19	874	881.18	1,088	855.35	1,056	969.34	1,217	1006.48	1,308	1212.37	1,563	1191.49	1,577	1307.22	1,732	1277.50	1,756	1523.89	2,173	1538.97	2,212	1832.60	2,688
Sweden	High	394.74	471	383.49	449	351.21	426	459.73	576	462.32	587	454.03	587	500.24	622	455.96	599	473.53	623	424.47	594	450.18	637	475.53	691	551.06	809	566.05	818	611.89	909	595.44	912	659.02	1,093	658.95	1,074	701.77	1,216
United Kingdom	High	886.45	1,086	894.61	1,101	830.74	1,062	974.38	1,284	876.99	1,176	927.41	1,230	978.63	1,340	1031.55	1,421	996.22	1,381	994.04	1,446	955.48	1,417	1052.48	1,563	1044.29	1,616	1080.46	1,705	1190.53	1,945	1147.61	1,941	1411.54	2,480	1400.65	2,467	1599.60	3,032
Other Europe		517.42	662	634.31	783	706.94	866	851.56	1,078	863.83	1,140	909.98	1,192	1255.83	1,563	1350.20	1,689	1397.26	1,773	1549.57	1,993	1593.64	2,044	1784.04	2,259	1805.39	2,365	1893.80	2,508	2016.95	2,663	2082.50	2,798	2234.27	3,120	2699.66	3,634	3261.45	4,396
Albania	Upper-middle	1.50	2	0.50	1	0.00	0	0.48	2	0.27	2	0.50	1	0.33	1	1.00	1	1.67	3	4.40	5	4.20	7	13.92	18	10.00	17	8.60	11	9.97	16	4.53	10	7.01	13	4.91	10	4.87	16
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.70	2	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	1.77	3	3.70	7	4.96	9	5.19	9	2.83	9	2.32	4	2.00	2	8.45	11	2.20	3	4.15	9	1.98	8	3.19	6	9.62	14	3.02	7	4.62	6	7.37	13	4.92	9	10.85	22	15.54	35
Bosnia and Herzegovina	Upper-middle	0.50	1	1.50	2	0.00	0	0.00	0	0.25	1	0.60	1	4.42	5	4.61	8	5.43	11	6.14	9	6.82	11	9.90	23	5.85	11	8.87	17	8.19	16	10.31	21	13.43	25	15.80	35	22.42	44
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Iceland	High	14.94	26	13.92	21	19.01	26	19.88	33	13.39	26	18.18	27	25.41	42	13.41	33	17.52	34	20.52	41	31.94	52	23.83	41	36.68	68	24.80	56	32.48	57	31.49	60	26.50	59	29.40	52	40.78	74
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.10	4	2.17	4	1.00	1	3.80	7	5.53	7	4.68	8	6.31	7	5.29	14	5.10	15	11.13	16	8.09	16
Liechtenstein	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.75	1	0.00	0	1.00	1	0.90	2	0.40	1	0.75	1
Moldova	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.43	1	1.67	2	2.13	3	0.00	0	0.63	2	0.00	0	2.33	3	3.88	5	9.30	12	3.58	5	0.57	2	1.60	3	3.78	8	3.37	8
Monaco	High	1.00	1	1.67	3	0.77	3	1.56	2	2.23	5	2.59	8	4.70	11	1.75	5	2.64	8	4.53	9	2.55	4	2.17	7	2.87	7	3.59	9	0.79	5	4.64	10	5.19	14	6.29	14	10.22	19
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.21	4	0.33	1	2.00	2	2.45	4	3.90	6	1.90	4	6.64	10	2.32	6	2.07	6	4.90	12	6.28	12	6.99	16
North Macedonia	Upper-middle	0.00	0	1.00	1	0.00	0	0.33	1	1.00	1	2.67	5	4.75	7	2.00	3	2.00	4	6.50	13	4.71	10	6.75	14	6.45	12	13.75	25	9.79	17	11.66	21	10.08	24	9.60	23	7.55	20
Norway	High	234.00	306	265.96	336	281.55	348	303.75	406	288.89	388	261.06	386	372.43	506	343.54	479	334.37	504	327.63	491	342.71	538	413.92	612	409.23	649	452.42	711	422.41	674	376.33	640	407.56	734	457.93	807	474.47	859
Russia	Upper-middle	69.13	99	96.76	128	101.24	134	87.53	133	54.84	106	84.88	133	157.40	205	202.86	261	161.19	215	158.43	218	188.03	232	226.52	279	184.56	242	188.78	241	337.83	409	260.77	333	375.36	480	681.32	799	1111.18	1,298
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	32.52	39	44.60	49	55.78	63	73.38	91	86.30	102	125.39	141	129.56	155	120.83	145	158.69	194	185.68	234	157.62	207	141.25	193
Serbia and Montenegro[b]	Lower-middle	6.02	7	11.41	15	8.58	11	12.96	18	18.55	22	19.04	25	28.63	36	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	100.95	138	120.29	160	126.50	180	147.25	209	138.62	210	179.79	258	201.22	291	215.73	329	216.12	328	264.23	429	216.06	367	273.39	419	303.51	499	332.47	548	367.80	619	355.54	629	378.82	717	381.12	709	439.35	842
Turkey	Upper-middle	78.44	86	108.79	118	155.00	168	259.11	283	330.81	374	321.95	354	437.91	470	489.08	516	583.73	615	651.13	692	702.40	759	643.63	699	659.76	724	660.66	724	647.93	709	819.02	911	777.10	892	883.64	1,005	844.69	983
Ukraine	Lower-middle	9.17	14	8.82	18	9.34	16	13.51	23	11.65	28	15.97	24	14.96	21	31.59	41	23.36	36	41.35	58	15.40	26	70.50	94	39.66	63	45.20	69	41.61	64	33.32	54	30.13	66	39.59	75	129.93	179
Middle East		133.62	160	155.69	180	163.75	200	196.34	249	217.10	272	236.62	298	356.06	432	430.01	529	486.00	582	553.43	669	663.47	792	819.68	1,039	912.87	1,137	1057.25	1,315	1122.96	1,419	1185.62	1,558	1374.14	1,803	1661.84	2,215	1949.34	2,629
Armenia	Upper-middle	0.00	0	0.50	1	0.83	2	1.00	1	0.83	2	1.25	3	6.30	8	2.00	2	1.21	3	2.83	4	4.67	5	12.96	16	3.00	3	0.00	0	1.00	1	2.67	4	3.56	5	5.87	9
Azerbaijan	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.56	3	3.63	4	4.50	5	2.81	5	1.00	1	3.58	5	2.50	3	1.67	2	5.87	9	1.33	4	2.06	4	3.23	6	6.15	11	5.91	14
Bahrain	High	0.33	1	2.00	2	2.00	2	0.81	2	2.75	4	1.00	1	0.17	1	0.83	2	0.13	1	3.77	6	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	5.82	9	2.83	5	11.12	14	6.75	9
Gaza Strip[c]	Upper-middle	0.00	0	0.50	1	1.00	1	1.50	2	0.20	1	1.50	2	3.00	3	0.00	0	2.00	2	3.00	3	0.73	2	3.67	5	0.00	0	3.13	5	3.33	6	0.67	2	2.22	5	5.27	8	4.17	6
Georgia	Lower-middle	1.00	1	0.00	0	2.30	3	1.83	3	0.04	1	0.25	1	4.00	5	6.49	8	1.06	2	2.24	4	1.00	1	2.00	3	7.40	8	10.48	17	2.40	4	4.33	5	2.16	3	8.21	12	7.99	16
Iran	Lower-middle	9.67	11	15.00	17	19.70	24	43.75	49	65.88	75	83.88	98	137.40	154	209.47	247	265.08	300	316.02	359	425.77	470	534.93	595	611.33	675	707.25	772	767.29	843	776.38	865	917.63	1,009	1062.99	1,209	1274.51	1,480
Iraq	Lower-middle	1.00	1	2.00	2	1.00	1	1.50	2	3.00	3	0.20	1	2.50	3	0.67	1	4.83	6	4.02	7	5.85	9	11.11	16	21.53	26	16.58	26	26.92	41	19.90	36	25.53	53	38.87	85	71.64	127
Israel	High	57.88	71	64.03	77	59.58	77	56.43	80	58.41	81	73.60	95	88.97	112	81.57	105	75.01	103	70.95	90	67.07	93	64.59	90	64.78	84	69.16	106	77.99	110	78.34	114	91.29	130	96.19	142	116.32	189
Jordan	Upper-middle	11.48	14	9.50	11	13.67	15	9.54	13	17.48	23	14.21	17	33.08	41	39.15	46	28.93	37	27.98	33	24.73	32	25.62	37	20.20	27	32.09	43	21.67	34	38.21	54	32.29	56	39.01	57	69.97	160

TABLE SSA-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	19.83	22	21.08	24	17.37	22	26.45	30	26.63	31	14.22	18	18.32	24	20.62	24	27.64	32	21.56	28	14.67	18	25.80	36	31.35	35	21.46	26	19.31	27	11.93	18	15.53	23	22.04	40	25.43	39
Lebanon	Upper-middle	4.89	8	12.08	13	11.60	14	12.53	15	6.82	14	7.25	12	16.26	23	10.18	16	9.38	12	15.07	22	13.08	23	12.30	19	18.77	31	23.58	38	23.86	39	19.72	33	24.20	49	48.44	73	48.73	86
Oman	High	4.12	7	6.37	9	5.06	7	6.64	9	10.72	12	7.54	9	10.19	14	8.28	11	10.12	15	10.98	21	13.13	20	13.96	22	14.09	21	22.20	31	19.12	31	21.61	42	20.45	43	27.63	45	23.95	43
Qatar	High	1.00	1	1.50	2	1.00	1	0.14	1	0.00	0	1.29	3	0.83	2	3.40	5	2.75	4	3.83	5	8.03	12	6.83	11	5.24	10	9.10	18	11.91	24	11.89	32	20.64	49	30.43	61	35.84	66
Saudi Arabia	High	14.50	19	10.88	13	17.00	18	15.96	21	13.87	19	13.50	15	13.30	17	22.24	31	30.18	40	40.87	55	48.21	73	76.76	154	77.31	165	83.73	166	100.25	202	132.01	279	155.42	322	185.44	398	172.04	384
Syria	Low	2.00	2	1.00	1	2.41	4	1.46	3	3.79	6	3.38	7	5.60	9	1.00	2	5.67	7	1.99	7	5.55	11	4.77	9	4.54	10	3.84	7	13.11	25	8.66	12	11.14	15	3.52	6	12.13	16
United Arab Emirates	High	5.92	7	5.75	7	6.07	8	13.53	20	5.18	7	9.96	15	12.26	19	11.47	18	11.25	17	18.13	29	19.53	25	19.77	35	14.49	29	34.27	51	26.29	41	46.49	71	38.93	59	60.42	96	58.17	97
West Bank[c]	Lower-middle	0.00	0	4.00	4	2.50	3	3.42	4	1.00	1	1.25	2	5.07	7	3.60	5	5.17	6	8.33	10	6.89	10	6.24	12	3.71	6	3.83	6	5.21	8	4.65	6	4.80	11	12.24	18	6.67	11
Yemen	Low	0.00	0	0.00	0	1.00	1	0.00	0	0.33	1	1.20	2	0.24	2	0.25	1	2.00	2	2.50	4	2.79	4	4.17	5	3.50	4	6.20	11	2.96	6	1.96	5	3.17	12	0.33	3	3.25	12
Africa		256.82	327	271.01	332	352.43	432	339.37	443	361.38	479	370.04	491	456.51	610	478.18	631	507.85	647	613.00	801	657.36	890	729.64	975	762.65	1,097	842.51	1,217	916.48	1,390	1009.50	1,513	1229.55	1,848	1528.39	2,246	1895.92	2,768
Algeria	Upper-middle	1.33	3	3.50	6	3.25	4	5.54	9	5.30	10	10.97	16	10.05	14	9.72	14	18.00	24	30.31	38	18.03	31	26.05	35	39.28	47	37.16	49	53.63	71	48.85	61	76.59	97	79.26	105	102.83	139
Angola	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.77	3	0.58	2	0.00	0	0.67	3	0.29	2	1.33	3	1.21	5	0.51	2	0.67	2	1.16	6
Benin	Low	0.00	0	2.14	5	1.65	4	2.10	3	1.40	2	1.33	2	4.21	8	3.79	7	2.50	6	3.17	6	4.63	9	7.01	8	4.61	8	7.27	14	4.78	12	5.25	11	7.16	12	8.24	17	6.50	23
Botswana	Upper-middle	3.08	5	2.00	2	2.00	2	1.33	3	1.00	1	7.83	10	4.25	9	6.50	9	4.67	8	4.60	10	4.85	10	5.19	12	8.83	15	2.56	6	4.44	10	6.18	8	6.40	14	5.85	9	9.20	19
Burkina Faso	Low	0.58	2	2.41	5	2.00	5	1.00	1	2.41	5	0.75	2	1.90	4	3.42	7	3.56	8	5.36	9	2.68	8	9.68	20	6.76	18	4.23	11	3.71	9	5.22	12	5.88	12	12.24	27	12.95	31
Burundi	Low	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.83	2	0.29	2	0.00	0	0.00	0	0.25	1	0.25	1	0.00	0	1.00	5	0.12	2
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.39	2	0.00	0	1.22	6	1.12	5	0.95	5	0.33	1	0.33	2	0.00	0	0.07	1
Cameroon	Lower-middle	8.07	15	8.00	10	10.89	17	5.13	9	15.55	21	10.31	14	12.22	17	11.88	16	9.57	14	8.86	14	19.02	30	18.24	30	17.09	29	16.59	29	21.47	48	17.61	33	25.15	52	24.36	45	29.86	49
Central African Republic	Low	0.00	0	0.00	0	0.50	1	0.38	2	0.00	0	0.08	1	0.00	0	0.00	0	0.75	1	0.50	1	0.40	1	1.33	3	0.58	1	0.33	2	0.00	0	0.00	0	0.00	0	0.07	1	0.10	1
Chad	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	3	0.30	2
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	1.25	3	0.50	1	0.00	0
Congo, Democratic Republic of the	Low	0.00	0	0.33	1	0.20	1	0.00	0	0.00	0	0.20	1	0.00	0	1.55	3	0.00	0	0.14	1	0.20	1	1.55	5	1.25	4	0.60	3	1.60	6	2.78	9	2.84	8	3.25	13	2.96	11
Congo, Republic of the	Lower-middle	0.87	2	0.33	1	1.56	6	1.65	4	0.73	2	2.49	6	1.64	3	0.25	1	0.62	2	1.28	3	0.93	6	2.96	4	1.18	5	1.25	4	1.86	9	2.07	4	1.98	6	3.20	7	3.17	11
Côte d'Ivoire	Lower-middle	1.67	5	1.18	3	3.28	8	1.18	2	0.00	0	0.75	2	4.25	8	5.36	7	6.14	8	8.88	14	3.68	6	4.18	6	4.94	7	2.03	4	5.71	8	8.55	15	5.95	11	7.30	11	6.43	16
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.47	2	0.17	1	0.00	0	0.25	1	0.38	2
Egypt	Lower-middle	42.10	49	50.20	61	60.16	73	51.94	62	60.72	72	58.59	77	51.71	72	72.30	90	74.52	90	73.92	99	103.71	143	95.65	137	102.83	153	162.09	232	171.37	253	177.77	265	227.62	349	246.19	385	409.11	593
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	3
Eritrea	Low	0.00	0	0.00	0	1.85	3	1.00	1	0.00	0	0.00	0	1.75	3	1.17	2	0.00	0	0.50	1	0.33	1	0.00	0	0.50	1	0.04	1	0.13	1	0.10	2	0.18	2	1.24	4	0.00	0
Eswatini	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.25	1	0.33	1	0.00	0	0.00	0	0.10	1	0.13	1	0.00	0	0.50	1	0.00	0	0.00	0	0.25	1	0.00	0
Ethiopia	Low	2.92	6	1.50	2	7.50	10	8.65	15	6.08	11	8.33	14	10.12	20	11.66	24	8.64	16	14.39	26	11.19	26	15.59	32	28.19	52	28.10	54	38.65	74	26.81	49	33.78	66	68.21	121	71.37	134
Gabon	Upper-middle	0.00	0	0.00	0	0.53	2	0.40	1	0.00	0	0.15	1	0.00	0	0.50	1	0.58	2	1.00	2	0.73	2	0.97	3	1.00	2	1.76	3	2.88	7	0.70	3	1.80	5	0.18	1	3.71	7
Gambia, The	Low	0.00	0	1.29	2	0.00	0	1.12	3	0.00	0	0.15	1	0.00	0	0.15	2	0.00	0	0.00	0	0.00	0	0.00	0	0.21	1	0.00	0	0.11	1	0.00	0	0.25	1	1.00	1	0.75	2
Ghana	Lower-middle	4.67	8	5.08	9	16.13	21	8.43	13	6.77	9	6.11	9	16.35	26	19.26	30	15.20	25	20.29	34	43.11	60	27.19	39	25.04	35	27.51	43	42.76	70	42.83	75	54.46	95	59.06	105	75.03	143
Guinea	Low	0.00	0	0.79	2	0.00	0	1.00	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.29	3	0.58	2	0.00	0	0.00	0	0.08	1	0.10	1	0.46	2	1.15	3	0.13	2

TABLE SSA-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.25	1
Kenya	Lower-middle	17.81	28	11.86	18	19.90	34	20.28	33	21.23	35	17.03	33	21.67	40	16.17	30	17.24	26	25.40	46	23.25	50	40.66	77	29.00	62	28.88	69	48.03	113	30.42	79	47.25	92	61.39	133	56.05	123
Lesotho	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.00	0	0.25	1	0.00	0	0.00	0	1.13	2	1.80	2	1.00	1	0.33	2	0.00	0	1.50	2	0.00	0	0.00	0
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0	0.00	0	0.50	1	0.40	2	1.25	2
Libya	Upper-middle	1.83	3	1.00	1	2.00	2	1.00	1	2.00	2	2.66	4	3.47	4	1.45	3	5.08	6	5.00	5	2.83	4	3.67	4	1.00	1	4.57	10	4.13	12	2.73	6	4.87	11	3.68	10	4.41	14
Madagascar	Low	0.25	1	0.00	0	0.17	2	0.50	3	1.42	4	0.00	0	0.92	3	1.25	2	1.66	3	2.74	6	1.14	4	0.95	3	2.24	4	1.96	5	1.76	6	4.10	12	5.28	11	4.13	11	2.06	6
Malawi	Low	3.32	7	0.75	2	0.50	1	3.78	8	1.00	1	3.81	6	6.83	15	10.11	15	7.47	12	4.93	7	3.33	8	9.71	16	4.26	8	7.60	12	4.89	11	7.05	18	5.95	18	7.00	18	9.22	23
Mali	Low	0.00	0	0.00	0	1.58	3	0.50	2	3.04	8	0.81	2	1.54	4	0.33	1	2.11	5	2.75	5	0.57	2	4.02	12	3.52	11	1.64	7	2.40	7	0.97	4	4.93	12	4.39	13	4.05	17
Mauritania	Lower-middle	0.67	2	0.00	0	0.00	0	0.84	3	0.00	0	1.20	4	0.70	3	0.75	2	0.20	1	0.25	1	0.35	3	0.42	2	0.58	2	0.50	1	0.85	3	0.14	1	1.44	6	0.77	2	0.13	1
Mauritius	Upper-middle	4.17	5	3.00	4	3.33	4	3.00	3	4.00	4	5.25	8	2.05	3	2.00	2	5.58	7	1.50	2	3.50	4	4.42	8	5.86	9	8.75	11	5.07	7	6.58	8	5.42	7	8.55	12	7.88	12
Morocco	Lower-middle	10.56	14	17.30	22	8.75	16	11.83	17	8.42	15	8.99	16	13.66	22	14.67	23	19.58	29	15.34	23	8.67	16	16.32	27	24.08	42	28.73	47	18.99	36	32.50	58	36.81	66	48.41	74	105.08	145
Mozambique	Low	0.50	1	0.90	1	0.00	0	2.42	4	1.50	2	0.33	1	1.60	5	0.00	0	0.88	4	4.23	10	1.88	4	2.97	8	4.51	13	2.46	10	3.02	7	6.06	15	3.25	14	8.34	20	5.61	19
Namibia	Upper-middle	0.33	1	3.58	5	1.89	5	1.40	4	6.01	9	2.65	8	2.42	5	2.87	5	0.00	0	2.32	5	0.10	1	1.75	3	3.41	7	1.96	5	1.65	5	4.20	17	4.78	18	6.86	14	5.11	14
Niger	Low	0.00	0	3.02	4	0.00	0	1.00	1	0.60	3	0.00	0	0.00	0	0.50	1	0.61	2	3.00	3	8.55	16	2.98	7	0.61	3	0.78	3	1.94	5	1.14	2	0.87	4	1.63	6	0.96	4
Nigeria	Lower-middle	48.24	56	44.63	50	56.48	64	47.12	52	70.18	78	81.42	89	79.31	91	77.02	84	107.73	116	124.85	139	138.84	153	148.20	166	161.43	196	116.95	146	112.60	154	159.16	209	175.93	233	272.35	375	318.60	451
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.50	1	0.50	1	0.40	1	0.25	1	0.17	1	0.00	0	0.10	1	1.02	4	1.00	4	1.21	5	1.38	5	2.49	6	2.45	5	5.48	8	4.14	11	4.45	14
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.04	1
Senegal	Low	4.02	7	6.90	11	5.78	11	8.65	16	8.46	14	3.64	8	5.72	10	0.77	3	1.39	4	1.95	7	3.74	10	3.91	11	4.37	12	7.63	17	2.94	12	5.12	15	4.08	17	5.64	21	14.36	27
Seychelles	High	0.37	2	0.33	1	0.25	1	1.33	2	1.00	1	0.00	0	1.70	3	3.57	10	0.92	5	0.00	0	0.96	3	0.97	3	2.45	5	2.68	7	2.79	12	4.14	10	0.98	5	2.53	8	1.57	7
Sierra Leone	Low	0.67	1	0.14	1	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.75	2	1.47	3	0.00	0	0.00	0	1.88	3	1.37	3	0.13	2	1.31	3	1.24	3	0.33	1
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.54	2
South Africa	Upper-middle	71.36	84	70.53	84	103.95	123	95.27	115	92.83	129	92.22	130	149.78	189	134.06	179	136.99	171	168.73	221	142.59	192	182.13	240	164.41	239	205.25	285	215.59	297	242.64	367	281.85	427	379.26	556	433.88	651
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.25	2
Sudan	Lower-middle	2.00	2	1.00	1	0.00	0	1.63	3	1.00	1	1.39	3	2.48	6	1.33	2	1.80	2	3.96	5	2.66	6	8.33	10	7.39	13	4.13	6	4.04	8	3.18	7	6.20	15	6.13	14	4.71	16
Tanzania+124:166	Low	9.84	13	6.15	8	16.64	21	14.41	22	13.00	20	16.42	25	18.50	28	12.20	24	6.43	10	11.06	19	15.36	32	12.71	19	15.12	28	10.61	23	18.40	39	13.75	36	22.17	47	27.31	59	16.99	54
Togo	Low	0.00	0	0.33	1	0.42	2	0.00	0	0.38	1	0.00	0	0.30	1	0.00	0	0.36	2	0.00	0	0.33	1	1.23	3	1.57	3	0.00	0	1.92	3	1.36	3	1.25	2	0.75	1	1.61	6
Tunisia	Lower-middle	3.08	4	7.50	9	4.33	5	7.45	11	13.06	18	14.05	22	12.47	17	35.06	41	34.65	49	45.60	56	59.19	79	51.58	77	62.00	90	82.70	118	78.24	117	100.12	154	112.95	174	98.52	151	108.14	167
Uganda	Low	2.25	4	4.85	7	2.50	5	5.68	12	2.10	5	4.33	10	4.70	10	6.32	9	4.88	9	10.28	20	16.56	23	10.45	20	10.75	23	12.57	30	11.78	30	16.72	37	13.14	31	22.27	43	21.62	54
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	2.20	3	1.57	3	4.50	6	8.70	13	3.13	6	2.64	6	3.33	6	3.88	9	3.22	6	2.28	5	1.91	6	0.92	4	2.70	10	3.96	10	5.13	14	5.38	10	6.43	22	7.79	20	6.96	21
Zimbabwe	Low	8.08	10	8.19	11	6.67	13	12.11	22	4.46	7	2.33	6	4.29	8	6.28	12	2.95	6	1.79	3	1.44	3	2.93	8	4.70	7	9.32	16	8.26	12	12.53	15	21.91	28	20.62	33	22.13	30
Asia		2747.78	2,951	3814.45	4,051	3726.54	3,982	4069.80	4,415	4300.45	4,681	5208.01	5,640	6128.07	6,642	6999.26	7,585	7823.35	8,432	9167.63	9,864	9685.85	10,491	10902.66	11,818	10769.08	11,725	13147.48	14,215	14366.98	15,620	15459.99	16,874	18837.94	20,566	20710.68	22,711	26078.12	28,628
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	4.00	5	0.17	1	0.55	2	0.50	1	0.17	1	2.20	3	0.66	3	0.86	4
Bangladesh	Lower-middle	14.41	22	13.18	22	15.68	27	17.09	33	24.97	42	32.77	56	33.56	59	51.99	78	58.57	100	50.85	84	50.98	97	46.36	91	97.07	152	59.43	111	91.69	163	66.30	120	127.81	220	113.85	215	132.81	260

TABLE S5A-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	0.90	2	0.50	1	0.14	1
Brunei	High	0.50	1	0.00	0	0.00	0	2.50	3	0.00	0	0.00	0	0.00	0
Burma	Lower-middle	0.33	1	0.00	0	0.00	0	0.00	0	1.00	2	0.60	2	0.00	0
Cambodia	Lower-middle	0.00	0	0.50	2	0.00	0	0.55	5	0.20	1	0.29	2	2.09	7
China	Upper-middle	426.24	483	917.02	993	881.02	965	1240.55	1,368	1379.69	1,523	1930.96	2,099	2644.45	2,871
India	Lower-middle	779.79	804	864.81	901	753.25	786	897.22	945	862.47	914	1016.66	1,073	1055.91	1,121
Indonesia	Lower-middle	19.49	40	23.88	51	25.52	49	23.12	49	29.71	63	28.66	62	30.95	62
Japan	High	1068.34	1,144	1384.28	1,484	1358.34	1,484	1192.52	1,328	1210.58	1,373	1362.94	1,552	1307.23	1,515
Kazakhstan	Upper-middle	1.30	3	0.33	1	0.50	1	0.33	1	1.00	1	0.17	1	1.92	4
Kyrgyzstan	Lower-middle	0.00	0	0.00	0	1.00	2	0.00	0	1.00	1	1.00	1	3.50	4
Laos	Lower-middle	0.00	0	0.72	2	0.00	0	0.33	1	0.25	1	0.00	0	3.16	7
Malaysia	Upper-middle	47.13	68	48.13	58	57.50	71	60.86	83	59.38	79	69.54	91	84.50	123
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	0.00	0	0.50	1	0.00	0	0.20	1	2.00	2	1.20	2	0.58	2
Nepal	Low	2.52	4	1.81	4	2.75	5	7.67	9	2.50	6	11.21	17	5.71	10
North Korea	Low	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0
Pakistan	Lower-middle	6.13	7	11.84	15	6.65	9	12.40	18	11.49	17	33.47	38	35.59	40
Papua New Guinea	Lower-middle	0.67	1	2.00	2	0.17	1	0.67	2	0.55	2	0.00	0	0.17	1
Philippines	Lower-middle	29.02	44	22.25	35	41.39	56	30.41	47	29.75	48	24.39	48	42.44	72
Singapore	High	16.92	23	29.91	38	30.88	44	27.68	39	26.82	34	36.42	47	37.65	52
South Korea	High	103.16	124	194.98	232	221.38	264	197.32	241	312.63	383	269.21	339	303.41	397
Sri Lanka	Lower-middle	4.51	7	12.47	15	7.17	10	15.26	21	4.62	7	18.79	28	17.02	30
Taiwan	High	193.66	214	227.54	242	240.26	253	268.91	283	273.08	289	267.86	287	367.86	404
Tajikistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Thailand	Upper-middle	26.17	45	49.42	70	73.38	99	67.68	98	54.11	86	85.94	127	135.64	185
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Turkmenistan	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.70	2
Uzbekistan	Lower-middle	1.00	1	1.00	1	1.00	1	2.46	5	4.00	4	5.17	6	1.37	3
Vietnam	Lower-middle	6.50	14	7.87	11	7.69	20	3.08	12	6.77	20	10.28	24	12.52	33
Australia and Oceania		604.09	689	610.39	689	594.73	690	711.03	844	727.18	886	720.49	903	854.02	1,063
Australia	High	479.29	558	448.54	511	457.07	541	553.15	660	573.03	710	560.30	717	681.84	861
Cook Islands	na	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	0.00	0	1.33	2	5.00	5	0.00	0	0.50	1	1.18	3	1.00	2
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Region, country, or economy	2007		2008		2009		2010		2011		2012	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	1.43	4	0.48	2	1.27	2	2.15	4	0.00	0	0.00	0
Brunei	1.33	2	0.00	0	0.00	0	1.00	1	3.67	5	1.92	3
Burma	1.33	2	0.50	1	0.00	0	1.38	3	0.07	1	1.02	4
Cambodia	2.30	11	1.69	6	2.62	8	0.00	0	2.42	8	3.78	9
China	3201.80	3,486	3823.69	4,154	4575.01	4,960	4942.30	5,386	5947.52	6,425	5484.64	5,988
India	1120.10	1,193	1156.71	1,245	1450.88	1,543	1671.54	1,788	1709.61	1,871	1890.15	2,054
Indonesia	18.06	50	24.75	53	36.34	83	43.25	96	45.74	100	66.93	147
Japan	1430.00	1,625	1369.90	1,576	1491.10	1,710	1229.59	1,440	1274.84	1,511	1258.30	1,503
Kazakhstan	2.45	6	4.94	7	0.42	2	0.64	2	5.18	7	3.56	7
Kyrgyzstan	0.00	0	6.25	7	1.00	1	0.14	1	5.50	6	0.00	0
Laos	1.70	4	0.92	3	1.57	6	3.52	8	2.83	11	4.54	11
Malaysia	121.88	159	135.02	171	235.84	288	297.73	368	342.07	417	382.66	486
Maldives	0.50	1	0.05	1	0.67	1	0.50	1	0.67	1	0.50	1
Mongolia	1.08	4	2.37	6	0.43	1	1.49	6	2.40	8	2.14	7
Nepal	9.17	13	11.01	19	10.46	22	6.60	14	11.28	22	14.53	27
North Korea	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.69	1
Pakistan	42.11	55	51.40	67	57.58	74	70.92	98	77.73	111	85.45	123
Papua New Guinea	1.34	5	1.40	3	2.42	4	0.25	1	1.17	2	1.58	3
Philippines	33.82	53	32.15	56	32.38	59	28.20	49	38.24	63	34.69	62
Singapore	33.41	48	38.29	59	42.90	69	55.06	78	55.55	78	52.10	74
South Korea	343.93	435	512.61	628	474.36	571	556.06	669	609.32	742	682.43	821
Sri Lanka	12.21	21	16.37	23	17.77	29	10.23	21	14.89	24	22.40	39
Taiwan	380.93	409	376.99	426	435.64	485	482.16	549	420.49	485	437.91	511
Tajikistan	0.00	0	0.08	1	0.00	0	0.14	1	2.50	3	0.57	2
Thailand	160.09	230	176.28	235	212.63	286	205.12	266	221.71	281	203.66	277
Timor-Leste	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.50	1
Turkmenistan	0.17	1	0.00	0	0.00	0	0.00	0	2.00	2	0.27	2
Uzbekistan	9.13	12	4.00	5	3.33	5	0.75	2	18.77	22	2.40	4
Vietnam	17.00	50	15.92	41	30.17	77	24.12	72	36.14	85	32.51	82
Australia and Oceania	855.21	1,079	906.50	1,138	978.51	1,252	941.28	1,248	998.92	1,363	1098.31	1,484
Australia	691.94	888	754.92	947	797.66	1,030	813.00	1,077	833.41	1,133	911.95	1,253
Cook Islands	0.17	1	0.00	0	0.36	1	0.00	0	0.00	0	0.00	0
Fiji	1.73	5	1.63	4	1.29	3	3.38	7	4.83	6	4.89	8
Kiribati	0.29	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Region, country, or economy	2013		2014		2015		2016		2017		2018	
	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	0.00	0	0.00	0	0.64	2	2.03	4	1.66	5	1.77	4
Brunei	2.67	7	3.55	7	2.38	4	3.20	7	6.10	17	6.07	16
Burma	0.33	1	1.68	5	1.44	7	1.97	6	1.16	10	3.95	16
Cambodia	3.95	14	3.42	9	2.82	10	2.51	10	4.22	13	6.21	23
China	7865.32	8,452	8823.80	9,545	9905.12	10,749	12021.61	13,111	13191.98	14,462	16793.40	18,521
India	1815.64	1,975	1725.50	1,899	1809.44	2,031	2184.18	2,432	2391.86	2,661	2470.63	2,837
Indonesia	86.06	177	96.51	203	127.25	217	157.40	251	257.50	385	1304.25	1,466
Japan	1246.40	1,519	1220.95	1,494	1065.55	1,367	1332.97	1,705	1310.71	1,714	1420.81	1,901
Kazakhstan	13.59	22	27.97	41	9.63	16	98.93	109	187.29	214	156.01	196
Kyrgyzstan	2.41	8	0.81	5	1.80	7	2.64	7	3.67	10	5.12	8
Laos	4.46	12	2.92	12	2.35	6	9.70	24	2.58	9	2.96	12
Malaysia	446.51	557	537.67	681	568.56	723	676.57	878	790.83	1,012	882.15	1,129
Maldives	0.79	2	0.21	1	1.60	4	0.68	2	0.76	3	1.24	3
Mongolia	4.01	16	1.50	4	3.67	7	1.75	6	6.29	16	4.00	14
Nepal	13.69	34	14.38	34	16.01	35	18.81	40	19.91	52	26.97	68
North Korea	0.25	1	0.75	2	0.20	1	0.11	1	1.10	2	2.42	3
Pakistan	125.36	180	150.91	238	192.57	291	261.83	419	331.02	529	403.64	646
Papua New Guinea	1.61	4	1.08	6	2.86	6	3.47	11	3.36	10	3.75	11
Philippines	34.80	75	47.69	85	47.85	89	77.68	129	87.34	138	103.62	167
Singapore	78.59	122	91.71	134	107.92	179	123.73	199	146.66	252	141.41	274
South Korea	690.67	848	822.22	981	825.92	ne	889.94	1,086	992.96	1,261	1201.07	1,506
Sri Lanka	15.83	34	20.63	52	26.80	50	41.21	74	35.00	70	32.96	69
Taiwan	376.76	427	366.70	438	346.50	423	428.79	538	368.13	481	465.06	633
Tajikistan	1.98	5	1.75	2	0.17	1	0.33	1	4.66	7	3.53	8
Thailand	213.75	281	256.34	336	270.73	347	284.40	375	357.13	459	352.95	485
Timor-Leste	0.00	0	0.17	2	0.20	1	0.13	2	0.71	2	0.72	4
Turkmenistan	0.00	0	3.00	4	0.00	0	0.00	0	0.00	0	0.00	0
Uzbekistan	1.81	4	1.97	8	2.50	3	4.38	7	1.14	3	5.40	10
Vietnam	40.26	112	49.01	124	51.05	139	76.95	201	90.46	242	142.38	324
Australia and Oceania	1230.68	1,684	1321.03	1,848	1349.64	1,959	1528.94	2,278	1528.66	2,395	1646.49	2,722
Australia	1050.87	1,446	1132.54	1,600	1194.08	1,750	1326.98	1,999	1339.94	2,109	1428.22	2,400
Cook Islands	0.00	0	0.33	1	1.00	1	0.07	1	0.00	0	0.00	0
Fiji	1.83	4	5.86	15	3.83	13	6.22	21	12.59	25	8.63	21
Kiribati	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0

TABLE SSA-13

S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	1.05	2
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.37	2	0.33	1	0.00	0	0.00	0	0.00	0	0.33	2	0.19	2	0.00	0	0.58	2	1.17	3	0.33	1	0.17	1	0.00	0	0.50	1	1.25	4
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	123.35	148	159.52	187	139.02	154	156.71	201	152.62	204	158.56	203	166.88	223	160.59	216	149.95	207	178.02	251	121.16	196	159.26	250	178.92	253	174.08	271	176.58	273	147.55	251	191.60	311	171.53	323	203.43	375
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.48	2	0.33	1	0.00	0	0.10	1	1.00	1	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1	0.00	0	0.25	1	0.11	1
Samoa	Upper-middle	0.00	0	1.00	1	1.67	2	0.00	0	0.00	0	0.00	0	2.67	3	0.17	1	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.75	1	1.67	2	0.00	0	0.00	0	0.00	0	0.55	2
Solomon Islands	Lower-middle	0.75	1	0.00	0	0.75	1	0.17	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.33	1	1.25	2	0.98	2	0.00	0	1.49	6	1.89	5	1.75	7	1.91	8	2.40	9	1.29	6
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.23	2	0.75	3	0.93	3	1.11	4
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.33	1
Vanuatu	Lower-middle	0.50	1	0.00	0	0.23	1	0.50	1	0.67	1	0.11	1	0.00	0	0.00	0	0.00	0	0.40	2	1.17	2	0.25	1	1.81	8	0.50	1	0.71	3	0.53	4	0.99	4	0.52	3	0.52	3
Unassigned	na	67.75	164	58.17	147	62.02	161	110.26	273	100.21	262	111.19	294	99.84	284	111.56	307	85.68	230	86.88	222	72.09	183	96.97	224	57.06	139	58.83	144	55.20	138	22.12	64	35.35	106	36.33	115	32.46	121

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SS-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		125662.00	125,662	132046.00	132,046	138040.00	138,040	144093.00	144,093	147615.00	147,615	172952.00	172,952	183672.00	183,672	191630.00	191,630	190174.00	190,174	195223.00	195,223	199117.00	199,117	209765.00	209,765	205992.00	205,992	211293.00	211,293	217238.00	217,238	212658.00	212,658	213724.00	213,724	233007.00	233,007	233009.00	233,009
North America		28902.88	35,257	30820.05	37,485	31219.23	38,237	33703.89	41,751	32824.74	40,960	40957.83	49,986	41927.99	51,235	41875.07	51,602	38723.81	48,263	39136.95	49,158	38617.86	48,652	41013.71	51,803	39474.99	50,681	38460.67	49,977	37158.07	48,914	35626.95	47,294	33539.50	45,387	35765.22	48,389	32011.32	44,291
Canada	High	2278.36	3,359	2236.13	3,338	2571.41	3,782	2689.96	4,058	2719.67	4,173	3346.21	5,022	3544.45	5,243	3695.77	5,541	3608.00	5,442	3784.98	5,722	3534.06	5,350	4102.82	6,114	3829.85	5,916	3835.49	5,877	3654.97	5,780	3529.16	5,541	3272.98	5,330	3396.90	5,552	3103.14	5,374
Greenland	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.38	1	0.33	1	0.10	1	0.82	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mexico	Upper-middle	800.48	1,153	867.87	1,285	921.90	1,304	1017.48	1,398	930.03	1,327	1259.12	1,745	1452.02	1,953	1347.03	1,881	1374.95	1,911	1180.43	1,758	1257.76	1,824	1342.47	2,004	1357.89	2,093	1334.09	2,061	1479.72	2,147	1481.42	2,146	1510.86	2,245	1694.23	2,467	1597.62	2,356
United States	High	25824.03	31,767	27716.05	33,941	27725.91	34,312	29996.45	37,561	29175.04	36,721	36352.50	44,771	36931.52	45,556	36832.10	45,840	33740.48	42,541	34171.21	43,344	33825.94	43,030	35567.60	45,467	34287.25	44,659	33291.09	43,798	32023.38	42,832	30616.37	41,324	28755.66	39,573	30674.09	42,181	27310.56	38,401
Central America and Caribbean		133.20	235	133.28	239	142.93	247	141.54	257	116.29	231	156.12	318	161.22	337	146.06	297	186.45	355	142.70	286	139.63	330	188.19	411	140.14	373	116.31	347	154.49	377	139.12	329	133.91	397	124.67	407	134.14	465
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	1	0.00	0
Bahamas, The	High	0.00	0	0.00	0	0.00	0	0.25	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.13	1	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.44	3	2.12	8
Barbados	High	1.67	4	8.33	9	3.75	5	13.50	14	7.50	8	4.25	8	2.75	4	2.00	2	4.25	5	2.50	4	4.02	9	3.36	13	6.19	13	2.02	8	4.00	4	7.67	10	4.20	5	3.00	3	4.63	6
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.11	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Costa Rica	Upper-middle	3.50	7	4.23	8	7.92	12	3.04	6	6.13	9	6.08	17	5.85	14	6.48	11	9.29	20	5.30	11	5.32	16	9.67	22	11.40	23	6.03	16	16.14	36	17.71	33	17.92	38	12.08	40	16.21	38
Cuba	Upper-middle	64.86	123	51.68	103	53.20	109	56.26	127	41.01	98	74.26	139	60.00	135	53.38	123	67.21	135	44.10	101	38.92	107	83.85	160	47.46	118	49.58	134	75.61	163	48.57	111	55.50	158	55.69	135	56.02	134
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.04	1	0.00	0	0.00	0	0.00	0
Dominican Republic	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.17	2	0.70	2	0.70	2	1.22	2	0.31	3	0.38	2	0.00	0	0.00	0	0.00	0	0.11	1	1.35	5	0.78	5
El Salvador	Lower-middle	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.14	1	0.50	1	0.00	0
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.06	1	0.08	1	0.00	0	0.04	1
Guatemala	Upper-middle	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0	0.50	2	0.08	1	0.06	1	0.00	0	0.00	0	0.07	1	0.13	1	0.08	1	0.14	1	0.00	0	0.00	0	0.25	1	0.66	5	2.33	3
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.50	1	0.00	0	0.25	1	0.36	2	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Honduras	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.17	1	0.00	0	0.33	1	0.00	0	0.33	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.27	26
Jamaica	Upper-middle	1.33	2	1.08	3	0.50	1	3.67	4	1.00	2	0.25	1	2.91	4	5.00	5	0.83	2	5.50	6	5.17	7	2.67	5	0.92	3	1.87	3	2.50	3	3.25	5	4.09	10	2.62	7	1.88	9
Nicaragua	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.17	1	0.38	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Panama	High	0.42	2	1.00	1	0.00	0	2.00	2	0.33	1	0.18	2	0.50	2	0.08	1	0.45	3	2.10	3	1.25	5	1.25	2	0.00	0	1.67	2	2.07	7	2.29	4	1.67	5	2.29	5	4.01	9
Puerto Rico	High	55.26	89	63.85	108	76.56	120	58.70	96	55.81	105	67.43	146	82.93	168	74.89	148	101.88	187	79.20	153	75.95	172	76.11	190	68.70	207	50.07	175	52.06	157	52.24	157	44.70	174	40.55	195	38.07	217
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1
Saint Lucia	Upper-middle	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1
Trinidad and Tobago	High	5.67	8	2.67	5	1.00	2	4.00	5	3.67	6	2.83	4	4.70	7	2.33	3	1.00	1	3.07	5	6.58	8	9.28	12	4.63	7	4.90	8	1.49	7	5.29	9	5.25	6	4.50	6	7.33	8
South America		2716.53	3,587	3067.15	4,015	3536.63	4,573	3110.95	4,147	3620.19	4,713	3616.19	4,761	3786.99	4,905	4047.48	5,276	3978.45	5,250	3964.11	5,359	4268.12	5,674	4069.24	5,641	4295.77	6,115	4464.54	6,312	4703.19	6,657	4658.08	6,757	4917.53	7,072	4881.25	7,106	5178.22	7,346
Argentina	High	614.91	873	635.65	912	711.20	996	606.92	871	606.91	908	591.11	904	578.68	883	790.37	1,114	658.13	1,009	800.63	1,182	679.62	1,056	787.05	1,237	671.55	1,159	729.98	1,123	725.67	1,141	716.29	1,151	674.10	1,105	700.78	1,090	634.42	1,041
Bolivia	Lower-middle	1.20	2	0.85	3	0.83	2	2.57	7	0.60	4	1.87	13	1.60	5	1.60	13	0.70	10	3.49	11	4.06	10	1.14	6	0.13	1	2.09	7	2.71	7	1.13	4	6.24	12	5.86	10	2.59	8
Brazil	Upper-middle	1729.91	2,268	2264.87	2,694	2332.54	3,042	2058.87	2,729	2603.36	3,306	2551.17	3,300	2634.16	3,364	2659.12	3,457	2612.40	3,439	2501.44	3,348	2887.11	3,768	2628.43	3,623	2823.05	4,039	2957.08	4,237	3046.73	4,418	2968.07	4,403	3114.36	4,615	2981.57	4,475	3182.26	4,661
Chile	High	108.33	179	145.45	217	236.10	308	154.26	226	190.00	295	205.54	316	257.01	403	257.20	419	298.28	462	272.93	484	298.39	527	299.42	594	395.66	796	337.46	676	409.86	780	439.56	867	483.52	1,002	505.64	982	561.40	1,091
Colombia	Upper-middle	114.95	192	65.67	133	85.26	150	84.13	143	76.65	142	113.81	183	150.31	247	154.13	262	254.06	412	199.05	360	230.53	405	221.84	492	250.04	624	309.66	650	354.80	712	352.76	787	458.72	945	476.55	1,004	557.90	1,109

TABLE SSA-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	3.33	22	4.31	29	7.65	27	4.38	12	1.21	13	3.58	41	5.57	35	5.52	37	4.23	54	4.52	51	7.89	39	4.16	47	10.10	56	10.15	44	15.55	48	27.55	73	31.58	96	44.13	241	65.38	263
Guyana	Upper-middle	0.64	2	0.00	0	0.20	1	0.00	0	1.00	1	1.00	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0
Paraguay	Upper-middle	0.00	0	0.13	1	0.10	1	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.00	0	0.13	1	0.25	1	1.33	5	1.42	4	0.00	0	1.33	6	0.40	6	4.55	9	0.17	1
Peru	Upper-middle	9.17	23	5.88	21	3.70	18	7.66	27	7.38	21	8.83	22	5.60	17	21.51	56	6.54	16	22.46	42	17.62	48	15.02	41	18.32	60	20.07	71	25.67	80	16.37	60	27.63	103	33.05	106	71.54	160
Suriname	Upper-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.33	2	0.14	1	0.51	2	0.00	0	0.00	0
Uruguay	High	26.04	44	28.81	52	29.39	51	39.93	65	38.79	68	37.23	64	24.65	49	44.91	73	34.97	56	41.90	71	43.94	70	45.75	72	32.57	56	39.74	72	42.34	71	50.95	92	55.38	89	50.64	81	53.45	86
Venezuela	Upper-middle	108.77	165	105.54	176	129.65	193	152.23	213	94.30	145	102.05	159	128.74	182	112.11	156	109.13	164	117.68	172	98.68	152	66.18	112	93.01	138	56.89	97	78.52	118	83.91	134	65.07	114	78.48	127	49.11	93
Europe		57732.06	64,571	58309.64	65,408	60853.15	68,353	61495.99	70,068	62477.77	71,102	69329.23	78,927	71201.06	80,860	74885.28	84,959	75525.78	85,635	78299.64	88,833	77386.83	88,108	81322.66	92,789	78971.78	90,589	79318.05	91,052	80883.55	93,221	78343.64	90,494	78779.35	91,403	82176.10	95,792	78254.30	91,716
EU		43240.38	51,058	43462.03	51,493	46732.00	55,442	46931.05	56,447	48052.27	57,775	53880.53	64,664	56071.93	67,031	59104.49	70,626	59011.32	70,507	61453.72	73,579	60654.50	72,840	63215.39	76,224	61148.25	74,314	61480.33	74,835	61351.67	75,303	57613.24	71,421	55887.70	70,160	57447.97	72,778	52204.52	67,061
Austria	High	746.78	1,196	734.11	1,199	792.35	1,341	862.71	1,434	798.85	1,412	934.69	1,640	901.44	1,611	1091.07	1,840	1042.00	1,791	1091.56	1,848	1113.64	1,999	1235.34	2,300	1111.33	2,224	1155.82	2,245	1187.71	2,269	1065.29	2,130	1041.45	2,185	1186.96	2,420	1003.12	2,242
Belgium	High	1186.89	1,820	1195.35	1,807	1366.01	2,128	1482.74	2,355	1475.10	2,425	1631.03	2,661	1661.38	2,674	1692.76	2,878	1766.92	2,900	1681.82	2,911	1724.71	2,933	1756.99	3,077	1728.51	2,983	1665.71	2,966	1717.40	3,068	1598.97	2,986	1562.70	2,876	1482.41	2,971	1408.29	2,761
Bulgaria	Upper-middle	312.89	523	254.15	443	296.44	514	277.46	545	348.04	627	262.96	554	352.12	605	451.67	788	392.27	693	385.05	729	536.24	866	348.30	655	412.30	758	357.67	686	385.35	708	310.08	605	355.57	783	365.61	840	398.93	812
Croatia	High	134.49	207	135.28	232	162.22	249	153.88	294	163.60	298	169.85	323	166.78	312	192.97	346	188.92	325	204.82	386	164.48	381	174.36	442	184.59	511	173.43	474	156.03	501	153.78	437	161.30	517	163.51	536	162.10	523
Cyprus	High	16.27	46	19.65	27	25.26	55	20.43	40	21.04	54	33.73	66	35.88	85	37.48	104	55.02	134	50.07	146	66.51	194	65.87	233	51.90	243	74.12	229	55.70	189	60.22	195	51.49	218	65.88	251	67.35	296
Czechia	High	631.00	1,069	592.37	1,064	659.27	1,151	644.23	1,120	800.10	1,371	825.18	1,452	1014.24	1,733	983.12	1,667	1111.63	1,845	1137.73	1,923	1146.62	2,002	1308.30	2,271	1311.27	2,434	1358.19	2,390	1441.18	2,597	1551.42	2,702	1832.04	3,087	1651.80	2,824
Denmark	High	617.29	1,129	625.75	1,085	617.84	1,076	638.97	1,120	591.99	1,067	769.12	1,277	736.78	1,211	756.46	1,291	782.15	1,358	790.53	1,368	853.15	1,492	1035.06	1,778	964.37	1,786	976.91	1,736	1021.40	1,796	928.01	1,763	929.70	1,779	977.35	1,861	943.70	1,791
Estonia	High	85.50	129	91.48	130	74.64	116	85.57	122	96.08	138	94.67	152	101.47	146	120.95	185	127.78	195	115.47	183	151.60	257	115.39	249	105.97	270	141.33	331	164.71	337	141.38	337	111.21	304	134.66	348	131.40	387
Finland	High	578.37	962	616.04	970	675.62	1,021	763.65	1,174	736.45	1,155	779.09	1,263	906.02	1,420	899.21	1,463	898.30	1,490	937.63	1,611	904.85	1,573	959.96	1,718	900.01	1,639	997.48	1,858	1006.56	1,821	821.40	1,672	813.07	1,697	826.80	1,702	722.42	1,579
France	High	7042.83	10,142	7023.76	10,176	7310.72	10,813	7229.44	10,959	7449.93	11,404	8328.62	12,683	8749.64	13,246	8937.99	13,730	9159.17	13,937	9548.66	14,696	9013.58	14,126	9697.54	15,160	8929.32	14,343	9354.59	14,918	8765.21	14,365	8382.80	13,894	8000.09	13,482	8231.56	14,089	7036.83	12,323
Germany	High	10118.78	14,411	10369.89	14,796	11131.64	16,055	10864.02	16,288	10617.59	16,051	12468.70	18,534	12254.10	18,183	13228.80	19,494	12634.45	18,829	13819.75	20,620	13676.19	20,379	14435.87	21,675	14080.92	21,343	14151.19	21,607	13893.27	21,108	12581.44	19,694	12334.55	19,547	12482.58	20,019	11229.74	18,357
Greece	High	562.12	880	650.04	980	665.95	1,002	589.56	972	652.10	1,059	791.18	1,238	951.99	1,447	1072.72	1,609	977.88	1,517	1010.59	1,609	894.63	1,504	856.21	1,592	829.65	1,603	790.64	1,520	807.02	1,512	751.02	1,433	765.58	1,477	654.85	1,423		
Hungary	High	545.54	977	557.92	955	542.25	975	580.88	1,082	593.78	1,051	661.93	1,142	595.40	1,043	617.48	1,096	679.32	1,161	588.87	1,098	581.80	1,071	616.80	1,203	645.64	1,351	565.11	1,196	648.28	1,387	619.77	1,303	532.02	1,273	608.85	1,342	559.21	1,243
Ireland	High	232.09	362	250.80	361	263.20	414	259.36	451	332.95	540	475.11	751	442.23	751	494.04	827	497.27	838	581.37	ne	606.97	1,032	671.71	1,123	552.15	1,032	524.07	1,022	480.62	976	394.04	873	375.81	873	412.78	985	385.37	934
Italy	High	4722.19	6,487	4584.55	6,446	5091.57	7,171	5280.62	7,552	5768.13	8,265	6060.36	8,784	6536.79	9,281	6942.10	9,881	6833.93	9,762	6854.41	9,964	6599.18	9,692	6504.80	9,844	6511.50	10,051	6519.99	10,165	6882.53	10,663	6285.25	9,917	6373.12	10,062	6298.59	10,092	5817.48	9,455
Latvia	High	59.83	120	81.30	139	72.83	131	58.15	118	73.28	139	86.44	175	61.99	126	98.28	182	101.98	172	120.70	193	117.99	170	151.09	228	148.49	211	135.97	183	109.66	163	161.55	228	152.78	249	136.78	281	97.95	270
Lithuania	High	91.62	149	114.63	172	125.45	188	120.11	204	192.09	283	237.00	357	343.39	448	204.80	303	326.27	438	328.32	447	318.88	454	297.70	476	239.29	441	299.46	498	301.70	493	318.65	511	214.88	415	256.11	512	221.09	485
Luxembourg	High	2.87	6	0.70	2	4.45	7	3.31	8	10.39	14	3.94	13	6.32	12	8.05	16	22.35	40	26.74	48	30.18	62	60.37	102	45.79	90	66.72	121	67.77	132	55.57	124	65.16	140	62.46	142	65.69	157
Malta	High	3.25	2	0.20	2	1.58	3	0.25	1	1.50	3	5.88	14	3.17	6	2.53	5	8.30	12	7.99	11	4.50	8	9.16	15	8.69	19	12.94	26	16.20	30	11.46	20	16.41	29	20.89	37	17.92	33
Netherlands	High	1588.21	2,417	1643.66	2,511	1866.97	2,811	1764.45	2,849	1899.14	3,105	2105.45	3,395	2010.70	3,256	2039.21	3,331	1937.22	3,230	2119.48	3,488	2047.38	3,432	2269.22	3,813	2136.35	3,750	1987.44	3,599	1907.11	3,486	1776.76	3,378	1699.57	3,333	1811.10	3,493	1575.90	3,139
Poland	High	2228.16	3,451	2223.45	3,438	2467.73	3,718	2705.45	4,189	2724.17	4,246	2817.80	4,376	3039.79	4,529	3076.92	4,643	3334.89	4,758	3147.19	4,692	3101.05	4,552	3175.32	4,729	3219.33	4,859	3623.84	5,369	3664.67	5,446	4002.47	5,814	3686.19	5,568	3546.76	5,508	3683.01	5,579
Portugal	High	482.59	750	510.40	772	578.04	861	623.23	986	676.16	1,070	731.78	1,197	859.58	1,396	846.60	1,366	950.65	1,526	892.83	1,504	1142.97	1,790	1101.15	1,813	1079.36	1,956	1023.85	1,871	956.66	1,798	962.09	1,843	904.53	1,812	924.28	1,896	842.45	1,811
Romania	Upper-middle	512.43	813	492.47	781	473.14	767	434.15	854	476.36	885	520.66	985	516.51	966	867.68	1,343	1031.72	1,508	1159.32	1,652	1167.17	1,633	1127.84	1,676	1172.10	1,893	1136.61	1,779	991.30	1,638	1098.90	1,776	1010.40	1,732	1024.72	1,798	987.43	1,751
Slovakia	High	239.87	470	205.92	386	309.69	518	254.04	470	318.54	600	235.34	471	347.09	622	277.07	569	368.95	682	295.29	640	373.96	745	280.86	658	402.49	891	361.62	725	543.85	971	389.78	795	406.03	844	599.58	1,052	478.26	920
Slovenia	High	218.12	355	228.54	345	230.62	386	306.45	517	238.28	432	296.94	514	322.68	532	334.40	588	383.16	640	342.54	619	373.89	668	366.58	723	364.95	780	379.26	742	342.52	703	293.89	669	293.07	699	301.46	668	284.50	681

TABLE SSA-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	2476.56	3,551	2705.93	3,816	2941.41	4,167	2939.12	4,317	3047.78	4,602	3540.57	5,354	3641.36	5,478	4173.63	6,293	3942.48	6,109	4508.92	7,016	4322.66	6,810	4767.96	7,704	4529.16	7,618	4399.83	7,459	4059.50	7,112	3838.60	6,781	3712.64	6,711	3834.94	6,936	3514.59	6,483
Sweden	High	1499.07	2,313	1638.62	2,491	1728.56	2,619	1674.52	2,616	1648.73	2,627	1762.68	2,845	1783.54	2,839	1673.91	2,885	1585.51	2,725	1596.24	2,800	1673.24	2,889	1775.27	3,164	1749.41	3,284	1644.43	3,159	1803.41	3,336	1625.48	3,211	1589.91	3,236	1521.99	3,234	1378.42	2,966
United Kingdom	High	6300.99	8,877	5925.08	8,442	6308.55	9,021	6314.29	9,360	6300.15	9,506	7249.83	10,964	7770.07	11,566	7982.61	12,132	7870.84	12,107	8109.83	12,628	7946.47	12,305	8140.39	12,792	7733.42	12,493	7602.10	12,585	7974.37	13,323	7432.77	12,653	7177.76	12,504	7571.76	13,439	6884.73	12,351
Other Europe		14491.68	18,957	14847.62	19,409	14121.15	18,928	14564.94	20,055	14375.49	19,739	15448.70	21,277	15129.13	20,725	15780.79	21,710	16514.46	22,253	16845.92	22,662	16732.33	22,502	18107.28	24,256	17823.52	24,057	17837.72	24,219	19531.88	26,041	20730.40	27,237	22891.66	29,618	24728.13	31,844	26049.78	32,855
Albania	Upper-middle	1.00	1	0.25	1	1.58	4	1.00	1	1.08	4	3.92	5	2.47	4	12.35	16	3.17	4	4.80	8	27.70	35	2.25	4	3.29	6	6.10	8	1.67	2	6.31	9	14.43	20	3.41	6	1.07	4
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	411.78	534	386.89	527	330.78	467	466.05	647	376.63	521	507.55	712	383.41	530	449.56	653	374.16	537	445.69	652	388.32	593	441.84	774	349.20	741	379.56	716	355.64	728	328.54	716	325.12	772	340.44	814	331.53	839
Bosnia and Herzegovina	Upper-middle	3.23	13	2.39	8	3.23	10	4.66	16	1.83	4	4.96	14	7.45	16	9.26	17	8.57	21	10.41	23	8.94	25	7.18	17	8.49	20	13.75	30	11.34	27	16.93	45	16.71	39	21.54	47	16.67	45
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.17	1	0.00	0	0.00	0	0.11	1	0.00	0	0.19	1
Iceland	High	12.36	21	11.72	23	14.87	26	13.74	24	10.68	19	14.70	30	21.71	43	13.93	32	27.24	50	31.26	64	39.95	84	38.11	79	51.33	104	42.69	102	29.81	85	36.24	103	33.81	107	35.59	110	32.69	97
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.00	3	2.45	5	5.77	9	1.05	4	0.50	2	2.27	6	1.21	6	2.54	7	6.09	11	8.66	14	8.98	18
Liechtenstein	High	8.68	15	0.39	2	1.71	4	6.38	11	4.27	10	6.55	14	7.72	14	8.43	19	4.31	13	3.45	10	7.69	17	7.73	13	7.89	21	7.69	19	8.90	25	1.95	10	5.05	16	3.19	13	4.64	19
Moldova	Lower-middle	65.38	101	48.77	81	52.46	95	57.49	110	34.70	71	58.48	114	50.90	111	53.65	103	46.80	96	52.50	113	47.11	95	56.14	124	59.97	126	55.97	116	43.50	95	48.57	93	47.56	103	52.42	118	47.07	104
Monaco	High	0.62	2	0.00	0	0.00	0	0.00	0	1.83	2	1.00	1	0.57	1	0.25	1	0.00	0	0.25	1	0.91	3	0.30	1	1.17	4	1.14	2	0.20	1	0.44	3	2.65	4	0.65	6	0.61	11
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	13.17	31	5.70	18	4.25	24	12.85	31	6.69	21	3.99	15	11.13	18	6.38	13	1.15	7	13.51	22	3.39	12	7.53	18
North Macedonia	Upper-middle	19.57	28	8.42	14	15.63	24	16.31	28	17.47	35	16.41	26	16.55	30	22.04	36	24.51	44	17.02	36	26.28	51	25.07	44	17.02	42	21.44	44	17.02	28	25.94	41	30.00	48	20.38	51	23.15	46
Norway	High	214.59	401	227.17	417	239.63	429	226.33	453	273.34	575	348.40	647	403.81	725	404.16	744	469.24	841	426.63	795	493.06	864	572.89	1,041	567.01	1,091	503.17	1,007	562.42	1,101	453.89	943	532.43	1,106	559.01	1,122	557.54	1,146
Russia	Upper-middle	9880.52	12,651	10221.53	13,038	9448.57	12,357	9669.28	12,957	9337.59	12,559	9563.15	13,101	8955.48	12,180	9005.49	12,315	9728.35	12,793	9855.25	12,970	9562.99	12,427	10460.00	13,538	9886.57	12,983	10139.79	13,327	11400.54	14,598	13033.15	16,433	14906.46	18,417	16436.81	20,205	18156.41	21,813
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.33	1	0.00	0	0.00	0	0.07	1	0.13	1	0.00	0	0.83	2	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	399.78	540	345.40	498	370.50	510	351.58	540	334.15	598	420.81	802	349.98	661	343.31	653	324.12	655	324.23	681	334.03	699	310.18	713
Serbia and Montenegro[b]	Lower-middle	149.27	208	109.12	170	175.30	248	158.69	244	168.28	246	215.61	326	263.68	387	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	1784.73	3,028	1681.71	2,868	1691.83	3,032	1767.11	3,286	1845.28	3,430	2183.00	3,881	2427.71	4,231	2380.36	4,388	2383.19	4,427	2468.44	4,496	2678.70	4,881	2798.50	5,185	2872.13	5,437	2823.61	5,411	2845.21	5,413	2613.02	5,007	2590.40	5,223	2496.23	5,116	2265.70	4,774
Turkey	Upper-middle	437.81	580	515.04	650	662.23	824	771.08	991	869.50	1,064	937.38	1,149	1049.50	1,285	1444.04	1,713	1240.43	1,516	1339.63	1,629	1318.31	1,669	1429.95	1,900	1645.18	2,330	1615.61	2,269	1868.05	2,612	2026.09	2,779	2335.84	3,162	2520.06	3,404	2540.52	3,512
Ukraine	Lower-middle	1502.14	2,038	1634.23	2,227	1483.33	2,129	1406.83	2,101	1433.01	2,113	1587.59	2,278	1538.15	2,244	1564.32	2,272	1851.39	2,553	1813.39	2,549	1762.47	2,498	1924.93	2,693	1928.98	2,792	1863.65	2,753	2036.59	2,961	1808.39	2,669	1707.26	2,574	1891.49	2,830	1743.30	2,592
Middle East		1865.90	2,724	1905.14	2,846	2120.60	3,076	2256.88	3,398	2316.31	3,398	2533.46	3,710	2911.35	4,143	3211.92	4,548	3525.07	4,878	3830.26	5,204	4141.10	5,718	4856.63	6,814	5169.96	7,489	5605.35	8,003	6003.41	8,745	6605.42	9,605	7231.80	10,346	8208.49	11,780	8391.32	12,238
Armenia	Upper-middle	120.32	205	116.44	225	99.94	204	117.13	261	117.91	243	138.15	279	99.70	230	141.33	267	128.30	251	165.63	298	184.13	354	190.20	420	200.68	570	163.87	466	210.38	527	174.13	514	181.55	559	169.85	532	156.35	542
Azerbaijan	Upper-middle	48.65	65	49.17	65	51.55	83	74.41	108	68.53	100	64.84	100	59.31	104	63.98	104	76.86	122	97.19	128	89.02	141	112.37	212	80.49	251	78.27	193	84.38	210	104.05	271	102.84	280	139.02	310	144.31	360
Bahrain	High	7.18	10	3.33	4	3.67	6	9.27	13	16.25	20	8.04	13	15.67	19	18.08	24	12.96	17	12.28	19	20.71	29	13.87	28	14.82	25	12.26	33	13.17	34	10.11	29	9.29	31	14.09	37	13.97	44
Gaza Strip[c]	Lower-middle	4.92	6	6.33	7	12.00	12	10.75	12	15.50	19	12.89	18	12.38	18	20.40	29	13.79	19	14.90	19	9.71	16	21.13	24	23.23	31	21.09	28	16.42	28	18.17	23	13.45	19	12.30	15	13.88	19
Georgia	Lower-middle	79.06	124	47.24	93	59.68	101	60.22	123	66.75	126	52.41	123	76.91	148	63.05	144	67.23	147	62.22	134	54.38	157	61.59	245	48.96	327	54.86	266	51.42	250	50.90	298	44.47	310	62.41	324	33.07	330
Iran	Upper-middle	144.50	181	167.26	206	282.84	354	353.89	429	474.73	561	578.47	699	860.33	1,000	1022.70	1,175	1414.83	1,598	1675.00	1,845	1885.69	2,128	2250.77	2,579	2568.15	2,965	2939.38	3,360	3172.48	3,625	3640.31	4,097	4281.69	4,821	4728.74	5,424	4601.78	5,403
Iraq	Lower-middle	1.50	2	12.00	12	12.00	12	14.00	14	3.58	6	19.33	20	21.13	26	30.46	36	17.78	28	26.54	40	30.49	45	46.41	61	84.39	130	115.51	183	84.66	163	97.92	196	143.04	291	239.14	439	531.57	735
Israel	Upper-middle	1257.43	1,854	1272.59	1,902	1352.09	1,965	1354.74	2,068	1280.69	1,940	1357.04	2,000	1439.62	2,113	1475.22	2,209	1406.97	2,124	1322.08	2,026	1340.55	2,051	1464.40	2,289	1370.54	2,256	1304.95	2,094	1278.67	2,043	1332.76	2,201	1196.20	2,035	1336.01	2,278	1259.10	2,204
Jordan	Upper-middle	41.18	57	30.96	48	61.70	83	57.26	83	61.25	100	57.41	85	65.05	99	71.46	115	72.35	114	72.17	150	72.40	169	82.73	189	75.16	134	76.25	139	57.23	120	74.00	145	77.65	140	128.64	221

TABLE SSA-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	22.92	24	22.42	30	17.38	21	13.63	21	18.40	28	11.05	17	27.17	36	20.94	28	23.93	29	37.17	46	20.59	28	23.52	29	28.28	37	29.44	44	31.63	56	29.56	52	27.97	66	36.28	78	49.47	99
Lebanon	Upper-middle	22.49	36	29.08	55	17.05	33	12.46	21	24.25	40	29.00	48	30.23	55	36.42	73	26.24	59	33.06	65	32.04	62	36.89	68	37.66	81	32.67	69	57.70	122	46.42	96	54.72	122	80.34	150	58.63	103
Oman	High	8.88	14	10.20	19	11.49	26	25.38	33	24.96	34	20.98	35	30.41	41	22.24	33	28.55	47	14.66	35	36.39	68	27.64	53	25.21	51	22.95	60	43.22	73	32.09	86	39.32	85	45.78	104	43.23	106
Qatar	High	1.13	2	1.42	4	2.63	6	6.07	10	7.03	14	6.88	20	5.71	13	13.21	33	13.18	40	15.30	35	17.90	37	23.46	56	27.44	63	40.56	120	46.96	193	74.53	262	104.62	356	111.47	392	99.74	405
Saudi Arabia	High	70.14	95	101.44	135	94.16	125	107.61	166	95.68	137	115.87	171	119.52	179	144.21	217	142.77	213	179.26	288	223.81	444	393.62	749	445.36	957	585.53	1,250	676.44	1,619	749.67	1,840	793.42	1,891	923.15	2,053	994.37	2,407
Syria	Low	15.02	22	12.00	19	13.64	19	9.53	13	15.88	21	24.93	36	15.76	27	19.92	31	17.18	22	31.03	40	33.89	44	42.31	55	34.57	50	28.94	40	32.32	44	37.68	43	30.18	40	22.49	33	24.35	31
United Arab Emirates	High	10.92	26	19.31	32	22.60	37	27.18	44	23.52	41	26.74	51	31.17	57	43.03	68	39.66	71	58.41	104	59.01	96	54.56	103	79.20	160	71.01	131	97.81	202	126.97	262	128.43	250	176.48	335	200.93	412
West Bank[c]	Lower-middle	9.16	16	5.53	10	5.98	8	6.20	11	2.17	6	3.83	6	4.27	7	6.56	11	20.28	26	9.25	13	24.23	29	16.21	26	11.22	23	15.84	45	15.67	44	11.04	39	10.72	37	19.49	125	24.35	87
Yemen	Low	0.52	3	0.42	2	0.20	1	0.25	1	3.21	7	1.75	3	4.67	14	5.10	16	3.10	11	3.92	10	6.39	15	5.30	16	7.66	17	13.05	36	13.84	41	6.71	31	5.89	29	13.81	58	13.58	69
Africa		904.25	1,272	924.26	1,310	1014.19	1,394	1042.62	1,523	1187.37	1,708	1242.72	1,772	1351.04	1,896	1513.85	2,110	1725.58	2,387	1894.78	2,635	1800.48	2,564	1921.19	2,936	2155.89	3,367	2206.73	3,495	2600.17	4,128	2938.69	4,581	3214.81	5,065	3551.84	5,571	3693.80	5,894
Algeria	Upper-middle	111.34	157	106.72	162	120.99	177	156.34	219	174.70	253	181.18	264	228.54	332	297.04	423	401.38	533	414.54	570	384.64	535	344.61	513	440.83	617	462.38	641	545.43	731	551.15	768	661.81	900	741.00	1,012	732.44	1,008
Angola	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.33	2	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0
Benin	Low	5.50	7	1.67	3	1.97	7	3.67	5	5.42	8	3.19	6	2.42	5	11.60	22	5.49	12	6.83	13	8.86	13	6.72	13	5.71	13	8.32	22	16.06	27	15.88	26	14.66	25	10.41	19	14.43	29
Botswana	Upper-middle	6.21	9	7.00	7	8.50	10	10.83	11	7.13	8	1.00	1	4.60	6	4.42	6	8.87	13	3.42	5	3.25	5	2.67	4	4.71	6	1.94	5	2.15	7	4.05	7	8.98	21	15.33	34	19.99	43
Burkina Faso	Low	0.45	2	1.83	3	1.25	2	2.00	2	1.23	4	0.95	4	0.36	3	0.73	4	0.75	3	4.03	8	0.38	2	2.24	5	2.75	7	3.01	5	2.07	5	3.78	6	0.72	3	1.85	4	1.77	5
Burundi	Low	0.00	0	1.33	2	0.83	3	2.42	5	1.25	3	0.00	0	0.50	2	1.33	4	0.25	1	1.00	3	1.32	3	0.00	0	0.08	1	1.03	4	0.23	2	0.06	2	0.08	1	0.48	5	0.18	2
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.46	3	0.13	1	0.10	1
Cameroon	Lower-middle	10.03	15	3.14	6	14.93	22	24.64	37	29.78	47	39.81	61	47.35	71	36.18	57	50.45	68	38.97	56	28.73	51	36.57	61	45.21	70	46.47	70	70.12	89	69.06	93	78.11	109	109.86	154	117.27	157
Central African Republic	Low	0.00	0	0.50	1	0.13	1	0.77	4	0.25	2	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	1.75	2	0.08	1	0.37	2
Chad	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.25	1	0.25	1	0.17	1	0.33	1	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.17	1	0.29	2	0.00	0	0.39	2
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.00	2	0.00	0	0.29	1	0.13	1	0.00	0	0.14	1
Congo, Democratic Republic of the	Low	0.00	0	0.10	1	1.23	3	0.63	2	0.56	2	0.08	1	0.13	1	0.20	1	0.00	0	1.33	2	0.56	2	0.60	2	0.55	2	1.24	3	0.60	1	1.17	2	1.97	5	1.31	3	0.93	3
Congo, Republic of the	Lower-middle	0.00	0	0.00	0	0.67	2	0.17	1	0.50	2	0.38	1	2.13	6	0.33	2	0.00	0	1.98	5	1.43	4	0.69	2	1.28	4	2.03	4	0.50	1	0.50	1	2.05	3	1.30	2	1.23	3
Côte d'Ivoire	Lower-middle	0.27	2	0.00	0	0.75	2	1.16	5	1.22	7	0.52	3	1.29	6	2.25	4	2.79	6	5.69	14	4.92	9	6.10	9	1.02	6	1.84	4	0.73	4	3.24	8	2.49	5	2.67	5	3.92	9
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.09	1	0.29	2	0.00	0	0.13	1	0.00	0
Egypt	Lower-middle	336.66	425	383.62	458	401.09	485	411.33	537	424.16	538	458.81	584	497.79	635	557.50	682	552.82	704	571.03	746	566.30	734	582.81	887	609.89	978	607.27	1,054	724.14	1,247	888.41	1,435	844.68	1,414	876.74	1,503	985.21	1,725
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	0.00	0	1.00	1	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.75	2	1.75	4	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.29	2
Eswatini	Lower-middle	0.83	2	1.00	1	1.83	3	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.33	1	0.67	2	0.67	2	0.53	3	0.00	0	0.96	5	0.17	1	0.17	1	0.22	2	0.13	1	1.63	6
Ethiopia	Low	2.08	3	3.39	6	2.25	3	0.25	2	2.93	8	6.01	10	3.29	7	8.92	16	13.03	17	7.45	14	13.08	23	14.80	35	14.20	30	12.13	27	19.81	33	11.00	24	22.35	39	23.41	51	40.12	94
Gabon	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.02	1	0.00	0	0.00	0	0.33	1	1.20	3	0.25	1	0.20	1	1.15	5	1.40	3	0.88	6	0.44	3	0.95	3	1.40	4	2.90	5	2.87	8
Gambia, The	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Ghana	Lower-middle	7.67	12	3.35	6	2.00	2	3.94	8	2.25	3	2.41	5	3.33	6	5.69	9	1.90	3	3.00	4	7.25	11	13.58	19	8.78	14	8.05	10	7.93	14	9.67	18	11.52	20	11.07	26	19.56	46
Guinea	Low	0.00	0	0.00	0	0.13	1	0.00	0	0.20	1	0.13	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Kenya	Lower-middle	7.87	12	3.23	8	4.63	8	4.18	10	8.21	16	1.46	4	0.35	2	2.38	3	3.00	4	5.81	9	7.10	16	5.29	7	10.76	19	10.18	16	10.55	21	11.42	25	9.73	20	13.48	31	34.33	53
Lesotho	Lower-middle	0.00	0	0.00	0	0.17	1	0.10	1	0.66	3	0.25	1	2.38	6	1.23	3	2.22	8	0.31	2	0.33	1	0.00	0	2.00	2	0.50	1	0.00	0	1.30	2	1.15	4	1.13	2	1.08	2
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Libya	Upper-middle	4.00	4	1.07	4	2.25	3	2.75	4	1.85	9	5.68	14	3.19	8	1.71	4	7.33	14	6.76	11	6.70	10	4.74	11	7.61	14	21.41	33	10.04	23	14.68	26	5.44	19	10.31	36	8.32	32
Madagascar	Low	0.00	0	0.25	1	1.00	1	0.00	0	0.13	1	0.00	0	0.33	1	15.33	19	1.28	4	14.82	18	2.01	4	6.50	7	0.55	2	1.60	4	0.00	1	1.79	7	1.71	10	2.60	5	2.60	6
Malawi	Low	0.00	0	0.33	1	1.00	1	0.00	0	0.00	0	0.00	0	1.00	1	0.17	1	0.08	1	0.06	1	0.00	0	1.15	2	0.08	1	0.07	1	0.63	2	0.20	1	0.00	0	0.00	0	0.18	1
Mali	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	1.38	2	0.00	0	0.00	0	0.50	1
Mauritania	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.20	1	0.25	1	0.00	0	0.00	0	0.00	0	1.30	2	0.00	0	0.36	2	0.30	1	0.14	2
Mauritius	Upper-middle	0.33	1	0.33	1	0.00	0	1.00	1	0.00	0	1.50	2	2.00	2	3.00	3	1.97	3	5.33	7	4.50	6	1.79	4	2.50	5	5.67	12	1.98	6	6.28	14	2.64	7	2.63	5	2.94	7
Morocco	Lower-middle	152.67	254	133.15	212	136.02	224	125.34	217	162.53	256	110.24	186	114.40	183	92.80	163	118.92	202	158.79	233	163.45	268	210.11	344	195.30	408	220.12	391	241.62	433	221.61	424	334.05	576	377.96	603	414.57	659
Mozambique	Low	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.20	1	0.17	1	0.50	1	0.17	1	0.00	0	0.00	0	1.94	5	0.00	0	0.00	0	0.25	1	0.54	3	0.55	3	0.40	2
Namibia	Upper-middle	0.00	0	0.00	0	3.00	3	0.55	2	1.18	3	2.02	4	2.52	9	0.26	2	0.36	5	0.67	3	1.25	2	0.78	5	0.00	0	1.97	8	0.38	6	2.53	7	1.88	7	3.40	14	7.05	18
Niger	Low	0.50	1	0.00	0	1.00	1	2.00	2	0.00	0	0.67	2	0.00	0	0.00	0	0.00	0	1.00	1	0.75	2	1.63	3	0.17	1	0.28	3	1.02	3	0.88	7	0.15	2	0.42	3	0.29	2
Nigeria	Lower-middle	11.51	15	10.88	16	18.21	21	13.25	16	18.14	23	35.36	42	21.03	30	20.87	28	35.68	50	38.63	50	58.59	80	54.04	72	65.60	94	64.31	97	69.82	132	77.05	135	101.75	174	140.30	260	179.23	333
Rwanda	Low	0.00	0	0.00	0	0.00	0	0.10	2	0.00	0	0.00	0	0.10	2	0.74	4	0.00	0	1.25	5	2.08	4	0.97	4	1.17	3	0.50	2	0.53	3	1.60	3	0.00	0	0.40	3	1.24	5
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	1.49	4	2.73	5	1.52	6	4.25	7	1.50	2	8.65	15	2.27	4	3.78	9	7.43	14	5.03	17	7.71	15	11.85	21	2.06	8	11.18	18	15.35	26	10.48	18	9.47	19	8.89	20	8.67	21
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Sierra Leone	Low	0.20	1	0.07	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.30	1	0.00	0	0.00	0	0.24	2	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1
South Africa	Upper-middle	184.48	261	183.03	288	199.57	283	172.62	288	201.12	319	244.49	394	239.45	371	269.82	441	333.55	525	361.95	563	318.59	528	403.53	730	478.23	909	453.60	842	513.58	1,007	609.12	1,144	651.17	1,295	753.21	1,401	677.42	1,385
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0
Sudan	Lower-middle	1.00	1	0.75	3	3.45	8	1.00	2	2.77	9	0.75	1	1.50	5	1.38	3	6.79	9	3.35	9	5.57	9	7.20	15	10.90	20	11.04	28	7.79	28	8.79	23	9.56	35	10.58	39	17.56	60
Tanzania	Low	1.00	1	1.25	2	2.25	3	2.25	4	0.00	0	0.50	2	1.25	2	0.00	0	1.00	2	1.66	6	0.50	2	0.27	2	0.93	2	3.09	7	2.93	7	9.58	23	8.01	17	6.65	14	3.24	10
Togo	Low	1.00	1	1.00	1	0.50	1	0.20	1	1.00	2	0.00	0	0.44	1	0.00	0	0.08	1	0.66	3	0.49	3	0.77	2	0.62	3	0.77	5	0.00	0	1.13	5	3.33	7	1.20	4	1.09	10
Tunisia	Lower-middle	54.49	90	72.03	124	75.92	122	91.92	141	133.85	197	132.92	183	162.26	232	170.24	241	171.73	238	224.73	320	195.26	296	192.93	289	233.06	345	234.07	351	327.13	478	394.96	594	411.88	624	412.03	645	379.75	601
Uganda	Low	1.00	1	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.13	1	0.75	2	0.06	1	1.46	4	0.25	1	1.24	4	1.39	4	1.32	6	1.84	5	1.00	1	1.31	7	1.98	5
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	0.00	0	0.00	0	1.17	2	0.42	2	0.33	2	1.00	2	0.50	1	0.33	1	0.65	2	0.17	1	0.21	2	2.61	5	1.25	3	4.33	5	2.45	5	1.45	5	2.12	6	1.51	4	1.89	5
Zimbabwe	Low	1.50	2	0.50	1	3.00	3	2.07	4	2.00	4	0.00	0	2.92	4	1.76	3	1.32	4	1.14	3	1.30	4	1.05	3	1.83	5	0.43	3	1.25	2	0.56	3	5.13	9	2.80	9	4.97	10
Asia		31492.23	35,036	35055.15	38,776	37274.85	41,257	40269.00	45,109	43163.75	48,048	52654.76	58,123	59466.47	65,327	62880.89	68,960	63896.77	70,231	65169.30	71,906	69578.73	76,867	73038.92	81,180	72640.77	80,929	77634.23	86,311	82311.20	91,540	81503.29	90,628	82996.78	92,530	95082.13	105,656	102771.76	113,523
Afghanistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.22	2	0.08	1	0.00	0	0.00	0	1.21	5	0.00	0	1.00	1	2.06	6	0.50	1
Bangladesh	Lower-middle	35.52	53	30.93	54	35.26	60	42.00	81	36.38	80	37.86	78	48.51	87	47.64	77	76.02	108	71.41	108	78.33	114	78.99	115	78.28	114	118.92	158	130.82	186	131.03	186	228.15	300	314.62	411	291.13	408

TABLE SSA-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.50	1	0.00	0	0.83	2	0.00	0	0.67	2	0.25	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.58	3	1.46	5	1.00	1	0.14	1	1.17	2
Brunei	High	0.60	1	1.86	4	0.00	0	3.70	6	2.25	4	3.33	4	2.00	2	4.00	4	1.75	4	3.63	5	1.33	4	2.00	2	0.00	0	3.00	3	7.57	12	9.89	19	14.82	25	10.33	17	27.04	42
Burma	Lower-middle	0.13	1	0.11	1	0.59	2	1.58	5	0.00	0	1.00	3	0.86	3	0.00	0	7.58	9	2.05	3	0.75	1	0.25	1	2.13	6	1.18	4	0.18	2	0.38	3	1.25	7	0.94	3	2.74	12
Cambodia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	1.00	2	0.20	1	0.00	0	0.00	0	0.13	1	0.00	0	1.00	1	0.00	0	0.25	1	1.00	2	1.29	6	0.71	4	2.04	6
China	Upper-middle	7751.06	8,816	9389.38	10,504	9758.27	11,049	11075.39	12,672	14136.93	15,833	18954.94	20,893	21710.82	23,960	24335.69	26,778	26513.01	29,169	27809.63	30,789	30068.56	33,458	31515.18	35,313	33767.98	37,840	37244.87	41,642	40836.54	45,669	41655.34	46,459	41738.93	47,021	48581.33	54,630	53180.14	59,662
India	Lower-middle	2642.30	3,180	2906.27	3,533	3184.51	3,867	3250.01	4,052	3469.88	4,309	4323.03	5,208	4698.64	5,631	5146.67	6,126	5799.88	6,895	6117.22	7,280	6906.43	8,182	8321.26	9,761	8243.62	9,733	9572.35	11,073	10964.82	12,719	10401.99	12,125	11459.56	13,251	12280.20	14,191	14377.68	16,506
Indonesia	Lower-middle	22.90	39	22.71	49	23.84	47	23.36	63	24.52	56	31.92	74	29.37	62	76.01	115	64.74	104	70.65	108	174.20	252	164.76	244	174.50	247	180.29	274	389.54	490	539.72	645	1605.36	1,771	3462.02	3,705	5760.31	6,063
Japan	High	15185.53	17,115	15810.44	17,837	16621.83	18,835	17416.82	20,026	16252.99	18,891	18472.59	21,306	19391.34	22,411	19089.37	22,047	17458.28	20,309	16918.64	19,818	17039.65	20,013	17240.95	20,423	15791.46	18,898	15504.03	18,675	14691.30	17,870	13560.58	16,653	13156.64	16,378	13867.71	17,273	12715.53	16,115
Kazakhstan	Upper-middle	53.83	71	46.21	64	53.75	83	51.54	89	44.68	79	54.74	86	45.66	63	52.94	106	58.15	90	82.19	145	46.48	83	94.46	138	107.08	169	112.46	185	158.41	248	207.63	312	305.59	438	291.29	455	278.73	431
Kyrgyzstan	Lower-middle	13.17	19	4.85	8	14.42	18	9.26	13	5.48	8	12.80	21	6.83	10	7.57	12	13.13	18	2.50	4	6.53	12	4.00	7	5.79	10	4.62	15	4.90	11	4.81	13	4.49	9	9.45	14	18.51	26
Laos	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	1	0.55	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.49	3	0.15	2	0.22	1	0.13	1	0.14	1
Malaysia	Upper-middle	82.48	103	64.85	79	155.13	191	78.13	107	194.49	232	119.28	155	294.09	356	244.98	326	405.45	488	550.99	665	746.19	892	763.44	994	1121.20	1,416	1395.74	1,739	1681.35	2,153	1803.99	2,366	1852.69	2,466	3093.85	3,817	2743.25	3,527
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.38	2	0.08	1	0.00	0	0.00	0	0.00	0	0.06	1	0.00	0	0.00	0	0.05	1	1.00	1	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	2.31	6	2.83	5	3.34	6	6.95	12	4.21	11	0.75	2	3.22	10	2.15	14	31.51	54	13.70	39	2.59	27	9.38	36	7.34	30	4.23	21	8.13	37	7.59	31	6.69	30	11.06	42	19.30	83
Nepal	Low	2.15	4	0.25	1	0.58	3	3.05	5	2.27	9	1.75	6	3.69	12	1.51	6	1.30	4	0.88	2	4.34	9	6.71	18	6.66	19	8.97	24	12.06	24	9.23	23	11.81	31	11.33	22	9.93	22
North Korea	Low	0.39	3	0.17	1	0.00	0	0.00	0	0.00	0	0.70	8	1.86	13	3.10	19	0.64	4	0.58	2	2.85	11	1.28	5	3.12	13	2.94	7	3.38	6	14.75	23	13.77	23	20.56	29	23.63	32
Pakistan	Lower-middle	76.64	101	76.94	100	87.55	115	79.77	127	78.62	113	135.55	170	170.05	224	241.27	322	312.23	433	292.37	384	358.72	523	389.14	629	442.51	751	520.83	898	545.64	944	672.74	1,146	779.80	1,321	1182.49	1,855	1266.38	2,085
Papua New Guinea	Lower-middle	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.40	3	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.33	1	3.18	14
Philippines	Lower-middle	15.99	21	17.85	22	23.47	31	20.44	33	23.20	47	24.54	62	26.27	55	25.35	47	35.13	51	21.12	40	33.08	49	32.57	43	40.93	52	26.18	51	60.85	91	50.83	75	93.28	134	130.42	245	140.09	217
Singapore	High	740.64	877	755.35	903	969.68	1,123	924.45	1,125	1124.59	1,366	1230.13	1,525	1506.43	1,858	1260.69	1,639	1309.35	1,751	1347.44	1,879	1223.15	1,844	1408.91	2,029	1465.59	2,125	1303.84	2,019	1348.62	2,134	1210.91	1,963	1080.51	1,814	1246.77	2,021	1072.40	1,852
South Korea	High	3013.25	3,610	3770.38	4,619	3917.48	4,724	4711.30	5,765	4832.71	5,843	5432.65	6,626	7051.34	8,359	7198.87	8,564	7189.20	8,543	6790.27	8,176	7619.43	9,102	7359.85	9,120	6811.29	8,533	6676.72	8,418	6717.64	8,472	6444.61	8,540	6544.20	8,327	6319.84	8,132	6615.26	8,571
Sri Lanka	Lower-middle	9.50	16	11.90	19	18.06	29	18.82	34	18.96	29	21.48	34	16.23	35	12.73	26	13.29	24	8.53	19	11.39	21	14.99	28	21.36	35	18.72	43	23.68	68	21.06	87	18.37	121	34.29	139	32.99	144
Taiwan	High	1637.77	1,937	1910.76	2,282	2184.44	2,621	2281.46	2,760	2649.94	3,171	3489.01	4,047	4090.96	4,659	4624.36	5,286	4123.30	4,822	4436.30	5,154	4571.36	5,339	5008.69	5,888	3958.44	4,886	4189.86	5,085	3940.82	4,874	3604.10	4,536	3120.37	4,123	2989.38	4,064	2698.89	3,867
Tajikistan	Low	3.08	5	8.92	12	6.73	9	4.00	4	3.69	5	3.42	7	3.58	8	9.63	16	7.50	16	3.43	5	6.87	21	4.79	15	7.80	16	8.05	12	5.59	17	10.43	24	8.58	18	8.61	27	9.04	27
Thailand	Upper-middle	47.13	67	48.26	75	60.30	89	78.14	131	98.17	160	138.01	225	166.82	256	223.86	302	226.84	322	325.90	419	356.80	472	345.08	462	314.68	445	447.86	659	398.77	633	420.65	648	489.06	766	697.36	1,023	887.65	1,258
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.33	1	0.33	1	0.00	0	0.50	1	1.28	4
Turkmenistan	Upper-middle	1.83	3	0.00	0	1.13	3	2.00	2	0.00	0	0.50	1	1.00	2	0.00	0	0.50	1	0.50	1	0.00	0	3.75	15	3.53	16	0.00	0	3.08	10	3.00	8	1.17	4	1.10	2	1.25	4
Uzbekistan	Lower-middle	123.54	168	134.48	173	110.41	145	110.07	168	117.21	179	124.67	188	127.17	187	112.55	176	119.90	177	129.01	203	118.16	182	126.82	200	99.47	152	106.86	161	116.48	172	92.30	139	111.82	179	88.50	133	85.53	151
Vietnam	Lower-middle	29.75	65	39.46	80	43.26	77	76.38	141	41.38	90	39.86	83	68.32	129	79.71	142	127.50	205	170.76	256	108.60	193	141.53	252	162.99	329	181.36	366	257.98	471	222.77	443	345.87	590	424.02	767	453.33	878
Australia and Oceania		1653.19	2,191	1582.53	2,182	1631.04	2,255	1736.17	2,526	1698.16	2,489	2143.10	3,136	2529.69	3,530	2705.29	3,819	2276.53	3,399	2603.42	3,818	2952.60	4,265	3114.67	4,621	2987.30	4,723	2964.87	4,727	3317.96	5,221	2724.09	4,587	2687.21	4,579	2843.32	4,950	2429.96	4,489
Australia	High	1497.23	1,976	1400.04	1,921	1492.62	2,054	1575.29	2,298	1491.93	2,195	1908.12	2,802	2238.89	3,153	2453.59	3,472	2028.99	3,056	2304.88	3,403	2655.62	3,856	2784.78	4,095	2724.06	4,294	2669.04	4,225	3037.89	4,746	2507.25	4,194	2437.12	4,121	2554.15	4,399	2186.08	4,046
Cook Islands	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	1.00	1	1.00	1	0.00	0	0.33	1	0.00	0	0.67	2	0.00	0	1.33	2	0.67	2	1.33	2	3.00	4	2.00	2	0.87	2	0.00	0	1.34	3	0.00	0	1.08	2	1.25	3	0.17	2
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-14

Count of S&E articles in physics, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.27	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	154.96	232	181.41	276	138.42	216	160.38	247	206.24	311	234.32	365	290.53	406	250.36	389	246.88	380	297.21	471	293.38	473	327.89	577	262.38	525	295.73	574	278.73	528	216.84	447	249.00	515	287.92	609	243.71	555
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.08	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.60	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	261.77	807	248.78	750	247.39	665	335.98	856	261.11	689	318.57	866	336.25	1,030	444.15	1,416	335.54	1,109	181.83	535	231.65	649	239.78	669	155.40	440	522.25	1,217	105.96	441	123.89	571	223.10	920	373.98	1,601	198.18	1,071

