

Appendix table 5-34

S&E articles in mathematics, by region/country/economy: 1997–2011

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
World	10,729.0	10,956.0	12,006.0	14,015.0	14,127.0	13,625.0	14,518.0	14,802.0	14,923.0	16,507.0	17,415.0	18,156.0	19,274.0	18,233.0	18,023.0
North America															
Canada	411.0	385.6	424.9	442.0	408.5	435.2	491.1	529.5	532.4	592.9	576.1	597.1	689.1	575.9	557.6
Mexico	40.7	35.8	53.2	55.2	68.7	72.3	74.2	88.8	92.8	80.4	82.8	106.0	74.9	98.5	78.9
United States	3,326.2	3,368.0	3,381.9	3,977.5	3,645.2	3,455.3	3,690.1	3,691.0	3,782.6	4,031.2	4,085.3	4,186.8	4,211.3	3,897.8	3,935.7
Central America/Caribbean															
Antigua and Barbuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	0.0	0.0	1.0	0.5	1.0	2.0	1.3	0.5	0.5	0.0	0.5	0.0	0.0	0.0	0.3
Belize	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Costa Rica	1.0	1.0	1.7	0.5	0.0	0.0	1.5	0.0	1.0	1.5	0.0	1.8	0.5	0.9	0.3
Cuba	0.0	3.8	2.7	2.8	1.0	2.5	2.8	2.1	2.3	5.5	3.2	6.7	2.0	1.7	1.7
Dominica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
El Salvador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	1.0	0.5	0.8	0.5	1.5	0.0	0.5	0.0	0.8	0.8	0.5	0.8	1.2	0.3	0.0
Nicaragua	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Kitts and Nevis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Lucia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Vincent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad and Tobago	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
West Indies Associated States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South America															
Argentina	32.2	20.8	45.2	59.2	59.8	62.3	51.1	58.8	53.5	73.1	73.4	85.5	76.4	96.3	78.3
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Brazil	105.7	114.8	126.3	160.3	179.2	197.8	193.5	194.3	204.2	221.4	230.3	253.8	289.4	289.3	266.0
Chile	33.7	33.5	31.1	35.1	37.5	49.4	58.4	59.6	52.5	76.5	77.6	74.7	95.1	86.1	91.5
Colombia	2.2	3.3	3.7	5.7	9.0	7.3	8.7	5.2	6.2	12.6	11.2	9.9	16.1	17.7	24.9
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.5	0.8	1.8	3.8	1.7
Guyana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Paraguay	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Peru	0.0	0.0	0.0	2.0	1.0	0.8	1.5	0.0	1.0	2.0	0.7	1.5	1.8	1.8	2.0
Suriname	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uruguay	7.6	4.0	4.8	6.2	5.5	8.0	7.5	4.5	6.0	4.3	5.3	7.9	11.3	10.4	5.7
Venezuela	18.9	11.7	15.2	25.3	23.7	19.5	15.4	18.3	17.7	12.2	11.9	16.5	6.5	11.9	10.0

Appendix table 5-34

S&E articles in mathematics, by region/country/economy: 1997–2011

Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe															
European Union															
Austria	72.2	65.8	79.0	95.0	120.6	120.6	127.7	114.3	124.7	159.2	157.8	158.2	159.0	155.0	179.1
Belgium	80.1	85.0	120.8	122.1	118.6	120.1	145.4	175.1	157.4	174.0	184.3	211.8	185.0	193.2	166.7
Bulgaria	31.2	27.9	30.3	37.7	35.5	31.2	28.1	33.2	33.0	30.2	31.0	33.1	29.0	36.4	18.2
Cyprus	3.2	3.8	3.0	5.0	8.0	2.5	7.8	10.5	8.8	11.8	9.6	18.5	16.3	20.3	7.9
Czech Republic	52.3	46.2	59.0	75.2	106.9	76.2	79.1	85.4	78.6	105.5	124.0	135.5	139.6	162.3	115.8
Denmark	64.7	64.0	73.6	63.2	73.4	64.1	78.6	74.7	80.6	78.2	63.0	52.9	68.6	59.5	64.2
Estonia	4.3	4.5	7.2	6.0	6.3	3.8	4.0	4.5	8.0	5.7	11.3	8.8	6.0	4.5	8.2
Finland	46.6	38.4	61.2	74.2	70.4	67.7	72.5	73.0	61.4	88.9	90.7	87.2	82.4	83.1	92.4
France	1,044.5	1,154.2	1,248.7	1,355.3	1,369.0	1,381.5	1,360.3	1,335.6	1,367.1	1,409.9	1,388.4	1,393.8	1,549.5	1,549.9	1,442.4
Germany	735.8	812.4	907.0	1,025.8	936.1	888.1	930.8	959.0	937.3	989.0	1,071.0	1,031.9	1,106.0	1,012.6	1,065.0
Greece	80.7	52.5	73.2	69.9	96.0	82.5	94.8	100.0	113.5	117.4	96.2	101.7	124.6	98.4	101.6
Hungary	52.8	65.0	72.3	95.4	97.7	82.3	100.0	81.6	106.4	110.3	88.9	128.0	120.5	91.5	103.8
Ireland	28.5	34.7	34.9	49.8	42.0	32.6	34.0	42.4	42.5	61.4	49.3	48.0	54.4	58.1	54.6
Italy	438.5	404.8	472.0	564.4	638.3	640.3	660.8	652.0	665.5	755.7	793.0	774.4	882.2	865.4	778.0
Latvia	2.5	1.5	1.5	2.5	2.5	0.0	0.