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see **https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups**, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		21453.00	21,453	20687.00	20,687	21087.00	21,087	21702.00	21,702	22943.00	22,943	24879.00	24,879	26567.00	26,567	28310.00	28,310	30680.00	30,680	32714.00	32,714	34146.00	34,146	36843.00	36,843	39726.00	39,726	41836.00	41,836	45077.00	45,077	45472.00	45,472	46020.00	46,020	48898.00	48,898	48692.00	48,692
North America		11480.49	12,434	11155.30	12,068	11190.11	12,060	11230.24	12,265	11682.34	12,659	12762.41	13,836	13338.04	14,536	13719.68	15,085	14450.03	15,942	15395.33	16,978	15985.91	17,688	16539.07	18,431	17520.89	19,710	17764.21	20,086	19298.42	21,965	18745.40	21,456	18583.02	21,473	19462.50	22,529	18685.17	21,843
Canada	High	1242.12	1,484	1207.95	1,455	1215.80	1,484	1239.74	1,562	1403.57	1,780	1462.47	1,880	1535.77	1,982	1694.58	2,166	1809.46	2,350	1919.42	2,487	1986.41	2,572	1998.99	2,655	2189.71	2,939	2281.91	3,048	2469.50	3,328	2283.23	3,120	2336.97	3,242	2419.43	3,358	2362.73	3,315
Greenland	High	0.00	0	0.00	0	1.00	1	0.13	1	0.00	0	0.00	0	0.38	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1
Mexico	Upper-middle	67.15	80	69.21	82	57.93	71	68.22	99	74.64	98	73.97	106	101.63	128	122.82	156	114.40	160	132.73	175	153.02	198	180.60	244	151.46	219	162.51	232	175.30	251	203.66	274	182.03	249	249.58	340	212.20	305
United States	High	10171.23	11,090	9878.14	10,778	9915.38	10,795	9922.16	10,968	10204.13	11,198	11225.98	12,325	11700.26	12,929	11901.78	13,272	12526.17	14,010	13343.19	14,894	13846.48	15,529	14359.47	16,191	15179.72	17,278	15319.79	17,587	16653.62	19,217	16258.52	18,863	16064.02	18,879	16793.49	19,755	16110.09	19,162
Central America and Caribbean		32.98	46	20.76	33	15.77	28	18.53	36	24.14	43	34.29	56	31.45	69	39.49	74	35.21	58	39.80	67	48.33	88	44.83	81	41.95	75	49.93	99	45.05	99	45.46	100	45.72	109	56.15	115	56.64	121
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Bahamas, The	High	0.00	0	0.50	1	1.00	1	1.44	3	1.00	1	3.00	3	0.22	1	1.75	4	2.00	2	1.71	4	4.58	7	0.13	1	0.76	3	2.23	4	0.17	1	1.27	3	0.44	1	2.67	3	0.47	1
Barbados	High	0.40	1	0.00	0	0.00	0	0.00	0	0.90	2	0.00	0	1.03	4	0.00	0	0.00	0	2.75	5	0.13	1	0.25	1	0.00	0	0.21	1	0.14	1	0.00	0	1.00	1	0.00	0	1.00	1
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1
Costa Rica	Upper-middle	1.50	2	2.25	3	1.63	3	1.13	2	1.17	5	4.66	11	3.86	10	7.06	12	5.06	8	5.34	9	8.22	16	10.15	12	9.21	15	4.82	13	7.58	15	10.83	23	3.94	13	13.56	24	8.83	25
Cuba	Upper-middle	10.83	12	2.52	4	2.86	4	1.78	3	4.05	7	2.67	6	0.58	2	6.38	11	5.15	9	5.53	8	4.63	6	5.75	12	7.16	12	7.69	16	8.89	19	4.31	10	5.45	12	4.68	9	16.81	20
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	3.00	3	2.00	2	2.00	2	4.00	4	1.00	1	1.50	2	2.00	3	3.92	6	4.25	9	2.83	4	3.00	5	0.17	1	0.67	2	1.20	2
Dominican Republic	Upper-middle	3.00	3	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.08	1	0.00	0	0.06	1	0.00	0	1.70	3	0.39	2	0.80	1	0.86	4	1.25	2	3.23	6	2.62	9
El Salvador	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	0.08	2	0.17	1	0.00	0	0.35	2	0.53	2	0.00	0
Grenada	Upper-middle	0.00	0	0.00	0	0.17	1	0.00	0	0.33	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.17	1	2.20	3	0.40	1	1.50	2	1.10	3	0.59	3	0.58	5
Guatemala	Upper-middle	0.25	1	1.00	1	0.00	0	0.00	0	0.45	2	0.50	1	1.50	2	0.67	2	1.83	3	0.50	1	0.50	1	0.00	0	1.00	1	0.21	2	2.06	3	2.78	6	0.60	3	2.35	4	1.00	1
Haiti	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.33	1	0.00	0	0.00	0	0.50	1	0.00	0	0.97	3	0.50	1	1.17	2	0.21	1	1.05	4	0.00	0	0.10	1
Honduras	Lower-middle	0.14	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.01	1	0.83	3	0.25	1	0.33	1	0.33	1
Jamaica	Upper-middle	1.40	2	1.35	3	2.17	4	1.53	3	1.24	3	1.33	2	1.92	4	2.67	5	2.41	4	5.50	6	2.03	6	2.70	4	1.15	3	3.48	6	3.50	4	2.00	3	1.63	4	6.93	12	5.33	7
Nicaragua	Lower-middle	0.38	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	2	0.00	0	0.00	0	0.14	1	0.25	1	0.00	0	1.50	2	0.06	1	0.38	2
Panama	High	2.71	6	1.33	3	0.29	1	2.21	7	0.75	3	1.63	5	3.66	13	3.47	12	1.83	5	2.66	8	3.74	12	5.83	17	4.84	13	4.79	16	5.26	18	4.52	15	5.25	19	5.64	20	6.70	20
Puerto Rico	High	11.38	16	10.31	16	6.16	11	8.19	15	11.34	14	13.41	20	14.28	27	13.76	23	12.84	23	11.93	21	15.19	27	15.16	25	7.61	13	14.93	23	8.06	20	11.16	24	15.83	33	9.06	19	7.12	20
Saint Kitts and Nevis	High	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	2	0.13	1	0.75	1	0.00	0	0.00	0	1.33	2	0.58	2	1.00	1	0.00	0
Saint Lucia	Upper-middle	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	1.00	1	0.50	1	0.50	2	1.25	2	1.90	3	3.00	3	1.98	3	0.40	1	0.00	0	2.87	6	4.75	8	2.33	6	1.50	2	4.00	6	3.78	9	1.68	5	4.75	7	4.94	9	3.18	6
South America		231.55	274	123.86	154	175.54	211	158.48	207	188.80	255	279.47	341	287.92	368	390.44	484	515.90	644	524.63	648	608.57	747	611.60	764	857.25	1,040	845.26	1,042	899.35	1,177	1154.77	1,460	1192.68	1,540	1279.34	1,655	1405.09	1,830
Argentina	High	31.35	40	24.89	29	33.28	42	33.49	42	35.21	52	45.07	57	42.19	58	50.29	63	81.74	101	94.50	112	114.28	143	107.88	135	150.48	184	137.57	172	145.81	196	181.16	235	166.48	223	175.80	234	158.68	211
Bolivia	Lower-middle	1.25	2	0.33	1	0.00	0	0.01	1	0.01	1	1.75	3	1.00	3	1.01	2	1.41	4	0.83	5	0.34	2	1.60	2	0.79	3	0.24	2	0.79	3	1.31	5	1.13	2	0.47	3	0.81	2
Brazil	Upper-middle	168.72	189	77.95	94	102.78	123	90.07	116	106.95	148	166.27	198	169.32	209	166.29	205	261.32	322	249.11	303	319.09	373	311.30	373	469.33	567	483.35	577	509.68	644	654.70	791	680.04	846	738.00	910	840.24	1,030
Chile	High	8.87	14	5.50	8	16.50	20	13.96	23	21.11	27	23.37	35	28.94	45	51.56	70	56.43	74	68.67	94	75.16	102	72.89	112	100.83	141	103.52	164	123.03	200	179.97	283	157.17	260	182.42	301	183.10	320
Colombia	Upper-middle	8.63	16	7.40	13	8.96	13	12.94	19	15.26	20	16.26	21	31.47	41	96.59	124	78.18	107	85.58	120	68.75	98	87.92	108	95.46	128	83.21	114	82.85	127	90.61	139	126.89	189	118.47	196	143.67	236

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	0.65	2	0.00	0	1.50	2	0.00	0	1.73	3	0.67	1	0.33	2	0.30	2	1.23	4	1.64	3	0.67	1	0.73	3	3.33	5	0.00	0	0.57	2	7.67	15	13.31	28	13.74	27	17.54	47
Guyana	Upper-middle	0.25	1	0.00	0	0.00	0	0.00	0	0.06	1	0.50	1	0.17	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.17	1	0.00	0	0.00	0	1.43	2
Paraguay	Upper-middle	1.00	1	0.33	1	0.14	1	0.00	0	0.25	1	1.00	1	1.00	1	0.50	1	2.00	2	0.00	0	1.00	1	0.05	1	2.00	2	0.00	0	0.00	0	2.04	4	0.25	1	3.70	5	3.02	5
Peru	Upper-middle	1.83	4	0.75	2	1.00	2	1.20	4	2.41	8	3.43	9	4.02	10	4.49	7	6.62	12	3.46	8	7.07	15	7.85	16	6.60	17	10.85	24	11.80	20	11.04	24	24.83	48	24.99	45	29.47	45
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.80	2	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.03	1	0.00	0	0.00	0	0.25	1	0.00	0	0.17	1	0.00	0
Uruguay	High	2.00	2	2.17	3	5.30	6	1.11	2	1.83	4	11.37	13	4.00	4	9.67	11	8.67	13	5.88	8	10.28	14	9.65	16	10.68	18	10.31	19	17.91	24	15.41	26	15.71	27	16.95	28	20.53	30
Venezuela	Upper-middle	7.00	8	4.53	6	6.08	8	5.71	8	3.97	8	8.98	14	5.48	6	8.75	11	18.31	23	14.98	18	11.93	17	11.74	16	17.22	23	6.75	11	10.62	16	6.89	10	4.63	9	6.59	14
Europe		7076.24	7,703	6944.98	7,611	7271.26	7,953	7778.60	8,565	8551.31	9,481	9048.38	10,001	9800.43	10,840	10741.70	11,936	12059.32	13,419	12858.73	14,248	13315.63	14,772	14839.46	16,496	15980.31	17,829	17247.40	19,319	18375.28	20,692	18217.19	20,660	18742.27	21,304	19099.36	22,750	19830.19	22,708
EU		6656.23	7,287	6562.67	7,222	6856.78	7,540	7298.26	8,104	8021.18	8,955	8444.25	9,431	9150.98	10,237	9971.44	11,218	11159.41	12,580	11866.54	13,335	12302.25	13,837	13766.36	15,500	14751.76	16,687	15878.86	18,084	16928.95	19,387	16643.72	19,242	16996.39	19,744	18052.48	20,968	17671.39	20,743
Austria	High	52.46	66	83.45	102	88.07	110	99.11	134	98.42	145	106.77	164	119.93	173	119.01	188	155.70	233	171.28	248	191.26	293	232.70	367	266.38	414	295.31	455	328.42	504	336.10	500	288.45	490	336.95	545	299.06	493
Belgium	High	150.03	192	194.91	232	195.89	249	209.95	282	256.24	339	265.23	361	335.49	424	333.21	436	373.64	503	430.16	600	481.00	673	493.66	701	549.69	776	596.51	878	647.24	957	587.34	900	612.35	947	593.39	902	604.92	969
Bulgaria	Upper-middle	8.76	13	2.64	5	0.74	2	4.15	7	1.01	4	3.37	7	5.26	10	6.20	12	9.07	16	7.88	16	6.70	9	5.95	10	13.01	24	10.98	15	10.03	14	9.99	19	11.23	24	18.70	33	27.09	40
Croatia	High	64.92	66	68.74	71	63.22	66	65.27	71	64.05	71	73.03	81	70.68	75	73.71	81	87.24	97	113.69	127	89.33	100	128.25	135	130.96	140	127.11	142	133.27	149	150.62	164	165.49	181	152.43	174	160.70	182
Cyprus	High	2.50	3	3.29	5	2.96	5	5.14	9	4.15	10	3.99	6	7.71	11	10.05	17	7.21	12	5.18	12	11.11	21	16.57	28	16.97	28	32.50	47	28.29	49	45.75	57	43.71	70	43.93	77	44.78	78
Czechia	High	32.12	37	45.57	56	43.41	54	40.66	51	49.68	63	50.31	62	62.67	76	75.14	92	72.54	86	69.93	91	78.17	93	86.33	109	88.45	120	104.26	139	88.12	115	113.81	156	132.54	181	138.25	200	139.79	198
Denmark	High	99.08	117	77.27	100	84.42	103	93.01	122	109.86	134	113.47	150	130.44	180	132.26	181	153.35	216	150.70	224	169.14	231	202.14	287	228.03	339	243.70	379	324.11	485	317.99	491	320.75	526	299.51	501	333.64	553
Estonia	High	9.42	10	9.75	12	6.33	9	16.74	20	13.40	19	11.41	16	13.69	17	24.17	32	14.67	20	16.71	27	24.46	32	22.83	35	34.01	57	37.59	57	35.15	58	33.67	52	38.12	60	27.73	56	34.59	64
Finland	High	170.34	194	134.39	160	137.59	169	171.05	218	218.50	255	174.46	223	185.77	227	205.25	261	253.58	323	283.78	367	269.84	360	341.59	455	352.90	459	354.78	471	390.09	532	346.38	470	412.22	566	346.57	491	367.40	525
France	High	562.92	667	942.61	1,038	945.19	1,065	1008.90	1,140	1102.60	1,263	1071.12	1,253	1142.22	1,332	1262.58	1,479	1276.47	1,531	1387.87	1,681	1394.39	1,685	1462.90	1,793	1516.91	1,914	1676.67	2,130	1593.46	2,037	1627.08	2,097	1623.39	2,108	1615.36	2,090	1540.40	2,087
Germany	High	1160.89	1,359	1080.65	1,287	1209.56	1,422	1222.82	1,489	1312.94	1,605	1455.61	1,804	1532.34	1,905	1652.01	2,074	1935.73	2,422	2081.96	2,622	2129.88	2,729	2375.26	3,035	2623.05	3,363	2815.77	3,697	3099.43	4,049	2960.61	3,912	3100.94	4,126	3381.60	4,546	3338.93	4,505
Greece	High	25.83	31	26.15	34	33.11	45	43.55	59	50.28	69	63.03	87	73.42	95	57.74	81	78.09	109	87.36	110	117.86	150	116.42	137	127.31	171	124.05	167	122.18	160	123.79	171	123.61	175	135.64	196	151.75	220
Hungary	High	27.27	35	27.44	42	23.94	31	31.37	54	39.30	62	30.76	52	32.33	47	35.97	56	43.53	68	64.01	92	51.60	90	72.51	104	72.86	108	109.09	164	101.76	142	119.57	172	120.37	184	143.12	208	166.14	229
Ireland	High	54.27	77	48.71	70	44.74	61	32.81	51	72.83	102	61.54	93	66.14	102	84.16	126	99.53	145	101.88	159	121.90	194	136.63	203	126.03	194	134.53	223	163.05	251	172.62	261	157.55	259	186.08	315	174.05	292
Italy	High	391.07	444	430.95	505	438.47	519	499.94	601	536.96	653	589.88	712	616.92	775	635.42	808	774.23	969	843.90	1,055	882.61	1,136	1058.01	1,313	1193.42	1,507	1239.90	1,585	1437.41	1,827	1505.80	1,918	1538.34	2,008	1627.23	2,123	1708.31	2,208
Latvia	High	1.00	1	2.00	2	1.00	1	0.85	1	4.00	4	0.92	6	1.83	4	1.00	1	0.84	3	2.39	4	0.83	3	2.20	2	0.05	1	0.88	3	3.45	6	7.42	12	6.68	9	2.88	7	2.62	6
Lithuania	High	1.00	1	0.00	0	1.33	2	1.69	4	4.06	8	5.27	11	3.36	6	3.16	10	2.63	4	3.23	10	5.52	7	3.85	6	3.84	10	1.78	4	9.63	16	6.27	16	11.19	21	15.56	23	20.33	29
Luxembourg	High	0.00	0	0.00	0	1.00	1	2.33	3	1.00	1	2.38	4	2.20	3	4.14	7	2.42	6	4.18	7	12.99	22	16.20	28	17.54	32	22.93	38	24.61	46	20.69	40	26.45	50	25.04	53	23.76	45
Malta	High	0.00	0	0.67	1	1.50	2	0.03	1	0.05	2	1.64	5	2.94	6	1.61	4	3.50	4	2.00	2	2.92	5	3.53	5	4.46	8	4.17	6	11.13	21	5.86	11	5.18	13	10.34	21	7.82	15
Netherlands	High	559.76	670	510.58	623	570.79	700	609.32	770	663.81	854	710.23	913	767.15	1,002	916.46	1,164	1121.19	1,431	1104.33	1,447	1226.58	1,632	1317.50	1,752	1383.47	1,893	1338.51	1,887	1469.82	2,110	1313.14	1,947	1328.32	1,972	1448.49	2,187	1365.52	2,128
Poland	High	62.50	75	33.99	42	34.79	40	36.79	49	40.73	62	62.59	93	43.97	61	74.86	98	90.03	116	91.65	122	97.95	123	148.14	193	181.85	238	226.06	297	272.27	360	375.20	474	404.72	511	402.72	533	426.88	576
Portugal	High	34.59	51	37.83	53	34.78	51	31.13	51	34.41	51	49.63	70	64.75	93	69.84	101	115.86	164	120.43	185	152.10	214	180.77	267	261.69	369	357.83	458	430.34	561	374.70	504	364.03	517	518.74	705	464.86	644
Romania	Upper-middle	3.55	6	3.67	4	3.07	6	2.95	6	9.90	19	5.74	9	6.02	10	13.60	25	24.05	30	21.86	31	35.91	49	48.38	65	84.64	98	112.76	144	94.65	127	80.03	106	65.27	105	92.64	144	94.94	194
Slovakia	High	50.16	54	30.58	35	27.33	29	27.77	34	34.37	39	20.95	25	24.68	27	25.57	34	31.63	38	27.07	35	32.04	37	26.49	36	24.93	37	36.07	49	23.44	32	35.30	53	50.31	69	46.77	64	52.54	83
Slovenia	High	12.00	12	10.00	10	11.95	15	12.78	17	13.60	20	13.14	18	15.21	22	21.13	27	25.30	32	17.18	23	22.72	30	30.42	40	43.71	56	24.90	34	46.17	59	35.47	51	60.84	86	51.54	73	48.09	63

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	440.45	517	362.06	436	474.34	531	462.18	542	516.51	600	545.85	644	589.53	719	670.08	834	841.39	1,014	916.40	1,100	1028.17	1,239	1189.92	1,438	1281.73	1,575	1329.80	1,633	1500.89	1,847	1395.01	1,758	1423.53	1,789	1693.21	2,161	1480.33	1,935
Sweden	High	337.55	395	276.32	335	262.45	311	296.72	368	287.07	354	289.91	361	342.57	440	364.04	469	347.60	471	331.37	455	313.79	432	405.23	563	410.71	603	423.62	616	531.58	778	548.55	831	515.37	768	526.42	842	595.85	923
United Kingdom	High	2341.73	2,673	2118.46	2,473	2114.81	2,525	2269.23	2,747	2484.51	3,070	2661.10	3,268	2892.60	3,620	3099.23	3,913	3216.86	4,138	3409.72	4,406	3351.10	4,320	3644.12	4,726	3712.33	4,961	4114.26	5,566	4005.00	5,629	3995.68	5,691	4049.24	5,826	4169.60	6,087	3926.25	5,869
Other Europe		420.01	517	382.31	478	414.48	537	480.33	639	530.14	722	604.14	828	649.45	900	770.27	1,055	899.91	1,240	992.19	1,369	1013.38	1,393	1073.11	1,487	1228.55	1,737	1368.54	1,942	1446.33	2,099	1573.47	2,253	1745.88	2,479	1946.88	2,805	2158.80	2,999
Albania	Upper-middle	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.83	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.06	2	0.37	3	1.28	3	0.28	3
Andorra	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0
Belarus	Upper-middle	4.00	4	0.00	0	1.14	2	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	2.00	2	1.15	2	0.00	0	0.08	2	0.25	1	0.14	1	1.00	1	3.67	4	0.17	1	0.50	1	1.13	2
Bosnia and Herzegovina	Upper-middle	0.00	0	0.07	1	0.00	0	1.41	5	0.00	0	0.00	0	0.50	1	1.08	3	2.25	3	2.40	5	2.92	7	6.15	11	8.03	11	12.73	17	7.50	9	9.38	12	6.60	10	14.68	20	10.59	13
Holy See (Vatican City)	na	1.00	1	0.00	0	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.50	3	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Iceland	High	6.62	11	6.50	7	6.03	11	8.17	11	11.53	21	5.31	14	12.76	25	12.80	23	17.29	24	18.42	30	19.17	28	18.59	34	12.41	20	19.71	39	14.94	31	22.70	47	16.76	35	12.73	38	19.77	38
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	1.00	2	1.33	2	0.00	0	0.00	0	0.75	1	0.47	2	2.11	3	1.00	1	1.67	3
Liechtenstein	High	0.50	1	0.00	0	0.25	1	0.00	0	0.00	0	1.00	1	0.67	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.20	2
Moldova	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.22	1	0.00	0	0.03	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.19	1	0.00	0	0.00	0	0.89	1
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	1.00	1	0.00	0	2.06	3	0.00	0	0.08	1	0.13	1	0.08	1	0.00	0	0.00	0
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	0.29	1	2.33	3	0.00	0	0.00	0	2.50	3
North Macedonia	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.72	2	0.00	0	0.67	2	0.00	0	1.00	1	1.17	2	1.08	3	1.21	5	0.07	1	0.94	2	2.09	5	4.41	7	3.19	7	0.88	4	5.02	8
Norway	High	112.52	133	114.14	137	130.11	164	126.30	163	130.85	180	152.02	203	177.75	236	181.12	245	201.63	288	241.63	335	257.66	349	277.70	373	329.58	458	330.02	456	352.88	496	338.34	491	330.65	495	348.90	548	395.72	592
Russia	Upper-middle	67.60	79	58.43	76	65.02	79	73.77	92	86.40	107	77.25	95	85.86	101	92.36	113	87.75	106	100.51	125	92.12	116	89.75	111	143.27	181	170.13	209	171.89	228	304.15	380	427.59	511	497.56	589	531.28	644
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	34.06	40	34.38	38	36.96	44	26.42	34	32.90	37	40.77	51	35.15	45	51.79	64	51.71	63	55.20	73	47.95	64	63.33	81
Serbia and Montenegro[b]	Lower-middle	7.42	9	3.13	4	3.29	7	2.34	6	3.61	7	5.57	9	4.35	7	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	176.64	224	153.64	193	159.33	220	203.26	293	218.24	317	273.55	413	252.61	407	321.36	495	404.58	626	430.05	652	459.70	684	487.10	741	526.09	817	611.09	971	654.11	1,050	609.31	984	653.02	1,059	661.56	1,132	686.26	1,148
Turkey	Upper-middle	35.49	49	42.07	56	46.33	54	65.08	76	73.40	94	86.22	110	112.64	129	124.86	150	146.86	167	152.14	186	146.64	179	147.99	185	163.85	219	183.50	231	182.69	240	217.91	294	247.65	332	370.26	454	430.49	504
Ukraine	Lower-middle	8.23	10	4.33	6	2.64	4	0.01	1	3.15	5	2.20	3	1.37	3	1.87	4	1.33	2	6.76	10	5.67	7	8.31	14	2.17	5	1.63	5	6.33	7	8.31	15	2.50	6	9.56	20	8.68	19
Middle East		275.69	337	301.05	362	323.11	392	359.79	443	347.49	431	385.55	492	393.37	509	426.13	536	479.63	605	456.39	595	493.31	656	555.18	739	602.13	824	665.98	930	754.80	1,045	812.11	1,146	906.97	1,275	961.39	1,347	1119.21	1,568
Armenia	Upper-middle	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	1.67	2	1.17	2	0.50	1	2.64	4	0.67	1	3.50	4	1.66	5	5.42	10
Azerbaijan	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.50	1	0.00	0	0.00	0	1.33	2	0.01	1	0.50	1	0.00	0	1.00	1	1.00	1	0.33	1	0.00	0	1.00	1	0.00	0	3.38	5
Bahrain	High	0.00	0	1.00	1	0.00	0	2.25	3	1.33	2	3.50	4	2.25	4	0.00	0	2.50	3	2.00	2	1.29	4	1.00	1	0.00	0	2.62	5	3.53	5	1.67	2	0.14	1	0.89	4	2.13	4
Gaza Strip[c]	Lower-middle	0.50	1	1.33	2	0.25	1	1.00	2	0.67	2	1.53	4	0.83	2	0.70	2	2.08	4	0.00	0	2.79	4	0.74	3	1.14	2	1.00	2	0.00	0	0.55	2	0.57	2	1.53	6	0.87	3
Georgia	Lower-middle	0.83	2	0.87	3	0.42	3	1.00	1	0.30	3	0.17	1	0.36	3	0.33	1	1.62	3	0.27	2	2.35	4	1.45	3	2.82	6	3.39	6	2.65	9	1.94	6	4.90	17	2.90	11	9.80	21
Iran	Upper-middle	9.43	13	6.00	6	11.08	15	16.01	23	22.68	28	24.32	32	30.54	39	37.73	45	53.31	64	40.44	57	55.60	70	49.90	69	59.43	81	87.68	110	91.21	120	115.11	146	162.61	200	193.92	243	251.46	301
Iraq	Lower-middle	0.65	2	0.00	0	1.00	1	0.00	0	1.17	2	2.55	4	0.42	1	0.50	1	0.50	1	1.14	3	0.00	0	0.20	1	2.00	2	0.63	2	1.58	3	1.00	1	1.46	4	4.41	9	3.63	9
Israel	High	241.53	291	263.77	318	271.54	324	296.01	360	272.61	338	295.63	377	302.20	393	338.83	434	361.39	458	367.96	472	366.93	490	427.39	566	471.35	627	474.63	645	547.78	709	569.57	758	625.13	833	633.25	825	684.24	900
Jordan	Upper-middle	6.00	6	3.25	4	3.00	3	5.01	7	4.34	6	6.50	8	5.49	12	6.50	7	2.88	4	7.01	9	11.09	13	10.61	13	9.23	15	14.70	17	19.20	28	14.40	23	7.33	18	16.90	25	18.82	33

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	5.83	8	9.00	9	16.28	21	16.83	21	22.49	26	21.91	29	30.82	38	17.58	23	22.91	30	14.40	19	12.40	14	12.33	15	16.27	23	13.62	18	9.20	16	7.92	12	4.10	10	6.73	9	9.95	13
Lebanon	Upper-middle	1.50	3	2.58	5	6.83	9	0.72	4	4.03	9	12.66	19	7.06	9	8.84	11	8.73	14	4.15	9	12.21	17	10.83	16	6.36	11	11.09	19	13.27	21	13.57	25	10.46	20	14.72	28	20.00	33
Oman	High	0.00	0	3.00	3	1.87	3	1.50	3	1.48	2	0.00	0	0.14	1	4.27	6	3.50	4	2.33	3	0.50	1	4.23	5	1.36	3	6.21	8	3.36	7	3.71	7	6.65	16	8.27	17	3.15	8
Qatar	High	0.00	0	0.00	0	0.00	0	0.00	0	2.17	3	1.50	2	2.00	2	0.50	1	1.17	3	2.73	5	1.42	3	1.53	5	4.85	9	3.48	7	7.19	15	11.27	24	11.64	28	10.37	26	17.24	33
Saudi Arabia	High	4.25	5	4.75	5	3.50	4	11.45	14	6.25	7	7.00	8	4.45	9	3.17	4	3.67	5	7.04	12	15.36	21	19.41	30	10.55	22	29.26	65	28.45	74	39.25	85	42.81	106	33.85	85	47.85	124
Syria	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.25	2	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.25	1	1.00	1	0.00	0	0.00	0	0.42	2	0.00	0
United Arab Emirates	High	4.00	5	5.25	6	6.50	8	6.92	9	7.83	9	7.79	10	4.75	8	3.75	4	10.53	12	6.08	8	10.27	15	12.91	19	12.11	19	15.94	29	21.51	38	30.80	59	23.58	49	28.89	71	37.76	95
West Bank[c]	Lower-middle	1.17	2	0.00	0	0.83	2	0.09	1	0.00	0	0.00	0	0.67	2	2.42	5	1.00	1	0.83	2	0.10	1	1.00	1	0.50	1	0.58	2	1.90	6	0.71	3	1.09	4	2.68	8	3.33	5
Yemen	Low	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	1.50	2	0.00	0	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Africa		113.80	150	107.65	149	136.11	174	125.88	174	142.87	205	150.81	217	194.89	290	187.03	262	184.63	283	215.45	315	251.15	349	236.92	349	313.82	468	308.51	486	341.39	563	376.56	592	374.57	595	508.49	777	514.85	804
Algeria	Upper-middle	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	0.00	0	1.59	4	0.50	1	1.67	2	6.67	9	2.59	5	1.26	3	4.93	7	2.05	4	1.83	3	2.38	4	3.33	6	5.72	11	4.93	10
Angola	Lower-middle	0.11	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.33	1	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.90	3	0.25	1	0.00	0	0.33	1	0.00	0
Benin	Low	0.00	0	0.00	0	0.80	1	0.00	0	0.00	0	0.29	2	0.00	0	0.00	0	0.20	1	0.20	1	0.12	1	0.00	0	0.39	3	0.59	3	0.00	0	1.00	1	0.85	2	2.29	3	1.00	1
Botswana	Upper-middle	0.00	0	3.00	3	2.00	2	0.01	1	2.02	4	0.04	3	0.28	3	1.01	2	2.50	4	0.02	1	2.50	4	0.95	3	1.21	3	1.13	2	4.63	6	3.84	7	1.31	4	7.74	14	3.46	7
Burkina Faso	Low	0.00	0	0.50	1	0.00	0	0.08	1	1.00	1	2.37	6	0.01	1	1.67	2	0.00	0	0.51	2	0.39	2	0.00	0	0.31	3	0.53	3	0.07	1	0.00	0	0.00	0	0.07	1	0.79	3
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.89	2	1.01	3	0.45	2	0.78	3	0.00	0
Cabo Verde	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.07	1	0.63	2
Cameroon	Lower-middle	0.00	0	1.75	3	5.70	7	1.70	3	1.11	2	5.50	6	1.34	2	4.17	5	1.00	1	0.98	4	1.25	2	1.30	2	2.33	3	5.96	12	2.05	3	1.28	4	5.17	10	5.84	14	4.14	11
Central African Republic	Low	0.00	0	0.00	0	0.39	1	1.00	1	1.88	5	0.00	0	0.00	0	0.75	2	0.25	1	0.53	2	0.10	1	0.00	0	0.14	1	0.00	0	0.29	2	0.07	1	0.08	1	0.00	0	0.24	2
Chad	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.08	1	0.23	2	0.00	0
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	0.84	3	1.01	2	1.35	4	1.98	5	0.21	2	0.00	0	0.67	1	0.89	2	0.42	2	0.48	2	1.92	4	0.56	3	2.00	7	2.18	4	1.52	5	2.82	4	2.82	4
Congo, Republic of the	Lower-middle	0.50	1	0.25	1	0.92	2	0.73	2	1.94	4	0.00	0	0.83	3	0.88	3	0.17	1	1.89	5	1.95	7	0.13	1	1.63	4	0.10	1	0.06	1	1.28	7	1.26	6	0.33	2	0.10	1
Côte d'Ivoire	Lower-middle	1.00	2	0.67	1	0.72	2	0.53	2	1.10	4	1.86	3	0.00	0	0.00	0	3.17	4	3.84	9	1.49	3	0.00	0	2.11	4	1.49	5	0.47	3	0.29	1	1.17	4	1.97	9	1.65	7
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Egypt	Lower-middle	1.00	1	1.83	6	3.00	4	3.13	5	5.17	6	1.58	4	2.02	7	6.63	10	3.71	10	9.22	17	8.82	13	14.08	20	9.96	23	12.93	27	12.18	22	18.92	38	9.98	25	19.19	41	33.96	57
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eritrea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Eswatini	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.01	1	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.17	1	1.13	2	1.00	1	0.25	1	0.00	0	0.38	2	0.14	2
Ethiopia	Low	0.00	0	0.83	2	0.00	0	0.33	1	0.00	0	1.01	2	0.58	2	3.00	3	1.58	3	1.51	3	3.60	5	1.45	3	2.93	8	0.77	4	4.63	9	2.62	6	7.24	13	3.07	6	10.32	20
Gabon	Upper-middle	0.00	0	0.44	3	1.50	3	0.33	1	2.94	7	3.44	6	2.20	5	1.13	3	1.28	3	0.31	3	0.82	2	0.38	2	1.64	4	1.25	4	1.53	4	2.21	6	0.50	2	2.36	6	1.47	5
Gambia, The	Low	0.00	0	0.00	0	0.17	1	0.00	0	0.50	1	1.04	2	0.10	1	0.00	0	0.00	0	0.00	0	0.00	0	0.46	2	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.38	2	0.17	1
Ghana	Lower-middle	2.00	2	1.00	1	1.50	2	0.25	1	1.50	2	0.00	0	1.68	3	0.50	1	0.67	2	2.00	2	2.33	3	0.13	1	1.04	3	3.00	10	6.78	12	9.35	13	5.31	10	12.25	25	10.65	23
Guinea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.11	1	0.00	0	0.00	0	0.00	0	0.75	1	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.76	2	0.00	0

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.28	2
Kenya	Lower-middle	4.38	8	0.71	4	1.85	5	3.33	10	2.96	8	2.83	8	4.65	16	6.38	17	6.70	16	7.59	17	7.24	13	6.75	20	12.09	31	9.60	22	15.77	37	11.58	31	9.63	28	11.77	31	17.76	43
Lesotho	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.67	1	0.00	0	0.00	0	0.60	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Liberia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.33	1	0.33	1	1.31	3
Libya	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.67	1	0.67	1	1.00	2	0.25	1	2.75	4	1.04	3	0.14	1	3.13	7	0.67	1	1.03	3	1.37	3
Madagascar	Low	3.37	8	2.42	5	1.07	3	2.79	7	0.88	3	1.61	4	2.58	5	1.96	3	3.90	11	2.85	9	3.68	10	4.64	12	2.10	4	3.54	7	6.36	16	6.59	20	2.16	10	5.15	12	5.85	16
Malawi	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.20	1	1.25	2	1.00	1	1.67	3	1.26	3	0.48	2	1.56	2	0.00	0	0.00	0	0.03	1	0.66	4	2.38	4	1.47	6	1.58	5
Mali	Low	0.00	0	0.43	2	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.45	2	0.00	0	0.00	0	0.06	1	0.00	0	0.64	4	0.15	2	0.17	1	0.00	0	0.00	0	0.33	1	0.00	0
Mauritania	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Mauritius	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.02	2	0.00	0	1.48	2	1.00	1	3.14	5	0.50	1	1.57	4	1.14	3	2.00	2	4.30	6	2.00	2	2.00	2	1.10	3
Morocco	Lower-middle	2.07	3	1.25	2	2.50	3	0.01	1	2.02	4	1.02	4	1.20	2	0.46	3	1.85	5	0.60	3	1.50	2	5.00	7	6.25	7	3.20	9	3.45	7	3.72	7	4.10	7	1.30	4	31.95	37
Mozambique	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.20	1	0.33	1	0.00	0	0.50	1	0.07	1	0.50	1	0.00	0	0.50	1	0.14	1	0.00	0	0.30	2	2.20	3
Namibia	Upper-middle	0.00	0	0.00	0	0.25	1	0.00	0	0.14	1	0.25	1	0.50	1	0.00	0	1.00	1	0.00	0	1.00	1	1.20	3	4.18	10	2.05	5	2.10	8	2.47	5	0.38	5	3.39	7	1.45	6
Niger	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.25	1	0.87	2	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0
Nigeria	Lower-middle	4.18	6	1.38	2	3.39	5	4.17	5	9.35	13	5.55	11	16.17	18	12.67	15	6.21	10	17.52	21	10.83	13	14.75	20	12.09	16	10.12	15	22.90	28	28.30	35	35.63	49	54.30	72	39.51	60
Rwanda	Low	0.00	0	1.17	2	0.50	1	0.00	0	0.53	2	1.08	3	0.00	0	0.57	1	1.50	2	0.61	3	1.13	3	1.34	6	0.85	3	1.90	5	3.60	9	1.93	7	3.57	12	1.29	4	3.00	7
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	0.50	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.00	1	1.00	1	0.33	1	0.12	1	1.79	3	2.56	6	0.30	2	0.39	2	0.08	1	1.63	3	0.25	1
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	1.88	3	0.00	0	0.63	3	0.13	1	0.17	1	0.00	0	0.17	1	0.00	0	0.00	0	0.00	0	0.32	2
Sierra Leone	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.83	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.54	2	0.17	1	0.44	3	1.25	2
Somalia	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0
South Africa	Upper-middle	89.69	109	82.89	95	96.69	118	103.44	124	101.26	136	107.41	140	139.63	185	134.36	178	125.63	171	139.79	180	164.07	208	163.72	216	215.57	293	224.99	320	214.88	331	240.56	343	241.12	346	328.83	471	290.77	431
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0
Sudan	Lower-middle	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	1.00	1	0.50	2	0.00	0	4.00	7	0.00	0	1.40	2	0.40	1	1.00	1	1.42	3	0.00	0	1.15	2	0.48	2	1.10	3	2.03	4
Tanzania	Low	0.67	2	1.08	3	1.63	3	0.78	4	1.10	4	0.83	2	3.12	9	0.63	4	2.02	6	1.43	5	4.48	7	1.40	2	1.56	5	1.01	4	5.88	13	4.85	14	2.55	9	3.12	9	6.23	19
Togo	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.92	3	0.00	0	0.00	0	0.00	0	0.20	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.45	2	0.40	1	0.25	1
Tunisia	Lower-middle	0.67	1	1.00	1	5.25	6	0.75	1	1.00	1	3.40	6	2.33	3	1.75	2	1.01	3	2.19	3	9.00	10	4.54	6	7.62	10	1.11	4	10.45	15	8.96	11	12.89	21	11.47	20	13.71	17
Uganda	Low	1.83	4	1.45	3	1.25	3	0.92	3	2.33	5	2.25	9	6.43	14	0.77	3	4.36	12	4.16	13	8.34	17	3.96	12	7.00	20	7.64	22	8.56	26	6.13	15	9.56	23	7.30	25	6.38	17
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.20	1	0.33	1	1.93	4	1.93	3	0.37	2	0.33	1	3.83	6	0.39	2	0.77	2	4.24	10	1.14	3	2.42	9	4.33	8	2.62	5
Zimbabwe	Low	1.83	3	2.60	5	2.70	6	0.59	3	0.27	3	0.67	2	0.50	2	0.51	2	1.04	3	3.66	7	2.75	5	0.00	0	3.66	9	3.93	6	2.10	4	1.93	5	3.10	6	3.56	12	4.19	8
Asia		847.91	1,011	774.12	928	819.28	990	883.63	1,098	972.28	1,174	1067.98	1,310	1207.85	1,485	1427.82	1,765	1477.68	1,826	1767.03	2,201	1931.97	2,414	2378.35	2,964	2728.12	3,414	2932.87	3,693	3208.91	4,066	3977.73	4,905	3945.48	4,931	4352.89	5,397	4838.30	6,053
Afghanistan	Low	0.00	0	0.00	0	0.00	0	1.00	1	0.33	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.20	2	0.00	0	0.33	1	0.00	0	0.00	0	3.00	4	0.83	3
Bangladesh	Lower-middle	1.36	4	0.86	1	0.20	1	1.39	4	0.22	3	1.13	2	1.50	2	1.70	4	2.46	7	0.37	4	6.01	10	6.00	9	0.67	2	6.86	15	7.52	15	8.18	16	10.30	19	11.27	19	24.02	37

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.71	1	0.00	0
Brunei	High	0.00	0	1.00	1	1.00	1	0.00	0	0.50	1	0.00	0	0.00	0	2.50	3	0.00	0	0.00	0	1.00	1	0.00	0	0.43	2	1.50	2	0.00	0	0.00	0	0.80	1	0.83	3	0.00	0
Burma	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	2	0.00	0	1.50	2	0.00	0	0.00	0	0.73	2	0.00	0	0.00	0	0.00	0	0.13	1	0.17	1	0.25	1	0.00	0
Cambodia	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.50	1	0.26	2	0.25	1	2.08	4	0.70	1	0.37	2	1.53	3	0.00	0	0.77	2	0.25	1	0.71	2
China	Upper-middle	121.23	170	117.80	155	123.05	175	147.16	207	170.44	237	196.84	274	198.24	277	248.49	357	305.43	435	435.95	589	499.38	684	646.45	893	815.46	1,087	859.08	1,181	1055.18	1,411	1302.11	1,758	1496.68	2,000	1775.70	2,292	2027.55	2,664
India	Lower-middle	52.15	66	35.21	43	41.98	52	38.94	48	57.08	70	49.21	67	62.99	80	74.45	99	87.92	107	82.30	117	109.77	143	168.40	202	176.80	232	218.12	293	222.32	294	278.88	357	301.20	380	298.40	396	392.15	493
Indonesia	Lower-middle	2.13	4	3.05	8	2.39	6	0.93	4	1.47	7	2.18	11	67.54	76	7.07	15	4.39	11	8.43	23	7.27	22	5.35	15	21.79	45	19.19	47	14.79	38	97.89	128	18.46	43	43.61	76	33.17	63
Japan	High	489.36	560	501.37	579	518.39	601	500.79	600	557.51	642	604.50	707	591.17	691	731.00	851	621.24	735	725.68	859	748.18	872	813.65	965	905.33	1,079	962.82	1,127	947.82	1,139	1044.89	1,226	1016.76	1,222	975.31	1,181	1071.37	1,311
Kazakhstan	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.25	1	0.17	1	2.17	4	1.67	2	6.39	13	0.50	1	0.25	1	7.50	12	14.11	17
Kyrgyzstan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.45	3	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.35	2	0.33	1	4.78	8	4.00	6
Laos	Lower-middle	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.02	3	0.17	1	0.77	2	1.29	3	0.11	1	0.45	2	1.71	2	0.25	1	0.00	0
Malaysia	Upper-middle	8.92	13	4.29	5	7.59	12	5.35	8	11.81	19	5.53	13	19.60	25	4.67	11	28.04	42	16.96	34	17.63	42	31.12	55	64.86	112	48.24	83	67.43	109	140.88	188	82.04	145	106.33	169	103.87	174
Maldives	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.10	1	0.00	0	0.00	0	0.00	0
Mongolia	Lower-middle	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.73	2	0.08	1	0.00	0	0.00	0	0.25	1	0.00	0	0.17	1	0.53	2	0.40	2	0.17	1
Nepal	Low	0.50	1	1.03	3	0.00	0	0.50	2	1.17	3	0.90	3	1.07	5	0.50	1	0.00	0	0.45	2	0.50	2	1.34	3	1.22	5	0.33	1	1.93	3	1.56	4	1.32	3	3.12	9	5.00	13
North Korea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0
Pakistan	Lower-middle	1.25	3	1.39	3	2.51	4	1.58	3	4.26	8	0.92	2	3.67	4	5.87	10	2.65	4	3.42	7	9.88	14	9.81	16	7.45	13	17.97	24	25.19	39	29.72	51	62.68	98	73.94	95	95.83	129
Papua New Guinea	Lower-middle	2.00	2	0.00	0	0.00	0	0.50	1	1.00	1	0.00	0	0.00	0	0.29	1	0.33	1	0.50	1	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Philippines	Lower-middle	3.13	7	2.33	3	5.37	7	3.85	7	1.38	5	6.44	14	5.16	7	3.40	8	6.15	10	4.14	8	10.47	15	9.45	14	10.26	19	11.52	22	15.52	28	38.72	52	25.29	44	22.88	43	16.04	35
Singapore	High	26.70	36	17.38	24	22.85	30	29.23	41	23.91	37	30.79	39	45.27	66	48.05	82	64.98	99	76.57	123	78.07	133	112.29	194	138.68	225	147.49	245	162.69	282	159.77	272	167.41	288	167.84	287	169.28	311
South Korea	High	65.06	82	47.28	67	49.65	66	81.25	108	72.87	96	85.48	123	86.55	142	120.49	177	117.70	163	157.40	220	174.38	246	238.00	330	238.22	333	305.72	410	343.52	488	450.43	590	438.28	596	501.20	659	558.37	704
Sri Lanka	Lower-middle	0.00	0	0.00	0	1.00	1	1.96	2	0.50	1	0.90	2	1.18	4	1.00	1	1.75	4	1.50	6	3.52	5	1.50	2	6.75	11	4.11	7	2.54	5	4.17	8	6.19	13	8.55	13	8.09	12
Taiwan	High	63.92	72	36.46	43	40.87	53	62.86	78	60.92	78	71.35	94	114.82	141	167.72	197	219.84	260	241.16	280	248.29	292	310.03	363	304.64	372	305.93	374	305.06	371	365.39	453	275.48	344	301.24	382	257.99	345
Tajikistan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Thailand	Upper-middle	10.21	16	4.00	4	1.93	4	4.63	9	5.08	11	9.88	20	5.75	9	10.18	16	11.86	24	9.22	26	12.43	21	19.71	36	28.24	48	16.42	36	20.88	38	42.86	67	29.09	51	32.73	54	38.23	72
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Turkmenistan	Upper-middle	0.00	0	0.67	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.01	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Uzbekistan	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.37	2	0.42	2	0.00	0	2.20	3	6.00	6	1.17	2	1.91	4	0.92	2
Vietnam	Lower-middle	0.00	0	0.00	0	0.00	0	0.23	2	1.33	4	0.95	3	2.08	3	0.11	1	0.59	3	1.52	4	1.81	4	1.23	3	2.07	5	4.01	9	5.94	12	4.68	11	8.56	16	9.38	21	16.62	37
Australia and Oceania		794.15	946	745.64	896	815.25	972	775.50	967	865.34	1,088	968.06	1,209	1095.69	1,364	1154.75	1,471	1262.99	1,635	1322.72	1,729	1387.61	1,806	1522.04	2,003	1590.29	2,138	1924.12	2,551	2082.19	2,810	2109.38	2,884	2200.17	2,976	2223.84	3,150	2190.56	3,111
Australia	High	649.71	778	631.25	759	660.78	800	609.95	767	697.13	877	807.28	1,000	909.85	1,132	956.25	1,208	1050.93	1,351	1117.70	1,457	1137.95	1,493	1229.45	1,631	1335.49	1,803	1639.73	2,210	1835.11	2,477	1852.60	2,564	1927.90	2,636	1917.22	2,757	1913.43	2,724
Cook Islands	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.22	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Fiji	Upper-middle	0.00	0	0.00	0	0.00	0	0.01	1	0.51	2	1.33	2	0.73	2	0.01	1	0.00	0	1.40	2	0.25	2	0.50	1	0.04	1	0.65	2	1.00	2	0.00	0	2.17	5	2.50	3	1.00	1
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-15

S&E articles in psychology, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Micronesia, Federated States of	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	144.43	189	114.39	151	154.47	190	165.55	216	167.70	228	159.45	222	185.10	258	198.48	286	212.06	316	203.41	308	248.91	337	292.08	407	254.53	365	283.54	395	246.08	378	256.58	372	270.05	395	304.12	457	276.13	456
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Samoa	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0
Solomon Islands	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tonga	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Tuvalu	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.05	1	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Unassigned	na	600.17	1,157	513.64	995	340.58	698	371.35	817	168.43	421	182.03	488	217.37	544	222.97	557	214.62	553	133.93	340	123.52	292	115.56	269	91.24	216	97.70	241	71.61	179	33.39	102	29.11	110	54.06	192	51.99	191

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
World		35501.00	35,501	38011.00	38,011	41901.00	41,901	44107.00	44,107	47218.00	47,218	52648.00	52,648	56233.00	56,233	60648.00	60,648	67686.00	67,686	74929.00	74,929	83965.00	83,965	91322.00	91,322	93791.00	93,791	99372.00	99,372	103019.00	103,019	108007.00	108,007	112395.00	112,395	117776.00	117,776	121121.00	121,121
North America		17216.14	18,143	18680.17	19,638	19908.46	20,907	20884.07	22,156	22042.03	23,380	23980.79	25,526	24573.08	26,403	25561.24	27,551	27086.70	29,268	28763.32	30,892	30799.54	33,078	32120.83	34,624	31816.35	34,558	32946.48	35,983	33679.40	36,989	35144.06	38,646	35098.93	38,769	35724.09	39,631	35762.92	39,968
Canada	High	1532.30	1,739	1573.62	1,782	1818.94	2,037	1956.64	2,256	2154.86	2,499	2314.61	2,677	2528.84	2,967	2623.82	3,114	2797.42	3,316	3108.17	3,644	3325.48	3,914	3469.32	4,112	3423.63	4,134	3617.69	4,388	3608.20	4,433	3971.66	4,833	3871.98	4,785	3889.02	4,813	3776.29	4,766
Greenland	High	0.00	0	0.00	0	0.00	0	3.00	3	0.00	0	2.00	3	0.00	0	0.50	1	0.00	0	0.00	0	1.06	2	0.00	0	2.83	4	1.00	1	2.00	3	4.03	6	1.00	2	0.58	2	1.00	1
Mexico	Upper-middle	86.33	109	107.92	130	120.83	144	127.31	164	139.43	172	165.53	208	209.91	277	221.40	277	346.05	424	358.91	443	425.74	508	425.45	508	594.27	698	605.64	714	697.26	809	695.49	839	795.31	953	839.63	1,000	967.95	1,160
United States	High	15597.51	16,512	16998.64	17,937	17968.69	18,961	18797.13	20,049	19747.74	21,070	21498.65	22,983	21834.33	23,595	22715.53	24,633	23943.22	25,999	25296.24	27,333	27047.26	29,193	28226.06	30,569	27795.62	30,379	28722.15	31,560	29371.94	32,469	30472.88	33,705	30430.64	33,835	30994.86	34,607	31017.68	34,911
Central America and Caribbean		43.26	57	50.89	65	58.24	76	65.43	87	68.15	87	92.77	124	94.30	124	109.24	152	111.03	149	111.15	153	127.14	166	111.16	156	155.78	211	125.02	176	161.69	219	171.70	243	170.30	251	214.80	302	186.35	264
Antigua and Barbuda	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1	1.13	2	1.00	1	0.00	0	0.00	0	0.25	1
Bahamas, The	High	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.25	1	1.00	1	0.00	0	0.67	2	0.00	0	0.00	0	1.17	2	2.00	3	2.33	3	0.40	1	1.33	2	0.00	0	1.33	3
Barbados	High	6.00	6	8.08	10	10.17	11	3.75	5	6.08	8	6.00	6	9.25	10	12.00	13	5.75	9	8.94	11	11.00	11	8.50	9	13.87	16	8.00	8	11.83	14	12.67	14	7.25	10	9.25	10	6.33	10
Belize	Upper-middle	0.00	0	0.00	0	0.00	0	1.60	2	0.00	0	0.00	0	0.50	1	0.00	0	0.17	1	0.83	1	0.00	0	1.00	1	0.00	0	0.00	0	0.06	1	0.00	0	0.83	2	0.00	0	0.33	1
Costa Rica	Upper-middle	6.20	10	1.67	3	5.95	8	2.08	5	5.67	8	7.73	11	11.57	18	10.69	16	16.34	24	5.70	13	14.36	20	11.96	17	26.53	34	18.37	26	27.54	42	29.55	40	32.82	45	49.08	70	49.04	62
Cuba	Upper-middle	4.39	6	6.67	7	3.58	5	6.55	7	1.70	3	11.56	17	7.85	12	7.26	10	10.58	17	14.48	21	5.15	10	16.14	22	13.73	20	14.49	20	22.38	28	22.34	30	20.19	30	33.17	43	26.46	35
Dominica	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.33	1	0.00	0	0.50	1	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Dominican Republic	Upper-middle	2.00	3	0.00	0	1.50	2	0.50	1	1.58	3	4.76	6	2.00	3	1.50	2	0.05	1	0.00	0	1.20	2	2.00	2	2.25	4	6.12	9	5.53	8	3.08	6	4.18	10	10.96	16	6.04	9
El Salvador	Lower-middle	0.00	0	0.00	0	0.42	2	0.00	0	1.00	2	1.83	3	2.00	2	0.00	0	0.25	1	0.00	0	1.50	2	0.50	1	0.00	0	0.50	1	0.00	0	2.55	7	0.33	1	1.79	4	1.54	3
Grenada	Upper-middle	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	0.00	0	0.67	1	0.50	1	0.00	0	1.00	1	0.00	0	1.50	4	0.50	1	1.33	2	0.00	0	0.00	0	1.00	1	1.50	2	1.83	3
Guatemala	Upper-middle	2.00	2	1.00	1	0.00	0	1.20	2	1.50	2	0.83	2	2.67	4	2.26	6	1.28	5	4.04	7	4.75	7	2.37	6	4.50	7	9.43	15	4.74	9	11.68	21	10.73	20	12.15	19	13.93	24
Haiti	Low	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.50	2	0.00	0	0.00	0	0.50	1	2.17	3	2.00	2	0.00	0	1.50	2	1.25	2	1.90	4	0.50	1	0.83	2	1.50	3
Honduras	Lower-middle	0.83	2	1.17	2	1.83	4	0.73	2	0.17	1	0.50	1	0.00	0	0.00	0	2.10	4	0.00	0	1.33	2	1.75	3	3.58	6	0.92	3	4.43	9	1.01	4	0.58	2	3.87	10	3.40	6
Jamaica	Upper-middle	6.37	9	11.17	13	8.17	10	8.83	11	19.83	23	13.17	16	15.83	18	29.61	38	39.75	45	18.07	20	20.49	27	17.76	24	20.27	26	12.93	19	27.21	33	23.73	31	29.56	41	23.20	30	16.76	23
Nicaragua	Lower-middle	2.00	2	2.14	3	0.75	2	2.57	5	1.50	2	0.83	2	2.58	4	5.89	11	2.10	3	2.25	5	2.88	3	1.75	5	1.83	5	2.94	5	1.50	2	2.92	7	2.10	5	3.08	7	0.89	3
Panama	High	0.00	0	0.00	0	0.00	0	1.25	2	0.33	1	1.43	3	1.00	1	2.81	5	0.75	3	2.31	4	4.33	6	1.67	3	6.65	11	3.87	6	3.97	7	2.67	4	5.96	8	3.93	10	6.60	10
Puerto Rico	High	9.73	11	7.60	13	18.22	25	29.20	37	15.25	18	33.86	43	22.37	28	20.46	30	16.00	24	33.10	42	29.91	41	13.74	21	32.67	46	23.93	37	19.88	30	36.96	49	30.13	46	30.24	46	25.94	39
Saint Kitts and Nevis	High	0.50	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.17	1	0.00	0	1.50	2	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.50	1
Saint Lucia	Upper-middle	0.00	0	2.33	3	0.00	0	0.00	0	1.00	1	0.33	1	0.00	0	0.50	1	1.00	1	0.00	0	0.00	0	0.20	1	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0	0.00	0
Saint Vincent and the Grenadines	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0
Trinidad and Tobago	High	2.25	4	7.06	10	6.67	8	5.67	9	12.53	15	9.42	14	13.26	18	14.26	23	14.92	18	17.58	26	27.75	33	26.83	33	26.74	32	15.95	20	27.55	33	18.74	24	22.81	29	31.75	37	23.67	35
South America		303.49	356	366.06	427	423.46	503	471.30	559	483.70	587	544.04	671	840.23	1,004	1177.70	1,387	1643.85	1,884	1898.18	2,111	2362.37	2,647	2533.32	2,811	2917.13	3,255	3163.17	3,550	3600.84	4,089	3917.34	4,471	4435.86	5,091	4861.28	5,519	5115.59	5,906
Argentina	High	63.72	75	64.50	78	77.86	98	88.28	105	95.73	122	82.88	108	88.73	117	141.33	180	183.80	223	233.57	265	253.16	298	297.01	340	369.22	421	394.08	449	503.69	578	509.11	595	502.23	592	572.17	653	571.42	663
Bolivia	Lower-middle	0.00	0	0.95	4	4.70	8	0.42	2	3.95	6	4.08	7	4.60	6	5.04	12	4.92	8	3.55	4	1.97	9	6.49	10	6.26	12	8.89	16	4.58	11	7.70	14	6.98	17	13.14	22	7.78	18
Brazil	Upper-middle	143.48	163	200.01	243	249.86	281	240.82	272	242.72	283	277.30	336	535.04	615	702.82	798	961.49	1,073	1063.25	1,152	1388.69	1,507	1452.22	1,556	1628.51	1,767	1745.84	1,891	1883.77	2,075	2097.53	2,298	2374.89	2,648	2490.85	2,750	2625.13	2,916
Chile	High	52.75	64	42.43	49	57.00	71	65.75	85	81.92	104	83.75	106	122.05	153	146.47	182	227.42	276	262.94	310	324.25	388	374.97	452	427.12	508	492.53	586	587.07	716	638.00	808	762.75	946	828.43	1,001	855.55	1,073
Colombia	Upper-middle	12.58	15	18.75	25	13.95	23	32.01	42	19.17	25	34.24	47	36.35	50	70.23	90	124.14	157	170.55	205	223.64	261	245.05	287	294.56	356	330.75	404	408.10	500	419.56	517	484.97	607	569.82	702	641.28	816

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Ecuador	Upper-middle	2.00	3	3.58	6	1.00	3	2.81	6	4.50	6	5.75	9	5.94	10	2.24	8	7.64	13	9.10	18	15.13	23	13.90	23	10.66	18	22.55	37	26.13	42	67.32	105	99.72	146	147.39	203	181.37	257
Guyana	Upper-middle	0.67	1	0.17	1	0.00	0	0.67	3	1.25	2	1.25	2	0.04	1	0.50	1	1.50	2	2.50	3	4.70	7	3.64	5	4.00	5	3.00	3	2.50	3	1.57	3	0.00	0	2.00	2	1.50	2
Paraguay	Upper-middle	0.67	1	0.00	0	0.00	0	1.00	1	1.00	1	0.83	2	2.02	4	1.33	2	1.55	3	0.83	2	2.00	3	0.33	1	6.75	7	4.50	5	2.00	4	2.50	3	0.38	2	6.00	9	1.02	3
Peru	Upper-middle	8.25	11	8.03	11	4.17	5	7.53	14	6.44	8	11.25	17	11.83	17	16.57	28	15.79	27	23.84	36	21.53	39	39.25	58	46.24	61	49.50	68	51.83	75	55.71	84	73.64	103	107.52	146	124.18	178
Suriname	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	1.17	2	1.63	4	0.00	0	0.75	2	0.50	2
Uruguay	High	2.67	4	6.00	6	6.33	7	8.42	12	11.00	16	9.92	15	13.89	20	19.04	26	23.34	30	28.07	32	22.50	26	29.02	38	37.67	45	31.79	46	48.12	66	46.95	60	70.37	98	64.22	87	60.15	80
Venezuela	Upper-middle	16.70	20	21.64	23	14.65	18	23.58	26	15.69	22	32.78	39	19.73	26	72.14	84	92.27	106	99.99	115	104.79	117	70.43	80	86.13	97	78.73	94	81.88	97	69.76	84	59.94	76	58.98	73	45.72	56
Europe		12495.04	13,250	13074.15	13,828	15158.93	15,948	15811.97	16,866	17230.31	18,408	19531.30	20,889	21191.45	22,845	23375.91	25,101	26067.53	28,030	29877.46	31,887	33570.79	35,816	38158.67	40,530	39690.61	42,319	42596.63	45,530	44036.12	47,264	46013.58	49,495	48251.19	51,944	50479.15	54,502	51681.48	56,020
EU		11750.76	12,498	12304.65	13,051	14177.72	14,968	14802.33	15,847	16010.99	17,179	18111.65	19,468	19615.98	21,266	21533.60	23,271	23851.43	25,835	26768.62	28,853	29475.56	31,776	33724.19	36,158	35515.35	38,255	37961.68	41,024	38889.39	42,295	40166.73	43,836	41356.03	45,253	42344.32	46,649	42675.75	47,305
Austria	High	136.57	172	154.09	179	203.58	235	212.23	255	282.15	349	277.36	334	277.67	359	320.96	404	384.26	485	433.08	547	430.99	559	544.18	695	607.31	775	610.27	807	626.58	836	661.73	873	668.75	911	627.65	881	689.87	961
Belgium	High	239.29	302	280.10	344	315.67	384	374.28	483	440.63	555	440.63	580	528.82	685	571.64	747	632.84	814	754.28	955	827.60	1,055	957.37	1,218	994.32	1,289	1198.21	1,522	1123.19	1,503	1128.96	1,536	1159.01	1,534	1242.24	1,657	1149.90	1,642
Bulgaria	Upper-middle	9.04	12	36.04	41	15.06	22	19.58	24	13.50	16	5.78	11	6.28	14	31.91	42	28.48	44	51.32	65	52.58	66	57.63	70	54.98	74	42.18	55	56.13	68	51.93	62	57.13	71	95.98	115	158.67	188
Croatia	High	12.00	13	18.00	18	11.67	14	16.17	20	13.50	14	28.11	31	36.92	43	72.75	77	106.48	116	122.94	136	124.96	136	254.34	273	223.79	240	291.13	313	273.01	293	313.76	347	357.23	393	395.16	434	362.38	405
Cyprus	High	19.25	28	23.83	31	40.97	51	34.81	47	49.10	64	50.17	63	50.15	67	68.96	90	101.50	128	119.66	149	145.00	183	161.87	197	121.82	156	155.82	188	139.13	180	137.82	180	159.33	206	218.74	277	289.17	351
Czechia	High	164.86	180	142.33	148	189.75	202	177.28	198	174.90	198	199.03	220	216.04	247	336.03	382	380.31	424	397.16	433	481.25	527	651.81	699	755.00	828	789.66	860	963.59	1,066	1229.24	1,358	1239.26	1,375	1167.61	1,332	1156.09	1,321
Denmark	High	218.16	242	260.89	299	320.00	365	302.12	351	309.54	366	352.15	415	350.24	434	374.99	456	444.87	540	475.55	600	535.80	680	633.08	790	683.94	876	741.91	956	803.03	1,021	868.63	1,152	851.54	1,157	891.94	1,194	840.07	1,170
Estonia	High	18.83	20	25.33	27	26.90	37	31.37	36	38.11	47	30.61	40	43.46	53	74.78	84	89.18	99	114.31	135	132.51	152	156.57	175	177.85	210	183.16	213	209.74	243	253.40	287	221.69	265	196.94	242	192.24	249
Finland	High	192.51	218	215.18	248	292.10	324	340.72	381	342.60	387	385.92	445	397.22	460	441.96	518	535.23	608	564.37	651	636.32	743	665.11	782	745.80	874	835.83	972	955.33	1,136	871.96	1,083	950.22	1,173	982.79	1,229	1024.53	1,290
France	High	941.51	1,058	1322.77	1,442	1591.26	1,741	1732.58	1,917	1886.79	2,099	1982.33	2,254	2126.48	2,446	2280.16	2,643	2430.60	2,871	2700.40	3,096	2864.52	3,282	3128.16	3,629	3134.88	3,663	3353.11	3,965	3472.51	4,105	3419.41	4,090	3484.35	4,182	3517.59	4,311	3106.54	3,923
Germany	High	1370.88	1,519	1466.31	1,622	1800.65	1,982	1885.43	2,136	2007.93	2,333	2439.75	2,813	2551.72	3,012	2795.58	3,295	2956.06	3,581	3300.98	3,964	3477.00	4,221	3984.38	4,790	4139.38	5,046	4658.70	5,719	4810.03	5,959	4897.65	6,133	5018.10	6,279	5250.10	6,573	5244.36	6,710
Greece	High	115.26	137	143.61	166	175.22	204	241.44	283	266.33	318	324.65	366	330.04	380	334.65	393	453.86	522	540.21	618	564.01	657	619.59	712	577.41	687	635.64	747	646.94	779	570.41	704	548.06	674	618.07	762	580.31	734
Hungary	High	85.09	98	74.60	81	124.56	146	103.38	121	111.88	138	125.81	149	164.80	198	233.31	259	287.55	319	280.12	324	271.09	311	384.42	432	413.26	474	321.50	384	408.32	474	453.53	522	438.75	525	518.95	602	498.34	608
Ireland	High	144.19	166	142.98	163	174.69	191	177.43	207	226.57	260	248.37	297	272.75	326	317.12	388	338.78	417	420.61	505	485.91	585	531.56	636	518.70	629	544.04	658	533.88	666	605.04	737	703.90	771	614.91	771	627.15	809
Italy	High	422.27	501	535.70	611	586.09	677	658.27	789	710.15	850	784.37	941	889.52	1,088	983.75	1,214	1206.83	1,482	1432.02	1,727	1677.91	1,993	1835.81	2,192	2007.00	2,437	2326.68	2,787	2536.98	3,073	2742.65	3,339	2948.65	3,556	3105.28	3,805	3298.41	4,031
Latvia	High	1.67	3	4.67	5	4.15	8	3.93	6	4.92	6	8.89	11	19.00	22	17.67	19	27.42	32	24.58	30	42.53	47	50.46	56	47.25	52	52.93	61	56.30	66	57.86	75	85.84	105	93.36	111	98.09	125
Lithuania	High	16.75	19	18.67	19	32.83	34	38.32	45	30.46	34	92.40	98	115.44	126	127.53	134	334.08	339	332.73	346	301.39	308	367.93	384	376.13	390	305.23	324	391.54	415	384.20	421	389.62	431	391.40	448	382.25	444
Luxembourg	High	4.50	5	6.00	7	8.00	11	3.83	6	9.08	12	10.04	16	16.43	31	16.74	30	20.83	35	34.93	57	33.45	55	56.27	88	50.85	78	71.44	127	85.04	141	70.60	122	95.77	150	82.27	135	96.85	161
Malta	High	4.83	6	9.33	10	8.00	8	7.50	8	10.58	13	10.13	15	13.72	15	8.10	11	16.50	21	21.24	26	19.03	25	18.79	27	29.51	36	35.92	46	27.52	37	28.27	34	30.72	42	45.00	56	42.01	59
Netherlands	High	776.59	895	858.91	991	948.60	1,088	921.81	1,110	1006.21	1,193	1155.22	1,405	1323.24	1,603	1414.80	1,730	1564.76	1,930	1745.39	2,192	1766.29	2,225	1949.75	2,460	2031.95	2,608	2213.69	2,880	2310.58	3,013	2272.41	3,057	2283.85	3,063	2298.50	3,170	2313.29	3,152
Poland	High	88.60	99	124.27	136	141.71	157	157.14	173	161.39	183	170.92	191	237.79	258	248.98	283	351.34	392	398.72	437	482.16	533	823.85	872	747.56	805	994.19	1,059	1083.45	1,162	1217.80	1,342	1327.85	1,468	1369.14	1,549	1371.90	1,562
Portugal	High	112.79	124	129.96	145	160.50	185	145.00	172	168.98	209	215.50	248	240.59	294	277.27	328	343.30	415	392.19	471	483.61	574	615.04	733	693.47	829	790.25	956	773.70	953	800.27	973	1038.94	1,263	932.87	1,155	1036.02	1,299
Romania	Upper-middle	16.08	21	15.87	18	34.87	39	17.92	28	16.50	22	33.50	42	30.80	43	50.77	66	173.69	195	315.57	349	486.48	515	671.47	713	855.74	905	586.63	627	599.48	657	744.66	811	721.58	791	484.37	553	608.82	686
Slovakia	High	53.75	56	55.17	57	75.50	76	107.71	119	110.25	120	88.50	98	88.12	101	125.71	143	160.64	182	146.50	169	294.14	319	310.44	329	329.24	363	380.10	412	349.23	408	469.08	527	628.87	699	646.37	736	695.08	798
Slovenia	High	57.95	63	86.13	92	80.00	83	103.02	110	100.48	110	128.48	138	129.85	139	174.77	184	238.86	254	282.32	307	291.98	307	396.63	426	411.59	447	415.31	454	437.39	487	458.90	510	456.93	502	498.23	556	426.56	486

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Spain	High	562.11	628	583.92	639	735.04	817	792.78	901	892.73	1,008	1037.26	1,183	1301.80	1,503	1472.92	1,683	1966.13	2,264	2313.81	2,624	2662.06	3,010	3246.58	3,632	3569.59	4,016	3792.70	4,338	4069.94	4,675	4149.74	4,774	4472.18	5,158	4670.93	5,390	4882.31	5,735
Sweden	High	323.21	371	363.95	417	425.65	489	444.55	521	468.92	550	576.80	684	591.90	718	615.21	743	781.94	950	821.44	1,014	972.95	1,166	1045.58	1,297	1224.69	1,474	1319.81	1,641	1479.65	1,859	1470.54	1,866	1475.89	1,889	1578.28	2,042	1683.01	2,230
United Kingdom	High	5642.12	6,126	5206.05	5,708	5654.71	6,168	5751.75	6,458	6156.83	6,940	6908.97	7,800	7244.09	8,291	7744.59	8,835	7495.10	8,733	8232.18	9,568	8932.07	10,332	9605.55	11,125	9992.34	11,719	10315.62	12,235	9667.17	11,809	9826.48	12,058	9652.01	11,998	9809.46	12,305	9821.53	12,526
Other Europe	High	744.28	871	769.50	892	981.21	1,118	1009.64	1,203	1219.32	1,458	1419.65	1,731	1575.47	1,922	1842.31	2,236	2216.11	2,677	3108.84	3,599	4095.23	4,722	4434.48	5,071	4177.26	4,900	4634.96	5,424	5146.73	6,069	5846.85	6,890	6895.16	8,053	8134.83	9,470	9005.73	10,430
Albania	Upper-middle	0.50	1	0.50	1	1.00	1	4.00	5	2.62	4	1.33	3	2.93	5	0.00	0	1.13	3	2.50	4	7.35	9	16.20	18	10.50	12	10.70	15	13.23	17	17.33	27	12.58	19	20.11	26	21.10	30
Andorra	High	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.00	0	0.50	1	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	1.00	2	0.00	0	1.08	3	0.67	2	0.33	1	0.00	0	0.22	1
Belarus	Upper-middle	3.00	3	2.75	4	2.00	2	2.50	3	7.50	8	3.00	4	6.50	7	5.48	7	9.08	11	3.50	4	11.12	15	6.00	7	8.00	8	7.50	9	13.98	18	14.00	16	11.88	17	21.86	32	26.04	38
Bosnia and Herzegovina	Upper-middle	1.17	2	0.33	1	1.00	1	1.50	2	0.50	1	3.73	6	3.83	5	7.00	8	20.00	23	27.18	32	40.84	58	55.01	69	44.50	63	39.90	46	21.23	29	31.63	46	28.03	41	50.71	66	43.35	64
Holy See (Vatican City)	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	1.00	1
Iceland	High	14.58	16	14.75	19	14.70	23	17.24	23	21.96	28	14.72	23	24.41	34	24.24	36	17.67	24	22.29	31	32.79	50	38.02	50	45.42	60	39.55	52	44.90	61	43.33	72	43.06	65	63.91	89	65.99	93
Kosovo	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	1.50	2	4.58	7	7.40	11	5.20	9	2.00	2	6.27	11	4.92	8	7.58	10	20.50	29	20.99	30
Liechtenstein	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.50	1	0.00	0	1.00	2	0.33	1	1.33	2	2.00	2	0.20	1	0.75	1	2.83	4	1.00	1	0.25	1	3.50	4	1.73	3
Moldova	Lower-middle	0.00	0	0.00	0	2.00	2	1.97	4	0.50	1	0.67	2	2.33	4	0.17	1	1.00	1	3.39	6	1.25	2	2.20	3	4.50	5	4.67	5	7.58	10	3.50	5	8.42	11	1.26	3	9.60	15
Monaco	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	2.00	2	0.00	0	2.00	2	0.00	0	1.08	2	0.76	2	2.25	4	2.00	2	0.00	0	1.00	1	0.50	1	1.00	1
Montenegro[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.25	2	1.50	2	1.00	1	3.33	6	6.25	8	6.22	7	7.83	9	14.16	21	21.12	24	29.65	35	43.75	53	20.23	24
North Macedonia	Upper-middle	1.67	2	1.00	1	3.00	3	2.00	2	2.83	4	1.50	3	4.25	6	7.33	12	4.65	6	16.10	20	33.57	39	36.98	45	30.33	38	36.20	42	30.30	39	43.27	48	49.33	53	62.49	72	43.75	56
Norway	High	267.75	294	274.42	314	349.18	390	327.11	379	400.09	457	457.32	531	507.01	598	541.90	649	558.70	671	643.72	760	732.33	910	851.87	1,010	868.44	1,063	896.22	1,108	964.25	1,232	1016.17	1,314	976.82	1,287	1071.23	1,448	1115.56	1,507
Russia	Upper-middle	90.32	119	102.93	128	124.58	149	135.19	164	142.18	179	166.94	208	148.50	191	166.24	227	173.47	226	256.92	306	348.37	391	490.98	545	604.35	668	780.42	863	939.60	1,046	1531.10	1,664	2424.38	2,610	3407.92	3,631	3962.35	4,249
San Marino	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1
Serbia[a]	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	35.54	42	48.87	58	67.62	82	128.08	152	223.42	253	275.36	313	171.80	191	195.04	221	192.20	225	228.62	260	218.15	265	241.30	287
Serbia and Montenegro[b]	Lower-middle	10.75	12	14.50	15	14.47	16	10.92	13	22.46	25	9.33	17	17.33	22	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Switzerland	High	253.84	304	234.83	283	314.62	366	312.46	385	359.14	457	430.25	558	450.87	599	501.83	653	567.73	769	613.67	807	727.68	976	797.10	1,062	825.72	1,124	879.21	1,211	1018.12	1,390	1007.65	1,406	1051.79	1,466	1118.91	1,576	1026.41	1,511
Turkey	Upper-middle	92.92	109	114.39	125	144.05	162	179.15	213	223.74	261	295.86	343	382.17	436	503.01	579	781.14	857	1410.61	1,516	1982.08	2,104	1854.69	1,975	1401.06	1,531	1466.07	1,614	1619.51	1,779	1683.19	1,854	1826.03	2,033	1770.17	1,993	2109.34	2,321
Ukraine	Lower-middle	7.79	13	9.08	11	10.63	13	15.21	20	35.81	44	33.50	43	24.33	31	26.33	38	28.58	46	36.62	44	40.53	49	45.28	55	44.18	54	289.88	299	252.65	271	234.77	251	195.40	230	259.85	307	295.43	345
Middle East		460.33	543	508.45	590	560.64	664	622.89	733	710.48	847	771.93	886	798.94	958	879.58	1,073	1077.39	1,262	1246.92	1,447	1670.70	1,929	2240.06	2,518	1842.61	2,141	1838.40	2,191	1953.70	2,368	2111.83	2,614	2483.60	2,967	2683.68	3,217	2947.15	3,598
Armenia	Upper-middle	0.50	1	1.00	1	1.50	2	1.00	2	1.06	2	3.25	5	8.50	11	6.67	9	1.92	4	6.11	8	4.00	6	5.83	8	6.53	9	15.77	20	10.93	13	8.02	10	18.45	21	20.15	27	14.70	23
Azerbaijan	Upper-middle	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	2.67	3	0.00	0	2.00	3	2.50	3	6.40	7	4.82	7	3.45	5	6.00	6	10.67	12	11.00	15	16.33	19	17.03	22	20.93	26	31.18	46
Bahrain	High	1.00	1	3.37	5	5.00	5	1.50	2	6.50	7	6.00	6	5.00	5	3.50	4	7.83	9	9.17	14	9.33	11	9.33	12	9.08	11	26.05	33	8.03	12	11.46	16	26.02	33	19.58	29	22.24	33
Gaza Strip[c]	Lower-middle	0.50	1	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	1.50	2	1.67	2	1.25	2	0.50	1	1.50	2	2.50	3	0.00	0	5.50	6	1.33	2	3.25	4	2.45	4	2.67	5
Georgia	Lower-middle	5.44	9	4.44	7	5.00	7	7.42	9	4.49	8	1.39	4	5.63	9	3.20	5	2.83	4	9.33	15	11.20	12	12.67	15	5.00	8	14.17	18	16.08	23	16.82	22	19.33	27	31.82	39	31.14	42
Iran	Upper-middle	7.44	11	9.33	11	15.17	19	21.58	29	16.92	22	39.33	43	54.13	68	68.13	88	70.82	80	123.58	138	451.46	489	968.17	1,007	465.47	505	379.54	324	300.58	347	333.02	394	439.35	503	642.43	720	706.15	796
Iraq	Lower-middle	1.00	1	1.00	1	0.00	0	0.00	0	6.50	7	3.00	3	1.92	6	4.33	6	4.00	4	9.58	13	4.75	6	6.50	8	6.83	8	11.17	17	15.20	28	15.67	24	16.23	29	23.38	38	84.02	104
Israel	High	373.12	436	401.45	467	456.93	537	488.79	563	541.21	646	570.26	655	560.40	669	592.16	718	701.28	829	759.44	868	766.04	906	787.31	913	817.88	952	845.71	1,001	933.23	1,103	948.15	1,127	1030.57	1,186	957.88	1,120	1089.32	1,278
Jordan	Upper-middle	14.75	17	15.79	19	9.21	12	13.33	14	14.33	16	14.67	15	22.75	25	57.63	65	83.75	94	94.87	106	94.17	109	108.04	125	137.16	156	113.04	131	147.12	169	116.88	135	201.96	225	193.53	220	171.27	194

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Kuwait	High	2.58	3	9.25	11	13.83	15	9.17	11	14.46	17	7.83	10	10.83	14	16.73	21	21.17	24	24.71	30	18.58	22	16.47	28	24.04	30	29.42	34	29.00	34	42.92	52	48.25	58	49.75	57	40.59	53
Lebanon	Upper-middle	16.50	19	18.89	21	13.52	18	25.87	32	29.21	34	31.45	39	28.77	31	18.73	26	42.73	53	35.91	43	53.70	63	45.95	54	53.75	61	63.14	75	80.07	92	82.99	103	85.73	108	86.09	112	84.74	105
Oman	High	9.33	10	4.00	4	4.00	4	6.83	8	4.53	6	11.00	12	14.42	17	13.17	15	7.33	9	18.67	21	27.75	33	29.50	38	28.81	36	40.29	47	33.15	39	53.82	72	78.40	95	59.60	76	53.71	82
Qatar	High	0.50	0	2.00	2	0.25	1	3.00	3	1.00	1	2.67	3	3.25	5	8.17	13	9.75	12	13.38	19	26.99	32	41.95	57	29.70	40	53.32	66	64.79	79	73.85	115	85.17	119	100.10	139	81.21	121
Saudi Arabia	High	14.88	18	15.99	18	13.58	16	14.53	21	20.33	24	10.83	13	15.64	20	28.83	33	34.42	39	41.05	53	61.57	79	82.14	109	102.07	136	150.62	198	148.89	224	178.22	276	188.33	287	229.49	332	283.07	412
Syria	Low	1.25	2	1.50	2	0.71	3	1.93	4	1.93	4	3.50	4	2.83	5	2.17	3	2.33	6	3.17	4	6.13	9	8.79	14	7.78	12	6.92	10	3.54	7	9.04	15	5.83	8	4.67	6	4.36	9
United Arab Emirates	High	11.03	16	12.96	16	18.94	23	25.93	35	40.17	46	54.08	65	59.87	73	46.17	60	77.90	93	81.81	106	116.21	144	103.06	130	121.97	157	162.17	210	130.59	176	190.26	255	202.05	270	227.00	306	225.73	339
West Bank[c]	Lower-middle	0.00	0	6.47	9	2.00	3	5.33	7	8.50	10	4.00	4	6.00	7	4.17	6	6.50	7	11.17	14	7.15	12	15.33	24	12.92	15	14.09	22	8.21	12	15.42	19	11.76	17	15.38	20		
Yemen	Low	1.00	2	1.00	1	0.50	1	0.00	0	1.50	2	1.50	2	0.00	0	0.50	1	1.00	1	2.00	3	2.33	3	2.25	4	2.70	5	3.50	4	1.92	4	4.83	9	2.25	4	3.08	5	5.67	8
Africa		629.31	719	679.91	764	756.60	853	787.39	920	946.76	1,094	969.27	1,121	1107.54	1,306	1107.12	1,315	1385.26	1,648	1678.18	1,942	1900.46	2,209	1974.74	2,312	2147.07	2,548	2264.25	2,689	2480.81	3,012	2640.67	3,245	2852.70	3,550	3043.74	3,797	3400.52	4,311
Algeria	Upper-middle	5.00	5	4.00	4	2.00	2	4.00	4	11.83	13	6.25	7	14.83	17	8.92	14	11.59	15	14.13	19	16.89	24	34.49	43	53.49	57	77.79	87	43.40	54	71.98	81	77.90	88	70.33	79	61.61	79
Angola	Lower-middle	0.00	0	4.00	4	0.33	1	0.00	0	2.00	2	2.67	5	1.00	2	0.75	2	1.00	1	0.00	0	2.50	3	0.00	0	0.50	1	2.00	2	4.42	7	1.85	5	4.40	9	6.25	10	3.25	6
Benin	Low	1.00	1	0.50	1	4.50	5	3.23	4	4.75	7	1.21	3	2.53	4	5.00	7	3.92	5	4.28	8	3.55	6	0.84	4	1.75	5	7.47	15	4.99	7	8.47	17	4.78	8	7.38	15	8.12	21
Botswana	Upper-middle	23.71	28	21.32	24	35.50	37	27.08	30	31.25	36	30.38	37	33.67	39	25.05	30	41.76	49	48.33	52	39.85	48	44.92	51	30.25	34	28.98	37	35.38	41	25.67	30	30.28	37	35.93	47	33.90	51
Burkina Faso	Low	1.33	2	1.38	2	1.75	2	4.58	6	3.53	6	2.83	4	3.45	7	5.27	7	3.00	4	0.93	2	4.70	8	10.17	16	5.52	10	2.45	5	2.87	5	7.33	15	6.35	13	7.52	15	15.78	28
Burundi	Low	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	2.50	3	0.00	0	0.25	1	0.00	0	2.75	4	2.63	4	1.47	3	0.67	2	1.17	3	0.67	2	1.17	4	3.25	4	5.80	8
Cabo Verde	Lower-middle	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.33	1	1.00	1	0.00	0	0.67	2	0.00	0	1.50	2	0.75	2	1.67	3	0.00	0	2.42	4	0.83	3
Cameroon	Lower-middle	5.58	8	11.60	12	16.58	19	13.22	16	12.87	16	18.07	24	28.80	34	27.87	34	22.63	29	21.87	28	13.53	19	34.68	42	17.65	24	22.39	38	41.25	51	25.13	33	36.42	56	54.25	73	49.02	69
Central African Republic	Low	0.00	0	1.00	1	0.00	0	0.25	1	0.00	0	0.45	2	0.00	0	1.00	1	2.83	4	3.14	4	0.00	0	1.00	1	0.00	0	0.00	0	1.25	2	2.00	2	0.00	0	0.00	0	1.50	2
Chad	Low	0.00	0	1.00	1	0.00	0	0.82	2	0.00	0	1.03	3	0.00	0	0.11	1	0.00	0	1.00	1	0.33	1	1.33	2	0.00	0	0.00	0	0.00	0	0.75	2	1.00	2	0.33	1	0.33	1
Comoros	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Congo, Democratic Republic of the	Low	0.00	0	0.00	0	2.00	2	0.00	0	0.50	1	0.50	1	1.50	2	0.50	1	1.67	3	3.33	5	4.10	7	1.75	3	2.50	4	2.83	9	4.54	7	2.33	3	5.89	9	7.86	15	10.37	15
Congo, Republic of the	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.00	2	1.00	1	2.00	2	5.50	6	1.00	1	4.00	4	3.25	4	2.39	4	1.48	5	1.50	2	2.00	2	2.82	5	2.00	4	3.22	4
Côte d'Ivoire	Lower-middle	2.00	3	3.00	6	2.00	2	3.25	4	2.13	3	3.00	3	2.83	4	3.50	4	2.00	2	2.50	3	9.83	12	7.52	10	13.15	17	10.67	12	6.53	10	13.47	21	17.29	27	19.11	29	23.31	35
Djibouti	Lower-middle	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.50	2	0.00	0	0.00	0	0.00	0
Egypt	Lower-middle	17.26	23	8.71	12	21.00	27	17.51	25	15.33	18	11.67	13	18.16	25	27.87	43	26.50	36	48.07	63	70.13	90	84.93	106	96.49	119	98.71	139	88.14	122	109.38	146	134.98	186	122.44	183	126.28	188
Equatorial Guinea	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.33	1	0.00	0	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.00	0	0.00	0
Eritrea	Low	1.33	2	0.00	0	2.00	2	2.33	3	1.58	3	1.33	2	3.00	3	4.67	5	1.75	2	0.25	1	1.25	2	2.50	3	0.00	0	2.00	2	1.00	1	1.00	1	1.33	2	1.20	2	0.50	2
Eswatini	Lower-middle	3.67	5	2.17	3	1.25	2	0.33	1	2.50	3	2.83	4	0.50	1	0.50	1	1.64	3	2.00	2	4.50	5	7.67	10	3.50	5	3.00	4	2.50	3	4.83	8	3.55	7	2.48	5	3.53	7
Ethiopia	Low	8.68	12	10.00	16	8.40	15	12.85	25	19.91	32	9.74	20	22.95	39	23.12	33	35.83	51	31.58	49	27.36	42	38.80	63	32.62	55	41.27	70	48.58	80	51.43	88	52.87	87	98.22	153	88.18	158
Gabon	Upper-middle	0.08	1	1.00	1	2.00	2	0.00	0	0.00	0	5.00	5	0.50	1	1.00	1	3.00	3	1.00	1	2.50	3	1.00	1	0.50	1	3.00	3	1.00	1	2.55	4	1.25	3	0.50	1	1.00	1
Gambia, The	Low	0.00	0	1.75	3	0.00	0	1.00	1	1.00	1	1.03	3	1.00	2	0.00	0	1.00	1	2.00	2	4.50	5	7.67	10	3.50	5	3.00	4	2.50	3	4.83	8	3.55	7	2.48	5	3.53	7
Ghana	Lower-middle	9.36	14	7.83	10	17.14	24	15.61	20	28.33	40	21.17	27	21.71	30	34.42	43	36.88	52	37.28	51	44.17	62	56.21	81	73.47	104	90.68	122	99.39	145	115.06	158	136.49	196	179.06	253	199.14	297
Guinea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.00	0	0.83	3	0.00	0	0.00	0	0.46	2	0.00	0	0.33	1	0.17	1	0.05	1	3.00	3	0.00	0

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Guinea-Bissau	Low	0.00	0	0.00	0	0.25	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1
Kenya	Lower-middle	23.09	34	35.92	45	30.18	39	39.20	53	28.28	39	33.92	50	33.47	50	38.85	61	52.61	82	71.37	102	78.34	109	70.74	111	67.92	104	71.20	112	81.05	137	74.40	133	82.82	152	81.42	144	97.53	163
Lesotho	Lower-middle	1.83	3	7.50	8	5.50	6	2.05	3	1.50	2	1.00	2	4.70	6	3.17	4	3.33	4	3.67	4	6.03	8	4.50	5	8.00	9	5.83	7	4.61	6	4.43	6	8.58	11	6.33	7	2.50	4
Liberia	Low	1.00	1	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.75	2	0.00	0	1.50	2	1.00	1	0.00	0	1.45	3	2.00	2	0.58	2	1.50	2	0.00	0	1.13	2	4.77	7	0.20	1
Libya	Upper-middle	0.00	0	0.00	0	2.00	2	0.50	1	0.50	1	1.83	3	0.50	1	0.00	0	2.50	3	1.50	3	2.00	3	5.08	7	7.00	7	1.25	3	3.50	4	0.75	2	0.50	1	5.67	9	4.02	7
Madagascar	Low	0.50	1	0.00	0	0.67	2	2.00	3	3.62	6	2.18	4	2.70	5	0.83	2	1.67	2	2.29	6	2.42	4	2.17	5	1.67	2	2.17	4	4.29	7	2.71	7	1.92	3	5.33	9	6.30	13
Malawi	Low	3.50	4	9.00	10	5.00	7	7.50	10	6.70	11	8.35	12	8.56	15	14.57	21	10.25	17	14.87	22	16.16	24	15.01	27	17.91	25	11.67	18	20.74	30	15.87	26	11.32	21	14.71	31	19.53	38
Mali	Low	1.00	1	0.00	0	1.10	2	0.40	2	2.67	3	1.67	2	2.00	2	2.08	4	0.33	1	2.21	5	5.92	8	4.90	8	2.38	5	2.58	5	4.23	7	4.12	9	1.50	3	8.54	14	1.50	6
Mauritania	Lower-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.64	2	0.00	0	0.25	1	0.25	1	1.50	2	0.25	1	1.00	1	3.00	3	1.00	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0
Mauritius	Upper-middle	5.11	6	3.50	4	6.50	7	2.67	3	8.00	8	15.75	18	6.50	7	4.50	5	6.90	8	14.83	16	10.17	11	8.33	9	22.83	24	14.55	17	9.00	11	8.00	11	16.12	20	14.75	20	13.62	20
Morocco	Lower-middle	6.00	8	6.50	7	10.72	16	8.58	11	10.92	15	12.03	18	22.75	28	8.95	14	20.82	28	28.64	39	20.28	26	32.67	41	45.38	58	52.94	61	46.78	60	53.49	68	95.32	118	85.78	103	94.92	116
Mozambique	Low	1.64	3	1.50	2	3.00	3	2.53	5	3.65	7	0.75	2	7.08	10	2.25	6	7.43	12	4.45	10	10.46	19	7.94	13	5.79	11	9.14	14	8.52	15	8.57	16	9.73	21	10.68	20	12.76	22
Namibia	Upper-middle	1.25	2	2.00	4	5.00	6	3.17	4	2.83	4	6.50	7	1.50	4	2.17	4	4.17	7	3.58	6	7.46	11	4.83	6	7.83	13	8.50	13	4.67	7	7.95	12	6.88	13	6.02	9	22.87	35
Niger	Low	1.00	1	3.64	5	1.00	3	1.33	2	7.00	7	1.33	4	1.38	3	1.50	2	1.83	4	6.52	9	8.79	11	1.67	4	1.45	3	1.00	1	4.58	7	4.90	8	1.32	4	6.00	8	2.54	7
Nigeria	Lower-middle	29.23	32	31.58	40	32.83	35	58.56	69	59.00	65	57.67	68	89.94	99	92.56	103	131.75	145	218.09	235	238.97	254	254.65	272	208.49	228	187.94	214	236.29	263	256.37	306	253.61	312	309.70	384	407.02	507
Rwanda	Low	1.00	1	0.00	0	0.00	0	1.50	2	0.33	1	0.00	0	2.25	4	0.00	0	2.67	4	4.33	7	8.67	12	3.58	8	3.25	5	6.03	13	6.58	13	8.43	14	14.84	28	9.26	19	10.36	23
São Tomé and Príncipe	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0
Senegal	Low	1.63	4	2.17	3	7.65	11	12.66	19	11.33	13	14.46	19	6.43	9	12.04	15	8.39	13	11.56	17	7.92	11	11.35	18	21.70	29	12.67	19	11.27	17	15.08	28	10.65	20	14.86	24	18.51	35
Seychelles	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.40	1	0.00	0	0.00	0	0.00	0	0.00	0	1.33	3	0.00	0	0.25	1
Sierra Leone	Low	1.00	1	1.25	2	0.00	0	1.00	1	0.50	1	0.00	0	1.00	2	0.50	1	1.50	2	1.00	1	0.00	0	0.00	0	0.83	2	3.29	6	1.00	2	1.25	2	0.83	2	4.01	7	0.75	2	2.18	6
Somalia	Low	0.00	0	0.00	0	1.00	1	0.33	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.50	1	0.75	2	0.00	0	2.50	3	0.45	2	0.00	0	1.00	2	1.17	3	0.50	1
South Africa	Upper-middle	425.47	471	446.01	481	475.12	521	476.67	534	603.10	674	619.71	693	671.04	756	656.06	741	815.08	938	943.31	1,059	1032.00	1,169	1037.42	1,174	1127.33	1,312	1215.70	1,389	1367.36	1,605	1422.24	1,689	1479.16	1,796	1578.98	1,930	1761.29	2,181
South Sudan	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	3.50	4	1.00	1	2.00	3	0.00	0	0.00	0	0.86	3
Sudan	Lower-middle	4.00	4	1.00	1	2.43	3	0.00	0	0.25	1	2.00	2	2.00	2	3.08	5	3.83	6	6.92	9	8.00	10	5.45	8	5.25	7	10.52	15	11.35	24	12.75	19	10.53	15	5.73	11	5.74	11
Tanzania	Low	13.14	18	6.08	8	11.00	18	12.56	18	11.19	14	12.25	19	15.37	25	14.57	24	30.37	47	14.82	26	38.62	63	29.48	47	33.71	55	25.41	48	35.07	58	33.52	57	33.94	69	39.38	74	51.25	100
Togo	Low	0.40	1	1.50	2	1.00	1	2.00	2	1.00	1	0.00	0	2.25	3	0.83	2	1.50	2	2.20	3	4.50	5	0.50	1	2.00	2	4.00	4	6.67	9	1.83	3	5.92	9	3.08	5	1.67	4
Tunisia	Lower-middle	7.00	8	5.83	7	5.89	8	12.87	15	12.83	16	26.25	34	28.58	37	26.08	36	40.31	55	54.57	70	76.14	94	86.00	107	131.10	162	118.10	137	139.44	184	149.30	192	173.56	224	112.88	149	113.93	155
Uganda	Low	6.31	10	9.01	13	7.33	12	9.67	16	14.36	22	10.50	17	17.58	30	15.30	25	14.85	24	19.91	31	34.09	46	19.95	30	39.31	62	33.55	56	31.52	56	41.54	67	50.58	82	43.23	78	45.33	94
Western Sahara	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.20	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	2.00	2	0.00	0	0.00	0	0.00	0
Zambia	Lower-middle	2.53	4	1.75	3	3.70	7	1.98	4	3.00	4	2.31	5	2.91	7	3.58	7	8.25	13	3.85	9	4.73	10	4.96	7	5.17	13	6.95	13	8.29	17	11.53	23	13.16	23	15.97	27	18.49	34
Zimbabwe	Low	12.65	18	25.16	31	19.51	23	22.25	29	13.42	19	17.04	22	16.01	23	30.20	37	10.08	14	15.46	23	22.69	33	26.00	33	39.06	50	44.18	58	39.56	52	47.57	64	43.19	70	34.40	56	47.67	78
Asia		2290.58	2,541	2481.28	2,749	2738.86	3,018	2907.55	3,273	3050.99	3,506	3556.09	4,062	4108.62	4,741	4731.51	5,486	5704.04	6,502	6861.84	7,797	8655.77	9,723	9013.88	10,245	9791.91	11,124	10550.42	12,020	11234.74	12,978	12030.38	13,925	13189.44	15,147	14626.76	16,846	16157.93	18,612
Afghanistan	Low	1.00	1	1.00	1	1.00	2	1.50	2	1.00	1	3.50	4	2.58	5	6.72	8	1.73	4	10.35	13	6.67	10	7.25	9	5.70	10	4.03	10	8.42	11	2.20	5	2.25	5	7.73	11	9.50	12
Bangladesh	Lower-middle	23.67	27	20.77	24	18.96	24	23.36	33	22.12	31	25.08	36	31.96	43	27.70	41	43.46	59	41.72	54	56.73	78	64.83	94	62.95	99	69.07	100	74.34	117	77.97	125	67.63	109	80.52	131	90.44	162

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Bhutan	Lower-middle	0.00	0	0.00	0	1.00	1	0.13	1	2.50	4	1.25	3	0.00	0	0.50	1	0.50	1	0.25	1	3.83	5	1.17	2	1.25	2	2.25	3	4.00	7	2.03	4	2.33	3	3.17	5	8.25	10
Brunei	High	5.50	6	11.42	13	2.50	3	2.87	4	8.50	9	5.50	7	9.58	14	3.93	7	8.42	12	8.03	10	12.92	16	5.17	6	13.28	16	11.87	15	18.95	24	21.08	27	35.80	46	34.12	51	31.87	46
Burma	Lower-middle	0.67	1	0.00	0	0.00	0	0.00	0	1.00	1	0.58	2	1.50	2	2.50	6	1.00	1	1.00	2	0.00	0	0.25	1	1.00	1	2.50	3	4.20	5	4.50	8	4.83	12	6.75	14	6.30	13
Cambodia	Lower-middle	2.13	3	1.00	1	1.50	2	3.18	6	1.75	4	3.05	4	3.92	7	4.90	9	4.37	8	6.39	11	3.67	7	6.70	9	5.26	11	5.88	11	7.70	19	6.32	14	8.29	18	8.88	22	13.42	26
China	Upper-middle	492.04	576	603.69	703	675.25	762	725.42	832	768.76	924	827.38	988	1103.73	1,332	1232.65	1,480	1496.34	1,769	1840.89	2,202	2186.47	2,605	2368.66	2,859	2386.19	2,943	2927.73	3,625	3266.04	4,044	3441.18	4,271	3985.20	4,933	4652.92	5,698	5486.34	6,738
India	Lower-middle	542.34	576	512.79	549	408.35	435	403.01	445	458.24	513	408.98	445	458.12	519	630.22	715	934.54	1,030	1082.69	1,206	1225.28	1,355	1338.13	1,460	1669.78	1,825	1538.68	1,707	1594.60	1,755	1818.24	2,006	1947.43	2,132	1994.78	2,231	2004.74	2,246
Indonesia	Lower-middle	18.56	27	23.25	29	25.20	32	26.20	39	26.54	38	35.18	52	33.06	54	44.50	61	34.55	56	50.66	73	73.40	107	109.37	146	125.93	173	178.61	239	209.12	290	239.51	321	477.73	573	799.52	916	1209.02	1,357
Japan	High	577.25	631	561.32	620	698.56	758	853.46	943	731.35	829	930.64	1,044	972.01	1,108	1038.60	1,201	1054.51	1,195	1154.75	1,308	1329.56	1,489	1330.08	1,516	1344.13	1,533	1398.65	1,600	1323.67	1,551	1359.21	1,601	1332.79	1,566	1355.83	1,635	1434.95	1,739
Kazakhstan	Upper-middle	1.83	3	2.00	2	2.00	3	0.83	1	2.67	4	5.95	10	7.53	9	6.83	9	7.33	10	7.67	9	16.17	19	21.17	24	31.28	39	47.32	59	41.78	60	99.92	120	194.98	224	233.98	271	341.73	394
Kyrgyzstan	Lower-middle	0.43	1	0.00	0	1.00	1	3.50	4	1.25	3	1.25	2	3.83	5	1.67	3	3.48	7	3.33	6	3.20	5	4.79	8	8.33	11	10.83	12	5.00	5	10.12	15	14.76	23	8.31	16	17.48	30
Laos	Lower-middle	0.00	0	1.00	1	0.00	0	1.58	3	2.40	4	1.48	3	4.22	6	1.15	3	0.00	0	3.73	6	1.94	5	4.63	8	4.20	11	3.75	7	5.33	13	8.21	20	8.93	18	8.67	17	9.72	17
Malaysia	Upper-middle	36.20	42	40.42	47	54.47	64	74.25	89	48.02	60	102.01	119	140.48	159	148.03	175	202.32	232	448.86	496	890.02	963	843.66	933	837.88	923	1039.31	1,142	1056.23	1,202	1232.06	1,403	1304.78	1,485	1442.79	1,648	1476.67	1,708
Maldives	Upper-middle	0.00	0	1.50	2	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	2.25	3	0.33	1	0.83	1	0.00	0	0.67	2	0.33	1
Mongolia	Lower-middle	2.00	2	1.00	1	2.50	3	3.67	4	3.25	6	2.03	4	4.00	6	3.03	5	1.50	2	1.00	1	0.25	1	2.53	4	4.77	10	8.58	17	6.93	14	3.90	10	8.23	12	5.86	14	10.39	18
Nepal	Low	15.88	18	8.83	11	12.83	14	15.23	18	8.95	13	6.67	10	11.54	18	9.53	14	6.37	12	13.95	19	13.56	21	13.82	23	13.73	23	18.66	35	19.80	34	14.20	30	19.00	36	25.01	49	22.79	43
North Korea	Low	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.92	2
Pakistan	Lower-middle	56.29	62	69.33	73	51.13	55	49.42	56	51.33	53	62.00	68	95.91	107	130.24	141	102.45	111	134.14	151	174.64	192	179.09	203	170.72	200	160.02	212	203.72	258	232.21	308	252.26	333	242.18	343	239.66	363
Papua New Guinea	Lower-middle	4.33	5	2.25	3	4.00	4	1.50	2	3.83	5	6.58	9	6.00	7	3.25	4	4.83	7	1.25	3	2.50	4	2.71	5	3.17	5	0.60	2	2.50	3	0.75	2	1.00	3	0.42	2	3.58	8
Philippines	Lower-middle	32.68	39	18.93	25	45.24	59	46.70	59	47.99	61	51.38	74	51.29	71	62.06	80	76.06	104	87.63	116	110.05	144	120.25	152	133.36	171	149.95	190	137.70	186	149.63	189	173.33	213	180.01	220	216.29	265
Singapore	High	148.63	168	168.87	189	178.45	199	204.85	240	198.84	239	274.13	323	270.99	339	289.44	351	350.03	440	385.25	492	461.43	572	474.77	601	559.40	716	528.14	682	573.25	755	592.04	794	589.27	781	572.17	807	560.99	782
South Korea	High	135.12	164	180.82	215	212.73	257	178.47	229	261.10	334	267.03	339	308.51	398	342.54	451	406.17	528	503.07	629	641.34	807	645.90	834	734.64	939	777.57	1,015	972.26	1,226	1045.02	1,323	1119.48	1,414	1250.11	1,570	1234.18	1,556
Sri Lanka	Lower-middle	10.75	13	14.30	18	22.67	24	10.33	14	19.37	27	18.21	25	20.92	26	13.51	23	34.93	41	33.70	43	42.00	53	23.50	32	36.99	55	39.18	56	31.02	52	32.00	41	42.46	57	42.75	58	46.05	68
Taiwan	High	141.00	165	194.09	219	256.26	285	233.56	264	315.49	354	441.88	494	448.68	508	596.70	660	784.75	883	869.16	981	1153.07	1,272	1214.34	1,342	1393.16	1,542	1305.23	1,482	1351.82	1,525	1260.07	1,430	1214.40	1,392	1170.29	1,370	1063.08	1,264
Tajikistan	Low	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.50	1	1.50	2	1.00	1	0.00	0	1.12	3	2.17	4	3.00	4	6.50	7	0.17	1	6.31	8	2.25	3	2.83	4	2.50	5
Thailand	Upper-middle	37.39	47	35.73	45	44.28	56	38.95	51	51.21	66	58.15	79	95.23	118	109.31	139	116.50	161	140.13	185	224.78	275	196.30	242	184.08	236	215.05	273	255.54	328	302.45	373	288.75	370	375.85	468	448.39	536
Timor-Leste	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	1.00	1	0.50	1	0.00	0	0.00	0	0.25	1	0.00	0	0.50	1	2.18	4	1.60	3	0.25	1	1.83	3	1.65	4
Turkmenistan	Upper-middle	0.50	1	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	1.00	1	0.00	0	0.00	0	0.00	0	0.00	1	0.00	1	0.00	0
Uzbekistan	Lower-middle	3.57	5	2.50	3	2.40	3	1.00	2	2.00	2	2.00	3	0.75	2	2.00	3	1.50	3	3.00	3	3.67	5	2.83	4	18.95	23	8.53	11	5.50	7	9.62	12	3.20	5	8.14	14	3.79	8
Vietnam	Lower-middle	0.83	2	4.98	8	7.58	10	3.58	8	11.03	18	12.70	22	21.78	32	17.49	31	24.91	44	29.25	47	17.01	33	29.36	49	37.26	64	39.18	75	52.62	96	57.19	102	87.81	141	110.28	181	162.90	254
Australia and Oceania		1611.98	1,783	1733.11	1,925	1954.62	2,175	2079.63	2,345	2312.93	2,627	2687.54	3,026	2885.71	3,285	2990.44	3,416	3800.74	4,272	4101.17	4,647	4565.63	5,180	4890.00	5,586	5143.68	5,935	5657.23	6,535	5610.72	6,609	5762.47	6,839	5709.60	6,848	5898.57	7,143	5653.44	7,043
Australia	High	1326.20	1,480	1413.84	1,569	1591.42	1,768	1706.81	1,926	1918.11	2,180	2205.63	2,484	2389.56	2,706	2440.08	2,779	3170.46	3,574	3439.51	3,901	3850.78	4,374	4017.54	4,607	4336.28	5,029	4860.94	5,635	4780.85	5,658	4890.02	5,858	4791.98	5,782	4968.83	6,091	4784.99	5,998
Cook Islands	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	0.00	0	0.00	0
Fiji	Upper-middle	5.17	7	9.50	10	7.17	9	9.50	11	17.25	20	10.33	12	20.92	28	25.83	32	26.33	31	18.62	30	15.99	26	11.83	17	10.03	14	13.52	23	14.28	18	17.35	27	20.79	32	20.90	34	26.81	48
Kiribati	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.50	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

TABLE SSA-16

S&E articles in social sciences, by region, country, or economy: 2000–18

(Number)

Region, country, or economy	Economies by income status	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count	Fractional count	Whole count
Marshall Islands	Upper-middle	0.00	0	0.50	1	0.00	0	0.00	0	0.00	0	0.00	0	0.22	1	0.25	1	0.00	0	0.00	0	1.50	2	0.00	0	0.00	0	0.00	0	0.00	0	0.98	4	0.50	1	0.33	1	0.75	2
Micronesia, Federated States of	Lower-middle	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.20	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	1.00	1	0.00	0	0.00	0	0.50	2
Nauru	Upper-middle	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
New Zealand	High	278.62	322	308.27	363	354.03	420	362.83	430	374.06	457	465.75	568	469.01	593	521.66	654	601.94	732	639.87	799	692.20	852	859.80	1,045	796.87	986	780.61	985	813.84	1,035	849.12	1,067	893.24	1,121	906.84	1,155	835.98	1,130
Niue	na	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Palau	High	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.33	1	0.33	1
Samoa	Upper-middle	0.00	0	0.00	0	1.00	1	0.50	1	0.00	0	1.00	1	2.00	3	0.33	1	1.00	1	1.00	1	0.98	3	0.33	1	0.00	0	0.83	2	1.50	2	0.50	1	0.17	1	0.29	1	1.92	5
Solomon Islands	Lower-middle	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.50	1	1.00	1	1.50	2	0.33	1	1.17	2	2.79	6	0.00	0	0.00	0	0.00	0	0.25	1	1.00	2	0.40	1	0.54	2	0.67	2
Tonga	Upper-middle	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.33	1	1.00	1	0.00	0	0.00	0	0.00	0	0.14	1	0.00	0	0.00	0	0.33	1	0.00	0	0.50	1	0.90	1	0.00	0	1.00	1
Tuvalu	Upper-middle	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.25	1	0.33	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	1	0.00	0	0.00	0	0.00	0
Vanuatu	Lower-middle	0.00	0	0.00	0	0.00	0	0.00	0	3.50	4	4.00	4	0.50	1	0.33	1	0.00	0	1.00	1	0.25	1	0.50	1	0.50	1	0.00	0	0.00	0	1.00	2	1.12	4	0.50	1	0.50	1
Unassigned	na	450.87	965	436.97	948	349.19	796	476.77	1,087	372.66	921	514.27	1,285	633.13	1,679	715.26	1,902	809.46	2,035	390.79	933	312.61	690	279.36	656	283.85	695	280.39	646	260.98	614	214.98	496	203.38	453	243.94	598	215.62	528

na = not applicable; country data do not exist.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006. Its economic status is that of 2005.

[c] West Bank and Gaza Strip are separate entities in this list, but are grouped in the World Bank Lending Groups classification list. Here, the economic status of the group is applied to both individual regions.

Note(s)

Article counts refer to publications from selected journals and conference papers in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of author(s) listed in the article. Articles are credited either on a fractional- or whole-count basis. Fractional counts of articles are those produced by authors from different countries, where each country receives fractional credit on the basis of the proportion of its participating authors. For the fractional-count basis, the sum of the regions, countries, or economies may not add to the world total because of rounding. In whole counting, each region, country, or economy with a collaborating author on an article is credited with one count. The sum of the whole count for regions, countries, or economies does not add to the world total because of multiple counts of coauthored publications. Some publications have incomplete address information for coauthored publications in the Scopus database. The unassigned category count is the sum of fractional or whole counts for publications that cannot be assigned to a region, country, or economy. For more information on the 2019 World Bank Country and Lending Groups classification of income groups, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, accessed June 2019.

Source(s)

National Center for Science and Engineering Statistics; National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-17

S&E research portfolios of selected region, country, or economy, by field: 2018

(Fractional count, percent)

Field	World	United States	EU	China	Japan	India
All articles (n)	2,555,959	422,808	622,125	528,263	98,793	135,788
Agricultural sciences	2.16	1.20	1.89	2.38	1.03	2.42
Astronomy and astrophysics	0.54	0.85	0.86	0.20	0.56	0.30
Biological and biomedical sciences	11.97	14.03	12.05	9.85	12.15	10.37
Chemistry	6.20	3.56	5.33	9.61	7.36	8.46
Computer and information sciences	10.70	7.66	9.60	13.24	9.36	18.41
Engineering	16.96	12.84	14.43	25.47	15.13	17.56
Geosciences, atmospheric, and ocean sciences	3.07	3.54	3.17	2.93	2.32	1.50
Health sciences	23.64	33.91	27.05	13.10	30.41	14.04
Materials science	4.19	1.30	2.56	6.48	3.18	9.32
Mathematics and statistics	2.39	2.03	2.53	2.08	1.66	3.45
Natural resources and conservation	2.42	1.47	2.44	3.18	1.44	1.82
Physics	9.12	6.46	8.39	10.07	12.87	10.59
Psychology	1.91	3.81	2.84	0.38	1.08	0.29
Social sciences	4.74	7.34	6.86	1.04	1.45	1.48

EU = European Union.

Note(s)

Articles refer to publications from a selection of peer-reviewed journals and conference proceedings in science and engineering fields from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Articles are credited on a fractional-count basis (i.e., for articles from multiple countries, each country receives fractional credit on the basis of the proportion of its participating authors). Percentages may not add to 100% because of rounding. Data are not directly comparable to *Science and Engineering Indicators 2018*; see **Technical Appendix** section on data filters. See **Table S5a-2** through **Table S5a-16** for source data. See **Table S5a-1** for regions, countries, and economies included in the EU.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	0.87	0.84	0.83	0.84	0.89	0.82	0.79	0.78	0.75	0.71	0.71	0.67	0.66	0.61	0.60	0.62	0.61	0.61	0.63
Canada	1.41	1.38	1.31	1.31	1.40	1.08	1.20	1.08	1.01	0.99	0.98	0.96	0.91	0.86	0.94	0.87	0.86	0.84	0.83
Greenland	na	ne	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	na	na	na
Mexico	1.34	1.47	1.57	1.38	1.70	1.58	1.59	1.59	1.69	1.86	1.81	2.43	1.89	1.68	1.75	1.74	1.59	1.82	1.90
United States	0.81	0.77	0.76	0.77	0.81	0.77	0.72	0.72	0.69	0.64	0.64	0.58	0.59	0.54	0.52	0.55	0.54	0.54	0.56
Central America and Caribbean	2.82	2.87	3.53	3.12	2.67	3.69	2.72	2.63	2.86	1.81	2.03	3.46	3.40	2.47	2.62	2.33	3.18	1.64	2.15
Antigua and Barbuda	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na
Bahamas, The	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne
Barbados	ne	na	ne	na	ne	ne	na	ne	ne	na	na	ne	ne	ne	na	na	ne	na	ne
Belize	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	na	ne	na	na	ne
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cuba	3.30	3.48	3.88	4.51	3.92	4.34	3.25	3.37	3.84	2.56	1.80	4.42	5.15	3.44	3.60	3.25	4.52	1.96	3.18
Dominica	na	na	na	na	na	na	na	na	ne	na	ne	na	na	na	ne	na	na	ne	na
Dominican Republic	ne	na	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	ne	ne	na	na	ne	na	na	na	na	ne	na	na	na	ne	na	ne	ne	ne
Grenada	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	na	ne	ne	ne
Guatemala	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	na	na	na	na	ne	na	na	na	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne
Honduras	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	3.23	ne	ne	2.60	2.73	2.50	ne	2.75	3.09	ne	ne	ne	ne	3.00	ne	ne
Saint Kitts and Nevis	ne	na	na	na	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Saint Lucia	na	na	na	na	ne	ne	ne	ne	na	na	na	ne	ne	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	3.08	2.84	3.10	2.78	2.96	3.04	4.17	4.24	4.47	4.68	4.70	4.74	4.39	4.32	4.29	3.97	3.75	3.58	3.47
Argentina	2.00	2.57	2.54	2.23	2.54	2.55	2.61	2.78	2.66	2.36	2.76	2.56	2.67	2.58	2.57	2.66	2.72	2.52	2.83
Bolivia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	3.59	2.98	3.39	2.99	3.15	3.28	4.85	4.87	5.27	5.54	5.55	5.63	5.17	5.10	5.11	4.71	4.46	4.17	4.03
Chile	ne	ne	1.18	1.19	1.49	1.68	1.92	2.10	1.57	2.39	2.10	2.12	1.90	1.74	1.51	1.63	1.71	1.66	1.44
Colombia	ne	ne	ne	ne	ne	2.29	1.99	1.66	2.38	2.23	1.87	2.08	1.76	1.86	1.69	1.72	1.86	2.21	1.94
Ecuador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.91	2.05	2.16
Guyana	ne	na	ne	ne	ne	na	ne	ne	ne	na	na	na	na	ne	na	na	na	ne	ne

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	12.77	10.69	9.29	8.37	ne	ne	4.56	4.71	5.66	6.60	3.80	5.65	5.94	5.84	3.89	4.56	3.29	4.03	4.25
Suriname	na	ne	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	na	ne
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	3.70	3.53	4.87	4.17	4.29	4.45	4.41	3.86	3.32	3.59	4.01
Venezuela	3.93	4.23	4.68	4.15	4.63	4.27	4.12	4.82	3.94	4.29	4.81	4.08	3.99	3.92	6.56	3.69	2.70	2.71	ne
Europe	0.85	0.90	0.89	0.93	0.90	0.96	0.91	0.91	0.91	0.92	0.89	0.89	0.90	0.88	0.84	0.86	0.85	0.79	0.82
EU	0.89	0.94	0.91	0.94	0.90	0.95	0.90	0.92	0.93	0.94	0.92	0.92	0.91	0.92	0.87	0.90	0.89	0.83	0.88
Austria	0.60	0.67	0.73	0.67	0.53	0.60	0.69	0.49	0.56	0.61	0.62	0.58	0.60	0.58	0.62	0.65	0.63	0.59	0.76
Belgium	1.07	1.10	1.08	1.15	1.26	1.31	1.26	1.27	1.17	1.11	1.15	0.99	1.03	1.12	1.14	1.22	1.11	1.05	1.10
Bulgaria	ne	ne	ne	ne	ne	ne	ne	0.78	2.07	1.47	1.53	1.64	2.17	3.72	2.75	2.91	2.10	1.69	1.92
Croatia	ne	ne	0.91	0.91	1.05	1.54	0.72	1.49	2.17	2.37	1.30	2.01	1.89	1.48	1.71	1.79	1.53	1.49	1.53
Cyprus	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Czechia	1.76	2.04	1.82	1.41	1.41	1.17	1.41	2.52	2.43	2.57	2.59	2.48	2.35	2.61	1.81	1.96	1.97	1.64	1.67
Denmark	1.91	2.35	1.85	2.11	2.31	2.01	1.97	1.89	1.69	1.35	1.71	1.46	1.49	1.24	1.16	1.19	1.22	1.10	1.06
Estonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.59	1.59	1.12	1.40	1.06	1.06	0.97	1.28
Finland	1.02	1.20	1.38	1.08	1.16	1.16	1.22	1.04	1.04	0.99	0.94	0.91	0.84	0.78	0.68	0.74	0.67	0.60	0.72
France	0.82	0.85	0.75	0.78	0.78	0.75	0.76	0.68	0.67	0.67	0.67	0.63	0.66	0.55	0.61	0.59	0.59	0.58	0.61
Germany	0.72	0.80	0.74	0.73	0.71	0.76	0.67	0.59	0.59	0.60	0.58	0.58	0.60	0.58	0.56	0.58	0.56	0.52	0.58
Greece	1.68	1.57	1.54	1.43	1.17	1.51	1.40	1.28	1.19	1.11	1.19	1.01	1.15	1.16	1.03	1.02	1.09	1.16	1.01
Hungary	1.35	1.15	1.37	1.28	1.14	1.37	1.15	0.77	0.69	1.17	0.70	0.81	0.86	0.84	0.67	0.74	0.83	0.61	0.88
Ireland	3.39	3.25	2.90	2.80	2.34	2.25	2.68	1.79	2.31	2.20	2.17	1.82	1.89	1.98	1.92	1.82	1.90	1.92	2.05
Italy	0.59	0.57	0.72	0.97	0.78	0.98	0.76	1.16	1.01	1.15	1.06	1.01	0.95	1.15	1.00	1.14	1.12	1.08	1.15
Latvia	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	4.82	3.22	2.84	3.50	3.25	5.03	3.54	4.54
Lithuania	ne	ne	ne	ne	ne	ne	ne	ne	2.43	2.60	2.33	2.09	2.51	2.75	1.93	2.00	3.09	1.32	1.91
Luxembourg	na	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malta	na	na	ne	na	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	1.09	0.95	1.01	1.02	0.93	0.92	0.96	0.93	0.80	0.72	0.72	0.74	0.70	0.69	0.77	0.71	0.77	0.59	0.70
Poland	0.93	1.18	0.97	0.86	0.98	1.14	0.92	1.09	1.28	1.34	1.41	1.44	1.38	1.39	1.51	1.54	1.46	1.45	1.33
Portugal	1.32	1.47	1.46	1.19	1.22	1.21	1.56	1.45	1.38	1.36	1.50	1.33	1.35	1.15	1.04	1.15	1.19	1.30	1.33
Romania	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.30	0.25	0.38	0.68	0.59	0.54	0.56	0.49	0.57	0.67
Slovakia	1.50	1.28	1.40	0.95	1.05	1.16	1.19	1.45	1.50	1.69	1.34	1.39	1.01	2.38	1.77	1.75	2.11	1.56	1.58
Slovenia	ne	ne	ne	0.88	ne	0.99	0.84	1.43	2.25	2.08	1.92	1.95	1.79	1.40	1.43	1.40	1.69	1.06	1.36
Spain	1.58	1.55	1.63	1.75	1.71	1.83	1.83	1.77	1.84	1.88	1.75	1.82	1.74	1.69	1.57	1.61	1.49	1.38	1.41
Sweden	0.81	0.76	0.78	0.86	0.81	0.86	0.70	0.75	0.69	0.58	0.58	0.64	0.63	0.54	0.53	0.50	0.46	0.43	0.44
United Kingdom	0.65	0.72	0.63	0.64	0.55	0.53	0.51	0.46	0.43	0.40	0.40	0.37	0.38	0.36	0.33	0.32	0.37	0.33	0.36
Other Europe	0.63	0.68	0.77	0.88	0.94	1.00	0.97	0.83	0.79	0.83	0.71	0.75	0.81	0.68	0.68	0.66	0.64	0.66	0.62

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Belarus	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Bosnia and Herzegovina	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Moldova	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	na	na	na	na	na	ne	na	na	ne	na	na	ne	na	na	na	ne	na	na	na
Montenegro[a]	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	1.05	1.10	0.96	1.14	1.28	1.22	1.17	1.16	1.02	0.93	0.86	0.90	0.90	0.71	0.73	0.74	0.59	0.58	0.53
Russia	0.34	0.30	0.31	0.29	0.30	0.30	0.33	0.30	0.26	0.29	0.27	0.23	0.20	0.20	0.20	0.19	0.18	0.26	0.22
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Serbia[a]	na	na	na	na	na	na	na	0.57	0.84	1.09	1.23	1.65	3.11	1.78	1.89	1.98	1.76	1.86	1.59
Serbia and Montenegro[b]	ne	ne	ne	ne	ne	0.82	ne	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.54	0.66	0.54	0.65	0.53	0.65	0.60	0.53	0.69	0.53	0.48	0.46	0.59	0.54	0.55	0.53	0.57	0.63	0.65
Turkey	2.29	2.50	2.85	2.92	2.94	2.93	2.50	1.97	1.73	1.88	1.47	1.56	1.39	1.29	1.33	1.37	1.41	1.43	1.48
Ukraine	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.29	0.38	0.42
Middle East	0.99	1.06	0.93	0.94	1.09	1.17	1.04	0.99	0.98	1.08	1.13	1.13	1.26	1.05	1.02	1.11	1.04	1.02	1.05
Armenia	na	ne	ne	na	na	ne	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Azerbaijan	ne	ne	na	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bahrain	ne	na	ne	na	ne	ne	ne	na	ne	na	ne	na	ne	ne	ne	na	ne	ne	na
Gaza Strip	ne	ne	ne	na	na	ne	ne	ne	ne	na	ne	ne	na	ne	ne	na	na	na	na
Georgia	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	1.35	1.19	1.20	1.22	1.55	1.73	1.63	1.32	1.26	1.45	1.47	1.40	1.71	1.39	1.39	1.53	1.42	1.37	1.47
Iraq	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	2.74	ne	ne	ne	ne	1.21	1.09	0.74
Israel	0.74	0.75	0.70	0.73	0.76	0.82	0.53	0.63	0.57	0.64	0.55	0.59	0.62	0.54	0.49	0.50	0.39	0.43	0.40
Jordan	ne	3.67	3.37	3.75	3.66	2.46	1.98	2.49	2.25	2.07	1.30	1.74	1.38	1.72	1.22	1.17	1.22	1.29	1.20
Kuwait	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Oman	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Qatar	ne	ne	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saudi Arabia	1.04	1.15	ne	ne	ne	ne	ne	ne	ne	0.58	0.82	0.85	0.67	0.62	0.57	0.81	0.63	0.58	0.65

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	6.39	5.51	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
West Bank	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	na	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	2.89	2.95	3.11	2.99	2.89	2.64	2.70	2.53	2.20	2.10	2.25	2.16	1.79	1.73	1.85	1.70	1.67	1.83	1.86
Algeria	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.77	0.94	0.92	0.69	0.81	0.77	1.03	0.83	0.98	1.44
Angola	na	na	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Benin	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	na	na	na	ne	na	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne
Cabo Verde	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	ne	ne	na	na
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.67	2.02
Central African Republic	ne	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	ne	ne	na
Chad	ne	ne	na	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	na	ne	na
Comoros	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Congo, Democratic Republic of the	na	na	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	ne	ne
Egypt	1.62	1.56	1.21	1.01	0.94	0.84	0.92	1.14	1.37	1.38	1.35	1.55	1.12	1.33	1.37	1.34	1.20	1.62	1.45
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	na	na	na
Eritrea	na	ne	ne	ne	na	ne	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	na	ne
Eswatini	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne
Ethiopia	ne	ne	9.44	12.24	12.69	12.27	12.17	9.16	8.82	10.43	9.12	8.97	7.26	5.42	5.10	4.06	5.33	4.09	4.09
Gabon	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	ne	na	ne	ne
Ghana	ne	ne	ne	13.53	ne	ne	ne	7.70	ne	ne	5.11	4.37	3.11	3.15	3.70	2.87	2.93	3.48	3.56
Guinea	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	ne	na	ne	na
Kenya	5.80	8.32	7.73	6.07	5.99	8.04	8.53	6.11	4.44	3.56	5.96	5.83	5.32	3.55	4.11	3.72	4.49	4.55	4.96
Lesotho	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na
Liberia	na	na	na	na	na	na	na	na	ne	na	na	na	ne	ne	na	na	ne	na	ne
Libya	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	ne	ne	na	ne	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	na	na	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	ne	ne	1.84	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.63	0.58	0.59	0.52	0.57
Mozambique	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Namibia	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	6.98	8.24	8.75	8.67	6.82	6.15	6.56	6.09	4.96	3.48	4.13	3.80	3.77	3.49	3.95	3.71	3.82	3.98	3.78
Rwanda	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	ne	ne	na	ne	na	na	na	na	na	ne	na	na	na	na
Sierra Leone	ne	na	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Somalia	na	na	na	na	na	na	ne	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	na
South Africa	2.14	1.89	2.21	2.11	2.88	2.00	2.01	1.80	1.47	1.76	1.90	1.38	1.28	1.50	1.46	1.36	1.33	1.48	1.41
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sudan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	6.88	6.48	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	ne	ne	6.72	7.98	ne	ne	ne	ne	ne	ne	4.11	3.46	3.21	3.07	3.33
Togo	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tunisia	ne	ne	ne	ne	ne	1.04	0.98	1.42	1.63	1.97	2.07	2.09	1.55	1.35	1.42	1.13	1.16	1.12	1.14
Uganda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	4.04	ne	ne	ne	2.56	2.81	2.32	3.07
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	6.56	ne	ne	4.38	4.26
Asia	0.99	0.99	0.96	0.95	0.92	0.94	0.88	0.90	0.89	0.88	0.89	0.91	0.93	1.01	1.03	1.03	1.05	1.10	1.04
Afghanistan	na	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bangladesh	3.70	4.96	3.85	ne	4.61	4.10	ne	2.00	1.45	1.41	1.59	1.48	1.23	1.94	1.98	1.64	1.79	1.22	1.50
Bhutan	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	na	na	na	na	na	na	na	ne	na	na	ne	na	na	ne	ne	ne	ne	ne	ne
Burma	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cambodia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
China	0.44	0.56	0.58	0.62	0.58	0.77	0.72	0.72	0.64	0.63	0.65	0.75	0.79	0.98	0.98	1.01	1.07	1.20	1.10
India	4.08	4.31	3.57	3.50	3.25	2.99	2.80	2.72	2.92	2.73	2.58	2.03	2.04	1.79	1.82	1.74	1.52	1.38	1.12
Indonesia	4.26	ne	ne	ne	3.82	ne	ne	ne	ne	2.01	4.01	3.11	3.26	2.46	2.72	2.86	2.01	1.32	1.09
Japan	0.63	0.60	0.65	0.63	0.74	0.65	0.59	0.56	0.60	0.61	0.57	0.56	0.53	0.52	0.52	0.46	0.47	0.44	0.48
Kazakhstan	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.62

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	na	na	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	2.53	2.18	1.99	1.57	1.65	1.25	1.34	1.49	1.04	1.28	1.08	1.21	1.17	1.23	1.21	1.18	1.26	1.22	1.16
Maldives	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Mongolia	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	na	ne	ne	na	ne	ne
Pakistan	2.23	1.70	1.78	2.06	1.81	1.53	1.72	2.73	1.82	1.83	2.02	2.06	2.05	2.38	1.86	1.77	1.75	1.82	1.89
Papua New Guinea	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	6.04	ne	5.61	ne	5.48	4.94	4.32	3.81	3.53	3.73	ne	1.89	2.30	3.02	1.79	1.79	1.44	1.52	1.60
Singapore	ne	ne	ne	ne	ne	ne	0.28	0.20	0.18	ne	0.16	ne	0.15	0.14	0.18	0.17	0.17	0.21	0.23
South Korea	0.58	0.54	0.59	0.56	0.54	0.61	0.50	0.64	0.73	0.72	0.80	0.75	0.77	0.85	0.91	0.83	0.89	0.94	0.93
Sri Lanka	ne	ne	ne	ne	ne	ne	ne	4.11	3.01	ne	ne	2.93	ne	2.22	2.12	2.08	1.69	1.29	1.50
Taiwan	0.65	0.63	0.69	0.63	0.59	0.59	0.63	0.66	0.59	0.63	0.68	0.66	0.67	0.59	0.56	0.55	0.51	0.43	0.45
Tajikistan	na	na	na	na	ne	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne
Thailand	2.45	2.18	1.78	2.03	2.31	2.10	1.94	2.30	2.05	2.20	2.23	3.13	1.96	2.22	2.00	2.19	2.59	2.26	2.78
Timor-Leste	na	na	na	na	na	na	ne	na	na	na	na	ne	ne	ne	ne	ne	na	ne	ne
Turkmenistan	na	na	ne	na	na	ne	na	ne	na	na	na	na	na	na	na	na	na	na	na
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.51	1.54	1.72	1.50	0.92	0.87	0.88	0.91	1.07
Australia and Oceania	2.50	2.15	2.36	2.12	1.90	1.77	1.75	1.53	1.42	1.35	1.37	1.25	1.20	1.15	1.25	1.18	1.18	1.11	1.18
Australia	2.22	1.84	2.11	1.86	1.63	1.51	1.54	1.36	1.19	1.21	1.24	1.11	1.04	1.00	1.07	1.03	1.00	0.97	1.04
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fiji	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Marshall Islands	ne	ne	na	na	na	na	ne	na	na	ne	na	na	na	na	ne	na	na	na	ne
Micronesia, Federated States of	na	na	na	ne	na	na	ne	na	ne	ne	ne	na	na	na	ne	ne	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	3.97	3.81	3.72	3.62	3.41	3.23	2.91	2.60	2.78	2.16	2.18	2.07	2.13	2.12	2.49	2.20	2.42	2.06	2.12
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	ne	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na
Samoa	ne	ne	ne	ne	ne	ne	ne	ne	na	na	ne	ne	na	na	ne	ne	na	ne	ne
Solomon Islands	na	na	ne	ne	ne	na	na	na	na	ne	ne	na	ne	na	ne	ne	na	ne	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	na	na	na	ne	ne	ne	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	na

TABLE S5A-18

Specialization of S&E articles in agricultural sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.88	0.86	0.75	0.67	0.60	0.56	0.56	0.67	0.86	0.58	0.37	0.29	0.26	0.37	0.69	0.58	ne	0.31	0.58

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-19

Specialization of S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.13	1.14	1.05	1.14	1.09	1.12	1.12	1.23	1.25	1.33	1.37	1.34	1.30	1.34	1.31	1.38	1.33	1.44	1.47
Canada	0.76	0.60	0.59	0.69	0.65	0.77	0.68	0.72	0.82	0.77	0.87	0.80	0.85	0.91	0.86	0.75	0.75	0.84	0.84
Greenland	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Mexico	2.47	2.72	2.54	3.00	1.71	1.96	1.60	2.25	1.98	1.89	1.81	2.94	1.37	1.48	1.75	1.54	1.41	1.42	1.50
United States	1.15	1.17	1.08	1.16	1.13	1.14	1.16	1.27	1.29	1.39	1.43	1.37	1.36	1.40	1.35	1.46	1.41	1.52	1.56
Central America and Caribbean	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bahamas, The	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Barbados	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	na	na	na	na	na
Belize	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Costa Rica	ne	ne	na	na	ne	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Cuba	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne
Dominica	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dominican Republic	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
El Salvador	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Grenada	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	ne
Guatemala	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne
Haiti	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Honduras	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	na	na	na	na	na
Jamaica	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Nicaragua	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	na	na	na	na
Panama	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	ne	na	ne	na	na
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Lucia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad and Tobago	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	ne	ne
South America	1.25	1.31	1.31	1.11	1.07	1.07	1.20	1.02	1.10	1.12	0.89	1.15	0.76	0.91	1.11	1.02	1.00	0.95	1.11
Argentina	1.43	1.91	2.02	1.66	1.61	1.61	1.82	1.64	2.10	1.78	1.85	2.31	1.39	1.63	1.78	1.67	1.83	1.78	2.06
Bolivia	na	na	na	ne	ne	na	ne	na	ne	ne	na	ne	ne	na	ne	na	ne	na	na
Brazil	0.99	0.75	0.79	0.66	0.59	0.59	0.68	0.54	0.52	0.61	0.46	0.56	0.37	0.46	0.59	0.53	0.52	0.47	0.61
Chile	4.02	4.78	4.28	4.55	4.50	4.92	5.41	5.13	5.59	5.17	4.47	5.53	4.21	5.17	5.65	5.41	4.93	5.00	5.49
Colombia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ecuador	na	na	na	ne	na	na	ne	ne	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne
Guyana	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na

TABLE S5A-19

Specialization of S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	na	na	na	na	ne	na	ne	na	na	na	ne	na	na	na	ne	na	na	na	ne
Peru	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Suriname	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Venezuela	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.68	ne	ne	ne	ne	ne	ne	ne	ne	ne
Europe	1.17	1.21	1.29	1.30	1.36	1.43	1.43	1.37	1.36	1.36	1.39	1.38	1.38	1.35	1.37	1.36	1.42	1.40	1.47
EU	1.16	1.23	1.30	1.34	1.41	1.47	1.48	1.40	1.39	1.38	1.42	1.39	1.43	1.36	1.40	1.40	1.51	1.48	1.59
Austria	0.79	0.65	1.31	0.99	0.92	1.33	0.94	0.92	0.98	0.89	0.82	0.94	0.73	0.90	0.96	0.91	1.01	0.90	1.04
Belgium	0.85	0.99	1.14	1.12	1.29	1.38	1.26	1.23	1.30	1.33	1.26	1.29	1.24	1.39	1.50	1.28	1.40	1.28	1.34
Bulgaria	ne	ne	ne	ne	ne	ne	2.65	ne	2.86	ne	2.10	ne	2.57	ne	3.02	3.14	ne	2.14	ne
Croatia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cyprus	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Czechia	0.87	0.99	1.25	0.76	0.84	1.40	1.48	0.80	0.91	0.96	0.97	0.98	0.96	0.84	1.03	0.91	1.08	1.20	1.28
Denmark	0.94	0.66	0.96	1.04	1.00	0.98	1.04	0.77	0.73	0.68	0.82	0.83	0.91	0.71	0.83	0.83	0.84	0.89	1.05
Estonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Finland	0.87	0.80	1.11	0.72	0.79	1.10	1.13	0.87	0.94	0.96	0.87	0.88	1.00	0.84	0.92	1.00	1.16	1.11	1.09
France	1.25	1.37	1.34	1.50	1.69	1.80	1.93	1.55	1.73	1.76	1.83	1.61	1.75	1.76	1.67	1.87	1.83	1.81	1.90
Germany	1.20	1.24	1.25	1.36	1.54	1.63	1.41	1.63	1.68	1.50	1.62	1.57	1.71	1.59	1.52	1.55	1.70	1.65	1.76
Greece	1.06	1.09	1.44	0.98	1.04	0.91	1.14	0.63	0.72	0.90	0.65	0.81	0.90	0.80	0.99	0.93	1.31	0.89	0.91
Hungary	ne	ne	0.90	0.79	0.98	ne	0.86	1.15	0.80	1.23	0.94	0.87	1.08	1.55	1.45	1.18	1.60	1.36	1.64
Ireland	ne	ne	ne	ne	0.94	1.28	0.67	ne	0.78	0.71	ne	0.74	0.68	ne	ne	ne	0.76	0.86	ne
Italy	1.75	1.95	1.87	1.87	2.04	1.98	2.15	2.10	1.82	2.29	2.04	2.22	2.02	1.89	1.91	1.75	2.05	2.01	2.21
Latvia	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lithuania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Luxembourg	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	na	na	na	ne	na	ne	ne	na	na
Malta	na	na	na	na	ne	na	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	1.50	1.40	1.64	1.77	1.89	1.79	1.58	1.59	1.58	1.26	1.31	1.22	1.48	1.46	1.37	1.43	1.55	1.72	1.75
Poland	1.22	1.00	0.89	0.84	0.80	0.79	0.72	0.77	0.75	0.78	0.87	0.84	0.85	0.73	0.90	0.87	0.84	0.90	0.85
Portugal	ne	ne	ne	0.73	0.76	0.59	0.99	0.56	0.81	0.57	0.47	0.49	0.77	0.50	0.57	0.45	0.54	0.43	0.76
Romania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Slovakia	ne	ne	2.11	ne	ne	ne	ne	ne	1.72	ne	1.37	1.73	1.47	1.08	1.41	1.25	ne	ne	ne
Slovenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Spain	1.13	1.52	1.30	1.43	1.25	1.48	1.53	1.35	1.44	1.29	1.42	1.26	1.37	1.41	1.41	1.33	1.43	1.39	1.44
Sweden	0.60	0.69	0.64	0.59	0.61	0.82	0.97	0.74	0.94	0.67	1.08	1.00	0.82	0.82	0.76	0.99	1.03	1.13	1.21
United Kingdom	1.09	1.18	1.37	1.44	1.48	1.45	1.53	1.57	1.39	1.50	1.62	1.65	1.54	1.49	1.65	1.77	1.87	1.79	2.01
Other Europe	1.24	1.12	1.24	1.07	1.07	1.23	1.18	1.18	1.19	1.20	1.19	1.33	1.16	1.26	1.23	1.12	1.06	1.09	1.03

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	na	na	na	na	na	ne	na	ne	na	na	ne	na	ne	na	na	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	ne	ne	na	na	na	na	na	na	na	na	na	na	na
Belarus	ne	na	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne
Bosnia and Herzegovina	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	ne
Holy See (Vatican City)	na	na	na	na	na	na	na	ne	na	na	ne	ne	na	na	ne	ne	ne	ne	ne
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kosovo	na	na	na	na	na	na	na	na	ne	na	ne	na	ne	na	na	ne	na	na	na
Liechtenstein	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Moldova	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Monaco	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	ne	na	na	na	na
North Macedonia	na	na	na	ne	na	ne	ne	ne	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne
Norway	ne	ne	ne	ne	ne	1.05	0.51	0.68	ne	ne	ne	0.55	ne	0.54	ne	0.58	0.65	0.50	ne
Russia	1.72	1.57	1.74	1.51	1.56	1.70	1.78	1.90	1.80	2.07	2.11	2.39	1.99	2.26	1.87	1.66	1.41	1.44	1.32
San Marino	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	na	na	na
Serbia[a]	na	na	na	na	na	na	na	ne	2.37	1.26	1.62	1.16	1.08	ne	2.75	1.10	1.11	ne	ne
Serbia and Montenegro[b]	ne	ne	ne	ne	ne	ne	1.81	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.73	0.78	1.03	1.01	1.26	1.34	1.20	1.33	1.10	1.21	1.20	1.18	1.11	1.19	1.17	1.33	1.32	1.62	1.44
Turkey	ne	ne	ne	ne	ne	0.31	0.37	0.24	0.27	0.25	0.25	0.28	0.34	0.34	0.34	0.27	0.30	0.31	0.28
Ukraine	2.01	1.36	1.90	1.44	0.88	1.87	1.84	1.37	2.28	2.08	1.70	2.15	2.15	2.04	2.08	1.81	1.72	1.33	1.28
Middle East	0.92	0.84	0.89	0.82	0.85	0.63	0.64	0.61	0.61	0.59	0.54	0.55	0.63	0.61	0.63	0.57	0.57	0.53	0.49
Armenia	12.88	ne	ne	10.98	12.58	ne	ne	ne	12.74	10.69	ne	9.81	ne	ne	13.23	ne	ne	ne	ne
Azerbaijan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bahrain	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na
Gaza Strip	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.21	0.27	0.40	0.39	0.33	0.29	0.26	0.27	0.29
Iraq	na	ne	na	na	ne	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne
Israel	0.75	0.71	0.89	0.89	0.96	0.80	0.86	0.97	1.11	1.17	1.27	1.17	1.40	1.30	1.25	1.36	1.57	1.55	1.49
Jordan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne
Kuwait	na	na	na	na	na	na	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne
Lebanon	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Oman	ne	na	na	na	ne	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	na	ne
Qatar	na	na	na	ne	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saudi Arabia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

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Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
United Arab Emirates	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
West Bank	na	na	na	na	na	na	ne	na	ne	na	ne	na	na	na	na	na	na	na	na
Yemen	na	na	na	na	na	ne	ne	ne	na	ne	na	na	na	na	ne	na	na	na	ne
Africa	0.51	0.35	0.55	0.45	0.40	0.40	0.45	0.42	0.30	0.35	0.46	0.39	0.47	0.44	0.59	0.51	0.47	0.42	0.42
Algeria	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Angola	na	na	na	na	na	na	ne	na	ne	na	na	na	na	na	na	na	na	na	na
Benin	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	na	ne
Botswana	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	ne	ne	ne
Burkina Faso	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	ne	na	ne	ne	ne	ne
Burundi	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Cabo Verde	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Cameroon	ne	na	na	na	na	ne	ne	na	na	ne	na	ne	ne	na	ne	ne	ne	na	ne
Central African Republic	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chad	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	ne	na	na	na	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Congo, Democratic Republic of the	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na
Congo, Republic of the	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Côte d'Ivoire	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Djibouti	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.59	ne	0.48	ne	ne
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Eritrea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Eswatini	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ethiopia	na	na	ne	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gabon	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
Gambia, The	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ghana	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne
Guinea	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Kenya	na	na	ne	na	na	na	ne	ne	na	ne	na	na	ne	na	na	ne	ne	ne	ne
Lesotho	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Liberia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Libya	na	na	na	na	ne	ne	na	na	na	ne	na	ne	na	na	na	na	na	ne	na
Madagascar	na	na	na	na	na	ne	ne	ne	na	na	na	na	na	na	na	na	na	na	na
Malawi	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	na	ne	ne	na	ne	na	na	na	na	na	na	na	na	na	ne	na	na
Mauritania	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Mauritius	ne	ne	ne	na	na	na	na	na	na	na	ne	na	na	na	na	ne	ne	na	na
Morocco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mozambique	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne
Namibia	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne
Niger	ne	na	na	na	na	ne	na	ne	na	na	ne	na	ne	na	na	na	na	na	na
Nigeria	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Rwanda	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	na	na	na	na	na	na	ne	ne	na	na	na	ne	na	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sierra Leone	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South Africa	1.10	0.88	1.06	1.03	0.73	0.81	0.88	1.01	0.70	0.81	1.06	0.94	1.03	1.04	1.23	1.27	1.16	1.11	1.19
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sudan	na	ne	na	na	ne	ne	na	ne	na	ne	ne	na	ne	ne	na	na	na	ne	ne
Tanzania	na	na	na	ne	ne	na	ne	ne	na	na	na	ne	na	na	ne	na	ne	na	na
Togo	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tunisia	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uganda	na	na	na	ne	na	na	ne	na	ne	ne	ne	ne	na	ne	na	ne	na	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	ne	ne	na	ne	na	na	ne	ne	na	na	na	na	na	na	na	ne	na	na	ne
Zimbabwe	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne
Asia	0.50	0.45	0.42	0.38	0.38	0.33	0.37	0.40	0.42	0.39	0.39	0.41	0.45	0.47	0.47	0.46	0.46	0.47	0.44
Afghanistan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Bangladesh	ne	na	na	ne	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Bhutan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Brunei	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Burma	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Cambodia	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
China	0.49	0.39	0.38	0.30	0.30	0.25	0.29	0.30	0.29	0.27	0.28	0.27	0.36	0.36	0.35	0.36	0.36	0.35	0.36
India	0.87	0.77	0.78	0.61	0.51	0.53	0.64	0.60	0.66	0.62	0.70	0.63	0.59	0.61	0.66	0.61	0.57	0.59	0.55
Indonesia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Japan	0.54	0.53	0.48	0.49	0.56	0.52	0.53	0.66	0.79	0.68	0.67	0.80	0.77	0.84	0.82	0.83	0.95	1.12	1.02
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	na	na	na	ne	na	ne	ne	na	na	na	na	na	na	na	na	na	na	ne
Laos	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na
Malaysia	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Maldives	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Mongolia	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	ne	na	ne	ne	ne	ne
Nepal	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	na	ne	ne
North Korea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Pakistan	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	0.75	1.27	0.99	ne	ne	ne
Papua New Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Philippines	na	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	na	na
Singapore	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South Korea	0.28	0.28	0.25	0.19	0.22	0.23	0.26	0.31	0.31	0.41	0.41	0.42	0.45	0.52	0.49	0.52	0.49	0.55	0.51
Sri Lanka	ne	na	ne	na	na	na	ne	na	na	na	ne	na	ne	na	ne	ne	na	ne	ne
Taiwan	ne	ne	ne	ne	0.20	ne	0.17	0.20	0.22	0.29	0.29	0.30	0.36	0.34	0.36	0.39	0.47	0.49	0.49
Tajikistan	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Turkmenistan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	na	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Australia and Oceania	0.74	0.75	0.73	0.75	0.93	0.81	0.79	0.78	0.80	0.76	0.79	0.98	1.05	0.97	0.96	0.94	1.04	0.99	1.01
Australia	0.77	0.83	0.77	0.84	1.04	0.88	0.88	0.88	0.90	0.84	0.87	1.09	1.16	1.06	1.03	1.02	1.11	1.08	1.09
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fiji	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia, Federated States of	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Solomon Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

TABLE S5A-19

Specialization of S&E articles in astronomy and astrophysics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	ne	ne	0.63	ne	ne	0.60	0.35	ne	ne	0.75	ne	ne	ne	ne	ne	ne	ne	ne	ne

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.13	1.16	1.14	1.15	1.16	1.16	1.17	1.17	1.17	1.19	1.18	1.18	1.18	1.17	1.18	1.16	1.16	1.16	1.17
Canada	1.09	1.14	1.10	1.10	1.04	1.07	1.08	1.07	1.05	1.06	1.07	1.07	1.07	1.06	1.06	1.05	1.03	1.05	1.04
Greenland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mexico	1.08	1.12	1.09	1.14	1.21	1.24	1.21	1.27	1.34	1.36	1.36	1.37	1.45	1.44	1.48	1.54	1.59	1.62	1.68
United States	1.13	1.17	1.15	1.15	1.18	1.17	1.18	1.18	1.18	1.21	1.19	1.19	1.19	1.18	1.18	1.17	1.16	1.16	1.17
Central America and Caribbean	1.39	1.38	1.39	1.65	1.68	1.74	1.64	1.74	1.55	1.56	1.67	1.62	1.54	1.50	1.66	1.55	1.55	1.63	1.57
Antigua and Barbuda	na	na	ne	na	na	ne	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne
Bahamas, The	na	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Costa Rica	2.19	1.72	2.66	2.69	2.40	3.84	2.79	3.11	2.39	2.81	2.94	3.10	2.35	2.56	2.47	2.17	2.05	2.00	1.96
Cuba	1.29	1.25	1.25	1.97	1.97	1.80	1.69	1.58	1.43	1.44	1.49	1.34	1.24	1.12	1.28	1.10	0.98	1.20	1.03
Dominica	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominican Republic	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Grenada	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guatemala	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Honduras	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.33	ne	ne	1.27	ne	ne	ne	ne
Nicaragua	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	ne	4.26	4.75	4.76	4.16	4.13	4.76	4.64	4.54	4.04	4.16	3.78	3.56	3.54	3.24	3.90	4.35	4.46	4.16
Puerto Rico	1.13	1.34	1.08	1.00	1.28	1.02	1.09	1.47	1.17	1.14	1.32	1.48	1.69	1.49	1.57	1.67	1.65	1.64	1.74
Saint Kitts and Nevis	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Saint Lucia	ne	ne	na	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	na
Saint Vincent and the Grenadines	na	na	na	na	ne	na	ne	ne	na	na	na	na	ne	na	ne	na	ne	ne	ne
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.54	ne	ne	ne	ne
South America	1.27	1.26	1.32	1.35	1.38	1.50	1.51	1.51	1.50	1.51	1.53	1.50	1.48	1.47	1.46	1.50	1.53	1.56	1.55
Argentina	1.61	1.60	1.62	1.72	1.80	1.89	2.03	1.96	2.00	2.06	2.10	2.12	2.17	2.03	2.01	1.96	2.00	2.06	2.10
Bolivia	ne	ne	ne	ne	ne	ne	ne	3.98	3.67	3.41	4.03	4.16	3.03	3.32	3.30	2.83	ne	ne	2.81
Brazil	1.12	1.14	1.20	1.25	1.26	1.39	1.39	1.40	1.40	1.38	1.40	1.36	1.35	1.37	1.38	1.42	1.47	1.52	1.55
Chile	1.27	1.28	1.43	1.30	1.36	1.57	1.42	1.48	1.45	1.43	1.50	1.58	1.50	1.53	1.44	1.49	1.39	1.42	1.43
Colombia	1.49	1.56	1.55	1.20	1.45	1.50	1.51	1.38	1.35	1.54	1.70	1.43	1.50	1.31	1.30	1.42	1.52	1.37	1.16
Ecuador	ne	ne	ne	ne	ne	2.49	2.41	2.82	2.76	3.23	2.69	2.98	2.61	2.44	2.03	1.50	1.36	1.23	1.06
Guyana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	2.19	1.95	1.80	2.41	2.40	2.55	3.13	2.82	2.13	1.86	2.18	2.07	1.80	1.80	1.74	1.52	1.50	1.52	1.27
Suriname	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uruguay	1.76	1.73	1.53	1.91	1.96	2.16	2.06	2.15	2.05	2.28	2.10	2.24	1.90	2.06	1.97	1.91	1.72	1.91	2.14
Venezuela	1.18	1.04	1.11	1.11	1.38	1.28	1.23	1.25	1.51	1.83	1.59	1.54	1.49	1.51	1.24	1.62	1.66	1.81	1.47
Europe	0.97	0.97	0.98	0.98	0.99	1.00	0.99	0.97	0.99	0.99	0.99	0.97	0.97	0.96	0.95	0.96	0.94	0.96	0.97
EU	0.99	1.00	1.01	1.01	1.02	1.02	1.01	0.99	1.01	1.00	1.00	0.98	0.98	0.97	0.97	0.98	0.97	0.99	1.01
Austria	0.94	0.94	0.97	0.95	0.95	0.90	0.93	0.94	0.99	0.98	1.01	0.98	0.99	0.99	0.99	0.97	0.99	1.02	1.01
Belgium	1.01	1.10	1.06	1.07	1.12	1.17	1.09	1.12	1.09	1.14	1.12	1.16	1.12	1.11	1.08	1.12	1.10	1.12	1.19
Bulgaria	1.19	0.96	1.37	1.17	1.04	1.36	1.26	1.06	1.23	1.85	1.42	1.28	1.43	1.29	1.45	1.19	1.25	1.20	0.92
Croatia	0.69	0.65	0.57	0.59	0.62	0.57	0.69	0.75	0.90	0.66	0.65	0.57	0.65	0.62	0.60	0.58	0.72	0.67	0.71
Cyprus	ne	ne	ne	ne	ne	ne	ne	ne	0.48	0.46	0.44	0.44	0.77	0.62	0.57	0.52	0.61	0.61	0.64
Czechia	0.91	0.91	0.86	0.98	1.02	0.96	0.96	0.96	1.03	0.97	0.99	0.82	0.89	0.86	0.85	0.85	0.89	0.90	0.93
Denmark	1.25	1.29	1.24	1.36	1.34	1.29	1.29	1.27	1.28	1.22	1.25	1.17	1.21	1.19	1.14	1.18	1.17	1.18	1.20
Estonia	1.20	1.29	1.47	1.25	1.20	1.42	1.18	1.12	0.95	1.24	1.05	1.07	1.10	1.10	1.02	1.12	1.11	1.14	1.15
Finland	0.92	0.95	1.00	1.00	1.00	0.98	1.00	1.00	1.05	0.98	0.99	1.02	1.00	0.95	0.94	0.95	0.92	0.97	0.97
France	1.07	1.07	1.05	1.04	1.04	1.05	1.01	1.00	0.98	0.98	1.01	0.98	0.96	0.97	0.98	0.98	1.01	1.02	1.05
Germany	0.94	0.94	0.95	0.96	0.99	1.01	1.02	0.99	0.99	0.99	0.99	0.97	0.96	0.95	0.98	0.96	0.95	0.99	1.00
Greece	0.78	0.79	0.81	0.78	0.77	0.78	0.75	0.71	0.83	0.82	0.80	0.78	0.82	0.80	0.77	0.76	0.79	0.87	0.87
Hungary	0.92	0.95	1.06	1.06	1.03	1.19	1.23	1.24	1.53	1.30	1.15	1.27	1.22	1.19	1.22	1.20	1.21	1.20	1.11
Ireland	0.87	0.90	0.84	0.84	0.80	0.86	0.80	0.82	0.85	0.89	0.93	0.95	0.94	0.89	0.87	0.87	0.84	0.84	0.86
Italy	1.01	0.97	1.01	0.99	1.03	1.02	1.02	1.01	1.05	1.05	1.04	1.06	1.04	1.02	0.99	0.99	0.98	1.00	1.04
Latvia	1.00	0.77	0.78	1.01	1.16	0.92	0.60	0.70	0.51	1.15	0.55	0.86	0.52	0.75	0.68	0.99	0.53	0.97	0.48
Lithuania	0.90	1.05	0.39	0.59	0.74	0.70	0.58	0.63	0.37	0.44	0.43	0.52	0.54	0.54	0.54	0.64	0.67	0.67	0.68
Luxembourg	ne	ne	ne	ne	1.45	ne	ne	ne	0.97	0.82	0.98	0.94	0.91	0.79	0.92	1.05	0.94	0.80	0.78
Malta	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	1.04	1.05	1.07	1.05	1.03	1.06	1.00	1.01	1.02	0.98	1.01	1.02	1.02	1.04	1.03	1.01	1.02	1.02	1.08
Poland	0.80	0.80	0.73	0.79	0.75	0.77	0.73	0.72	0.73	0.82	0.85	0.82	0.78	0.83	0.85	0.86	0.82	0.86	0.88
Portugal	0.92	0.92	0.90	0.94	0.95	0.96	0.92	0.93	1.00	0.95	0.94	0.93	1.05	1.00	0.95	0.95	0.98	0.94	0.97
Romania	0.27	0.28	0.29	0.26	0.29	0.33	0.32	0.31	0.35	0.36	0.44	0.50	0.59	0.51	0.53	0.52	0.48	0.48	0.48
Slovakia	1.23	1.18	1.10	1.11	1.26	1.13	1.28	1.11	0.99	1.05	0.96	0.87	0.80	0.86	0.70	0.74	0.69	0.74	0.74
Slovenia	1.01	0.72	0.77	0.62	0.70	0.86	0.75	0.72	0.89	0.75	0.75	0.61	0.76	0.79	0.77	0.77	0.74	0.82	0.88
Spain	1.03	1.09	1.06	1.06	1.06	1.06	1.07	1.01	1.06	1.04	1.03	1.05	1.07	1.07	1.04	1.13	1.06	1.06	1.08
Sweden	1.10	1.16	1.20	1.16	1.18	1.23	1.24	1.24	1.22	1.22	1.19	1.12	1.09	1.08	1.05	1.08	1.06	1.08	1.10
United Kingdom	1.00	1.05	1.07	1.07	1.10	1.06	1.03	1.04	1.04	1.04	1.05	1.01	0.98	0.98	0.99	1.00	0.99	1.00	1.03
Other Europe	0.86	0.82	0.81	0.83	0.83	0.87	0.88	0.88	0.90	0.90	0.93	0.91	0.90	0.85	0.85	0.85	0.83	0.82	0.82

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.54	ne	ne	ne	ne	ne	ne
Andorra	na	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Belarus	0.72	0.78	0.74	0.67	0.71	0.55	0.68	0.56	0.63	0.61	0.55	0.56	0.68	0.40	0.61	0.60	0.62	0.69	0.67
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.52	0.57	0.59	0.41	0.75
Holy See (Vatican City)	na	na	na	na	ne	na	na	na	na	na	na	na	ne	na	ne	na	ne	ne	ne
Iceland	1.11	1.09	1.14	1.18	1.24	1.12	1.06	1.16	1.21	0.97	0.78	0.84	0.96	1.18	0.80	1.00	1.02	0.90	0.85
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.74	ne	ne	0.84	ne	0.69	0.52	0.64	ne	0.62
Norway	0.96	0.96	1.06	0.99	1.01	0.98	1.01	1.00	0.92	0.92	0.95	0.94	0.84	0.88	0.88	0.89	0.85	0.89	0.85
Russia	0.84	0.76	0.72	0.80	0.78	0.86	0.84	0.86	0.91	0.91	0.96	0.95	0.94	0.88	0.83	0.83	0.76	0.74	0.76
San Marino	na	na	na	na	na	na	na	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Serbia[a]	na	na	na	na	na	na	na	0.91	1.23	1.03	1.03	0.85	0.97	0.96	1.07	1.15	1.07	1.05	1.20
Serbia and Montenegro[b]	0.67	0.60	0.72	0.60	0.78	0.71	0.80	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	1.16	1.19	1.18	1.14	1.16	1.10	1.15	1.13	1.10	1.14	1.16	1.11	1.10	1.09	1.10	1.08	1.12	1.16	1.16
Turkey	0.75	0.79	0.81	0.78	0.74	0.83	0.84	0.80	0.82	0.82	0.85	0.85	0.82	0.76	0.77	0.77	0.86	0.87	0.85
Ukraine	0.47	0.42	0.42	0.41	0.43	0.54	0.45	0.43	0.43	0.50	0.45	0.49	0.48	0.44	0.52	0.46	0.40	0.36	0.33
Middle East	0.87	0.88	0.91	0.87	0.88	0.90	0.96	0.98	0.89	0.85	0.87	0.96	0.85	0.82	0.85	0.83	0.85	0.90	0.95
Armenia	0.82	0.88	0.93	0.73	ne	0.61	0.68	ne	0.77	0.62	0.61	0.67	0.77	0.80	0.66	0.77	0.81	0.76	0.75
Azerbaijan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.45
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	1.00	ne	ne	ne	ne	0.66	0.65	ne	0.67	0.76	0.92	0.61	0.76	ne	0.82	0.87	0.53	0.78	0.78
Iran	0.59	0.61	0.76	0.63	0.76	0.73	0.98	1.05	0.86	0.78	0.81	0.98	0.82	0.78	0.81	0.80	0.84	0.88	0.99
Iraq	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.72	0.77	0.80	0.53	0.47	0.64	0.59	1.38	1.51	1.05
Israel	1.02	1.04	1.06	1.06	1.09	1.14	1.10	1.09	1.07	1.12	1.16	1.12	1.10	1.08	1.10	1.08	1.04	1.14	1.08
Jordan	0.67	0.68	0.64	0.83	0.65	0.69	0.86	0.82	0.61	0.84	0.75	0.78	0.88	0.57	0.69	0.77	0.69	0.67	0.61
Kuwait	1.13	1.08	1.31	1.14	1.13	1.38	0.97	0.99	1.16	0.93	0.88	1.04	0.86	0.88	0.69	0.69	0.71	0.62	0.95
Lebanon	0.71	0.69	0.83	0.86	0.88	0.75	0.79	0.81	0.82	0.80	0.72	0.93	0.72	0.73	0.78	0.74	0.70	0.76	0.84
Oman	ne	ne	ne	ne	ne	ne	0.89	0.70	0.65	ne	0.75	0.62	0.68	0.72	0.84	0.71	0.78	0.80	0.82
Qatar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.41	0.42	0.45	0.53	0.56	0.49	0.63
Saudi Arabia	0.47	0.52	0.56	0.55	0.50	0.60	0.66	0.63	0.69	0.72	0.88	0.88	0.86	0.88	0.90	0.85	0.88	0.92	0.93

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	2.03	1.78	1.66	1.46	1.60	1.60	1.79	1.61	1.11	1.17	1.47	1.88
United Arab Emirates	0.70	0.68	0.57	0.63	0.64	0.70	0.77	0.58	0.60	0.40	0.54	0.50	0.38	0.43	0.47	0.38	0.43	0.45	0.51
West Bank	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	1.17	1.19	1.14	1.21	1.12	1.26	1.34	1.44	1.36	1.38	1.45	1.41	1.34	1.23	1.19	1.18	1.16	1.19	1.26
Algeria	ne	ne	ne	0.43	0.42	0.41	0.48	0.55	0.42	0.43	0.48	0.41	0.42	0.47	0.45	0.46	0.50	0.51	0.58
Angola	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Benin	ne	ne	ne	ne	ne	ne	ne	ne	3.55	2.86	2.70	3.38	3.14	2.85	2.52	2.12	2.26	2.65	2.37
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.67	1.56	1.33	1.73	1.20	1.43	1.67
Burkina Faso	ne	ne	ne	ne	ne	ne	2.89	2.16	2.60	2.64	2.62	2.33	2.02	1.93	1.90	1.82	1.99	1.99	2.08
Burundi	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cabo Verde	ne	na	na	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Cameroon	1.86	2.18	1.67	1.85	1.50	1.73	1.98	2.82	2.18	2.14	2.50	2.01	1.82	1.66	1.71	1.83	1.81	1.86	1.84
Central African Republic	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Chad	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Comoros	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Democratic Republic of the	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.06	2.16
Congo, Republic of the	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	ne	ne	1.57	1.62	2.11	1.78	1.70	1.97	2.37	1.67	1.89	2.24	2.80
Djibouti	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Egypt	0.82	0.79	0.73	0.86	0.80	0.90	0.98	0.96	1.01	1.29	1.17	1.33	1.48	1.03	1.15	1.03	1.05	1.09	1.23
Equatorial Guinea	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Eritrea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Eswatini	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ethiopia	1.26	1.37	1.55	1.51	1.05	1.74	1.41	1.98	1.68	1.66	1.49	1.66	1.54	1.84	1.68	1.93	1.73	1.81	2.22
Gabon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ghana	ne	ne	ne	1.46	ne	1.44	1.53	1.28	1.45	2.09	1.79	1.40	1.71	1.49	1.23	1.51	1.43	1.44	1.50
Guinea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea-Bissau	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kenya	2.16	2.14	2.11	2.14	2.06	2.16	2.74	2.41	2.73	2.34	2.54	2.68	2.40	2.23	2.32	2.62	2.52	2.49	2.31
Lesotho	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liberia	na	na	ne	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Libya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	ne	ne	ne	ne	4.40	3.92	3.41	2.92	ne	4.15	3.32	3.47	4.17	2.39	3.13	2.96	3.14	3.04
Malawi	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.05	ne	1.70	1.69	1.54	2.22	2.10

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	0.48	0.60	0.73	0.77	0.70	0.83	0.67	0.89	0.84	0.63	0.64	0.55	0.66	0.56	0.45	0.52	0.41	0.48	0.50
Mozambique	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.11	2.61
Namibia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	1.48	1.26	1.00	1.41	1.08	1.09	1.62	1.98	1.67	1.84	2.11	1.80	1.51	1.40	1.28	1.23	1.26	1.23	1.37
Rwanda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	ne	ne	ne	ne	ne	ne	na	na	ne	ne	na	ne	ne	ne	na	na	ne	ne
Senegal	1.56	ne	ne	1.16	ne	1.61	1.47	1.55	1.19	ne	ne	1.25	1.38	1.80	1.47	1.20	1.69	1.59	1.30
Seychelles	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Sierra Leone	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Somalia	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne
South Africa	1.41	1.48	1.46	1.43	1.41	1.52	1.49	1.48	1.56	1.38	1.55	1.48	1.34	1.42	1.39	1.40	1.36	1.38	1.40
South Sudan	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne
Sudan	ne	ne	ne	ne	ne	ne	2.09	1.96	2.19	2.88	3.02	2.43	1.56	1.21	1.45	1.19	0.95	1.22	1.27
Tanzania	1.55	ne	1.43	1.46	1.55	1.67	1.63	1.81	1.58	1.91	2.01	1.65	1.62	1.86	1.60	2.04	1.93	2.11	1.94
Togo	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tunisia	0.62	0.76	0.86	0.71	0.63	0.89	1.06	1.30	1.11	1.14	1.18	1.26	1.15	1.04	0.83	0.85	0.81	0.79	0.76
Uganda	2.84	1.94	ne	2.27	2.71	1.82	2.27	3.47	2.45	2.43	2.63	2.11	2.20	2.21	2.10	1.76	2.13	2.32	2.33
Western Sahara	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.25	ne	2.16	2.02	1.88	2.37	1.82
Zimbabwe	1.08	1.43	1.33	1.54	ne	ne	1.44	1.99	2.23	2.49	2.58	1.67	1.90	2.15	2.18	1.96	2.51	2.45	1.95
Asia	0.80	0.76	0.78	0.78	0.76	0.76	0.77	0.79	0.79	0.78	0.78	0.81	0.83	0.86	0.87	0.88	0.89	0.88	0.86
Afghanistan	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bangladesh	1.29	1.22	1.14	1.27	1.31	1.50	1.76	1.47	1.14	1.32	1.24	1.34	1.07	1.13	0.91	0.99	0.83	0.92	0.95
Bhutan	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burma	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.23	1.83
Cambodia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.13	2.63	2.38	2.27	2.75	2.32
China	0.47	0.41	0.46	0.49	0.46	0.50	0.54	0.58	0.58	0.58	0.58	0.63	0.68	0.74	0.78	0.82	0.84	0.83	0.82
India	1.03	1.09	1.07	1.17	1.24	1.34	1.28	1.28	1.22	1.24	1.25	1.15	1.11	1.09	1.10	0.97	0.99	0.93	0.87
Indonesia	1.68	1.76	1.91	1.87	1.61	2.00	1.81	1.96	1.76	1.57	1.25	1.21	1.12	1.13	0.92	0.88	0.78	0.60	0.45
Japan	0.96	0.95	0.96	0.93	0.98	0.96	0.94	0.98	1.02	1.01	0.96	0.94	0.94	0.96	0.94	0.96	0.98	0.98	1.01
Kazakhstan	ne	ne	ne	0.90	ne	ne	ne	ne	ne	0.93	ne	0.65	ne	0.62	0.44	0.61	0.52	0.72	0.97

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	0.70	0.74	0.86	0.66	0.72	0.88	0.79	0.73	0.66	0.73	0.76	0.96	0.89	0.79	0.68	0.69	0.70	0.67	0.67
Maldives	ne	ne	na	ne	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.02	ne	1.81
Nepal	ne	ne	ne	ne	ne	0.92	0.65	1.00	0.78	0.64	1.05	0.82	0.90	1.06	0.98	1.28	1.31	1.50	1.42
North Korea	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	1.21	1.21	1.36	1.36	1.40	1.22	1.74	1.53	1.59	1.54	1.71	1.90	1.72	1.62	1.53	1.48	1.29	1.27	1.22
Papua New Guinea	ne	3.25	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	2.06	2.38	1.95	2.00	1.85	2.06	1.97	1.68	1.74	1.70	1.59	1.80	1.27	1.85	1.27	1.64	1.21	1.20	1.02
Singapore	0.38	0.37	0.44	0.42	0.49	0.59	0.60	0.66	0.62	0.70	0.72	0.72	0.73	0.77	0.73	0.72	0.72	0.76	0.76
South Korea	0.82	0.77	0.81	0.83	0.83	0.81	0.76	0.86	0.93	0.92	0.95	0.99	0.97	1.02	1.01	1.00	1.00	0.99	1.02
Sri Lanka	1.34	1.52	1.19	1.34	1.40	1.50	1.14	1.37	1.25	1.31	1.21	1.33	1.28	1.01	1.38	1.42	1.19	1.33	1.20
Taiwan	0.54	0.56	0.57	0.55	0.61	0.57	0.57	0.53	0.58	0.58	0.60	0.62	0.64	0.66	0.65	0.66	0.68	0.74	0.76
Tajikistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	1.04	0.94	1.05	1.17	1.05	1.22	1.60	1.60	1.55	1.44	1.47	1.38	1.40	1.39	1.43	1.37	1.26	1.30	1.31
Timor-Leste	na	na	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Turkmenistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	na	ne	ne	na	ne	ne
Uzbekistan	1.73	1.65	1.73	1.81	1.34	1.22	1.48	1.11	1.31	1.10	1.23	1.32	1.26	1.08	1.00	0.88	0.95	1.16	0.81
Vietnam	1.00	0.96	1.18	1.02	0.96	1.23	1.16	1.19	1.04	0.91	0.95	1.03	0.93	0.91	0.96	1.04	0.86	0.94	0.89
Australia and Oceania	1.20	1.21	1.23	1.17	1.16	1.17	1.19	1.15	1.18	1.17	1.16	1.12	1.11	1.15	1.13	1.13	1.18	1.15	1.20
Australia	1.18	1.19	1.21	1.14	1.14	1.13	1.17	1.11	1.16	1.15	1.13	1.10	1.08	1.12	1.10	1.10	1.16	1.13	1.18
Cook Islands	na	na	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne
Fiji	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.67	ne	ne
Kiribati	na	na	na	ne	na	na	ne	ne	na	na	na	na	na	ne	ne	ne	ne	ne	na
Marshall Islands	na	na	na	na	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Micronesia, Federated States of	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
New Zealand	1.34	1.29	1.33	1.33	1.25	1.38	1.29	1.40	1.31	1.30	1.36	1.22	1.27	1.35	1.28	1.32	1.29	1.27	1.28
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Palau	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Samoa	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Solomon Islands	ne	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tonga	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne
Tuvalu	na	na	na	ne	ne	na	ne	ne	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-20

Specialization of S&E articles in biological and biomedical sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.61	0.89	0.49	0.79	0.59	0.70	0.61	0.44	0.59	0.75	1.14	1.15	1.16	0.93	0.88	0.82	1.09	0.85	0.93

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*T*w) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-21

Specialization of S&E articles in chemistry, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	0.60	0.57	0.65	0.61	0.59	0.58	0.59	0.61	0.64	0.63	0.65	0.65	0.63	0.63	0.61	0.59	0.61	0.60	0.59
Canada	0.66	0.67	0.68	0.68	0.67	0.62	0.67	0.63	0.65	0.68	0.67	0.71	0.68	0.64	0.62	0.64	0.63	0.65	0.62
Greenland	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Mexico	0.74	0.74	0.68	0.78	0.81	0.82	0.59	0.81	0.82	0.85	0.81	0.75	0.76	0.78	0.74	0.72	0.75	0.86	0.84
United States	0.59	0.55	0.65	0.59	0.58	0.57	0.58	0.61	0.63	0.61	0.65	0.64	0.62	0.62	0.61	0.58	0.60	0.59	0.57
Central America and Caribbean	0.57	0.55	0.48	0.61	0.70	0.46	0.42	0.57	0.54	0.55	0.45	0.52	0.57	0.40	0.40	0.37	0.39	0.46	0.41
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bahamas, The	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cuba	0.66	0.58	0.51	0.86	0.98	0.51	0.46	0.66	0.59	0.50	ne	0.45	0.51	0.34	ne	ne	ne	ne	ne
Dominica	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dominican Republic	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	na
El Salvador	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	ne	na	ne
Grenada	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na
Guatemala	na	ne	na	na	na	na	ne	ne	na	na	ne	na	ne	na	na	na	ne	ne	ne
Haiti	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Honduras	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	na	na	na	na	ne	ne	na	na	na	ne	na	ne	ne	na	na	ne	na	na	ne
Panama	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	0.77	ne	1.09	0.85	0.88	1.10	ne	1.05	0.83	ne	0.95	ne
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Lucia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	1.19	1.13	1.07	1.10	1.02	1.08	0.91	0.94	0.91	0.85	0.82	0.80	0.75	0.74	0.71	0.67	0.68	0.73	0.72
Argentina	1.47	1.12	1.16	1.25	1.01	1.17	0.92	1.00	1.10	0.96	0.93	0.94	0.84	0.90	0.80	0.84	0.86	0.88	0.85
Bolivia	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Brazil	1.02	1.08	1.02	1.00	0.99	1.03	0.91	0.92	0.89	0.84	0.80	0.77	0.75	0.73	0.73	0.69	0.71	0.78	0.77
Chile	1.45	1.47	1.14	1.48	1.10	1.05	0.86	0.80	0.74	0.87	0.81	0.84	0.73	0.79	0.64	0.58	0.67	0.60	0.66
Colombia	1.01	ne	0.92	0.72	0.81	0.76	0.52	0.56	0.72	0.70	0.73	0.74	0.49	0.49	0.45	0.42	0.38	0.50	0.49
Ecuador	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guyana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	ne

TABLE S5A-21

Specialization of S&E articles in chemistry, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	ne	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Suriname	na	na	na	ne	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.98	0.63
Venezuela	2.02	1.84	1.69	1.96	2.07	2.18	1.55	2.05	1.75	1.38	1.38	1.28	1.28	1.26	0.97	0.71	0.59	0.75	1.09
Europe	1.12	1.13	1.07	1.09	1.09	1.02	0.98	1.00	0.99	0.98	0.99	0.96	0.93	0.93	0.89	0.89	0.90	0.90	0.87
EU	1.02	1.03	0.99	0.99	1.00	0.94	0.92	0.93	0.92	0.91	0.92	0.90	0.88	0.88	0.84	0.84	0.87	0.87	0.86
Austria	0.90	0.94	0.83	0.93	1.05	0.86	0.86	0.85	0.89	0.89	0.89	0.79	0.78	0.84	0.86	0.80	0.84	0.95	0.83
Belgium	0.97	0.86	0.87	0.90	0.88	0.87	0.77	0.79	0.74	0.72	0.84	0.82	0.80	0.81	0.81	0.82	0.80	0.83	0.79
Bulgaria	1.73	1.44	1.46	1.52	1.57	1.48	1.59	1.42	1.77	1.22	1.43	1.61	1.46	1.65	1.21	1.27	0.95	1.04	1.64
Croatia	1.09	1.14	1.05	1.00	1.09	1.12	0.95	1.01	0.97	0.82	0.89	0.83	0.84	0.83	0.73	0.67	0.68	0.82	0.74
Cyprus	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.93	0.75	0.81	0.82	0.86	0.80	0.83	0.56	0.49	0.58
Czechia	1.63	1.61	1.56	1.49	1.54	1.74	1.43	1.47	1.61	1.37	1.26	1.39	1.22	1.35	1.10	1.06	1.05	1.07	1.09
Denmark	0.65	0.66	0.67	0.72	0.66	0.72	0.63	0.65	0.59	0.66	0.66	0.66	0.60	0.59	0.58	0.56	0.56	0.54	0.53
Estonia	ne	ne	0.95	ne	0.73	0.80	0.84	0.90	0.69	0.79	0.68	0.74	0.74	0.71	0.69	0.84	0.62	0.77	0.71
Finland	0.73	0.72	0.65	0.58	0.64	0.59	0.57	0.62	0.61	0.63	0.71	0.60	0.58	0.63	0.61	0.64	0.58	0.62	0.61
France	1.03	1.02	0.98	0.98	0.95	0.91	0.92	0.94	0.96	0.91	0.94	0.91	0.91	0.90	0.87	0.88	0.90	0.90	0.87
Germany	1.16	1.13	1.04	1.06	1.09	1.02	1.02	1.02	1.03	1.05	1.07	1.05	1.03	1.02	0.99	1.01	0.99	1.03	0.99
Greece	0.83	0.96	0.89	0.84	0.82	0.69	0.73	0.73	0.70	0.67	0.62	0.63	0.59	0.60	0.59	0.64	0.63	0.62	0.72
Hungary	1.93	1.83	1.86	1.57	1.68	1.43	1.45	1.18	1.25	1.23	1.27	1.15	1.14	1.10	1.05	1.15	1.11	1.19	1.15
Ireland	0.66	0.77	0.78	0.94	0.75	0.67	0.70	0.71	0.83	0.77	0.87	0.89	0.86	0.83	0.78	0.77	0.74	0.76	0.78
Italy	0.91	0.97	0.92	0.92	0.92	0.85	0.79	0.81	0.79	0.77	0.75	0.76	0.70	0.71	0.68	0.68	0.72	0.68	0.70
Latvia	3.00	2.54	3.47	2.59	2.15	1.32	1.38	1.78	1.27	1.53	0.84	0.69	1.08	0.95	1.08	1.14	0.88	0.42	0.64
Lithuania	1.74	1.10	1.11	0.87	0.82	0.56	0.82	0.84	0.89	1.26	0.95	1.01	1.04	1.22	1.16	1.36	0.94	0.98	1.04
Luxembourg	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malta	ne	ne	ne	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	0.73	0.76	0.70	0.73	0.70	0.66	0.60	0.57	0.57	0.59	0.62	0.57	0.51	0.56	0.52	0.50	0.58	0.54	0.53
Poland	1.65	1.50	1.45	1.61	1.47	1.41	1.43	1.44	1.37	1.35	1.28	1.32	1.37	1.35	1.14	1.16	1.27	1.30	1.25
Portugal	1.16	1.38	1.19	1.26	1.26	1.28	1.15	1.21	1.18	1.22	1.11	1.05	1.02	1.06	0.99	0.87	0.90	0.85	0.85
Romania	3.30	3.87	3.57	3.41	3.27	3.17	2.95	2.28	2.03	1.87	1.88	1.88	1.77	1.92	1.81	1.94	2.28	2.11	2.39
Slovakia	1.79	1.75	1.51	1.47	1.53	1.84	1.42	1.53	1.73	1.36	1.02	1.54	1.10	1.10	0.92	0.83	0.72	0.74	0.81
Slovenia	1.32	1.56	1.41	1.31	1.31	1.20	1.23	1.29	1.27	1.18	1.12	0.96	1.04	1.09	1.05	1.13	1.10	1.08	1.01
Spain	1.39	1.38	1.38	1.32	1.34	1.30	1.22	1.31	1.13	1.14	1.15	1.08	1.10	1.09	1.04	1.01	1.08	1.04	1.05
Sweden	0.66	0.72	0.72	0.66	0.79	0.69	0.71	0.66	0.63	0.64	0.67	0.65	0.63	0.63	0.65	0.60	0.63	0.65	0.60
United Kingdom	0.73	0.72	0.73	0.74	0.74	0.65	0.67	0.65	0.66	0.66	0.69	0.67	0.63	0.59	0.61	0.62	0.64	0.65	0.61
Other Europe	1.70	1.67	1.54	1.58	1.58	1.46	1.35	1.43	1.42	1.39	1.38	1.30	1.19	1.22	1.13	1.08	1.04	1.01	0.93

TABLE S5A-21

Specialization of S&E articles in chemistry, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Belarus	1.85	1.75	1.67	1.68	1.67	1.52	1.77	1.62	1.63	1.59	1.79	1.39	1.50	1.42	1.62	1.41	1.12	1.15	1.12
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	5.39	4.94	4.48	4.03	5.11	3.92	3.59	ne	5.25	4.38	4.41	4.06	3.27	2.92	3.11	ne	2.73	2.32	2.58
Monaco	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	ne	4.23	ne	3.93	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	0.57	0.58	0.41	0.44	0.55	0.51	0.47	0.49	0.41	0.39	0.39	0.37	0.35	0.34	0.33	0.34	0.34	0.33	0.32
Russia	2.20	2.16	2.01	2.20	2.16	2.09	1.99	2.16	2.10	2.12	2.11	2.04	1.80	1.85	1.58	1.48	1.33	1.26	1.06
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Serbia[a]	na	na	na	na	na	na	na	1.40	1.51	1.49	1.35	1.23	1.17	1.31	1.26	1.22	1.20	1.15	1.12
Serbia and Montenegro[b]	1.94	1.84	1.51	2.05	1.98	1.53	1.39	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	1.11	1.13	1.10	1.10	1.19	1.09	1.02	0.97	1.00	0.99	1.04	0.98	0.97	0.94	0.98	0.91	0.90	0.89	0.85
Turkey	1.07	1.07	0.94	0.88	0.98	0.88	0.96	1.10	1.07	1.03	0.99	0.89	0.87	0.91	0.84	0.78	0.84	0.87	0.92
Ukraine	1.77	1.56	1.79	1.70	1.82	1.72	1.51	1.60	1.65	1.63	1.63	1.44	1.43	1.33	1.29	1.22	0.95	0.84	0.78
Middle East	0.91	1.05	1.07	1.18	1.20	1.27	1.23	1.36	1.30	1.29	1.32	1.27	1.37	1.33	1.31	1.32	1.28	1.25	1.23
Armenia	1.64	1.77	ne	2.05	2.09	2.04	2.42	2.95	2.61	1.48	2.01	0.91	1.26	1.21	1.54	1.38	1.51	1.27	1.56
Azerbaijan	3.62	3.78	2.18	2.19	2.09	2.98	2.74	1.86	2.07	3.30	3.32	3.23	2.41	3.14	2.52	1.76	1.57	1.82	2.07
Bahrain	na	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	3.27	3.80	3.06	3.05	2.77	2.57	2.24	2.24	1.96	1.85	1.74	1.61	1.78	1.73	1.66	1.71	1.59	1.54	1.56
Iraq	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.06	0.88	1.15	1.32	1.65	1.19	0.98	0.78	0.59
Israel	0.51	0.53	0.55	0.58	0.53	0.55	0.55	0.56	0.60	0.55	0.59	0.58	0.49	0.58	0.56	0.58	0.60	0.56	0.63
Jordan	0.89	1.09	1.30	0.98	0.83	0.90	1.05	1.31	0.96	0.98	0.75	0.71	0.73	0.77	0.72	0.61	0.50	0.61	0.68
Kuwait	ne	ne	ne	ne	ne	0.88	ne	0.84	0.93	0.66	0.81	ne	ne	0.74	0.91	ne	ne	0.85	0.79
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.51	0.48	0.42	0.46
Oman	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.83	0.72	0.74	1.07	0.72
Qatar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.63	0.78	0.86	0.84
Saudi Arabia	0.91	0.90	1.14	1.02	1.11	1.19	0.90	0.97	0.84	0.96	1.38	1.48	1.74	1.35	1.48	1.43	1.54	1.44	1.36

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.45	0.40	0.47	0.46	0.45	0.45	0.50	0.80
West Bank	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	1.22	1.17	1.21	1.24	1.26	1.13	1.17	1.18	1.05	0.96	1.03	1.00	0.94	0.94	0.83	0.88	0.88	0.89	0.87
Algeria	1.19	ne	1.20	1.26	1.13	1.28	1.42	1.23	1.25	1.07	1.13	1.04	1.06	0.96	0.92	0.89	0.90	0.87	1.01
Angola	ne	ne	ne	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	na	ne	ne
Benin	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	na	na	ne	ne	na	ne
Cabo Verde	na	na	na	na	na	ne	na	na	na	na	na	na	ne	na	ne	na	na	na	na
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Central African Republic	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	ne	na
Chad	na	ne	na	na	ne	na	na	na	na	ne	na	na	na	na	na	na	ne	na	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne
Congo, Democratic Republic of the	na	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	na	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	ne	na	na	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	na	ne	ne	na	ne	ne	na
Egypt	2.91	2.73	2.95	2.81	2.74	2.73	2.74	2.62	2.46	2.02	2.09	1.76	1.58	1.74	1.66	1.69	1.67	1.93	1.76
Equatorial Guinea	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
Eritrea	na	na	na	na	na	na	ne	na	na	ne	na	ne	na	na	ne	na	na	ne	ne
Eswatini	na	na	ne	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na
Ethiopia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.37	0.31
Gabon	ne	na	na	na	ne	ne	ne	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	ne	na	na
Ghana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea	na	na	na	na	ne	na	ne	na	ne	ne	na	na	ne	ne	ne	ne	na	ne	na
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Kenya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lesotho	na	ne	ne	na	ne	na	na	ne	ne	na	na	ne	na	na	ne	ne	ne	ne	ne
Liberia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Libya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	ne	ne	ne	na	na	na	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne

TABLE S5A-21

Specialization of S&E articles in chemistry, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	1.58	1.48	1.37	1.38	1.37	1.28	1.28	1.50	1.19	0.83	1.47	1.42	0.93	0.93	0.70	0.67	0.50	0.47	0.64
Mozambique	na	na	na	na	ne	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne
Namibia	na	na	na	ne	ne	ne	ne	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne
Niger	ne	na	na	na	ne	na	na	ne	na	na	ne	ne	ne	na	ne	na	ne	ne	na
Nigeria	0.47	ne	0.42	ne	0.70	0.42	0.33	0.39	0.30	0.37	0.36	0.23	0.23	0.27	0.26	0.30	0.35	0.38	0.30
Rwanda	na	na	ne	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Sierra Leone	na	na	na	na	ne	na	ne	na	na	na	na	na	na	na	na	na	na	ne	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South Africa	0.66	0.70	0.74	0.83	0.87	0.75	0.92	0.96	0.77	0.83	0.89	1.12	1.03	0.91	0.78	0.87	0.85	0.75	0.76
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Sudan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	na	ne	ne	ne	ne	na	na	ne	ne	na	na	ne	na	na	ne	na	ne	ne	ne
Tunisia	1.54	1.04	1.06	1.15	1.08	0.90	0.90	0.88	0.79	0.60	0.71	0.67	0.71	0.84	0.77	0.86	0.92	1.03	0.88
Uganda	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	ne	na	na	na	ne	ne	ne	ne	na	ne	ne	na	na	ne	na	ne	ne	ne	ne
Zimbabwe	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Asia	1.46	1.44	1.43	1.44	1.41	1.48	1.50	1.41	1.38	1.38	1.32	1.36	1.41	1.39	1.44	1.43	1.40	1.37	1.37
Afghanistan	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	ne	na	na	ne	ne
Bangladesh	ne	ne	1.07	1.04	0.86	1.15	0.84	0.76	0.60	0.62	0.71	0.74	0.64	0.58	0.46	0.59	0.48	0.47	0.53
Bhutan	na	na	na	na	na	na	ne	na	ne	ne	ne	na	na	na	ne	ne	na	na	na
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burma	ne	na	na	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	ne	ne	ne	ne
Cambodia	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	ne	na	ne	ne	ne
China	1.85	1.65	1.66	1.64	1.57	1.45	1.46	1.54	1.42	1.40	1.32	1.40	1.50	1.49	1.57	1.56	1.54	1.50	1.55
India	1.92	2.06	2.07	2.19	2.21	2.05	2.16	2.26	2.04	1.99	1.88	1.76	1.69	1.67	1.67	1.58	1.48	1.48	1.36
Indonesia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.43	0.44	0.80	0.58	0.58	0.57	0.38	0.46	0.42
Japan	1.25	1.26	1.22	1.22	1.21	1.69	1.69	1.18	1.24	1.23	1.20	1.18	1.23	1.20	1.21	1.22	1.19	1.25	1.19
Kazakhstan	3.65	2.80	2.52	2.91	3.64	4.02	3.50	2.70	3.44	2.82	2.72	1.55	1.82	1.68	1.12	0.88	0.77	0.80	0.59

TABLE S5A-21

Specialization of S&E articles in chemistry, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	na	na	ne	na	ne
Malaysia	1.37	1.72	1.21	1.65	1.25	1.44	1.36	1.31	1.32	1.40	1.56	1.47	1.35	1.10	1.09	1.13	1.07	0.95	0.94
Maldives	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	na	na
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	ne	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	1.52	1.23	1.48	1.54	1.64	1.48	1.77	1.71	1.89	1.80	1.84	1.45	1.43	1.43	1.08	1.23	1.13	1.04	0.93
Papua New Guinea	ne	ne	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na
Philippines	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.28
Singapore	0.67	0.72	0.64	0.73	0.66	0.64	0.67	0.78	0.96	1.19	1.21	1.34	1.29	1.33	1.34	1.32	1.25	1.07	1.02
South Korea	1.48	1.39	1.43	1.27	1.21	1.10	1.18	1.15	1.20	1.29	1.27	1.30	1.30	1.25	1.28	1.31	1.24	1.22	1.25
Sri Lanka	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Taiwan	1.14	1.12	1.04	1.05	0.99	0.89	0.95	0.83	0.94	0.94	0.90	0.92	1.05	0.91	0.98	0.94	0.98	1.07	1.07
Tajikistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	0.70	0.90	0.85	1.05	1.01	0.94	1.06	1.04	1.07	1.07	1.01	1.00	1.18	1.19	1.03	1.05	1.02	0.94	1.00
Timor-Leste	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Turkmenistan	na	na	ne	na	na	ne	na	na	na	na	na	na	na	na	na	na	ne	na	na
Uzbekistan	1.27	1.41	1.29	1.67	1.47	1.94	ne	ne	ne	ne	1.51	1.68	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.56	0.65	0.78	0.72	0.73	0.78	0.81	0.87	0.87
Australia and Oceania	0.58	0.56	0.51	0.60	0.55	0.48	0.49	0.50	0.48	0.54	0.54	0.53	0.53	0.51	0.51	0.55	0.52	0.51	0.50
Australia	0.59	0.58	0.52	0.62	0.57	0.49	0.49	0.50	0.48	0.54	0.55	0.53	0.54	0.51	0.52	0.55	0.53	0.52	0.50
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fiji	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia, Federated States of	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	0.52	0.49	0.49	0.52	0.47	0.44	0.51	0.52	0.52	0.53	0.54	0.54	0.47	0.54	0.48	0.57	0.46	0.49	0.52
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	ne	na	na	na	na	na	ne	na	na	na	ne	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Solomon Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

TABLE S5A-21

Specialization of S&E articles in chemistry, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.49	0.40	0.39	0.35	0.50	0.48	0.29	0.25	0.26	0.23	0.18	0.12	0.12	0.13	0.24	0.35	0.21	0.33	0.41

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-22

Specialization of S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.03	0.99	0.99	1.02	0.94	0.91	0.88	0.85	0.76	0.71	0.66	0.70	0.71	0.76	0.74	0.76	0.72	0.72	0.73
Canada	1.16	1.18	1.23	1.30	1.25	1.26	1.19	1.26	1.04	1.00	0.89	0.93	0.96	0.98	0.96	0.95	0.91	0.86	0.87
Greenland	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	na
Mexico	0.61	0.57	0.54	0.74	1.06	0.96	0.91	0.76	0.72	0.69	0.64	0.65	0.63	0.85	0.80	0.76	0.72	0.69	0.68
United States	1.03	0.98	0.97	0.99	0.90	0.87	0.84	0.80	0.72	0.67	0.63	0.67	0.68	0.72	0.70	0.74	0.70	0.71	0.72
Central America and Caribbean	ne	ne	ne	0.50	0.37	0.42	0.37	0.45	0.38	0.32	0.37	0.33	0.39	0.53	0.56	0.51	0.49	0.61	0.75
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Bahamas, The	ne	ne	ne	na	na	ne	ne	na	ne	ne	ne	ne	na	na	ne	ne	ne	na	na
Barbados	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne
Belize	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na	na	ne	na	ne	na
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.96	0.81	0.67	1.24
Cuba	ne	ne	ne	ne	ne	0.45	0.36	0.40	0.44	0.23	0.41	0.29	0.39	0.57	0.62	0.45	0.45	0.54	0.99
Dominica	na	na	na	na	na	ne	na	ne	na	na	na	na	ne	na	na	na	ne	ne	na
Dominican Republic	na	na	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne
El Salvador	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne
Grenada	na	ne	na	na	na	na	ne	na	ne	na	ne	na	ne	na	na	na	na	na	na
Guatemala	na	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	na	na	na	na	na	na	na	ne	na	na	na	ne	na	ne	na	ne	ne	ne	na
Honduras	na	na	na	na	ne	na	na	ne	ne	ne	na	ne	ne	na	ne	ne	na	ne	ne
Jamaica	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	na	ne	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne
Panama	ne	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	0.72	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.67	ne
Saint Kitts and Nevis	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Lucia	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	0.69	0.64	0.68	0.60	0.67	0.60	0.63	0.56	0.54	0.50	0.47	0.54	0.61	0.63	0.71	0.69	0.72	0.75	0.83
Argentina	0.29	0.19	0.27	0.14	0.25	0.29	0.32	0.30	0.34	0.27	0.28	0.31	0.33	0.32	0.39	0.33	0.38	0.37	0.37
Bolivia	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.90	0.85	0.87	0.77	0.80	0.69	0.69	0.59	0.59	0.53	0.50	0.58	0.63	0.67	0.73	0.69	0.71	0.74	0.75
Chile	0.43	0.45	0.46	0.52	0.63	0.58	0.61	0.64	0.57	0.60	0.45	0.57	0.51	0.63	0.66	0.62	0.70	0.61	0.66
Colombia	ne	ne	ne	0.68	0.48	0.46	0.63	0.61	0.55	0.64	0.52	0.71	1.05	0.76	0.94	1.10	0.89	0.93	1.32
Ecuador	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.30	2.13	2.55	2.51	3.31
Guyana	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	ne	na	ne	na	na

TABLE S5A-22

Specialization of S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.59	0.85	1.02	1.42	1.59
Suriname	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.68	0.67	0.73	1.04	1.04	1.15	1.13	1.11	0.86	0.84
Venezuela	0.57	0.58	0.65	ne	0.41	0.53	0.81	0.61	0.40	0.31	0.48	0.28	0.53	0.51	0.64	0.37	0.39	0.45	0.54
Europe	0.90	0.88	0.90	0.89	0.87	0.89	0.92	0.92	0.89	0.86	0.86	0.90	0.92	0.98	0.99	0.98	0.93	0.93	0.89
EU	0.94	0.91	0.94	0.92	0.91	0.93	0.96	0.96	0.93	0.90	0.89	0.94	0.95	1.02	1.03	1.01	0.95	0.92	0.90
Austria	1.07	1.11	1.22	1.20	1.05	1.24	1.36	1.37	1.31	1.33	1.28	1.36	1.44	1.54	1.50	1.52	1.40	1.39	1.33
Belgium	0.91	0.87	0.90	0.90	0.81	0.88	0.94	0.86	0.88	0.79	0.76	0.83	0.86	0.85	0.83	0.85	0.81	0.76	0.79
Bulgaria	0.54	0.88	0.79	0.88	0.83	0.54	0.66	0.94	0.94	0.60	0.88	1.09	0.89	0.86	0.81	1.01	1.00	1.03	1.06
Croatia	1.32	0.83	0.67	1.56	1.09	1.37	1.39	1.16	1.11	1.09	0.98	1.03	1.06	1.00	0.98	1.02	0.99	0.96	1.00
Cyprus	4.56	ne	2.81	2.84	2.53	2.53	3.18	2.11	2.02	1.71	1.42	1.80	2.13	1.97	2.05	1.76	2.08	1.87	1.36
Czechia	0.75	0.80	0.80	0.93	0.85	0.95	1.02	1.10	1.09	1.01	1.01	1.12	1.01	1.17	1.08	1.12	1.00	1.03	0.93
Denmark	0.64	0.64	0.68	0.61	0.63	0.63	0.71	0.68	0.61	0.65	0.62	0.63	0.68	0.74	0.69	0.68	0.69	0.60	0.66
Estonia	ne	ne	ne	ne	ne	0.68	0.60	0.57	0.69	0.68	0.88	0.97	0.86	1.07	1.19	1.14	1.20	1.25	1.26
Finland	1.59	1.28	1.55	1.41	1.47	1.49	1.66	1.52	1.33	1.32	1.27	1.34	1.34	1.55	1.43	1.50	1.40	1.35	1.32
France	1.00	0.87	1.01	0.93	0.89	0.99	1.00	0.99	0.99	0.94	0.93	0.99	1.06	1.10	1.19	1.15	1.05	1.02	0.99
Germany	0.88	0.88	0.83	0.86	0.84	0.90	0.92	0.90	0.94	0.92	0.94	0.95	0.96	1.05	1.07	1.04	0.96	0.91	0.93
Greece	2.11	1.74	1.77	1.59	1.61	1.57	1.54	1.52	1.45	1.35	1.25	1.32	1.49	1.55	1.74	1.68	1.58	1.46	1.50
Hungary	0.82	0.83	0.80	0.79	0.84	0.85	0.89	1.09	0.81	0.95	0.80	0.98	1.02	1.25	1.12	0.96	1.13	1.05	1.07
Ireland	1.05	1.00	1.26	1.42	1.58	1.54	1.73	1.59	1.41	1.37	1.27	1.16	1.22	1.28	1.24	1.18	1.29	1.21	1.14
Italy	1.09	1.07	1.06	1.02	0.99	1.00	0.94	0.93	0.88	0.87	0.83	0.89	0.85	0.99	0.97	0.95	0.91	0.92	0.83
Latvia	ne	1.85	ne	ne	ne	1.69	1.57	1.04	1.17	1.16	1.61	1.31	1.42	1.40	1.37	1.54	1.67	1.13	1.54
Lithuania	1.54	1.03	0.74	0.67	0.96	0.64	0.82	0.76	0.42	0.42	0.60	0.42	0.70	0.62	0.61	0.75	0.62	0.72	0.81
Luxembourg	ne	ne	ne	ne	ne	ne	3.10	2.88	3.11	2.88	3.01	2.92	3.19	3.35	3.46	3.34	2.92	3.06	3.06
Malta	ne	ne	ne	ne	ne	ne	ne	ne	1.67	ne	2.04	1.76	1.70	1.62	1.52	1.56	1.74	1.50	1.42
Netherlands	0.90	0.92	0.90	0.86	0.86	0.85	0.85	0.88	0.84	0.79	0.73	0.78	0.76	0.79	0.78	0.75	0.67	0.66	0.66
Poland	0.58	0.63	0.68	0.44	0.73	0.51	0.65	0.76	0.74	0.57	0.71	0.71	0.85	0.80	0.89	0.91	0.89	0.77	0.79
Portugal	1.74	1.58	1.50	1.71	1.38	1.25	1.32	1.48	1.29	1.25	1.17	1.42	1.35	1.40	1.49	1.48	1.27	1.34	1.26
Romania	0.81	0.76	0.78	0.67	0.77	0.98	0.80	1.30	1.06	1.11	1.28	1.18	1.04	1.08	0.97	1.07	1.04	0.83	0.98
Slovakia	0.70	0.92	0.75	0.77	0.72	0.99	1.00	0.95	0.89	0.95	0.91	1.02	1.11	1.18	0.98	1.21	1.04	0.84	0.87
Slovenia	2.19	1.85	1.86	2.20	1.61	1.25	1.28	1.13	0.99	0.99	0.89	0.91	0.94	0.96	1.05	1.07	0.85	1.02	0.98
Spain	0.94	0.98	1.06	1.09	1.12	1.01	1.05	1.08	0.99	1.02	0.96	1.03	1.01	1.05	1.01	0.94	0.87	0.88	0.81
Sweden	0.89	0.77	0.84	0.85	0.80	0.79	0.79	0.80	0.72	0.71	0.75	0.84	0.90	0.94	0.94	0.93	0.91	0.84	0.81
United Kingdom	0.78	0.80	0.80	0.80	0.75	0.81	0.82	0.81	0.80	0.75	0.74	0.74	0.72	0.83	0.83	0.83	0.79	0.81	0.77
Other Europe	0.68	0.74	0.69	0.70	0.67	0.64	0.70	0.70	0.64	0.62	0.65	0.67	0.74	0.80	0.77	0.84	0.85	0.99	0.86

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Specialization of S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.72	ne	2.17
Andorra	na	ne	na	na	na	na	ne	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne
Belarus	1.13	1.18	0.83	0.70	1.00	0.72	0.67	0.83	0.61	0.77	0.88	0.75	0.85	1.10	0.88	0.73	0.66	0.75	0.56
Bosnia and Herzegovina	ne	ne	ne	ne	ne	1.38	ne	1.33	1.42	0.92	1.30	1.63	2.16	1.61	1.94	1.61	1.86	1.03	1.21
Holy See (Vatican City)	na	na	na	na	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	0.84	1.08	0.98	1.32	1.24	1.22	1.14	1.30	1.49	1.21	1.26
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	na	na	na	na	na	na	ne	ne	na	na	na	ne	na	ne	ne	ne	na	na	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	2.59	2.69	3.14	3.14	2.98	3.00	1.92	2.30	2.15
North Macedonia	ne	ne	ne	ne	ne	2.32	ne	1.98	1.80	2.10	2.11	2.59	2.54	2.13	2.67	2.42	1.58	2.69	2.22
Norway	0.56	0.65	0.60	0.71	0.74	0.75	0.94	0.87	0.88	0.84	0.85	0.77	0.82	0.80	0.81	0.83	0.78	0.79	0.79
Russia	0.50	0.50	0.50	0.44	0.42	0.41	0.41	0.41	0.38	0.36	0.42	0.39	0.47	0.54	0.62	0.74	0.77	0.98	0.73
San Marino	na	na	na	na	na	na	na	ne	ne	na	na	na	ne	na	na	na	na	na	ne
Serbia[a]	na	na	na	na	na	na	na	0.86	0.69	0.90	0.89	1.26	1.18	1.22	0.85	1.10	1.00	1.12	1.00
Serbia and Montenegro[b]	1.71	2.41	1.21	1.64	0.72	1.34	0.74	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.83	0.88	0.86	0.94	0.88	0.86	0.86	0.83	0.78	0.80	0.72	0.76	0.77	0.83	0.83	0.80	0.75	0.69	0.70
Turkey	0.63	0.42	0.38	0.44	0.54	0.55	0.65	0.61	0.56	0.58	0.54	0.63	0.66	0.73	0.77	0.75	0.76	0.87	0.84
Ukraine	1.18	1.82	1.95	2.01	1.78	1.19	1.69	1.84	1.38	1.07	1.56	1.18	1.50	1.73	1.14	1.72	2.06	2.31	2.17
Middle East	1.22	1.11	1.20	1.09	1.13	1.05	1.14	1.14	1.27	1.18	1.14	1.13	1.02	1.03	1.01	1.02	0.93	0.92	0.92
Armenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.07	ne	ne	0.63	0.66	0.87
Azerbaijan	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.13	0.46	1.01	2.39	0.89	1.09	0.75	1.01	1.08	0.39
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.59	1.59	ne	ne	ne	ne	ne	ne	1.14
Gaza Strip	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.35	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.92	0.87	1.02	ne	ne	ne	ne	0.71	0.61
Iran	1.23	1.10	1.33	1.19	1.29	1.24	1.03	1.24	1.40	1.29	1.14	1.05	0.77	0.75	0.75	0.76	0.69	0.65	0.61
Iraq	ne	ne	ne	ne	ne	ne	1.60	ne	1.19	0.98	1.53	1.64	1.69	1.09	1.56	1.31	1.41	1.40	1.04
Israel	1.42	1.26	1.39	1.18	1.19	1.06	1.27	1.08	1.20	1.00	1.08	1.06	1.22	1.22	1.24	1.13	1.10	1.13	1.02
Jordan	ne	ne	ne	1.05	1.05	1.16	1.02	1.13	1.36	1.24	1.64	1.64	1.42	1.70	1.58	1.99	1.77	1.98	2.05
Kuwait	ne	ne	1.10	ne	ne	0.86	0.97	0.98	0.82	1.15	1.18	1.57	0.99	0.96	1.13	1.09	1.21	1.03	2.17
Lebanon	ne	ne	ne	1.13	1.49	1.26	1.38	1.48	1.26	1.70	1.32	1.72	1.92	1.74	1.76	1.85	1.63	1.30	1.52
Oman	ne	ne	ne	ne	ne	ne	ne	0.89	0.90	1.07	0.76	1.05	1.18	1.21	0.85	1.05	1.24	0.94	1.54
Qatar	na	ne	ne	ne	ne	ne	ne	ne	1.63	1.09	1.42	1.39	2.23	2.96	2.32	2.26	1.96	1.80	1.62
Saudi Arabia	0.95	0.85	0.58	0.65	0.63	0.51	0.80	0.88	0.97	1.04	1.06	1.23	1.18	1.39	1.28	1.36	1.15	1.15	1.30

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Specialization of S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	1.78	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	1.36	1.69	1.97	1.86	2.47	2.32	1.99	1.81	1.74	2.37	1.84	1.97	1.79	1.71	1.67	1.68	1.55
West Bank	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.59
Yemen	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	0.66	0.59	0.79	0.52	0.65	0.61	0.71	0.72	0.73	0.78	0.73	0.85	0.97	1.13	1.08	1.17	1.23	1.32	1.19
Algeria	ne	2.36	1.91	1.43	1.40	1.77	2.06	1.91	1.53	1.53	1.49	2.15	1.96	2.08	2.13	2.11	2.06	2.10	1.93
Angola	ne	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Benin	ne	na	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne
Cabo Verde	na	na	na	na	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.49
Central African Republic	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chad	na	na	na	na	na	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	ne
Congo, Democratic Republic of the	na	na	na	na	na	ne	ne	na	na	na	na	na	na	na	na	ne	ne	ne	ne
Congo, Republic of the	ne	na	na	na	ne	ne	ne	na	ne	ne	na	na	na	ne	na	ne	ne	ne	ne
Côte d'Ivoire	na	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	ne	na	na	na	na	na	ne	ne	na	na	na	na	ne
Egypt	1.26	0.99	1.13	0.80	0.76	0.88	0.86	0.94	0.95	1.03	0.91	0.89	0.99	1.11	0.93	0.97	1.07	0.87	0.94
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	na	ne	na
Eritrea	na	na	ne	ne	na	na	na	na	na	na	ne	ne	na	ne	na	na	na	ne	na
Eswatini	na	na	ne	ne	na	na	ne	ne	ne	na	na	na	na	ne	ne	ne	ne	ne	ne
Ethiopia	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	0.53	ne	ne	0.66	0.28	0.32	0.30
Gabon	na	ne	na	na	ne	na	na	na	ne	ne	na	na	ne	na	ne	ne	ne	na	na
Gambia, The	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	na	ne
Ghana	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.32	0.41	0.60
Guinea	na	na	na	na	na	ne	ne	na	ne	na	na	na	na	ne	ne	na	na	ne	na
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Kenya	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	0.38	ne	0.38	0.44	0.48	0.29
Lesotho	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	ne	ne	ne	ne
Liberia	na	na	na	na	na	na	ne	ne	na	na	ne	na	ne	na	na	ne	na	na	ne
Libya	ne	ne	na	ne	ne	ne	ne	ne	ne	1.36	1.98	ne	ne	2.19	2.46	1.96	ne	ne	ne
Madagascar	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	na	na	na	na	na	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Mauritania	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.14	ne	ne	2.17	1.91	ne
Morocco	ne	ne	ne	ne	ne	0.47	0.50	0.55	0.77	1.13	0.83	1.40	2.04	1.70	2.03	2.70	2.70	3.20	2.73
Mozambique	na	na	na	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Namibia	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.70	2.25
Niger	na	na	na	na	ne	na	na	na	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne
Nigeria	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.18	0.20	0.28	0.30	0.48	0.47	0.52	0.62	0.68	0.71
Rwanda	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Senegal	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.87	0.87	1.32	2.32
Seychelles	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Sierra Leone	na	na	na	na	na	ne	na	ne	na	ne	na	na	na	na	ne	ne	ne	ne	na
Somalia	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	ne	ne
South Africa	0.46	0.48	0.82	0.54	0.76	0.50	0.65	0.68	0.61	0.60	0.54	0.73	0.64	0.86	0.69	0.87	0.81	1.01	0.77
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na
Sudan	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.18	ne	1.71	2.94	2.44	3.35
Tanzania	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	ne	na	ne	ne	ne
Tunisia	1.29	1.10	2.06	0.71	1.29	1.17	1.35	1.21	1.35	1.31	1.36	1.30	1.77	2.09	2.43	2.12	2.35	2.56	2.29
Uganda	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.50
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	na	na	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Asia	1.21	1.30	1.26	1.25	1.34	1.31	1.27	1.28	1.40	1.47	1.51	1.42	1.38	1.24	1.24	1.22	1.28	1.26	1.26
Afghanistan	na	na	na	ne	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne
Bangladesh	ne	ne	ne	2.61	0.90	0.97	0.86	2.46	1.71	1.95	2.32	1.66	2.67	2.14	2.92	2.77	2.98	3.56	2.82
Bhutan	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.60	1.47	ne
Burma	na	ne	na	ne	ne	6.98	ne	ne	ne	5.11	4.65	5.58	ne	ne	ne	ne	3.25	2.49	3.91
Cambodia	na	na	na	na	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
China	1.44	1.78	1.62	1.47	1.63	1.57	1.51	1.44	1.70	1.81	1.92	1.64	1.58	1.23	1.16	1.06	1.13	1.11	1.24
India	0.64	0.55	0.71	0.79	0.78	0.73	0.77	0.89	0.98	1.02	1.07	1.33	1.23	1.42	1.58	1.95	2.03	1.85	1.72
Indonesia	ne	ne	ne	ne	ne	0.58	0.66	0.82	1.25	2.08	1.50	2.81	2.05	2.44	2.88	2.64	2.08	2.01	1.08
Japan	0.90	0.86	0.87	0.82	0.80	0.75	0.71	0.76	0.76	0.76	0.74	0.77	0.84	0.89	0.91	0.86	0.97	0.93	0.87
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.74	0.81	0.51	1.26	1.11	0.88	0.80	0.83

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne
Laos	na	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	3.45	1.98	1.43	2.75	2.20	2.10	1.87	2.42	2.57	2.45	2.33	2.26	2.02	2.02	2.03	1.99	1.59	1.74	1.39
Maldives	na	na	na	ne	na	na	na	ne	ne	na	na	na	na	na	ne	na	na	ne	na
Mongolia	na	na	na	na	na	ne	ne	4.68	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.44
North Korea	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	ne	0.57	0.49	1.04	1.39	1.68	1.33	1.27	1.29	1.42	1.18	1.00	1.08	1.27	1.09	1.08	1.27	1.36	1.46
Papua New Guinea	ne	ne	na	na	na	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Philippines	ne	ne	ne	ne	ne	ne	ne	0.89	0.68	0.63	0.78	0.94	1.26	0.63	1.57	0.58	1.87	2.13	2.36
Singapore	3.21	2.87	2.76	2.99	2.74	2.35	2.09	2.09	1.76	1.76	1.60	1.69	1.81	1.90	1.78	1.66	1.74	1.60	1.46
South Korea	1.71	1.65	1.67	1.80	1.84	1.80	1.82	1.55	1.30	1.26	1.01	1.13	1.09	1.03	1.02	0.95	0.95	0.96	0.90
Sri Lanka	ne	ne	ne	ne	ne	ne	1.66	1.55	1.23	1.38	1.82	1.89	1.66	2.97	1.25	1.33	1.69	2.09	2.25
Taiwan	2.31	2.32	2.09	1.89	1.93	1.89	1.76	1.94	1.86	1.82	1.63	1.75	1.78	1.63	1.73	1.62	1.65	1.62	1.48
Tajikistan	na	na	na	ne	ne	ne	ne	ne	na	na	na	ne	ne	na	na	ne	ne	ne	ne
Thailand	1.10	1.20	1.27	1.31	2.04	1.26	1.13	1.25	1.01	1.14	1.07	1.07	0.94	1.07	1.31	1.19	1.20	1.37	1.14
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne
Turkmenistan	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	na	ne	na	na	na
Uzbekistan	ne	ne	na	ne	ne	ne	ne	1.30	ne	ne	1.23	ne	ne	ne	ne	ne	ne	0.93	0.99
Vietnam	ne	ne	ne	ne	ne	ne	1.43	1.55	1.63	1.69	2.10	1.97	2.49	2.62	2.30	2.62	2.84	2.49	1.76
Australia and Oceania	0.96	1.04	0.92	1.07	1.05	1.19	1.05	1.11	0.96	0.84	0.81	0.75	0.79	0.84	0.82	0.78	0.76	0.72	0.73
Australia	1.00	1.07	0.94	1.13	1.08	1.24	1.08	1.15	0.97	0.85	0.82	0.76	0.80	0.83	0.79	0.77	0.73	0.70	0.71
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na
Fiji	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.01	ne	3.19	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia, Federated States of	na	na	na	na	na	ne	na	ne	na	ne	na	na	ne	na	na	na	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	0.75	0.90	0.86	0.78	0.88	0.89	0.92	0.87	0.92	0.79	0.75	0.70	0.76	0.93	0.96	0.79	0.90	0.87	0.82
Niue	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	ne	ne	na	ne	na
Solomon Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na
Tuvalu	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Vanuatu	na	na	ne	na	na	na	na	na	na	na	na	ne	na	ne	na	na	na	na	na

TABLE S5A-22

Specialization of S&E articles in computer and information sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.57	0.61	0.73	0.42	0.45	0.56	0.72	0.94	0.90	0.48	0.25	0.28	0.21	0.25	0.36	0.38	0.32	0.27	0.32

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.02	0.94	1.00	0.98	1.00	0.97	0.90	0.88	0.90	0.86	0.88	0.85	0.85	0.83	0.84	0.79	0.80	0.79	0.77
Canada	1.05	0.96	1.11	1.03	1.07	1.04	0.99	0.97	1.01	0.95	1.02	0.89	0.92	0.90	0.93	0.90	0.95	0.91	0.87
Greenland	ne	na	na	na	na	ne	ne	ne	na	na	na	ne	na	ne	ne	na	ne	na	ne
Mexico	1.02	1.05	1.02	0.98	0.98	0.84	0.96	0.89	0.97	0.98	0.95	1.05	0.90	0.88	0.83	0.80	0.83	0.79	0.78
United States	1.02	0.94	0.98	0.97	0.99	0.96	0.89	0.87	0.88	0.85	0.86	0.84	0.84	0.82	0.82	0.78	0.78	0.78	0.76
Central America and Caribbean	0.33	0.36	0.43	0.57	0.50	0.55	0.56	0.50	0.48	0.44	0.43	0.40	0.41	0.70	0.46	0.45	0.45	0.48	0.55
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne	na	na
Bahamas, The	na	ne	na	na	na	na	na	ne	na	na	na	na	ne	ne	na	ne	ne	ne	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	na	na	na	na	ne	na	na	na	ne	ne	na	na	ne	ne	na	na	ne	na	na
Costa Rica	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.58	0.58	0.80	0.74
Cuba	ne	0.30	ne	0.49	ne	0.33	0.28	0.22	0.41	0.25	0.23	0.29	0.27	0.80	0.33	0.43	0.28	0.38	0.44
Dominica	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	ne	ne	na	ne
Dominican Republic	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Grenada	na	ne	na	na	ne	ne	na	na	na	na	ne	na	na	ne	na	ne	ne	na	ne
Guatemala	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	na
Honduras	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	0.64	0.87	0.85	0.97	1.16	1.23	1.06	0.65	0.77	0.72	0.71	0.74	0.96	0.80	0.70	0.58	0.75	0.56
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na
Saint Lucia	na	na	na	na	na	ne	na	ne	na	na	na	ne	na	na	na	na	na	ne	ne
Saint Vincent and the Grenadines	na	na	na	na	na	ne	na	ne	na	na	na	na	na	na	na	na	na	na	ne
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.99	1.07	ne	ne	ne	0.82	ne	0.89	ne	ne
South America	0.77	0.80	0.66	0.75	0.68	0.67	0.67	0.54	0.56	0.62	0.58	0.60	0.56	0.62	0.57	0.60	0.58	0.58	0.58
Argentina	0.52	0.69	0.52	0.61	0.50	0.54	0.72	0.45	0.46	0.47	0.50	0.43	0.44	0.43	0.44	0.46	0.52	0.46	0.41
Bolivia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.89	0.85	0.69	0.80	0.71	0.71	0.64	0.56	0.55	0.65	0.56	0.60	0.55	0.61	0.54	0.59	0.55	0.56	0.56
Chile	0.77	0.69	0.75	0.76	0.69	0.68	0.70	0.52	0.64	0.58	0.69	0.54	0.63	0.55	0.63	0.60	0.68	0.60	0.59
Colombia	0.58	0.79	0.60	0.76	0.99	0.73	0.91	0.71	0.87	0.82	0.98	1.10	0.96	1.15	1.05	0.92	0.85	0.90	0.85
Ecuador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.89	0.75	0.86	0.87	0.95
Guyana	na	ne	na	na	ne	na	na	ne	na	ne	ne	na	ne	ne	ne	na	ne	ne	na

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.61	0.39	0.49	0.46	0.51	0.52	0.53	0.55	0.54
Suriname	na	na	na	na	na	na	na	ne	ne	ne	na	ne	ne	ne	na	ne	na	ne	na
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.44	0.55	0.46	0.56	0.47	0.46	0.37	0.56	0.42	0.36
Venezuela	0.84	0.97	0.81	0.79	0.80	0.66	0.90	0.61	0.60	0.49	0.44	0.52	0.54	0.56	0.45	0.42	0.41	0.39	0.40
Europe	0.78	0.80	0.81	0.80	0.77	0.78	0.78	0.80	0.80	0.81	0.82	0.79	0.83	0.82	0.85	0.86	0.86	0.87	0.85
EU	0.76	0.76	0.77	0.78	0.75	0.77	0.78	0.80	0.81	0.81	0.83	0.80	0.85	0.83	0.86	0.87	0.86	0.88	0.85
Austria	0.70	0.67	0.59	0.73	0.69	0.78	0.77	0.82	0.79	0.81	0.86	0.78	0.87	0.85	0.79	0.86	0.88	0.82	0.83
Belgium	0.66	0.69	0.70	0.64	0.65	0.69	0.68	0.69	0.71	0.77	0.74	0.76	0.80	0.78	0.77	0.76	0.78	0.79	0.76
Bulgaria	0.54	0.86	0.67	0.85	0.80	1.16	0.92	1.04	0.67	0.94	0.59	0.70	0.56	0.56	0.66	0.61	0.83	0.88	1.07
Croatia	0.84	0.90	0.91	0.89	0.63	0.91	0.70	0.86	0.75	0.89	1.01	0.79	0.77	0.79	0.83	0.91	0.79	0.94	0.91
Cyprus	ne	ne	ne	ne	0.92	1.20	0.86	1.17	1.01	1.35	1.29	1.18	1.09	1.23	1.16	1.29	1.20	1.04	1.04
Czechia	0.48	0.48	0.55	0.60	0.52	0.73	0.82	0.79	0.69	0.82	0.92	0.92	0.92	0.87	0.96	0.99	0.91	0.97	0.87
Denmark	0.64	0.59	0.65	0.66	0.66	0.68	0.67	0.70	0.64	0.74	0.68	0.77	0.76	0.76	0.77	0.84	0.75	0.79	0.80
Estonia	0.78	0.85	0.69	0.63	0.67	0.90	1.09	1.04	1.29	0.96	1.09	0.91	1.18	0.82	1.05	0.96	1.02	0.88	0.91
Finland	0.79	0.86	0.89	0.92	0.78	0.98	0.84	0.87	0.85	0.83	0.81	0.78	0.80	0.82	0.85	0.88	0.80	0.84	0.81
France	0.74	0.73	0.81	0.82	0.76	0.75	0.79	0.80	0.80	0.81	0.81	0.79	0.84	0.83	0.82	0.82	0.80	0.81	0.77
Germany	0.78	0.74	0.73	0.74	0.71	0.71	0.74	0.76	0.78	0.79	0.81	0.79	0.88	0.81	0.86	0.88	0.94	0.90	0.91
Greece	0.98	1.05	1.02	1.08	0.97	0.89	0.93	1.00	0.88	0.88	0.92	0.93	0.93	0.97	0.96	1.06	1.06	0.94	0.89
Hungary	0.69	0.58	0.63	0.71	0.57	0.54	0.62	0.58	0.56	0.53	0.70	0.59	0.66	0.61	0.67	0.70	0.63	0.71	0.72
Ireland	0.75	0.81	0.99	0.79	0.85	1.13	0.84	0.95	0.86	0.75	0.77	0.74	0.76	0.75	0.85	0.85	0.80	0.74	0.70
Italy	0.79	0.79	0.83	0.85	0.77	0.80	0.83	0.85	0.82	0.83	0.87	0.85	0.89	0.89	0.97	1.03	0.96	1.00	0.96
Latvia	ne	0.84	1.30	ne	0.83	1.00	1.10	1.25	1.85	1.07	1.37	1.12	1.28	1.11	1.44	1.06	1.02	1.22	1.18
Lithuania	1.48	1.83	1.19	1.15	1.17	1.50	1.47	1.71	2.27	1.74	1.99	1.95	1.57	1.58	1.59	1.22	1.22	1.40	1.08
Luxembourg	ne	ne	ne	ne	ne	ne	ne	0.98	0.61	0.62	0.52	0.56	0.69	0.74	0.75	0.74	0.78	0.91	0.83
Malta	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.80	0.92	0.76	0.65	0.76	0.94	0.83
Netherlands	0.80	0.81	0.77	0.77	0.78	0.78	0.78	0.77	0.80	0.76	0.78	0.70	0.76	0.73	0.72	0.70	0.71	0.75	0.72
Poland	0.84	0.94	0.88	0.71	0.79	0.82	0.84	0.88	1.01	0.98	1.02	0.92	1.05	1.03	1.08	1.05	1.08	1.15	1.08
Portugal	1.16	1.23	1.02	1.14	1.04	1.22	1.15	1.29	1.03	1.17	1.12	1.07	1.12	1.09	1.09	1.13	1.10	1.04	0.98
Romania	1.52	1.05	1.09	1.51	1.30	1.44	1.74	1.84	2.05	2.08	1.90	1.63	1.65	1.67	1.54	1.42	1.29	1.70	1.29
Slovakia	0.27	0.31	0.39	0.44	0.31	0.68	0.55	0.86	0.72	0.78	0.87	0.95	1.26	1.10	1.35	1.21	1.13	1.33	1.06
Slovenia	1.18	1.18	1.33	1.34	1.15	1.14	1.17	1.23	0.96	0.99	0.96	1.05	0.93	0.99	0.98	1.02	0.90	0.89	0.82
Spain	0.55	0.59	0.63	0.63	0.63	0.65	0.68	0.69	0.68	0.70	0.70	0.69	0.72	0.73	0.78	0.74	0.70	0.68	0.71
Sweden	0.82	0.74	0.75	0.84	0.79	0.78	0.80	0.77	0.80	0.83	0.81	0.81	0.87	0.87	0.87	0.85	0.87	0.85	0.87
United Kingdom	0.78	0.76	0.76	0.74	0.76	0.75	0.72	0.70	0.73	0.69	0.68	0.67	0.70	0.67	0.71	0.71	0.75	0.74	0.73
Other Europe	0.89	1.05	1.04	0.96	0.89	0.83	0.81	0.83	0.78	0.76	0.76	0.72	0.75	0.78	0.81	0.82	0.84	0.84	0.85

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	ne	na	na	na	ne	na	na	na	ne	na	ne	ne	ne	ne	na	ne
Belarus	1.31	1.89	2.16	1.50	1.60	1.39	1.53	1.59	1.30	1.22	1.03	1.01	1.20	0.96	0.77	0.81	1.03	0.88	0.93
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	0.49	0.80	0.68	0.79	0.83	1.20	0.89	1.24	0.92	1.31	0.93
Holy See (Vatican City)	na	na	na	na	na	ne	na	na	na	na	na	na	ne	na	na	na	na	ne	na
Iceland	ne	ne	ne	ne	ne	ne	ne	0.68	0.49	0.56	0.42	0.44	0.51	0.52	0.56	0.65	0.72	0.54	0.42
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	1.55	ne	ne	1.53	0.85	1.08
Liechtenstein	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	ne	ne	ne	ne	ne	1.50	ne	ne	ne	1.37	1.10	ne	ne	0.90	ne	ne	2.01	1.42	ne
Monaco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	0.85	1.39	1.05	1.06
North Macedonia	ne	ne	ne	ne	ne	ne	ne	0.99	ne	ne	0.84	0.57	0.77	1.02	0.59	0.64	0.65	0.73	0.69
Norway	0.72	0.81	0.75	0.76	0.71	0.79	0.79	0.81	0.74	0.85	0.85	0.88	0.96	0.95	0.97	1.01	1.01	1.03	0.97
Russia	0.92	1.17	1.25	1.05	1.03	0.91	0.88	0.89	0.78	0.75	0.72	0.67	0.70	0.72	0.88	0.89	0.84	0.83	0.87
San Marino	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Serbia[a]	na	na	na	na	na	na	na	0.65	0.72	0.68	0.81	0.85	0.91	0.96	0.91	0.83	1.01	1.00	0.86
Serbia and Montenegro[b]	1.04	0.86	0.75	0.69	0.73	0.64	0.86	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.65	0.65	0.64	0.72	0.64	0.70	0.66	0.75	0.72	0.67	0.75	0.68	0.73	0.73	0.74	0.76	0.73	0.72	0.74
Turkey	0.86	0.82	0.73	0.78	0.73	0.66	0.72	0.75	0.75	0.78	0.74	0.69	0.67	0.72	0.64	0.67	0.75	0.84	0.80
Ukraine	1.42	1.59	1.40	1.53	1.32	1.27	1.12	1.01	1.00	0.90	0.86	0.83	0.97	1.00	1.08	0.93	1.04	0.84	0.92
Middle East	1.12	1.05	1.01	1.11	1.07	1.00	1.03	1.00	1.05	1.11	1.17	1.14	1.15	1.12	1.14	1.11	1.17	1.16	1.10
Armenia	1.16	0.84	0.80	ne	0.75	0.85	0.78	0.88	0.84	0.66	0.62	1.24	0.70	0.52	0.36	0.58	0.37	0.38	0.38
Azerbaijan	ne	ne	1.77	1.19	1.04	0.93	1.23	0.68	0.63	0.53	0.99	0.63	0.62	0.72	0.75	0.79	0.59	0.59	1.00
Bahrain	ne	ne	ne	ne	ne	ne	ne	1.25	ne	ne	0.91	ne	ne	ne	ne	ne	ne	0.80	1.27
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	0.58	0.50	0.79	0.43	ne	ne	0.42	ne	0.45	0.42	0.53
Iran	1.98	1.75	1.55	1.80	1.55	1.40	1.39	1.22	1.32	1.36	1.50	1.37	1.39	1.32	1.34	1.24	1.33	1.32	1.28
Iraq	ne	ne	ne	ne	ne	ne	0.97	0.86	1.14	1.02	0.96	1.27	1.24	1.32	1.28	1.47	1.29	1.07	0.91
Israel	0.72	0.71	0.66	0.69	0.72	0.69	0.66	0.67	0.67	0.72	0.58	0.64	0.63	0.65	0.66	0.69	0.65	0.64	0.64
Jordan	2.06	2.09	1.67	1.76	1.67	1.24	1.17	1.30	1.25	1.21	1.07	1.01	0.91	0.92	0.86	0.89	0.96	0.88	0.86
Kuwait	2.22	1.80	1.77	1.72	1.65	1.38	1.63	1.47	1.29	1.19	1.35	1.25	1.31	1.30	1.29	1.37	1.34	1.25	0.99
Lebanon	1.29	0.85	1.28	0.89	0.97	0.87	0.88	0.79	0.84	0.72	0.91	0.94	0.96	1.18	1.00	1.07	1.17	1.03	1.05
Oman	1.48	1.55	1.50	1.20	1.39	1.28	1.19	1.33	1.10	1.25	1.08	1.06	1.12	0.88	0.90	1.42	1.11	1.15	1.13
Qatar	ne	ne	ne	ne	ne	ne	ne	ne	1.22	1.31	1.23	1.32	1.40	1.25	1.53	1.39	1.46	1.34	1.40
Saudi Arabia	1.64	1.44	1.30	1.35	1.16	1.16	1.12	1.11	0.97	1.09	0.86	0.88	0.96	0.96	0.96	0.98	1.10	1.06	0.98

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.67	ne	ne	0.72	ne	0.75	ne
United Arab Emirates	2.04	1.67	1.94	1.98	1.52	1.35	1.21	1.32	1.31	1.59	1.60	1.64	1.90	1.92	1.86	1.88	1.91	1.82	1.41
West Bank	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.74
Yemen	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	0.92	0.84	0.84	0.84	0.93	0.85	0.79	0.82	0.77	0.82	0.77	0.77	0.81	0.86	0.83	0.81	0.91	0.91	0.89
Algeria	2.42	1.90	1.85	2.10	2.41	1.67	1.76	1.65	1.68	1.75	1.70	1.75	1.84	1.91	1.75	1.85	1.75	1.88	1.59
Angola	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Benin	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.10	ne	ne
Burkina Faso	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	ne	na	na	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cabo Verde	na	na	na	ne	na	na	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.45	0.44	0.36	0.37	0.37	0.45	0.52	0.44
Central African Republic	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	na	na	ne	ne
Chad	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne
Congo, Democratic Republic of the	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Egypt	1.33	1.34	1.25	1.17	1.35	1.05	1.12	1.07	0.96	0.95	0.92	0.85	0.87	0.96	0.96	0.94	0.96	0.99	0.99
Equatorial Guinea	na	na	na	na	na	ne	na	ne	na	na	ne	na	na	na	na	na	na	na	na
Eritrea	na	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	na	ne	ne	na
Eswatini	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ethiopia	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.48	ne	ne	ne	0.25	0.25	0.24	0.29	0.30	0.30
Gabon	na	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	na	na	na	na	na	na	ne	na	na	na	ne	ne	ne	na	ne	na	ne
Ghana	ne	ne	ne	ne	ne	ne	ne	ne	1.28	0.86	0.54	0.64	0.48	0.46	0.43	0.43	0.42	0.51	0.39
Guinea	na	ne	na	na	ne	ne	ne	na	na	na	ne	ne	na	ne	na	ne	ne	ne	ne
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na
Kenya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.22	0.20	0.26	0.21	0.22	0.26
Lesotho	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne
Liberia	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	ne	na	ne	ne	ne	ne
Libya	ne	ne	ne	ne	ne	2.51	ne	2.06	1.97	0.85	0.76	ne	1.47	1.32	1.64	1.56	1.36	2.00	1.60
Madagascar	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.34	1.41	ne
Morocco	0.89	0.73	0.87	0.68	0.91	0.84	0.73	0.90	0.70	0.65	0.58	0.52	0.46	0.66	0.75	0.53	1.14	1.16	1.12
Mozambique	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Namibia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	0.48	0.34	0.49	0.46	0.63	0.42	0.30	0.32	0.35	0.49	0.42	0.44	0.52	0.53	0.58	0.62	0.74	0.63	0.82
Rwanda	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	ne	na	na	na	na	na	na	na	ne	ne	na	ne	na	na	ne	na	na	na
Sierra Leone	na	ne	na	ne	ne	na	ne	na	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	ne	na
South Africa	0.88	0.86	0.78	0.83	0.77	0.94	0.87	0.96	0.71	0.77	0.87	0.72	0.88	0.76	0.79	0.69	0.86	0.73	0.73
South Sudan	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	ne	ne	na
Sudan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.45
Tanzania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.30
Togo	ne	na	ne	na	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Tunisia	1.11	0.76	0.88	0.80	1.11	0.89	0.78	0.84	1.00	1.10	0.89	1.17	0.93	1.21	1.08	1.11	1.09	1.19	1.30
Uganda	ne	ne	ne	ne	ne	1.38	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.56
Asia	1.46	1.52	1.42	1.42	1.42	1.40	1.44	1.43	1.40	1.40	1.36	1.40	1.36	1.37	1.32	1.34	1.31	1.29	1.30
Afghanistan	ne	na	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bangladesh	1.29	0.83	1.25	0.76	0.87	0.69	0.79	0.57	1.07	0.76	0.58	0.76	0.75	1.05	0.80	0.70	0.74	0.62	0.79
Bhutan	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.45	1.09	0.98	ne	2.23
Burma	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cambodia	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
China	2.21	2.33	2.10	2.00	1.95	1.88	1.92	1.84	1.72	1.70	1.65	1.78	1.65	1.64	1.58	1.60	1.56	1.53	1.50
India	0.89	0.77	0.81	0.72	0.74	0.77	0.87	0.77	0.81	0.81	0.77	0.79	0.93	0.91	0.91	0.85	0.91	1.00	1.04
Indonesia	1.26	1.52	1.46	0.96	1.16	0.86	1.01	0.96	1.11	0.91	1.16	0.80	1.02	1.24	0.95	1.01	0.87	0.90	1.23
Japan	1.08	1.03	0.99	1.07	1.01	0.94	0.98	1.03	1.02	1.06	1.03	0.97	1.00	1.04	0.94	0.97	0.89	0.90	0.89
Kazakhstan	ne	1.37	1.34	1.23	1.00	1.03	ne	ne	0.89	0.75	1.14	0.81	1.01	1.14	1.20	1.26	1.15	1.06	0.96

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	0.87	1.00	1.66	1.54	1.27	1.24	1.24	1.25	1.26	1.13	1.08	1.10	1.23	1.20	1.25	1.32	1.31	0.99	0.98
Maldives	na	na	na	ne	ne	na	na	na	ne	na	ne	na	na	na	na	na	ne	ne	ne
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.85	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.41	0.47	0.40	0.32
North Korea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	0.38	0.25	0.28	0.29	0.32	0.33	0.33	0.36	0.37	0.39	0.36	0.39	0.44	0.46	0.54	0.56	0.64	0.61	0.67
Papua New Guinea	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	ne	ne	ne	ne	ne	ne	ne	0.49	ne	0.54	0.59	0.37	0.45	0.56	0.52	1.11	0.87	0.59	0.59
Singapore	2.46	2.35	2.14	2.06	2.00	1.84	1.74	1.71	1.77	1.54	1.61	1.55	1.51	1.51	1.57	1.58	1.62	1.64	1.67
South Korea	1.60	1.67	1.49	1.44	1.28	1.20	1.12	1.24	1.25	1.22	1.23	1.16	1.23	1.22	1.24	1.26	1.23	1.22	1.23
Sri Lanka	ne	ne	ne	ne	0.95	0.63	0.95	1.05	1.10	0.55	0.52	0.46	0.59	0.53	0.82	0.92	1.45	0.97	1.20
Taiwan	1.92	1.84	1.74	1.76	1.59	1.54	1.56	1.49	1.44	1.43	1.39	1.36	1.30	1.41	1.31	1.22	1.22	1.15	1.15
Tajikistan	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	1.06	1.00	1.29	1.13	0.95	0.95	1.03	0.99	1.25	1.01	1.16	1.14	1.23	1.02	0.90	0.98	0.92	0.90	0.75
Timor-Leste	na	na	na	ne	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	ne
Turkmenistan	na	ne	ne	na	na	ne	ne	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Uzbekistan	0.99	0.92	0.98	ne	0.95	0.68	0.80	0.70	ne	0.65	ne	0.50	ne	0.54	0.63	ne	0.68	ne	ne
Vietnam	ne	ne	ne	ne	0.92	1.35	0.50	0.78	0.80	0.70	0.94	0.95	0.90	1.08	0.97	1.04	0.98	0.88	1.27
Australia and Oceania	0.75	0.77	0.75	0.77	0.73	0.77	0.77	0.77	0.78	0.77	0.76	0.87	0.81	0.79	0.80	0.78	0.78	0.78	0.80
Australia	0.78	0.80	0.80	0.80	0.76	0.82	0.81	0.81	0.80	0.80	0.79	0.90	0.84	0.83	0.83	0.81	0.81	0.80	0.82
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Fiji	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	ne	na	ne	na	na	na	ne	na	na	ne	ne	ne
Marshall Islands	na	na	na	na	na	na	na	ne	ne	na	na	ne	na	na	na	ne	na	na	na
Micronesia, Federated States of	na	na	na	na	na	ne	ne	na	na	na	na	na	na	ne	na	na	na	na	ne
Nauru	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	0.54	0.62	0.47	0.59	0.52	0.51	0.59	0.58	0.64	0.61	0.60	0.67	0.62	0.57	0.64	0.57	0.59	0.60	0.66
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne
Samoa	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na	na	ne	na	na	na
Solomon Islands	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	na	ne
Tonga	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	na	na	na	ne
Tuvalu	na	na	na	na	ne	na	na	na	na	na	na	ne	na	na	na	na	na	na	na
Vanuatu	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na

TABLE S5A-23

Specialization of S&E articles in engineering, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	1.10	0.98	1.51	1.06	1.33	1.30	1.33	1.39	1.13	0.93	0.56	0.69	0.64	0.72	0.58	0.52	0.42	0.31	0.35

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-24

Specialization of S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	0.98	1.00	1.02	1.03	1.12	1.05	1.11	1.10	1.07	1.10	1.13	1.10	1.11	1.14	1.11	1.10	1.13	1.11	1.18
Canada	1.35	1.36	1.34	1.18	1.29	1.19	1.28	1.25	1.24	1.25	1.22	1.32	1.28	1.23	1.24	1.24	1.24	1.13	1.27
Greenland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mexico	2.08	1.78	1.79	1.95	1.63	1.56	1.51	1.49	1.50	1.50	1.65	1.39	1.56	1.41	1.27	1.32	1.33	1.44	1.42
United States	0.93	0.95	0.97	1.00	1.09	1.03	1.07	1.07	1.04	1.07	1.10	1.06	1.08	1.11	1.09	1.07	1.11	1.10	1.15
Central America and Caribbean	1.30	1.72	1.33	1.80	2.36	1.85	1.95	1.25	1.87	1.53	1.69	1.21	1.51	1.08	1.43	1.57	1.73	1.39	1.87
Antigua and Barbuda	ne	na	na	na	ne	na	ne	na	na	na	ne	ne	na	na	ne	ne	ne	ne	na
Bahamas, The	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Costa Rica	ne	8.80	6.11	6.71	9.58	ne	8.71	ne	5.64	7.52	5.42	3.91	6.20	ne	3.61	4.76	4.22	2.64	3.57
Cuba	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.06
Dominica	na	ne	na	ne	na	ne	ne	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne
Dominican Republic	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Grenada	na	na	ne	na	na	na	na	na	na	na	ne	na	ne	na	ne	ne	ne	ne	ne
Guatemala	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	ne	na	ne	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Honduras	ne	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	1.75	1.74	2.06	1.89	ne	1.82	1.84	1.85	1.57	ne	ne	1.69	1.90	2.01	ne	ne
Saint Kitts and Nevis	na	na	ne	na	na	na	na	na	na	na	ne	na	ne	na	ne	na	na	ne	ne
Saint Lucia	na	na	na	ne	na	na	na	na	na	na	ne	na	na	na	ne	ne	ne	ne	na
Saint Vincent and the Grenadines	na	na	ne	na	na	na	na	ne	na	na	ne	na	na	ne	ne	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	1.22	1.26	1.26	1.47	1.26	1.36	1.15	1.16	1.15	1.20	1.11	1.19	1.20	1.23	1.15	1.16	1.16	1.17	1.20
Argentina	1.76	1.90	2.03	2.13	2.38	2.72	2.29	2.47	2.80	2.92	2.70	2.65	2.87	2.62	2.25	2.80	2.40	2.56	2.64
Bolivia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.79	0.75	0.82	1.18	0.80	0.88	0.71	0.77	0.71	0.77	0.69	0.82	0.79	0.95	0.88	0.86	0.93	0.94	0.98
Chile	2.11	2.44	1.82	1.99	2.15	2.02	2.19	2.14	1.94	1.95	2.06	1.93	2.11	1.65	1.76	1.69	1.47	1.58	1.55
Colombia	1.92	1.84	2.18	1.81	1.48	1.52	1.84	1.45	1.35	1.54	1.42	1.19	1.31	1.16	1.13	0.86	0.93	0.88	0.92
Ecuador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.39	0.99	0.85
Guyana	ne	ne	ne	na	na	ne	ne	ne	na	ne	na	na	ne	ne	ne	na	ne	ne	ne

TABLE S5A-24

Specialization of S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	2.75	ne	ne	ne	1.61	1.40	1.27	ne	1.09	0.99	1.08
Suriname	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.89	2.31	1.68	1.64	2.13	1.60	2.03	1.52
Venezuela	2.58	2.77	2.48	1.96	1.97	2.84	2.07	1.59	1.51	1.22	1.54	2.09	1.56	1.73	1.74	1.64	1.83	1.52	1.90
Europe	1.12	1.06	1.09	1.07	1.02	1.10	1.09	1.07	1.13	1.14	1.18	1.14	1.15	1.09	1.09	1.11	1.10	1.09	1.13
EU	1.02	1.00	1.02	1.02	0.95	1.03	1.01	1.00	1.05	1.06	1.09	1.06	1.08	1.00	1.01	1.02	1.02	0.99	1.03
Austria	0.88	1.06	0.81	0.75	0.87	0.83	0.75	0.82	0.95	0.99	0.87	0.99	0.93	0.84	0.89	0.80	0.99	0.94	0.95
Belgium	0.73	0.68	0.85	0.72	0.69	0.77	0.74	0.77	0.86	0.77	0.81	0.81	0.81	0.76	0.80	0.73	0.69	0.74	0.69
Bulgaria	0.55	0.56	0.87	0.71	0.65	0.78	0.76	0.97	0.84	0.82	0.89	0.85	0.79	0.92	0.82	1.14	0.68	0.73	0.56
Croatia	2.54	2.17	2.37	1.98	2.01	2.07	1.77	1.76	1.53	1.58	1.79	1.86	1.91	1.76	1.28	1.64	1.36	1.47	1.56
Cyprus	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Czechia	1.10	0.92	1.04	1.15	1.02	0.83	0.89	0.80	0.87	0.96	0.89	0.76	0.90	0.84	0.94	0.83	0.89	0.87	1.01
Denmark	1.33	1.37	1.50	1.44	1.10	1.22	1.30	1.20	1.21	1.28	1.26	1.09	1.16	1.02	0.93	0.96	0.91	0.96	0.86
Estonia	3.42	3.34	3.29	3.15	3.52	2.46	3.29	3.30	3.28	2.89	3.14	2.83	2.64	2.29	2.69	1.79	1.95	1.83	1.60
Finland	0.99	1.22	0.86	1.01	0.96	1.13	1.10	1.21	1.23	1.13	1.02	1.29	1.22	1.15	1.13	1.17	1.22	1.10	1.12
France	1.11	1.16	1.09	1.15	1.09	1.18	1.17	1.16	1.16	1.20	1.25	1.24	1.20	1.20	1.18	1.18	1.21	1.23	1.30
Germany	0.96	0.92	0.88	0.91	0.90	0.97	0.89	0.89	0.98	0.95	0.98	0.96	0.97	0.92	0.95	0.98	0.96	0.93	1.01
Greece	1.14	0.91	1.00	0.96	0.82	0.98	0.83	0.82	0.78	0.80	0.87	0.87	0.93	0.89	0.92	0.90	0.96	0.92	1.10
Hungary	0.72	0.74	0.92	0.98	1.04	1.06	1.02	0.99	1.08	1.35	1.37	1.36	1.24	0.96	1.01	1.19	1.16	1.06	1.01
Ireland	1.16	1.13	1.05	0.93	0.85	0.76	0.88	0.83	0.74	0.83	0.69	0.68	0.83	0.71	0.73	0.64	0.78	0.66	0.69
Italy	1.03	0.99	1.04	1.12	1.04	1.10	1.14	1.10	1.33	1.27	1.26	1.23	1.37	1.12	0.98	1.13	1.12	1.02	1.05
Latvia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lithuania	2.30	1.72	1.32	1.09	1.74	1.40	1.26	1.31	0.62	0.81	0.75	1.08	0.83	0.73	0.85	0.78	0.81	0.67	0.65
Luxembourg	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malta	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	0.99	0.97	1.00	1.03	0.85	0.94	0.88	0.96	0.90	0.97	0.91	0.86	0.92	0.83	0.91	0.93	0.85	0.85	0.90
Poland	1.17	1.04	1.18	1.13	0.93	1.04	0.97	0.91	1.16	1.17	1.24	1.18	1.13	0.91	0.90	0.94	0.94	0.95	0.93
Portugal	1.16	1.17	1.36	1.25	1.06	1.30	1.32	1.43	1.37	1.59	1.13	1.26	1.05	1.15	1.48	1.12	1.06	1.05	0.96
Romania	0.41	0.43	0.41	0.49	0.34	0.49	0.36	0.31	0.26	0.26	0.29	0.45	0.42	0.49	0.48	0.48	0.51	0.50	0.46
Slovakia	0.76	0.66	0.91	0.85	0.66	0.84	1.06	0.75	0.86	1.04	0.78	0.69	0.59	0.51	0.59	0.68	0.66	0.60	0.95
Slovenia	ne	0.58	0.51	0.95	0.82	1.29	1.03	1.18	0.91	0.86	1.02	0.86	0.98	0.78	0.90	1.17	1.04	0.87	1.11
Spain	0.90	0.93	0.97	0.90	0.77	0.94	0.97	0.87	0.96	0.91	0.99	1.04	1.01	1.00	1.04	1.01	1.02	0.99	1.01
Sweden	0.74	0.81	0.79	0.77	0.82	0.83	0.83	0.85	0.97	0.96	0.94	0.91	0.91	0.89	0.83	0.87	0.92	0.87	0.89
United Kingdom	1.11	1.04	1.11	1.07	0.98	1.08	1.07	1.08	1.05	1.12	1.23	1.10	1.18	1.11	1.15	1.13	1.11	1.11	1.16
Other Europe	1.65	1.40	1.44	1.35	1.40	1.45	1.54	1.49	1.61	1.56	1.68	1.59	1.52	1.54	1.53	1.52	1.48	1.48	1.51

TABLE S5A-24

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	ne	ne	ne	ne	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Belarus	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.34	ne	ne	ne	0.99
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	na	na	ne
Iceland	ne	3.93	5.15	4.06	4.80	6.07	3.38	5.03	3.63	3.49	3.03	3.37	3.26	2.91	4.13	3.51	3.16	3.64	3.93
Kosovo	na	na	na	na	na	na	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	na	ne	na	na	ne	ne	na	na	na	ne	ne	ne	ne	ne	na	ne	na	na	ne
Moldova	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	2.61	2.41	3.00	2.41	2.55	2.68	2.24	2.61	2.65	2.97	2.80	2.80	2.68	2.83	2.68	2.63	2.91	2.76	2.75
Russia	2.19	1.77	1.85	1.84	1.99	2.08	2.52	2.37	2.60	2.52	2.92	2.59	2.54	2.60	2.45	2.23	2.10	1.94	1.89
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne
Serbia[a]	na	na	na	na	na	na	na	0.36	0.35	0.27	0.41	0.35	0.36	0.35	0.41	0.55	0.48	0.50	0.59
Serbia and Montenegro[b]	ne	ne	ne	ne	ne	ne	0.46	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.98	0.98	0.95	1.01	1.01	1.01	1.14	1.02	1.24	1.21	1.10	1.22	1.15	1.09	1.08	1.17	1.13	1.16	1.24
Turkey	0.56	0.70	0.60	0.47	0.43	0.56	0.50	0.56	0.51	0.44	0.41	0.45	0.46	0.45	0.46	0.53	0.46	0.56	0.57
Ukraine	0.98	0.77	0.77	0.80	0.89	0.88	0.94	0.93	0.94	1.07	1.61	1.33	1.11	1.07	0.99	1.17	1.03	1.16	1.12
Middle East	0.66	0.69	0.62	0.64	0.59	0.73	0.66	0.69	0.62	0.81	0.69	0.67	0.78	0.84	0.85	0.91	0.80	0.79	0.68
Armenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Azerbaijan	ne	ne	ne	ne	ne	ne	ne	ne	2.09	ne	ne	1.64	ne	ne	ne	ne	ne	ne	1.30
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	ne	na	ne	ne	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	0.57	ne	ne	0.32	0.38	0.43	0.34	0.39	0.27	0.56	0.45	0.47	0.59	0.59	0.60	0.67	0.58	0.59	0.59
Iraq	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	1.76	1.75	3.15	1.07	0.48	0.33
Israel	0.60	0.59	0.55	0.50	0.53	0.52	0.68	0.56	0.62	0.63	0.59	0.55	0.52	0.53	0.66	0.60	0.65	0.60	0.68
Jordan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.80	ne	ne	ne
Kuwait	ne	ne	ne	ne	ne	1.62	ne	2.11	1.33	3.11	ne	2.40	4.35	3.54	2.82	4.96	3.02	3.29	1.76
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Oman	ne	ne	ne	ne	ne	3.08	ne	3.70	2.57	2.87	3.63	3.27	3.28	2.33	2.99	1.51	1.76	2.21	2.15
Qatar	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.63	ne	ne	ne	ne	1.76	ne	0.71	ne	ne
Saudi Arabia	0.79	1.34	1.12	1.24	1.13	1.52	1.38	1.55	1.58	1.86	1.46	1.33	1.37	1.87	1.54	1.50	1.38	1.55	1.07

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	2.29	ne	ne	2.16	1.54	1.90	2.18	2.02	2.16	1.20	2.23	1.20	1.87	1.93	2.20	1.87	1.05
West Bank	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	1.34	1.41	1.41	1.44	1.25	1.43	1.26	1.20	1.16	1.14	1.09	1.04	1.02	1.06	1.04	1.02	1.01	0.98	0.97
Algeria	ne	ne	ne	ne	ne	1.69	ne	0.87	0.71	0.72	0.79	0.64	0.73	0.76	0.80	0.61	0.74	0.81	0.65
Angola	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Benin	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	ne	ne	na	ne	na	ne	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne
Cabo Verde	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.86	ne	1.50	ne	1.54	1.66
Central African Republic	na	na	na	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Chad	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	na	na
Congo, Democratic Republic of the	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	ne	na	na	na	na	na	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Egypt	0.94	1.03	0.86	1.03	0.78	1.02	1.00	1.04	0.80	0.76	0.85	0.82	0.83	0.96	0.78	0.93	0.87	0.82	0.77
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na
Eritrea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Eswatini	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne
Ethiopia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.95	ne	0.74	0.78
Gabon	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	na	ne	na	na	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne
Ghana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea	ne	ne	ne	ne	ne	na	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne
Kenya	ne	ne	ne	ne	ne	ne	ne	1.70	ne	ne	1.45	1.30	1.33	1.46	1.25	1.09	ne	1.47	1.01
Lesotho	na	na	na	ne	ne	na	ne	ne	ne	ne	na	ne	na	na	ne	na	na	ne	ne
Liberia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	ne
Libya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-24

Specialization of S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	1.58	1.90	1.21	1.22	1.76	1.36	1.58	1.15	1.55	0.94	0.87	0.68	0.67	0.71	0.70	0.57	0.65	0.65	0.60
Mozambique	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Namibia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	1.27	0.99	0.96	0.91	1.26	1.15	1.01	1.00	0.94	0.96	0.89	1.00	1.10	1.35	1.50	1.78	1.58	1.50	1.26
Rwanda	na	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	ne	ne
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Sierra Leone	na	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	na	ne	ne	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na
South Africa	1.71	1.80	2.18	2.06	1.69	1.73	1.68	1.50	1.51	1.69	1.42	1.45	1.31	1.20	1.28	1.19	1.32	1.16	1.27
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sudan	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne
Tunisia	ne	ne	ne	ne	ne	1.14	0.69	0.71	0.95	1.00	0.82	0.84	0.95	1.00	0.91	0.83	0.74	0.71	0.86
Uganda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Asia	0.68	0.76	0.71	0.72	0.74	0.69	0.70	0.73	0.72	0.69	0.68	0.74	0.72	0.76	0.79	0.78	0.79	0.83	0.79
Afghanistan	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne
Bangladesh	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.46	0.41	0.42	0.48
Bhutan	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burma	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cambodia	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
China	1.11	1.22	0.99	1.01	0.97	0.87	0.85	0.89	0.81	0.78	0.73	0.85	0.86	0.93	0.95	0.95	0.98	1.07	0.95
India	0.79	0.80	0.80	0.73	0.71	0.72	0.70	0.76	0.71	0.68	0.63	0.70	0.60	0.60	0.60	0.58	0.51	0.49	0.49
Indonesia	ne	ne	ne	ne	2.09	2.08	1.88	2.74	2.15	1.71	1.73	1.48	1.67	1.13	1.17	0.89	0.61	0.37	0.30
Japan	0.48	0.54	0.57	0.60	0.65	0.61	0.64	0.66	0.80	0.73	0.78	0.75	0.67	0.69	0.70	0.67	0.71	0.74	0.76
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.74	ne	ne	2.29	1.27	0.61	0.60	0.86

TABLE S5A-24

Specialization of S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	na	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	ne	ne	ne	ne	0.48	0.49	0.68	0.61	0.73	0.58	0.49	0.59	0.45	0.59	0.73	0.48	0.42	0.39	0.40
Maldives	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	na	na	na	na	na	ne	ne	ne	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne
Pakistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.20	0.28	0.32	0.35	0.37	0.46	0.50	0.45	0.38	0.46
Papua New Guinea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	ne	ne	ne	ne	2.41	2.12	ne	2.19	1.87	2.47	2.22	2.04	1.57	1.90	1.54	1.55	1.55	1.37	1.31
Singapore	ne	0.21	ne	0.15	0.19	0.14	ne	0.28	0.16	0.21	0.30	0.24	0.22	0.28	0.34	0.29	0.33	0.31	0.41
South Korea	0.33	0.45	0.46	0.41	0.45	0.37	0.39	0.36	0.40	0.38	0.44	0.43	0.46	0.49	0.49	0.46	0.51	0.54	0.54
Sri Lanka	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Taiwan	0.63	0.54	0.57	0.50	0.52	0.42	0.43	0.48	0.43	0.47	0.47	0.44	0.54	0.49	0.52	0.50	0.51	0.54	0.93
Tajikistan	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	ne	0.50	ne	0.38	0.33	0.30	0.40	0.37	0.34	0.34	0.33	0.32	0.40	0.39	0.35	0.42	0.40	0.35	0.38
Timor-Leste	na	na	na	na	na	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Turkmenistan	ne	na	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.01	ne	0.74	0.73	0.80	0.63	0.50	0.62	0.64
Australia and Oceania	1.81	1.78	1.67	1.73	1.67	1.71	1.58	1.71	1.56	1.62	1.58	1.70	1.49	1.44	1.41	1.52	1.48	1.42	1.42
Australia	1.73	1.64	1.53	1.61	1.59	1.61	1.48	1.62	1.48	1.52	1.47	1.63	1.39	1.38	1.31	1.41	1.40	1.34	1.34
Cook Islands	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Fiji	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	ne	na	na	na	na	ne	na	na	na	ne	na	na	ne	ne	ne	ne	na	na
Marshall Islands	ne	na	na	ne	na	na	ne	na	ne	ne	ne	na	ne	na	ne	na	na	na	na
Micronesia, Federated States of	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nauru	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na	na
New Zealand	2.21	2.51	2.43	2.41	2.11	2.21	2.13	2.20	2.01	2.19	2.21	2.11	2.07	1.87	2.01	2.27	1.96	1.93	1.93
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne
Palau	na	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Samoa	na	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Solomon Islands	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tonga	ne	na	na	ne	na	ne	ne	ne	na	ne	ne	ne	na	na	ne	ne	ne	ne	ne
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	ne	ne	na
Vanuatu	ne	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-24

Specialization of S&E articles in geosciences, atmospheric, and ocean sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.59	0.60	0.88	0.46	0.72	1.16	1.44	1.32	1.30	1.07	0.32	0.26	0.29	0.59	0.70	0.52	0.43	0.43	0.39

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-25

Specialization of S&E articles in health sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.06	1.09	1.08	1.07	1.08	1.10	1.13	1.15	1.19	1.22	1.23	1.24	1.23	1.24	1.26	1.28	1.31	1.34	1.40
Canada	0.99	1.02	0.96	0.98	0.97	0.99	1.02	1.03	1.08	1.10	1.12	1.13	1.13	1.15	1.16	1.18	1.20	1.28	1.35
Greenland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mexico	0.84	0.82	0.89	0.80	0.81	0.84	0.86	0.88	0.83	0.86	0.82	0.77	0.80	0.79	0.84	0.84	0.85	0.79	0.80
United States	1.08	1.11	1.10	1.08	1.10	1.12	1.15	1.18	1.22	1.24	1.26	1.27	1.26	1.26	1.28	1.31	1.34	1.37	1.43
Central America and Caribbean	1.40	1.46	1.44	1.11	1.23	1.21	1.43	1.44	1.46	1.74	1.65	1.65	1.57	1.59	1.50	1.57	1.50	1.54	1.41
Antigua and Barbuda	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bahamas, The	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Costa Rica	ne	ne	ne	ne	ne	0.51	ne	0.54	0.68	0.70	0.62	0.66	0.38	0.60	0.59	0.46	0.61	0.59	0.48
Cuba	1.76	1.89	1.89	1.30	1.55	1.57	1.92	1.99	1.84	2.30	2.33	2.15	2.11	1.98	2.05	2.19	2.15	2.18	1.86
Dominica	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominican Republic	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Grenada	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.69	ne
Guatemala	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.79	ne	1.74	1.42	1.36	1.76
Haiti	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.24	ne
Honduras	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Jamaica	1.84	2.01	1.62	1.44	1.90	1.73	1.86	1.83	1.78	1.85	2.02	1.98	2.44	2.09	1.64	1.62	1.50	1.93	1.91
Nicaragua	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.86	ne	0.87	ne	0.73	ne
Puerto Rico	0.81	0.87	0.86	0.92	0.98	0.85	0.95	0.82	1.19	1.17	1.11	1.07	0.95	1.02	0.99	1.03	1.14	1.14	1.33
Saint Kitts and Nevis	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Lucia	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Vincent and the Grenadines	ne	na	na	ne	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Trinidad and Tobago	1.56	1.59	1.47	1.20	1.05	1.03	1.15	1.32	1.23	1.56	1.14	1.37	1.18	1.16	1.05	1.15	1.01	1.04	1.36
South America	0.88	0.91	0.92	0.94	1.01	1.05	1.08	1.14	1.15	1.17	1.18	1.20	1.17	1.13	1.11	1.10	1.08	1.09	1.09
Argentina	0.79	0.83	0.82	0.82	0.84	0.83	0.81	0.81	0.80	0.82	0.88	0.85	0.77	0.87	0.82	0.82	0.81	0.80	0.82
Bolivia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.94	0.97	0.98	0.99	1.08	1.13	1.17	1.25	1.26	1.28	1.29	1.32	1.30	1.22	1.20	1.20	1.18	1.18	1.20
Chile	0.89	0.83	0.82	0.86	0.86	0.91	0.89	0.94	0.96	0.93	0.91	0.89	0.86	0.88	0.88	0.84	0.80	0.87	0.86
Colombia	0.66	0.90	0.98	1.00	1.04	1.14	1.03	1.07	1.00	0.98	0.91	0.95	0.89	0.96	0.97	0.98	1.00	1.01	0.96
Ecuador	1.32	ne	ne	1.51	1.36	1.26	1.25	1.25	1.13	1.11	1.11	1.06	1.17	0.96	0.82	0.69	0.61	0.74	0.43
Guyana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-25

Specialization of S&E articles in health sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.44	1.07	ne
Peru	0.75	0.97	1.18	1.04	1.09	1.18	1.06	1.08	1.29	1.56	1.48	1.33	1.34	1.34	1.36	1.48	1.39	1.16	1.16
Suriname	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uruguay	0.87	0.83	0.96	0.86	0.84	0.84	1.00	0.76	0.85	0.63	0.75	0.73	0.60	0.72	0.70	0.66	0.72	0.65	0.82
Venezuela	0.58	0.59	0.61	0.67	0.71	0.71	0.75	0.80	0.92	0.94	1.04	1.06	0.97	0.97	0.91	1.09	1.21	1.05	1.21
Europe	1.05	1.06	1.05	1.06	1.08	1.10	1.11	1.10	1.09	1.09	1.09	1.08	1.06	1.06	1.05	1.05	1.05	1.06	1.08
EU	1.12	1.14	1.12	1.12	1.13	1.15	1.15	1.14	1.12	1.13	1.13	1.12	1.08	1.09	1.08	1.08	1.09	1.11	1.14
Austria	1.32	1.33	1.35	1.27	1.28	1.23	1.21	1.13	1.07	1.07	1.04	1.07	0.99	0.98	1.00	0.99	0.98	0.97	1.03
Belgium	1.25	1.22	1.19	1.18	1.15	1.16	1.18	1.18	1.17	1.18	1.19	1.13	1.11	1.11	1.14	1.13	1.15	1.19	1.21
Bulgaria	0.93	0.99	0.91	0.95	0.92	0.91	0.85	0.75	0.73	0.67	0.68	0.72	0.72	0.75	0.72	0.84	0.79	0.76	0.58
Croatia	1.13	1.28	1.36	1.31	1.43	1.23	1.34	1.22	1.15	1.24	1.32	1.29	1.22	1.29	1.35	1.20	1.16	1.13	1.15
Cyprus	ne	ne	ne	ne	ne	0.41	ne	0.30	0.37	0.36	0.37	0.42	0.49	0.45	0.59	0.54	0.57	0.68	0.62
Czechia	1.14	1.20	1.17	1.14	1.13	1.08	1.05	0.98	0.89	0.91	0.89	0.89	0.84	0.77	0.80	0.72	0.71	0.68	0.69
Denmark	1.25	1.25	1.25	1.19	1.27	1.29	1.31	1.35	1.40	1.39	1.40	1.37	1.36	1.40	1.46	1.40	1.47	1.51	1.54
Estonia	0.59	0.53	0.51	0.57	0.61	0.49	0.45	0.42	0.41	0.39	0.42	0.39	0.36	0.46	0.34	0.38	0.44	0.50	0.50
Finland	1.20	1.18	1.09	1.05	1.03	1.00	0.95	0.94	0.95	0.97	0.97	0.94	0.95	0.87	0.89	0.91	0.96	0.95	0.99
France	1.02	1.03	0.98	0.99	1.02	1.02	0.99	1.02	1.00	1.00	1.02	1.01	0.99	0.97	0.98	0.99	1.03	1.06	1.14
Germany	1.08	1.13	1.12	1.10	1.12	1.10	1.12	1.12	1.10	1.09	1.08	1.08	1.03	1.06	1.03	1.03	1.05	1.09	1.10
Greece	0.99	1.00	1.02	1.07	1.13	1.18	1.20	1.19	1.21	1.22	1.26	1.28	1.13	1.13	1.09	1.06	1.03	1.14	1.14
Hungary	1.02	1.10	1.02	1.02	1.09	1.15	1.12	1.10	1.05	1.06	1.10	1.05	0.96	0.94	1.00	0.93	0.97	0.92	0.92
Ireland	1.10	1.13	1.05	1.09	1.05	0.93	1.03	1.05	1.07	1.11	1.11	1.14	1.15	1.20	1.21	1.24	1.24	1.32	1.39
Italy	1.19	1.21	1.18	1.17	1.17	1.20	1.21	1.20	1.21	1.19	1.22	1.20	1.20	1.19	1.16	1.13	1.16	1.18	1.23
Latvia	ne	0.33	ne	ne	ne	ne	0.35	ne	0.34	0.38	0.32	0.34	0.34	0.48	0.33	0.28	0.32	0.34	0.39
Lithuania	0.22	ne	1.04	0.98	0.87	0.73	0.58	0.61	0.36	0.45	0.37	0.31	0.41	0.44	0.40	0.47	0.53	0.54	0.62
Luxembourg	ne	ne	ne	ne	0.92	1.07	0.86	0.74	0.81	0.65	0.57	0.45	0.45	0.38	0.39	0.38	0.50	0.45	0.41
Malta	ne	ne	ne	1.65	ne	ne	ne	ne	1.49	1.43	1.19	1.45	1.54	1.45	1.56	1.57	1.50	1.39	1.54
Netherlands	1.24	1.25	1.24	1.27	1.31	1.34	1.39	1.39	1.38	1.45	1.48	1.49	1.46	1.48	1.47	1.54	1.54	1.58	1.61
Poland	0.98	1.03	1.13	1.18	1.21	1.30	1.33	1.26	1.13	1.15	1.10	1.08	0.96	0.96	0.92	0.86	0.84	0.80	0.79
Portugal	0.60	0.54	0.56	0.59	0.58	0.60	0.56	0.54	0.59	0.63	0.66	0.74	0.68	0.72	0.73	0.79	0.80	0.84	0.90
Romania	0.54	0.59	0.63	0.66	0.71	0.62	0.65	0.49	0.47	0.46	0.42	0.48	0.40	0.47	0.63	0.60	0.59	0.43	0.49
Slovakia	1.03	1.07	0.94	0.96	0.96	0.91	0.90	0.77	0.75	0.83	0.81	0.69	0.63	0.57	0.57	0.57	0.57	0.52	0.57
Slovenia	0.61	0.64	0.62	0.58	0.65	0.60	0.63	0.51	0.56	0.76	0.76	0.80	0.69	0.71	0.68	0.68	0.72	0.76	0.75
Spain	1.15	1.11	1.08	1.10	1.08	1.14	1.12	1.11	1.11	1.07	1.10	1.05	1.01	1.02	1.02	1.06	1.11	1.15	1.15
Sweden	1.24	1.25	1.21	1.19	1.18	1.23	1.20	1.29	1.28	1.31	1.28	1.25	1.18	1.22	1.18	1.21	1.21	1.28	1.28
United Kingdom	1.19	1.22	1.20	1.20	1.21	1.24	1.25	1.28	1.28	1.30	1.28	1.28	1.29	1.29	1.26	1.26	1.26	1.27	1.33
Other Europe	0.64	0.64	0.69	0.75	0.78	0.84	0.89	0.89	0.89	0.90	0.90	0.91	0.94	0.95	0.93	0.91	0.88	0.83	0.83

TABLE S5A-25

Specialization of S&E articles in health sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.91	1.18	1.59	1.15	1.20	0.91	0.98
Andorra	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belarus	0.13	0.14	0.18	0.13	0.12	0.12	0.22	0.15	0.21	0.16	0.17	0.22	0.21	0.39	0.32	0.44	0.40	0.52	0.63
Bosnia and Herzegovina	2.54	2.33	2.40	2.50	2.92	2.39	2.70	2.21	2.26	2.26	1.97	1.73	1.44	1.40	1.57	1.33	1.45	1.44	1.34
Holy See (Vatican City)	na	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iceland	1.02	1.18	1.07	1.03	1.16	1.24	1.31	0.98	1.23	1.24	1.31	1.06	1.04	1.11	1.14	1.03	1.05	1.12	1.18
Kosovo	na	na	na	na	na	na	na	na	ne	2.34	1.49	ne	1.24	1.14	1.27	1.36	1.23	1.28	1.12
Liechtenstein	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.49	ne
Monaco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	0.64	0.62	0.53	0.67	0.71
North Macedonia	ne	ne	0.82	ne	0.89	1.21	1.27	1.03	1.39	1.28	0.91	1.09	1.05	1.21	1.28	1.25	1.18	0.86	1.15
Norway	1.24	1.21	1.12	1.20	1.14	1.17	1.09	1.11	1.20	1.15	1.12	1.08	1.08	1.07	1.05	1.07	1.11	1.11	1.20
Russia	0.22	0.21	0.22	0.23	0.22	0.24	0.27	0.27	0.26	0.27	0.27	0.31	0.37	0.38	0.37	0.36	0.42	0.44	0.45
San Marino	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Serbia[a]	na	na	na	na	na	na	na	1.06	1.06	1.13	1.11	1.03	0.90	0.99	1.03	0.93	0.88	0.94	0.93
Serbia and Montenegro[b]	0.98	1.12	1.20	1.16	1.19	1.31	1.22	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	1.17	1.17	1.18	1.14	1.16	1.16	1.16	1.18	1.17	1.19	1.17	1.20	1.18	1.18	1.14	1.17	1.20	1.27	1.31
Turkey	1.54	1.62	1.66	1.71	1.66	1.78	1.68	1.64	1.64	1.57	1.59	1.60	1.66	1.65	1.66	1.66	1.53	1.36	1.37
Ukraine	0.18	0.13	0.16	0.15	0.12	0.11	0.12	0.11	0.11	0.14	0.10	0.15	0.13	0.18	0.21	0.30	0.35	0.41	0.52
Middle East	1.07	1.05	1.03	1.02	1.01	1.04	1.02	1.01	0.97	0.98	0.92	0.89	0.94	0.98	0.98	0.97	0.97	0.99	1.02
Armenia	0.28	ne	0.33	ne	ne	0.29	0.36	ne	ne	0.36	0.36	0.32	0.45	0.38	0.49	0.52	0.39	0.54	0.41
Azerbaijan	ne	ne	0.71	0.74	1.28	0.77	0.56	1.67	1.46	1.10	0.89	0.82	0.76	0.72	ne	ne	0.84	0.82	0.54
Bahrain	1.49	1.23	ne	1.41	1.77	1.78	1.84	1.63	1.55	1.73	1.27	1.41	1.46	1.75	2.11	1.85	2.13	1.75	1.63
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	1.36	1.01	0.95	0.87	0.90	0.55	0.57	0.56	0.53	0.89	0.96	0.97	0.89	0.83
Iran	0.49	0.49	0.58	0.61	0.57	0.73	0.76	0.80	0.79	0.82	0.77	0.80	0.90	0.99	0.99	0.98	0.98	1.00	1.00
Iraq	1.52	1.13	1.71	1.42	1.56	1.65	1.51	1.51	1.38	1.50	1.24	0.90	0.90	0.83	0.61	0.50	0.46	0.81	1.07
Israel	1.16	1.14	1.13	1.14	1.15	1.17	1.14	1.18	1.10	1.14	1.12	1.11	1.10	1.11	1.08	1.11	1.16	1.12	1.17
Jordan	0.99	0.87	0.96	0.82	0.90	0.99	1.07	0.81	0.89	0.94	0.98	0.92	0.86	1.00	1.01	0.94	0.94	1.05	1.05
Kuwait	0.76	0.85	0.85	1.00	0.98	1.05	0.99	1.03	1.09	1.02	1.18	0.90	0.91	0.91	0.99	0.83	0.91	0.96	0.78
Lebanon	1.50	1.67	1.55	1.69	1.50	1.64	1.58	1.65	1.68	1.56	1.53	1.34	1.36	1.31	1.29	1.29	1.39	1.52	1.44
Oman	1.39	1.44	1.10	1.18	1.03	0.98	1.05	0.99	1.15	1.13	0.91	1.24	1.06	1.28	1.13	1.03	0.97	0.88	0.82
Qatar	ne	1.79	1.83	1.93	1.64	2.04	2.08	1.95	1.45	1.34	1.33	1.22	1.07	0.94	0.86	0.92	0.84	0.93	0.99
Saudi Arabia	1.47	1.36	1.48	1.44	1.53	1.46	1.47	1.41	1.42	1.26	1.20	1.01	0.91	0.83	0.89	0.88	0.89	0.91	0.98

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Specialization of S&E articles in health sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.74	0.64	0.78	1.09	1.09	1.16	1.33	1.25	1.47
United Arab Emirates	1.15	1.15	0.87	0.86	0.86	0.78	0.83	0.75	0.80	0.75	0.67	0.61	0.58	0.57	0.61	0.55	0.50	0.50	0.65
West Bank	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.16	ne	ne	1.15	1.03	1.02	1.14	1.09	1.28	1.26
Yemen	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.55	1.49	1.16	1.24	1.25	1.28	1.61	1.91	1.40	1.09
Africa	0.88	0.93	0.88	0.91	0.90	0.98	0.98	0.96	1.02	1.00	1.03	1.06	1.02	1.02	1.06	1.05	0.98	0.93	0.93
Algeria	ne	ne	ne	ne	ne	ne	0.10	ne	0.11	0.14	0.14	0.11	0.16	0.13	0.16	0.24	0.19	0.13	0.15
Angola	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Benin	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.02	ne	ne	1.32	1.17	1.33	1.14	1.09	0.93	1.29
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.76	ne	ne	0.93	1.14	0.75	0.89	0.76	0.90
Burkina Faso	ne	2.05	2.09	ne	ne	ne	1.42	1.66	1.65	1.52	1.77	1.53	1.58	1.66	2.14	2.02	1.89	1.74	1.57
Burundi	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cabo Verde	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne
Cameroon	ne	0.97	0.94	0.77	0.81	0.76	0.74	0.65	0.65	0.94	0.91	1.03	1.17	1.27	1.17	1.38	1.22	1.05	1.09
Central African Republic	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Chad	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Comoros	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Democratic Republic of the	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.35	2.35	2.56	2.36	1.98	2.02	2.21
Congo, Republic of the	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.37	2.70	1.99	1.86	2.20
Côte d'Ivoire	1.43	1.80	1.77	1.60	2.03	1.85	1.95	1.63	1.62	1.65	1.46	1.96	1.81	1.81	1.67	1.94	1.64	1.47	1.07
Djibouti	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Egypt	0.51	0.49	0.48	0.56	0.55	0.62	0.65	0.65	0.75	0.79	0.95	1.05	1.01	1.05	1.09	1.09	1.11	1.10	1.06
Equatorial Guinea	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Eritrea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Eswatini	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ethiopia	1.54	1.47	1.37	1.24	1.44	1.27	1.24	1.18	1.35	1.17	1.37	1.37	1.52	1.70	1.76	1.62	1.73	1.73	1.65
Gabon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ghana	1.19	1.18	1.02	0.85	1.19	1.28	1.13	1.09	0.93	0.92	1.01	1.29	1.27	1.45	1.48	1.47	1.57	1.35	1.33
Guinea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea-Bissau	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kenya	1.04	1.01	1.03	1.04	1.38	1.31	1.16	1.35	1.42	1.36	1.24	1.14	1.27	1.44	1.33	1.30	1.25	1.25	1.36
Lesotho	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liberia	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Libya	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.57	1.36	ne	0.78	0.71	0.72	0.75	0.90	ne	0.78
Madagascar	ne	2.03	ne	2.00	ne	ne	ne	1.09	1.46	ne	ne	ne	ne	ne	1.44	1.28	1.36	1.40	1.34
Malawi	1.69	1.53	1.67	1.46	1.84	1.90	1.75	1.88	1.84	1.98	2.09	1.68	1.66	2.03	1.89	1.93	2.27	2.03	2.07

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Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	ne	ne	ne	ne	ne	ne	2.01	2.52	2.24	2.34	2.44	2.17	2.26	1.82	1.94	1.83	2.01	1.96	2.05
Mauritania	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	0.83	0.90	1.01	1.01	0.82	0.92	1.10	1.19	1.15	1.36	1.49	1.38	1.29	1.31	1.35	1.27	0.84	0.68	0.59
Mozambique	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.65	ne	ne	1.77	1.68	1.87	1.57	1.53
Namibia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	1.27	1.51	1.51	1.39	1.49	1.80	1.68	1.58	1.70	1.55	1.44	1.58	1.54	1.59	1.51	1.39	1.27	1.22	1.03
Rwanda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.57	2.27	2.17	2.16	1.93	2.12
São Tomé and Príncipe	ne	ne	ne	ne	ne	na	ne	ne	na	ne	ne	na	na	na	ne	ne	ne	ne	na
Senegal	1.79	2.03	1.95	1.81	1.88	1.82	1.99	2.11	2.21	1.91	2.06	1.98	1.59	1.60	1.77	1.88	1.65	1.66	1.14
Seychelles	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Sierra Leone	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Somalia	ne	na	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South Africa	0.88	0.88	0.77	0.84	0.80	0.86	0.81	0.82	0.93	0.91	0.86	0.87	0.88	0.87	0.89	0.88	0.87	0.85	0.89
South Sudan	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Sudan	ne	ne	1.54	1.39	1.97	1.92	1.59	1.44	1.41	1.18	1.09	1.07	1.31	1.08	1.48	1.46	1.38	1.33	0.93
Tanzania	1.25	1.56	1.18	1.07	1.25	1.30	1.66	1.56	1.80	1.83	1.70	1.91	1.94	1.85	1.85	1.75	1.76	1.68	1.80
Togo	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.56	2.62	2.79	2.41	2.71	2.69
Tunisia	1.04	1.32	1.14	1.43	1.23	1.26	1.28	1.15	1.09	0.98	1.03	0.94	0.86	0.70	0.71	0.77	0.63	0.59	0.65
Uganda	1.26	1.64	1.83	1.54	1.33	1.46	1.65	1.26	1.65	1.70	1.59	1.79	1.68	1.74	1.97	2.03	1.80	1.92	1.85
Western Sahara	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	1.88	1.58	1.58	1.93	1.87	1.76	1.77	1.60	1.92	1.89	1.60	1.95
Zimbabwe	1.42	1.15	1.04	0.85	1.11	1.13	1.22	0.85	0.99	ne	1.11	1.09	0.89	0.88	0.90	0.92	0.90	0.96	0.94
Asia	0.79	0.74	0.78	0.77	0.75	0.72	0.69	0.68	0.68	0.66	0.66	0.67	0.70	0.72	0.74	0.73	0.73	0.72	0.69
Afghanistan	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bangladesh	0.88	1.06	0.94	0.82	0.96	0.98	1.02	0.86	0.92	0.98	0.89	1.09	0.90	0.82	0.92	0.97	0.78	0.56	0.60
Bhutan	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.12	1.47	1.58	1.21	1.06	0.58	0.78	ne
Burma	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.24	0.73
Cambodia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.67	1.63	1.53	1.37	1.69	1.96	1.58	1.52
China	0.47	0.39	0.52	0.57	0.53	0.51	0.50	0.50	0.50	0.47	0.45	0.44	0.49	0.55	0.58	0.58	0.58	0.58	0.55
India	0.64	0.67	0.70	0.72	0.71	0.73	0.72	0.71	0.69	0.73	0.78	0.80	0.82	0.79	0.75	0.73	0.70	0.66	0.59
Indonesia	0.66	0.45	0.43	0.65	0.69	0.71	0.64	0.56	0.59	0.47	0.36	0.28	0.38	0.34	0.34	0.32	0.31	0.28	0.29
Japan	1.04	1.04	1.04	1.01	1.05	1.02	0.99	1.02	1.02	1.05	1.10	1.15	1.13	1.09	1.18	1.18	1.20	1.21	1.29
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.27	0.32	0.34	0.29	0.28	0.34

TABLE S5A-25

Specialization of S&E articles in health sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	0.93	0.98	0.71	0.73	0.81	0.80	0.69	0.60	0.58	0.42	0.37	0.37	0.44	0.48	0.45	0.43	0.43	0.42	0.44
Maldives	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	1.33	1.68	1.69	2.48	2.60	2.48	2.83	2.72	2.86	2.94	2.83	2.75	2.49	2.68	2.54	2.38	2.17	2.26	2.47
North Korea	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Pakistan	1.41	1.60	1.57	1.49	1.41	1.42	1.15	1.10	1.10	1.13	1.08	1.17	1.12	1.09	1.16	1.06	1.12	1.12	1.06
Papua New Guinea	ne	ne	ne	ne	ne	ne	ne	1.96	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	0.45	0.46	0.43	0.59	0.57	0.74	0.63	0.76	0.87	0.82	0.80	1.00	0.93	0.85	0.88	0.73	0.58	0.64	0.63
Singapore	0.52	0.50	0.50	0.48	0.51	0.52	0.53	0.52	0.54	0.55	0.54	0.56	0.55	0.60	0.60	0.67	0.67	0.70	0.75
South Korea	0.54	0.51	0.52	0.57	0.60	0.66	0.64	0.64	0.73	0.82	0.89	0.90	0.93	0.96	0.96	0.98	1.03	1.07	1.07
Sri Lanka	1.13	1.23	1.36	1.21	1.29	1.20	0.94	1.03	1.11	1.35	1.33	1.37	1.28	1.15	1.34	1.25	0.98	1.06	0.99
Taiwan	0.75	0.75	0.76	0.77	0.77	0.76	0.71	0.66	0.69	0.67	0.70	0.71	0.76	0.79	0.83	0.90	0.93	0.95	0.98
Tajikistan	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	1.48	1.54	1.36	1.25	1.21	1.36	1.09	0.97	0.96	0.96	0.89	0.88	0.95	0.91	0.96	0.91	0.95	0.83	0.93
Timor-Leste	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Turkmenistan	ne	ne	ne	na	na	na	na	na	na	na	ne	ne	na	ne	ne	na	na	ne	na
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.43	ne	ne
Vietnam	0.52	ne	0.52	0.58	0.59	0.52	0.63	0.51	0.46	0.41	0.35	0.32	0.32	0.27	0.31	0.29	0.25	0.31	0.33
Australia and Oceania	1.02	1.07	1.08	1.05	1.09	1.07	1.10	1.09	1.13	1.16	1.15	1.17	1.18	1.18	1.18	1.23	1.23	1.30	1.34
Australia	1.03	1.09	1.09	1.07	1.10	1.07	1.11	1.10	1.15	1.17	1.16	1.17	1.18	1.19	1.20	1.25	1.26	1.32	1.37
Cook Islands	ne	na	ne	na	na	na	na	ne	na	ne	na	ne	ne	ne	na	ne	na	ne	ne
Fiji	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	ne	na	na	na	na	ne	ne	na	ne	ne	ne	ne
Marshall Islands	ne	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Micronesia, Federated States of	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nauru	na	ne	na	na	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	na	na
New Zealand	0.98	0.94	1.00	0.95	1.06	1.06	1.05	1.05	1.04	1.09	1.11	1.12	1.14	1.09	1.08	1.13	1.07	1.16	1.20
Niue	na	na	na	na	na	ne	na	ne	na	ne	na	na	na	na	na	na	na	na	na
Palau	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne
Samoa	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Solomon Islands	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tonga	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tuvalu	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	ne	na	ne	ne
Vanuatu	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-25

Specialization of S&E articles in health sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	1.46	1.16	1.24	1.71	1.48	1.43	1.52	1.53	1.62	2.08	2.53	2.44	2.49	2.12	2.07	2.09	2.31	2.44	2.61

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-26

Specialization of S&E articles in materials science, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	0.66	0.59	0.58	0.59	0.53	0.56	0.54	0.51	0.52	0.50	0.54	0.50	0.50	0.50	0.46	0.45	0.40	0.40	0.33
Canada	0.49	0.47	0.43	0.46	0.47	0.51	0.49	0.52	0.53	0.54	0.53	0.60	0.56	0.64	0.51	0.51	0.47	0.42	0.36
Greenland	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Mexico	0.85	0.92	0.93	0.99	0.79	0.70	0.85	0.85	0.82	0.88	1.41	0.85	1.21	1.10	0.96	0.81	0.76	0.67	0.58
United States	0.68	0.59	0.59	0.59	0.53	0.56	0.54	0.50	0.51	0.49	0.51	0.48	0.47	0.47	0.43	0.43	0.38	0.38	0.31
Central America and Caribbean	0.78	0.56	0.74	0.75	ne	0.60	0.38	0.36	0.50	0.48	0.59	0.35	0.48	0.32	0.41	0.36	ne	ne	ne
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bahamas, The	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Barbados	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	ne
Belize	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Costa Rica	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne
Cuba	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominica	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dominican Republic	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	ne	ne	na	na
Grenada	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Guatemala	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na	ne
Haiti	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	na	na	na	na	na
Honduras	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Jamaica	na	na	ne	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne
Nicaragua	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	na	na	na
Panama	ne	na	na	ne	ne	na	na	na	na	na	ne	na	ne	na	na	na	na	na	na
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.54	ne	ne	ne	1.59	ne	ne	ne	ne
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Lucia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	na	ne	na	ne	na	ne
South America	0.66	0.76	0.68	1.14	0.58	0.69	0.63	0.58	0.68	0.58	0.96	0.50	0.75	0.57	0.76	0.65	0.57	0.59	0.46
Argentina	0.81	0.60	0.64	0.67	0.63	0.63	0.59	0.53	0.71	0.54	0.72	0.53	0.72	0.50	0.63	0.54	0.51	0.47	0.70
Bolivia	na	ne	ne	ne	ne	na	na	na	ne	na	na	na	na	ne	ne	ne	ne	ne	ne
Brazil	0.67	0.84	0.77	1.40	0.63	0.78	0.72	0.64	0.76	0.62	1.12	0.52	0.84	0.60	0.84	0.75	0.64	0.69	0.48
Chile	ne	ne	ne	0.55	ne	ne	ne	ne	0.31	0.36	0.29	0.24	0.27	0.24	0.25	0.22	0.22	0.28	0.23
Colombia	ne	ne	ne	ne	ne	ne	ne	ne	0.54	0.62	0.71	0.49	0.62	0.77	0.74	0.49	0.61	0.42	0.46
Ecuador	ne	ne	ne	ne	ne	ne	na	ne	na	ne	na	ne	na	na	ne	ne	ne	ne	ne
Guyana	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na

TABLE S5A-26

Specialization of S&E articles in materials science, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Suriname	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Uruguay	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Venezuela	ne	1.07	ne	0.88	ne	ne	ne	0.73	ne	0.67	ne	1.27	0.95	ne	1.49	ne	ne	ne	ne
Europe	0.87	0.93	0.89	0.87	0.88	0.77	0.71	0.70	0.76	0.76	0.71	0.73	0.78	0.76	0.79	0.80	0.86	0.82	0.83
EU	0.77	0.81	0.73	0.76	0.77	0.69	0.65	0.64	0.70	0.69	0.64	0.65	0.70	0.69	0.72	0.71	0.70	0.69	0.61
Austria	0.78	0.69	0.82	0.78	0.78	0.91	0.93	0.79	1.03	0.86	0.88	0.81	0.80	0.71	0.85	0.95	0.88	0.84	0.66
Belgium	0.53	0.70	0.52	0.50	0.58	0.42	0.48	0.64	0.60	0.63	0.49	0.49	0.65	0.52	0.56	0.59	0.52	0.47	0.43
Bulgaria	0.81	1.05	0.95	0.81	1.02	1.02	0.68	0.86	0.73	0.95	0.69	1.06	0.97	1.48	1.19	1.17	1.21	1.29	1.58
Croatia	ne	ne	0.77	0.52	0.72	0.51	0.38	0.46	0.90	0.68	0.61	0.61	0.78	0.86	0.77	0.52	0.64	0.62	0.60
Cyprus	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Czechia	0.92	1.21	1.06	0.98	1.04	1.16	0.77	0.83	1.27	1.38	1.36	1.30	1.82	1.78	2.21	2.09	2.48	2.15	2.10
Denmark	0.41	0.36	0.36	0.38	0.43	0.44	0.37	0.47	0.44	0.55	0.42	0.41	0.47	0.52	0.38	0.42	0.29	0.33	0.23
Estonia	ne	ne	ne	ne	ne	ne	ne	1.10	1.28	1.46	1.23	1.63	1.63	1.50	0.94	0.92	1.03	0.70	ne
Finland	0.52	0.92	0.70	0.67	0.78	0.43	0.53	0.41	0.43	0.62	0.45	0.51	0.46	0.52	0.50	0.44	0.46	0.43	0.41
France	0.80	0.89	0.71	0.75	0.76	0.70	0.69	0.64	0.81	0.83	0.74	0.71	0.80	0.79	0.73	0.70	0.61	0.57	0.49
Germany	1.09	1.11	1.12	1.25	1.13	1.08	1.07	1.03	1.01	0.85	0.75	0.78	0.77	0.73	0.74	0.81	0.72	0.69	0.58
Greece	0.54	0.56	0.41	0.51	0.35	0.46	0.36	0.42	0.41	0.51	0.42	0.43	0.70	0.51	0.52	0.48	0.71	0.44	0.59
Hungary	0.74	0.82	0.54	1.01	0.73	1.00	0.59	0.95	0.88	0.54	1.10	0.66	0.69	1.35	0.73	0.79	0.57	0.70	0.84
Ireland	0.45	0.68	0.62	0.62	0.72	0.45	0.31	0.40	0.37	0.34	0.32	0.34	0.44	0.40	0.34	0.32	0.33	0.28	0.22
Italy	0.50	0.50	0.39	0.41	0.45	0.35	0.35	0.42	0.47	0.48	0.44	0.45	0.45	0.48	0.48	0.50	0.45	0.49	0.42
Latvia	ne	ne	3.28	3.61	3.90	ne	ne	ne	2.31	ne	ne	2.80	2.79	2.52	2.26	2.28	1.74	2.93	2.30
Lithuania	ne	ne	1.79	1.24	0.98	1.01	0.86	0.62	0.84	0.65	0.52	0.75	0.60	0.66	0.75	0.71	0.77	0.69	0.72
Luxembourg	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malta	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	0.48	0.49	0.39	0.43	0.37	0.35	0.34	0.36	0.34	0.38	0.30	0.28	0.30	0.26	0.23	0.27	0.22	0.21	0.17
Poland	1.03	1.18	0.80	0.95	1.07	1.04	0.73	0.77	0.74	1.01	0.87	1.07	1.23	1.14	1.35	1.16	1.41	1.46	1.52
Portugal	1.43	1.49	2.19	1.32	2.04	1.08	1.92	0.82	1.41	0.90	1.09	0.67	0.78	1.03	0.73	0.72	0.72	0.68	0.54
Romania	1.51	1.86	1.76	1.30	1.36	1.11	0.75	1.19	0.85	0.77	0.91	1.04	0.94	0.91	1.60	1.49	2.15	2.83	2.19
Slovakia	1.58	1.77	1.44	1.97	2.02	2.01	1.52	1.75	1.90	1.94	2.03	2.50	1.91	2.03	2.95	2.73	2.75	2.57	2.46
Slovenia	1.85	2.28	1.83	1.36	2.04	1.55	1.58	2.02	1.90	1.61	1.56	1.85	1.69	1.43	1.40	1.18	1.29	1.04	0.91
Spain	0.56	0.76	0.60	0.68	0.73	0.62	0.53	0.53	0.56	0.57	0.61	0.53	0.61	0.53	0.65	0.50	0.53	0.44	0.41
Sweden	0.86	0.79	0.66	0.63	0.78	0.67	0.56	0.51	0.54	0.66	0.55	0.59	0.64	0.70	0.66	0.67	0.63	0.54	0.45
United Kingdom	0.64	0.56	0.56	0.56	0.55	0.45	0.47	0.43	0.46	0.50	0.45	0.47	0.51	0.47	0.49	0.52	0.47	0.48	0.37
Other Europe	1.47	1.56	1.78	1.45	1.46	1.24	1.04	1.03	1.10	1.18	1.09	1.16	1.19	1.14	1.17	1.21	1.51	1.37	1.64

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Specialization of S&E articles in materials science, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Belarus	1.82	1.39	2.50	2.02	2.12	1.82	1.21	1.36	1.56	1.55	1.47	1.46	1.59	1.83	1.90	1.81	1.88	1.85	1.58
Bosnia and Herzegovina	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.51
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Iceland	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Moldova	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	ne	na	na	na
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	0.73	0.61	0.66	0.57	0.56	0.59	0.62	0.56	0.48	0.55	0.57	0.47	0.71	0.59	0.65	0.51	0.42	0.49	0.33
Russia	1.61	1.78	2.25	1.86	1.73	1.54	1.25	1.18	1.43	1.55	1.52	1.66	1.79	1.60	1.63	1.78	2.43	2.02	2.56
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne
Serbia[a]	na	na	na	na	na	na	na	1.80	1.09	1.43	1.02	1.07	1.02	1.33	1.19	1.11	1.16	0.86	0.93
Serbia and Montenegro[b]	1.98	1.01	1.76	0.97	2.04	1.73	1.85	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.53	0.63	0.61	0.49	0.64	0.59	0.63	0.59	0.59	0.59	0.46	0.46	0.44	0.44	0.43	0.49	0.39	0.40	0.29
Turkey	0.62	0.65	0.90	0.68	1.13	0.69	0.73	0.90	0.89	0.96	0.93	0.92	0.95	0.96	0.96	0.83	0.89	0.90	0.71
Ukraine	4.57	4.24	4.17	3.97	3.56	3.41	2.62	2.36	2.57	2.87	2.25	2.88	2.52	2.29	2.38	2.19	2.17	2.00	2.20
Middle East	0.48	0.59	0.59	0.56	0.56	0.55	0.55	0.63	0.81	0.91	1.01	1.02	1.04	1.03	1.01	0.97	0.94	0.85	0.92
Armenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Azerbaijan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bahrain	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	na	na	na	ne	na	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	0.74	1.01	1.01	0.94	1.12	0.73	0.76	0.89	1.21	1.30	1.39	1.32	1.33	1.33	1.29	1.24	1.14	0.99	0.82
Iraq	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.34	1.26	1.45	1.48	1.40	3.69
Israel	0.43	0.49	0.44	0.42	0.30	0.43	0.35	0.35	0.38	0.32	0.38	0.32	0.34	0.29	0.29	0.25	0.33	0.33	0.24
Jordan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.77	0.85	0.78	0.93	ne	0.85	0.81	0.56	0.81
Kuwait	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Oman	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.93
Qatar	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.90	0.89	0.79	0.99	0.95
Saudi Arabia	ne	0.77	0.65	0.67	0.82	0.55	0.66	0.72	0.83	1.06	1.07	1.21	1.25	1.15	1.06	1.06	0.97	0.83	0.77

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.73	0.98	0.90	1.08	1.03	1.19	1.17	1.09
West Bank	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	ne	ne	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	0.82	1.03	0.85	0.96	0.88	0.77	0.75	0.69	0.80	0.94	0.87	0.73	0.84	0.79	0.81	0.70	0.67	0.66	0.76
Algeria	ne	2.29	ne	2.00	2.26	1.60	1.84	1.74	1.93	2.76	2.29	1.79	1.89	1.93	1.92	1.25	1.31	1.02	1.42
Angola	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	na	na	na
Benin	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	na	na	ne	ne
Botswana	na	ne	na	na	na	na	ne	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne
Burkina Faso	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	na	ne	na	na	ne	na	na	ne
Burundi	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Cabo Verde	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Cameroon	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Central African Republic	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na
Chad	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	ne	na	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne
Congo, Democratic Republic of the	na	na	na	na	na	ne	na	na	ne	na	na	na	na	na	na	na	ne	na	ne
Congo, Republic of the	na	ne	na	na	na	na	na	ne	na	ne	na	na	ne	na	ne	na	na	ne	na
Côte d'Ivoire	na	ne	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	1.75	2.50	2.25	2.24	2.04	1.94	1.58	1.63	1.67	1.70	1.55	1.30	1.19	1.27	1.11	0.95	0.85	0.85	0.70
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Eritrea	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	na	na	ne	ne
Eswatini	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na
Ethiopia	na	ne	ne	na	na	ne	na	ne	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne
Gabon	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Gambia, The	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Ghana	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Kenya	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lesotho	na	na	na	na	na	na	na	ne	na	ne	ne	na	na	na	na	na	na	na	ne
Liberia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Libya	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na	na	na	ne	ne
Malawi	na	na	na	na	na	na	na	ne	na	na	na	na	ne	ne	ne	na	na	na	na

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	na	ne
Mauritania	na	na	na	ne	ne	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na
Mauritius	ne	na	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne
Morocco	2.01	1.74	ne	1.38	1.47	1.15	ne	ne	0.81	0.88	0.74	0.61	1.10	1.23	1.08	0.53	0.73	0.99	1.32
Mozambique	na	ne	na	ne	na	na	na	ne	na	na	na	ne	na	na	na	na	na	ne	ne
Namibia	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne
Niger	ne	na	na	ne	na	ne	na	na	na	na	ne	na	na	na	na	na	ne	ne	ne
Nigeria	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.50	0.55	0.34	0.52	0.54	0.58	0.61	0.63	0.61	1.22
Rwanda	na	na	na	na	na	na	ne	na	na	ne	na	na	na	ne	ne	na	na	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	ne	na	ne	na	na	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sierra Leone	ne	na	na	na	ne	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
South Africa	0.30	0.39	0.39	0.28	0.23	0.24	0.34	0.21	0.31	0.40	0.41	0.50	0.56	0.40	0.51	0.58	0.39	0.47	0.68
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Sudan	na	na	ne	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	na	na	na	na	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Togo	na	ne	na	ne	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Tunisia	ne	ne	ne	1.22	0.96	0.95	0.95	0.81	0.93	1.09	1.16	0.78	1.04	0.85	0.99	1.00	1.14	0.91	0.63
Uganda	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	na	na	na	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	na	na	na	ne	na	na	na	na	ne	ne	na	na	ne	na	ne	na	ne	ne	ne
Zimbabwe	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	na	ne	na	na	ne	ne	ne	ne
Asia	1.96	1.85	1.91	1.86	1.89	1.93	2.01	2.00	1.83	1.79	1.74	1.79	1.70	1.71	1.66	1.67	1.62	1.63	1.61
Afghanistan	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	ne
Bangladesh	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.88	ne	0.67	0.70	ne	0.47	0.78	0.59	1.09
Bhutan	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	na	na	na	na	ne
Brunei	na	na	ne	na	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burma	na	na	na	na	na	na	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Cambodia	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	ne	ne
China	2.63	2.56	2.49	2.36	2.47	2.63	2.63	2.54	2.29	2.24	2.13	2.23	2.15	2.15	2.09	2.05	1.94	1.80	1.55
India	1.94	1.64	1.75	1.72	1.54	1.42	1.34	1.41	1.42	1.35	1.32	1.22	1.20	1.22	1.12	1.31	1.20	1.68	2.22
Indonesia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.90	ne	0.85	0.55	1.13	2.23	3.20	4.33
Japan	1.70	1.54	1.64	1.64	1.54	1.39	1.51	1.59	1.49	1.44	1.45	1.45	1.35	1.32	1.24	1.12	1.04	0.94	0.76
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.27	1.74	1.65	1.86	1.65	2.03

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	na	na	na	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	na	ne	ne	ne	ne
Malaysia	ne	1.10	1.08	0.70	1.05	0.99	1.33	1.14	0.83	1.46	1.40	2.31	1.96	1.96	2.38	2.10	3.48	3.39	4.08
Maldives	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	14.20	ne	ne	ne	ne	ne
Nepal	ne	na	ne	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	ne	ne	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	ne	ne	ne	ne	ne	ne	ne	0.43	0.45	0.43	0.64	0.44	0.78	0.61	0.74	1.12	0.66	0.54	0.65
Papua New Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne
Philippines	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.26	1.06	1.15	1.36
Singapore	1.94	1.78	1.89	1.79	1.18	0.99	1.14	1.04	1.02	0.92	1.07	0.81	0.74	0.70	0.68	0.73	0.76	0.72	0.61
South Korea	2.53	2.00	2.28	1.83	2.26	2.20	2.24	2.22	1.65	1.50	1.38	1.58	1.47	1.42	1.37	1.24	1.19	1.11	0.95
Sri Lanka	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Taiwan	1.25	1.18	1.25	1.47	1.11	0.90	1.18	1.06	1.21	1.03	1.21	0.95	0.89	0.91	0.88	1.03	0.83	0.90	0.69
Tajikistan	ne	ne	ne	na	ne	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	ne	ne	ne	0.66	0.51	0.58	0.62	0.83	0.94	1.16	1.02	1.21	0.90	1.21	1.04	1.48	1.84	2.13	1.85
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na
Turkmenistan	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.12	ne	0.67	0.92	0.80	1.17	0.97	0.79	1.27
Australia and Oceania	0.49	0.49	0.53	0.50	0.52	0.59	0.51	0.57	0.51	0.53	0.63	0.50	0.64	0.55	0.56	0.50	0.46	0.49	0.35
Australia	0.51	0.52	0.57	0.53	0.56	0.65	0.54	0.58	0.53	0.55	0.68	0.52	0.65	0.58	0.60	0.52	0.46	0.52	0.36
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fiji	na	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	na	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia, Federated States of	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	0.40	0.33	0.33	0.34	0.33	0.30	0.34	0.47	0.38	0.46	0.32	0.34	0.57	0.36	0.28	0.40	0.42	0.28	0.29
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Solomon Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Vanuatu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

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Specialization of S&E articles in materials science, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.93	1.43	2.25	1.56	2.04	1.21	0.44	0.44	0.44	0.34	0.17	0.21	0.12	0.26	0.48	0.49	0.35	0.31	0.32

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

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Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	0.80	0.80	0.80	0.81	0.78	0.82	0.85	0.88	0.86	0.87	0.86	0.82	0.81	0.78	0.77	0.81	0.86	0.86	0.85
Canada	0.86	0.89	0.90	0.91	0.89	0.89	0.93	0.90	0.91	0.93	0.92	0.85	0.81	0.78	0.77	0.79	0.81	0.77	0.80
Greenland	na	na	na	na	ne	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Mexico	0.90	0.95	0.95	0.87	0.89	1.07	0.85	1.00	0.80	1.01	0.93	0.78	0.99	1.02	0.93	1.03	0.90	0.98	1.01
United States	0.80	0.79	0.79	0.79	0.77	0.81	0.84	0.88	0.85	0.86	0.85	0.82	0.81	0.78	0.77	0.80	0.86	0.86	0.85
Central America and Caribbean	ne	ne	ne	ne	ne	ne	ne	ne	0.48	0.49	0.47	ne	0.38	ne	0.37	0.44	0.44	0.62	0.51
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bahamas, The	na	ne	na	na	na	na	na	ne	na	na	na	na	na	ne	ne	ne	ne	ne	na
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	ne	ne
Belize	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne
Costa Rica	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cuba	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominica	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	na
Dominican Republic	na	na	na	na	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na
Grenada	na	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Guatemala	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na
Haiti	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na
Honduras	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne	ne
Jamaica	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Panama	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	na
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Lucia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad and Tobago	na	na	na	ne	ne	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	1.03	0.99	1.03	1.08	1.01	0.94	0.89	0.87	0.86	0.83	0.80	0.81	0.73	0.73	0.76	0.85	0.85	0.89	0.85
Argentina	0.95	0.87	0.95	0.96	1.00	0.91	0.97	0.98	1.01	0.94	1.00	1.00	0.94	0.75	0.82	0.91	0.89	1.15	1.05
Bolivia	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	na	na	ne
Brazil	0.92	0.89	0.90	0.95	0.92	0.88	0.76	0.72	0.70	0.71	0.65	0.68	0.60	0.63	0.67	0.73	0.76	0.77	0.78
Chile	1.92	1.81	1.69	1.86	1.67	1.56	1.75	1.78	1.68	1.65	1.71	1.67	1.44	1.41	1.36	1.53	1.50	1.52	1.59
Colombia	ne	ne	ne	ne	ne	ne	1.22	1.21	0.95	0.79	0.97	0.83	0.92	0.92	0.82	1.07	0.94	0.79	0.66
Ecuador	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guyana	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

TABLE S5A-27

Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	na	na	ne	na	na	ne	na	na	na	na	ne	ne	na	ne	na	ne	na	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Suriname	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	na	ne	na	na	na
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.01	ne
Venezuela	1.69	1.33	1.72	1.96	1.53	1.31	1.34	1.46	1.86	1.10	1.10	1.35	1.11	1.45	1.06	1.64	1.69	1.99	ne
Europe	1.25	1.21	1.23	1.23	1.25	1.29	1.25	1.23	1.24	1.20	1.25	1.25	1.20	1.14	1.13	1.19	1.20	1.15	1.15
EU	1.17	1.11	1.12	1.13	1.12	1.14	1.16	1.14	1.15	1.10	1.13	1.12	1.10	1.04	1.03	1.09	1.10	1.06	1.06
Austria	1.14	1.15	0.98	1.11	1.20	1.28	1.38	1.23	1.39	1.21	1.29	1.23	1.37	1.28	1.28	1.34	1.49	1.53	1.53
Belgium	1.09	1.01	0.98	0.96	1.09	1.07	1.12	1.08	1.18	1.02	1.05	0.97	0.90	0.85	0.81	0.86	0.93	0.91	0.85
Bulgaria	1.70	1.94	1.44	1.43	1.47	1.68	1.66	1.67	1.81	1.69	1.94	1.77	2.06	1.83	1.89	1.81	1.88	1.85	1.36
Croatia	1.41	1.36	1.25	1.03	1.14	1.45	1.23	1.38	1.34	1.18	1.43	1.22	1.41	1.08	1.37	1.54	1.65	1.14	1.39
Cyprus	ne	ne	ne	ne	ne	ne	ne	3.25	ne	2.16	2.54	1.75	ne	1.55	ne	1.80	ne	1.09	ne
Czechia	1.45	1.20	1.35	1.50	1.30	1.15	1.28	1.54	1.30	1.13	1.29	1.15	1.19	1.28	1.16	1.37	1.19	1.02	1.03
Denmark	0.64	0.67	0.73	0.76	0.70	0.67	0.63	0.57	0.53	0.50	0.59	0.50	0.47	0.39	0.42	0.45	0.47	0.51	0.42
Estonia	ne	ne	ne	ne	ne	ne	ne	2.05	1.27	1.49	1.26	1.12	0.94	0.83	0.98	ne	ne	1.06	ne
Finland	0.66	0.57	0.61	0.67	0.88	0.60	0.68	0.87	0.85	0.72	0.84	0.84	0.77	0.80	0.82	0.84	0.93	0.84	0.67
France	1.66	1.51	1.67	1.63	1.65	1.64	1.68	1.63	1.59	1.55	1.66	1.62	1.60	1.45	1.47	1.54	1.61	1.56	1.54
Germany	1.09	0.89	0.91	0.94	0.92	0.93	0.95	0.92	0.96	0.88	0.90	0.96	0.94	0.92	0.89	0.98	1.00	0.97	1.02
Greece	1.62	1.39	1.54	1.56	1.51	1.42	1.25	1.15	1.37	1.12	1.26	1.06	1.18	1.12	1.01	1.17	1.01	1.05	1.02
Hungary	2.20	2.17	2.10	1.98	1.96	1.67	1.89	1.66	1.80	1.87	1.81	1.91	1.83	1.85	1.60	1.86	2.08	1.72	1.92
Ireland	1.34	1.07	0.97	1.03	0.87	0.85	1.04	0.77	0.82	0.80	0.76	0.86	0.72	0.66	0.61	0.58	0.59	0.72	0.64
Italy	1.21	1.39	1.31	1.31	1.30	1.40	1.37	1.35	1.32	1.36	1.31	1.35	1.31	1.20	1.20	1.26	1.24	1.22	1.19
Latvia	ne	ne	ne	ne	ne	ne	ne	3.05	ne	ne	ne	ne	ne	ne	ne	0.85	ne	ne	ne
Lithuania	3.51	3.65	3.23	3.38	2.24	2.15	1.91	2.75	1.43	1.21	1.19	1.23	1.40	0.92	0.97	1.03	1.01	1.22	0.81
Luxembourg	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.60	1.68	2.04	1.49	ne	2.14
Malta	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	0.71	0.65	0.61	0.71	0.55	0.69	0.65	0.59	0.60	0.55	0.50	0.49	0.50	0.46	0.47	0.49	0.54	0.48	0.50
Poland	1.46	1.48	1.38	1.45	1.30	1.34	1.25	1.36	1.32	1.46	1.31	1.42	1.52	1.28	1.23	1.39	1.29	1.17	1.19
Portugal	1.55	1.80	1.72	1.51	1.75	1.72	1.60	1.34	1.50	1.53	1.54	1.51	1.45	1.17	1.32	1.16	1.04	1.12	1.01
Romania	2.23	2.20	3.19	2.97	2.74	2.87	2.97	2.19	2.63	2.44	2.17	2.53	2.36	2.30	2.13	1.99	1.98	1.80	1.77
Slovakia	1.09	0.92	1.19	1.41	0.94	0.98	1.00	1.74	1.31	1.23	1.08	1.35	1.11	1.14	0.84	1.08	1.12	0.65	0.63
Slovenia	2.03	1.51	1.89	1.28	1.75	2.08	1.95	1.74	1.49	1.29	1.50	1.50	1.52	1.49	1.46	1.34	1.51	1.40	1.71
Spain	1.46	1.34	1.34	1.35	1.41	1.32	1.41	1.32	1.33	1.22	1.24	1.15	1.15	1.12	1.14	1.08	1.07	1.07	1.03
Sweden	0.59	0.64	0.70	0.69	0.75	0.82	0.91	0.76	0.76	0.74	0.80	0.68	0.62	0.62	0.66	0.71	0.76	0.78	0.80
United Kingdom	0.88	0.83	0.74	0.75	0.73	0.79	0.82	0.80	0.79	0.77	0.84	0.83	0.75	0.76	0.76	0.80	0.86	0.86	0.87
Other Europe	1.70	1.77	1.84	1.77	1.97	2.09	1.77	1.77	1.79	1.78	1.91	1.92	1.72	1.68	1.66	1.67	1.63	1.52	1.51

TABLE S5A-27

Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	na	na	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Belarus	2.72	2.25	2.06	2.17	2.18	2.63	2.79	2.35	2.57	2.63	3.21	3.01	2.94	2.28	2.50	3.22	3.74	2.83	2.52
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	na	na	ne	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	ne	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Moldova	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	na	na	na	na	na	ne	na	ne	na	ne	na	na	na	na	na	ne	na	na	na
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	0.69	0.81	0.85	0.85	0.83	0.82	0.95	0.93	0.88	0.98	0.85	0.85	0.79	0.83	0.79	0.76	0.83	0.67	0.78
Russia	2.32	2.38	2.67	2.76	3.22	3.53	2.74	2.81	2.85	2.84	3.10	2.86	2.63	2.38	2.34	2.32	2.10	1.79	1.70
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na
Serbia[a]	na	na	na	na	na	na	na	3.09	2.46	2.39	2.53	2.51	1.83	1.84	1.73	1.91	1.85	1.82	2.06
Serbia and Montenegro[b]	1.58	1.99	2.38	2.05	2.10	2.00	2.29	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.65	0.63	0.74	0.71	0.69	0.76	0.76	0.72	0.74	0.71	0.68	0.76	0.71	0.76	0.79	0.89	0.90	0.90	0.87
Turkey	0.98	0.72	0.74	0.73	0.94	0.94	1.13	1.00	1.08	1.17	1.32	1.46	1.29	1.52	1.37	1.21	1.28	1.30	1.41
Ukraine	2.19	2.70	2.13	1.73	2.20	2.57	2.83	2.82	2.67	2.84	2.77	3.36	3.00	2.46	2.63	2.35	2.38	2.48	2.08
Middle East	1.62	1.83	1.82	1.78	1.89	1.96	2.06	1.82	1.75	1.57	1.65	1.81	1.87	1.79	1.81	1.72	1.72	1.72	1.78
Armenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	4.37	4.35	4.28	3.56	3.87	2.58	4.53	3.95	3.78	4.93
Azerbaijan	ne	ne	ne	ne	ne	ne	ne	ne	3.06	3.04	3.97	3.40	3.48	4.03	6.14	7.98	6.37	6.37	6.31
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	9.12	8.60	10.01	10.32	10.34	7.85	8.02	7.37	10.44	9.75	6.46	14.33	13.58	14.66	10.45	12.55	15.88	11.42	12.69
Iran	2.13	2.30	1.92	1.60	1.89	2.13	2.20	1.82	1.49	1.40	1.40	1.63	1.69	1.56	1.59	1.53	1.49	1.61	1.64
Iraq	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.34	ne	1.38	0.88	1.03
Israel	1.33	1.57	1.40	1.46	1.45	1.37	1.53	1.56	1.54	1.41	1.59	1.51	1.39	1.40	1.50	1.28	1.40	1.49	1.37
Jordan	ne	ne	2.22	2.09	2.81	3.15	2.86	2.39	2.66	1.90	2.21	2.66	3.58	2.49	2.76	2.06	2.30	2.13	2.31
Kuwait	2.95	2.90	2.50	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.68	2.12	1.52	2.09	1.85	1.88
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.26	1.09	ne	1.03	ne	ne	1.18
Oman	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.19	ne	ne	ne	ne	ne	ne	ne	ne
Qatar	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saudi Arabia	1.55	2.02	2.01	2.36	2.31	2.98	2.82	2.46	2.76	2.06	2.55	2.43	2.92	2.84	2.92	2.52	2.40	2.22	2.10

TABLE S5A-27

Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	ne	2.72	3.08	2.58	2.05	ne	1.43	1.30	1.19	1.09	1.26	0.99	1.01	1.21	1.03	1.12	3.13
West Bank	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	1.26	1.50	1.51	1.69	1.53	1.66	1.47	1.39	1.53	1.34	1.39	1.39	1.28	1.28	1.30	1.24	1.32	1.23	1.29
Algeria	ne	3.26	4.51	3.27	2.44	3.86	3.47	3.04	3.08	2.30	3.33	3.09	2.55	2.41	2.76	2.73	2.82	2.59	3.04
Angola	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	ne
Benin	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	ne	na	na	ne	ne	na	na	na	na	na	ne	na	na	ne	na	na	na	na
Cabo Verde	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	ne	na	na	ne	ne
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.98	ne
Central African Republic	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	ne	ne	na	na	ne
Chad	ne	ne	na	ne	na	na	ne	na	na	ne	na	na	na	na	na	na	ne	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	na
Congo, Democratic Republic of the	na	na	na	na	na	na	ne	ne	na	ne	na	na	na	na	ne	ne	na	ne	na
Congo, Republic of the	na	na	na	ne	ne	na	ne	ne	ne	na	ne	ne	na	ne	na	na	ne	ne	ne
Côte d'Ivoire	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	1.24	1.41	1.65	2.31	2.37	1.92	1.55	1.37	1.65	1.35	1.21	1.16	1.14	1.13	1.07	0.95	1.06	0.91	0.93
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Eritrea	na	na	na	na	na	ne	ne	na	na	na	ne	na	na	na	na	na	ne	ne	ne
Eswatini	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne
Ethiopia	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gabon	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	na	ne	na
Ghana	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea	na	na	na	na	na	na	na	ne	ne	ne	na	na	ne	ne	ne	na	ne	ne	ne
Guinea-Bissau	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
Kenya	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lesotho	na	na	ne	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	na	na	na	na
Liberia	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	ne	na	ne	ne	na
Libya	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	na	na	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	na	na	na	na	ne	na	ne	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne

TABLE S5A-27

Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	na	ne	na	na	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Mauritania	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	na	ne	ne	ne
Mauritius	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	3.57	4.46	4.14	5.09	4.46	6.06	5.35	4.21	4.42	3.66	4.10	3.34	2.28	2.49	2.33	2.69	2.73	2.01	2.65
Mozambique	ne	na	ne	ne	ne	ne	ne	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne
Namibia	ne	na	na	ne	na	ne	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Niger	na	na	na	ne	na	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Nigeria	ne	ne	ne	ne	ne	ne	ne	ne	0.53	0.53	0.49	0.72	0.75	0.63	0.87	0.77	0.75	0.79	0.74
Rwanda	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	na	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sierra Leone	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
South Africa	0.88	1.11	1.05	1.01	0.91	1.05	1.04	1.19	1.07	1.03	0.89	1.00	1.02	1.10	1.22	0.97	0.92	0.91	0.88
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Sudan	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	ne	na	na	ne	ne	na	ne	ne	ne	ne	na	ne	na	ne	ne	ne	na	na	ne
Tunisia	3.40	3.13	3.01	2.96	2.24	2.56	2.10	2.36	2.12	1.93	2.27	2.19	2.02	1.77	1.74	1.70	1.96	1.97	1.97
Uganda	na	ne	ne	na	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	ne	ne	na	na	na	na	ne	ne	na	na	ne	ne	na	na	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Asia	0.78	0.82	0.82	0.83	0.78	0.72	0.77	0.80	0.81	0.87	0.83	0.85	0.91	1.00	0.99	0.91	0.86	0.91	0.91
Afghanistan	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	19.89	ne	12.01
Bangladesh	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.93	ne
Bhutan	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burma	ne	na	na	na	na	na	ne	na	na	na	ne	na	ne	ne	ne	na	na	ne	ne
Cambodia	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	ne	ne
China	1.17	1.13	1.11	1.08	0.97	0.80	0.87	0.90	0.89	0.99	0.90	0.92	1.03	1.18	1.16	1.00	0.92	0.90	0.87
India	0.81	0.78	0.86	0.81	0.77	0.81	0.79	0.84	0.85	0.86	0.83	0.82	0.78	0.80	0.80	0.88	0.84	1.24	1.44
Indonesia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.47	ne	ne	0.23	0.24	0.16
Japan	0.50	0.54	0.52	0.55	0.56	0.52	0.53	0.56	0.57	0.58	0.62	0.60	0.61	0.61	0.64	0.67	0.67	0.73	0.70
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	5.51	4.32	4.04	3.51	3.09	3.41	2.41	2.82	2.08

TABLE S5A-27

Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	na	na	na	na	ne	na	na	na	na	ne	na	na	na	ne	na	ne	na	na
Malaysia	ne	ne	ne	ne	ne	0.61	0.78	0.67	0.65	0.70	0.67	0.67	0.78	0.90	0.74	0.56	0.55	0.41	0.51
Maldives	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na
Mongolia	na	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
North Korea	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	ne	ne	ne	ne	ne	0.71	1.16	1.29	1.40	1.54	1.57	1.72	1.60	1.46	1.81	1.61	1.58	1.50	1.58
Papua New Guinea	na	na	na	ne	ne	ne	ne	ne	ne	na	na	ne	na	ne	ne	ne	na	ne	ne
Philippines	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.98	1.00	0.98	ne
Singapore	0.94	1.28	1.20	1.13	0.81	0.77	0.74	0.81	0.72	0.73	0.68	0.66	0.64	0.57	0.61	0.61	0.57	0.50	0.61
South Korea	0.95	0.90	0.99	0.94	0.75	0.79	0.77	0.75	0.78	0.76	0.73	0.72	0.78	0.82	0.74	0.75	0.76	0.77	0.74
Sri Lanka	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Taiwan	1.04	0.89	0.90	0.86	0.83	0.83	0.90	0.80	0.86	0.88	0.84	0.84	0.93	0.97	0.92	0.87	0.74	0.70	0.66
Tajikistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	ne	ne	ne	ne	ne	0.48	0.61	0.56	0.44	0.82	0.94	1.30	1.31	1.36	1.44	1.01	0.99	0.88	0.95
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Turkmenistan	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	4.71	3.91	4.36	5.51	6.39	7.62	7.90	4.86	6.78	8.21
Vietnam	6.41	8.87	7.66	6.61	6.10	6.14	5.79	4.56	5.81	5.16	5.41	5.77	4.62	4.28	4.62	3.89	3.89	4.02	3.24
Australia and Oceania	0.84	0.79	0.77	0.72	0.84	0.72	0.70	0.65	0.73	0.66	0.64	0.61	0.60	0.51	0.56	0.55	0.56	0.54	0.52
Australia	0.86	0.78	0.73	0.71	0.85	0.72	0.70	0.64	0.74	0.64	0.63	0.60	0.59	0.49	0.56	0.54	0.55	0.53	0.52
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Fiji	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Micronesia, Federated States of	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	0.73	0.89	0.94	0.76	0.81	0.76	0.75	0.70	0.69	0.74	0.73	0.63	0.65	0.65	0.58	0.62	0.63	0.58	0.57
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Solomon Islands	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

TABLE S5A-27

Specialization of S&E articles in mathematics and statistics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.63	1.53	0.44	0.43	1.84	1.75	1.06	0.88	0.59	0.44	0.30	0.26	0.15	0.25	0.66	0.65	ne	0.39	0.38

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-28

Specialization of S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.23	1.06	1.10	1.05	1.13	1.17	1.02	1.02	1.02	1.00	0.96	0.98	0.89	0.83	0.83	0.82	0.78	0.80	0.71
Canada	2.43	2.19	2.10	2.05	1.99	2.26	1.83	1.71	1.64	1.51	1.50	1.43	1.46	1.32	1.27	1.30	1.23	1.21	1.15
Greenland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mexico	1.15	1.40	1.45	1.73	1.85	1.61	1.50	1.69	1.60	1.55	1.83	1.86	1.81	1.86	1.71	1.93	1.52	1.85	1.68
United States	1.10	0.93	0.98	0.92	1.02	1.03	0.90	0.92	0.92	0.92	0.86	0.89	0.78	0.73	0.74	0.71	0.69	0.70	0.61
Central America and Caribbean	1.23	1.64	ne	1.36	1.40	1.27	0.97	1.36	1.16	1.28	1.14	1.19	1.27	1.01	1.23	0.90	0.98	1.33	1.15
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Bahamas, The	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	na	na	na	ne	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.81	ne
Cuba	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominica	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na
Dominican Republic	na	na	na	ne	na	na	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	na	ne	na	ne	na	na	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Grenada	na	na	na	na	na	na	na	ne	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne
Guatemala	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	na	na	na	na	na	na	na	ne	na	ne	na	ne	na	na	ne	ne	na	na	ne
Honduras	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	ne
Saint Lucia	na	na	ne	na	na	ne	ne	na	na	na	na	na	na	na	na	ne	ne	na	ne
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	ne	na	ne	ne	na	na	na	na	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	0.91	0.94	1.14	0.83	0.95	0.91	1.16	1.36	1.16	1.28	1.26	1.31	1.44	1.48	1.52	1.52	1.51	1.49	1.43
Argentina	0.73	0.70	0.78	0.86	0.94	0.99	1.25	1.27	1.25	1.17	1.13	1.18	1.33	1.37	1.94	1.17	1.38	1.21	1.31
Bolivia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.83	0.90	1.17	0.69	0.81	0.81	1.08	1.33	1.11	1.29	1.32	1.39	1.53	1.57	1.59	1.66	1.62	1.62	1.52
Chile	1.72	1.68	1.69	1.81	1.95	1.51	1.77	2.16	1.94	1.71	1.69	1.57	1.60	1.66	1.37	1.51	1.51	1.49	1.43
Colombia	ne	ne	ne	ne	ne	ne	ne	1.33	ne	1.04	0.80	0.65	0.71	0.70	0.69	0.91	0.93	1.00	1.03
Ecuador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.62	1.11	1.30
Guyana	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-28

Specialization of S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	na	na	na	ne	na	na	na	na	na	na	ne	ne	na	ne	na	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.11	1.10
Suriname	ne	ne	ne	na	na	ne	ne	ne	na	ne	na	na	ne	na	na	na	ne	ne	ne
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Venezuela	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Europe	0.81	0.84	0.83	0.90	0.89	0.86	0.95	0.92	0.94	0.92	0.95	0.94	0.97	0.94	0.95	0.93	0.95	0.94	0.97
EU	0.85	0.87	0.86	0.91	0.91	0.87	0.94	0.91	0.92	0.91	0.93	0.92	0.96	0.94	0.96	0.95	0.99	0.98	1.01
Austria	0.76	0.83	0.67	0.73	0.76	0.84	0.90	1.09	0.95	0.90	0.94	0.86	0.94	0.94	0.91	0.97	0.89	0.92	1.03
Belgium	0.80	0.88	0.85	1.02	1.07	1.02	0.90	1.05	0.83	0.84	0.91	0.85	0.85	0.88	0.82	0.85	0.87	0.74	0.79
Bulgaria	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.78	ne	1.28	0.87	0.69	0.78	0.77	0.88	0.80	0.56
Croatia	1.47	1.21	ne	1.04	1.42	1.62	3.47	2.46	2.37	2.15	1.72	2.56	2.22	1.71	1.33	1.52	1.60	1.58	1.39
Cyprus	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.03
Czechia	0.42	0.88	0.82	1.24	1.41	1.06	1.17	1.16	1.12	1.45	1.59	1.39	1.36	1.23	1.35	1.31	1.40	1.48	1.48
Denmark	1.64	1.59	1.26	1.35	1.49	1.34	1.47	1.46	1.46	1.41	1.36	1.22	1.18	1.09	1.15	1.13	1.14	1.16	1.14
Estonia	ne	ne	ne	ne	ne	3.63	4.75	3.53	2.91	3.87	2.64	3.28	2.32	2.30	1.67	2.13	1.89	2.15	1.20
Finland	3.22	2.95	3.05	2.96	3.30	3.07	2.82	2.68	2.45	2.34	2.74	2.34	2.41	2.09	2.05	2.05	1.94	1.94	1.87
France	0.60	0.54	0.62	0.62	0.63	0.58	0.67	0.59	0.68	0.66	0.56	0.63	0.62	0.66	0.73	0.65	0.73	0.63	0.70
Germany	0.59	0.59	0.62	0.59	0.54	0.59	0.55	0.58	0.57	0.55	0.53	0.60	0.57	0.57	0.53	0.56	0.56	0.59	0.56
Greece	1.54	1.93	1.74	1.82	2.07	1.38	1.84	1.46	1.43	1.65	1.61	1.44	1.69	1.67	1.60	1.48	1.43	1.49	1.38
Hungary	ne	ne	0.48	ne	ne	ne	0.54	0.40	0.35	0.92	0.71	0.67	0.95	0.98	0.84	0.81	0.84	0.83	0.80
Ireland	1.10	1.06	1.11	1.12	0.92	0.75	1.10	0.87	0.86	0.80	0.75	1.07	0.96	0.91	0.84	0.74	0.84	0.83	0.88
Italy	0.52	0.58	0.58	0.62	0.62	0.60	0.72	0.63	0.69	0.68	0.73	0.70	0.76	0.78	0.89	0.84	0.91	0.90	0.94
Latvia	ne	ne	ne	ne	ne	7.13	7.62	4.05	ne	4.57	6.74	4.28	4.58	4.77	3.70	4.43	4.32	4.45	3.61
Lithuania	ne	ne	ne	ne	ne	1.50	1.91	2.53	1.01	1.11	1.65	1.75	1.88	1.43	1.81	1.81	2.25	1.56	1.94
Luxembourg	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malta	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	0.80	0.79	0.86	0.69	0.70	0.69	0.79	0.75	0.78	0.73	0.74	0.67	0.70	0.73	0.83	0.75	0.86	0.76	0.85
Poland	1.08	0.91	1.17	1.12	1.07	0.99	1.01	1.05	1.18	1.36	1.33	1.38	1.46	1.59	1.58	1.60	1.86	2.11	2.27
Portugal	1.65	1.79	1.88	1.94	1.91	1.82	1.89	2.12	2.34	1.96	1.96	1.87	1.69	1.71	1.77	1.84	1.74	1.69	1.78
Romania	ne	ne	ne	ne	ne	ne	ne	ne	0.63	0.83	1.10	0.91	1.11	1.10	0.90	1.00	0.73	0.79	0.83
Slovakia	ne	1.66	1.25	1.29	ne	1.12	1.30	1.84	2.50	2.11	1.98	2.02	2.37	2.64	1.92	2.06	2.28	1.76	1.60
Slovenia	ne	ne	ne	ne	ne	1.09	1.40	1.90	1.56	1.45	1.42	1.33	1.63	1.49	1.40	1.44	1.48	1.19	1.28
Spain	0.94	1.05	0.97	1.07	1.12	0.99	1.13	1.12	1.31	1.14	1.29	1.18	1.41	1.27	1.30	1.27	1.34	1.29	1.39
Sweden	1.98	1.84	1.70	2.16	2.11	1.98	2.04	1.81	1.87	1.53	1.66	1.59	1.80	1.65	1.63	1.57	1.54	1.47	1.42
United Kingdom	0.84	0.86	0.78	0.90	0.78	0.78	0.75	0.75	0.72	0.67	0.67	0.67	0.67	0.64	0.67	0.63	0.69	0.66	0.68
Other Europe	0.58	0.64	0.69	0.80	0.77	0.78	1.03	1.02	1.01	1.01	1.03	1.02	1.02	0.94	0.91	0.86	0.74	0.80	0.81

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	na
Belarus	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bosnia and Herzegovina	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.73	ne	3.67	ne	3.06	2.85	ne	ne	2.48
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne	ne	ne	ne
Moldova	na	na	na	na	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	3.37	3.66	3.85	3.99	3.52	2.78	3.54	2.95	2.77	2.35	2.48	2.62	2.52	2.55	2.22	1.97	1.78	1.82	1.66
Russia	0.16	0.20	0.21	0.18	0.12	0.18	0.36	0.45	0.33	0.31	0.36	0.39	0.32	0.29	0.43	0.27	0.29	0.45	0.56
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Serbia[a]	na	na	na	na	na	na	na	0.75	0.97	0.97	1.20	1.11	1.35	1.44	1.34	1.79	1.81	1.49	1.29
Serbia and Montenegro[b]	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.59	0.70	0.72	0.78	0.69	0.84	0.83	0.85	0.82	0.93	0.75	0.85	0.92	0.90	0.93	0.89	0.84	0.79	0.85
Turkey	0.84	0.90	1.00	1.34	1.45	1.30	1.51	1.49	1.74	1.63	1.73	1.45	1.47	1.25	1.15	1.36	1.07	1.21	1.04
Ukraine	ne	ne	ne	ne	ne	ne	ne	0.38	ne	0.47	ne	0.69	0.38	0.36	0.32	0.25	0.19	0.20	0.52
Middle East	0.63	0.69	0.66	0.71	0.71	0.70	0.85	0.88	0.86	0.83	0.91	0.89	0.98	1.00	0.94	0.94	0.87	0.92	0.88
Armenia	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne
Azerbaijan	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	na	ne	ne	ne	ne
Gaza Strip	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Georgia	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	ne	ne	ne	0.79	0.90	0.85	0.93	1.04	1.02	0.96	1.10	1.04	1.21	1.25	1.18	1.15	1.04	1.06	1.09
Iraq	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.80	0.49
Israel	0.46	0.49	0.44	0.40	0.40	0.51	0.55	0.48	0.44	0.40	0.40	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.39
Jordan	ne	ne	ne	ne	ne	ne	2.43	2.42	ne	ne	ne	ne	ne	1.30	ne	1.45	0.92	0.92	1.10
Kuwait	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.38	ne	ne	ne	ne	ne	ne
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.46	1.14
Oman	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Qatar	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.02	0.99
Saudi Arabia	ne	ne	ne	ne	ne	ne	ne	ne	0.87	0.89	0.87	0.97	0.83	0.67	0.68	0.81	0.80	0.86	0.65

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.13	ne	1.11	0.76	0.97	0.77
West Bank	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	1.58	1.50	1.82	1.64	1.58	1.54	1.57	1.46	1.41	1.39	1.43	1.36	1.34	1.27	1.22	1.24	1.20	1.30	1.33
Algeria	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.89	ne	ne	0.81	0.62	0.83	0.65	0.82	0.71	0.81
Angola	na	na	na	na	na	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Benin	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	na	na	ne	na	na	ne	na	na	na	ne	ne	na	na	ne	ne	na	ne	ne
Cabo Verde	na	na	na	na	na	ne	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	na	ne
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Central African Republic	na	na	ne	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne
Chad	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	na	ne	ne	na
Congo, Democratic Republic of the	na	ne	ne	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne	ne	na	ne	ne
Egypt	1.13	1.19	1.39	1.06	1.18	1.16	0.88	1.06	0.99	0.76	1.03	0.80	0.78	1.10	1.05	1.00	1.00	1.00	1.27
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Eritrea	na	na	ne	ne	na	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	na
Eswatini	na	na	na	na	ne	na	na	ne	ne	na	na	ne	ne	na	ne	na	na	ne	na
Ethiopia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.11	ne	1.40	1.91	1.48
Gabon	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	ne	na	ne	na	na	ne	na	na	na	na	ne	na	ne	na	ne	ne	ne
Ghana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	7.75	ne	ne	ne	3.72	3.01	2.63	2.55	2.43
Guinea	na	ne	na	ne	na	ne	na	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne
Guinea-Bissau	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne	ne
Kenya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.12	ne	ne	2.84	1.74	2.15	2.41	1.86
Lesotho	na	na	na	na	na	na	ne	na	ne	na	na	ne	ne	ne	ne	na	ne	na	na
Liberia	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	na	ne	ne	ne
Libya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.60	0.47	0.48	0.86
Mozambique	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Namibia	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	na	ne	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	3.35	2.98	3.22	2.49	3.24	3.37	2.47	2.12	2.86	2.56	2.66	2.50	3.10	2.04	1.69	2.38	2.13	2.85	2.35
Rwanda	na	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	ne	ne	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Sierra Leone	ne	ne	na	na	na	ne	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
South Africa	1.33	1.22	1.66	1.55	1.35	1.28	1.78	1.50	1.42	1.49	1.23	1.35	1.14	1.23	1.17	1.22	1.14	1.37	1.38
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne
Sudan	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	na	ne	ne	na	ne	na	ne	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne
Tunisia	ne	ne	ne	ne	ne	ne	ne	1.00	0.82	0.89	1.10	0.85	1.00	1.12	0.95	1.09	1.01	0.78	0.80
Uganda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Asia	0.95	1.16	1.07	1.05	0.95	0.97	0.98	1.00	1.01	1.03	1.04	1.04	1.04	1.10	1.09	1.11	1.13	1.10	1.13
Afghanistan	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Bangladesh	ne	ne	ne	ne	ne	3.92	3.21	3.48	3.46	2.63	2.25	1.94	3.09	1.80	2.20	1.63	2.35	1.77	1.75
Bhutan	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	ne	ne	ne	ne
Brunei	ne	na	na	ne	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burma	ne	na	na	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cambodia	na	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
China	0.59	0.92	0.84	0.99	0.80	0.84	0.95	0.99	1.01	1.01	1.03	1.12	1.06	1.28	1.27	1.34	1.34	1.29	1.32
India	2.61	2.67	2.14	2.28	2.06	2.18	1.86	1.71	1.55	1.67	1.75	1.42	1.49	1.23	1.00	0.98	0.95	0.91	0.75
Indonesia	ne	ne	ne	ne	ne	ne	3.08	ne	ne	2.11	1.98	1.48	2.03	1.78	1.60	1.51	1.04	0.82	2.00
Japan	0.80	1.02	0.97	0.82	0.82	0.88	0.79	0.86	0.83	0.86	0.74	0.70	0.73	0.67	0.65	0.58	0.64	0.60	0.60
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.01	4.44	2.73

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	na	na	ne	na	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Laos	na	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	2.59	2.92	2.75	2.39	1.99	2.02	1.77	2.09	1.48	1.86	1.73	1.52	1.68	1.67	1.74	1.68	1.61	1.65	1.54
Maldives	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	na	na	ne	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne
Pakistan	ne	ne	ne	ne	ne	1.03	0.86	0.83	0.83	0.74	0.81	0.75	0.79	0.96	1.08	1.25	1.30	1.34	1.30
Papua New Guinea	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	ne	ne	7.26	5.66	ne	ne	6.81	4.49	3.89	3.53	ne	2.68	2.66	2.18	2.56	1.88	2.25	2.18	1.92
Singapore	ne	ne	0.40	ne	ne	0.33	0.31	0.27	0.29	0.30	0.36	0.33	0.30	0.42	0.45	0.52	0.51	0.57	0.51
South Korea	0.47	0.75	0.78	0.58	0.79	0.61	0.56	0.55	0.76	0.65	0.72	0.70	0.77	0.70	0.76	0.73	0.69	0.72	0.75
Sri Lanka	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.85	1.37	1.01
Taiwan	1.15	1.16	1.16	1.17	1.01	0.86	0.99	0.90	0.83	0.86	0.94	0.73	0.82	0.65	0.63	0.63	0.73	0.62	0.74
Tajikistan	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	ne	1.96	2.42	2.02	1.39	1.72	2.12	2.18	2.08	2.23	1.95	1.86	1.68	1.62	1.72	1.71	1.42	1.49	1.17
Timor-Leste	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	ne	ne	ne	ne	ne
Turkmenistan	na	na	na	na	ne	na	ne	ne	na	na	na	ne	ne	na	ne	na	na	na	na
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.13	ne	1.82	1.31	1.24	1.36	1.22	1.22	1.26	1.38
Australia and Oceania	1.60	1.54	1.47	1.65	1.57	1.41	1.48	1.35	1.36	1.34	1.26	1.16	1.28	1.24	1.22	1.22	1.20	1.15	1.11
Australia	1.50	1.35	1.34	1.52	1.46	1.28	1.38	1.28	1.33	1.29	1.28	1.14	1.24	1.22	1.21	1.24	1.20	1.16	1.10
Cook Islands	ne	na	na	na	na	na	na	ne	na	ne	na	na	na	na	ne	ne	ne	na	na
Fiji	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	ne	na	na
Marshall Islands	na	na	na	ne	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	ne
Micronesia, Federated States of	na	na	na	na	ne	ne	na	na	na	ne	ne	na	ne	ne	ne	ne	na	ne	ne
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	2.10	2.58	2.11	2.45	2.19	2.13	2.00	1.76	1.54	1.69	1.15	1.28	1.47	1.32	1.25	1.05	1.18	1.00	1.07
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na
Palau	na	na	na	na	na	na	ne	ne	na	ne	ne	na	na	na	ne	ne	na	ne	ne
Samoa	na	ne	ne	na	na	na	ne	ne	na	na	ne	na	na	ne	ne	na	na	na	ne
Solomon Islands	ne	na	ne	ne	na	na	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Tonga	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	ne	ne	ne	ne
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne
Vanuatu	ne	na	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-28

Specialization of S&E articles in natural resources and conservation, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.66	0.70	0.76	0.68	0.80	0.81	0.70	0.66	0.52	0.66	0.44	0.55	0.37	0.53	0.88	ne	0.44	0.37	0.27

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	0.72	0.75	0.72	0.76	0.73	0.80	0.81	0.80	0.78	0.80	0.79	0.81	0.81	0.79	0.76	0.76	0.74	0.74	0.70
Canada	0.57	0.56	0.60	0.60	0.58	0.61	0.62	0.62	0.63	0.65	0.61	0.70	0.66	0.66	0.63	0.63	0.61	0.60	0.57
Greenland	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	na	na	na	na	na	na	na
Mexico	1.35	1.33	1.29	1.28	1.15	1.31	1.33	1.22	1.21	1.05	1.09	1.11	1.11	1.03	1.08	1.10	1.11	1.12	1.07
United States	0.72	0.76	0.73	0.77	0.74	0.82	0.82	0.82	0.79	0.81	0.81	0.82	0.82	0.80	0.77	0.77	0.75	0.75	0.71
Central America and Caribbean	0.63	0.55	0.60	0.61	0.51	0.58	0.51	0.48	0.61	0.44	0.45	0.57	0.43	0.36	0.46	0.48	0.49	0.41	0.49
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Bahamas, The	na	na	na	ne	ne	na	na	na	na	na	ne	ne	na	na	na	na	na	ne	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cuba	0.58	0.44	0.47	0.61	0.47	0.67	0.43	0.42	0.53	0.30	0.29	0.54	0.32	0.32	0.54	0.40	0.55	0.53	0.63
Dominica	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na
Dominican Republic	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne
El Salvador	na	ne	na	na	na	na	na	ne	na	na	na	na	na	na	na	ne	ne	ne	na
Grenada	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	na	ne
Guatemala	na	ne	na	na	na	ne	ne	ne	na	ne	ne	ne	ne	na	ne	na	ne	ne	ne
Haiti	na	na	na	na	na	na	ne	na	ne	na	ne	ne	ne	na	na	na	na	na	na
Honduras	na	na	na	na	ne	na	ne	na	ne	na	ne	na	ne	na	na	na	na	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	na	na	na	na	na	na	ne	na	na	ne	ne	na	na	na	na	na	na	na	na
Panama	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Puerto Rico	1.23	1.29	1.47	0.91	0.99	1.03	1.02	0.96	1.34	1.13	1.04	1.17	1.10	0.89	0.87	0.95	0.82	0.74	0.81
Saint Kitts and Nevis	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne
Saint Lucia	ne	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	ne	na	ne	na	na	na	na	na	na	na	na	na	na	ne
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	1.11	1.16	1.17	0.98	1.11	0.95	0.80	0.80	0.73	0.68	0.71	0.63	0.65	0.65	0.65	0.66	0.68	0.61	0.64
Argentina	1.20	1.18	1.24	1.11	1.16	1.03	0.89	1.21	0.97	1.10	0.92	1.00	0.88	0.94	0.89	0.92	0.87	0.85	0.79
Bolivia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	1.15	1.25	1.21	0.99	1.18	0.99	0.80	0.74	0.68	0.62	0.68	0.58	0.60	0.60	0.60	0.60	0.63	0.54	0.58
Chile	0.59	0.75	0.96	0.62	0.76	0.71	0.71	0.69	0.74	0.65	0.71	0.65	0.82	0.69	0.74	0.79	0.81	0.79	0.86
Colombia	1.83	1.02	1.05	0.99	0.82	1.01	0.92	0.84	0.99	0.70	0.71	0.61	0.62	0.70	0.71	0.70	0.81	0.75	0.85
Ecuador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.30	0.29	0.33
Guyana	ne	na	ne	na	ne	ne	na	ne	na	na	na	na	na	na	ne	na	na	na	na

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	na	ne	ne	na	na	na	ne	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.25	0.48
Suriname	na	ne	na	na	na	na	na	na	na	na	ne	na	na	na	ne	ne	ne	na	na
Uruguay	ne	ne	ne	1.20	1.13	0.91	ne	1.01	0.73	0.82	0.85	0.76	0.57	0.69	0.59	0.80	0.73	0.68	0.69
Venezuela	0.90	0.86	1.02	1.11	0.78	0.69	0.83	0.69	0.61	0.67	0.65	0.50	0.70	0.48	0.66	0.91	0.81	0.99	0.84
Europe	1.14	1.11	1.12	1.11	1.13	1.10	1.08	1.09	1.13	1.15	1.14	1.15	1.12	1.11	1.11	1.10	1.12	1.10	1.09
EU	1.01	0.98	1.02	1.00	1.03	1.01	1.00	1.01	1.03	1.06	1.05	1.06	1.03	1.02	1.01	0.98	0.98	0.96	0.92
Austria	0.97	0.88	0.89	0.93	0.89	0.91	0.85	0.96	0.93	0.95	0.98	1.03	0.93	0.96	0.98	0.89	0.91	0.98	0.89
Belgium	1.04	0.99	1.10	1.15	1.15	1.10	1.09	1.07	1.13	1.07	1.11	1.09	1.07	1.02	1.04	1.03	1.04	0.96	0.98
Bulgaria	1.61	1.30	1.47	1.38	1.71	1.14	1.41	1.60	1.55	1.36	2.00	1.38	1.59	1.37	1.50	1.31	1.55	1.38	1.32
Croatia	0.67	0.64	0.69	0.58	0.62	0.51	0.50	0.50	0.49	0.49	0.42	0.38	0.44	0.43	0.41	0.41	0.45	0.41	0.42
Cyprus	ne	ne	ne	ne	ne	0.94	0.89	0.78	1.01	0.73	0.92	0.85	0.67	0.79	0.63	0.69	0.54	0.58	0.59
Czechia	1.00	0.86	0.91	0.85	1.03	0.91	0.99	0.86	0.97	0.98	0.89	0.96	0.97	1.00	0.97	1.00	1.04	1.16	1.16
Denmark	0.74	0.73	0.72	0.72	0.68	0.79	0.74	0.73	0.78	0.77	0.81	0.89	0.80	0.78	0.75	0.70	0.73	0.72	0.74
Estonia	1.59	1.48	1.24	1.28	1.36	1.15	1.00	0.99	1.04	0.96	1.06	0.80	0.72	1.00	1.02	0.97	0.80	0.91	1.02
Finland	0.66	0.66	0.72	0.80	0.76	0.73	0.84	0.83	0.86	0.89	0.88	0.91	0.88	0.95	0.93	0.81	0.81	0.81	0.75
France	1.21	1.17	1.20	1.17	1.22	1.21	1.21	1.22	1.27	1.33	1.28	1.34	1.26	1.31	1.25	1.26	1.25	1.24	1.16
Germany	1.25	1.23	1.30	1.27	1.27	1.28	1.23	1.29	1.27	1.38	1.38	1.40	1.37	1.38	1.33	1.27	1.27	1.23	1.18
Greece	0.91	0.95	0.87	0.74	0.74	0.74	0.77	0.84	0.76	0.79	0.73	0.70	0.71	0.69	0.72	0.72	0.76	0.74	0.66
Hungary	1.06	1.06	0.98	1.06	1.10	1.02	0.92	0.91	0.97	0.93	0.96	0.94	1.01	0.93	1.00	1.02	0.91	0.97	0.92
Ireland	0.74	0.74	0.73	0.71	0.78	0.87	0.79	0.78	0.80	0.86	0.85	0.90	0.80	0.76	0.70	0.62	0.59	0.61	0.59
Italy	1.12	1.03	1.09	1.06	1.17	1.10	1.11	1.12	1.12	1.12	1.10	1.05	1.04	0.99	1.03	0.96	1.00	0.93	0.90
Latvia	1.77	2.00	1.68	1.76	2.24	1.66	1.35	1.73	1.45	1.61	1.41	1.12	1.27	1.13	0.98	1.18	1.22	0.90	0.76
Lithuania	1.30	1.49	1.05	1.06	1.41	1.35	1.67	1.05	1.19	1.36	1.32	1.19	1.07	1.36	1.26	1.39	1.04	1.13	1.07
Luxembourg	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.65	0.99	0.78	0.89	0.80	0.73	0.84	0.81	0.83
Malta	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	0.72	0.74	0.80	0.75	0.80	0.75	0.70	0.69	0.67	0.71	0.69	0.74	0.70	0.65	0.62	0.62	0.61	0.62	0.57
Poland	1.46	1.30	1.32	1.37	1.30	1.20	1.19	1.21	1.29	1.26	1.23	1.21	1.18	1.24	1.20	1.30	1.18	1.08	1.13
Portugal	1.25	1.12	1.19	1.14	1.17	1.07	1.03	0.96	1.01	0.89	1.06	0.83	0.85	0.76	0.68	0.71	0.70	0.68	0.65
Romania	1.82	1.70	1.42	1.35	1.48	1.27	1.19	1.44	1.33	1.22	1.10	1.10	1.17	1.16	1.03	1.09	1.07	0.98	1.05
Slovakia	0.97	0.83	1.24	1.01	1.26	0.81	1.15	0.86	1.04	0.90	1.03	0.71	0.98	0.84	1.13	0.83	0.82	1.10	0.99
Slovenia	1.12	1.17	1.09	1.23	1.15	1.12	1.19	1.08	1.19	1.04	1.15	0.99	1.06	1.11	1.02	0.89	0.97	0.93	0.97
Spain	0.85	0.86	0.87	0.85	0.86	0.85	0.79	0.86	0.82	0.91	0.86	0.89	0.85	0.83	0.75	0.75	0.74	0.73	0.71
Sweden	0.88	0.93	0.99	0.96	0.97	0.92	0.92	0.87	0.88	0.87	0.92	0.95	0.93	0.85	0.89	0.84	0.85	0.78	0.74
United Kingdom	0.70	0.67	0.71	0.71	0.72	0.74	0.76	0.76	0.80	0.82	0.83	0.83	0.81	0.79	0.84	0.80	0.80	0.81	0.77
Other Europe	1.89	1.77	1.64	1.66	1.65	1.59	1.57	1.57	1.68	1.66	1.62	1.65	1.63	1.57	1.63	1.68	1.72	1.67	1.71

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Belarus	3.00	2.58	2.19	3.19	2.77	3.37	2.82	3.01	3.30	3.63	3.58	3.94	3.47	3.56	3.51	3.63	3.59	3.38	3.08
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	na	ne
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.62	0.70	0.68	0.83	0.76	ne	0.64	0.57	0.60	0.53
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	2.91	2.69	2.91	3.03	2.46	2.47	3.04	3.15	2.62	2.78	2.65	2.92	2.95	2.72	2.12	2.72	1.77	2.16	2.45
Monaco	ne	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Macedonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	0.36	0.37	0.39	0.36	0.43	0.45	0.48	0.45	0.55	0.46	0.53	0.58	0.56	0.50	0.55	0.47	0.53	0.51	0.52
Russia	2.62	2.49	2.32	2.48	2.56	2.49	2.62	2.59	2.82	2.88	2.77	2.85	2.81	2.72	2.68	2.69	2.65	2.46	2.44
San Marino	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	ne	na	ne	na
Serbia[a]	na	na	na	na	na	na	na	1.21	1.05	0.97	0.86	0.69	0.73	0.69	0.71	0.72	0.72	0.72	0.75
Serbia and Montenegro[b]	0.90	0.68	0.99	0.93	0.85	0.83	0.94	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	1.21	1.15	1.14	1.14	1.18	1.22	1.27	1.22	1.27	1.31	1.40	1.38	1.40	1.35	1.34	1.29	1.31	1.18	1.16
Turkey	0.55	0.50	0.51	0.48	0.49	0.45	0.46	0.58	0.52	0.51	0.49	0.51	0.59	0.54	0.62	0.66	0.73	0.79	0.83
Ukraine	2.38	2.05	2.10	2.07	2.26	2.31	2.49	2.48	2.91	3.08	2.89	3.01	2.97	2.61	2.93	2.68	2.42	2.23	1.84
Middle East	1.03	1.00	1.02	0.99	0.97	0.90	0.88	0.86	0.88	0.87	0.85	0.84	0.90	0.94	0.93	1.03	1.04	1.04	1.01
Armenia	2.96	3.14	2.65	3.12	3.09	3.07	2.45	3.14	3.17	3.63	3.70	3.17	3.74	3.13	4.03	3.54	3.80	3.52	3.29
Azerbaijan	2.68	2.59	1.76	2.30	1.76	1.61	1.82	1.34	1.49	1.48	1.46	1.72	1.21	1.72	2.23	2.49	1.93	2.00	2.08
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Georgia	2.63	1.75	1.99	2.08	2.04	1.09	1.53	1.55	1.57	1.38	1.56	1.27	1.13	1.22	1.14	1.11	0.80	1.21	0.66
Iran	0.79	0.74	0.86	0.78	0.83	0.70	0.74	0.67	0.77	0.77	0.73	0.70	0.82	0.91	0.91	1.05	1.11	1.07	1.04
Iraq	ne	ne	ne	ne	ne	ne	ne	1.09	ne	ne	0.54	0.71	1.05	1.42	1.02	1.18	1.29	1.12	0.96
Israel	1.16	1.15	1.17	1.16	1.12	1.12	1.12	1.15	1.15	1.13	1.20	1.27	1.21	1.18	1.10	1.19	1.08	1.15	1.13
Jordan	0.65	0.48	0.87	0.70	0.69	0.67	0.53	0.53	0.53	0.53	0.49	0.49	0.60	0.54	0.56	0.42	0.48	0.42	0.54
Kuwait	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.44	ne	ne	ne	ne	0.41	ne	ne	0.45	0.54
Lebanon	ne	ne	ne	ne	ne	ne	0.41	0.49	ne	0.41	0.40	0.41	0.38	0.31	0.50	0.39	0.42	0.55	0.36
Oman	ne	ne	ne	ne	ne	ne	0.75	ne	ne	ne	0.69	ne	ne	ne	0.65	0.46	0.55	0.62	0.55
Qatar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.52	0.44	0.68	0.84	0.85	0.73
Saudi Arabia	0.38	0.54	0.48	0.52	0.49	0.57	0.53	0.61	0.58	0.59	0.60	0.79	0.78	0.83	0.85	0.90	0.93	0.97	1.00

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.84	1.43	1.54	1.17	ne	1.37	1.52	1.22	ne	ne
United Arab Emirates	ne	ne	ne	ne	ne	ne	0.32	0.49	0.40	0.54	0.46	0.38	0.50	0.41	0.56	0.60	0.58	0.64	0.70
West Bank	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	0.65	0.61	0.62	0.61	0.67	0.62	0.59	0.61	0.67	0.65	0.59	0.57	0.61	0.59	0.64	0.71	0.72	0.69	0.69
Algeria	2.45	1.98	2.11	2.06	1.82	1.73	1.54	1.84	2.12	1.85	1.76	1.38	1.47	1.36	1.57	1.43	1.63	1.51	1.54
Angola	na	na	na	na	na	ne	ne	na	na	na	na	ne	ne	na	na	na	ne	ne	na
Benin	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Cabo Verde	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	ne	ne	ne
Cameroon	ne	ne	ne	ne	ne	1.23	1.28	0.93	1.13	1.03	ne	0.83	1.06	0.92	1.21	1.17	1.24	1.45	1.47
Central African Republic	na	ne	ne	ne	ne	ne	na	na	na	na	na	ne	na	na	na	na	ne	ne	ne
Chad	na	na	na	na	ne	ne	ne	ne	ne	na	na	na	ne	na	na	ne	ne	na	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	na	ne
Congo, Democratic Republic of the	na	ne	ne	ne	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	na	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	ne	na	na	ne	na	na	na	ne	ne	na	ne	na
Egypt	1.06	1.08	1.10	1.02	1.06	1.09	1.07	1.07	1.03	0.89	0.84	0.78	0.75	0.73	0.82	0.98	0.85	0.81	0.81
Equatorial Guinea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Eritrea	na	na	ne	na	ne	na	na	na	ne	ne	ne	na	na	na	na	na	na	ne	ne
Eswatini	ne	ne	ne	na	na	ne	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Ethiopia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.22
Gabon	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Ghana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea	na	na	ne	na	ne	ne	na	ne	na	na	na	na	na	na	na	na	na	na	na
Guinea-Bissau	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
Kenya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.30
Lesotho	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne
Liberia	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Libya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	na	ne	ne	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	na	na	ne

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	na	na	na	na	ne	na	na	na	na	na	na	ne	na	na	ne	na	na	ne
Mauritania	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	ne	na	ne	ne	ne
Mauritius	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	1.49	1.16	1.19	1.14	1.51	1.04	1.01	0.77	0.91	1.04	0.97	1.04	0.90	0.95	0.87	0.80	0.97	0.85	0.90
Mozambique	na	na	na	ne	na	na	ne	ne	ne	ne	na	na	ne	na	na	ne	ne	ne	ne
Namibia	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Niger	ne	na	ne	ne	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	ne	ne	ne	ne	ne	0.18	ne	ne	0.13	0.12	0.17	0.14	0.20	0.20	0.19	0.23	0.28	0.33	0.35
Rwanda	na	na	na	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sierra Leone	ne	ne	na	na	na	na	na	na	na	ne	ne	na	na	ne	na	na	na	na	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne
South Africa	0.40	0.37	0.38	0.34	0.37	0.41	0.36	0.40	0.49	0.48	0.41	0.48	0.54	0.48	0.52	0.60	0.60	0.62	0.57
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Sudan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne
Tunisia	0.72	0.76	0.65	0.73	0.89	0.67	0.70	0.63	0.57	0.66	0.54	0.50	0.61	0.56	0.74	0.84	0.84	0.74	0.75
Uganda	ne	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Asia	1.27	1.26	1.27	1.26	1.23	1.18	1.20	1.18	1.16	1.10	1.12	1.10	1.13	1.15	1.15	1.15	1.13	1.15	1.18
Afghanistan	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	ne	na	ne	ne	ne
Bangladesh	0.69	0.59	0.68	0.61	0.61	0.54	0.59	0.42	0.63	0.56	0.52	0.53	0.40	0.64	0.58	0.63	0.96	1.11	1.02
Bhutan	ne	na	ne	na	ne	ne	ne	na	na	na	na	na	na	na	ne	ne	ne	ne	ne
Brunei	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Burma	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cambodia	na	na	na	na	ne	na	ne	ne	na	na	ne	na	ne	na	ne	ne	ne	ne	ne
China	1.25	1.12	1.10	1.08	1.06	0.99	0.98	0.98	0.98	0.92	0.94	0.94	1.05	1.07	1.09	1.10	1.06	1.09	1.10
India	1.04	1.06	1.07	1.01	1.06	1.11	1.05	1.03	1.09	1.06	1.08	1.10	1.05	1.14	1.19	1.10	1.14	1.07	1.16
Indonesia	ne	ne	ne	ne	ne	0.48	ne	0.96	0.80	0.62	1.19	0.85	0.86	0.66	1.20	1.26	2.43	2.51	2.34
Japan	1.33	1.37	1.41	1.46	1.41	1.43	1.48	1.51	1.49	1.47	1.53	1.52	1.48	1.47	1.45	1.44	1.44	1.45	1.41
Kazakhstan	2.41	1.99	2.07	1.78	1.72	1.95	1.76	2.13	2.32	2.93	1.40	2.43	2.46	1.84	1.77	1.91	2.12	1.57	1.29

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	ne	ne	ne	ne	ne
Malaysia	0.53	0.47	0.88	0.37	0.84	0.42	0.78	0.55	0.62	0.66	0.65	0.54	0.79	0.92	1.01	1.04	1.01	1.47	1.27
Maldives	na	na	na	ne	ne	na	na	na	ne	na	na	ne	ne	na	ne	na	na	na	na
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	3.10	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	0.63	0.53	0.54	0.46	0.41	0.50	0.52	0.62	0.70	0.56	0.62	0.60	0.66	0.71	0.73	0.86	0.89	1.09	1.08
Papua New Guinea	ne	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	ne	na	ne	ne
Philippines	ne	ne	ne	ne	ne	ne	ne	ne	0.60	ne	0.49	0.36	0.51	ne	0.61	0.39	0.62	0.74	0.69
Singapore	1.32	1.29	1.48	1.28	1.35	1.33	1.58	1.32	1.38	1.43	1.31	1.35	1.39	1.22	1.24	1.14	1.01	1.11	1.03
South Korea	1.62	1.71	1.63	1.69	1.57	1.47	1.64	1.51	1.51	1.41	1.47	1.34	1.24	1.19	1.15	1.18	1.16	1.05	1.09
Sri Lanka	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.31	0.27
Taiwan	1.14	1.16	1.25	1.20	1.26	1.34	1.39	1.42	1.27	1.33	1.33	1.39	1.19	1.28	1.25	1.29	1.21	1.16	1.13
Tajikistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	0.24	0.23	0.24	0.28	0.32	0.33	0.33	0.40	0.38	0.52	0.51	0.46	0.42	0.60	0.50	0.52	0.56	0.66	0.78
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	ne	ne	na
Turkmenistan	ne	na	ne	ne	na	ne	ne	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne
Uzbekistan	2.95	2.81	2.65	3.14	2.90	3.24	3.78	2.83	3.66	3.62	2.95	3.28	3.11	3.17	3.60	3.38	3.25	2.76	2.65
Vietnam	ne	1.37	1.55	2.15	1.10	0.86	1.28	1.33	1.50	1.82	0.97	1.13	1.06	0.99	1.33	1.05	1.26	1.34	1.16
Australia and Oceania	0.51	0.47	0.48	0.49	0.47	0.50	0.55	0.56	0.48	0.54	0.59	0.58	0.56	0.53	0.57	0.48	0.48	0.49	0.43
Australia	0.55	0.50	0.52	0.53	0.49	0.53	0.57	0.59	0.50	0.56	0.62	0.60	0.60	0.55	0.60	0.51	0.50	0.51	0.45
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Fiji	ne	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia, Federated States of	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nauru	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	0.31	0.35	0.27	0.30	0.38	0.38	0.44	0.36	0.36	0.43	0.42	0.42	0.35	0.40	0.37	0.30	0.35	0.38	0.34
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Solomon Islands	na	ne	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na

TABLE S5A-29

Specialization of S&E articles in physics, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	0.30	0.35	0.36	0.25	0.27	0.28	0.30	0.34	0.29	0.21	0.21	0.21	0.16	0.83	0.31	0.52	0.63	0.88	0.44

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-30

Specialization of S&E articles in psychology, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.67	1.73	1.70	1.68	1.68	1.74	1.78	1.78	1.81	1.88	1.91	1.87	1.86	1.84	1.91	1.87	1.91	1.93	1.96
Canada	1.83	1.94	1.84	1.83	1.94	1.86	1.85	1.91	1.94	1.97	2.01	1.93	1.95	1.98	2.04	1.90	2.01	2.03	2.07
Greenland	na	na	ne	ne	na	na	ne	ne	na	na	na	na	na	na	na	na	na	na	ne
Mexico	0.66	0.68	0.53	0.57	0.59	0.53	0.64	0.75	0.63	0.70	0.77	0.85	0.64	0.64	0.61	0.70	0.62	0.79	0.68
United States	1.67	1.73	1.70	1.69	1.67	1.75	1.80	1.79	1.82	1.90	1.93	1.89	1.88	1.86	1.93	1.91	1.94	1.96	2.00
Central America and Caribbean	0.92	ne	ne	ne	ne	0.89	0.69	0.87	0.71	0.73	0.91	0.78	0.66	0.79	0.65	0.73	0.77	0.87	0.99
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Bahamas, The	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Barbados	ne	na	na	na	ne	na	ne	na	na	ne	ne	ne	na	ne	ne	na	ne	na	ne
Belize	na	na	na	na	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na	ne
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cuba	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominica	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Dominican Republic	ne	ne	na	na	na	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	na	ne	ne	na
Grenada	na	na	ne	na	ne	na	ne	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Guatemala	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Haiti	na	na	na	na	na	na	ne	ne	na	na	ne	na	ne	ne	ne	ne	ne	na	ne
Honduras	ne	na	na	na	ne	ne	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	ne	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	na	ne	ne	ne
Panama	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Kitts and Nevis	na	na	na	na	na	ne	na	na	na	na	ne	ne	ne	na	na	ne	ne	ne	na
Saint Lucia	na	na	ne	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South America	0.56	0.30	0.38	0.33	0.37	0.51	0.42	0.52	0.58	0.54	0.59	0.54	0.67	0.62	0.60	0.76	0.76	0.76	0.83
Argentina	0.36	ne	0.38	0.41	0.43	0.55	0.45	0.52	0.75	0.78	0.90	0.78	1.02	0.90	0.87	1.09	1.00	1.02	0.95
Bolivia	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.66	0.30	0.35	0.29	0.31	0.45	0.35	0.32	0.42	0.37	0.44	0.39	0.52	0.50	0.49	0.62	0.64	0.64	0.73
Chile	ne	ne	ne	ne	ne	ne	ne	0.93	0.86	0.98	1.04	0.91	1.08	1.07	1.06	1.50	1.22	1.35	1.35
Colombia	ne	ne	ne	ne	ne	ne	1.33	3.58	1.88	1.79	1.24	1.38	1.23	0.94	0.80	0.84	1.04	0.89	1.05
Ecuador	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Guyana	ne	na	na	na	ne	ne	ne	na	na	na	na	na	ne	na	ne	na	na	na	ne

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	ne	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	na	na	ne	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Suriname	na	na	na	na	na	ne	na	ne	na	na	na	na	ne	na	na	ne	na	ne	na
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Venezuela	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Europe	0.82	0.84	0.87	0.93	0.99	1.00	1.03	1.06	1.11	1.13	1.14	1.19	1.18	1.22	1.21	1.20	1.24	1.27	1.32
EU	0.91	0.94	0.98	1.03	1.11	1.10	1.12	1.16	1.21	1.22	1.25	1.31	1.29	1.33	1.34	1.33	1.38	1.43	1.49
Austria	0.40	0.64	0.65	0.71	0.71	0.72	0.78	0.71	0.86	0.89	0.98	1.10	1.16	1.24	1.30	1.31	1.16	1.32	1.27
Belgium	0.77	1.03	1.03	1.08	1.28	1.25	1.53	1.42	1.48	1.63	1.80	1.74	1.76	1.85	1.90	1.77	1.89	1.84	2.02
Bulgaria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Croatia	1.90	2.09	1.75	1.62	1.56	1.51	1.46	1.30	1.40	1.64	1.32	1.61	1.62	1.59	1.67	1.88	2.15	1.82	1.97
Cyprus	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.76	ne	2.47	2.13	1.86	1.89
Czechia	0.30	0.42	0.39	0.36	0.41	0.38	0.42	0.45	0.39	0.36	0.36	0.36	0.34	0.39	0.29	0.34	0.41	0.42	0.47
Denmark	0.69	0.58	0.64	0.70	0.81	0.81	0.90	0.86	0.95	0.88	0.94	0.99	0.98	0.98	1.15	1.13	1.17	1.05	1.25
Estonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.20	1.34	1.04	1.08	1.27	ne	1.28
Finland	1.14	0.93	0.96	1.20	1.45	1.14	1.19	1.28	1.51	1.61	1.54	1.85	1.78	1.70	1.73	1.60	1.92	1.62	1.82
France	0.57	1.00	1.01	1.08	1.17	1.09	1.09	1.17	1.10	1.15	1.16	1.15	1.11	1.19	1.09	1.14	1.18	1.16	1.22
Germany	0.84	0.82	0.93	0.95	1.01	1.04	1.07	1.09	1.21	1.24	1.25	1.31	1.32	1.39	1.44	1.40	1.48	1.58	1.68
Greece	ne	ne	0.28	0.36	0.37	0.41	0.41	0.30	0.38	0.41	0.56	0.54	0.57	0.54	0.53	0.56	0.57	0.62	0.73
Hungary	ne	ne	ne	0.38	0.47	0.33	0.34	0.36	0.39	0.60	0.50	0.63	0.59	0.90	0.76	0.92	0.96	1.09	1.30
Ireland	1.02	0.92	0.81	0.59	1.10	0.78	0.81	0.90	0.99	0.90	1.00	1.04	0.95	0.98	1.14	1.27	1.16	1.32	1.27
Italy	0.54	0.62	0.61	0.66	0.70	0.74	0.73	0.69	0.79	0.82	0.86	0.97	0.99	0.96	1.04	1.08	1.13	1.15	1.26
Latvia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lithuania	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Luxembourg	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malta	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Netherlands	1.49	1.47	1.60	1.71	1.79	1.77	1.85	2.10	2.41	2.19	2.40	2.44	2.37	2.21	2.32	2.13	2.21	2.35	2.35
Poland	0.24	0.13	0.12	0.12	0.13	0.19	0.12	0.20	0.22	0.22	0.23	0.32	0.35	0.39	0.43	0.57	0.60	0.59	0.63
Portugal	0.52	0.53	0.47	0.38	0.38	0.50	0.53	0.54	0.76	0.72	0.82	0.84	1.07	1.26	1.48	1.29	1.31	1.82	1.71
Romania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.20	0.27	0.44	0.58	0.47	0.37	0.32	0.43	0.83
Slovakia	1.19	0.78	ne	ne	0.87	ne	ne	ne	0.55	ne	0.51	ne	ne	0.42	ne	0.35	0.47	0.41	0.52
Slovenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.47	0.66	ne	0.66	0.50	0.94	0.75	0.79
Spain	0.88	0.73	0.92	0.88	0.94	0.91	0.89	0.93	1.09	1.10	1.20	1.27	1.25	1.26	1.33	1.28	1.32	1.54	1.42
Sweden	1.16	1.00	0.99	1.12	1.09	1.06	1.22	1.28	1.19	1.08	1.01	1.23	1.13	1.10	1.26	1.33	1.28	1.28	1.53
United Kingdom	1.51	1.54	1.55	1.68	1.82	1.88	1.94	2.00	2.02	2.06	2.04	2.12	2.01	2.16	2.02	2.02	2.10	2.12	2.11
Other Europe	0.32	0.29	0.31	0.36	0.39	0.43	0.47	0.52	0.57	0.58	0.57	0.56	0.58	0.61	0.58	0.59	0.61	0.63	0.68

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	na	na	ne	na	na	na	ne	na	ne	na	na	na	na	na	na	ne	ne	ne	ne
Andorra	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Belarus	ne	na	ne	na	na	ne	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Bosnia and Herzegovina	na	ne	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Holy See (Vatican City)	ne	na	na	na	ne	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kosovo	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	ne	ne	ne	ne	ne
Liechtenstein	ne	na	ne	na	na	ne	ne	na	na	na	na	na	na	na	na	na	na	na	ne
Moldova	na	na	na	na	ne	na	ne	na	na	na	na	ne	na	na	na	ne	na	na	ne
Monaco	na	na	na	na	na	na	na	ne	na	na	ne	na	ne	na	ne	ne	ne	na	na
Montenegro[a]	na	na	na	na	na	na	na	ne	na	na	na	ne	na	ne	ne	ne	na	na	ne
North Macedonia	na	na	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Norway	1.11	1.19	1.38	1.34	1.32	1.35	1.48	1.38	1.46	1.56	1.62	1.60	1.70	1.66	1.66	1.62	1.53	1.51	1.76
Russia	0.10	0.09	0.10	0.13	0.15	0.14	0.17	0.18	0.16	0.18	0.16	0.14	0.21	0.23	0.19	0.29	0.35	0.34	0.34
San Marino	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Serbia[a]	na	na	na	na	na	na	na	0.70	0.65	0.58	ne	0.38	0.37	0.35	0.51	0.54	0.57	0.49	0.73
Serbia and Montenegro[b]	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.70	0.67	0.70	0.87	0.90	1.06	0.91	1.12	1.33	1.36	1.40	1.37	1.33	1.47	1.48	1.41	1.54	1.49	1.69
Turkey	0.26	0.26	0.23	0.27	0.27	0.29	0.34	0.34	0.38	0.34	0.32	0.30	0.31	0.31	0.29	0.33	0.36	0.55	0.67
Ukraine	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Middle East	0.89	1.01	1.01	1.04	0.94	0.96	0.82	0.77	0.74	0.62	0.59	0.55	0.54	0.56	0.57	0.59	0.61	0.58	0.64
Armenia	na	na	na	ne	na	na	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne
Azerbaijan	na	na	na	na	ne	ne	na	na	ne	ne	ne	na	ne	ne	ne	na	ne	na	ne
Bahrain	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iran	ne	ne	ne	ne	ne	ne	0.18	0.17	0.18	0.11	0.13	0.09	0.10	0.14	0.13	0.16	0.20	0.21	0.27
Iraq	ne	na	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Israel	1.31	1.52	1.54	1.69	1.53	1.70	1.63	1.78	1.83	1.87	1.92	2.12	2.15	2.17	2.27	2.38	2.64	2.60	2.94
Jordan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kuwait	ne	ne	ne	ne	ne	ne	2.83	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lebanon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Oman	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Qatar	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saudi Arabia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.22	0.23	0.17	0.23

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Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	na	na	na	na	na	na	ne	na	na	na	ne	na	na	ne	ne	na	na	ne	na
United Arab Emirates	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.68	ne	ne	0.63
West Bank	ne	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	na	ne	na	na	na	na	ne	na	ne	na	na	na	ne	na	na	na	na	na	na
Africa	0.48	0.45	0.54	0.49	0.52	0.53	0.59	0.51	0.45	0.44	0.48	0.40	0.46	0.42	0.41	0.42	0.39	0.47	0.46
Algeria	na	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Angola	ne	na	na	na	na	na	ne	na	ne	na	na	ne	na	na	ne	ne	na	ne	na
Benin	na	na	ne	na	na	ne	na	na	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne
Botswana	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burkina Faso	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	na	ne	ne	ne	na	na	ne	ne
Burundi	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	na
Cabo Verde	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	ne
Cameroon	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Central African Republic	na	na	ne	ne	ne	na	na	ne	ne	ne	ne	na	ne	na	ne	ne	ne	na	ne
Chad	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Congo, Democratic Republic of the	na	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.13
Equatorial Guinea	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Eritrea	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na	na
Eswatini	na	na	na	na	na	na	ne	na	na	na	ne	na	ne	ne	ne	ne	na	ne	ne
Ethiopia	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gabon	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	na	ne	na	ne	ne	ne	na	na	na	ne	ne	na	na	na	na	ne	na
Ghana	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Guinea	na	na	na	na	na	na	ne	na	na	na	ne	ne	na	na	na	na	ne	ne	na
Guinea-Bissau	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	na	na	na	ne
Kenya	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Lesotho	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	na	na	na
Liberia	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne
Libya	na	na	na	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne

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Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	na	ne	na	na	na	ne	na	ne	na	na	ne	na	ne	ne	ne	na	na	na	ne
Mauritania	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	na
Mauritius	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.33
Mozambique	na	na	na	na	na	na	ne	ne	ne	na	ne	ne	ne	na	ne	ne	na	ne	ne
Namibia	na	na	ne	na	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	na	na	na	na	na	ne	na	na	ne	ne	ne	na	na	na	na	ne	na	na	na
Nigeria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.46	0.62	0.37
Rwanda	na	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Senegal	ne	na	ne	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	ne	na	na	ne	na	ne	ne	ne	na	ne	na	na	na	ne	ne
Sierra Leone	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne	ne	ne	ne
Somalia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
South Africa	1.15	1.08	1.20	1.36	1.21	1.25	1.45	1.33	1.13	1.12	1.23	1.10	1.26	1.21	1.04	1.11	1.03	1.29	1.17
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Sudan	na	na	ne	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Togo	na	na	na	na	na	ne	na	na	na	ne	ne	na	na	na	na	na	ne	ne	ne
Tunisia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uganda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Zambia	na	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne
Asia	0.20	0.18	0.18	0.18	0.18	0.17	0.17	0.18	0.17	0.18	0.18	0.20	0.22	0.22	0.22	0.26	0.25	0.25	0.26
Afghanistan	na	na	na	ne	ne	ne	na	na	na	na	na	ne	ne	na	ne	na	na	ne	ne
Bangladesh	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bhutan	na	na	na	ne	na	na	ne	na	na	na	na	na	na	na	na	na	na	ne	na
Brunei	na	ne	ne	na	ne	na	na	ne	na	na	ne	na	ne	ne	na	na	ne	ne	na
Burma	na	na	na	na	na	na	ne	na	ne	na	na	ne	na	na	na	ne	ne	ne	na
Cambodia	na	na	na	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne
China	0.11	0.09	0.09	0.09	0.08	0.07	0.06	0.07	0.07	0.09	0.09	0.11	0.13	0.12	0.14	0.16	0.18	0.19	0.20
India	0.12	0.08	0.09	0.08	0.11	0.09	0.10	0.10	0.10	0.09	0.10	0.13	0.12	0.13	0.12	0.14	0.14	0.12	0.15
Indonesia	ne	ne	ne	ne	ne	ne	5.86	ne	ne	ne	ne	ne	ne	ne	ne	1.07	ne	0.15	0.06
Japan	0.25	0.28	0.29	0.28	0.31	0.32	0.31	0.39	0.33	0.38	0.39	0.41	0.44	0.46	0.45	0.52	0.52	0.49	0.57
Kazakhstan	na	na	na	na	ne	na	na	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne

TABLE S5A-30

Specialization of S&E articles in psychology, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na	na	ne	ne	ne	ne
Laos	na	na	na	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	na
Malaysia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.13	0.24	0.16	0.19	0.38	0.21	0.24	0.23
Maldives	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Mongolia	na	na	ne	na	na	na	na	na	ne	ne	ne	na	na	ne	na	ne	ne	ne	ne
Nepal	ne	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na
Pakistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.33	0.32	0.39
Papua New Guinea	ne	na	na	ne	ne	na	na	ne	ne	ne	ne	na	na	na	na	na	na	ne	na
Philippines	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.39	ne	ne	ne
Singapore	ne	ne	ne	ne	ne	0.23	0.33	0.34	0.43	0.48	0.45	0.61	0.68	0.69	0.72	0.71	0.73	0.71	0.78
South Korea	0.20	0.14	0.14	0.19	0.15	0.16	0.14	0.17	0.15	0.19	0.20	0.25	0.22	0.28	0.28	0.36	0.36	0.40	0.44
Sri Lanka	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Taiwan	0.26	0.14	0.15	0.22	0.19	0.19	0.27	0.35	0.42	0.43	0.42	0.49	0.48	0.47	0.47	0.61	0.50	0.56	0.52
Tajikistan	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Thailand	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.25	ne	0.15	0.16
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Turkmenistan	na	ne	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na
Uzbekistan	na	na	na	na	na	na	na	na	na	na	na	ne	ne	na	ne	ne	ne	ne	ne
Vietnam	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Australia and Oceania	1.44	1.42	1.56	1.46	1.55	1.58	1.65	1.61	1.66	1.64	1.63	1.61	1.55	1.72	1.72	1.75	1.84	1.82	1.86
Australia	1.39	1.43	1.50	1.35	1.47	1.55	1.61	1.56	1.62	1.62	1.56	1.52	1.53	1.70	1.75	1.77	1.85	1.81	1.87
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na
Fiji	na	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne
Kiribati	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia, Federated States of	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	1.69	1.40	1.95	2.09	1.99	1.79	1.93	1.93	1.90	1.74	2.06	2.13	1.75	1.91	1.56	1.68	1.76	1.92	1.84
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Samoa	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na
Solomon Islands	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na
Tonga	na	na	na	na	na	na	na	na	na	ne	na	na	na	ne	na	na	na	na	na
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Vanuatu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

TABLE S5A-30

Specialization of S&E articles in psychology, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	3.98	4.67	3.25	1.83	1.11	1.11	1.32	1.16	1.13	0.91	0.66	0.59	0.49	0.78	1.02	0.65	ne	0.60	0.55

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-31

Specialization of S&E articles in social sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North America	1.51	1.58	1.52	1.54	1.54	1.55	1.55	1.55	1.54	1.53	1.50	1.46	1.43	1.44	1.46	1.48	1.48	1.47	1.51
Canada	1.37	1.37	1.39	1.42	1.44	1.39	1.44	1.38	1.36	1.39	1.37	1.35	1.29	1.32	1.30	1.39	1.36	1.35	1.33
Greenland	na	na	na	ne	na	ne	na	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Mexico	0.52	0.58	0.56	0.52	0.54	0.57	0.63	0.63	0.86	0.83	0.87	0.81	1.06	1.00	1.07	1.01	1.11	1.10	1.25
United States	1.55	1.62	1.55	1.57	1.57	1.59	1.59	1.59	1.58	1.57	1.54	1.50	1.46	1.47	1.49	1.51	1.51	1.50	1.55
Central America and Caribbean	0.73	0.73	0.81	0.93	0.94	1.13	0.98	1.13	1.02	0.89	0.97	0.78	1.04	0.83	1.02	1.17	1.18	1.38	1.30
Antigua and Barbuda	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	na	na	ne
Bahamas, The	na	ne	ne	na	na	na	ne	ne	na	ne	na	na	ne	ne	ne	ne	ne	na	ne
Barbados	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belize	na	na	na	ne	na	na	ne	na	ne	ne	na	ne	na	na	ne	na	ne	na	ne
Costa Rica	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.79	2.07	2.04
Cuba	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.62	ne
Dominica	na	na	na	na	na	na	na	na	na	ne	ne	na	ne	ne	na	na	na	na	na
Dominican Republic	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
El Salvador	na	na	ne	na	ne	ne	ne	na	ne	na	ne	ne	na	ne	na	ne	ne	ne	ne
Grenada	na	na	na	ne	na	na	ne	ne	na	ne	na	ne	ne	ne	na	na	ne	ne	ne
Guatemala	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Haiti	ne	na	na	na	na	ne	ne	na	na	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Honduras	ne	ne	ne	ne	ne	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Jamaica	ne	ne	ne	ne	ne	ne	ne	ne	4.82	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nicaragua	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Panama	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Puerto Rico	ne	ne	ne	ne	ne	1.70	ne	ne	ne	1.23	ne	ne	1.15	ne	ne	1.32	1.05	1.10	ne
Saint Kitts and Nevis	ne	ne	na	na	na	na	ne	na	na	ne	na	ne	na	na	na	ne	na	na	ne
Saint Lucia	na	ne	na	na	ne	ne	na	ne	ne	na	na	ne	na	ne	na	na	na	na	na
Saint Vincent and the Grenadines	na	na	na	na	na	na	na	ne	na	ne	na	na	na	na	ne	na	na	na	na
Trinidad and Tobago	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.13	ne
South America	0.44	0.48	0.46	0.48	0.46	0.47	0.58	0.73	0.84	0.85	0.93	0.91	0.96	0.98	1.05	1.09	1.16	1.20	1.22
Argentina	0.44	0.42	0.45	0.53	0.57	0.47	0.44	0.68	0.76	0.84	0.81	0.86	1.06	1.08	1.31	1.29	1.24	1.38	1.37
Bolivia	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brazil	0.34	0.42	0.42	0.38	0.34	0.35	0.53	0.62	0.70	0.68	0.77	0.74	0.76	0.76	0.79	0.84	0.91	0.90	0.92
Chile	1.02	0.76	0.76	0.87	1.03	0.95	1.10	1.23	1.58	1.64	1.83	1.88	1.93	2.14	2.22	2.24	2.43	2.55	2.54
Colombia	ne	ne	ne	1.23	ne	1.00	0.73	1.22	1.36	1.56	1.64	1.55	1.61	1.58	1.73	1.65	1.63	1.79	1.88
Ecuador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.14	1.81	1.92	1.79
Guyana	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne

TABLE S5A-31

Specialization of S&E articles in social sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Paraguay	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Peru	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.48	1.63	1.63	1.53	1.31	1.46	1.63	1.61
Suriname	na	na	na	na	ne	na	na	na	na	na	na	ne	na	ne	ne	ne	na	ne	ne
Uruguay	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.45	1.17	1.42	1.45	1.77	1.70	1.49
Venezuela	ne	ne	ne	ne	ne	0.72	ne	1.41	1.45	1.49	1.64	1.23	1.43	1.41	1.46	1.49	1.43	1.47	1.51
Europe	0.87	0.86	0.92	0.93	0.97	1.02	1.05	1.08	1.09	1.14	1.17	1.24	1.24	1.27	1.27	1.27	1.30	1.33	1.38
EU	0.97	0.96	1.02	1.03	1.07	1.11	1.14	1.17	1.17	1.20	1.21	1.29	1.31	1.34	1.34	1.35	1.38	1.39	1.45
Austria	0.63	0.64	0.75	0.75	0.98	0.88	0.85	0.89	0.97	0.99	0.90	1.04	1.12	1.08	1.09	1.09	1.11	1.02	1.18
Belgium	0.74	0.81	0.84	0.95	1.07	0.98	1.14	1.14	1.14	1.25	1.26	1.36	1.35	1.57	1.44	1.43	1.46	1.60	1.55
Bulgaria	ne	0.64	ne	ne	ne	ne	ne	0.36	ne	0.47	0.46	0.52	0.47	0.34	0.46	0.43	0.47	0.72	1.01
Croatia	ne	ne	ne	ne	ne	ne	0.36	0.60	0.77	0.77	0.75	1.29	1.17	1.53	1.49	1.65	1.90	1.96	1.79
Cyprus	ne	ne	5.90	5.59	5.67	4.60	4.06	4.54	5.24	4.56	4.77	4.79	3.43	3.55	3.34	3.13	3.18	3.84	4.90
Czechia	0.93	0.72	0.86	0.76	0.70	0.72	0.69	0.93	0.93	0.89	0.89	1.09	1.23	1.23	1.37	1.58	1.58	1.46	1.57
Denmark	0.92	1.06	1.22	1.11	1.11	1.19	1.14	1.14	1.25	1.21	1.21	1.25	1.24	1.26	1.25	1.30	1.27	1.30	1.27
Estonia	ne	ne	ne	1.53	1.69	1.22	1.39	1.93	2.04	2.46	2.20	2.50	2.67	2.74	2.73	3.41	3.01	2.64	2.87
Finland	0.78	0.81	1.03	1.17	1.10	1.20	1.20	1.29	1.44	1.40	1.47	1.45	1.59	1.69	1.86	1.69	1.81	1.91	2.04
France	0.57	0.76	0.86	0.92	0.97	0.95	0.96	0.99	0.95	0.98	0.97	1.00	0.97	1.00	1.04	1.01	1.04	1.05	0.99
Germany	0.60	0.61	0.69	0.72	0.75	0.82	0.84	0.86	0.83	0.86	0.83	0.89	0.88	0.97	0.97	0.98	0.98	1.02	1.06
Greece	0.66	0.73	0.75	0.99	0.94	1.00	0.87	0.82	1.00	1.11	1.09	1.16	1.09	1.17	1.22	1.08	1.04	1.18	1.12
Hungary	0.58	0.49	0.74	0.61	0.65	0.64	0.83	1.09	1.16	1.15	1.06	1.34	1.43	1.12	1.33	1.47	1.43	1.63	1.57
Ireland	1.64	1.47	1.59	1.58	1.66	1.49	1.58	1.59	1.53	1.63	1.62	1.63	1.65	1.67	1.63	1.88	1.78	1.81	1.84
Italy	0.35	0.42	0.41	0.43	0.45	0.47	0.49	0.50	0.56	0.61	0.66	0.68	0.70	0.75	0.80	0.83	0.88	0.91	0.98
Latvia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.21	0.86	0.89	0.94	1.06	0.83	1.31	1.22	1.46
Lithuania	ne	ne	0.90	1.10	0.70	1.74	1.84	2.06	3.42	3.58	2.96	3.38	3.70	2.95	3.45	3.31	3.57	3.41	3.56
Luxembourg	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.19	1.70	2.12	1.91	2.03	2.13	1.84	2.36	2.12	2.35
Malta	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.75	ne	ne	1.95	2.39	2.10
Netherlands	1.25	1.34	1.34	1.28	1.32	1.36	1.51	1.52	1.53	1.51	1.41	1.46	1.47	1.54	1.59	1.55	1.56	1.55	1.60
Poland	0.21	0.25	0.25	0.26	0.24	0.24	0.30	0.31	0.38	0.41	0.45	0.72	0.60	0.73	0.75	0.78	0.81	0.83	0.81
Portugal	1.02	0.99	1.09	0.86	0.91	1.03	0.94	1.00	1.02	1.02	1.06	1.16	1.20	1.24	1.17	1.16	1.53	1.36	1.53
Romania	ne	ne	0.39	ne	ne	0.27	0.23	0.27	0.63	0.87	1.09	1.50	1.87	1.27	1.31	1.45	1.45	0.92	1.24
Slovakia	0.77	0.77	0.99	1.39	1.36	1.00	0.95	1.23	1.27	1.17	1.91	1.81	1.75	1.87	1.53	1.97	2.42	2.34	2.76
Slovenia	1.05	1.54	1.24	1.36	1.51	1.58	1.56	1.79	2.08	2.23	2.14	2.47	2.62	2.58	2.75	2.74	2.88	3.02	2.81
Spain	0.68	0.64	0.72	0.75	0.79	0.82	0.93	0.96	1.15	1.21	1.26	1.40	1.47	1.51	1.58	1.60	1.70	1.76	1.89
Sweden	0.67	0.72	0.81	0.83	0.86	0.99	0.99	1.01	1.22	1.17	1.27	1.28	1.42	1.44	1.54	1.50	1.50	1.59	1.74
United Kingdom	2.21	2.06	2.08	2.10	2.19	2.31	2.30	2.33	2.13	2.18	2.21	2.25	2.29	2.28	2.14	2.10	2.05	2.07	2.12
Other Europe	0.34	0.32	0.38	0.38	0.44	0.48	0.53	0.58	0.63	0.80	0.94	0.93	0.84	0.87	0.91	0.93	0.99	1.09	1.14

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Andorra	na	na	na	ne	na	na	ne	na	ne	na	na	na	ne	na	ne	ne	ne	na	ne
Belarus	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bosnia and Herzegovina	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.97	2.29	1.85	1.80	ne	1.18	ne	1.46	1.30
Holy See (Vatican City)	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	ne	na	na	ne
Iceland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.36	1.57	1.61	1.49	1.65	1.51	1.37	2.13	2.05
Kosovo	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liechtenstein	na	na	na	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Moldova	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Monaco	na	na	na	na	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne
Montenegro[a]	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.22	ne
North Macedonia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.18	1.81	1.43	1.65	1.23	1.68	2.05	2.62	1.87
Norway	1.60	1.55	1.86	1.71	1.96	1.92	1.99	1.93	1.83	1.81	1.88	1.98	1.90	1.89	1.98	2.05	1.85	1.92	1.99
Russia	0.08	0.09	0.10	0.11	0.12	0.14	0.14	0.17	0.14	0.20	0.24	0.31	0.38	0.45	0.47	0.62	0.82	1.01	1.02
San Marino	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	ne
Serbia[a]	na	na	na	na	na	na	na	0.34	0.42	0.46	0.75	1.05	1.05	0.72	0.85	0.84	0.97	0.93	1.13
Serbia and Montenegro[b]	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	0.61	0.56	0.70	0.66	0.72	0.79	0.77	0.82	0.85	0.85	0.90	0.90	0.88	0.89	1.01	0.98	1.01	1.04	1.01
Turkey	0.41	0.39	0.36	0.37	0.39	0.47	0.54	0.64	0.92	1.39	1.74	1.53	1.11	1.04	1.13	1.08	1.09	1.10	1.33
Ukraine	ne	ne	ne	ne	0.18	0.16	ne	ne	ne	0.16	0.16	0.16	0.15	0.86	0.77	0.69	0.53	0.61	0.60
Middle East	0.90	0.93	0.89	0.89	0.93	0.90	0.79	0.75	0.75	0.74	0.81	0.89	0.70	0.65	0.64	0.65	0.68	0.67	0.68
Armenia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Azerbaijan	na	na	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.86
Bahrain	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gaza Strip	ne	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne
Georgia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.22	1.19
Iran	ne	ne	ne	ne	ne	0.16	0.15	0.14	0.11	0.15	0.41	0.69	0.33	0.18	0.18	0.19	0.22	0.29	0.31
Iraq	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.29
Israel	1.22	1.26	1.30	1.37	1.48	1.55	1.43	1.45	1.61	1.68	1.63	1.57	1.58	1.63	1.69	1.67	1.78	1.63	1.88
Jordan	ne	ne	ne	ne	ne	ne	ne	1.48	1.75	1.82	1.51	1.69	2.19	1.72	2.29	1.71	2.50	2.06	1.38
Kuwait	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.04	1.24	1.21	0.85
Lebanon	ne	ne	ne	ne	ne	1.60	ne	ne	1.52	1.17	1.57	1.18	1.19	1.27	1.46	1.37	1.25	1.17	1.01
Oman	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.30	1.04	1.52	2.09	1.59	1.32
Qatar	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.01	ne	1.44	1.27	1.33	1.30	1.51	1.14
Saudi Arabia	ne	ne	ne	ne	ne	ne	ne	ne	0.39	0.35	0.39	0.38	0.39	0.46	0.39	0.42	0.42	0.48	0.55

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Syria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
United Arab Emirates	ne	ne	ne	ne	2.04	2.18	2.03	1.68	2.23	1.96	2.13	1.63	1.69	2.01	1.58	1.76	1.72	1.64	1.51
West Bank	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Yemen	ne	ne	ne	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Africa	1.60	1.55	1.52	1.51	1.66	1.60	1.57	1.40	1.52	1.49	1.47	1.34	1.34	1.28	1.30	1.25	1.21	1.17	1.22
Algeria	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.32	0.39	0.49	0.26	0.37	0.36	0.28	0.25
Angola	na	ne	ne	na	ne	ne	ne	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne
Benin	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Botswana	ne	ne	8.36	ne	6.67	7.23	5.06	ne	6.74	7.36	5.75	6.16	4.32	ne	3.75	ne	2.54	3.21	2.55
Burkina Faso	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Burundi	na	na	na	na	ne	na	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Cabo Verde	na	ne	na	na	na	na	ne	na	ne	ne	na	ne	na	ne	ne	ne	na	ne	ne
Cameroon	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.82	ne	1.36	1.50	ne	1.10	1.42	1.18
Central African Republic	na	ne	na	ne	na	ne	na	ne	ne	ne	na	ne	na	na	ne	ne	na	na	ne
Chad	na	ne	na	ne	na	ne	na	ne	na	ne	ne	ne	na	na	na	ne	ne	ne	ne
Comoros	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na
Congo, Democratic Republic of the	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Republic of the	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Côte d'Ivoire	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Djibouti	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	ne	ne	na	na	na
Egypt	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.19	0.25	0.26	0.26	0.25	0.21	0.24	0.26	0.22	0.20
Equatorial Guinea	na	na	na	na	ne	na	na	ne	na	ne	ne	na	na	na	na	na	ne	na	na
Eritrea	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Eswatini	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Ethiopia	ne	ne	ne	ne	ne	ne	ne	ne	2.57	1.89	ne	1.73	1.13	1.15	1.04	1.05	0.95	1.24	0.93
Gabon	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Gambia, The	na	na	ne	na	ne	ne	ne	ne	na	ne	ne	na	na	ne	ne	ne	ne	ne	ne
Ghana	ne	ne	ne	ne	ne	ne	ne	3.95	3.53	2.83	2.82	2.98	3.14	3.36	3.38	3.12	2.86	3.49	3.29
Guinea	na	na	na	na	na	na	na	ne	na	ne	na	na	ne	na	ne	ne	ne	ne	na
Guinea-Bissau	na	na	ne	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne
Kenya	ne	2.59	1.93	2.59	ne	2.12	1.92	1.92	2.34	2.53	2.62	1.99	1.93	1.79	1.88	1.64	1.64	1.45	1.65
Lesotho	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Liberia	ne	na	na	na	ne	na	ne	na	ne	ne	na	ne	ne	ne	ne	na	ne	ne	ne
Libya	na	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Madagascar	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malawi	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mali	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mauritania	na	ne	na	na	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	na
Mauritius	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Morocco	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.37	0.46	0.49	0.35	0.38	0.53	0.38	0.40
Mozambique	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Namibia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Niger	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nigeria	ne	0.87	0.73	1.23	1.09	0.94	1.16	1.05	1.38	1.76	1.63	1.57	1.42	1.23	1.39	1.48	1.33	1.46	1.53
Rwanda	ne	na	na	ne	ne	na	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
São Tomé and Príncipe	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na
Senegal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Seychelles	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne	na	ne
Sierra Leone	ne	ne	na	ne	ne	na	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne
Somalia	na	na	ne	ne	ne	na	na	na	na	ne	ne	ne	na	ne	ne	na	ne	ne	ne
South Africa	3.30	3.17	2.97	3.08	3.51	3.40	3.29	3.04	3.33	3.29	3.15	2.81	2.79	2.75	2.90	2.76	2.60	2.57	2.86
South Sudan	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	ne
Sudan	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tanzania	ne	ne	ne	ne	ne	ne	ne	ne	2.67	ne	2.50	ne	1.93	ne	1.44	1.31	1.28	1.35	1.79
Togo	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tunisia	ne	ne	ne	ne	ne	ne	ne	ne	0.38	0.42	0.50	0.52	0.75	0.60	0.66	0.63	0.67	0.40	0.43
Uganda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.95	ne	1.93	1.52	1.34	1.44	1.78	1.42	1.42
Western Sahara	na	na	na	na	na	na	na	na	ne	ne	na	na	na	na	na	ne	na	na	na
Zambia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Zimbabwe	ne	ne	ne	ne	ne	ne	ne	4.48	ne	ne	ne	ne	4.33	4.33	3.19	3.76	2.91	2.12	2.80
Asia	0.33	0.31	0.31	0.30	0.27	0.26	0.27	0.28	0.29	0.30	0.33	0.31	0.33	0.33	0.33	0.33	0.34	0.35	0.36
Afghanistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bangladesh	ne	ne	ne	ne	ne	ne	1.26	ne	1.01	0.85	0.89	0.99	0.71	0.79	0.70	0.74	0.54	0.56	0.61
Bhutan	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.29	3.33	2.29
Burma	ne	na	na	na	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne
Cambodia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
China	0.28	0.25	0.25	0.23	0.18	0.14	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.18	0.18	0.18	0.19	0.21	0.22
India	0.75	0.65	0.45	0.41	0.44	0.35	0.33	0.40	0.49	0.49	0.46	0.41	0.47	0.39	0.36	0.38	0.37	0.34	0.31
Indonesia	ne	ne	ne	ne	ne	1.72	1.36	1.77	1.20	1.16	1.19	1.29	1.36	1.39	1.36	1.10	1.37	1.15	0.95
Japan	0.18	0.17	0.20	0.23	0.20	0.24	0.24	0.26	0.25	0.26	0.28	0.27	0.28	0.28	0.27	0.28	0.28	0.28	0.31
Kazakhstan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.58	1.65	0.98	1.81	2.58	2.50	3.05

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(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Kyrgyzstan	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Laos	na	ne	na	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	0.82	1.01	1.02	1.16	0.65	1.17	1.21	1.05	0.88	1.39	1.84	1.37	1.30	1.46	1.34	1.40	1.35	1.36	1.32
Maldives	na	ne	ne	na	na	na	na	na	na	na	ne	na	na	ne	ne	ne	na	ne	ne
Mongolia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nepal	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
North Korea	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	ne
Pakistan	1.63	1.65	1.03	0.93	0.84	0.75	0.96	1.06	0.65	0.68	0.71	0.63	0.56	0.46	0.57	0.58	0.54	0.44	0.39
Papua New Guinea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Philippines	2.89	ne	3.10	3.45	3.59	3.26	3.39	3.41	3.64	3.75	3.85	3.08	3.62	3.52	2.89	2.27	2.18	2.03	2.04
Singapore	0.94	1.00	0.90	0.93	0.75	0.97	0.93	0.96	1.04	1.06	1.08	1.04	1.16	1.05	1.11	1.10	1.05	1.01	1.03
South Korea	0.26	0.28	0.29	0.21	0.27	0.24	0.23	0.23	0.24	0.27	0.29	0.27	0.29	0.29	0.35	0.35	0.38	0.41	0.39
Sri Lanka	ne	ne	ne	ne	ne	ne	ne	ne	1.77	1.71	1.94	ne	1.36	1.17	0.96	0.91	0.83	0.76	0.72
Taiwan	0.35	0.41	0.48	0.40	0.47	0.56	0.50	0.58	0.68	0.68	0.80	0.78	0.92	0.85	0.90	0.89	0.89	0.90	0.86
Tajikistan	na	na	na	ne	na	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	ne	ne
Thailand	0.68	0.58	0.57	0.46	0.53	0.46	0.61	0.62	0.54	0.58	0.76	0.60	0.54	0.61	0.67	0.74	0.63	0.71	0.76
Timor-Leste	na	na	na	na	na	ne	na	ne	ne	na	na	ne	na	ne	ne	ne	ne	ne	ne
Turkmenistan	ne	na	na	na	ne	na	na	na	na	na	na	ne	ne	na	na	na	na	ne	na
Uzbekistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vietnam	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.53	0.45	0.57	0.53	0.61	0.69	0.80
Australia and Oceania	1.76	1.80	1.89	1.92	2.01	2.07	2.06	1.95	2.26	2.22	2.18	2.08	2.13	2.13	2.03	2.01	1.95	2.01	1.93
Australia	1.72	1.75	1.82	1.86	1.97	2.00	2.00	1.86	2.21	2.18	2.14	2.00	2.10	2.12	2.00	1.96	1.88	1.95	1.88
Cook Islands	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	na	na
Fiji	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Kiribati	na	na	na	na	na	na	ne	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	na	ne	na	na	na	na	ne	ne	na	na	ne	na	na	na	na	ne	ne	ne	ne
Micronesia, Federated States of	ne	na	na	na	na	na	na	ne	ne	na	na	na	na	ne	na	ne	na	na	ne
Nauru	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	1.97	2.05	2.24	2.25	2.16	2.47	2.31	2.36	2.44	2.38	2.33	2.53	2.32	2.22	2.25	2.34	2.39	2.38	2.24
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Palau	na	na	na	na	na	na	na	na	na	na	ne	na	na	na	na	na	na	ne	ne
Samoa	na	na	ne	ne	na	ne	ne	ne	ne	ne	ne	ne	na	ne	ne	ne	ne	ne	ne
Solomon Islands	ne	na	na	na	na	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne
Tonga	na	na	ne	na	na	ne	ne	na	na	na	ne	na	na	ne	na	ne	ne	na	ne
Tuvalu	na	ne	na	na	na	na	na	ne	ne	na	na	na	na	na	na	ne	na	na	na
Vanuatu	na	na	na	na	ne	ne	ne	ne	na	ne	ne	ne	ne	na	na	ne	ne	ne	ne

TABLE S5A-31

Specialization of S&E articles in social sciences, by region, country, or economy: 2000–18

(Index)

Region, country, or economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Unassigned	1.81	2.16	1.68	1.16	1.19	1.48	1.82	1.74	1.94	1.17	0.68	0.57	0.65	0.94	1.62	1.76	1.09	1.13	0.91

na = not applicable; there are no articles assigned to the entity. ne = not eligible; there are fewer than the minimum 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. The specialization index (SI) is calculated as follows: SI = (*Fe*/*Te*)/(*Fw*/*Tw*) where *Fe* is the fractional paper count of a given region, country, or economy's output in a given field (*F*), *Te* is the total (*T*) output for the entity, *Fw* is the total output of the world in the same field, and *Tw* is the total output across all fields at the world level.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-32

S&E articles in all fields combined, by coauthorship attribute and selected region, country, or economy: 1996–2018

(Whole count of articles)

Country/economy pair	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
World																							
Total articles	972,746	1,008,481	1,017,971	1,023,842	1,071,952	1,108,034	1,155,683	1,216,799	1,328,748	1,493,822	1,574,326	1,667,152	1,755,850	1,857,115	1,948,805	2,051,840	2,110,004	2,179,056	2,264,127	2,294,092	2,377,180	2,465,689	2,555,959
With multiple institutions	461,321	477,823	494,098	503,250	504,844	478,630	520,506	692,293	782,002	888,719	946,242	1,007,956	1,057,940	1,085,295	1,134,463	1,221,329	1,282,205	1,346,602	1,419,829	1,461,654	1,543,739	1,620,112	1,710,716
With domestic institutions only	834,093	864,576	866,719	866,819	912,227	953,322	985,245	996,362	1,091,955	1,229,761	1,291,923	1,359,998	1,432,798	1,516,599	1,585,454	1,661,708	1,692,048	1,735,176	1,792,897	1,802,886	1,854,162	1,912,407	1,968,492
With international institutions	120,323	128,684	135,492	138,116	145,362	143,083	159,002	199,195	219,381	244,097	262,099	283,230	300,282	324,359	344,357	371,037	401,031	431,857	463,722	485,274	514,666	543,064	575,857
Canada																							
Total articles	41,610	41,423	40,698	40,111	41,891	41,224	44,978	49,624	55,136	62,090	65,106	69,435	71,596	74,862	76,690	79,050	82,841	84,559	87,235	87,767	89,219	90,518	92,362
With multiple institutions	24,950	24,828	24,969	24,972	24,524	22,554	24,938	33,762	38,460	43,475	45,595	49,224	51,044	52,194	53,454	56,047	59,809	61,940	65,124	66,258	68,823	70,602	73,288
With domestic institutions only	27,774	27,487	26,487	25,985	27,461	27,439	29,557	29,305	32,346	36,307	37,609	39,583	40,147	41,643	42,080	42,895	43,818	43,703	43,652	43,028	41,980	41,697	40,668
With international institutions	12,912	13,171	13,483	13,229	13,899	13,330	15,049	19,571	22,217	25,082	26,787	28,946	30,575	32,730	34,057	35,567	38,521	40,463	43,376	44,552	47,015	48,536	51,287
Mexico																							
Total articles	4,863	5,412	5,876	6,227	6,477	6,947	7,608	8,770	9,539	10,780	12,117	12,516	13,636	14,003	14,759	15,654	16,571	17,471	18,741	19,164	20,312	21,378	21,947
With multiple institutions	2,752	3,085	3,695	3,885	4,023	4,116	4,777	6,389	7,087	7,884	8,902	9,172	10,284	10,454	10,916	11,651	12,536	13,273	14,242	14,856	15,923	16,988	17,865
With domestic institutions only	3,136	3,478	3,628	3,820	3,981	4,352	4,773	5,112	5,581	6,447	7,277	7,413	8,010	8,298	8,779	9,149	9,797	10,365	11,131	11,374	11,681	12,230	12,295
With international institutions	1,659	1,877	2,156	2,298	2,435	2,517	2,725	3,499	3,855	4,212	4,688	4,936	5,408	5,510	5,794	6,311	6,634	6,992	7,522	7,663	8,532	9,093	9,583
United States																							
Total articles	336,815	337,873	333,167	329,729	341,020	340,883	358,181	379,446	407,443	443,943	448,696	459,143	463,386	472,771	486,363	506,948	517,473	525,373	535,617	537,423	541,080	552,148	548,847
With multiple institutions	184,900	184,834	186,417	187,459	188,469	176,436	188,186	244,300	271,659	297,743	305,866	313,994	317,092	313,901	318,442	339,898	353,321	366,210	380,124	386,792	397,765	408,816	417,094
With domestic institutions only	273,308	273,826	266,195	261,981	271,235	273,488	283,950	284,374	305,505	331,103	329,266	332,077	332,682	335,667	341,959	352,996	352,801	350,774	351,179	346,164	340,599	343,012	330,897
With international institutions	56,092	58,207	61,237	61,692	65,040	63,272	70,730	88,513	96,717	106,729	112,950	119,941	124,514	132,970	140,599	150,080	161,356	172,026	182,716	190,066	198,875	206,958	215,388
Argentina																							
Total articles	4,167	4,710	4,765	5,089	5,430	5,531	5,943	5,964	6,276	6,660	7,411	7,643	8,445	9,233	9,686	10,369	10,688	10,852	11,570	11,550	11,967	12,164	12,480
With multiple institutions	2,450	2,733	2,929	3,061	3,144	3,025	3,456	4,199	4,738	4,950	5,391	5,821	6,429	6,838	7,230	7,771	8,158	8,312	8,911	8,938	9,398	9,766	10,235
With domestic institutions only	2,806	3,277	3,121	3,362	3,596	3,683	3,899	3,515	3,478	3,692	4,253	4,209	4,682	5,196	5,516	5,895	5,880	6,025	6,323	6,251	6,392	6,486	6,441
With international institutions	1,254	1,352	1,554	1,612	1,754	1,789	2,001	2,375	2,731	2,901	3,080	3,341	3,667	3,966	4,086	4,404	4,745	4,781	5,221	5,273	5,541	5,633	6,004
Brazil																							
Total articles	9,300	11,288	12,765	13,722	15,314	16,323	18,935	20,889	23,364	26,270	32,819	35,934	40,919	44,176	47,734	51,126	55,825	58,792	62,104	63,550	66,813	70,115	73,073
With multiple institutions	5,845	6,794	8,079	8,525	9,595	9,751	11,664	14,867	17,078	19,375	24,927	27,893	31,862	33,292	35,841	39,194	42,907	45,019	48,209	49,779	52,909	55,642	58,393
With domestic institutions only	6,014	7,688	8,645	9,510	10,649	11,879	13,690	14,748	16,515	18,736	23,981	26,163	29,935	33,087	36,067	38,254	41,658	43,027	44,249	44,216	45,002	47,232	48,211
With international institutions	2,940	3,329	3,784	3,804	4,330	4,152	4,909	5,605	6,420	7,085	8,116	8,817	9,904	10,430	10,943	12,305	13,631	15,248	17,564	19,202	21,673	22,703	24,610
Chile																							
Total articles	1,797	1,963	1,917	2,104	2,200	2,306	2,838	3,107	3,376	3,830	4,665	4,911	5,567	5,905	6,317	6,940	7,761	8,071	9,518	9,913	11,249	11,403	12,378
With multiple institutions	1,281	1,337	1,340	1,509	1,582	1,568	1,957	2,409	2,691	3,113	3,786	4,043	4,396	4,609	5,027	5,616	6,385	6,670	7,925	8,356	9,593	9,821	10,858
With domestic institutions only	941	1,054	998	1,071	1,123	1,186	1,508	1,408	1,480	1,636	2,062	2,135	2,482	2,732	2,784	3,034	3,335	3,243	3,686	3,813	4,084	4,183	4,255
With international institutions	772	849	843	970	1,013	1,068	1,274	1,644	1,849	2,140	2,534	2,703	2,960	3,127	3,496	3,871	4,389	4,786	5,813	6,085	7,135	7,194	8,097
Austria																							

TABLE S5A-32

S&E articles in all fields combined, by coauthorship attribute and selected region, country, or economy: 1996–2018

(Whole count of articles)

Country/economy pair	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total articles	7,452	8,070	8,128	8,287	8,763	9,261	9,942	10,932	11,595	12,905	13,269	14,694	15,589	16,414	17,106	18,453	19,516	20,255	21,015	21,700	22,253	22,543	22,405
With multiple institutions	4,846	5,251	5,437	5,686	5,677	5,538	6,112	8,044	8,915	9,852	10,051	11,227	11,918	12,140	12,677	13,905	14,900	15,654	16,531	17,090	17,927	18,246	18,637
With domestic institutions only	4,518	4,801	4,751	4,673	4,987	5,373	5,726	5,627	5,658	6,233	6,362	6,775	6,978	7,340	7,401	7,787	7,972	7,959	7,993	8,138	7,817	7,776	7,183
With international institutions	2,802	3,154	3,239	3,381	3,623	3,820	4,134	5,135	5,824	6,536	6,762	7,777	8,454	8,976	9,630	10,613	11,482	12,246	12,992	13,541	14,413	14,739	15,183
Belgium																							
Total articles	11,246	11,778	12,587	12,548	12,911	13,154	14,016	15,464	16,557	18,456	18,958	20,386	21,564	22,599	23,500	24,914	26,256	27,100	28,346	28,725	29,139	29,276	29,280
With multiple institutions	7,011	7,470	8,098	8,173	8,052	7,707	8,770	11,385	12,464	14,118	14,543	15,836	16,898	17,501	18,278	19,692	20,975	21,855	23,240	23,983	24,492	24,970	25,479
With domestic institutions only	6,679	6,854	7,229	7,076	7,403	7,844	7,774	7,638	8,070	8,795	8,971	9,367	9,609	9,840	9,924	10,116	10,477	10,403	10,373	9,848	9,785	9,321	8,564
With international institutions	4,402	4,792	5,226	5,264	5,410	5,240	6,176	7,634	8,377	9,531	9,825	10,853	11,767	12,625	13,450	14,687	15,684	16,640	17,940	18,846	19,324	19,906	20,667
Czechia																							
Total articles	5,459	5,823	5,828	6,250	6,675	7,135	7,542	8,228	9,080	10,143	11,356	12,732	13,644	14,347	16,059	17,103	18,031	18,541	20,673	22,358	22,536	23,227	22,239
With multiple institutions	3,048	3,116	3,277	3,301	3,508	3,462	3,907	5,647	6,477	7,058	7,943	8,746	9,269	9,416	10,068	10,611	11,555	12,058	13,618	14,622	14,909	15,678	15,549
With domestic institutions only	3,593	3,903	3,779	4,139	4,502	4,868	5,094	5,162	5,671	6,352	7,085	8,024	8,576	8,979	10,271	11,053	11,309	11,350	12,281	13,264	13,088	13,065	11,761
With international institutions	1,831	1,889	2,011	2,063	2,141	2,233	2,415	2,980	3,344	3,730	4,202	4,619	4,942	5,308	5,701	5,960	6,640	7,161	8,368	9,071	9,417	10,124	10,449
Denmark																							
Total articles	8,358	9,260	9,283	9,227	9,722	9,635	9,750	10,691	11,292	12,192	12,747	13,528	14,059	15,020	15,988	17,729	19,372	20,469	22,631	23,506	23,988	24,563	24,917
With multiple institutions	5,855	6,084	6,676	6,546	6,347	6,166	6,129	8,075	8,650	9,342	9,969	10,759	11,275	11,329	12,224	13,819	15,118	16,186	18,058	19,132	19,936	20,491	21,247
With domestic institutions only	4,881	5,533	5,174	5,006	5,492	5,509	5,552	5,352	5,653	5,973	6,060	6,231	6,349	6,697	6,956	7,677	8,334	8,590	9,349	9,097	8,820	8,784	8,160
With international institutions	3,251	3,640	4,003	3,981	4,046	3,982	4,153	5,093	5,549	6,095	6,578	7,155	7,573	8,271	8,959	9,993	10,979	11,829	13,066	14,241	15,056	15,673	16,670
Finland																							
Total articles	7,877	8,391	8,657	8,715	9,383	9,637	9,791	10,539	11,443	12,121	12,476	13,054	13,355	14,006	14,317	14,911	15,549	16,321	17,276	17,387	17,937	17,740	17,859
With multiple institutions	4,910	5,464	5,603	5,963	5,984	5,762	5,991	7,553	8,163	8,640	9,186	9,816	10,035	10,315	10,674	11,271	11,914	12,593	13,394	13,854	14,416	14,563	14,820
With domestic institutions only	5,438	5,610	5,578	5,465	5,974	6,362	6,331	6,099	6,734	7,088	7,054	7,013	7,071	7,383	7,161	7,317	7,268	7,336	7,564	7,127	7,161	6,631	6,509
With international institutions	2,371	2,696	2,990	3,112	3,325	3,212	3,422	4,355	4,653	4,969	5,360	5,952	6,222	6,585	7,079	7,501	8,197	8,934	9,695	10,241	10,755	11,092	11,323
France																							
Total articles	54,979	59,087	60,043	59,858	61,523	62,031	63,968	67,934	72,061	78,452	82,196	85,683	89,751	93,488	94,997	98,498	102,466	105,178	106,435	106,099	106,846	107,448	104,354
With multiple institutions	32,192	34,905	36,435	37,018	36,813	34,854	37,714	47,110	51,037	56,047	59,189	62,773	66,136	69,493	71,735	75,821	80,155	83,579	85,766	86,486	88,305	89,429	87,781
With domestic institutions only	37,706	40,041	40,036	39,414	40,150	41,300	41,218	39,950	41,719	44,791	46,526	47,392	49,308	49,939	50,117	50,994	51,911	51,855	50,804	49,086	47,568	46,262	42,804
With international institutions	16,635	18,450	19,440	19,785	20,927	20,369	22,344	27,268	29,748	33,025	34,982	37,486	39,697	43,130	44,487	47,102	50,197	53,036	55,411	56,786	58,878	60,709	60,916
Germany																							
Total articles	74,995	81,001	83,438	82,215	84,740	86,289	89,055	93,809	98,698	109,521	111,975	118,367	122,006	127,548	131,261	136,897	144,603	146,717	151,366	151,001	154,913	156,158	154,301
With multiple institutions	43,259	47,108	49,462	49,448	48,675	46,810	49,942	64,220	70,522	77,636	80,084	84,974	87,642	88,133	90,173	95,164	101,509	104,491	108,483	110,217	114,169	117,128	118,099
With domestic institutions only	51,666	55,469	56,355	53,995	56,127	57,803	57,713	55,099	57,014	63,524	64,104	66,462	68,404	70,607	71,571	73,958	77,039	76,403	77,970	75,477	76,383	75,326	71,780
With international institutions	21,933	24,318	25,780	26,616	27,531	27,578	30,434	37,116	40,215	44,636	46,596	50,505	52,053	56,109	58,949	62,328	66,915	69,891	73,065	75,308	78,223	80,382	82,089
Greece																							
Total articles	4,980	5,459	5,688	5,774	6,600	7,049	7,818	8,545	9,965	11,545	13,261	14,115	14,911	15,610	15,621	15,925	16,309	16,367	16,475	16,260	16,439	16,325	16,529

TABLE S5A-32

S&E articles in all fields combined, by coauthorship attribute and selected region, country, or economy: 1996–2018

(Whole count of articles)

Country/economy pair	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
With multiple institutions	2,871	3,166	3,498	3,558	3,828	3,907	4,409	5,893	6,987	8,134	9,300	9,933	10,467	10,792	10,633	11,267	11,528	11,800	12,086	12,159	12,433	12,624	12,900
With domestic institutions only	3,274	3,654	3,667	3,691	4,349	4,758	5,371	5,411	6,429	7,471	8,506	8,919	9,522	9,609	9,507	9,297	9,105	8,830	8,518	8,122	7,887	7,588	7,471
With international institutions	1,645	1,752	1,964	1,995	2,201	2,245	2,408	3,058	3,479	3,987	4,675	5,095	5,295	5,942	6,029	6,536	7,140	7,488	7,914	8,115	8,529	8,701	9,029
Ireland																							
Total articles	2,715	2,861	3,073	3,121	3,511	3,630	4,020	4,368	5,357	6,560	6,886	7,802	8,392	9,370	10,195	10,717	10,656	10,891	11,168	11,055	11,712	11,979	12,555
With multiple institutions	1,643	1,785	1,896	1,940	2,066	2,066	2,337	2,943	3,586	4,380	4,713	5,303	5,863	6,520	7,129	7,554	7,785	8,110	8,504	8,647	9,303	9,677	10,339
With domestic institutions only	1,615	1,652	1,746	1,776	2,075	2,235	2,377	2,285	2,828	3,490	3,507	4,011	4,148	4,612	5,032	5,261	4,965	4,855	4,806	4,473	4,527	4,558	4,484
With international institutions	1,063	1,163	1,294	1,301	1,386	1,372	1,615	2,033	2,498	3,022	3,286	3,700	4,184	4,716	5,085	5,366	5,645	6,006	6,334	6,567	7,163	7,400	8,050
Italy																							
Total articles	39,205	40,849	40,359	41,068	42,977	44,290	46,952	51,837	55,089	59,660	63,071	68,379	71,234	74,532	75,978	79,060	84,611	89,440	93,285	95,347	96,822	99,130	100,117
With multiple institutions	24,117	25,049	25,693	26,289	26,247	25,582	28,969	37,038	40,339	43,707	46,656	50,596	52,356	53,517	54,869	58,212	62,768	67,051	71,163	73,720	75,965	78,893	80,653
With domestic institutions only	28,835	29,559	28,374	28,424	30,039	31,453	32,422	34,013	35,503	38,058	39,845	42,331	43,837	45,449	45,104	46,074	48,697	50,586	51,557	51,301	50,518	50,584	49,378
With international institutions	9,893	10,899	11,598	11,963	12,530	12,547	14,225	17,287	19,235	21,211	22,793	25,514	26,826	28,730	30,457	32,548	35,531	38,541	41,498	43,816	46,064	48,122	50,243
Netherlands																							
Total articles	22,274	23,144	23,595	22,597	24,151	23,866	25,363	27,346	29,770	33,139	34,459	36,182	37,760	40,884	42,574	44,222	47,256	48,451	49,833	49,776	50,971	51,708	52,063
With multiple institutions	14,105	14,861	15,591	15,132	15,626	14,478	15,736	20,327	22,893	25,445	26,779	28,299	29,675	31,635	33,325	34,951	38,269	39,466	40,654	41,528	43,116	44,094	45,054
With domestic institutions only	14,578	14,658	14,803	13,865	14,733	14,964	15,413	14,714	15,737	17,804	17,903	18,500	19,124	20,404	20,469	20,915	20,959	20,997	20,950	19,889	19,399	19,063	18,107
With international institutions	7,364	8,193	8,454	8,370	9,190	8,752	9,813	12,290	13,769	15,076	16,280	17,397	18,355	20,262	21,872	23,061	26,078	27,294	28,791	29,798	31,414	32,407	33,713
Poland																							
Total articles	13,210	13,235	13,759	14,428	15,733	17,155	18,612	20,428	22,940	24,627	26,457	26,955	28,730	28,989	30,006	31,313	34,066	36,527	38,877	40,658	43,087	43,663	44,997
With multiple institutions	5,909	6,009	6,348	6,695	7,060	7,348	8,070	11,727	13,313	14,993	16,320	16,480	17,076	16,558	17,056	17,763	19,353	20,891	22,804	24,255	26,377	27,441	28,639
With domestic institutions only	9,340	9,301	9,686	10,139	11,212	12,471	13,584	14,152	16,063	17,331	18,810	18,994	20,660	20,494	21,392	22,271	24,307	26,019	27,378	28,531	29,787	29,390	29,953
With international institutions	3,756	3,883	3,975	4,212	4,431	4,572	4,918	6,103	6,715	7,113	7,480	7,682	7,794	8,259	8,275	8,724	9,568	10,412	11,427	12,058	13,218	14,182	14,950
Portugal																							
Total articles	2,794	3,347	3,602	4,077	4,371	4,903	5,323	6,261	7,068	8,019	9,751	10,372	11,943	13,023	14,492	16,469	18,122	19,601	20,512	21,091	21,238	21,699	22,105
With multiple institutions	1,524	1,807	1,949	2,429	2,617	2,829	3,338	4,539	5,257	5,935	7,341	7,787	9,207	9,864	11,018	12,686	14,227	15,539	16,527	17,089	17,636	18,164	18,734
With domestic institutions only	1,712	2,089	2,254	2,416	2,581	2,983	3,105	3,378	3,752	4,299	5,233	5,591	6,291	7,028	7,725	8,738	9,322	9,944	10,296	10,267	9,739	9,804	9,515
With international institutions	1,069	1,243	1,320	1,627	1,770	1,904	2,198	2,828	3,274	3,678	4,467	4,702	5,590	5,939	6,696	7,675	8,742	9,615	10,183	10,799	11,459	11,858	12,534
Spain																							
Total articles	24,272	26,592	27,081	28,450	29,578	31,026	33,530	36,164	39,487	44,797	49,391	53,473	56,457	60,906	64,100	69,002	73,020	74,310	77,373	76,621	78,642	79,551	79,866
With multiple institutions	13,733	15,450	15,771	16,378	16,731	16,459	18,843	24,874	27,480	31,573	35,184	38,022	40,877	41,990	44,791	49,649	53,277	54,858	58,107	58,613	61,088	62,635	64,179
With domestic institutions only	17,628	19,231	19,226	20,134	20,990	22,482	23,587	23,583	25,657	28,792	31,350	33,405	34,473	36,914	37,736	39,718	41,070	40,549	40,965	39,204	38,900	38,472	37,157
With international institutions	6,338	7,103	7,562	7,902	8,261	8,283	9,737	12,118	13,540	15,658	17,638	19,555	21,466	23,713	26,076	29,004	31,675	33,570	36,257	37,227	39,412	40,683	42,137
Sweden																							
Total articles	16,626	17,293	17,791	18,311	18,822	18,925	19,033	20,312	21,181	23,007	23,486	24,295	24,448	25,984	27,026	28,393	30,531	32,056	34,112	34,828	35,945	36,571	37,012
With multiple institutions	10,870	11,572	12,072	12,491	12,152	11,764	11,899	14,865	15,685	17,250	17,767	18,732	18,891	19,628	20,553	21,843	23,769	25,457	27,104	28,422	29,795	30,679	31,344

TABLE S5A-32

S&E articles in all fields combined, by coauthorship attribute and selected region, country, or economy: 1996–2018

(Whole count of articles)

Country/economy pair	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
With domestic institutions only	10,435	10,704	10,861	10,945	11,362	11,583	11,286	10,786	11,139	11,938	11,929	11,672	11,607	12,070	12,104	12,367	12,964	13,215	13,846	13,257	12,964	12,682	12,214
With international institutions	5,919	6,357	6,683	7,068	7,259	7,207	7,680	9,278	9,859	10,879	11,377	12,422	12,633	13,799	14,772	15,896	17,479	18,743	20,205	21,523	22,929	23,819	24,740
United Kingdom																							
Total articles	84,082	86,900	87,922	87,562	93,077	88,937	91,633	96,479	102,690	111,219	116,523	122,323	124,171	128,849	130,520	135,062	140,438	145,446	149,743	153,429	156,899	160,060	161,910
With multiple institutions	46,091	47,180	49,067	49,675	50,554	46,726	49,483	61,610	67,779	74,705	78,295	83,461	85,250	87,014	87,753	93,187	98,605	105,363	110,563	115,608	120,948	125,754	129,607
With domestic institutions only	59,770	61,614	61,150	60,296	64,739	62,065	62,116	59,575	61,828	65,815	68,086	69,764	69,016	70,115	69,130	69,860	70,436	69,687	68,644	67,584	65,980	64,179	61,419
With international institutions	23,077	24,206	25,601	25,733	27,271	26,132	28,794	35,748	40,089	44,403	47,409	51,308	53,990	57,906	60,372	64,157	69,030	75,171	80,715	85,506	90,497	95,392	99,924
Norway																							
Total articles	5,962	6,466	6,605	6,198	6,543	6,657	6,755	7,363	8,190	9,496	10,271	11,210	11,703	13,017	13,518	14,522	15,766	16,143	17,129	17,298	18,691	19,633	20,176
With multiple institutions	3,727	4,036	4,246	4,142	4,125	4,107	4,093	5,529	6,240	7,245	7,863	8,745	9,145	10,045	10,485	11,342	12,509	12,821	13,777	14,017	15,350	16,224	16,738
With domestic institutions only	3,903	4,162	4,137	3,757	4,061	4,148	4,114	3,901	4,227	5,009	5,194	5,573	5,608	6,216	6,317	6,802	7,051	7,106	7,147	6,922	7,172	7,425	7,454
With international institutions	1,982	2,227	2,397	2,333	2,406	2,457	2,581	3,347	3,880	4,393	4,967	5,538	5,972	6,733	7,145	7,651	8,658	8,990	9,962	10,359	11,499	12,182	12,687
Russia																							
Total articles	37,965	37,586	38,919	37,204	37,807	39,914	40,144	40,320	40,492	41,242	36,289	37,395	38,686	39,399	40,418	42,988	43,388	46,352	53,001	61,826	73,093	82,314	93,766
With multiple institutions	10,353	11,291	12,182	12,658	14,162	14,217	15,192	18,892	20,131	21,352	18,277	18,912	19,021	19,494	19,994	21,646	22,469	24,925	29,079	35,638	42,711	48,520	55,319
With domestic institutions only	30,646	29,626	30,438	28,415	28,182	30,475	29,839	27,867	27,511	27,533	24,324	25,243	27,042	27,684	29,215	31,010	30,964	32,917	38,329	45,181	54,978	62,102	72,004
With international institutions	7,202	7,823	8,339	8,588	9,234	9,234	9,766	11,070	11,432	12,373	11,708	11,914	11,387	11,574	11,122	11,915	12,352	13,372	14,617	16,563	18,032	20,062	21,530
Switzerland																							
Total articles	15,579	16,281	16,828	16,962	17,467	16,949	17,685	19,965	21,797	23,859	25,587	27,144	28,127	29,404	31,173	33,392	35,888	37,165	38,790	39,405	40,285	41,629	41,081
With multiple institutions	10,309	10,682	11,374	11,451	11,101	10,367	10,992	14,558	16,219	17,885	19,366	20,999	21,765	22,425	23,856	25,798	28,086	29,482	30,988	32,076	33,297	34,628	34,900
With domestic institutions only	8,387	8,756	8,720	8,587	9,257	9,128	9,081	8,777	9,360	10,201	10,728	10,723	10,962	11,225	11,623	12,184	12,747	12,806	13,038	12,552	12,385	12,432	11,507
With international institutions	6,917	7,314	7,829	8,014	7,975	7,592	8,474	10,877	12,233	13,425	14,618	16,160	16,892	18,027	19,353	21,029	22,949	24,238	25,688	26,780	27,791	29,077	29,476
Turkey																							
Total articles	5,487	5,937	6,407	7,446	7,638	9,408	11,977	14,865	17,713	19,596	21,650	23,918	24,451	27,795	29,421	30,507	32,260	35,008	35,967	38,102	41,005	39,442	39,449
With multiple institutions	2,744	3,061	3,444	4,160	4,062	4,506	6,106	9,798	12,196	13,845	14,926	16,206	16,540	17,849	18,641	19,899	21,710	24,000	25,266	27,008	29,352	27,913	27,856
With domestic institutions only	4,473	4,899	5,253	6,139	6,205	7,952	10,106	12,292	14,589	16,332	18,096	19,985	20,222	22,987	24,230	24,959	25,808	27,916	28,694	30,062	31,793	30,103	29,643
With international institutions	959	992	1,119	1,231	1,368	1,426	1,802	2,456	2,991	3,121	3,426	3,769	4,064	4,646	5,010	5,389	6,340	6,997	7,175	7,993	9,112	9,237	9,698
Iran																							
Total articles	851	1,067	1,215	1,408	1,845	2,177	3,139	4,432	5,859	8,053	11,187	14,873	18,826	22,733	27,780	34,514	35,363	36,851	40,433	41,370	47,548	52,202	54,499
With multiple institutions	475	531	658	731	889	1,057	1,528	2,677	3,571	5,042	6,930	9,315	11,601	14,109	17,250	21,916	23,424	25,187	27,679	28,283	32,694	36,132	38,825
With domestic institutions only	534	736	807	1,044	1,371	1,692	2,447	3,325	4,442	6,173	8,892	11,833	15,216	18,474	22,599	28,197	28,462	29,162	32,030	32,673	37,671	40,601	41,147
With international institutions	305	327	398	348	463	475	670	1,072	1,367	1,781	2,177	2,821	3,385	4,101	4,942	6,064	6,707	7,555	8,278	8,629	9,794	11,534	13,277
Israel																							
Total articles	10,438	10,881	10,735	10,801	11,651	11,687	12,161	12,946	13,409	13,738	14,436	14,874	15,138	15,004	15,119	15,761	16,280	16,235	17,189	17,588	17,915	18,127	18,499
With multiple institutions	6,329	6,649	6,725	6,790	7,098	6,825	7,136	9,143	9,517	9,849	10,312	10,665	10,692	10,460	10,705	11,253	11,685	11,893	12,393	13,042	13,432	13,665	14,330
With domestic institutions only	6,644	6,939	6,703	6,719	7,412	7,463	7,749	7,521	7,949	8,001	8,422	8,571	8,625	8,522	8,111	8,258	8,659	8,377	8,980	8,706	8,807	8,905	8,669

TABLE S5A-32

S&E articles in all fields combined, by coauthorship attribute and selected region, country, or economy: 1996–2018

(Whole count of articles)

Country/economy pair	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
With international institutions	3,628	3,762	3,869	3,900	4,106	4,134	4,336	5,239	5,324	5,622	5,886	6,198	6,389	6,417	6,886	7,353	7,532	7,808	8,184	8,866	9,087	9,193	9,790
Saudi Arabia																							
Total articles	1,926	1,975	1,998	1,806	1,898	1,850	1,939	2,232	2,199	2,276	2,489	2,719	3,083	4,033	5,736	8,419	10,846	13,234	16,053	17,976	19,028	19,806	21,361
With multiple institutions	1,113	1,080	1,136	1,002	950	853	931	1,276	1,323	1,433	1,536	1,684	1,971	2,497	3,969	6,367	8,574	10,503	13,258	15,188	16,222	16,826	18,139
With domestic institutions only	1,400	1,455	1,469	1,323	1,354	1,344	1,406	1,416	1,436	1,389	1,543	1,597	1,718	2,170	2,481	2,907	3,259	3,916	4,184	4,297	4,458	4,830	5,296
With international institutions	487	506	508	463	522	485	521	776	734	821	900	1,044	1,304	1,820	3,203	5,456	7,548	9,289	11,845	13,665	14,555	14,951	16,037
Egypt																							
Total articles	2,908	2,860	2,967	2,918	3,242	3,482	3,652	4,245	4,462	4,615	5,080	5,758	6,386	8,007	8,781	10,030	11,546	12,474	13,770	14,850	16,681	17,348	19,933
With multiple institutions	1,500	1,408	1,502	1,431	1,533	1,471	1,719	2,461	2,574	2,858	3,209	3,612	4,049	5,220	5,943	7,068	8,309	9,259	10,575	11,497	13,071	13,831	16,094
With domestic institutions only	1,959	1,967	2,081	2,082	2,296	2,626	2,649	2,840	2,989	2,952	3,285	3,754	4,031	4,955	5,216	5,708	6,443	6,375	6,612	7,098	8,103	8,212	9,712
With international institutions	905	860	854	778	903	828	974	1,367	1,425	1,620	1,727	1,911	2,272	2,959	3,451	4,205	5,014	6,056	7,136	7,740	8,556	9,121	10,176
South Africa																							
Total articles	4,540	4,634	4,722	4,857	4,768	4,938	5,354	5,554	6,348	6,876	7,618	8,043	8,647	9,706	10,419	11,547	12,943	13,979	15,303	16,306	18,178	19,395	20,203
With multiple institutions	2,281	2,480	2,547	2,608	2,507	2,323	2,637	3,439	4,079	4,532	4,911	5,423	5,762	6,379	6,790	7,682	8,704	9,604	10,731	11,592	13,134	14,129	15,016
With domestic institutions only	3,251	3,237	3,231	3,282	3,228	3,447	3,656	3,258	3,677	3,889	4,330	4,359	4,740	5,280	5,676	6,087	6,722	7,032	7,473	7,861	8,600	9,060	8,951
With international institutions	1,252	1,323	1,415	1,460	1,481	1,466	1,659	2,237	2,615	2,906	3,218	3,549	3,818	4,365	4,646	5,379	6,139	6,897	7,788	8,387	9,496	10,295	11,188
China																							
Total articles	36,785	41,056	47,555	49,356	57,857	75,350	79,968	95,154	130,260	177,423	203,829	231,542	267,680	307,974	338,291	355,697	360,520	393,981	427,736	448,690	483,862	523,937	584,407
With multiple institutions	12,682	14,622	16,309	17,801	21,096	21,440	27,548	41,622	59,649	88,046	104,502	122,781	143,270	167,140	187,203	202,473	214,364	239,931	267,330	289,481	321,398	357,068	407,749
With domestic institutions only	30,745	34,287	40,081	41,700	49,059	66,244	68,854	79,618	111,178	153,751	176,284	199,024	230,366	264,531	287,602	298,842	297,573	322,478	347,942	359,998	383,921	411,435	456,040
With international institutions	5,674	6,485	7,167	7,222	8,403	8,753	10,669	14,837	18,315	22,081	25,753	29,961	34,844	40,873	46,728	52,726	58,897	68,897	78,620	87,808	98,327	110,727	126,868
India																							
Total articles	21,021	21,475	22,040	23,215	23,904	25,030	27,139	30,399	32,730	37,354	42,953	48,449	54,370	60,763	69,237	81,974	89,015	95,633	106,612	112,539	123,977	134,241	150,013
With multiple institutions	9,018	9,210	9,757	9,954	9,871	9,759	10,744	15,674	17,648	20,585	23,828	27,067	30,635	33,942	38,437	45,895	50,280	54,402	60,753	63,566	70,555	75,945	85,707
With domestic institutions only	17,540	18,058	18,237	19,499	19,997	21,160	22,832	24,462	26,266	30,034	34,447	39,124	44,122	49,311	56,272	67,140	73,022	78,230	87,512	92,488	101,861	110,240	123,027
With international institutions	3,172	3,145	3,529	3,492	3,721	3,702	4,164	5,573	6,086	6,914	7,991	8,761	9,675	10,952	12,419	14,233	15,474	16,943	18,787	19,856	21,815	23,694	26,684
Japan																							
Total articles	94,961	99,009	99,963	102,158	105,145	104,548	107,487	111,984	115,421	124,561	125,860	123,841	122,288	123,577	124,144	127,226	126,358	126,176	123,172	119,150	120,505	121,068	119,942
With multiple institutions	47,418	50,029	53,311	53,336	54,522	50,935	55,767	70,990	75,625	82,004	83,579	82,902	81,877	81,110	82,340	85,080	85,473	86,552	84,664	82,395	85,658	87,513	88,855
With domestic institutions only	81,884	84,791	85,020	86,889	89,050	88,616	89,833	89,606	91,925	99,221	99,113	96,941	95,139	96,090	95,759	97,617	95,714	94,880	91,993	87,678	86,870	86,255	83,107
With international institutions	12,078	13,365	13,990	14,289	15,234	15,085	16,774	21,008	22,426	24,276	25,488	25,647	25,985	26,774	27,396	28,539	29,792	30,701	30,938	31,274	33,217	34,229	36,050
Malaysia																							
Total articles	998	1,146	1,180	1,347	1,630	1,457	1,797	2,277	2,671	3,179	4,110	4,900	7,168	9,591	13,562	16,773	17,942	19,457	21,782	23,402	25,587	27,801	29,917
With multiple institutions	553	623	619	775	784	723	937	1,379	1,659	2,060	2,740	3,214	4,171	5,683	8,168	10,491	11,969	13,184	15,155	16,473	18,357	19,993	22,211
With domestic institutions only	619	702	729	758	1,112	963	1,237	1,421	1,671	2,019	2,596	3,108	5,026	6,730	9,396	11,410	11,533	12,199	13,309	14,296	15,611	17,008	17,887
With international institutions	369	435	442	571	496	485	546	822	951	1,124	1,418	1,710	2,076	2,801	4,097	5,295	6,352	7,202	8,438	9,074	9,924	10,723	11,954

TABLE S5A-32

S&E articles in all fields combined, by coauthorship attribute and selected region, country, or economy: 1996–2018

(Whole count of articles)

Country/economy pair	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pakistan																							
Total articles	899	985	1,161	1,176	1,227	1,392	1,568	1,755	2,022	2,696	3,302	4,057	4,950	5,994	7,031	7,968	8,804	9,999	10,545	11,570	13,535	16,131	18,609
With multiple institutions	485	514	563	544	488	507	664	979	1,201	1,518	1,979	2,490	3,259	4,025	4,782	5,617	6,403	7,440	7,967	8,961	10,666	12,840	15,173
With domestic institutions only	590	667	816	854	906	1,091	1,213	1,238	1,470	2,008	2,343	2,796	3,374	4,054	4,557	5,107	5,379	5,848	5,779	6,145	7,007	8,090	8,706
With international institutions	304	309	330	312	317	291	329	492	536	651	928	1,215	1,518	1,773	2,271	2,747	3,382	4,100	4,725	5,381	6,493	7,998	9,810
Singapore																							
Total articles	2,902	3,740	3,853	4,731	5,645	5,787	6,520	7,554	9,179	10,008	10,613	10,965	11,821	12,459	13,895	14,599	15,851	16,703	17,524	18,085	18,979	19,467	19,581
With multiple institutions	1,446	1,759	1,947	2,191	2,575	2,704	3,353	4,445	5,650	6,514	7,200	7,546	8,220	8,643	9,576	10,357	11,654	12,671	13,575	14,366	15,145	15,842	16,347
With domestic institutions only	2,025	2,694	2,667	3,428	4,069	4,131	4,527	4,820	5,893	6,178	6,134	6,066	6,349	6,369	6,955	6,981	7,187	7,069	7,018	6,882	7,135	6,886	6,306
With international institutions	820	1,013	1,120	1,238	1,506	1,586	1,910	2,658	3,244	3,776	4,387	4,777	5,389	6,056	6,881	7,571	8,624	9,597	10,494	11,176	11,822	12,557	13,216
South Korea																							
Total articles	10,409	13,059	14,079	16,703	18,074	20,902	22,931	27,498	32,043	37,033	42,581	47,701	50,677	52,875	58,612	62,736	66,012	67,976	71,192	73,467	74,018	75,523	78,744
With multiple institutions	5,524	6,809	7,935	9,048	9,984	11,480	13,320	18,191	21,742	25,154	28,717	32,074	33,777	35,169	39,260	43,110	45,869	47,897	50,541	52,409	53,375	54,951	57,261
With domestic institutions only	7,783	10,032	10,670	13,096	14,147	16,457	17,564	20,302	23,876	27,391	31,823	36,009	38,299	39,869	43,917	46,419	48,457	49,570	51,968	53,528	53,346	54,192	56,114
With international institutions	2,537	2,927	3,306	3,479	3,786	4,304	5,218	6,983	8,026	9,455	10,493	11,314	12,105	12,825	14,471	16,085	17,366	18,265	19,151	19,870	20,560	21,132	22,422
Taiwan																							
Total articles	10,848	11,890	12,345	12,681	13,491	15,160	16,067	17,878	21,014	24,850	27,726	31,216	33,355	35,528	37,590	39,484	38,636	38,670	37,946	35,634	34,561	33,613	32,815
With multiple institutions	5,137	5,473	5,871	6,171	6,513	7,142	8,200	11,345	13,724	16,753	18,977	21,287	23,172	24,575	25,806	27,430	27,331	27,631	27,453	26,255	25,802	25,521	25,394
With domestic institutions only	8,857	9,822	10,285	10,732	11,356	12,815	13,504	14,522	17,284	20,574	22,912	25,686	27,012	28,625	30,094	31,505	30,152	29,640	28,663	25,937	24,288	22,651	21,192
With international institutions	1,896	1,983	1,976	1,841	2,080	2,294	2,478	3,211	3,649	4,134	4,629	5,232	6,147	6,777	7,388	7,880	8,400	8,966	9,249	9,653	10,221	10,907	11,542
Thailand																							
Total articles	1,174	1,401	1,598	1,765	2,204	2,277	2,829	3,251	3,780	4,829	5,779	6,494	7,329	7,855	8,873	9,552	10,106	10,254	11,177	11,720	13,155	14,779	16,448
With multiple institutions	818	1,002	1,059	1,216	1,483	1,376	1,819	2,411	2,828	3,498	4,324	4,914	5,357	5,656	6,350	6,979	7,624	7,684	8,170	8,731	9,883	10,856	12,273
With domestic institutions only	598	734	884	1,015	1,276	1,448	1,678	1,664	1,962	2,653	3,227	3,657	4,267	4,653	5,394	5,722	5,950	6,019	6,565	6,845	7,674	8,878	9,920
With international institutions	555	655	704	724	910	812	1,136	1,565	1,774	2,154	2,512	2,795	3,024	3,153	3,424	3,682	4,033	4,215	4,593	4,859	5,438	5,879	6,486
Australia																							
Total articles	24,231	25,706	26,265	26,615	28,011	28,287	29,530	32,225	35,275	40,179	43,158	46,906	49,147	52,418	56,453	61,255	64,779	70,807	75,407	77,469	80,404	81,985	85,029
With multiple institutions	14,163	15,056	15,722	15,767	15,921	15,231	16,538	21,621	24,591	27,761	30,113	33,110	34,744	36,867	39,882	44,061	47,802	53,320	57,869	60,644	64,614	67,191	71,212
With domestic institutions only	17,027	17,843	17,922	18,173	19,357	19,765	19,954	19,850	21,350	24,661	26,100	27,908	28,376	29,593	31,214	33,518	34,216	36,466	37,509	36,870	36,517	35,062	34,219
With international institutions	6,771	7,467	7,911	7,806	8,283	8,248	9,379	11,927	13,657	15,208	16,709	18,543	20,301	22,559	24,883	27,387	30,231	34,120	37,747	40,472	43,702	46,728	50,584
New Zealand																							
Total articles	4,635	5,003	5,213	5,427	5,358	5,417	5,526	6,060	6,698	7,487	7,972	8,556	9,016	9,479	9,985	11,074	11,340	11,740	12,210	12,102	12,543	13,029	13,291
With multiple institutions	2,866	3,024	3,189	3,330	3,133	2,920	3,143	4,177	4,751	5,438	5,789	6,200	6,427	6,635	6,957	7,756	8,184	8,650	9,119	9,160	9,635	10,244	10,692
With domestic institutions only	2,898	3,207	3,233	3,424	3,415	3,565	3,483	3,269	3,565	3,900	4,076	4,367	4,625	4,758	4,898	5,402	5,396	5,289	5,345	5,179	5,277	5,178	5,007
With international institutions	1,658	1,721	1,897	1,879	1,857	1,803	1,996	2,726	3,096	3,533	3,833	4,100	4,329	4,666	5,016	5,597	5,873	6,407	6,831	6,906	7,235	7,826	8,258

Note(s)

Article counts refer to publications from a selection of journals and conference proceedings in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating region, country, or economy is credited with one count). Regions, countries, or economies that have contributed to less than 1% of all internationally coauthored articles in 2018 are omitted. Articles with multiple institutions are counts of articles with two or more institutional addresses. Articles with domestic institutions only are counts of articles with one or more institutional addresses all within a single region, country, or economy, which include single author articles and articles coauthored under the same institutional address. Articles with international institutions are counts of articles with institutional addresses from more than one region, country, or economy. The number of articles from the "with domestic institutions only" and "with international institutions" categories may not sum to the total article number. This is due to some coauthored publications having incomplete address information in the Scopus database. Those often cannot be reliably identified as international or domestic collaborations. They are in turn not included in either subcategory but are included in the number of articles in the "with multiple institutions" category and counted towards the total number of articles.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-33

Internationally coauthored S&E publications, by selected region, country, or economy pairs: 1996 and 2018

(Number)

Region, country, or economy, and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
World																																										
1996	120,323	12,912	1,659	56,092	1,254	2,940	772	2,802	4,402	1,831	3,251	2,371	16,635	21,933	1,645	1,063	9,893	7,364	3,756	1,069	6,338	5,919	23,077	1,982	7,202	6,917	959	305	3,628	487	905	1,252	5,674	3,172	12,078	369	304	820	2,537	1,896	555	6,771	1,658
2018	575,857	51,287	9,583	215,388	6,004	24,610	8,097	15,183	20,667	10,449	16,670	11,323	60,916	82,089	9,029	8,050	50,243	33,713	14,950	12,534	42,137	24,740	99,924	12,687	21,530	29,476	9,698	13,277	9,790	16,037	10,176	11,188	126,868	26,684	36,050	11,954	9,810	13,216	22,422	11,542	6,486	50,584	8,258
Canada																																										
1996	12,912	na	103	6,676	59	165	41	109	178	82	157	89	1,128	904	96	56	427	350	193	32	234	271	1,422	79	261	380	46	41	221	41	50	78	504	230	748	12	13	59	96	84	25	545	149
2018	51,287	na	697	21,968	576	2,138	725	1,060	1,522	623	1,352	822	5,080	5,203	570	722	3,171	2,802	990	712	2,382	1,871	7,483	1,144	1,037	2,434	625	1,436	1,007	863	630	948	9,449	1,436	2,159	393	407	663	1,110	708	281	4,298	830
Mexico																																										
1996	1,659	103	na	755	38	58	23	4	25	20	11	11	142	81	9	5	44	33	35	4	179	10	151	4	74	22	8	0	23	0	3	1	15	31	45	0	0	2	13	3	4	25	5
2018	9,583	697	na	3,660	470	938	539	328	420	306	199	306	1,131	1,005	295	232	847	398	381	356	2,020	258	1,165	143	516	461	300	259	122	147	218	188	720	546	335	218	264	81	358	232	222	490	264
United States																																										
1996	56,092	6,676	755	na	423	1,169	294	703	1,028	406	948	766	4,506	6,868	530	239	3,205	2,152	1,015	211	1,733	1,730	7,048	549	1,787	2,331	357	83	2,112	149	303	432	2,122	1,387	5,777	67	105	249	1,704	1,422	219	2,313	578
2018	215,388	21,968	3,660	na	2,061	8,671	2,774	3,880	5,171	2,324	4,850	2,933	15,422	23,616	2,499	2,250	13,804	9,984	3,628	2,301	10,236	7,034	28,616	3,406	4,881	9,403	3,077	3,247	4,933	3,073	2,007	3,485	55,382	8,058	11,533	1,323	1,623	3,433	9,761	4,209	1,944	13,939	2,474
Argentina																																										
1996	1,254	59	38	423	na	120	58	9	19	7	15	9	149	98	3	3	89	28	7	2	192	34	84	4	15	18	2	0	10	0	2	4	8	11	28	0	0	0	10	2	0	36	5
2018	6,004	576	470	2,061	na	1,115	699	291	260	248	306	92	829	916	215	79	684	419	263	295	1,360	308	779	225	255	442	210	71	225	55	46	297	390	179	316	113	48	68	122	180	40	524	88
Brazil																																										
1996	2,940	165	58	1,169	120	na	63	47	88	50	39	39	384	266	27	10	172	76	56	69	140	87	416	32	137	84	3	0	24	1	5	11	33	48	112	5	1	2	14	10	4	51	11
2018	24,610	2,138	938	8,671	1,115	na	1,047	691	894	586	770	565	2,966	2,976	522	467	2,440	1,308	770	2,421	2,893	1,061	3,672	496	855	1,243	521	412	389	269	267	589	1,442	999	1,001	357	370	165	552	455	334	1,729	377
Chile																																										
1996	772	41	23	294	58	63	na	5	16	2	6	4	76	86	2	0	30	16	5	4	87	26	88	3	8	18	0	0	7	0	1	7	7	7	14	1	1	0	1	0	2	26	5
2018	8,097	725	539	2,774	699	1,047	na	315	287	243	366	175	1,179	1,343	233	105	920	515	343	372	2,157	414	1,476	242	312	550	226	115	260	100	47	341	569	278	431	130	44	56	183	220	54	821	158
Austria																																										
1996	2,802	109	4	703	9	47	5	na	72	109	92	67	228	947	55	15	192	131	123	34	125	94	313	49	128	261	9	2	32	6	16	33	62	16	76	1	0	3	32	1	11	63	13
2018	15,183	1,060	328	3,880	291	691	315	na	1,139	1,148	850	684	2,212	5,959	758	479	2,557	1,594	1,104	695	1,740	1,266	2,921	750	865	2,081	565	356	475	222	253	385	1,168	517	806	281	297	166	428	378	305	1,070	294
Belgium																																										
1996	4,402	178	25	1,028	19	88	16	72	na	101	135	84	978	654	103	38	347	652	140	85	271	222	648	73	177	233	18	5	44	6	17	29	68	32	135	2	0	3	10	11	8	83	12
2018	20,667	1,522	420	5,171	260	894	287	1,139	na	772	1,072	839	4,684	4,351	793	674	3,371	4,125	1,011	953	2,620	1,411	4,796	725	775	2,165	496	350	459	221	307	555	1,702	581	897	252	244	209	522	329	270	1,553	438
Czechia																																										
1996	1,831	82	20	406	7	50	2	109	101	na	40	43	268	400	43	4	149	120	108	35	94	109	219	40	150	121	3	1	25	0	5	12	14	7	69	1	0	0	5	10	0	31	2
2018	10,449	623	306	2,324	248	586	243	1,148	772	na	518	578	1,698	2,489	603	355	1,614	850	1,488	611	1,295	845	1,843	521	1,109	1,040	527	266	388	176	234	321	942	510	687	335	244	94	406	410	235	654	248
Denmark																																										
1996	3,251	157	11	948	15	39	6	92	135	40	na	132	319	536	75	20	258	265	105	48	175	487	609	213	150	155	8	0	38	3	5	17	64	27	96	0	0	9	27	5	9	90	27
2018	16,670	1,352	199	4,850	306	770	366	850	1,072	518	na	992	2,198	3,598	571	426	2,145	2,217	786	665	1,858	2,625	4,072	1,666	541	1,479	397	328	503	141	94	413	2,033	405	769	205	117	208	330	272	122	1,672	274
Finland																																										
1996	2,371	89	11	766	9	39	4	67	84	43	132	na	186	328	50	18	152	164	86	34	104	409	321	147	221	127	8	0	20	0	8	2	48	31	120	1	0	8	16	15	1	49	11
2018	11,323	822	306	2,933	92	565	175	684	839	578	992	na	1,485	2,350	579	482	1,523	1,179	754	576	1,318	2,210	2,579	913	1,090	1,025	383	337	248	205	229	276	1,344	510	633	227	268	156	421	270	219	868	299

TABLE S5A-33

Internationally coauthored S&E publications, by selected region, country, or economy pairs: 1996 and 2018

(Number)

Region, country, or economy, and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
France																																										
1996	16,635	1,128	142	4,506	149	384	76	228	978	268	319	186	na	2,237	275	88	1,577	835	540	206	1,141	518	2,218	182	841	1,119	51	13	289	25	21	75	276	224	598	8	6	14	93	52	24	338	54
2018	60,916	5,080	1,131	15,422	829	2,966	1,179	2,212	4,684	1,698	2,198	1,485	na	10,664	1,647	1,153	9,048	4,873	2,380	1,870	6,755	3,100	11,015	1,650	2,905	5,593	1,038	775	1,241	787	497	1,134	5,472	1,815	3,175	530	465	634	1,148	799	543	3,573	766
Germany																																										
1996	21,933	904	81	6,868	98	266	86	947	654	400	536	328	2,237	na	321	116	1,398	1,315	796	150	822	738	2,672	251	1,660	1,785	85	10	465	16	88	150	585	376	1,053	12	32	24	129	74	20	567	106
2018	82,089	5,203	1,005	23,616	916	2,976	1,343	5,959	4,351	2,489	3,598	2,350	10,664	na	2,017	1,446	9,729	8,372	3,556	1,938	7,448	5,145	15,327	2,389	4,508	9,060	1,375	1,106	1,954	820	1,021	1,424	8,206	2,227	4,288	548	706	801	1,796	1,034	585	5,344	1,036
Greece																																										
1996	1,645	96	9	530	3	27	2	55	103	43	75	50	275	321	na	17	189	113	47	49	104	67	425	51	66	115	10	0	19	2	2	8	36	9	45	1	0	0	27	6	0	15	1
2018	9,029	570	295	2,499	215	522	233	758	793	603	571	579	1,647	2,017	na	429	2,053	1,032	782	648	1,505	743	2,754	513	657	1,069	617	299	394	273	263	280	855	421	434	270	223	101	321	338	212	658	220
Ireland																																										
1996	1,063	56	5	239	3	10	0	15	38	4	20	18	88	116	17	na	63	87	6	10	43	40	453	15	13	29	6	0	8	4	1	4	15	4	19	2	0	3	3	2	2	31	6
2018	8,050	722	232	2,250	79	467	105	479	674	355	426	482	1,153	1,446	429	na	1,193	920	547	465	1,074	603	3,138	327	411	741	292	243	214	156	202	166	997	351	277	233	212	106	240	199	183	819	316
Italy																																										
1996	9,893	427	44	3,205	89	172	30	192	347	149	258	152	1,577	1,398	189	63	na	576	315	92	674	389	1,582	126	527	783	33	8	183	6	27	41	216	128	376	3	7	6	77	55	6	165	16
2018	50,243	3,171	847	13,804	684	2,440	920	2,557	3,371	1,614	2,145	1,523	9,048	9,729	2,053	1,193	na	4,919	2,459	1,920	7,557	3,101	11,198	1,530	2,079	4,954	1,219	1,151	1,386	567	547	827	3,492	1,448	2,114	458	506	413	1,033	705	384	2,955	645
Netherlands																																										
1996	7,364	350	33	2,152	28	76	16	131	652	120	265	164	835	1,315	113	87	576	na	171	107	404	320	1,314	157	324	420	39	2	137	12	10	42	116	84	243	5	9	4	54	25	14	188	37
2018	33,713	2,802	398	9,984	419	1,308	515	1,594	4,125	850	2,217	1,179	4,873	8,372	1,032	920	4,919	na	1,393	1,175	3,637	2,742	8,880	1,578	1,087	3,289	725	465	847	295	164	1,043	3,194	745	1,420	301	189	496	533	427	258	3,224	452
Poland																																										
1996	3,756	193	35	1,015	7	56	5	123	140	108	105	86	540	796	47	6	315	171	na	39	166	210	388	70	320	199	12	4	50	2	18	27	34	30	161	1	2	4	23	8	1	41	11
2018	14,950	990	381	3,628	263	770	343	1,104	1,011	1,488	786	754	2,380	3,556	782	547	2,459	1,393	na	836	1,921	1,147	2,774	764	1,397	1,342	619	433	510	283	289	431	1,275	787	877	356	266	121	528	487	243	935	270
Portugal																																										
1996	1,069	32	4	211	2	69	4	34	85	35	48	34	206	150	49	10	92	107	39	na	160	60	303	39	58	65	2	0	7	0	0	2	18	8	21	0	1	0	2	5	3	10	3
2018	12,534	712	356	2,301	295	2,421	372	695	953	611	665	576	1,870	1,938	648	465	1,920	1,175	836	na	3,322	791	2,599	539	738	992	530	376	381	186	226	326	993	548	422	292	202	98	325	334	202	777	259
Spain																																										
1996	6,338	234	179	1,733	192	140	87	125	271	94	175	104	1,141	822	104	43	674	404	166	160	na	222	1,139	96	253	260	16	2	91	4	8	18	83	66	121	0	3	3	49	26	3	68	15
2018	42,137	2,382	2,020	10,236	1,360	2,893	2,157	1,740	2,620	1,295	1,858	1,318	6,755	7,448	1,505	1,074	7,557	3,637	1,921	3,322	na	2,337	8,589	1,266	1,560	3,130	960	767	989	535	416	727	2,691	1,126	1,589	444	316	300	827	620	282	2,592	526
Sweden																																										
1996	5,919	271	10	1,730	34	87	26	94	222	109	487	409	518	738	67	40	389	320	210	60	222	na	810	420	296	261	15	3	50	21	8	23	141	47	286	4	9	13	19	10	11	239	34
2018	24,740	1,871	258	7,034	308	1,061	414	1,266	1,411	845	2,625	2,210	3,100	5,145	743	603	3,101	2,742	1,147	791	2,337	na	5,645	2,325	1,079	2,012	498	435	548	233	162	708	2,859	750	1,391	227	241	359	465	296	191	2,152	341
United Kingdom																																										
1996	23,077	1,422	151	7,048	84	416	88	313	648	219	609	321	2,218	2,672	425	453	1,582	1,314	388	303	1,139	810	na	313	684	914	198	69	310	79	71	252	679	393	1,067	108	82	166	122	88	76	1,407	328
2018	99,924	7,483	1,165	28,616	779	3,672	1,476	2,921	4,796	1,843	4,072	2,579	11,015	15,327	2,754	3,138	11,198	8,880	2,774	2,599	8,589	5,645	na	2,979	2,606	6,703	1,504	1,245	1,619	1,458	929	2,602	14,763	3,112	4,085	1,643	1,147	1,791	1,907	1,157	1,088	10,207	1,969
Norway																																										
1996	1,982	79	4	549	4	32	3	49	73	40	213	147	182	251	51	15	126	157	70	39	96	420	313	na	108	97	4	1	18	2	8	3	36	15	64	1	4	2	4	5	0	38	13
2018	12,687	1,144	143	3,406	225	496	242	750	725	521	1,666	913	1,650	2,389	513	327	1,530	1,578	764	539	1,266	2,325	2,979	na	632	1,076	325	197	362	123	90	442	1,193	458	632	171	112	145	202	208	101	1,113	184

TABLE S5A-33

Internationally coauthored S&E publications, by selected region, country, or economy pairs: 1996 and 2018

(Number)

Region, country, or economy, and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
Russia																																											
1996	7,202	261	74	1,787	15	137	8	128	177	150	150	221	841	1,660	66	13	527	324	320	58	253	296	684	108	na	284	28	8	174	2	11	28	96	71	393	0	0	2	88	33	0	98	11
2018	21,530	1,037	516	4,881	255	855	312	865	775	1,109	541	1,090	2,905	4,508	657	411	2,079	1,087	1,397	738	1,560	1,079	2,606	632	na	1,221	629	412	647	333	368	455	2,457	1,073	1,339	316	329	169	873	608	256	995	254
Switzerland																																											
1996	6,917	380	22	2,331	18	84	18	261	233	121	155	127	1,119	1,785	115	29	783	420	199	65	260	261	914	97	284	na	31	7	133	4	18	42	107	71	296	2	11	8	63	38	16	175	32
2018	29,476	2,434	461	9,403	442	1,243	550	2,081	2,165	1,040	1,479	1,025	5,593	9,060	1,069	741	4,954	3,289	1,342	992	3,130	2,012	6,703	1,076	1,221	na	698	459	790	305	290	742	2,253	902	1,572	367	289	390	698	555	345	2,326	480
Turkey																																										
1996	959	46	8	357	2	3	0	9	18	3	8	8	51	85	10	6	33	39	12	2	16	15	198	4	28	31	na	0	13	14	9	3	9	9	56	0	6	1	6	1	0	8	5
2018	9,698	625	300	3,077	210	521	226	565	496	527	397	383	1,038	1,375	617	292	1,219	725	619	530	960	498	1,504	325	629	698	na	825	301	590	369	375	906	614	453	366	538	111	434	376	239	552	211
Iran																																										
1996	305	41	0	83	0	0	0	2	5	1	0	0	13	10	0	0	8	2	4	0	2	3	69	1	8	7	0	na	1	1	0	1	3	11	29	2	1	2	4	3	0	39	3
2018	13,277	1,436	259	3,247	71	412	115	356	350	266	328	337	775	1,106	299	243	1,151	465	433	376	767	435	1,245	197	412	459	825	na	51	338	301	238	1,045	589	360	806	403	122	560	258	249	1,214	268
Israel																																										
1996	3,628	221	23	2,112	10	24	7	32	44	25	38	20	289	465	19	8	183	137	50	7	91	50	310	18	174	133	13	1	na	3	4	31	36	28	129	0	1	5	24	19	7	96	15
2018	9,790	1,007	122	4,933	225	389	260	475	459	388	503	248	1,241	1,954	394	214	1,386	847	510	381	989	548	1,619	362	647	790	301	51	na	67	57	269	947	429	502	103	34	186	225	230	42	692	122
Saudi Arabia																																										
1996	487	41	0	149	0	1	0	6	6	0	3	0	25	16	2	4	6	12	2	0	4	21	79	2	2	4	14	1	3	na	94	6	3	20	9	0	6	0	1	1	0	8	1
2018	16,037	863	147	3,073	55	269	100	222	221	176	141	205	787	820	273	156	567	295	283	186	535	233	1,458	123	333	305	590	338	67	na	3,642	377	2,126	1,884	417	1,017	1,833	120	599	289	146	888	160
Egypt																																										
1996	905	50	3	303	2	5	1	16	17	5	5	8	21	88	2	1	27	10	18	0	8	8	71	8	11	18	9	0	4	94	na	1	12	18	65	3	3	0	10	2	2	8	2
2018	10,176	630	218	2,007	46	267	47	253	307	234	94	229	497	1,021	263	202	547	164	289	226	416	162	929	90	368	290	369	301	57	3,642	na	163	1,003	540	719	332	393	53	462	237	182	321	209
South Africa																																										
1996	1,252	78	1	432	4	11	7	33	29	12	17	2	75	150	8	4	41	42	27	2	18	23	252	3	28	42	3	1	31	6	1	na	25	24	26	0	3	5	1	7	1	107	25
2018	11,188	948	188	3,485	297	589	341	385	555	321	413	276	1,134	1,424	280	166	827	1,043	431	326	727	708	2,602	442	455	742	375	238	269	377	163	na	1,007	1,051	526	221	191	105	200	248	190	1,412	208
China																																										
1996	5,674	504	15	2,122	8	33	7	62	68	14	64	48	276	585	36	15	216	116	34	18	83	141	679	36	96	107	9	3	36	3	12	25	na	100	847	35	11	121	126	167	15	283	50
2018	126,868	9,449	720	55,382	390	1,442	569	1,168	1,702	942	2,033	1,344	5,472	8,206	855	997	3,492	3,194	1,275	993	2,691	2,859	14,763	1,193	2,457	2,253	906	1,045	947	2,126	1,003	1,007	na	2,580	8,024	1,201	3,026	5,563	4,338	4,262	930	13,138	1,347
India																																										
1996	3,172	230	31	1,387	11	48	7	16	32	7	27	31	224	376	9	4	128	84	30	8	66	47	393	15	71	71	9	11	28	20	18	24	100	na	228	47	9	39	44	38	7	114	15
2018	26,684	1,436	546	8,058	179	999	278	517	581	510	405	510	1,815	2,227	421	351	1,448	745	787	548	1,126	750	3,112	458	1,073	902	614	589	429	1,884	540	1,051	2,580	na	1,432	1,254	570	776	2,252	917	541	1,882	357
Japan																																										
1996	12,078	748	45	5,777	28	112	14	76	135	69	96	120	598	1,053	45	19	376	243	161	21	121	286	1,067	64	393	296	56	29	129	9	65	26	847	228	na	45	14	69	481	169	116	401	77
2018	36,050	2,159	335	11,533	316	1,001	431	806	897	687	769	633	3,175	4,288	434	277	2,114	1,420	877	422	1,589	1,391	4,085	632	1,339	1,572	453	360	502	417	719	526	8,024	1,432	na	1,006	207	700	2,505	1,609	1,236	2,408	386
Malaysia																																										
1996	369	12	0	67	0	5	1	1	2	1	0	1	8	12	1	2	3	5	1	0	0	4	108	1	0	2	0	2	0	0	3	0	35	47	45	na	1	16	1	5	7	30	1
2018	11,954	393	218	1,323	113	357	130	281	252	335	205	227	530	548	270	233	458	301	356	292	444	227	1,643	171	316	367	366	806	103	1,017	332	221	1,201	1,254	1,006	na	1,107	410	534	561	547	1,287	324

TABLE S5A-33

Internationally coauthored S&E publications, by selected region, country, or economy pairs: 1996 and 2018

(Number)

Region, country, or economy, and year	World	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
Pakistan																																											
1996	304	13	0	105	0	1	1	0	0	0	0	0	6	32	0	0	7	9	2	1	3	9	82	4	0	11	6	1	1	6	3	3	11	9	14	1	na	0	3	2	5	5	0
2018	9,810	407	264	1,623	48	370	44	297	244	244	117	268	465	706	223	212	506	189	266	202	316	241	1,147	112	329	289	538	403	34	1,833	393	191	3,026	570	207	1,107	na	82	1,018	250	277	598	236
Singapore																																											
1996	820	59	2	249	0	2	0	3	3	0	9	8	14	24	0	3	6	4	4	0	3	13	166	2	2	8	1	2	5	0	0	5	121	39	69	16	0	na	4	25	11	85	10
2018	13,216	663	81	3,433	68	165	56	166	209	94	208	156	634	801	101	106	413	496	121	98	300	359	1,791	145	169	390	111	122	186	120	53	105	5,563	776	700	410	82	na	591	363	216	1,498	264
South Korea																																											
1996	2,537	96	13	1,704	10	14	1	32	10	5	27	16	93	129	27	3	77	54	23	2	49	19	122	4	88	63	6	4	24	1	10	1	126	44	481	1	3	4	na	44	4	66	12
2018	22,422	1,110	358	9,761	122	552	183	428	522	406	330	421	1,148	1,796	321	240	1,033	533	528	325	827	465	1,907	202	873	698	434	560	225	599	462	200	4,338	2,252	2,505	534	1,018	591	na	912	459	1,276	341
Taiwan																																											
1996	1,896	84	3	1,422	2	10	0	1	11	10	5	15	52	74	6	2	55	25	8	5	26	10	88	5	33	38	1	3	19	1	2	7	167	38	169	5	2	25	44	na	9	33	5
2018	11,542	708	232	4,209	180	455	220	378	329	410	272	270	799	1,034	338	199	705	427	487	334	620	296	1,157	208	608	555	376	258	230	289	237	248	4,262	917	1,609	561	250	363	912	na	398	861	240
Thailand																																											
1996	555	25	4	219	0	4	2	11	8	0	9	1	24	20	0	2	6	14	1	3	3	11	76	0	0	16	0	0	7	0	2	1	15	7	116	7	5	11	4	9	na	69	7
2018	6,486	281	222	1,944	40	334	54	305	270	235	122	219	543	585	212	183	384	258	243	202	282	191	1,088	101	256	345	239	249	42	146	182	190	930	541	1,236	547	277	216	459	398	na	666	251
Australia																																											
1996	6,771	545	25	2,313	36	51	26	63	83	31	90	49	338	567	15	31	165	188	41	10	68	239	1,407	38	98	175	8	39	96	8	8	107	283	114	401	30	5	85	66	33	69	na	382
2018	50,584	4,298	490	13,939	524	1,729	821	1,070	1,553	654	1,672	868	3,573	5,344	658	819	2,955	3,224	935	777	2,592	2,152	10,207	1,113	995	2,326	552	1,214	692	888	321	1,412	13,138	1,882	2,408	1,287	598	1,498	1,276	861	666	na	2,390
New Zealand																																											
1996	1,658	149	5	578	5	11	5	13	12	2	27	11	54	106	1	6	16	37	11	3	15	34	328	13	11	32	5	3	15	1	2	25	50	15	77	1	0	10	12	5	7	382	na
2018	8,258	830	264	2,474	88	377	158	294	438	248	274	299	766	1,036	220	316	645	452	270	259	526	341	1,969	184	254	480	211	268	122	160	209	208	1,347	357	386	324	236	264	341	240	251	2,390	na

na = not applicable.

Note(s)
Article counts refer to publications from a selection of journals and conference proceedings in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating region, country, or economy is credited with one count). Regions, countries, or economies that have contributed to less than 1% of all internationally coauthored articles in 2018 are omitted.

Source(s)
National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-34

Indexes of internationally coauthored S&E publications, by selected region, country, or economy pairs: 1999 and 2018

(Index)

Region, country, or economy, and year	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
Canada																																										
1996	na	0.58	1.11	0.44	0.52	0.49	0.36	0.38	0.42	0.45	0.35	0.63	0.38	0.54	0.49	0.40	0.44	0.48	0.28	0.34	0.43	0.57	0.37	0.34	0.51	0.45	1.25	0.57	0.78	0.51	0.58	0.83	0.68	0.58	0.30	0.40	0.67	0.35	0.41	0.42	0.75	0.84
2018	na	0.82	1.15	1.08	0.98	1.01	0.78	0.83	0.67	0.91	0.82	0.94	0.71	0.71	1.01	0.71	0.93	0.74	0.64	0.63	0.85	0.84	1.01	0.54	0.93	0.72	1.21	1.15	0.60	0.70	0.95	0.84	0.60	0.67	0.37	0.47	0.56	0.56	0.69	0.49	0.95	1.13
Mexico																																										
1996	0.58	na	0.98	2.20	1.43	2.16	0.10	0.41	0.79	0.25	0.34	0.62	0.27	0.40	0.34	0.32	0.33	0.68	0.27	2.05	0.12	0.47	0.15	0.75	0.23	0.61	0.00	0.46	0.00	0.24	0.06	0.19	0.71	0.27	0.00	0.00	0.18	0.37	0.11	0.52	0.27	0.22
2018	0.82	na	1.02	4.70	2.29	4.00	1.30	1.22	1.76	0.72	1.62	1.12	0.74	1.96	1.73	1.01	0.71	1.53	1.71	2.88	0.63	0.70	0.68	1.44	0.94	1.86	1.17	0.75	0.55	1.29	1.01	0.34	1.23	0.56	1.10	1.62	0.37	0.96	1.21	2.06	0.58	1.92
United States																																										
1996	1.11	0.98	na	0.72	0.85	0.82	0.54	0.50	0.48	0.63	0.69	0.58	0.67	0.69	0.48	0.69	0.63	0.58	0.42	0.59	0.63	0.66	0.59	0.53	0.72	0.80	0.58	1.25	0.66	0.72	0.74	0.80	0.94	1.03	0.39	0.74	0.65	1.44	1.61	0.85	0.73	0.75
2018	1.15	1.02	na	0.92	0.94	0.92	0.68	0.67	0.59	0.78	0.69	0.68	0.77	0.74	0.75	0.73	0.79	0.65	0.49	0.65	0.76	0.77	0.72	0.61	0.85	0.85	0.65	1.35	0.51	0.53	0.83	1.17	0.81	0.86	0.30	0.44	0.69	1.16	0.97	0.80	0.74	0.80
Argentina																																										
1996	0.44	2.20	0.72	na	3.92	7.21	0.31	0.41	0.37	0.44	0.36	0.86	0.43	0.17	0.27	0.86	0.36	0.18	0.18	2.91	0.55	0.35	0.19	0.20	0.25	0.20	0.00	0.26	0.00	0.21	0.31	0.14	0.33	0.22	0.00	0.00	0.00	0.38	0.10	0.00	0.51	0.29
2018	1.08	4.70	0.92	na	4.35	8.28	1.84	1.21	2.28	1.76	0.78	1.31	1.07	2.28	0.94	1.31	1.19	1.69	2.26	3.10	1.19	0.75	1.70	1.14	1.44	2.08	0.51	2.20	0.33	0.43	2.55	0.29	0.64	0.84	0.91	0.47	0.49	0.52	1.50	0.59	0.99	1.02
Brazil																																										
1996	0.52	1.43	0.85	3.92	na	3.34	0.69	0.82	1.12	0.49	0.67	0.94	0.50	0.67	0.39	0.71	0.42	0.61	2.64	0.90	0.60	0.74	0.66	0.78	0.50	0.13	0.00	0.27	0.08	0.23	0.36	0.24	0.62	0.38	0.55	0.13	0.10	0.23	0.22	0.29	0.31	0.27
2018	0.98	2.29	0.94	4.35	na	3.03	1.06	1.01	1.31	1.08	1.17	1.14	0.85	1.35	1.36	1.14	0.91	1.21	4.52	1.61	1.00	0.86	0.91	0.93	0.99	1.26	0.73	0.93	0.39	0.61	1.23	0.27	0.88	0.65	0.70	0.88	0.29	0.58	0.92	1.20	0.80	1.07
Chile																																										
1996	0.49	2.16	0.82	7.21	3.34	na	0.28	0.57	0.17	0.29	0.26	0.71	0.61	0.19	0.00	0.47	0.34	0.21	0.58	2.14	0.68	0.59	0.24	0.17	0.41	0.00	0.00	0.30	0.00	0.17	0.87	0.19	0.34	0.18	0.42	0.51	0.00	0.06	0.00	0.56	0.60	0.47
2018	1.01	4.00	0.92	8.28	3.03	na	1.48	0.99	1.65	1.56	1.10	1.38	1.16	1.84	0.93	1.30	1.09	1.63	2.11	3.64	1.19	1.05	1.36	1.03	1.33	1.66	0.62	1.89	0.44	0.33	2.17	0.32	0.74	0.85	0.77	0.32	0.30	0.58	1.36	0.59	1.15	1.36
Austria																																										
1996	0.36	0.10	0.54	0.31	0.69	0.28	na	0.70	2.56	1.22	1.21	0.59	1.85	1.44	0.61	0.83	0.76	1.41	1.37	0.85	0.68	0.58	1.06	0.76	1.62	0.40	0.28	0.38	0.53	0.76	1.13	0.47	0.22	0.27	0.12	0.00	0.16	0.54	0.02	0.85	0.40	0.34
2018	0.78	1.30	0.68	1.84	1.06	1.48	na	2.09	4.17	1.93	2.29	1.38	2.75	3.18	2.26	1.93	1.79	2.80	2.10	1.57	1.94	1.11	2.24	1.52	2.68	2.21	1.02	1.84	0.53	0.94	1.31	0.35	0.73	0.85	0.89	1.15	0.48	0.72	1.24	1.78	0.80	1.35
Belgium																																										
1996	0.38	0.41	0.50	0.41	0.82	0.57	0.70	na	1.51	1.14	0.97	1.61	0.82	1.71	0.98	0.96	2.42	1.02	2.17	1.17	1.03	0.77	1.01	0.67	0.92	0.51	0.45	0.33	0.34	0.51	0.63	0.33	0.28	0.31	0.15	0.00	0.10	0.11	0.16	0.39	0.34	0.20
2018	0.83	1.22	0.67	1.21	1.01	0.99	2.09	na	2.06	1.79	2.06	2.14	1.48	2.45	2.33	1.87	3.41	1.88	2.12	1.73	1.59	1.34	1.59	1.00	2.05	1.43	0.73	1.31	0.38	0.84	1.38	0.37	0.61	0.69	0.59	0.69	0.44	0.65	0.79	1.16	0.86	1.48
Czechia																																										
1996	0.42	0.79	0.48	0.37	1.12	0.17	2.56	1.51	na	0.81	1.19	1.06	1.20	1.72	0.25	0.99	1.07	1.89	2.15	0.97	1.21	0.62	1.33	1.37	1.15	0.21	0.22	0.45	0.00	0.36	0.63	0.16	0.15	0.38	0.18	0.00	0.00	0.13	0.35	0.00	0.30	0.08
2018	0.67	1.76	0.59	2.28	1.31	1.65	4.17	2.06	na	1.71	2.81	1.54	1.67	3.68	2.43	1.77	1.39	5.49	2.69	1.69	1.88	1.02	2.26	2.84	1.94	2.99	1.10	2.18	0.60	1.27	1.58	0.41	1.05	1.05	1.54	1.37	0.39	1.00	1.96	2.00	0.71	1.66
Denmark																																										
1996	0.45	0.25	0.63	0.44	0.49	0.29	1.22	1.14	0.81	na	2.06	0.71	0.90	1.69	0.70	0.97	1.33	1.03	1.66	1.02	3.05	0.98	3.98	0.77	0.83	0.31	0.00	0.39	0.23	0.20	0.50	0.42	0.32	0.29	0.00	0.00	0.41	0.39	0.10	0.60	0.49	0.60
2018	0.91	0.72	0.78	1.76	1.08	1.56	1.93	1.79	1.71	na	3.03	1.25	1.51	2.18	1.83	1.47	2.27	1.82	1.83	1.52	3.67	1.41	4.54	0.87	1.73	1.41	0.85	1.77	0.30	0.32	1.28	0.55	0.52	0.74	0.59	0.41	0.54	0.51	0.81	0.65	1.14	1.15
Finland																																										
1996	0.35	0.34	0.69	0.36	0.67	0.26	1.21	0.97	1.19	2.06	na	0.57	0.76	1.54	0.86	0.78	1.13	1.16	1.61	0.83	3.51	0.71	3.76	1.56	0.93	0.42	0.00	0.28	0.00	0.45	0.08	0.43	0.50	0.50	0.14	0.00	0.50	0.32	0.40	0.09	0.37	0.34
2018	0.82	1.62	0.69	0.78	1.17	1.10	2.29	2.06	2.81	3.03	na	1.24	1.46	3.26	3.05	1.54	1.78	2.56	2.34	1.59	4.54	1.31	3.66	2.57	1.77	2.01	1.29	1.29	0.65	1.14	1.25	0.54	0.97	0.89	0.97	1.39	0.60	0.95	1.19	1.72	0.87	1.84
France																																										
1996	0.63	0.62	0.58	0.86	0.94	0.71	0.59	1.61	1.06	0.71	0.57	na	0.74	1.21	0.60	1.15	0.82	1.04	1.39	1.30	0.63	0.70	0.66	0.84	1.17	0.38	0.31	0.58	0.37	0.17	0.43	0.35	0.51	0.36	0.16	0.14	0.12	0.27	0.20	0.31	0.36	0.24
2018	0.94	1.12	0.68	1.31	1.14	1.38	1.38	2.14	1.54	1.25	1.24	na	1.23	1.72	1.35	1.70	1.37	1.50	1.41	1.52	1.18	1.04	1.23	1.28	1.79	1.01	0.55	1.20	0.46	0.46	0.96	0.41	0.64	0.83	0.42	0.45	0.45	0.48	0.65	0.79	0.67	0.88

TABLE S5A-34

Indexes of internationally coauthored S&E publications, by selected region, country, or economy pairs: 1999 and 2018

(Index)

Region, country, or economy, and year	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
Germany																																										
1996	0.38	0.27	0.67	0.43	0.50	0.61	1.85	0.82	1.20	0.90	0.76	0.74	na	1.07	0.60	0.78	0.98	1.16	0.77	0.71	0.68	0.64	0.69	1.26	1.42	0.49	0.18	0.70	0.18	0.53	0.66	0.57	0.65	0.48	0.18	0.58	0.16	0.28	0.21	0.20	0.46	0.35
2018	0.71	0.74	0.77	1.07	0.85	1.16	2.75	1.48	1.67	1.51	1.46	1.23	na	1.57	1.26	1.36	1.74	1.67	1.08	1.24	1.46	1.08	1.32	1.47	2.16	0.99	0.58	1.40	0.36	0.70	0.89	0.45	0.59	0.83	0.32	0.50	0.43	0.56	0.63	0.63	0.74	0.88
Greece																																										
1996	0.54	0.40	0.69	0.17	0.67	0.19	1.44	1.71	1.72	1.69	1.54	1.21	1.07	na	1.17	1.40	1.12	0.92	3.35	1.20	0.83	1.35	1.88	0.67	1.22	0.76	0.00	0.38	0.30	0.16	0.47	0.46	0.21	0.27	0.20	0.00	0.00	0.78	0.23	0.00	0.16	0.04
2018	0.71	1.96	0.74	2.28	1.35	1.84	3.18	2.45	3.68	2.18	3.26	1.72	1.57	na	3.40	2.61	1.95	3.34	3.30	2.28	1.92	1.76	2.58	1.95	2.31	4.06	1.44	2.57	1.09	1.65	1.60	0.43	1.01	0.77	1.44	1.45	0.49	0.91	1.87	2.08	0.83	1.70
Ireland																																										
1996	0.49	0.34	0.48	0.27	0.39	0.00	0.61	0.98	0.25	0.70	0.86	0.60	0.60	1.17	na	0.72	1.34	0.18	1.06	0.77	0.76	2.22	0.86	0.20	0.47	0.71	0.00	0.25	0.93	0.13	0.36	0.30	0.14	0.18	0.61	0.00	0.41	0.13	0.12	0.41	0.52	0.41
2018	1.01	1.73	0.75	0.94	1.36	0.93	2.26	2.33	2.43	1.83	3.05	1.35	1.26	3.40	na	1.70	1.95	2.62	2.65	1.82	1.74	2.25	1.84	1.37	1.80	2.15	1.31	1.56	0.70	1.42	1.06	0.56	0.94	0.55	1.39	1.55	0.57	0.77	1.23	2.02	1.16	2.74
Italy																																										
1996	0.40	0.32	0.69	0.86	0.71	0.47	0.83	0.96	0.99	0.97	0.78	1.15	0.78	1.40	0.72	na	0.95	1.02	1.05	1.29	0.80	0.83	0.77	0.89	1.38	0.42	0.32	0.61	0.15	0.36	0.40	0.46	0.49	0.38	0.10	0.28	0.09	0.37	0.35	0.13	0.30	0.12
2018	0.71	1.01	0.73	1.31	1.14	1.30	1.93	1.87	1.77	1.47	1.54	1.70	1.36	2.61	1.70	na	1.67	1.89	1.76	2.06	1.44	1.28	1.38	1.11	1.93	1.44	0.99	1.62	0.41	0.62	0.85	0.32	0.62	0.67	0.44	0.59	0.36	0.53	0.70	0.68	0.67	0.90
Netherlands																																										
1996	0.44	0.33	0.63	0.36	0.42	0.34	0.76	2.42	1.07	1.33	1.13	0.82	0.98	1.12	1.34	0.95	na	0.74	1.64	1.04	0.88	0.93	1.29	0.74	0.99	0.66	0.11	0.62	0.40	0.18	0.55	0.33	0.43	0.33	0.22	0.48	0.08	0.35	0.22	0.41	0.45	0.36
2018	0.93	0.71	0.79	1.19	0.91	1.09	1.79	3.41	1.39	2.27	1.78	1.37	1.74	1.95	1.95	1.67	na	1.59	1.60	1.47	1.89	1.52	2.12	0.86	1.91	1.28	0.60	1.48	0.31	0.28	1.59	0.43	0.48	0.67	0.43	0.33	0.64	0.41	0.63	0.68	1.09	0.93
Poland																																										
1996	0.48	0.68	0.58	0.18	0.61	0.21	1.41	1.02	1.89	1.03	1.16	1.04	1.16	0.92	0.18	1.02	0.74	na	1.17	0.84	1.14	0.54	1.13	1.42	0.92	0.40	0.42	0.44	0.13	0.64	0.69	0.19	0.30	0.43	0.09	0.21	0.16	0.29	0.14	0.06	0.19	0.21
2018	0.74	1.53	0.65	1.69	1.21	1.63	2.80	1.88	5.49	1.82	2.56	1.50	1.67	3.34	2.62	1.89	1.59	na	2.57	1.76	1.79	1.07	2.32	2.50	1.75	2.46	1.26	2.01	0.68	1.09	1.48	0.39	1.14	0.94	1.15	1.04	0.35	0.91	1.63	1.44	0.71	1.26
Portugal																																										
1996	0.28	0.27	0.42	0.18	2.64	0.58	1.37	2.17	2.15	1.66	1.61	1.39	0.77	3.35	1.06	1.05	1.64	1.17	na	2.84	1.14	1.48	2.21	0.91	1.06	0.23	0.00	0.22	0.00	0.00	0.18	0.36	0.28	0.20	0.00	0.37	0.00	0.09	0.30	0.61	0.17	0.20
2018	0.64	1.71	0.49	2.26	4.52	2.11	2.10	2.12	2.69	1.83	2.34	1.41	1.08	3.30	2.65	1.76	1.60	2.57	na	3.62	1.47	1.19	1.95	1.57	1.55	2.51	1.30	1.79	0.53	1.02	1.34	0.36	0.94	0.54	1.12	0.95	0.34	0.67	1.33	1.43	0.71	1.44
Spain																																										
1996	0.34	2.05	0.59	2.91	0.90	2.14	0.85	1.17	0.97	1.02	0.83	1.30	0.71	1.20	0.77	1.29	1.04	0.84	2.84	na	0.71	0.94	0.92	0.67	0.71	0.32	0.12	0.48	0.16	0.17	0.27	0.28	0.40	0.19	0.00	0.19	0.07	0.37	0.26	0.10	0.19	0.17
2018	0.63	2.88	0.65	3.10	1.61	3.64	1.57	1.73	1.69	1.52	1.59	1.52	1.24	2.28	1.82	2.06	1.47	1.76	3.62	na	1.29	1.17	1.36	0.99	1.45	1.35	0.79	1.38	0.46	0.56	0.89	0.29	0.58	0.60	0.51	0.44	0.31	0.50	0.73	0.59	0.70	0.87
Sweden																																										
1996	0.43	0.12	0.63	0.55	0.60	0.68	0.68	1.03	1.21	3.05	3.51	0.63	0.68	0.83	0.76	0.80	0.88	1.14	1.14	0.71	na	0.71	4.31	0.84	0.77	0.32	0.20	0.28	0.88	0.18	0.37	0.51	0.30	0.48	0.22	0.60	0.32	0.15	0.11	0.40	0.72	0.42
2018	0.85	0.63	0.76	1.19	1.00	1.19	1.94	1.59	1.88	3.67	4.54	1.18	1.46	1.92	1.74	1.44	1.89	1.79	1.47	1.29	na	1.31	4.27	1.17	1.59	1.20	0.76	1.30	0.34	0.37	1.47	0.52	0.65	0.90	0.44	0.57	0.63	0.48	0.60	0.69	0.99	0.96
United Kingdom																																										
1996	0.57	0.47	0.66	0.35	0.74	0.59	0.58	0.77	0.62	0.98	0.71	0.70	0.64	1.35	2.22	0.83	0.93	0.54	1.48	0.94	0.71	na	0.82	0.50	0.69	1.08	1.18	0.45	0.85	0.41	1.05	0.62	0.65	0.46	1.53	1.41	1.06	0.25	0.24	0.71	1.08	1.03
2018	0.84	0.70	0.77	0.75	0.86	1.05	1.11	1.34	1.02	1.41	1.31	1.04	1.08	1.76	2.25	1.28	1.52	1.07	1.19	1.17	1.31	na	1.35	0.70	1.31	0.89	0.54	0.95	0.52	0.53	1.34	0.67	0.67	0.65	0.79	0.67	0.78	0.49	0.58	0.97	1.16	1.37
Norway																																										
1996	0.37	0.15	0.59	0.19	0.66	0.24	1.06	1.01	1.33	3.98	3.76	0.66	0.69	1.88	0.86	0.77	1.29	1.13	2.21	0.92	4.31	0.82	na	0.91	0.85	0.25	0.20	0.30	0.25	0.54	0.15	0.39	0.29	0.32	0.16	0.80	0.15	0.10	0.16	0.00	0.34	0.48
2018	1.01	0.68	0.72	1.70	0.91	1.36	2.24	1.59	2.26	4.54	3.66	1.23	1.32	2.58	1.84	1.38	2.12	2.32	1.95	1.36	4.27	1.35	na	1.33	1.66	1.52	0.67	1.68	0.35	0.40	1.79	0.43	0.78	0.80	0.65	0.52	0.50	0.41	0.82	0.71	1.00	1.01
Russia																																										
1996	0.34	0.75	0.53	0.20	0.78	0.17	0.76	0.67	1.37	0.77	1.56	0.84	1.26	0.67	0.20	0.89	0.74	1.42	0.91	0.67	0.84	0.50	0.91	na	0.69	0.49	0.44	0.80	0.07	0.20	0.37	0.28	0.37	0.54	0.00	0.00	0.04	0.58	0.29	0.00	0.24	0.11
2018	0.54	1.44	0.61	1.14	0.93	1.03	1.52	1.00	2.84	0.87	2.57	1.28	1.47	1.95	1.37	1.11	0.86	2.50	1.57	0.99	1.17	0.70	1.33	na	1.11	1.73	0.83	1.77	0.56	0.97	1.09	0.52	1.08	0.99	0.71	0.90	0.34	1.04	1.41	1.06	0.53	0.82

TABLE S5A-34

Indexes of internationally coauthored S&E publications, by selected region, country, or economy pairs: 1999 and 2018

(Index)

Region, country, or economy, and year	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
Switzerland																																											
1996	0.51	0.23	0.72	0.25	0.50	0.41	1.62	0.92	1.15	0.83	0.93	1.17	1.42	1.22	0.47	1.38	0.99	0.92	1.06	0.71	0.77	0.69	0.85	0.69	na	0.56	0.40	0.64	0.14	0.35	0.58	0.33	0.39	0.43	0.09	0.63	0.17	0.43	0.35	0.50	0.45	0.34
2018	0.93	0.94	0.85	1.44	0.99	1.33	2.68	2.05	1.94	1.73	1.77	1.79	2.16	2.31	1.80	1.93	1.91	1.75	1.55	1.45	1.59	1.31	1.66	1.11	na	1.41	0.68	1.58	0.37	0.56	1.30	0.35	0.66	0.85	0.60	0.58	0.58	0.61	0.94	1.04	0.90	1.14
Turkey																																										
1996	0.45	0.61	0.80	0.20	0.13	0.00	0.40	0.51	0.21	0.31	0.42	0.38	0.49	0.76	0.71	0.42	0.66	0.40	0.23	0.32	0.32	1.08	0.25	0.49	0.56	na	0.00	0.45	3.61	1.25	0.30	0.20	0.36	0.58	0.00	2.48	0.15	0.30	0.07	0.00	0.15	0.38
2018	0.72	1.86	0.85	2.08	1.26	1.66	2.21	1.43	2.99	1.41	2.01	1.01	0.99	4.06	2.15	1.44	1.28	2.46	2.51	1.35	1.20	0.89	1.52	1.73	1.41	na	3.69	1.83	2.18	2.15	1.99	0.42	1.37	0.75	1.82	3.26	0.50	1.15	1.93	2.19	0.65	1.52
Iran																																										
1996	1.25	0.00	0.58	0.00	0.00	0.00	0.28	0.45	0.22	0.00	0.00	0.31	0.18	0.00	0.00	0.32	0.11	0.42	0.00	0.12	0.20	1.18	0.20	0.44	0.40	0.00	na	0.11	0.81	0.00	0.32	0.21	1.37	0.95	2.14	1.30	0.96	0.62	0.62	0.00	2.27	0.71
2018	1.21	1.17	0.65	0.51	0.73	0.62	1.02	0.73	1.10	0.85	1.29	0.55	0.58	1.44	1.31	0.99	0.60	1.26	1.30	0.79	0.76	0.54	0.67	0.83	0.68	3.69	na	0.23	0.91	1.28	0.92	0.36	0.96	0.43	2.92	1.78	0.40	1.08	0.97	1.67	1.04	1.41
Israel																																										
1996	0.57	0.46	1.25	0.26	0.27	0.30	0.38	0.33	0.45	0.39	0.28	0.58	0.70	0.38	0.25	0.61	0.62	0.44	0.22	0.48	0.28	0.45	0.30	0.80	0.64	0.45	0.11	na	0.20	0.15	0.82	0.21	0.29	0.35	0.00	0.11	0.20	0.31	0.33	0.42	0.47	0.30
2018	1.15	0.75	1.35	2.20	0.93	1.89	1.84	1.31	2.18	1.77	1.29	1.20	1.40	2.57	1.56	1.62	1.48	2.01	1.79	1.38	1.30	0.95	1.68	1.77	1.58	1.83	0.23	na	0.25	0.33	1.41	0.44	0.95	0.82	0.51	0.20	0.83	0.59	1.17	0.38	0.80	0.87
Saudi Arabia																																										
1996	0.78	0.00	0.66	0.00	0.08	0.00	0.53	0.34	0.00	0.23	0.00	0.37	0.18	0.30	0.93	0.15	0.40	0.13	0.00	0.16	0.88	0.85	0.25	0.07	0.14	3.61	0.81	0.20	na	25.66	1.18	0.13	1.56	0.18	0.00	4.88	0.00	0.10	0.13	0.00	0.29	0.15
2018	0.60	0.55	0.51	0.33	0.39	0.44	0.53	0.38	0.60	0.30	0.65	0.46	0.36	1.09	0.70	0.41	0.31	0.68	0.53	0.46	0.34	0.52	0.35	0.56	0.37	2.18	0.91	0.25	na	12.85	1.21	0.60	2.54	0.42	3.05	6.71	0.33	0.96	0.90	0.81	0.63	0.70
Egypt																																										
1996	0.51	0.24	0.72	0.21	0.23	0.17	0.76	0.51	0.36	0.20	0.45	0.17	0.53	0.16	0.13	0.36	0.18	0.64	0.00	0.17	0.18	0.41	0.54	0.20	0.35	1.25	0.00	0.15	25.66	na	0.11	0.28	0.75	0.72	1.08	1.31	0.00	0.52	0.14	0.48	0.16	0.16
2018	0.70	1.29	0.53	0.43	0.61	0.33	0.94	0.84	1.27	0.32	1.14	0.46	0.70	1.65	1.42	0.62	0.28	1.09	1.02	0.56	0.37	0.53	0.40	0.97	0.56	2.15	1.28	0.33	12.85	na	0.82	0.45	1.15	1.13	1.57	2.27	0.23	1.17	1.16	1.59	0.36	1.43
South Africa																																										
1996	0.58	0.06	0.74	0.31	0.36	0.87	1.13	0.63	0.63	0.50	0.08	0.43	0.66	0.47	0.36	0.40	0.55	0.69	0.18	0.27	0.37	1.05	0.15	0.37	0.58	0.30	0.32	0.82	1.18	0.11	na	0.42	0.73	0.21	0.00	0.95	0.59	0.04	0.35	0.17	1.52	1.45
2018	0.95	1.01	0.83	2.55	1.23	2.17	1.31	1.38	1.58	1.28	1.25	0.96	0.89	1.60	1.06	0.85	1.59	1.48	1.34	0.89	1.47	1.34	1.79	1.09	1.30	1.99	0.92	1.41	1.21	0.82	na	0.41	2.03	0.75	0.95	1.00	0.41	0.46	1.11	1.51	1.44	1.30
China																																										
1996	0.83	0.19	0.80	0.14	0.24	0.19	0.47	0.33	0.16	0.42	0.43	0.35	0.57	0.46	0.30	0.46	0.33	0.19	0.36	0.28	0.51	0.62	0.39	0.28	0.33	0.20	0.21	0.21	0.13	0.28	0.42	na	0.67	1.49	2.01	0.77	3.13	1.05	1.87	0.57	0.89	0.64
2018	0.84	0.34	1.17	0.29	0.27	0.32	0.35	0.37	0.41	0.55	0.54	0.41	0.45	0.43	0.56	0.32	0.43	0.39	0.36	0.29	0.52	0.67	0.43	0.52	0.35	0.42	0.36	0.44	0.60	0.45	0.41	na	0.44	1.01	0.46	1.40	1.91	0.88	1.68	0.65	1.18	0.74
India																																										
1996	0.68	0.71	0.94	0.33	0.62	0.34	0.22	0.28	0.15	0.32	0.50	0.51	0.65	0.21	0.14	0.49	0.43	0.30	0.28	0.40	0.30	0.65	0.29	0.37	0.39	0.36	1.37	0.29	1.56	0.75	0.73	0.67	na	0.72	4.83	1.12	1.80	0.66	0.76	0.48	0.64	0.34
2018	0.60	1.23	0.81	0.64	0.88	0.74	0.73	0.61	1.05	0.52	0.97	0.64	0.59	1.01	0.94	0.62	0.48	1.14	0.94	0.58	0.65	0.67	0.78	1.08	0.66	1.37	0.96	0.95	2.54	1.15	2.03	0.44	na	0.86	2.26	1.25	1.27	2.17	1.71	1.80	0.80	0.93
Japan																																										
1996	0.58	0.27	1.03	0.22	0.38	0.18	0.27	0.31	0.38	0.29	0.50	0.36	0.48	0.27	0.18	0.38	0.33	0.43	0.20	0.19	0.48	0.46	0.32	0.54	0.43	0.58	0.95	0.35	0.18	0.72	0.21	1.49	0.72	na	1.21	0.46	0.84	1.89	0.89	2.08	0.59	0.46
2018	0.67	0.56	0.86	0.84	0.65	0.85	0.85	0.69	1.05	0.74	0.89	0.83	0.83	0.77	0.55	0.67	0.67	0.94	0.54	0.60	0.90	0.65	0.80	0.99	0.85	0.75	0.43	0.82	0.42	1.13	0.75	1.01	0.86	na	1.34	0.34	0.85	1.78	2.23	3.04	0.76	0.75
Malaysia																																										
1996	0.30	0.00	0.39	0.00	0.55	0.42	0.12	0.15	0.18	0.00	0.14	0.16	0.18	0.20	0.61	0.10	0.22	0.09	0.00	0.00	0.22	1.53	0.16	0.00	0.09	0.00	2.14	0.00	0.00	1.08	0.00	2.01	4.83	1.21	na	1.07	6.36	0.13	0.86	4.11	1.44	0.20
2018	0.37	1.10	0.30	0.91	0.70	0.77	0.89	0.59	1.54	0.59	0.97	0.42	0.32	1.44	1.39	0.44	0.43	1.15	1.12	0.51	0.44	0.79	0.65	0.71	0.60	1.82	2.92	0.51	3.05	1.57	0.95	0.46	2.26	1.34	na	5.44	1.49	1.15	2.34	4.06	1.23	1.89
Pakistan																																										
1996	0.40	0.00	0.74	0.00	0.13	0.51	0.00	0.00	0.00	0.00	0.00	0.14	0.58	0.00	0.00	0.28	0.48	0.21	0.37	0.19	0.60	1.41	0.80	0.00	0.63	2.48	1.30	0.11	4.88	1.31	0.95	0.77	1.12	0.46	1.07	na	0.00	0.47	0.42	3.57	0.29	0.00
2018	0.47	1.62	0.44	0.47	0.88	0.32	1.15	0.69	1.37	0.41	1.39	0.45	0.50	1.45	1.55	0.59	0.33	1.04	0.95	0.44	0.57	0.67	0.52	0.90	0.58	3.26	1.78	0.20	6.71	2.27	1.00	1.40	1.25	0.34	5.44	na	0.36	2.67	1.27	2.51	0.69	1.68

TABLE S5A-34

Indexes of internationally coauthored S&E publications, by selected region, country, or economy pairs: 1999 and 2018

(Index)

Region, country, or economy, and year	Canada	Mexico	United States	Argentina	Brazil	Chile	Austria	Belgium	Czechia	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Netherlands	Poland	Portugal	Spain	Sweden	United Kingdom	Norway	Russia	Switzerland	Turkey	Iran	Israel	Saudi Arabia	Egypt	South Africa	China	India	Japan	Malaysia	Pakistan	Singapore	South Korea	Taiwan	Thailand	Australia	New Zealand
Singapore																																											
1996	0.67	0.18	0.65	0.00	0.10	0.00	0.16	0.10	0.00	0.41	0.50	0.12	0.16	0.00	0.41	0.09	0.08	0.16	0.00	0.07	0.32	1.06	0.15	0.04	0.17	0.15	0.96	0.20	0.00	0.00	0.59	3.13	1.80	0.84	6.36	0.00	na	0.23	1.93	2.91	1.84	0.89
2018	0.56	0.37	0.69	0.49	0.29	0.30	0.48	0.44	0.39	0.54	0.60	0.45	0.43	0.49	0.57	0.36	0.64	0.35	0.34	0.31	0.63	0.78	0.50	0.34	0.58	0.50	0.40	0.83	0.33	0.23	0.41	1.91	1.27	0.85	1.49	0.36	na	1.15	1.37	1.45	1.29	1.39
South Korea																																										
1996	0.35	0.37	1.44	0.38	0.23	0.06	0.54	0.11	0.13	0.39	0.32	0.27	0.28	0.78	0.13	0.37	0.35	0.29	0.09	0.37	0.15	0.25	0.10	0.58	0.43	0.30	0.62	0.31	0.10	0.52	0.04	1.05	0.66	1.89	0.13	0.47	0.23	na	1.10	0.34	0.46	0.34
2018	0.56	0.96	1.16	0.52	0.58	0.58	0.72	0.65	1.00	0.51	0.95	0.48	0.56	0.91	0.77	0.53	0.41	0.91	0.67	0.50	0.48	0.49	0.41	1.04	0.61	1.15	1.08	0.59	0.96	1.17	0.46	0.88	2.17	1.78	1.15	2.67	1.15	na	2.03	1.82	0.65	1.06
Taiwan																																										
1996	0.41	0.11	1.61	0.10	0.22	0.00	0.02	0.16	0.35	0.10	0.40	0.20	0.21	0.23	0.12	0.35	0.22	0.14	0.30	0.26	0.11	0.24	0.16	0.29	0.35	0.07	0.62	0.33	0.13	0.14	0.35	1.87	0.76	0.89	0.86	0.42	1.93	1.10	na	1.03	0.31	0.19
2018	0.69	1.21	0.97	1.50	0.92	1.36	1.24	0.79	1.96	0.81	1.19	0.65	0.63	1.87	1.23	0.70	0.63	1.63	1.33	0.73	0.60	0.58	0.82	1.41	0.94	1.93	0.97	1.17	0.90	1.16	1.11	1.68	1.71	2.23	2.34	1.27	1.37	2.03	na	3.06	0.85	1.45
Thailand																																										
1996	0.42	0.52	0.85	0.00	0.29	0.56	0.85	0.39	0.00	0.60	0.09	0.31	0.20	0.00	0.41	0.13	0.41	0.06	0.61	0.10	0.40	0.71	0.00	0.00	0.50	0.00	0.00	0.42	0.00	0.48	0.17	0.57	0.48	2.08	4.11	3.57	2.91	0.34	1.03	na	2.21	0.92
2018	0.49	2.06	0.80	0.59	1.20	0.59	1.78	1.16	2.00	0.65	1.72	0.79	0.63	2.08	2.02	0.68	0.68	1.44	1.43	0.59	0.69	0.97	0.71	1.06	1.04	2.19	1.67	0.38	0.81	1.59	1.51	0.65	1.80	3.04	4.06	2.51	1.45	1.82	3.06	na	1.17	2.70
Australia																																										
1996	0.75	0.27	0.73	0.51	0.31	0.60	0.40	0.34	0.30	0.49	0.37	0.36	0.46	0.16	0.52	0.30	0.45	0.19	0.17	0.19	0.72	1.08	0.34	0.24	0.45	0.15	2.27	0.47	0.29	0.16	1.52	0.89	0.64	0.59	1.44	0.29	1.84	0.46	0.31	2.21	na	4.09
2018	0.95	0.58	0.74	0.99	0.80	1.15	0.80	0.86	0.71	1.14	0.87	0.67	0.74	0.83	1.16	0.67	1.09	0.71	0.71	0.70	0.99	1.16	1.00	0.53	0.90	0.65	1.04	0.80	0.63	0.36	1.44	1.18	0.80	0.76	1.23	0.69	1.29	0.65	0.85	1.17	na	3.29
New Zealand																																										
1996	0.84	0.22	0.75	0.29	0.27	0.47	0.34	0.20	0.08	0.60	0.34	0.24	0.35	0.04	0.41	0.12	0.36	0.21	0.20	0.17	0.42	1.03	0.48	0.11	0.34	0.38	0.71	0.30	0.15	0.16	1.45	0.64	0.34	0.46	0.20	0.00	0.89	0.34	0.19	0.92	4.09	na
2018	1.13	1.92	0.80	1.02	1.07	1.36	1.35	1.48	1.66	1.15	1.84	0.88	0.88	1.70	2.74	0.90	0.93	1.26	1.44	0.87	0.96	1.37	1.01	0.82	1.14	1.52	1.41	0.87	0.70	1.43	1.30	0.74	0.93	0.75	1.89	1.68	1.39	1.06	1.45	2.70	3.29	na

na = not applicable.

Note(s)

Article counts refer to publications from a selection of journals and conference proceedings in S&E from Scopus. Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Articles are credited on a whole-count basis (i.e., each collaborating region, country, or economy is credited with one count). Regions, countries, or economies that have contributed to less than 1% of all internationally coauthored articles in 2018 are omitted. The index of collaboration is calculated as follows: $ICxy = (Cxy/Cx)/(Cy/Cw)$, where $ICxy$ = index of collaboration between country x and country y, Cxy = number of papers coauthored between country x and country y, Cx = total number of international coauthorships by country x, Cy = total number of international coauthorships by country y, and Cw = total number of international coauthorships in the database.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE SSA-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996			1997			1998			1999			2000			2001			2002			2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
World	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00	1.00	5.00	10.00
Not United States	0.62	3.50	7.46	0.62	3.54	7.53	0.62	3.55	7.55	0.63	3.59	7.65	0.64	3.63	7.72	0.64	3.65	7.78	0.65	3.72	7.84	0.64	3.66	7.81	0.65	3.71	7.89	0.67	3.77	7.99	0.67	3.81	8.02	0.69	3.84	8.09	0.68	3.86	8.12	0.69	3.88	8.16	0.69	3.88	8.19	0.69	3.92	8.26	0.70	3.94	8.26	0.71	3.98	8.35	0.71	3.98	8.36	0.72	4.00	8.40	0.74	4.09	8.52
North America	1.65	7.58	14.39	1.67	7.62	14.47	1.70	7.70	14.58	1.70	7.67	14.51	1.68	7.67	14.50	1.72	7.78	14.63	1.69	7.59	14.44	1.71	7.67	14.47	1.69	7.65	14.44	1.68	7.67	14.45	1.73	7.72	14.61	1.75	7.81	14.67	1.79	7.90	14.85	1.82	8.00	14.97	1.84	8.08	15.09	1.86	8.04	14.99	1.83	7.96	14.91	1.81	7.92	14.75	1.82	7.94	14.78	1.79	7.88	14.66	1.77	7.73	14.48
Canada	1.50	7.02	13.73	1.47	7.13	13.74	1.43	7.05	13.90	1.50	6.94	13.63	1.34	6.97	13.68	1.41	6.99	13.85	1.35	6.75	13.35	1.46	7.04	13.82	1.53	7.13	13.97	1.56	7.41	14.34	1.67	7.65	14.72	1.75	7.69	14.54	1.74	7.88	15.02	1.80	8.00	15.11	1.87	8.05	15.25	2.01	8.44	15.70	2.00	8.20	15.13	1.94	8.30	15.33	2.01	8.41	15.50	2.07	8.46	15.44	2.12	8.62	15.61
Greenland	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mexico	0.32	2.87	6.46	0.46	3.04	6.48	0.48	2.60	6.41	0.65	2.80	6.76	0.56	3.10	6.71	0.58	2.88	6.58	0.41	2.62	6.17	0.42	2.86	6.50	0.47	2.96	6.84	0.52	3.06	6.93	0.64	2.99	6.65	0.56	3.03	6.80	0.71	3.42	6.88	0.69	3.48	6.92	0.75	3.27	7.01	0.82	3.76	7.64	0.92	3.68	7.35	0.95	3.90	7.58	0.93	3.57	6.81	0.98	3.58	7.11	0.91	3.86	7.49
United States	1.71	7.79	14.73	1.75	7.86	14.85	1.78	7.96	14.98	1.78	7.94	14.89	1.77	7.93	14.89	1.81	8.05	15.03	1.78	7.88	14.87	1.80	7.97	14.90	1.78	7.95	14.87	1.77	7.94	14.84	1.83	8.02	15.04	1.84	8.12	15.14	1.90	8.23	15.34	1.92	8.34	15.50	1.95	8.43	15.60	1.96	8.35	15.46	1.94	8.31	15.47	1.93	8.27	15.28	1.93	8.31	15.34	1.91	8.27	15.25	1.88	8.08	15.02
Central America and Caribbean	0.92	3.67	7.37	0.63	3.51	6.88	0.66	3.44	7.42	0.74	3.48	7.00	0.46	3.01	6.29	0.67	3.39	6.60	0.66	3.58	6.80	0.74	3.20	6.72	0.65	3.40	7.12	0.83	4.06	8.10	0.93	3.74	7.90	0.85	3.52	7.78	1.07	4.21	7.89	1.08	4.34	8.03	0.98	4.27	8.47	1.33	5.05	9.21	1.35	4.94	9.09	1.53	4.82	9.11	1.49	5.21	9.02	1.78	5.90	9.93	1.50	5.80	10.62
Antigua and Barbuda	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Bahamas, The	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	4.44	11.11	0.00	9.76	14.63	0.00	2.44	7.32	2.94	3.35	11.76
Barbados	2.63	10.53	13.16	2.50	7.50	11.21	0.00	2.33	4.65	0.00	2.38	6.55	0.00	4.88	12.20	0.00	5.17	8.62	1.75	1.75	3.51	1.52	4.55	13.64	1.19	5.95	9.52	0.00	4.55	9.09	0.00	0.00	2.60	0.00	1.37	5.48	1.41	2.82	4.23	5.56	6.94	8.33	0.00	11.59	17.39	2.47	9.78	14.81	3.03	8.08	12.12	1.12	1.57	10.11	2.11	8.42	12.63	4.00	8.00	11.00	1.90	7.62	12.48
Belize	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	23.33	26.67	33.33	ne	ne	ne	ne	ne
Costa Rica	0.00	4.51	6.79	0.36	5.34	10.32	0.39	5.04	9.30	0.90	3.62	8.14	0.91	4.09	9.30	1.08	5.76	11.49	2.07	7.59	14.24	2.26	5.75	11.26	0.27	5.07	10.40	1.42	5.32	10.43	0.94	4.93	10.16	1.25	4.80	10.81	2.08	6.92	11.99	2.14	8.98	15.98	1.54	6.64	12.57	0.71	7.91	13.50	1.48	5.48	11.29	1.32	7.91	11.31	1.43	5.72	11.00	1.85	6.47	12.01	1.87	6.43	11.34
Cuba	0.40	1.33	3.95	0.00	0.91	2.39	0.28	1.20	3.04	0.34	1.59	3.35	0.08	1.25	2.83	0.32	1.60	3.45	0.16	1.29	2.62	0.19	0.86	3.32	0.28	1.68	3.54	0.08	2.03	4.63	0.31	1.90	3.73	0.31	1.65	3.71	0.49	1.95	3.87	0.58	1.59	3.32	0.91	2.22	4.62	0.64	1.78	3.72	0.38	1.66	3.57	1.03	2.28	4.16	0.54	2.73	4.20	0.69	2.43	4.24	0.79	2.93	5.34
Dominica	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	8.82	20.59	0.00	11.43	11.43
Dominican Republic	0.00	2.63	7.89	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	6.25	12.50	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	5.41	8.11	0.00	2.78	2.78	0.00	2.79	10.26	0.00	1.92	9.62	0.00	5.26	8.77	0.00	2.04	12.24	0.00	2.04	12.42	1.45	4.20	11.59	1.27	3.80	10.13	1.77	6.19	15.93	0.00	4.76	10.58	3.20	6.40	12.80	3.08	8.69	13.30
El Salvador	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	0.00	ne	ne	ne	0.00	5.56	6.97	0.00	3.33	6.67	0.00	8.33	12.19	5.26	7.89	13.16	4.44	8.89	11.11	0.00	10.20	11.16	1.85	7.41	11.11	0.00	2.04	6.86	0.00	6.05	12.28	3.57	7.14	10.07	2.27	7.95	15.18
Grenada	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	2.70	0.00	4.48	8.96	0.00	1.30	3.90	0.00	0.00	2.13	0.00	4.08	4.08	1.32	2.63	10.59	1.03	1.03	3.09	1.04	3.99	10.42	1.46	2.19	5.84	0.94	4.01	12.14	0.00	5.18	11.02
Guatemala	1.61	4.84	8.06	0.00	3.57	8.93	0.00	0.00	8.62	3.39	5.08	11.86	0.00	4.00	8.00	0.00	8.33	10.42	0.00	6.38	10.64	1.56	4.69	6.05	0.00	4.05	7.45	0.95	3.13	7.62	0.00	4.42	11.69	0.00	2.38	9.52	0.00	7.53	15.05	1.67	3.33	6.67	1.63	4.88	11.44	1.64	2.55	6.13	2.30	6.94	11.49	2.72	3.26	9.50	1.71	7.25	13.94	2.07	9.84	14.77	1.65	6.17	12.43
Haiti	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.33	16.67	20.00	3.03	6.06	1.99	0.00	7.69	11.54	1.90	4.76	6.67	0.97	1.94	6.61	1.90	5.71	7.69
Honduras	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.78	13.51	ne	ne	ne	ne	ne	ne	0.00	9.09	12.12	0.00	3.23	3.23	0.00	0.00	5.56	0.00	5.71	8.57	0.00	2.56	15.05	2.70	5.41	5.41	0.00	4.55	11.36	1.52	3.03	5.01	3.13	3.13	4.69	1.47	7.35	13.24	0.00	1.27	6.33	1.28	8.97	14.10	0.00	2.56	7.69	1.03	2.06	7.38	3.53	4.71	7.06
Jamaica	1.17	2.34	3.51	0.68	3.92	6.89	0.68	1.36	6.12	1.83	3.66	4.88	0.00	2.10	5.40	0.00	1.08	4.30	0.00	1.51	4.02	0.54	1.08	2.70	0.00	0.45	3.18	0.00	3.00	6.00	2.03	3.05	6.09	0.82	2.46	5.74	0.71	2.83	5.53	0.70	1.47	2.46	0.37	1.47	4.51	1.75	3.16	5.62	0.00	2.22	4.07	1.34	2.35	4.27	0.96	4.37	6.69	1.09	4.72	6.55	2.13	6.03	8.86
Nicaragua	2.78	2.78	9.66	0.00	2.56	5.13	0.00	10.00	20.38	ne	ne	ne	0.00	3.33	16.16	ne	ne	ne	ne	ne	ne	0.00	5.56	13.89	0.00	4.44	4.44	3.70	11.11	11.11	3.57	5.95	9.52	0.00	3.17	5.09	0.00	11.69	17.83	1.11	8.89	10.00	0.00	7.95	11.36	3.30	12.09	17.58	2.65	4.76	9.68	2.38	7.31	13.10	0.00	6.52	10.87	3.88	10.68	15.55	4.31	11.12	19.69
Panama	1.83	7.21	17.12	2.66	11.93	21.17	4.44	10.60	18.89	1.98	9.10	17.44	5.10	11.22	24.49	3.48	11.30	20.00	2.65	12.39	22.12	2.87	13.44	19.85	2.07	12.71	25.33	1.06	11.11	18.52	2.67	9.94	22.39	3.40	12.08	23.06	3.95	10.76	18.18	2.58	10.92	19.35	2.32	7.28	15.26	4.24	13.17	21.51	3.20	10.75	19.86	1.79	8.29	15.95	3.47	10.03	16.88	4.75	12.19	18.69	4.64	10.62	18.82
Puerto Rico	1.68	5.79	10.81	1.33	5.62	9.70	0.89	5.93	10.68	1.31	5.97	11.81	0.80	4.82	8.51	1.36	4.70	8.78	0.89	4.76	9.23	0.81	3.37	7.30	1.29	3.76	8.20	1.79	5.62	11.13	1.56	5.16	10.40	1.35	4.73	10.07	1.37	5.31	10.21	1.46	6.49	12.53	1.94	6.81	12.52	1.76	8.01	14.34	2.89	10.52	16.75	2.95	7.56	14.98	3.21	10.06	16.37	2.91	9.72	15.39	2.49	9.33	16.45
Saint Kitts and Nevis	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	4.55	9.09	3.33	5.00	8.33	2.43	4.63	18.16
Saint Lucia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Saint Vincent and the Grenadines	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Trinidad and Tobago	0.00	1.54	4.94	0.96	1.92	3.85	0.76	3.70	11.37	0.00	0.91	3.71	0.00	2.48	4.13	0.00	4.11	8.90	0.60	2.41	5.42	0.00	3.43	6.86	0.00	1.96	3.43	0.00	2.87	7.37	0.52	1.99	6.47	0.39	1.54	5.02	1.97	3.54	4.72	0.91	4.56	6.28	0.61	2.74	5.79	0.85	3.70	7.12	0.32	2.22	5.95	0.71	3.53	5.66	0.52	1.82	3.96	0.37	2.94	6.39	1.24	5.03	8.18
South America	0.47	2.85	6.50	0.50	2.84	6.40	0.55	3.03	6.55	0.51	2.91	6.49	0.46	3.02	6.77	0.50	3.00	6.85	0.47	3.01	6.73	0.57	3.30	7.11	0.58	3.37	7.32	0.63	3.51	7.79	0.62	3.12	6.87	0.61	3.31	7.13	0.65	3.18	6.91	0.62	3.29	7.05	0.65	3.21	6.92	0.63	3.33	7.06	0.66	3.35	7.08	0.74	3.41	7.11	0.75	3.56	7.11	0.81	3.54	7.27	0.92	3.94	7.88
Argentina	0.34	2.52	5.45	0.62	2.82	6.54	0.57	3.07	6.71	0.37	2.52	6.52	0.39	2.86	6.35	0.46	2.90	6.48	0.44	3.13	6.88	0.57	3.69	7.54	0.80	3.78	7.91	0.56	3.43	7.78	0.83	3.93	8.37	0.84	4.02	8.10	0.77	3.96	8.32	0.82	3.94	8.19	0.83	3.57	7.92	0.80	3.92	7.92	1.03	4.20	8.41	1.18	4.27	8.23	1.25	4.56	8.15	1.21	4.47	8.48	1.11	4.36	8.33
Bolivia	0.00	3.17	9.52	0.00	6.67	14.44	0.00	4.30	13.36	0.86	12.05	22.41	1.32	6.58	14.47	0.00	4.71	10.59	0.00	5.98	16.00	0.00	6.50	14.18	3.17	11.11	15.78	0.00	3.95	8.55	0.59	6.47	10.00	0.91	4.41	10.26	2.98	8.09	14.04	0.88	8.37	16.01	2.27	7.52	12.95	1.75	8.51	14.32	3.17	6.27	12.61	3.64	6.59	9.79	1.08	4.63	9.60	2.74	6.51	12.95	2.03	8.81	15.26
Brazil	0.49	2.96	6.68	0.48	2.74	6.19	0.49	3.03	6.37	0.50	2.86	6.22	0.50	3.00	6.85	0.49	2.92	6.85	0.49	3.02	6.66	0.53	3.04	6.85	0.54	3.25	7.11	0.67	3.49	7.69	0.57	2.93	6.48	0.53	3.12	6.88	0.60	3.05	6.66	0.55	3.06	6.79	0.61	3.03	6.54	0.57	3.12	6.74	0.59	3.18	6.86	0.71	3.26	6.88	0.69	3.41	6.95	0.82	3.47	7.16	0.97	4.03	8.01
Chile	0.72	3.39	8.11	0.41	3.57	7.22	1.25	3.40	6.59	0.67	3.81	7.92	0.91	4.43	8.82	0.91	4.20	8.43	0.67	3.55	7.93	1.13	4.83	9.19	0.76	4.68	9.68	0.81	4.66	10.52	0.77	4.17	9.46	0.90	4.30	9.22	0.99	4.54	9.68	0.97	4.99	10.00	0.91	5.31	10.60	1.30	5.68	10.99	1.25	5.40	10.91	1.52	6.03	11.50	1.51	5.99	11.04	1.46	5.85	11.15	1.68	6.66	12.54

TABLE S5A-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996 Top 1%	1996 Top 5%	1996 Top 10%	1997 Top 1%	1997 Top 5%	1997 Top 10%	1998 Top 1%	1998 Top 5%	1998 Top 10%	1999 Top 1%	1999 Top 5%	1999 Top 10%	2000 Top 1%	2000 Top 5%	2000 Top 10%	2001 Top 1%	2001 Top 5%	2001 Top 10%	2002 Top 1%	2002 Top 5%	2002 Top 10%
Colombia	0.18	4.29	9.03	0.46	3.55	8.87	0.40	2.94	8.16	0.53	2.92	7.33	0.35	3.64	8.72	0.37	3.57	8.68	0.33	3.21	6.96
Ecuador	1.03	6.19	12.37	0.00	2.53	6.39	0.68	3.38	8.11	0.00	3.05	10.54	1.42	4.27	10.97	0.80	5.60	12.00	0.59	4.07	10.06
Guyana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Paraguay	0.00	3.33	10.00	0.00	3.23	3.23	0.00	2.63	7.89	ne	ne	ne	ne	ne	ne	3.13	3.13	3.13	ne	ne	ne
Peru	0.52	2.07	9.84	0.47	4.69	7.51	1.05	4.19	11.81	1.95	5.08	9.38	0.35	5.61	10.53	0.64	3.54	9.32	0.00	2.16	7.69
Suriname	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uruguay	1.51	3.63	9.47	0.00	2.80	9.12	0.31	4.91	9.51	1.07	7.88	13.33	0.28	4.41	9.11	0.56	3.38	9.95	0.52	3.69	8.60
Venezuela	0.29	2.55	6.15	0.83	2.89	5.42	0.67	2.87	7.09	0.55	2.31	4.72	0.15	1.87	4.48	0.51	3.15	6.29	0.21	2.20	5.15
Europe	0.86	4.52	9.28	0.87	4.57	9.34	0.88	4.64	9.47	0.90	4.69	9.58	0.92	4.73	9.61	0.91	4.70	9.62	0.91	4.75	9.64
EU	0.93	4.91	10.08	0.94	4.95	10.10	0.96	5.05	10.28	0.97	5.07	10.34	0.98	5.09	10.35	0.98	5.08	10.41	0.98	5.14	10.42
Austria	0.92	4.95	9.92	1.16	5.45	10.87	1.10	5.28	10.78	1.07	5.75	11.59	1.10	5.57	10.70	1.11	5.19	10.75	0.96	5.43	11.44
Belgium	1.32	5.96	11.83	0.97	5.81	11.64	1.30	5.96	12.06	1.21	5.68	11.85	1.16	5.68	11.67	1.24	5.88	12.18	1.28	6.52	12.70
Bulgaria	0.47	2.53	4.73	0.22	1.88	4.33	0.22	1.92	5.37	0.38	2.04	4.27	0.51	2.49	5.19	0.50	2.48	5.17	0.49	2.35	5.28
Croatia	0.30	0.90	2.94	0.19	1.32	2.95	0.35	1.59	3.42	0.17	1.52	2.96	0.05	1.23	3.21	0.10	1.68	4.16	0.44	1.57	3.52
Cyprus	0.67	2.68	6.78	0.53	3.17	7.49	1.97	6.40	14.57	0.52	3.61	10.43	2.13	4.26	11.49	0.48	3.33	10.96	0.99	5.73	12.15
Czechia	0.44	2.22	5.14	0.34	2.40	5.23	0.41	2.16	4.99	0.33	2.35	5.42	0.46	2.55	5.48	0.45	2.51	5.21	0.40	2.38	5.41
Denmark	1.50	7.22	14.27	1.66	7.26	13.96	1.61	7.71	14.94	1.44	8.08	15.46	1.82	8.21	15.59	1.73	7.76	14.94	1.56	7.61	14.96
Estonia	0.51	3.70	7.60	0.85	4.43	7.84	0.61	3.66	10.24	0.69	2.97	7.27	0.62	3.58	8.07	0.50	3.20	8.21	0.42	3.94	7.85
Finland	1.06	5.91	12.79	1.23	6.15	12.93	1.26	6.52	12.79	1.09	6.00	12.91	1.39	6.45	13.00	1.26	6.13	12.42	1.11	6.19	12.71
France	1.01	5.16	10.53	1.02	5.15	10.40	1.00	5.37	10.78	1.03	5.26	10.57	1.03	5.32	10.90	1.08	5.16	10.76	1.01	5.30	10.74
Germany	0.99	5.03	10.12	0.97	5.06	10.26	1.03	5.27	10.57	1.06	5.43	11.03	1.08	5.46	10.96	1.04	5.51	11.08	1.09	5.54	11.17
Greece	0.60	3.49	8.33	0.53	3.88	8.31	0.81	4.40	9.45	0.60	3.87	8.76	0.78	4.27	8.88	0.87	4.34	8.85	0.77	4.49	9.23
Hungary	0.51	2.99	5.92	0.48	2.72	5.77	0.69	3.02	6.14	0.43	2.64	6.37	0.57	2.92	5.86	0.78	3.03	6.30	0.71	3.28	7.08
Ireland	0.85	5.59	10.86	1.33	6.13	12.49	1.14	6.22	11.57	1.29	5.71	12.11	0.77	5.27	10.60	0.94	5.80	11.98	1.17	6.07	11.78
Italy	0.73	4.33	8.96	0.82	4.35	9.17	0.96	4.80	9.74	0.87	4.82	9.76	0.84	4.67	9.72	0.95	4.75	9.83	1.02	5.13	10.18
Latvia	0.23	2.10	4.88	0.37	1.29	3.51	0.65	2.61	6.33	0.63	1.27	4.42	0.52	2.58	4.16	0.22	1.97	4.59	0.59	1.38	3.56
Lithuania	0.18	1.82	5.06	0.16	1.78	4.41	0.29	1.90	4.68	0.52	3.90	5.68	0.25	2.39	6.16	0.24	1.79	4.38	0.25	1.55	3.68
Luxembourg	0.00	0.00	5.26	1.05	5.26	8.94	0.00	2.08	6.25	0.00	3.41	6.82	0.95	0.95	7.62	0.87	5.22	7.83	0.74	2.21	5.79
Malta	0.00	5.88	7.84	3.08	6.15	12.31	0.00	4.55	10.61	1.47	4.41	6.00	0.00	3.23	4.84	3.14	4.17	6.94	1.35	2.70	2.70
Netherlands	1.55	7.27	14.17	1.69	7.63	14.49	1.61	7.19	14.52	1.70	7.76	15.27	1.65	7.89	14.97	1.45	7.67	15.12	1.65	7.93	14.97
Poland	0.26	1.98	4.47	0.36	1.91	4.56	0.35	1.89	4.23	0.38	1.92	4.21	0.37	1.97	4.29	0.41	2.06	4.38	0.38	1.99	4.25
Portugal	0.55	4.48	9.57	0.60	4.00	9.17	0.58	4.08	8.37	0.96	4.49	9.76	0.66	4.21	9.34	0.82	4.84	10.29	0.99	5.04	10.55
Romania	0.25	1.23	3.53	0.22	1.60	3.80	0.32	1.79	3.98	0.32	1.76	3.90	0.32	2.35	4.71	0.22	2.19	4.88	0.55	2.30	5.19
Slovakia	0.44	2.40	4.56	0.50	1.77	4.24	0.11	1.66	4.09	0.38	2.07	4.30	0.26	1.52	3.11	0.53	1.89	4.96	0.30	2.16	4.19

Region, country, or economy	2003 Top 1%	2003 Top 5%	2003 Top 10%	2004 Top 1%	2004 Top 5%	2004 Top 10%	2005 Top 1%	2005 Top 5%	2005 Top 10%	2006 Top 1%	2006 Top 5%	2006 Top 10%	2007 Top 1%	2007 Top 5%	2007 Top 10%	2008 Top 1%	2008 Top 5%	2008 Top 10%	2009 Top 1%	2009 Top 5%	2009 Top 10%
Colombia	0.82	3.69	7.11	0.70	3.20	7.08	0.67	4.29	8.27	1.25	4.33	7.97	0.67	4.18	8.23	0.94	3.45	6.42	1.04	3.72	6.72
Ecuador	0.00	4.10	8.21	1.46	8.25	15.53	1.39	6.29	13.58	1.71	5.80	12.13	1.43	6.02	13.24	2.58	8.01	16.28	1.29	6.44	14.12
Guyana	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Paraguay	2.70	8.11	16.22	0.00	1.92	9.10	1.82	10.91	12.73	5.08	7.46	13.56	0.00	3.13	6.25	1.35	4.05	9.43	2.38	7.14	11.90
Peru	1.28	5.78	8.57	0.63	5.83	11.23	0.73	5.71	11.78	0.99	4.23	7.85	1.60	6.37	11.57	1.52	6.58	10.96	1.54	5.88	11.04
Suriname	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uruguay	0.00	3.97	10.38	0.58	4.96	10.99	0.70	5.25	9.69	1.19	3.79	8.82	1.88	4.23	8.97	1.59	5.01	11.01	1.09	4.50	9.66
Venezuela	0.51	2.60	6.02	0.59	2.99	6.03	0.45	2.97	5.90	0.49	2.80	5.60	0.57	2.47	5.30	0.63	2.21	4.37	0.59	2.67	4.60
Europe	0.95	4.86	9.84	0.98	4.99	10.07	1.05	5.19	10.44	1.07	5.33	10.64	1.08	5.37	10.73	1.08	5.43	10.84	1.12	5.52	11.03
EU	1.01	5.21	10.58	1.04	5.34	10.78	1.12	5.55	11.12	1.13	5.63	11.22	1.14	5.65	11.30	1.14	5.73	11.43	1.17	5.83	11.65
Austria	1.23	5.90	11.20	1.25	6.43	12.42	1.37	6.57	12.67	1.50	6.80	13.10	1.55	7.04	13.62	1.55	7.27	13.44	1.58	6.96	13.31
Belgium	1.44	6.85	13.29	1.64	6.80	13.35	1.90	7.55	14.55	1.84	7.71	14.41	2.00	8.27	15.30	1.85	8.25	15.73	2.00	8.88	16.19
Bulgaria	0.53	2.38	4.91	0.19	2.81	6.19	0.48	2.82	6.23	0.67	3.73	7.18	0.55	2.87	5.23	0.57	2.40	5.41	0.50	2.41	5.21
Croatia	0.39	1.88	4.23	0.49	2.18	4.59	0.61	2.43	5.46	0.43	2.30	4.90	0.68	2.57	5.33	0.56	2.42	4.78	0.63	2.54	5.24
Cyprus	2.03	8.57	13.18	0.93	5.32	14.02	1.31	5.34	8.84	1.32	5.62	11.84	2.47	6.71	13.85	1.36	7.15	13.76	1.52	6.37	13.14
Czechia	0.47	2.63	5.76	0.63	3.12	6.43	0.58	3.03	6.64	0.77	3.49	7.05	0.70	3.05	6.47	0.75	3.54	7.51	0.70	3.38	7.27
Denmark	1.86	8.50	16.00	1.86	8.62	16.05	2.17	8.86	16.47	2.32	8.86	16.68	2.45	9.41	17.36	2.11	9.21	17.28	2.39	9.65	17.66
Estonia	0.35	3.44	7.50	0.98	5.09	10.00	1.25	5.08	8.97	0.83	4.36	9.53	1.17	4.57	10.49	1.34	5.39	9.80	1.17	5.23	10.45
Finland	1.35	6.10	12.11	1.07	5.83	11.74	1.35	6.54	12.91	1.31	6.43	12.79	1.64	6.84	13.42	1.56	6.90	13.81	1.64	6.82	13.45
France	1.12	5.42	10.93	1.14	5.54	11.15	1.22	5.94	11.87	1.27	6.00	11.85	1.32	6.24	12.24	1.32	6.38	12.41	1.40	6.54	12.88
Germany	1.16	5.84	11.48	1.20	5.94	11.79	1.30	6.21	12.13	1.30	6.39	12.57	1.40	6.45	12.53	1.44	6.61	13.00	1.48	6.81	13.16
Greece	0.96	5.14	9.97	0.79	4.86	10.24	1.13	5.25	11.19	1.19	5.28	10.83	1.06	5.57	11.45	1.25	5.88	11.92	1.18	5.93	11.62
Hungary	0.73	3.52	7.25	0.78	4.05	7.92	0.85	3.71	7.70	1.03	3.92	7.69	0.97	3.83	7.83	0.98	3.63	7.40	0.81	3.89	8.17
Ireland	1.07	5.52	11.74	1.38	5.68	11.74	1.44	6.21	12.71	1.67	6.79	12.96	1.55	7.08	13.69	1.86	7.77	14.55	1.70	7.52	14.66
Italy	0.90	4.87	10.15	1.00	5.25	10.88	1.23	5.80	11.46	1.21	5.72	11.58	1.28	6.09	11.88	1.31	6.21	12.24	1.30	6.45	12.83
Latvia	0.00	2.83	5.53	0.43	2.59	6.79	0.77	3.05	6.27	1.39	3.48	5.76	1.02	2.19	4.89	0.34	2.62	5.96	0.54	2.18	5.00
Lithuania	0.34	1.76	3.70	0.41	1.68	4.12	0.48	1.83	4.06	0.55	2.95	6.13	0.56	2.32	4.65	0.43	2.38	4.77	0.54	2.50	5.26
Luxembourg	0.58	4.22	9.45	0.86	3.92	9.02	2.11	4.91	10.44	1.25	5.99	11.94	0.46	4.95	9.75	1.31	7.90	14.39	1.95	8.41	15.70
Malta	1.83	9.17	12.84	0.00	2.20	6.46	2.11	9.86	16.47	1.91	9.55	16.56	3.75	6.88	11.88	1.61	5.96	12.12	1.70	6.35	10.18
Netherlands	1.77	8.08	15.72	1.86	8.37	16.01	1.96	8.59	16.39	2.13	8.94	16.46	2.20	9.30	17.11	2.14	9.39	17.52	2.20	9.43	17.49
Poland	0.40	2.11	4.64	0.43	2.23	4.73	0.50	2.50	5.13	0.55	2.40	5.20	0.57	2.52	5.25	0.53	2.44	5.23	0.61	2.70	5.82
Portugal	0.76	4.84	10.20	1.03	5.29	10.78	1.14	5.89	11.81	1.33	5.84	11.38	1.51	6.07	12.18	1.29	5.92	11.73	1.28	6.26	12.61
Romania	0.24	2.15	5.62	0.50	2.91	5.77	0.50	2.30	5.30	0.57	2.48	6.10	0.47	2.59	5.50	0.40	2.33	4.70	0.31	1.76	4.08
Slovakia	0.41	2.09	4.31	0.41	2.34	4.77	0.47	2.13	4.67	0.78	3.16	6.06	0.63	3.07	5.95	0.61	2.86	5.77	0.46	2.67	6.33

Region, country, or economy	2010 Top 1%	2010 Top 5%	2010 Top 10%	2011 Top 1%	2011 Top 5%	2011 Top 10%	2012 Top 1%	2012 Top 5%	2012 Top 10%	2013 Top 1%	2013 Top 5%	2013 Top 10%	2014 Top 1%	2014 Top 5%	2014 Top 10%	2015 Top 1%	2015 Top 5%	2015 Top 10%	2016 Top 1%	2016 Top 5%	2016 Top 10%
Colombia	0.92	4.10	8.36	1.15	4.60	8.62	1.05	4.47	8.47	1.11	4.33	8.41	1.19	4.42	7.44	1.61	5.03	8.71	1.48	4.96	8.56
Ecuador	1.17	7.01	13.01	1.12	8.18	14.14	2.38	8.41	13.33	2.60	7.26	12.35	0.86	5.34	11.20	1.61	5.04	10.15	1.09	5.21	9.44
Guyana	0.00	0.00	2.15	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.33	10.00	16.67	6.25	12.50	21.88	0.00	5.88	11.76
Paraguay	5.62	12.36	14.61	0.92	8.37	15.60	2.36	6.30	10.47	2.57	6.82	9.09	1.44	2.88	5.17	1.00	4.88	11.93	2.33	7.44	9.97
Peru	2.62	6.30	10.40	2.20	6.56	11.92	1.89	7.55	12.38	3.15	7.65	12.33	2.54	8.08	13.39	2.51	7.48	11.79	2.49	7.20	12.44
Suriname	ne	ne	ne	ne	ne	ne	ne	ne	ne	1.22	6.25	6.25	ne	ne	ne	0.00	2.78	5.56	1.79	7.13	13.34
Uruguay	1.05	4.56	10.72	1.40	5.81	10.95	1.50	5.37	9.92	1.41	5.67	9.99	0.85	5.04	8.81	1.70	5.84	11.25	1.32	4.73	9.00
Venezuela	0.98	3.02	5.41	0.44	2.80	5.07	0.92	3.04	5.35	0.93	2.96	5.17	1.01	3.10	6.14	0.72	4.10	6.88	1.24	3.46	6.33
Europe	1.14	5.67	11.28	1.17	5.71	11.38	1.17	5.68	11.28	1.18	5.70	11.33	1.19	5.67	11.23	1.18	5.67	11.20	1.18	5.71	11.26
EU	1.22	6.05	11.99	1.25	6.09	12.12	1.25	6.08	12.04	1.27	6.13	12.14	1.29	6.12	12.08	1.29	6.17	12.13	1.30	6.28	12.32
Austria	1.99	8.00	15.11	2.03	7.89	14.72	2.05	8.07	14.95	2.05	8.23	15.32	2.26	8.37	15.26	2.16	8.56	15.40	2.35	9.09	15.74
Belgium	2.18	9.15	16.70	2.19	9.12	16.87	2.26	9.38	17.13	2.46	9.55	17.50	2.58	9.68	17.20	2.67	10.08	17.97	2.61	9.90	17.47
Bulgaria	0.69	2.82	6.06	0.90	3.79	6.98	0.79	3.39	6.60	0.96	3.71	6.72	1.24	3.97	6.72	1.84	5.15	8.37	1.58	5.41	9.79
Croatia	0.97	3.60	7.13	0.93	3.60	7.17	1.09	4.22	7.88	1.23	4.29	7.74	1.44	5.23	8.92	1.42	5.30	9.07	1.32	5.40	9.71
Cyprus	1.66	7.77	15.77	2.24	9.18	18.13	2.86	9.07	16.71	1.84	8.47	15.84	2.79	10.38	17.00	3.26	9.49	17.12	1.76	8.49	15.86
Czechia	0.95	3.78	7.74	0.94	3.82	7.75	0.89	4.21	8.22	1.16	4.57	8.85	1.23	4.43	8.49	1.09	4.32	8.35	1.18	4.78	9.17
Denmark	2.50	9.91	18.22	2.78	10.41	18.81	2.68	10.61	18.98	2.69	10.29	18.82	2.91	10.69	18.76	2.74	10.74	18.92	2.96	11.08	19.80
Estonia	1.57	5.74	12.35	1.78	6.73	13.99	2.23	7.92	13.85	2.24	7.85	14.49	2.88	8.49	13.84	2.91	9.86	16.85	2.41	9.33	16.36
Finland	1.77	7.33	14.24	1.87	7.70	14.78	2.00	7.59	14.72	1.97	8.30	15.11	2.22	8.60	15.75	2.34	9.24	16.34	2.31	8.91	16.45
France	1.46	6.92	13.38	1.52	6.92	13.47	1.49	6.89	13.29	1.66	7.06	13.41	1.65	6.99	13.15	1.68	7.03	13.14	1.73	7.24	13.56
Germany	1.62	7.24	13.83	1.65	7.34	14.16	1.62	7.20	13.86	1.67	7.38	13.99	1.77	7.33	13.85	1.76	7.44	14.13	1.77	7.49	14.08
Greece	1.46	6.36	12.34	1.38	6.54	12.38	1.56	6.74	12.96	1.84	6.72	12.94	2.00	7.11	13.36	2.10	7.73	14.16	2.05	8.02	14.45
Hungary	1.16	4.78	8.95	1.21	4.89	9.63	1.43	5.71	10.70	1.68	5.64	10.16	1.48	5.71	10.34	1.88	6.35	11.07	1.68	6.48	12.03
Ireland	1.99	8.00	14.58	2.00	7.85	14.79	2.13	8.60	15.70	2.14	8.53	16.16	2.03	8.67	15.87	2.68	9.99	17.53	2.77	9.90	17.55
Italy	1.45	6.83	13.40	1.47	6.97	13.73	1.53	7.10	14.10	1.56	7.26	14.34	1.72	7.56	14.68	1.78	7.80	15.00	1.81	8.18	15.55
Latvia	0.87	2.51	5.71	0.31	1.52	3.42	0.80	2.13	3.79	1.02	3.08	5.93	0.65	3.00	5.53	1.12	4.05	6.93	1.24	4.67	8.07
Lithuania	0.73	3.06	6.20	0.86	3.20	6.49	1.34	4.48	7.64	1.27	4.89	8.89	1.49	4.99	8.42	1.52	5.89	9.75	1.83	6.50	11.02
Luxembourg	2.21	8.73	17.28	2.54	6.85	13.52	2.00	7.46	15.23	2.02	9.15	17.44	2.26	7.51	15.46	2.65	10.00	19.04	3.00	10.11	17.73
Malta	1.76	4.10	9.87	1.36	7.46	11.40	0.25	4.66	9.31	1.53	5.46	11.84	1.85	6.85	11.69	2.54	8.03	15.99	1.85	8.07	12.36
Netherlands	2.35	10.14	18.66	2.59	10.29	19.09	2.59	10.39	18.68	2.54	10.40	19.00	2.67	10.47	18.70	2.78	10.85	19.14	2.89	10.98	19.43
Poland	0.67	2.83	6.21	0.72	3.10	6.57	0.78	3.53	7.06	0.87	3.50	7.20	0.93	3.90	7.61	0.88	4.08	8.17	0.93	4.28	8.48
Portugal	1.40	6.04	12.01	1.48	6.43	12.54	1.55	6.76	12.96	1.48	6.40	13.01	1.64	6.51	12.35	1.48	6.47	12.34	1.58	7.34	13.71
Romania	0.45	2.14	4.60	0.66	2.92	5.62	0.64	3.31	6.48	0.89	3.60	6.84	1.02	3.86	6.84	0.98	3.92	6.93	1.16	4.22	7.60
Slovakia	0.78	3.08	6.61	0.70	3.00	6.17	0.82	3.71	7.26	1.05	3.54	7.01	1.02	3.70	6.60	1.04	3.86	6.78	1.08	3.64	7.18

TABLE SSA-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996			1997			1998			1999			2000			2001			2002			2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Slovenia	0.38	2.79	6.29	0.47	2.95	7.54	0.67	2.58	7.16	0.69	3.58	7.58	0.34	3.05	5.88	0.58	3.26	7.59	0.70	3.32	7.56	0.66	3.38	7.53	0.48	3.76	8.59	0.73	3.98	8.37	1.38	5.06	10.01	1.09	5.01	10.14	1.10	4.76	9.32	0.86	4.60	9.63	1.36	5.41	10.40	1.04	5.64	11.19	1.55	5.79	11.42	1.72	6.18	11.48	2.06	7.02	12.48	1.90	7.48	13.15	2.26	7.92	13.31
Spain	0.63	3.90	8.53	0.69	4.10	9.02	0.80	4.34	9.27	0.67	4.15	9.08	0.75	4.30	8.96	0.79	4.31	9.28	0.86	4.53	9.38	0.89	4.54	9.55	0.95	5.14	10.35	1.06	5.34	10.94	1.04	5.48	11.16	1.19	5.61	11.22	1.16	5.83	11.68	1.31	6.12	12.14	1.33	6.38	12.49	1.43	6.51	12.87	1.49	6.76	13.19	1.56	6.92	13.32	1.66	7.01	13.20	1.65	7.01	13.33	1.66	7.16	13.56
Sweden	1.32	7.29	14.78	1.40	7.13	14.39	1.46	7.15	14.19	1.29	6.60	13.59	1.24	6.94	13.78	1.44	7.01	14.05	1.37	7.05	14.03	1.56	7.29	14.07	1.61	7.24	14.10	1.73	7.37	14.24	1.71	7.83	14.86	1.86	7.92	14.96	1.78	7.84	15.20	1.85	8.16	15.63	2.10	8.51	16.27	2.09	8.88	16.60	2.09	8.77	16.72	2.19	8.91	16.64	2.37	9.10	16.67	2.32	9.17	16.87	2.44	9.70	17.35
United Kingdom	1.26	6.40	12.80	1.36	6.56	12.92	1.36	6.61	13.03	1.38	6.74	13.09	1.40	6.81	13.43	1.46	7.08	13.66	1.52	7.06	13.84	1.61	7.34	14.13	1.77	7.65	14.57	1.74	7.78	14.67	1.77	7.88	14.96	1.81	8.20	15.30	1.85	8.18	15.56	1.93	8.59	16.03	2.02	8.76	16.38	2.14	8.90	16.37	2.21	9.17	16.77	2.30	9.30	16.89	2.30	9.55	17.30	2.35	9.78	17.68
Other Europe	0.58	3.09	6.12	0.66	3.21	6.49	0.67	3.16	6.33	0.69	3.34	6.66	0.73	3.37	6.69	0.68	3.33	6.70	0.73	3.32	6.53	0.78	3.71	7.15	0.86	3.88	7.73	0.90	4.12	8.22	1.00	4.53	8.83	1.04	4.85	9.30	1.02	4.80	9.38	1.11	4.93	9.43	1.10	4.85	9.39	1.16	4.93	9.53	1.16	4.92	9.47	1.17	4.94	9.49	1.17	4.89	9.30	1.18	4.88	9.24	1.14	4.74	9.04
Albania	0.00	1.52	6.06	0.00	2.27	6.82	0.00	6.52	6.52	0.00	2.38	4.76	0.00	2.78	2.78	0.00	0.00	3.23	0.00	2.33	6.98	0.00	2.13	8.51	2.17	6.52	13.04	0.00	0.00	3.85	0.00	1.61	6.45	0.00	2.74	5.48	2.13	4.26	8.51	0.00	1.80	3.60	0.48	1.32	3.81	0.53	1.75	3.95	0.00	1.67	2.29	0.00	0.00	0.77	0.66	2.07	4.37	0.61	4.81	8.21	0.59	3.81	6.13
Andorra	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Belarus	0.07	1.37	2.36	0.06	1.38	2.82	0.20	1.45	3.03	0.57	1.79	3.55	0.27	1.44	3.47	0.79	1.60	3.10	0.24	1.84	3.55	0.06	1.48	2.88	0.18	1.82	3.63	0.23	1.74	4.11	0.42	1.62	3.97	0.45	2.49	3.95	0.41	2.07	4.56	0.37	1.61	4.03	0.52	3.16	6.27	1.08	4.33	7.90	1.47	6.54	11.76	1.79	6.24	11.03	2.29	6.90	10.26	2.92	8.25	12.88	2.14	7.85	12.42
Bosnia and Herzegovina	0.00	2.17	3.24	0.00	1.59	4.76	0.00	0.00	1.72	0.00	0.00	0.00	0.00	2.11	4.21	0.00	2.30	5.75	0.72	2.16	4.12	0.00	1.99	2.99	0.40	1.21	2.43	0.32	1.90	3.48	0.82	1.93	4.37	0.47	2.13	5.45	0.19	1.95	4.04	0.18	1.90	3.67	0.44	1.33	3.87	0.00	1.45	3.16	0.36	1.94	3.79	0.54	2.23	4.75	0.66	3.44	6.39	1.01	3.80	7.07	1.93	4.91	7.69
Holy See (Vatican City)	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	ne	ne	ne	na	na	na	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Iceland	2.57	9.97	17.21	2.35	9.76	13.91	2.08	7.53	15.05	1.04	6.01	11.49	1.71	8.29	15.43	2.33	6.98	16.54	2.15	8.60	15.04	2.11	7.59	14.03	2.54	8.89	15.53	2.61	9.22	16.72	2.05	8.14	16.54	2.89	10.04	16.01	2.89	8.04	16.05	3.46	11.11	16.65	3.75	12.22	20.01	3.06	10.34	21.58	3.53	11.63	19.42	2.56	11.09	19.41	3.74	11.49	18.00	3.63	11.76	19.95	3.33	11.20	18.27
Kosovo	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.00	1.72	2.97	0.00	1.27	2.53	0.47	0.93	2.80	0.00	2.05	4.10	0.89	2.22	3.20	0.00	0.00	0.00	2.74	0.00	1.69	2.20	0.37	1.51	4.58	0.59	1.99	3.59
Liechtenstein	ne	ne	ne	0.00	6.67	16.67	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	13.07	2.27	4.55	13.64	1.56	9.38	12.50	4.84	15.40	22.58	1.82	14.55	18.18	0.00	8.54	19.51	3.03	9.09	15.15	3.37	15.73	20.22	0.00	4.82	12.52	1.20	9.64	14.46	2.50	6.25	14.15	0.94	5.66	12.74	3.37	10.11	15.19	1.01	10.10	17.47
Moldova	0.00	1.49	1.49	0.00	1.70	0.00	1.30	1.72	0.45	0.45	3.62	0.00	0.77	2.37	0.00	2.71	5.59	0.00	3.09	4.02	0.00	2.11	6.34	0.00	5.62	8.79	1.14	3.42	7.55	1.71	4.78	7.08	0.73	4.36	7.81	1.32	5.10	9.93	1.22	5.09	9.45	2.67	6.33	10.45	0.58	3.35	6.20	0.80	3.21	5.85	0.27	3.18	7.09	1.00	3.99	7.44	1.34	3.89	8.46	2.17	5.35	7.95
Monaco	0.00	15.58	28.21	0.00	2.86	8.57	4.35	6.52	13.04	0.00	2.50	7.50	ne	ne	ne	0.00	12.50	18.75	2.63	5.26	10.53	0.00	6.67	8.37	4.05	13.51	20.27	1.12	7.87	13.48	1.33	4.00	9.33	1.35	5.41	13.34	2.44	9.76	15.11	3.92	11.98	18.63	0.00	10.47	13.95	4.63	11.11	22.22	4.55	9.09	13.64	3.51	10.46	15.79	0.95	4.76	12.38	2.98	11.90	21.97	2.22	9.96	19.04
Montenegro[a]	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
North Macedonia	1.85	4.63	8.33	0.66	1.99	4.64	0.00	3.48	5.57	0.00	0.00	2.09	0.00	1.94	3.23	0.56	4.33	7.91	0.00	2.21	3.87	0.51	3.03	4.55	0.47	2.83	5.66	0.78	1.95	5.86	0.69	3.81	6.92	0.53	2.64	4.92	0.00	2.37	7.06	0.63	2.97	5.29	0.97	2.40	5.48	0.47	3.01	5.55	1.60	2.65	5.48	0.59	2.49	5.15	1.54	4.36	8.06	1.36	4.09	6.74	1.66	4.72	7.88
Norway	1.22	6.24	11.61	1.16	5.68	11.44	1.31	5.73	11.39	1.24	6.10	12.61	1.39	6.03	11.48	1.39	6.05	12.48	1.40	6.15	12.70	1.42	6.78	13.11	1.60	7.48	14.30	1.62	7.07	14.06	1.84	7.71	14.29	1.73	7.37	13.98	1.61	7.92	15.53	1.70	7.92	14.74	1.87	7.67	15.03	2.06	8.33	15.95	2.10	8.19	15.62	2.21	8.55	15.93	2.26	8.46	15.19	2.41	8.89	15.99	2.47	9.00	16.37
Russia	0.23	1.36	2.84	0.30	1.42	3.12	0.24	1.36	2.94	0.26	1.43	3.00	0.27	1.39	3.11	0.26	1.41	3.10	0.28	1.27	2.84	0.28	1.51	3.18	0.32	1.53	3.38	0.35	1.75	3.73	0.44	2.02	4.15	0.40	2.17	4.44	0.35	1.91	4.13	0.36	1.83	3.97	0.45	2.10	4.29	0.49	2.01	4.24	0.50	2.27	4.59	0.58	2.36	4.89	0.56	2.34	4.71	0.51	2.34	4.93	0.56	2.33	4.69
San Marino	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Serbia[a]	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Serbia and Montenegro[b]	0.31	1.38	3.39	0.11	1.16	3.64	0.23	1.31	3.25	0.30	1.73	4.24	0.37	1.34	3.18	0.16	1.14	3.33	0.46	1.91	4.10	0.28	1.96	4.76	0.25	1.66	4.19	0.36	1.86	4.18	0.51	2.71	5.22	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Switzerland	1.54	7.82	14.74	1.83	8.28	15.52	1.95	8.25	15.38	1.96	8.36	15.59	1.98	8.94	15.46	1.91	8.94	16.40	2.13	8.67	15.37	2.13	9.16	16.25	2.23	9.00	17.01	2.35	9.49	17.52	2.34	9.47	17.31	2.45	10.00	18.19	2.51	10.19	18.54	2.64	10.57	19.00	2.64	10.55	19.02	2.77	10.78	19.40	2.86	10.83	19.31	2.89	10.97	19.28	2.87	10.67	19.00	3.11	11.29	19.45	2.96	11.05	19.58
Turkey	0.36	2.18	5.42	0.32	2.40	5.62	0.31	2.11	5.56	0.31	2.43	5.68	0.38	2.87	6.26	0.40	2.55	6.13	0.42	2.81	6.03	0.51	2.79	6.26	0.66	3.34	7.05	0.52	3.36	7.31	0.51	3.42	7.64	0.69	4.12	8.25	0.65	3.96	8.09	0.85	3.90	7.99	0.64	3.39	7.22	0.74	3.72	7.48	0.72	3.57	7.33	0.78	3.30	6.76	0.84	3.64	7.03	0.82	3.63	7.10	0.90	3.89	7.47
Ukraine	0.11	0.67	1.79	0.11	0.69	1.98	0.07	0.70	1.64	0.15	1.15	2.35	0.12	0.93	2.13	0.06	0.79	1.94	0.18	0.93	2.52	0.19	1.18	2.55	0.22	1.19	2.67	0.23	1.32	3.08	0.26	1.33	3.35	0.28	1.49	3.49	0.33	1.42	3.21	0.25	1.52	3.38	0.44	1.83	3.78	0.66	2.07	4.11	0.53	2.42	4.93	0.67	2.21	4.70	0.73	2.63	4.82	0.69	2.60	5.09	0.75	2.95	6.52
Middle East	3.89	4.55	9.99	3.51	4.89	10.04	3.91	4.98	10.36	0.91	4.94	10.07	0.84	4.59	9.36	0.92	5.06	10.23	0.83	4.63	9.54	0.93	4.70	9.36	0.90	4.67	9.66	0.89	4.72	9.66	0.96	4.72	9.68	0.91	4.75	9.89	0.95	4.83	9.85	1.01	4.91	10.05	1.05	5.15	10.22	0.99	5.13	10.47	1.00	5.07	10.18	1.14	5.53	10.88	1.31	5.92	11.40	1.47	6.45	12.05	1.63	6.59	12.27
Armenia	0.00	1.49	3.23	0.56	4.19	6.70	0.83	1.93	4.96	0.00	4.28	7.22	0.62	4.11	6.23	0.43	4.12	8.53	0.42	2.68	6.28	0.77	3.45	7.47	0.92	3.51	6.41	2.11	4.54	8.27	2.96	6.62	11.56	1.60	6.25	12.47	1.52	5.24	9.50	0.90	4.33	8.89	1.93	2.97	11.82	20.22	4.90	11.25	17.11	4.45	12.68	17.96	4.86	13.03	19.60	3.89	12.94	20.71
Azerbaijan	0.00	0.00	0.38	0.00	1.22	2.04	0.00	0.49	1.46	0.00	1.02	2.55	0.00	1.03	2.05	0.00	0.51	1.03	0.67	1.33	2.81	0.00	0.57	1.70	0.00	0.23	1.00	0.23	1.14	2.05	0.27	1.34	3.25	0.20	1.32	2.19	0.68	1.19	2.21	0.39	1.15	2.67	0.52	2.09	2.62	1.15	4.32	6.25	1.25	5.25	10.04	2.28	7.26	10.83	3.18	8.41	12.99	4.16	10.69	15.19	2.73	7.87	12.52
Bahrain	0.00	0.00	3.39	0.00	3.61	4.82	0.00	0.00	1.82	1.89	2.83	5.66	0.00	0.00	1.06	0.00	2.14	2.97	0.00	0.00	3.57	0.61	1.83	2.44	0.00	1.10	3.85	0.00	1.42	5.26	0.00	2.06	4.98	0.00	0.84	5.01	0.42	0.84	4.25	0.36	3.25	6.90	0.67	2.01	3.01	0.35	3.14	7.32	0.00	2.59	5.56	0.73	4.82	7.22	1.92	5.22	8.85	2.77	7.07	11.23	4.18	8.15	10.99
Gaza Strip	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.03	ne	ne	ne	ne	ne	ne	ne	0.00	3.23	3.23	0.00	2.04	2.04	0.00	0.00	1.54	1.47	2.94	5.88	0.00	2.20	5.33	1.87	1.87	4.67	0.00	1.04	5.21	0.00	3.13	5.21	0.00	0.00	4.13	0.00	3.28	6.56	0.76	3.82	6.87	0.00	2.63	9.45	0.00	0.00	6.15	11.50	0.00	3.10	8.95	0.00	4.97	8.11
Georgia	1.05	1.70	5.59	0.68	2.87	4.69	0.00	0.81	3.24	0.00	1.76	4.69	0.28	2.25	4.18	0.29	2.65	5.00	0.55	3.55	4.92	0.00	2.65	5.24	0.79	2.37	5.86	0.00	2.43	5.82	0.49	1.62	4.37	0.38	3.02	5.66	0.69	2.43	4.80	0.64	1.92	4.54	1.69	6.25	11.93	1.77	7.89	13.68	3.68	12.01	21.30	3.40	10.43	17.08	5.08	13.80	19.28	5.20	13.66	20.33	3.93	11.98	19.20
Iran	0.24	2.47	6.82	0.09	3.46	7.18	0.74	3.42	7.58	0.36	3.00	7.56	0.27	2.42	5.89	0.37	2.52	7.01	0.29	2.59	6.18	0.62	3.02	6.51	0.45	2.81	7.02	0.35	3.18	7.38	0.52	3.14	7.39	0.67	3.53	8.05	0.49	3.72	8.06	0.68	4.10	8.99	0.66	4.38	9.01	0.57	3.97	8.81	0.67	4.19	8.86	0.83	4.77	9.94	0.94	5.01	10.17	0.98	5.25	10.41	1.31	5.80	11.15
Iraq	0.00	1.05	5.26	0.00	0.99	0.99	0.00	1.16	3.49	0.00	1.35	4.05	0.98	0.98	6.86	0.00	1.94	5.83	0.00	0.85	3.38	0.71	2.14	5.62	0.00	2.07	5.26	0.00	1.65	2.20	0.00	2.22	4.75	0.65	2.27	4.43	0.00	1.72	3.89	0.20	1.21	3.34	0.43	1.44	2.90	0.36	1.83	4.40	0.53	2.23	4.81	0.84	3.94	7.06	1.25	3.83	7.82	0.71	4.32	9.22	1.18	5.64	10.60
Israel	1.20	6.06	12.62	1.28	6.34	12.62	1.27	6.62	13.30	1.30	6.58	12.83	1.18	6.06	11.93	1.31	6.84	13.30	1.14	6.11	12.36	1.34	6.51	12.67	1.39	6.62	13.03	1.52	7.16	13.57	1.59	7.25	13.70	1.41	7.09	13.86	1.76	7.43	14.29	1.74	7.29	14.05	1.98	7.99	14.90	1.96	8.12	15.61	1.77	7.66	14.59	1.79	7.78	14.59	2.02	7.68	14.31	1.96	8.28	14.94	2.10	8.16	14.87

TABLE SSA-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996			1997			1998			1999			2000			2001			2002			2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Jordan	0.46	2.07	5.69	0.39	2.67	6.61	0.00	3.08	6.92	0.00	2.04	6.47	0.64	3.06	6.56	0.30	2.43	5.93	0.14	2.50	5.30	0.36	3.43	6.97	0.75	4.03	7.74	0.15	2.65	6.78	0.58	3.84	7.50	0.56	3.19	6.76	0.91	3.82	8.01	0.58	3.07	6.97	0.46	3.52	8.02	0.73	3.51	8.39	0.41	3.82	7.25	0.54	3.24	6.97	0.76	4.74	8.68	1.29	5.36	10.10	1.13	4.71	8.43
Kuwait	0.17	2.35	7.52	0.00	3.69	7.79	0.15	2.95	6.17	0.71	2.27	5.61	0.16	2.88	6.08	0.16	2.07	5.37	0.29	3.19	6.22	0.28	2.89	5.90	0.44	3.39	7.01	0.36	3.14	6.72	0.12	3.30	5.78	0.95	3.28	6.38	0.77	2.80	5.68	0.82	3.22	7.21	0.95	3.07	6.31	0.63	4.48	8.12	1.22	3.41	6.37	0.56	2.41	7.36	1.13	5.56	10.49	0.91	4.02	7.86	0.75	3.54	7.61
Lebanon	1.63	3.67	5.31	1.58	4.42	7.01	0.30	2.42	5.69	0.25	2.29	6.55	0.82	2.87	6.37	0.38	3.97	7.46	0.67	2.60	6.64	0.48	3.25	5.79	0.44	2.99	6.73	0.63	2.90	6.49	0.75	3.69	8.02	0.81	3.88	7.80	0.83	4.20	8.41	1.38	5.18	9.09	1.59	5.51	9.88	0.94	4.88	9.64	0.86	3.83	9.05	0.69	4.15	8.77	0.94	4.77	9.74	1.62	5.70	10.17	1.83	6.11	10.92
Oman	0.00	2.97	5.86	0.00	3.55	7.69	0.00	1.94	3.40	0.00	0.92	3.67	0.00	2.05	3.42	0.64	1.93	4.98	0.00	4.19	9.00	0.73	2.48	5.12	0.92	2.99	6.48	1.07	4.08	8.10	0.39	2.72	6.61	0.00	3.03	7.22	1.60	3.37	7.06	0.54	2.99	6.78	0.97	3.84	8.63	0.42	4.55	7.07	0.30	3.33	8.10	0.83	3.74	7.52	0.85	4.67	7.94	1.35	5.32	10.06	1.48	4.99	9.42
Qatar	0.00	3.00	6.00	0.00	0.00	0.00	0.00	0.00	2.24	0.00	1.61	6.14	0.00	0.00	1.69	0.00	1.94	4.85	0.00	2.48	3.31	0.65	1.96	4.58	1.06	4.23	6.88	0.00	2.45	5.31	0.36	3.99	7.25	1.01	3.94	7.56	0.40	6.17	9.82	1.40	5.44	11.07	2.01	6.17	11.52	0.91	6.16	10.92	1.08	5.51	10.59	1.54	8.21	15.09	2.22	7.94	14.87	2.75	11.28	18.84	2.91	11.03	18.96
Saudi Arabia	0.21	1.52	5.27	0.20	1.87	4.89	0.40	2.35	5.30	0.44	2.08	4.43	0.37	2.11	5.28	0.32	1.96	4.73	0.63	2.78	5.97	0.54	2.49	5.12	0.27	2.41	5.81	0.31	2.33	5.56	0.37	1.81	5.55	0.40	3.22	7.05	0.52	3.11	7.41	0.85	4.23	8.38	1.13	5.08	10.36	1.45	6.51	12.24	1.58	6.30	11.81	1.63	6.77	12.47	1.99	8.03	14.18	2.71	9.29	15.80	2.96	9.59	16.21
Syria	0.87	4.35	8.70	0.00	0.78	3.91	0.00	3.91	9.38	0.76	4.55	6.82	0.67	2.00	5.48	1.55	3.88	6.20	0.74	4.63	7.44	0.00	1.76	6.40	0.97	6.31	10.19	0.00	2.15	7.25	0.87	3.46	9.09	1.19	3.16	8.70	0.92	4.59	8.18	0.70	5.61	9.55	1.23	4.67	8.40	0.00	2.62	8.07	0.39	3.88	6.80	1.13	3.82	8.27	0.25	2.48	5.60	1.72	3.20	6.16	0.28	2.53	7.03
United Arab Emirates	1.04	2.34	4.94	0.52	2.07	3.38	0.00	1.17	4.91	0.00	1.68	4.58	0.00	1.72	5.25	0.39	2.91	4.45	0.54	2.52	4.71	0.37	2.54	5.05	0.35	3.15	6.39	0.28	1.48	4.98	0.90	2.82	6.69	0.69	3.74	7.89	0.81	3.99	9.50	1.41	4.75	9.38	0.89	3.84	8.57	1.44	5.65	10.66	0.74	4.59	9.21	1.38	5.85	10.78	1.43	6.34	12.18	1.65	6.53	12.60	1.29	5.83	11.68
West Bank	0.00	4.76	11.90	0.00	2.04	4.08	0.00	1.85	5.56	0.00	5.08	9.75	0.00	2.99	7.46	1.69	3.39	5.08	1.39	2.78	9.72	0.00	1.18	7.01	1.20	3.61	13.62	0.00	6.12	6.42	1.67	7.50	12.12	0.00	4.70	6.92	0.69	5.56	7.72	0.58	2.89	9.83	0.00	3.32	6.64	0.00	3.02	6.35	0.00	4.27	7.69	0.00	2.28	5.32	1.60	4.61	8.50	2.03	4.91	10.26	1.17	8.17	13.56
Yemen	0.00	0.00	9.09	0.00	2.27	4.55	0.00	2.08	10.42	0.00	0.00	2.22	0.00	2.38	10.31	0.00	4.76	7.94	2.63	5.26	7.89	0.00	4.00	4.00	0.00	1.54	4.62	0.00	2.60	7.79	1.01	1.01	8.08	1.08	8.60	15.05	0.00	0.00	7.46	0.60	3.57	7.14	0.00	2.61	6.12	0.00	4.62	11.57	0.00	2.65	7.89	1.69	4.73	9.80	0.31	3.73	7.71	1.75	4.91	7.23	0.65	4.28	9.47
Africa	0.42	2.80	6.40	0.49	2.84	6.37	0.50	2.92	6.35	0.40	2.69	5.98	0.37	2.74	6.51	0.48	2.84	6.30	0.48	2.66	6.18	0.35	2.87	6.58	0.62	3.29	7.25	0.60	3.56	7.78	0.62	3.77	7.95	0.66	3.81	7.91	0.69	3.97	8.16	0.66	3.77	7.91	0.77	3.95	8.18	0.73	3.93	8.17	0.73	3.80	8.04	0.84	3.89	8.07	0.83	4.22	8.62	0.94	4.41	8.63	0.94	4.42	8.77
Algeria	0.26	2.87	6.14	0.25	3.00	4.75	1.31	3.28	5.87	0.00	0.80	3.67	0.36	1.75	3.83	0.31	2.34	5.85	0.90	2.80	5.36	0.11	1.39	5.09	0.51	2.42	6.05	0.40	3.26	7.76	0.52	3.02	6.68	0.51	2.98	6.55	0.68	3.67	7.46	0.65	3.60	7.31	0.54	3.37	7.99	0.37	2.75	6.14	0.52	2.81	5.73	0.53	2.49	5.82	0.61	3.56	6.94	0.78	3.09	6.51	0.80	3.45	7.07
Angola	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.23	3.23	3.23	0.00	3.13	6.25	3.33	3.33	6.67	0.00	0.00	6.25	2.70	10.81	13.51	0.00	2.44	6.96	0.00	4.00	4.00	0.00	1.52	7.58	1.56	3.13	7.11	0.00	2.20	4.40	0.00	1.14	3.41	3.67	8.89	13.18
Benin	0.00	0.00	4.23	0.00	2.47	6.17	0.00	1.23	2.56	1.28	1.28	7.38	0.00	3.85	7.69	1.30	1.30	3.90	2.30	3.45	5.75	0.00	4.96	9.78	0.82	2.77	8.20	0.00	2.50	6.99	0.00	3.16	5.06	1.08	3.76	7.91	0.00	4.69	7.96	0.41	1.66	7.05	0.00	2.63	9.15	0.77	4.60	8.38	0.96	4.15	8.63	0.53	2.65	6.09	1.03	5.14	8.01	1.73	4.88	10.82	3.11	6.29	10.55
Botswana	0.00	3.09	13.40	1.02	2.04	7.14	0.00	0.00	2.70	1.67	3.33	5.83	0.00	0.70	2.62	0.00	0.31	1.56	0.00	0.64	3.85	0.00	2.92	8.19	0.00	1.05	6.22	2.08	8.85	12.50	0.35	5.63	10.95	0.84	3.84	6.75	0.00	0.39	5.01	0.81	2.03	5.02	0.80	5.20	8.40	1.68	4.70	8.94	1.06	3.90	6.80	0.31	2.81	6.80	1.81	2.85	5.53	1.21	3.62	7.36	0.54	3.74	8.02
Burkina Faso	1.59	9.52	11.11	1.09	3.26	6.97	0.00	3.01	6.77	0.00	3.67	10.74	0.00	2.35	8.73	0.92	5.50	11.01	0.93	7.41	13.89	0.59	5.07	9.73	0.00	3.16	6.96	1.19	4.76	8.68	0.84	5.06	11.17	0.43	4.36	12.61	0.75	3.85	10.23	1.05	5.92	13.45	0.34	5.17	9.77	0.85	5.10	10.82	1.20	5.25	10.35	0.00	2.99	7.50	1.39	5.54	10.01	0.95	5.85	10.88	0.79	5.75	12.00
Burundi	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.03	18.18	0.00	0.00	0.00	2.86	2.44	12.20	14.63	0.00	6.12	10.20	2.04	8.16	9.36
Cabo Verde	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.28	11.76	0.00	5.88	12.54	0.00	0.00	5.74
Cameroon	0.00	2.76	6.18	0.93	3.81	7.62	0.00	4.67	7.48	0.49	1.46	4.39	0.00	2.80	7.23	0.00	1.90	7.52	0.34	1.72	6.08	0.00	1.72	7.61	0.26	2.59	8.83	0.22	2.64	6.15	0.37	2.56	6.64	0.18	2.83	7.22	0.34	2.83	7.39	0.61	2.90	7.10	1.46	4.39	9.12	1.17	3.51	7.51	0.50	3.39	7.86	0.74	3.89	8.30	0.85	3.33	7.83	1.27	4.15	8.97	2.13	5.37	9.33
Central African Republic	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	2.94	2.94	5.41	10.81	0.00	5.88	23.53	4.35	4.35	8.62	0.00	7.50	14.53	1.54	4.62	14.07
Chad	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	8.14	11.11	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.33	14.77	0.00	0.00	0.00	0.00	2.28	6.67
Comoros	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Congo, Democratic Republic of the	0.00	9.38	18.75	0.00	2.50	8.61	5.56	11.11	13.89	0.00	15.56	20.00	0.00	0.00	9.38	ne	ne	ne	ne	2.63	7.89	10.53	0.00	8.33	16.33	0.00	3.57	3.57	2.99	10.45	16.42	1.30	4.42	10.39	1.12	5.62	13.48	2.63	8.77	14.04	2.90	7.97	13.11	0.00	4.67	13.33	2.51	6.53	13.60	0.88	3.54	7.96	1.14	3.41	9.85	2.95	6.31	10.41	3.57	6.14	13.62
Congo, Republic of the	0.68	5.11	5.13	ne	ne	0.00	0.00	0.00	0.00	0.00	3.33	10.00	ne	ne	ne	ne	ne	ne	0.00	2.44	7.32	0.00	0.00	7.66	0.00	4.41	11.76	4.35	9.88	11.11	0.00	2.02	8.08	0.00	2.06	5.15	0.00	1.11	2.02	0.97	6.80	14.56	3.54	5.31	10.86	0.83	4.96	9.09	1.37	5.48	9.10	1.39	5.56	7.84	0.99	4.95	8.42	1.02	3.65	7.32	0.00	5.45	9.05
Côte d'Ivoire	0.00	2.20	5.74	0.00	2.20	5.14	0.00	2.62	7.33	0.56	6.15	9.14	0.00	3.27	9.80	0.81	5.65	8.06	2.13	5.67	8.47	0.56	3.95	9.71	0.00	2.24	7.97	0.00	5.68	7.95	0.00	2.63	4.21	0.47	6.08	9.95	0.78	3.89	6.61	1.13	4.91	8.55	0.78	3.89	8.50	0.34	3.02	5.70	0.61	3.03	7.88	0.34	4.41	7.83	0.90	4.11	7.23	2.45	5.51	11.25	3.79	7.10	9.20
Djibouti	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Egypt	0.38	2.22	4.93	0.26	2.27	5.05	0.51	2.37	5.45	0.34	1.95	4.82	0.25	2.23	5.62	0.20	2.21	5.02	0.41	2.76	6.22	0.24	2.33	5.82	0.56	2.71	6.30	0.59	3.38	7.17	0.52	3.56	7.39	0.66	3.42	7.34	0.63	3.64	7.81	0.50	3.55	7.64	0.50	3.84	8.56	0.63	4.22	9.00	0.69	3.57	7.72	0.80	3.98	8.36	0.57	4.26	8.77	1.04	4.69	9.34	1.01	4.76	9.34
Equatorial Guinea	ne	ne	ne	ne	ne	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Eritrea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.63	5.26	7.89	3.23	3.23	3.23	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Eswatini	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.78	8.33	14.15	0.00	7.55	16.12	0.00	5.45	10.91	0.00	4.17	12.50	0.00	3.77	9.43	0.00	2.22	7.50	0.00	3.23	9.68	1.41	1.41	8.45
Ethiopia	0.40	4.33	7.78	0.81	3.18	6.14	0.00	4.12	8.45	0.37	2.95	7.50	0.00	3.40	8.47	0.00	3.61	7.29	0.00	2.44	6.21	0.58	3.75	7.86	0.63	2.73	8.08	0.49	4.93	10.59	0.61	5.09	10.42	0.87	5.76	11.91	0.17	2.81	8.80	0.64	5.06	11.52	0.27	3.64	8.77	0.45	3.60	9.06	0.47	4.44	10.17	1.08	4.03	9.18	0.79	4.42	10.36	1.17	4.83	9.90	1.19	4.94	9.83
Gabon	0.00	6.67	8.89	1.82	9.09	12.73	0.00	4.73	7.25	1.54	7.69	9.23	0.00	8.51	21.28	0.00	1.89	7.55	0.00	4.92	6.56	0.00	3.70	13.80	1.22	4.88	7.32	0.94	2.83	7.55	0.90	4.50	12.61	0.00	4.43	12.79	0.00	2.97	11.11	2.61	7.83	11.30	1.88	3.70	7.41	3.29	7.24	12.92	3.20	8.80	17.60	0.63	5.75	14.18	2.19	6.56	12.57	2.76	9.02	17.32	2.92	5.85	11.25
Gambia, The	0.00	8.57	14.29	3.08	10.77	29.23	4.48	13.43	29.85	2.74	10.96	26.03	1.67	11.67	32.22	0.00	7.46	20.90	0.00	3.39	16.95	1.28	12.82	25.64	0.00	9.31	16.25	2.41	10.84	18.07	2.80	6.68	18.69	3.13	9.38	16.26	0.91	8.36	24.55	0.93	6.45	14.31	0.89	9.82	16.07	1.09	10.87	18.56	3.28	12.66	23.23	4.93	11.97	23.24	1.28	7.69	19.23	4.88	12.43	26.14	4.03	15.24	21.43
Ghana	0.57	2.27	5.71	0.97	4.83	7.25	0.97	4.85	6.80	0.00	3.29	10.80	0.48	1.44	6.38	0.00	3.32	10.34	0.95	3.81	5.24	0.00	2.06	8.99	0.68	6.12	11.94	0.30	6.28	10.61	0.28	4.27	12.22	0.23	3.46	10.24	0.85	4.47	10.06	0.53	5.17	8.78	1.94	6.62	11.48	1.22	4.07	7.92	1.64	5.80	13.20	0.78	4.37	9.63	0.93	4.17	10.71	0.91	5.25	11.06	1.62	5.45	9.80

TABLE SSA-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996			1997			1998			1999			2000			2001			2002			2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Guinea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	2.70	5.41	0.00	10.00	20.00	0.00	8.11	10.81	2.94	11.76	11.76	2.94	5.88	8.07	0.00	0.00	0.00	0.00	2.56	10.26	0.00	5.26	13.16	6.35	14.29	20.63	4.08	11.06	20.17	2.84	11.67	16.91
Guinea-Bissau	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.86	5.71	17.14	0.00	2.70	8.11	1.75	3.84	12.53	0.00	5.71	14.29	0.00	0.00	14.00
Kenya	0.32	5.88	11.36	2.20	6.30	12.21	0.85	5.37	11.93	1.61	7.31	11.68	1.46	6.59	14.04	1.09	4.81	10.81	1.87	4.88	12.21	1.13	5.22	11.14	0.98	6.30	12.27	0.95	5.39	12.04	1.00	7.84	13.79	1.11	7.61	15.26	1.34	7.83	15.27	1.66	7.60	13.49	2.69	7.77	12.86	1.68	8.69	14.47	1.62	8.18	15.03	1.99	6.36	13.12	1.95	8.75	15.86	2.42	8.59	15.87	2.01	8.13	14.87
Lesotho	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	6.25	0.00	1.71	7.50	0.00	0.00	2.86	0.00	3.23	6.45	2.56	10.26	13.70	0.00	0.00	1.49
Liberia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	2.13	9.07	25.27	1.52	10.61	15.83
Libya	0.00	1.69	3.39	0.00	5.88	10.29	0.00	1.20	6.18	1.61	3.23	4.84	0.00	1.25	1.25	0.00	1.52	3.03	0.00	1.72	3.45	1.22	1.22	4.88	0.00	1.18	5.50	0.00	0.81	4.88	1.45	2.90	5.12	0.00	0.60	2.98	0.93	3.24	6.02	0.00	1.50	2.70	0.67	1.77	3.15	0.00	1.76	3.96	1.34	3.85	5.36	0.78	2.47	5.99	0.51	2.80	6.13	1.47	3.74	7.76	1.74	4.80	8.34
Madagascar	0.00	2.63	3.95	0.00	4.62	10.77	0.00	5.56	8.33	0.00	2.02	4.04	0.00	1.06	7.45	0.00	1.04	3.13	1.23	2.00	4.94	0.78	2.34	4.69	0.00	1.92	2.88	0.00	4.07	6.50	2.17	4.35	6.92	0.50	4.03	9.05	1.58	4.74	8.83	1.01	4.99	7.54	1.02	7.11	11.54	1.64	5.85	12.80	1.26	5.44	9.62	0.37	2.97	6.08	1.12	5.20	6.85	2.01	4.51	10.44	0.99	4.35	10.85
Malawi	3.92	10.70	17.65	0.00	2.08	7.29	3.61	10.44	14.46	0.93	11.11	21.30	0.88	6.19	10.62	0.84	2.52	7.23	0.00	4.20	8.40	1.49	7.46	13.74	0.00	4.90	13.73	0.88	4.32	9.88	1.61	7.53	12.37	1.61	8.84	14.06	0.83	6.61	12.81	1.64	7.08	15.27	1.02	9.52	18.47	1.78	5.62	13.48	1.34	7.98	15.84	1.36	7.38	14.52	2.75	7.88	14.17	2.39	10.09	18.30	2.90	11.02	18.03
Mali	0.00	0.00	1.89	7.41	11.11	12.96	1.28	3.85	5.94	0.00	0.00	5.77	0.00	2.70	16.22	1.69	5.08	10.17	1.52	3.03	4.55	0.00	3.75	6.25	0.00	3.49	8.44	0.00	2.49	8.70	0.00	2.26	6.02	0.70	6.29	8.39	0.70	2.80	9.09	2.98	7.74	15.48	1.79	6.55	11.57	1.00	4.50	10.07	1.75	6.50	14.75	1.51	6.53	15.50	1.01	10.05	13.57	2.82	8.47	14.71	2.02	7.01	16.80
Mauritania	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.23	8.60	0.00	5.88	8.82	0.00	0.00	7.89	0.00	2.56	5.13	0.00	0.00	0.00	0.00	1.89	2.16
Mauritius	ne	ne	ne	ne	ne	ne	0.00	0.00	0.83	0.00	11.00	11.11	0.00	1.43	2.86	0.00	2.94	4.41	0.00	2.47	4.94	0.00	4.62	7.28	0.00	3.70	3.70	1.04	5.21	9.38	2.33	3.49	5.81	0.00	2.60	5.01	0.00	1.11	6.54	0.00	2.17	4.34	0.00	3.91	5.47	1.96	6.86	12.75	0.00	0.59	2.55	2.06	5.67	8.10	1.10	3.87	7.73	2.65	4.76	7.41	1.67	5.23	9.70
Morocco	0.48	1.93	5.29	0.33	1.49	4.30	0.37	1.78	4.88	0.42	1.93	4.14	0.00	1.60	4.46	0.23	1.50	4.48	0.30	2.00	5.51	0.23	2.14	4.28	0.21	2.69	7.12	0.30	2.94	6.42	0.42	3.50	7.69	0.52	3.04	5.81	0.39	3.07	5.99	0.35	2.58	4.98	0.65	3.30	6.41	0.41	3.37	6.91	0.83	4.09	7.92	1.04	3.66	6.88	0.88	3.52	6.29	1.20	3.99	6.95	0.98	4.10	7.75
Mozambique	ne	ne	ne	0.00	5.71	8.57	0.00	5.35	12.82	0.00	4.65	6.98	2.63	7.89	13.16	0.00	0.00	1.85	0.00	2.50	10.00	1.69	3.39	5.79	2.86	7.14	17.14	0.00	5.06	8.86	1.00	3.00	9.33	1.87	9.94	14.02	0.79	6.35	11.90	2.04	8.84	18.37	2.16	6.75	20.04	2.48	7.65	16.00	5.15	10.82	14.43	0.98	6.47	10.69	1.69	8.90	15.24	0.97	5.18	11.74	3.76	8.99	20.18
Namibia	0.00	9.52	16.67	0.00	4.17	4.17	1.33	4.00	8.00	2.13	4.26	6.38	0.00	5.88	5.88	0.00	1.56	7.81	0.00	0.00	5.36	0.00	2.78	4.17	6.15	9.23	11.82	1.75	7.02	13.16	5.71	11.43	13.33	0.97	6.14	15.53	1.16	10.47	12.47	3.96	11.88	18.81	0.00	7.78	11.11	2.96	7.41	11.11	0.00	2.94	8.54	0.97	3.88	8.72	1.29	6.01	9.01	1.31	5.55	10.24	2.06	7.43	11.53
Niger	0.00	4.35	10.14	0.00	7.89	18.42	1.49	5.97	14.13	0.00	1.85	8.80	0.00	4.26	12.77	0.00	0.00	0.00	0.00	2.56	5.13	0.00	3.85	11.54	0.00	2.17	4.35	0.00	3.77	9.43	1.56	6.25	10.94	1.69	6.78	8.47	0.00	7.23	16.87	1.82	6.36	10.21	0.77	3.08	7.69	0.00	3.88	14.06	1.01	8.08	11.75	3.23	7.07	15.21	0.79	6.30	8.66	2.96	7.41	15.57	1.91	4.08	9.24
Nigeria	0.00	0.80	2.41	0.27	1.44	2.97	0.28	1.39	2.78	0.14	0.88	2.63	0.16	1.30	2.99	0.25	1.20	2.75	0.00	0.93	2.49	0.20	1.57	3.52	0.17	1.66	3.32	0.20	1.65	3.58	0.32	1.57	3.41	0.37	1.55	3.39	0.49	2.07	4.27	0.25	1.39	3.47	0.41	2.06	3.58	0.32	1.68	3.39	0.20	1.54	3.48	0.35	1.74	3.41	0.51	2.26	4.31	0.74	2.96	5.61	1.10	3.79	7.07
Rwanda	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	6.82	15.91	0.00	1.82	16.36	0.00	4.35	11.91	1.45	8.33	16.01	1.74	4.35	7.83	0.74	5.93	12.86	0.67	7.33	10.00	1.42	9.07	15.17	1.26	5.46	10.62	2.09	7.06	13.14	3.05	7.78	12.19
São Tomé and Príncipe	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Senegal	1.72	4.74	7.33	0.92	4.93	9.17	0.00	3.70	5.68	0.75	1.49	3.88	0.00	0.93	5.52	1.42	4.74	8.53	0.00	3.00	4.29	0.30	2.39	6.87	0.35	1.74	7.13	0.29	3.53	7.34	0.34	4.11	5.82	0.00	2.84	4.41	0.27	3.76	6.99	0.80	4.44	8.34	0.27	3.72	8.74	1.10	3.26	7.64	0.91	3.77	8.27	0.53	3.03	7.28	1.30	4.60	7.67	1.15	5.71	9.74	1.44	5.03	9.21
Seychelles	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	13.51	27.03	0.00	6.45	12.90	ne	ne	ne	0.00	3.23	6.45	2.86	5.71	18.07	0.00	2.94	8.82	2.17	8.70	8.70	2.44	4.88	20.69	0.00	8.47	12.29	11.11	17.78	26.85
Sierra Leone	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	6.45	12.90	0.00	0.00	6.67	2.50	10.00	15.00	0.00	6.67	14.29	6.35	15.00	20.63	6.00	16.36	23.42	0.50	15.49	20.35
Somalia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
South Africa	0.48	2.97	7.23	0.45	2.92	7.08	0.53	3.44	7.44	0.47	3.21	6.94	0.63	3.49	7.98	0.81	3.88	7.69	0.59	3.16	7.18	0.49	3.98	8.17	1.14	4.71	9.19	1.02	4.73	10.09	0.97	4.93	10.00	0.97	5.02	10.28	1.21	5.57	10.77	1.16	5.47	10.39	1.35	5.72	10.73	1.36	5.65	10.77	1.28	5.57	10.98	1.61	6.17	11.41	1.64	6.32	12.01	1.67	6.53	11.53	1.80	6.56	11.94
South Sudan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Sudan	1.01	2.02	5.61	0.00	0.87	2.92	0.00	2.04	7.48	0.00	1.85	7.41	0.95	3.81	8.57	0.00	4.21	11.58	0.00	0.00	3.15	0.72	2.90	5.07	0.00	3.03	4.24	0.00	1.74	3.49	0.00	1.43	5.61	0.40	3.63	7.07	0.00	1.48	4.89	1.11	2.79	6.69	0.24	2.44	6.41	0.41	2.68	4.71	1.48	4.44	6.63	0.55	2.39	6.07	0.37	4.35	6.94	0.68	2.80	6.75	0.65	3.78	6.43
Tanzania	0.41	5.39	11.40	1.19	5.53	10.86	0.44	4.80	10.04	0.40	3.17	7.08	0.40	5.44	9.13	1.31	8.30	11.35	0.73	3.28	6.70	0.28	5.11	10.93	0.00	6.37	14.46	0.90	5.43	11.57	0.97	6.79	13.40	1.31	6.89	13.12	0.68	7.05	14.13	1.04	8.95	16.50	1.17	7.52	13.91	1.74	7.36	14.37	0.69	6.35	13.76	1.80	7.84	14.72	1.61	7.87	14.46	1.60	6.50	12.08	2.05	6.55	11.95
Togo	0.00	0.00	3.23	0.00	2.94	5.88	0.00	1.69	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	6.00	0.00	4.30	5.41	0.00	0.00	3.23	0.00	2.04	4.08	0.00	3.61	6.39	0.00	4.44	6.67	0.00	1.92	5.77	0.00	3.39	5.08	0.00	0.62	4.08	0.00	3.61	4.82	0.00	1.08	5.38	0.00	0.00	0.00	0.00	1.82	2.98	0.00	0.00	2.64	0.00	0.67	4.54	3.95	5.73	10.53
Tunisia	0.00	1.47	3.20	0.80	3.04	6.32	0.14	1.41	3.81	0.13	0.99	3.90	0.00	1.42	4.16	0.10	2.20	5.61	0.40	1.30	3.96	0.15	1.40	4.02	0.23	1.54	4.26	0.32	1.59	5.14	0.08	2.13	5.48	0.44	2.47	5.37	0.37	2.67	5.16	0.42	2.56	6.28	0.58	2.36	5.80	0.48	2.55	6.01	0.43	2.71	6.37	0.25	2.06	5.00	0.44	3.00	6.84	0.52	3.30	6.80	0.60	2.83	6.78
Uganda	0.79	3.17	6.35	0.69	4.17	9.72	0.00	4.71	10.33	1.04	7.25	10.88	0.96	6.73	9.13	1.85	6.94	13.00	0.51	5.05	9.52	0.36	5.84	12.77	1.34	5.35	10.72	0.51	5.57	9.30	1.19	7.94	15.03	1.09	6.27	11.79	1.27	8.54	15.24	0.91	6.98	14.29	1.22	7.79	14.20	1.14	7.30	14.69	1.44	7.10	13.80	1.00	6.23	13.18	1.05	5.93	12.83	1.40	5.44	11.88	1.72	7.42	12.20
Western Sahara	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na
Zambia	0.00	0.00	1.12	0.00	2.73	10.91	1.89	3.77	10.97	0.00	4.81	7.22	1.30	6.49	8.83	0.98	6.86	11.76	0.00	5.10	8.16	1.96	6.86	14.49	1.05	9.47	14.74	0.00	2.33	9.30	1.29	5.16	12.90	0.62	8.52	18.55	0.49	5.79	13.73	2.51	7.69	12.55	0.85	7.17	13.68	3.01	9.02	18.42	1.00	7.30	14.72	1.53	8.16	15.30	2.10	7.22	13.04	1.89	8.73	16.71	3.23	9.74	15.05
Zimbabwe	0.30	2.07	8.36	0.28	1.71	4.27	0.30	2.88	6.10	0.27	2.72	6.24	0.00	2.14	5.75	0.97	2.75	8.28	0.37	3.59	8.49	0.63	4.44	9.16	0.00	3.69	8.56	1.17	3.52	8.82	1.35	5.41	10.66	1.18	5.81	8.58	1.44	7.93	14.16	2.05	7.34	10.42	0.00	4.45	11.04	2.55	8.28	13.37	1.03	6.92	11.03	1.94	8.47	13.47	2.94	6.54	9.28	0.97	5.49	10.73	1.74	5.59	9.83
Asia	0.48	2.85	6.16	0.49	2.92	6.34	0.49	2.90	6.33	0.47	2.89	6.33	0.48	2.98	6.50	0.50	3.03	6.54	0.53	3.16	6.76	0.56	3.25	6.94	0.59	3.26	6.99	0.58	3.25	6.90	0.57	3.28	6.98	0.61	3.42	7.16	0.61	3.46	7.26	0.63	3.51	7.37	0.65	3.54	7.41	0.69	3.73	7.71	0.75	3.95	8.07	0.78	4.10	8.31	0.82	4.24	8.61	0.88	4.44	8.90	0.93	4.63	9.21
Afghanistan	ne	ne	ne	ne	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	2.94	5.88	0.00	1.32	5.26	1.61	6.45	8.06	5.49	8.79	14.66	6.85	6.85	8.22	4.63	9.09	11.43

TABLE S5A-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996			1997			1998			1999			2000			2001			2002		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Bangladesh	0.78	3.56	6.64	0.19	2.22	4.76	0.37	2.71	5.59	0.18	1.23	5.68	0.50	2.51	5.86	0.34	2.54	5.14	0.50	5.07	7.01
Bhutan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	2.00	10.00	12.00	0.00	0.00	6.25	0.00	1.69	3.39	0.00	0.00	5.56	1.92	5.77	7.69	2.04	8.16	10.20	5.56	5.56	11.11
Burma	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	3.33	6.67	6.67	ne	ne	ne	ne	ne	ne
Cambodia	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	2.27	5.31
China	0.33	1.90	4.17	0.43	2.06	4.54	0.39	2.08	4.43	0.40	2.31	4.99	0.37	2.32	5.00	0.36	2.22	4.74	0.44	2.67	5.52
India	0.36	2.26	4.97	0.33	2.36	5.05	0.37	2.41	5.27	0.35	2.14	5.01	0.41	2.73	5.82	0.51	2.81	6.22	0.49	2.78	6.13
Indonesia	0.70	4.15	8.33	1.01	3.19	6.66	0.84	4.43	6.75	0.48	3.03	5.65	0.88	4.66	8.47	1.27	3.56	7.25	0.58	2.86	7.83
Japan	0.58	3.19	6.79	0.56	3.26	6.99	0.60	3.27	7.06	0.53	3.18	6.83	0.53	3.12	6.80	0.60	3.33	7.06	0.57	3.29	7.02
Kazakhstan	0.74	1.12	1.49	0.52	0.52	1.44	0.00	0.40	2.41	0.47	2.79	3.72	0.00	1.23	2.87	0.81	2.02	2.50	0.00	0.70	3.14
Kyrgyzstan	2.56	2.56	5.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	5.26	0.00	0.00	0.00	2.33	9.30	11.63	0.00	2.38	7.14
Laos	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Malaysia	0.60	2.51	5.17	0.35	2.37	5.85	0.59	2.63	6.42	0.59	2.68	6.86	0.37	2.91	6.51	0.41	3.98	8.07	0.72	3.25	6.58
Maldives	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	2.44	14.63	21.95	0.00	4.08	10.20	0.00	2.08	8.33	0.00	4.17	6.51	1.75	8.77	14.22	0.00	0.00	7.41	1.92	3.85	9.62
Nepal	0.00	1.03	8.25	0.89	3.57	6.25	0.69	3.45	6.90	0.00	6.29	12.59	0.61	4.27	9.76	1.06	4.26	7.98	0.00	3.63	6.39
North Korea	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Pakistan	0.00	1.51	4.15	0.00	1.47	4.23	0.26	0.95	3.86	0.34	1.11	3.78	0.08	1.30	3.69	0.22	1.29	3.76	0.00	1.34	3.30
Papua New Guinea	0.00	2.21	8.11	1.85	3.70	7.41	0.00	1.87	4.67	0.91	3.64	7.27	1.05	3.16	5.26	0.93	1.87	8.41	0.00	3.39	5.19
Philippines	1.35	5.84	13.42	1.34	6.96	13.40	0.83	5.80	10.33	1.03	5.77	12.07	0.71	5.80	12.22	0.45	4.56	9.35	0.99	5.33	10.94
Singapore	0.83	4.33	9.36	0.99	4.79	10.41	0.72	5.56	11.11	0.74	4.39	10.23	0.90	5.68	11.30	1.17	6.47	12.72	1.16	6.52	12.78
South Korea	0.53	3.64	7.79	0.46	3.37	7.60	0.51	3.45	7.92	0.47	3.65	7.94	0.60	3.88	8.74	0.59	3.88	9.00	0.75	4.21	9.09
Sri Lanka	0.00	1.43	3.02	0.35	1.77	4.51	1.40	4.35	8.74	0.63	3.99	8.33	1.47	5.15	11.03	0.00	3.16	6.67	0.63	3.46	9.03
Taiwan	0.48	3.78	8.70	0.50	3.91	8.75	0.43	3.49	8.21	0.51	3.70	8.02	0.50	3.90	8.87	0.46	3.94	8.67	0.55	3.93	8.84
Tajikistan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.00	0.00	0.00	0.00	5.26	5.26	0.00	2.13	2.13
Thailand	0.43	4.00	8.78	1.07	3.74	8.77	0.25	3.30	6.69	0.62	3.58	7.74	0.73	2.91	7.13	0.31	2.78	7.11	0.35	3.32	7.01
Timor-Leste	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Turkmenistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uzbekistan	0.00	0.23	0.70	0.00	0.42	1.09	0.25	1.23	1.47	0.00	0.47	1.66	0.00	0.90	2.31	0.00	1.23	1.44	0.00	0.24	2.20
Vietnam	0.71	5.34	7.47	0.30	2.93	5.83	0.66	4.26	8.48	0.84	3.37	7.14	0.51	7.07	13.88	1.17	6.62	11.38	0.23	2.23	8.98
Australia and Oceania	1.22	5.95	11.87	1.19	5.96	12.08	1.32	6.15	12.46	1.18	6.12	12.24	1.19	6.05	12.18	1.15	6.21	12.52	1.33	6.47	12.53
Australia	1.25	5.96	11.83	1.22	5.92	12.12	1.37	6.21	12.53	1.27	6.28	12.45	1.18	6.10	12.28	1.23	6.40	12.82	1.40	6.72	12.94
Cook Islands	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne
Fiji	0.00	0.00	6.67	0.00	0.49	6.90	2.63	2.63	2.63	2.38	4.76	7.14	0.00	0.00	0.00	1.96	5.88	7.84	0.00	0.00	0.00

Region, country, or economy	2003			2004			2005			2006			2007			2008			2009		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Bangladesh	0.61	3.71	7.34	0.97	4.37	7.87	0.65	4.16	8.65	0.56	4.72	8.13	0.63	3.42	7.65	0.50	3.19	6.14	0.57	3.54	6.91
Bhutan	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	8.33	13.89	ne	ne	ne	ne	ne	ne	ne	ne	ne
Brunei	1.75	1.75	7.02	0.00	1.56	3.13	0.00	3.51	8.77	1.28	1.28	9.25	0.00	3.85	7.22	1.05	6.32	8.42	0.00	2.20	4.40
Burma	2.94	5.88	11.76	0.00	2.17	10.87	1.11	1.11	2.22	0.00	3.03	7.58	0.00	3.66	10.90	0.00	2.15	4.90	0.00	3.03	5.03
Cambodia	0.00	1.89	3.77	0.00	3.61	7.23	1.23	6.17	8.64	0.96	5.77	14.42	2.16	6.41	16.19	0.76	4.55	8.33	4.32	11.11	14.20
China	0.51	2.89	5.96	0.52	2.76	5.89	0.50	2.69	5.67	0.51	2.85	6.02	0.55	3.11	6.35	0.56	3.15	6.53	0.58	3.21	6.66
India	0.57	3.10	6.49	0.65	3.26	7.07	0.65	3.65	7.75	0.68	3.87	8.13	0.67	3.74	7.98	0.70	3.69	7.80	0.71	3.77	7.80
Indonesia	0.26	3.69	8.06	0.54	3.44	7.00	1.18	3.44	8.28	0.64	4.00	7.60	0.94	4.13	9.11	1.15	4.50	9.43	1.37	3.61	7.86
Japan	0.57	3.24	7.05	0.61	3.42	7.31	0.60	3.39	7.21	0.63	3.37	7.17	0.67	3.56	7.42	0.65	3.57	7.46	0.65	3.54	7.41
Kazakhstan	0.00	1.13	5.08	0.29	1.46	3.21	0.00	1.38	2.48	0.31	1.25	3.13	0.00	1.92	5.20	0.29	1.15	4.32	0.24	1.21	3.63
Kyrgyzstan	0.00	3.03	6.06	0.00	0.00	2.00	0.00	1.22	3.66	0.00	3.85	7.69	1.37	4.11	6.85	0.00	2.25	4.49	1.49	1.49	2.99
Laos	2.63	10.53	13.16	0.00	4.35	5.80	1.47	5.88	13.24	1.14	9.09	13.64	1.35	10.81	18.42	0.97	3.88	8.74	1.92	8.45	9.62
Malaysia	0.53	2.89	6.79	0.91	3.29	7.52	0.51	3.27	7.16	0.53	3.38	6.76	0.71	3.49	7.05	0.59	3.32	6.40	0.77	3.65	7.57
Maldives	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	1.10	8.79	13.19	3.19	6.38	13.83	1.02	5.10	9.18	0.85	5.93	9.32	0.95	3.33	8.57	0.47	2.84	4.17	0.41	5.35	7.96
Nepal	0.91	3.02	6.65	0.59	3.67	8.38	0.23	1.83	5.95	0.76	3.61	6.85	0.69	2.95	5.20	0.38	3.61	5.76	0.50	2.01	6.15
North Korea	ne	ne	ne	ne	ne	ne	2.13	4.26	8.51	2.00	6.00	20.00	0.00	8.16	18.37	ne	ne	ne	ne	ne	ne
Pakistan	0.49	1.94	4.18	0.40	2.54	4.79	0.47	2.16	4.46	0.27	2.00	4.78	0.62	2.85	6.33	0.58	3.39	7.12	0.42	3.25	7.11
Papua New Guinea	0.00	2.06	11.34	0.00	1.22	3.66	1.41	2.82	2.82	0.00	3.33	10.00	0.00	5.26	7.89	0.00	4.58	8.01	0.98	5.88	17.65
Philippines	0.77	4.52	9.91	0.76	4.33	8.99	1.13	5.45	10.15	1.38	5.74	11.62	1.81	6.01	11.36	1.39	5.82	10.96	2.28	8.16	13.89
Singapore	1.26	6.54	13.59	1.27	6.53	13.47	1.72	7.86	15.14	1.34	7.32	14.48	1.54	7.69	14.91	1.97	9.00	15.82	2.28	9.17	16.82
South Korea	0.66	4.18	8.92	0.67	3.97	8.62	0.83	4.43	9.19	0.62	4.00	8.51	0.73	3.97	8.48	0.70	4.05	8.75	0.81	4.41	9.23
Sri Lanka	1.23	5.91	11.60	0.73	5.57	12.28	0.32	3.94	9.47	0.87	5.04	9.37	1.02	4.10	9.02	1.08	2.97	7.73	0.66	3.72	6.80
Taiwan	0.73	4.10	9.12	0.72	4.41	9.36	0.70	4.47	9.49	0.70	4.37	9.45	0.72	4.35	9.45	0.73	4.98	10.54	0.77	4.63	10.40
Tajikistan	0.00	0.00	2.44	0.00	2.08	4.17	0.00	5.88	7.84	0.00	2.27	6.82	0.00	5.34	5.45	0.00	0.00	3.28	0.00	2.17	4.35
Thailand	0.66	3.55	8.30	1.01	4.60	9.43	0.95	4.01	8.72	0.60	4.13	8.74	0.80	4.68	9.22	0.72	3.83	8.08	0.93	4.45	9.25
Timor-Leste	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Turkmenistan	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Uzbekistan	0.00	1.40	3.29	0.62	1.66	3.32	0.00	1.28	3.84	0.23	1.84	5.56	0.39	2.17	4.53	0.44	2.42	4.85	0.00	1.98	4.54
Vietnam	0.81	2.94	8.72	1.17	4.96	10.39	1.47	4.04	7.45	1.44	4.84	9.59	0.92	5.18	11.24	1.24	4.66	9.37	0.52	4.18	8.93
Australia and Oceania	1.24	6.52	13.02	1.49	6.75	13.28	1.32	6.66	13.20	1.47	7.10	13.68	1.65	7.14	13.85	1.74	7.54	14.35	1.81	7.99	14.96
Australia	1.27	6.69	13.27	1.55	7.01	13.67	1.37	6.79	13.47	1.51	7.30	14.03	1.71	7.37	14.20	1.81	7.83	14.77	1.89	8.30	15.46
Cook Islands	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne
Fiji	0.00	3.95	5.26	0.00	2.10	5.30	0.00	4.00	6.00	0.76	4.55	9.85	1.97	5.92	11.61	4.27	8.55	12.82	2.40	5.60	10.56

Region, country, or economy	2010			2011			2012			2013			2014			2015			2016		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Bangladesh	0.47	2.94	6.43	0.45	3.09	6.86	0.69	3.33	7.20	0.86	3.72	7.84	1.03	3.93	7.46	0.79	4.08	8.02	1.13	4.97	9.36
Bhutan	0.00	4.44	6.67	0.00	2.13	8.51	0.00	2.56	7.69	1.54	1.54	9.23	0.00	2.82	4.23	5.19	12.99	19.48	2.27	3.41	10.09
Brunei	0.00	1.05	6.25	0.82	2.46	7.08	1.08	2.83	7.57	0.47	2.82	5.16	0.98	4.39	7.87	1.97	6.41	12.89	3.64	8.67	13.06
Burma	0.96	5.77	8.65	0.00	0.00	5.19	0.97	3.03	6.80	1.12	4.49	8.99	1.65	6.61	11.14	2.98	7.07	11.73	3.25	5.52	9.54
Cambodia	1.78	9.47	17.58	2.14	9.63	16.04	4.03	9.40	15.33	2.59	10.34	14.14	2.21	9.13	15.77	3.49	9.99	17.41	1.63	5.16	13.35
China	0.63	3.38	6.99	0.70	3.79	7.66	0.80	4.29	8.55	0.89	4.56	9.06	0.95	4.83	9.62	1.05	5.21	10.18	1.12	5.49	10.67
India	0.61	3.51	7.38	0.62	3.35	7.12	0.63	3.19	6.71	0.61	3.38	6.94	0.63	3.30	7.02	0.66	3.34	7.04	0.70	3.51	7.25
Indonesia	0.58	3.35	6.72	0.71	3.45	7.27	0.83	3.56	7.29	0.62	3.53	6.91	0.78	3.14	6.67	0.57	2.30	5.34	0.57	2.24	4.93
Japan	0.67	3.52	7.37	0.72	3.53	7.40	0.71	3.54	7.32	0.77	3.55	7.30	0.75	3.64	7.41	0.82	3.75	7.53	0.88	3.92	7.80
Kazakhstan	0.65	1.96	3.49	0.57	2.09	4.86	1.07	3.66	6.66	0.11	2.34	5.23	0.73	2.15	4.31	0.52	3.17	5.72	0.66	2.45	4.74
Kyrgyzstan	1.43	2.86	8.57	0.00	1.03	5.08	1.01	3.03	8.08	1.43	9.29	12.14	3.39	5.93	9.32	1.49	6.72	11.22	2.45	7.35	10.09
Laos	2.52	7.56	15.97	0.00	6.08	11.14	1.04	8.33	15.57	1.06	5.40	9.77	1.08	9.73	14.09	4.42	10.68	14.54	1.59	6.43	11.74
Malaysia	0.66	3.40	7.54	0.79	3.73	7.33	0.89	4.07	7.92	0.93	4.29	8.53	1.17	4.95	9.29	1.20	4.91	9.06	1.20	4.84	8.82
Maldives	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Mongolia	1.17	4.43	9.88	0.00	3.34	9.58	0.68	3.72	8.45	0.54	4.06	8.36	0.97	4.53	7.12	1.32	5.61	12.18	0.57	5.17	8.86
Nepal	0.45	2.68	6.15	0.28	2.92	6.35	1.09	4.37	9.11	1.22	3.91	8.31	1.18	5.03	9.75	0.71	4.33	9.11	1.36	5.05	10.32
North Korea	ne	ne	ne	ne	ne	ne	0.00	0.00	5.06	0.00	5.88	10.57	0.00	0.00	5.33	1.19	5.95	5.95	0.00	4.85	9.44
Pakistan	0.70	3.20	6.72	0.61	3.38	6.83	0.93	3.87	7.42	1.16	4.38	8.27	1.08	5.05	9.29	1.24	5.40	9.88	1.73	6.47	11.35
Papua New Guinea	0.00	5.50	8.96	0.88	5.05	10.53	2.19	7.30	13.14	2.31	8.46	13.08	1.80	5.93	12.11	4.43	11.63	15.19	4.17	7.01	15.78
Philippines	1.89	5.31	10.19	1.59	6.59	11.97	1.84	6.67	10.77	1.74	5.89	10.45	1.33	5.76	10.27	1.48	5.00	8.98	1.71	5.41	9.76
Singapore	2.45	9.90	17.82	2.17	9.99	18.28	2.75	10.52	18.80	2.60	10.74	19.00	2.76	10.94	19.26	2.94	11.04	19.32	2.97	11.38	19.78
South Korea	0.82	4.35	9.31	0.94	4.61	9.52	0.91	4.65	9.62	1.02	4.71	9.41	0.99	4.60	9.38	1.02	4.65	9.40	1.02	4.85	9.63
Sri Lanka	1.16	3.73	7.11	0.46	3.13	6.31	1.04	4.79	8.79	1.44	4.70	8.40	1.66	5.80	9.90	2.36	7.14	11.99	1.89	6.03	9.98
Taiwan	0.72	4.54	9.82	0.76	4.55	9.88	0.86	4.55	9.56	0.79	4.19	8.95	0.80	4.21	8.63	0.92	4.30	9.00	1.00	4.60	9.08
Tajikistan	0.00	0.00	2.56	0.00	1.32	2.63	1.18	4.71	8.24	0.00	4.90	5.88	1.22	3.66	6.84	0.00	2.70	3.60	0.95	1.08	3.81
Thailand	0.62	3.76	8.01	0.82	4.02	8.01	1.00	4.02	7.84	0.87	4.03	8.09	1.09	4.31	7.80	1.13	4.05	7.65	0.90	4.14	8.20
Timor-Leste	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	3.23	3.23	ne	ne	ne	3.23	3.23	3.23
Turkmenistan	ne	ne	ne	0.00	3.23	3.23	0.00	2.17	4.35	ne	ne	ne	0.00	2.27	11.36	ne	ne	ne	ne	ne	ne
Uzbekistan	0.55	2.00	5.29	0.54	1.48	3.38	0.21	1.47	2.95	0.00	1.78	4.62	0.97	2.35	5.66	0.23	1.35	4.17	0.35	1.44	4.12
Vietnam	1.34	5.63	10.60	1.09	5.55	10.94	1.18	5.03	9.90	0.95	5.39	10.60	0.96	5.07	10.28	1.19	5.85	10.86	1.47	5.74	10.88
Australia and Oceania	1.87	8.09	15.31	1.85	8.48	15.62	2.01	8.42	15.73	2.10	8.71	16.12	2.15	9.00	16.43	2.23	9.28	16.85	2.26	9.33	17.05
Australia	1.94	8.26	15.59	1.93	8.78	16.10	2.10	8.74	16.32	2.16	8.98	16.61	2.23	9.28	16.90	2.32	9.56	17.27	2.34	9.65	17.57
Cook Islands	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Fiji	2.82	6.56	10.15	0.00	2.19	7.34	0.69	7.09	14.48	0.57	6.19	11.72	2.22	8.41	16.27	4.19	11.31	15.98	2.00	5.75	13.21

TABLE SSA-35

Share of S&E publications in the top 1%, 5%, and 10% most-cited articles in the Scopus database, by region, country, or economy: 1996–2016

(Percent)

Region, country, or economy	1996			1997			1998			1999			2000			2001			2002			2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015			2016		
	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%	Top 1%	Top 5%	Top 10%
Kiribati	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	ne	ne	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Marshall Islands	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Micronesia, Federated States of	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Nauru	na	na	na	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	ne	ne	ne	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
New Zealand	1.23	6.43	12.67	1.12	6.32	12.09	1.08	6.16	12.52	0.89	5.54	11.52	1.36	5.89	11.93	0.85	5.43	11.22	1.05	5.52	10.92	1.12	6.04	12.15	1.27	5.79	11.83	1.21	6.30	12.51	1.36	6.29	12.38	1.47	6.31	12.68	1.54	6.53	12.70	1.60	6.81	12.94	1.77	7.52	14.17	1.67	7.31	13.63	1.83	7.30	13.51	2.07	7.89	14.19	1.85	7.93	14.28	2.18	8.59	15.49	2.22	8.15	14.91
Niue	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	ne	ne	ne
Palau	ne	ne	ne	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Samoa	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Solomon Islands	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	6.52	17.39	1.96	1.96	7.19
Tonga	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Tuvalu	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	na	na	na	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne
Vanuatu	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	2.78	16.67	2.33	2.33	6.98
Unassigned	1.44	6.49	12.77	1.43	6.17	12.21	1.34	6.04	12.10	1.14	5.59	11.07	1.09	5.36	10.46	1.13	4.77	9.38	0.85	4.26	8.06	1.00	4.38	8.60	1.05	4.05	7.57	0.92	4.00	7.65	0.88	3.67	7.43	0.81	3.55	6.86	0.89	4.14	7.87	0.87	3.15	6.49	0.68	2.84	5.50	0.56	2.32	4.84	0.84	3.38	6.36	0.85	2.96	5.48	1.50	5.19	8.53	2.31	7.21	12.01	2.10	7.59	12.54

na = not applicable; no articles are assigned to the entity. ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

[a] Beginning in 2006, Serbia and Montenegro represented individual countries.

[b] Serbia and Montenegro represented a single country for data purposes from 1992 to 2006.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-36

Share of S&E publications in the top 1% most-cited articles in agricultural sciences, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	1.00	1.55	0.29	0.75	0.71	0.80	0.56	0.62	0.83	0.33	0.67	0.55	0.87	0.94	0.88	1.03	0.83	0.92	0.90	0.86	1.12
United States	1.73	1.65	1.58	1.84	1.59	1.52	2.08	1.57	1.48	1.37	1.69	1.53	1.60	1.56	1.94	1.79	1.80	1.99	1.94	1.76	1.81
India	0.13	0.06	0.12	0.12	0.06	0.11	0.24	0.34	0.39	0.28	0.25	0.75	0.46	0.46	0.43	0.46	0.54	0.45	0.57	0.59	0.68
Germany	0.63	1.74	0.98	0.93	1.39	0.85	0.59	1.44	0.85	1.43	1.90	1.44	2.34	1.59	2.14	2.53	1.79	1.77	1.82	2.47	1.69
Japan	0.49	0.20	0.60	0.51	0.38	0.37	0.32	0.39	0.59	0.63	0.42	0.29	0.33	0.61	0.29	0.42	0.50	0.55	0.15	0.74	0.62
United Kingdom	1.44	2.13	1.52	2.05	2.67	1.63	1.40	2.47	2.54	2.52	2.02	1.94	2.74	3.10	2.86	3.54	2.33	2.80	3.69	3.11	2.60
Russia	0.50	0.93	0.41	0.00	0.43	0.00	0.00	0.50	0.00	1.03	0.00	0.95	0.51	0.00	0.49	0.51	1.13	0.98	1.39	1.17	0.98
Italy	0.75	0.66	1.18	1.03	1.23	1.38	2.45	0.93	0.96	0.98	0.62	1.45	1.48	1.64	1.84	1.51	1.79	1.72	2.05	2.39	1.95
South Korea	0.00	0.00	0.00	0.70	0.00	0.40	1.15	1.86	0.87	2.31	0.92	0.81	0.39	0.65	0.88	1.19	0.50	0.85	0.93	1.06	0.50
France	1.31	1.46	0.74	1.27	1.71	1.64	1.83	1.50	0.60	1.29	1.65	1.66	1.99	2.62	2.10	2.10	2.09	3.01	2.29	2.73	2.24
Brazil	0.39	0.30	0.23	0.47	0.30	0.63	0.45	0.28	0.49	0.29	0.27	0.13	0.32	0.35	0.31	0.25	0.31	0.26	0.29	0.44	0.55
Canada	1.19	1.08	1.44	1.31	0.47	0.74	1.39	1.11	1.42	1.63	2.08	2.54	2.53	2.05	1.89	2.33	2.27	2.11	1.44	2.26	1.81
Spain	0.56	1.75	0.98	0.47	0.97	1.74	1.33	0.94	0.53	1.13	1.06	1.48	1.42	1.19	1.18	1.51	2.09	1.49	1.68	1.96	1.78
Australia	2.08	1.86	1.74	1.68	1.07	1.40	1.10	1.60	1.50	1.58	1.90	2.27	2.34	2.29	2.89	2.65	2.51	2.04	3.17	2.20	1.91
Iran	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	1.14	0.00	0.29	0.50	0.78	0.15	0.82	0.32	0.83	0.90	1.20	1.37	1.52
EU (all members)	1.18	1.28	1.17	1.15	1.46	1.44	1.13	1.25	1.26	1.29	1.41	1.32	1.48	1.44	1.52	1.54	1.57	1.64	1.62	1.75	1.49

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations in all regions, countries, or economies made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-37

Share of S&E publications in the top 1% most-cited articles in astronomy and astrophysics, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.00	0.42	0.00	0.00	0.00	0.00	0.91	0.29	0.23	0.00	0.42	0.15	1.13	0.75	1.07	1.26	0.67	0.91	1.15	1.02	1.26
United States	1.69	1.88	1.59	1.59	1.55	1.91	1.93	1.69	1.74	1.88	1.92	1.83	1.85	1.69	1.74	1.94	1.70	1.91	2.00	1.80	1.99
India	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.88	2.43	0.00	0.29	0.00	0.30	0.82	0.00	0.93	0.18	0.97	1.27	0.83	2.97
Germany	1.09	1.02	1.42	0.92	1.34	1.33	1.61	1.85	2.04	1.97	1.84	2.26	1.90	2.38	2.01	2.06	1.62	2.09	1.97	2.30	2.74
Japan	0.89	0.53	1.23	0.50	0.68	1.47	1.69	2.01	0.97	1.36	1.94	2.31	1.32	1.49	2.31	1.73	1.90	1.70	1.85	1.38	1.69
United Kingdom	0.97	1.93	1.37	1.44	1.70	1.90	1.38	1.49	1.66	1.41	2.44	2.12	1.96	2.12	1.72	2.31	2.08	2.16	2.52	2.33	2.45
Russia	0.33	0.14	0.53	0.36	0.33	0.59	0.06	0.44	0.86	0.76	0.63	0.42	0.59	1.05	0.43	0.55	0.61	0.59	1.01	0.22	2.49
Italy	0.29	1.74	1.36	1.65	1.04	0.81	0.90	0.91	1.50	1.00	1.44	1.42	1.20	1.54	1.80	2.06	1.09	1.28	1.67	1.79	2.55
South Korea	0.00	0.00	0.00	0.00	0.00	1.33	0.00	1.22	1.72	1.28	0.00	3.15	1.02	0.79	1.32	0.94	0.27	1.34	1.84	1.15	1.85
France	0.56	0.80	1.13	1.14	1.34	1.35	0.86	1.61	1.70	1.30	1.31	1.75	0.97	1.80	1.69	2.40	1.75	2.23	1.93	2.26	2.66
Brazil	0.70	0.99	0.59	0.00	1.13	0.00	1.63	0.00	1.09	2.36	0.60	0.90	0.42	0.68	0.42	1.23	1.04	1.28	1.64	2.53	5.14
Canada	2.76	1.26	0.74	1.49	2.38	1.61	0.77	2.24	1.36	1.72	3.25	3.05	2.35	2.32	2.87	4.04	2.19	2.86	2.95	2.19	3.71
Spain	0.98	0.15	0.17	0.87	0.88	0.33	0.34	1.16	1.03	1.39	0.82	1.49	0.87	1.86	2.20	1.81	1.62	1.41	2.07	2.48	2.97
Australia	0.71	1.61	2.25	2.34	1.54	2.65	2.12	1.52	1.37	1.70	2.04	2.17	2.36	2.10	1.83	1.52	2.29	2.17	2.21	2.91	3.30
Iran	ne	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	ne	ne	0.00	0.00	0.00	0.00	0.00	0.98	0.00	2.17
EU (all members)	0.73	1.00	1.04	0.97	1.07	1.02	0.96	1.10	1.17	1.07	1.07	1.22	1.19	1.37	1.25	1.36	1.22	1.24	1.27	1.33	1.36

ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-38

Share of S&E publications in the top 1% most-cited articles in biological and biomedical sciences, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.30	0.47	0.21	0.31	0.13	0.41	0.37	0.35	0.39	0.45	0.35	0.39	0.46	0.52	0.52	0.54	0.65	0.64	0.68	0.82	0.78
United States	1.63	1.66	1.69	1.71	1.70	1.65	1.63	1.65	1.66	1.69	1.69	1.72	1.77	1.81	1.76	1.85	1.89	1.84	1.88	1.95	1.89
India	0.20	0.18	0.23	0.45	0.32	0.45	0.52	0.51	0.43	0.45	0.44	0.56	0.49	0.63	0.52	0.59	0.61	0.50	0.62	0.77	0.75
Germany	1.11	1.07	1.22	1.19	1.10	1.08	1.25	1.32	1.24	1.34	1.36	1.52	1.51	1.60	1.61	1.83	1.85	1.76	1.91	1.95	2.00
Japan	0.55	0.54	0.61	0.57	0.66	0.66	0.60	0.69	0.71	0.73	0.89	0.76	0.81	0.72	0.80	0.85	0.74	0.90	0.86	1.10	0.93
United Kingdom	1.39	1.44	1.30	1.42	1.54	1.50	1.50	1.76	1.71	1.93	1.69	1.90	2.03	1.99	2.23	2.23	2.40	2.27	2.57	2.43	2.35
Russia	0.13	0.12	0.13	0.18	0.19	0.18	0.24	0.12	0.26	0.43	0.28	0.19	0.40	0.24	0.43	0.44	0.35	0.51	0.58	0.67	0.66
Italy	0.61	0.56	0.72	0.67	0.62	0.71	0.90	0.79	0.67	1.10	0.94	1.18	1.13	1.11	1.35	1.17	1.25	1.60	1.51	1.69	1.69
South Korea	0.72	0.62	0.32	0.23	0.37	0.29	0.45	0.29	0.43	0.60	0.48	0.71	0.62	0.53	0.71	0.66	0.66	0.66	0.70	0.65	0.83
France	0.93	0.93	0.93	0.96	0.75	0.91	0.93	1.21	1.09	1.14	1.21	1.38	1.41	1.45	1.67	1.68	1.87	1.82	1.90	1.89	2.03
Brazil	0.46	0.22	0.46	0.60	0.63	0.51	0.46	0.32	0.38	0.57	0.50	0.65	0.53	0.62	0.42	0.47	0.62	0.75	0.67	0.72	1.15
Canada	1.06	1.38	1.13	1.36	1.15	0.86	0.88	1.15	1.53	1.18	1.50	1.74	1.56	1.52	2.07	2.06	1.94	1.83	2.05	1.96	1.85
Spain	0.43	0.70	0.70	0.51	0.62	0.63	0.84	0.74	0.73	0.78	1.06	1.22	1.26	1.57	1.41	1.28	1.56	1.63	1.59	1.62	1.60
Australia	1.21	1.04	1.29	1.01	1.41	0.98	1.24	1.13	1.55	1.17	1.56	1.49	1.65	1.90	1.79	2.11	2.05	2.17	2.37	2.45	2.17
Iran	0.00	0.00	0.00	0.85	0.00	0.00	0.28	0.92	0.31	0.16	0.41	0.49	0.18	0.39	0.28	0.26	0.30	0.65	0.40	0.54	0.73
EU (all members)	0.88	0.92	0.96	0.93	0.93	0.94	0.98	1.07	1.06	1.11	1.09	1.18	1.19	1.23	1.32	1.33	1.37	1.41	1.42	1.43	1.45

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-39

Share of S&E publications in the top 1% most-cited articles in chemistry, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.26	0.31	0.35	0.32	0.38	0.47	0.57	0.52	0.82	0.78	0.85	0.70	0.86	0.91	0.98	1.07	1.20	1.20	1.16	1.15	1.21
United States	1.95	2.12	2.11	2.27	2.08	2.54	2.11	1.96	2.09	2.22	2.17	1.95	1.79	2.02	2.27	1.95	1.89	1.99	1.70	1.73	1.83
India	0.39	0.40	0.51	0.19	0.39	0.55	0.45	0.56	0.74	0.52	0.71	0.51	0.51	0.50	0.45	0.69	0.55	0.54	0.55	0.66	0.68
Germany	1.26	1.10	1.24	1.20	1.47	1.35	1.10	1.39	1.18	1.24	1.24	1.20	1.53	1.13	1.24	1.51	1.46	1.30	1.34	1.21	1.32
Japan	0.82	0.90	0.73	0.57	0.79	0.80	0.80	0.88	0.85	0.57	0.51	0.80	0.74	0.83	0.54	0.63	0.62	0.72	0.69	0.84	0.76
United Kingdom	1.47	1.38	1.50	1.68	1.47	1.29	1.63	1.55	1.25	2.17	1.59	1.68	1.48	1.97	1.75	1.51	1.72	1.51	1.84	1.55	1.47
Russia	0.11	0.19	0.13	0.10	0.09	0.12	0.21	0.08	0.25	0.16	0.26	0.13	0.16	0.13	0.22	0.29	0.18	0.15	0.19	0.24	0.27
Italy	1.17	0.97	1.23	1.20	1.12	1.04	0.51	0.83	0.97	1.47	1.26	1.18	1.05	1.22	0.80	1.07	1.30	1.21	1.21	1.04	0.94
South Korea	0.42	0.46	0.26	0.63	0.68	0.84	0.64	0.98	1.02	1.07	0.85	1.18	0.81	0.96	1.22	1.14	1.33	1.39	1.15	1.18	1.04
France	1.58	1.09	1.20	1.04	1.37	1.13	1.20	1.34	1.34	1.20	1.17	1.14	1.16	1.21	0.93	1.18	0.89	1.35	1.08	0.97	0.90
Brazil	0.57	0.93	0.76	0.33	0.28	0.64	0.53	0.67	0.41	0.53	0.41	0.66	0.42	0.61	0.79	0.40	0.17	0.31	0.22	0.58	0.50
Canada	1.95	1.74	1.34	1.33	1.36	0.91	1.10	1.16	1.34	0.99	1.69	1.38	1.44	1.42	0.93	1.70	1.76	1.56	1.35	1.26	1.19
Spain	0.51	0.74	0.96	0.56	0.88	0.69	0.81	1.00	0.94	0.85	1.16	1.32	1.13	1.14	0.99	1.22	0.96	1.04	1.28	1.32	1.27
Australia	1.23	1.26	1.36	1.45	1.13	1.30	1.90	1.32	1.52	1.29	1.27	1.62	2.22	1.98	1.90	1.93	1.89	1.46	1.68	1.86	2.38
Iran	0.00	0.65	0.84	0.00	0.00	0.58	0.00	0.36	0.30	0.08	0.46	0.66	0.23	0.29	0.55	0.37	0.27	0.35	0.65	0.65	0.94
EU (all members)	1.15	1.02	1.14	1.10	1.25	1.05	1.04	1.18	1.00	1.18	1.14	1.18	1.17	1.16	1.06	1.14	1.09	1.07	1.15	1.05	1.03

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-40

Share of S&E publications in the top 1% most-cited articles in computer and information sciences, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.41	0.44	0.36	0.55	0.29	0.22	0.23	0.35	0.43	0.40	0.43	0.52	0.47	0.45	0.50	0.61	0.75	1.04	1.41	1.65	1.73
United States	1.94	1.98	1.94	2.04	2.09	2.22	2.22	2.24	2.38	2.32	2.34	2.35	2.58	2.86	2.93	2.85	2.73	2.58	2.35	2.26	2.21
India	1.21	0.77	0.73	0.68	0.92	0.50	1.12	0.25	0.69	0.50	0.59	0.59	0.59	0.73	0.36	0.43	0.52	0.38	0.50	0.27	0.38
Germany	0.64	0.49	0.66	0.79	0.61	0.95	0.75	0.79	0.89	0.77	0.95	0.98	1.15	1.18	1.35	1.16	1.16	1.03	1.02	0.98	1.09
Japan	0.40	0.31	0.53	0.35	0.25	0.37	0.17	0.23	0.24	0.32	0.37	0.41	0.32	0.51	0.39	0.33	0.47	0.36	0.36	0.49	0.66
United Kingdom	0.90	0.75	1.08	1.01	0.87	1.06	1.22	1.37	1.27	1.36	1.44	1.76	1.67	1.80	1.70	1.75	2.09	1.95	1.80	2.00	2.24
Russia	0.00	0.49	0.27	0.00	0.21	0.00	0.18	0.00	0.00	0.07	0.08	0.14	0.13	0.20	0.21	0.17	0.39	0.25	0.13	0.10	0.23
Italy	0.72	0.91	1.15	0.62	0.77	0.70	0.80	0.77	0.73	0.79	0.84	1.13	1.38	0.91	1.17	1.11	1.43	1.00	1.00	1.36	1.27
South Korea	0.11	0.29	0.39	0.43	0.59	0.39	0.64	0.42	0.43	0.44	0.31	0.58	0.51	0.74	0.82	0.87	0.85	0.88	0.79	1.04	1.38
France	1.01	1.12	1.03	0.88	0.98	0.68	0.74	0.68	0.75	0.95	1.19	1.18	1.12	1.35	1.37	1.15	1.10	1.05	1.03	1.02	0.92
Brazil	1.05	0.00	0.29	0.34	0.29	0.18	0.42	0.48	0.35	0.31	0.20	0.37	0.61	0.56	0.66	0.64	0.65	0.66	0.55	0.61	0.60
Canada	1.26	0.90	0.97	1.00	1.23	0.86	0.92	0.99	0.96	1.32	1.29	1.46	1.83	1.79	1.92	1.71	1.97	1.59	1.84	1.86	2.22
Spain	0.58	0.46	0.71	0.54	0.59	0.88	0.46	0.56	0.28	0.57	0.62	0.67	0.71	1.10	1.17	1.25	1.14	1.08	1.15	1.01	1.17
Australia	0.41	0.90	1.10	0.72	0.62	0.60	0.54	0.55	0.68	0.75	0.78	0.99	0.92	1.24	1.41	1.71	1.89	2.11	2.11	2.84	2.58
Iran	0.00	0.00	3.08	0.00	0.83	0.00	0.00	0.00	0.17	0.12	0.49	0.37	0.36	0.58	0.71	0.45	0.55	0.64	0.82	0.83	0.92
EU (all members)	0.86	0.73	0.84	0.78	0.84	0.81	0.79	0.83	0.81	0.86	0.96	1.01	1.05	1.10	1.15	1.07	1.11	1.02	1.00	1.03	1.11

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-41

Share of S&E publications in the top 1% most-cited articles in engineering, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.41	0.53	0.42	0.35	0.28	0.28	0.38	0.49	0.41	0.38	0.40	0.38	0.46	0.51	0.60	0.64	0.76	0.93	0.94	1.09	1.17
United States	1.41	1.45	1.59	1.65	1.69	1.72	1.57	1.57	1.51	1.49	1.66	1.69	1.68	1.73	1.69	1.75	1.67	1.56	1.62	1.59	1.52
India	0.78	0.82	0.77	0.68	0.78	0.88	1.02	1.17	1.19	1.35	1.49	1.36	1.70	1.38	1.17	1.02	0.95	0.87	0.88	0.99	0.94
Germany	1.12	1.30	1.19	1.19	1.18	1.10	1.28	1.31	1.34	1.35	1.16	1.19	1.30	1.35	1.45	1.41	1.13	1.21	1.30	1.32	1.11
Japan	0.79	0.66	0.73	0.67	0.59	0.70	0.80	0.60	0.61	0.59	0.61	0.54	0.62	0.53	0.57	0.60	0.59	0.57	0.56	0.53	0.69
United Kingdom	1.29	1.37	1.49	1.31	1.42	1.28	1.11	1.30	1.57	1.64	1.73	1.73	1.69	1.60	1.77	1.80	1.88	1.99	1.89	2.01	1.95
Russia	0.19	0.35	0.27	0.20	0.31	0.26	0.13	0.19	0.16	0.25	0.34	0.30	0.34	0.35	0.42	0.27	0.35	0.44	0.33	0.40	0.42
Italy	0.69	1.39	1.14	1.07	1.24	1.40	1.34	1.05	1.33	1.17	1.37	1.19	1.50	1.35	1.40	1.50	1.81	1.44	1.68	1.46	1.46
South Korea	0.81	0.60	0.91	0.76	0.85	0.57	0.99	0.86	0.97	1.25	0.81	0.81	0.68	0.88	0.87	1.08	1.08	1.04	0.92	0.90	0.93
France	1.22	1.11	1.18	1.05	1.00	1.31	1.10	1.07	1.38	1.24	1.26	1.25	1.44	1.22	1.36	1.31	1.28	1.27	1.18	1.21	1.20
Brazil	0.67	0.63	0.96	0.71	0.80	0.64	0.87	0.86	0.62	0.79	0.81	0.65	1.25	0.54	0.74	0.50	0.59	0.54	0.44	0.45	0.51
Canada	1.62	1.44	1.10	1.44	1.18	1.58	1.17	1.44	1.37	1.54	1.60	1.84	1.54	1.76	1.65	1.83	1.68	1.45	1.67	1.70	1.73
Spain	1.06	1.27	1.18	1.03	1.07	0.96	1.23	1.13	1.44	1.75	1.57	1.52	1.73	1.71	1.78	1.83	1.55	1.60	1.46	1.42	1.30
Australia	2.26	1.68	2.02	1.72	1.27	1.64	1.90	1.91	1.81	1.83	1.74	1.99	2.14	2.48	2.13	2.02	2.28	2.23	2.25	2.50	2.45
Iran	1.10	0.00	2.15	1.07	0.23	0.63	0.65	0.49	0.39	0.56	0.64	1.18	0.81	1.25	1.08	1.18	1.34	1.66	1.89	1.88	2.27
EU (all members)	1.12	1.26	1.16	1.09	1.10	1.17	1.13	1.16	1.32	1.32	1.33	1.25	1.29	1.22	1.31	1.33	1.26	1.27	1.25	1.17	1.15

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-42

Share of S&E publications in the top 1% most-cited articles in geosciences, atmospheric, and ocean sciences, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.54	0.51	0.81	0.68	1.04	0.72	1.04	1.23	0.91	1.10	0.95	1.31	1.12	1.30	1.11	1.11	1.26	1.16	1.28	1.21	1.16
United States	1.78	2.02	1.95	1.87	1.80	1.88	1.67	1.75	1.60	1.74	1.69	1.74	1.94	1.91	1.96	1.98	1.79	1.87	1.78	1.90	2.02
India	0.13	0.00	0.40	0.41	0.14	0.55	0.13	0.38	0.47	0.95	0.49	0.24	0.24	0.51	0.50	0.11	0.45	0.64	0.44	0.53	0.50
Germany	1.34	1.14	0.81	1.21	0.83	1.27	1.34	1.33	1.62	1.90	1.98	1.64	1.70	1.56	1.95	1.78	2.05	2.25	2.08	2.07	2.16
Japan	0.50	0.87	0.68	0.62	0.30	0.42	0.52	0.46	0.54	0.63	1.34	1.22	0.74	1.03	0.75	1.47	1.15	1.47	1.04	1.17	1.67
United Kingdom	1.23	1.39	1.52	1.32	1.43	1.61	1.68	1.64	1.94	1.79	2.27	2.18	2.27	2.23	2.18	2.37	2.31	2.77	2.67	2.61	2.80
Russia	0.24	0.40	0.22	0.38	0.15	0.16	0.28	0.20	0.29	0.43	0.42	0.32	0.20	0.36	0.51	0.56	0.63	0.66	0.52	0.32	0.58
Italy	0.57	0.52	0.62	1.02	0.55	0.67	0.85	0.49	1.14	1.05	1.29	1.05	0.95	0.78	1.30	1.10	1.36	1.40	1.80	1.29	1.39
South Korea	0.78	0.59	0.43	0.21	0.40	0.56	0.52	0.69	1.18	0.37	1.03	0.93	0.65	0.77	0.73	0.66	0.54	0.73	0.77	1.04	0.88
France	1.52	1.54	1.18	1.22	1.37	1.50	1.27	0.88	1.57	1.67	1.59	1.85	1.45	1.98	2.05	1.61	1.79	2.19	2.19	2.01	2.23
Brazil	0.29	0.88	0.84	1.08	0.60	0.20	0.48	0.35	0.54	0.92	1.37	0.81	0.50	0.73	0.69	0.62	0.75	0.56	0.67	0.84	0.82
Canada	1.37	1.55	1.34	1.30	0.99	1.47	1.21	1.49	1.44	1.27	1.75	1.39	1.83	1.85	1.47	1.69	1.71	2.27	1.94	2.20	2.46
Spain	0.79	0.41	0.73	0.78	0.79	1.04	0.59	0.76	1.24	0.98	0.70	1.02	1.05	1.15	1.36	1.29	1.44	1.66	1.56	1.13	1.71
Australia	1.36	1.39	2.26	2.14	1.81	2.01	2.12	2.27	1.83	2.43	2.01	2.65	3.22	2.68	2.86	2.21	2.56	3.21	2.81	2.87	3.08
Iran	ne	0.00	ne	ne	0.00	0.00	0.00	1.39	2.86	0.73	1.18	0.00	0.50	0.21	0.23	0.35	0.87	1.15	0.69	0.63	0.53
EU (all members)	1.04	0.97	0.91	1.00	0.96	1.04	0.98	0.98	1.20	1.18	1.18	1.20	1.17	1.16	1.28	1.18	1.24	1.38	1.38	1.33	1.44

ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-43

Share of S&E publications in the top 1% most-cited articles in health sciences, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.17	0.38	0.35	0.36	0.28	0.27	0.29	0.30	0.30	0.29	0.21	0.33	0.36	0.38	0.43	0.48	0.51	0.57	0.57	0.56	0.64
United States	1.69	1.77	1.79	1.77	1.77	1.76	1.81	1.87	1.80	1.81	1.88	1.88	1.95	1.94	1.96	1.96	1.95	1.99	2.03	2.00	1.97
India	0.14	0.13	0.17	0.12	0.11	0.37	0.19	0.17	0.37	0.42	0.36	0.48	0.44	0.46	0.45	0.46	0.41	0.47	0.51	0.55	0.64
Germany	0.87	0.71	0.84	0.89	0.95	0.85	0.86	1.09	1.15	1.35	1.24	1.50	1.51	1.68	1.80	1.80	1.89	1.97	2.17	2.23	2.24
Japan	0.40	0.32	0.41	0.41	0.36	0.36	0.37	0.41	0.46	0.46	0.40	0.56	0.52	0.54	0.59	0.57	0.61	0.70	0.72	0.82	0.81
United Kingdom	1.32	1.39	1.43	1.50	1.53	1.49	1.62	1.60	1.73	1.91	1.89	1.92	1.98	1.93	2.12	2.34	2.46	2.57	2.67	2.69	2.73
Russia	0.10	0.18	0.36	0.17	0.08	0.21	0.16	0.08	0.35	0.40	0.33	0.77	0.69	0.51	0.98	0.82	0.98	1.03	1.19	0.94	0.81
Italy	0.68	0.69	0.99	0.80	0.88	0.94	0.96	1.06	1.15	1.57	1.43	1.64	1.55	1.62	1.90	1.84	1.73	1.78	2.20	2.30	2.28
South Korea	0.38	0.54	0.51	0.33	0.69	0.45	0.43	0.61	0.48	0.61	0.48	0.58	0.63	0.76	0.55	0.77	0.78	0.79	0.90	0.93	0.92
France	0.84	0.92	0.92	0.99	0.98	1.01	1.07	1.13	1.22	1.40	1.38	1.50	1.49	1.65	1.66	1.98	1.92	2.23	2.36	2.53	2.51
Brazil	0.27	0.33	0.36	0.39	0.48	0.51	0.39	0.54	0.60	0.83	0.60	0.47	0.50	0.54	0.69	0.61	0.60	0.75	0.84	1.05	1.17
Canada	1.98	1.82	2.03	1.78	1.87	1.95	1.98	2.03	2.06	2.23	2.07	2.15	2.12	2.23	2.21	2.43	2.55	2.58	2.53	2.66	2.65
Spain	0.48	0.58	0.75	0.60	0.69	0.75	0.81	0.86	0.99	1.02	0.93	1.21	1.14	1.30	1.38	1.58	1.70	1.86	2.13	2.29	2.09
Australia	1.23	1.19	1.28	1.24	1.09	1.25	1.49	1.38	1.84	1.56	1.76	2.01	1.96	1.98	2.25	2.27	2.29	2.50	2.50	2.38	2.50
Iran	0.00	0.00	0.00	0.00	0.38	0.32	0.77	0.78	0.33	0.39	0.18	0.23	0.27	0.39	0.15	0.19	0.24	0.29	0.39	0.29	0.51
EU (all members)	0.85	0.85	0.87	0.93	0.92	0.91	0.92	0.94	0.98	1.11	1.11	1.13	1.10	1.18	1.22	1.30	1.34	1.35	1.40	1.46	1.46

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-44

Share of S&E publications in the top 1% most-cited articles in materials science, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.20	0.32	0.18	0.31	0.48	0.21	0.54	0.53	0.41	0.37	0.52	0.62	0.66	0.57	0.62	0.67	0.81	0.82	0.89	1.04	1.16
United States	2.19	1.98	2.18	1.93	1.98	2.19	2.13	2.23	2.30	2.12	2.31	2.35	2.01	2.34	2.53	2.59	2.47	2.53	2.80	2.52	2.67
India	0.89	0.67	0.60	0.94	0.70	0.68	0.93	0.70	0.63	1.07	1.11	0.78	1.08	1.13	1.10	0.88	0.96	0.64	0.54	0.56	0.74
Germany	0.91	0.70	1.37	1.17	1.22	0.98	1.13	0.95	1.07	1.47	1.14	1.20	1.15	1.97	2.28	1.92	1.62	1.62	2.00	1.64	1.96
Japan	0.89	0.99	1.04	0.53	0.67	1.00	0.94	0.61	0.80	0.93	1.06	0.67	0.87	0.95	0.74	1.01	0.95	0.90	0.76	0.87	0.82
United Kingdom	1.53	2.16	1.48	1.66	1.53	1.86	1.34	1.41	2.22	1.92	1.93	1.71	1.72	1.64	1.84	1.91	1.80	2.41	1.89	2.22	2.55
Russia	0.36	0.23	0.14	0.11	0.54	0.27	0.32	0.23	0.23	0.10	0.36	0.22	0.12	0.39	0.24	0.10	0.29	0.29	0.24	0.16	0.19
Italy	0.21	0.35	1.08	0.39	0.98	1.19	1.65	1.40	1.00	1.58	1.81	0.89	1.18	1.01	0.93	1.35	1.40	1.31	1.44	1.49	2.53
South Korea	0.50	0.49	0.61	0.42	0.87	0.70	1.04	0.82	0.49	1.11	0.82	0.48	1.25	1.32	1.32	1.36	1.31	1.83	1.69	2.40	1.58
France	1.23	1.18	0.83	1.59	1.21	1.43	1.17	1.17	1.11	1.36	1.51	1.57	1.76	1.32	1.30	1.39	1.41	1.58	0.89	0.74	1.23
Brazil	1.35	0.00	0.44	0.29	0.34	0.23	0.47	0.24	0.84	0.16	0.54	0.70	0.83	0.49	0.34	0.59	0.08	0.68	0.13	0.07	0.30
Canada	2.02	1.66	0.83	2.63	1.50	2.09	3.19	1.62	1.72	1.41	1.51	1.71	1.49	1.55	1.64	1.58	1.59	0.42	1.36	1.07	0.78
Spain	0.82	0.19	0.51	0.82	0.80	0.51	0.80	1.74	1.10	1.32	1.77	1.88	1.37	1.03	0.62	1.51	1.66	1.53	1.24	0.99	0.96
Australia	1.56	2.78	2.11	1.97	2.44	2.29	1.35	1.32	2.51	1.89	1.54	2.02	2.90	2.71	2.81	2.61	2.90	2.82	2.37	2.64	3.78
Iran	0.00	0.00	ne	0.00	0.00	1.39	0.00	2.31	0.98	0.53	0.73	1.43	0.86	1.37	1.54	1.36	0.68	0.83	0.62	1.19	1.67
EU (all members)	1.00	0.98	1.13	1.17	1.12	1.14	1.12	1.21	1.15	1.34	1.39	1.30	1.20	1.24	1.32	1.28	1.20	1.22	1.13	1.16	1.29

ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-45

Share of S&E publications in the top 1% most-cited articles in mathematics and statistics, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.44	0.76	0.66	0.69	0.91	0.89	0.62	1.04	1.02	1.17	0.87	1.23	0.79	0.93	1.02	1.12	1.12	0.97	1.03	1.44	1.63
United States	2.05	1.84	1.94	1.86	1.91	2.02	1.72	2.11	1.97	1.72	1.83	1.66	1.91	1.75	1.72	1.88	1.74	1.74	1.56	1.50	1.47
India	0.19	0.37	0.22	0.40	0.38	0.38	0.50	0.48	0.81	0.74	0.49	0.72	0.40	0.52	0.64	0.71	0.65	0.60	0.59	0.69	0.70
Germany	1.09	1.21	1.08	0.88	1.06	1.09	0.99	0.61	1.29	0.96	1.13	1.20	1.02	1.15	1.55	1.31	1.31	1.72	1.58	1.35	1.15
Japan	0.51	0.57	0.50	0.23	0.36	0.74	0.72	0.52	0.89	0.86	0.27	0.54	0.65	0.45	0.71	0.80	0.75	0.67	0.94	0.76	0.76
United Kingdom	0.83	1.16	1.26	1.08	1.21	1.36	1.75	1.00	1.29	1.58	1.35	1.78	1.79	1.99	1.92	1.87	1.81	1.77	1.76	1.78	1.86
Russia	0.13	0.31	0.05	0.20	0.33	0.36	0.25	0.24	0.07	0.10	0.20	0.18	0.04	0.20	0.15	0.22	0.19	0.26	0.26	0.37	0.31
Italy	1.54	1.06	0.46	1.36	1.15	0.71	1.09	0.86	0.83	1.19	1.28	0.91	1.54	1.08	1.34	1.09	1.19	1.84	2.02	1.86	2.17
South Korea	0.00	0.84	0.71	0.76	0.65	1.18	1.39	0.46	0.49	0.89	0.50	0.45	0.78	0.94	0.93	1.07	0.97	1.14	1.52	0.97	1.18
France	1.56	1.49	1.06	1.73	1.26	1.44	1.00	1.54	1.24	1.44	1.40	0.95	1.44	1.58	1.19	1.44	1.20	1.25	1.10	1.22	1.01
Brazil	0.86	0.70	0.00	1.73	1.01	1.02	0.90	1.16	0.92	0.53	0.49	0.91	0.66	0.84	0.97	0.65	0.68	0.78	0.65	1.03	0.67
Canada	1.54	1.32	1.45	0.88	1.19	1.32	1.24	1.43	0.85	1.20	0.86	1.10	1.18	1.11	1.15	1.38	1.06	1.10	1.23	1.12	1.19
Spain	2.03	0.65	1.20	0.44	0.71	0.74	0.57	0.66	0.76	0.90	0.83	1.10	0.51	1.38	0.87	0.99	1.24	0.88	1.35	0.74	0.61
Australia	1.44	1.13	1.01	1.41	1.33	0.49	1.57	0.99	1.89	1.38	0.68	0.92	1.38	1.47	1.46	0.84	1.81	2.49	2.41	2.01	1.89
Iran	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.26	1.68	1.15	1.37	1.28	0.97	0.61	1.02	1.54	1.28	0.74	0.81
EU (all members)	0.98	1.01	0.97	1.03	0.95	1.11	1.05	0.93	1.06	1.07	1.03	1.08	1.07	1.12	1.17	1.14	1.22	1.20	1.24	1.24	1.18

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-46

Share of S&E publications in the top 1% most-cited articles in natural resources and conservation, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.00	0.95	0.37	1.53	0.83	0.49	0.41	0.58	0.77	0.86	0.77	1.06	0.74	0.84	0.84	0.64	0.82	0.80	0.80	1.01	0.92
United States	1.48	1.44	1.52	1.24	1.28	1.61	1.46	1.34	1.47	1.47	1.60	1.58	1.68	1.43	1.79	1.87	2.04	1.72	1.92	1.74	1.75
India	0.19	0.35	0.32	0.00	0.00	0.89	0.13	0.53	0.88	0.28	0.45	0.84	0.88	0.78	0.50	0.48	0.63	0.71	0.32	1.23	1.06
Germany	0.55	0.62	0.77	1.32	0.95	1.20	1.60	1.56	1.35	1.43	1.93	1.64	1.07	1.66	1.89	1.70	1.63	2.56	3.08	2.03	2.36
Japan	0.19	0.17	0.26	0.33	0.09	0.27	0.27	0.38	0.42	0.26	0.26	0.30	0.13	0.23	0.58	0.66	1.00	0.33	0.60	0.88	0.70
United Kingdom	1.15	1.00	1.44	1.36	1.86	1.95	2.45	1.71	2.13	2.36	1.99	1.62	2.82	2.79	2.33	2.69	3.07	2.78	3.15	2.69	2.18
Russia	1.92	0.78	2.11	1.77	3.03	0.78	0.00	0.75	0.94	0.75	0.49	0.00	0.47	0.46	0.86	0.00	0.00	0.41	0.00	1.20	1.04
Italy	0.00	0.35	0.36	0.68	2.30	0.84	1.57	1.94	1.22	1.00	1.07	0.46	0.52	1.03	1.45	2.63	1.80	2.01	2.17	2.85	2.49
South Korea	0.00	0.00	0.00	0.00	1.61	1.29	0.76	0.00	0.72	0.29	0.25	1.15	0.48	0.53	1.05	1.21	0.37	1.30	0.92	1.00	1.66
France	0.82	0.71	0.87	1.82	3.23	0.62	1.77	1.45	1.00	1.39	1.92	1.00	0.86	2.18	2.10	2.08	2.62	2.02	2.26	1.76	2.07
Brazil	3.30	3.85	1.99	2.65	1.61	0.93	0.00	0.47	1.38	1.26	1.12	0.42	0.87	0.67	0.54	0.36	0.30	0.53	0.54	0.44	0.71
Canada	1.82	1.64	1.98	1.68	1.30	1.94	1.26	1.63	1.91	1.60	1.53	1.43	1.72	1.87	2.10	1.74	1.74	1.76	1.88	1.71	1.90
Spain	0.00	0.30	0.34	1.45	1.08	0.89	1.74	1.29	1.45	1.92	0.88	1.50	1.38	1.33	1.56	1.38	2.09	1.98	1.62	1.35	1.38
Australia	0.51	1.49	0.83	1.37	1.46	0.98	1.85	1.52	1.41	0.98	1.47	2.48	1.58	2.04	2.51	1.94	2.42	1.87	2.56	1.79	1.95
Iran	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	0.00	0.65	0.00	0.33	0.84	0.51	0.00	0.30	0.52	0.12	0.92	0.72
EU (all members)	0.85	0.79	0.89	1.14	1.41	0.96	1.37	1.24	1.18	1.32	1.37	1.12	1.22	1.41	1.16	1.38	1.39	1.54	1.55	1.39	1.28

ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-47

Share of S&E publications in the top 1% most-cited articles in physics, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.38	0.33	0.43	0.34	0.35	0.35	0.52	0.63	0.71	0.73	0.79	0.73	0.72	0.71	0.76	0.86	0.92	0.95	0.99	1.12	1.18
United States	2.17	2.08	2.10	2.09	2.02	2.05	1.96	1.98	2.11	1.90	1.96	1.94	2.13	2.06	2.13	2.06	2.19	2.29	2.34	2.15	2.26
India	0.36	0.29	0.40	0.39	0.85	0.62	0.53	1.16	0.82	0.81	0.82	0.74	0.75	0.77	0.82	0.81	0.87	1.04	0.91	1.00	0.86
Germany	1.01	1.29	1.15	1.27	1.23	1.16	1.35	1.15	1.25	1.34	1.50	1.58	1.59	1.43	1.72	1.85	1.87	1.92	2.02	2.08	2.15
Japan	0.71	0.78	0.71	0.70	0.69	0.79	0.63	0.66	0.75	0.79	0.78	0.84	0.85	0.81	0.97	1.03	1.02	1.11	1.13	1.07	1.30
United Kingdom	1.21	1.50	1.31	1.37	1.40	1.30	1.58	1.47	1.44	1.89	1.74	1.67	1.58	1.93	1.95	1.89	1.99	2.31	2.52	2.54	2.48
Russia	0.36	0.39	0.33	0.40	0.36	0.37	0.45	0.55	0.51	0.51	0.71	0.63	0.48	0.48	0.56	0.73	0.67	0.85	0.79	0.74	0.75
Italy	0.77	1.12	0.97	0.93	0.60	1.23	1.25	0.73	0.86	1.02	1.15	1.13	1.06	1.30	1.30	1.53	1.62	1.88	1.77	1.90	2.12
South Korea	0.50	0.27	0.47	0.40	0.39	0.67	0.90	0.66	0.75	0.79	0.73	0.78	0.82	0.79	0.84	1.02	1.00	1.34	1.34	1.30	1.09
France	0.91	1.00	1.15	0.86	0.99	1.20	0.97	1.09	1.05	1.12	1.22	1.32	1.20	1.18	1.39	1.43	1.34	1.68	1.68	1.69	1.84
Brazil	0.42	0.57	0.41	0.27	0.22	0.33	0.53	0.77	0.50	0.52	0.71	0.64	0.87	0.66	1.11	1.44	1.34	1.88	1.76	1.90	2.04
Canada	1.04	1.14	1.08	1.71	1.18	1.37	1.12	1.36	1.59	1.41	1.72	1.65	1.73	1.88	1.94	2.12	1.98	2.32	2.36	2.80	2.96
Spain	1.04	0.76	0.94	1.00	0.90	0.98	1.16	1.18	1.43	1.34	1.40	1.24	1.44	1.37	1.63	1.80	1.98	2.16	2.51	2.19	2.79
Australia	0.99	1.24	1.03	1.19	0.91	1.43	1.28	0.83	1.57	1.00	1.65	1.47	2.03	1.93	1.69	1.59	2.16	2.13	1.84	2.62	2.87
Iran	0.00	0.00	0.00	0.68	1.10	0.00	0.00	0.58	0.99	0.86	0.60	1.11	0.69	0.73	0.80	0.74	0.97	0.89	1.32	1.66	2.38
EU (all members)	0.94	1.03	1.04	1.02	1.02	1.06	1.10	1.06	1.05	1.15	1.19	1.21	1.16	1.19	1.26	1.33	1.28	1.34	1.37	1.37	1.35

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-48

Share of S&E publications in the top 1% most-cited articles in psychology, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.00	0.00	0.72	1.53	0.59	0.65	0.57	0.48	0.42	0.36	0.36	1.12	0.69	0.69	0.47	1.12	0.83	0.71	1.20	1.02	0.93
United States	1.28	1.32	1.39	1.31	1.37	1.33	1.41	1.46	1.41	1.43	1.51	1.51	1.51	1.48	1.45	1.56	1.51	1.45	1.44	1.59	1.48
India	0.00	0.00	0.00	0.00	0.00	2.33	0.00	0.00	0.00	1.49	0.00	1.01	0.00	0.00	2.10	0.50	1.72	0.34	0.34	0.56	0.86
Germany	0.79	0.93	0.37	0.96	0.81	0.93	0.84	0.60	0.96	0.82	0.68	1.09	0.82	0.94	1.17	1.24	1.13	1.18	1.22	0.87	0.87
Japan	0.37	0.48	0.37	0.85	0.36	0.17	0.62	0.17	0.31	0.14	0.43	0.47	0.00	0.12	0.40	0.41	0.09	0.35	0.26	0.00	0.57
United Kingdom	1.20	0.73	1.27	0.98	1.16	1.23	1.05	1.05	1.32	1.04	1.18	0.97	1.11	0.89	1.30	1.08	1.37	1.48	1.43	1.44	1.66
Russia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.86	0.00	1.10	0.00	0.88	0.26	0.39
Italy	1.23	0.53	0.92	0.28	0.23	0.40	0.39	0.67	0.46	0.56	0.39	0.87	0.41	0.95	0.62	0.91	0.66	0.96	0.87	0.70	0.90
South Korea	0.00	0.00	ne	0.00	0.00	1.49	0.00	0.00	0.00	2.44	1.41	0.56	0.61	0.91	0.81	0.61	0.60	0.49	0.61	0.68	0.43
France	0.33	0.89	0.77	0.63	0.90	0.61	0.38	0.79	0.40	0.56	0.45	0.74	0.39	0.30	0.47	0.45	0.47	0.53	0.59	0.48	0.62
Brazil	0.00	2.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.98	0.31	0.33	0.00	0.80	0.53	0.35	0.62	0.70	0.35
Canada	0.64	1.03	0.83	1.38	0.61	0.82	1.48	0.83	0.67	1.10	0.92	1.37	0.95	1.01	1.32	1.46	1.16	1.61	1.23	1.34	1.44
Spain	0.00	0.00	0.28	0.00	0.00	0.46	0.38	0.18	0.17	0.31	0.28	0.96	0.39	0.55	0.40	0.28	0.19	0.89	0.87	0.91	0.34
Australia	1.22	0.50	0.93	0.73	0.77	1.10	0.50	0.31	0.80	1.20	0.53	0.83	0.67	0.83	0.35	0.55	1.00	0.97	1.18	1.25	1.17
Iran	na	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	0.00	0.00	0.00	0.00	1.45	1.23	0.00	0.00	0.00	0.50
EU (all members)	0.82	0.67	0.80	0.76	0.82	0.84	0.70	0.72	0.82	0.81	0.77	0.72	0.84	0.78	0.88	0.82	0.89	0.99	0.99	0.93	1.02

ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

Note(s)

Articles are classified by their year of publication and are assigned to a region, country, or economy on the basis of the institutional address(es) of the author(s) listed in the article. Citation data by field are only presented for the 15 largest publication-producing countries because of high year-to-year variation for countries, regions, or economies with small annual publication output (Table 5a-1). Citation data are based on all citations made to articles in their publication year and all following years and are normalized by subfield and publication year to allow for comparisons across subfields and over time, resulting in the world-level standing at 1% for each subfield and year. A minimum 2-year citation window is needed for a relative citation (RC) score to be computed. This results in scores regarding highly cited articles not being computed after 2016 because the citation window for more recent years is not yet complete. The share of articles in the top 1% is computed as follows: $Sx = HCAx/Ax$, where Sx is the share of output from country x in the top 1% most-cited articles; $HCAx$ is the number of articles from country x that are among the top 1% of most-cited articles (using full counting, with the exception of papers at the limit of the top 1%, which are fractioned so the world average can stand at 1%); and Ax is the total number of articles from country x with an RC score, which excludes articles released after 2016 and unclassified publications.

Source(s)

National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.

Science and Engineering Indicators

TABLE S5A-49

Share of S&E publications in the top 1% most-cited articles in social sciences, for the 15 largest publication-producing regions, countries, or economies: 1996–2016

(Percent)

Region, country, or economy	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
China	0.47	0.63	0.41	0.39	0.74	0.85	0.52	0.96	0.97	0.98	0.53	0.88	0.85	0.82	1.04	1.43	1.53	1.07	1.37	1.28	1.59
United States	1.51	1.46	1.47	1.40	1.45	1.50	1.55	1.58	1.51	1.44	1.42	1.54	1.52	1.56	1.58	1.64	1.67	1.68	1.66	1.60	1.46
India	0.00	1.13	0.00	0.00	0.00	0.18	0.00	0.00	0.67	0.67	0.19	0.14	0.19	0.25	0.22	0.07	0.05	0.23	0.11	0.25	0.23
Germany	0.47	0.08	0.66	0.41	0.66	0.62	0.65	0.78	0.69	0.43	1.05	0.82	0.99	0.99	1.14	0.91	1.01	1.34	1.33	1.30	1.13
Japan	0.22	0.00	0.00	0.00	0.16	0.32	0.13	0.00	0.40	0.19	0.36	0.50	0.33	0.38	0.45	0.46	0.39	0.63	0.58	0.62	0.35
United Kingdom	0.86	0.87	0.97	0.84	0.94	0.84	0.82	1.06	1.16	1.14	1.31	1.22	1.32	1.35	1.23	1.38	1.44	1.45	1.53	1.60	1.99
Russia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.26	0.18	0.15	0.12	0.57	0.18	0.34
Italy	0.55	0.28	0.81	0.49	0.40	0.16	0.74	0.63	0.91	1.30	0.75	0.49	1.01	1.10	0.69	0.73	0.90	0.91	1.00	1.36	0.98
South Korea	1.86	0.00	0.78	0.65	0.04	1.40	0.39	0.87	1.00	0.88	0.91	0.44	0.57	1.59	1.12	0.84	0.85	1.77	0.82	0.91	1.12
France	0.17	0.61	0.11	0.62	0.47	0.28	0.23	0.47	0.35	0.36	0.43	0.26	0.52	0.34	0.72	0.39	0.62	0.69	0.97	0.82	0.64
Brazil	2.00	0.00	0.91	0.00	0.61	0.44	0.00	0.00	0.71	0.89	0.33	0.00	0.28	0.09	0.07	0.06	0.23	0.21	0.43	0.30	0.23
Canada	0.89	1.00	1.43	1.05	0.81	1.08	0.77	0.86	0.97	0.90	1.19	0.95	1.08	1.07	1.35	1.31	1.60	0.96	1.31	1.19	1.21
Spain	0.59	1.50	0.46	1.02	0.48	0.78	0.49	0.22	0.40	1.01	0.67	0.48	0.48	0.50	0.60	0.85	0.58	0.90	0.82	0.93	0.98
Australia	0.72	0.67	0.54	0.72	0.54	0.45	0.79	0.47	0.69	0.47	0.73	0.96	0.98	0.79	1.02	0.81	1.11	0.79	1.20	1.24	1.00
Iran	ne	ne	ne	ne	ne	ne	ne	ne	ne	0.00	0.00	3.41	0.00	0.00	0.20	0.10	0.40	0.62	0.58	1.52	2.68
EU (all members)	0.65	0.70	0.76	0.77	0.75	0.63	0.64	0.80	0.78	0.87	1.00	0.84	0.90	0.94	0.94	0.91	0.95	0.98	1.03	1.04	1.10

ne = not eligible; there are fewer than 30 articles available to make a calculation.

EU = European Union.

Note(s)

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Science and Engineering Indicators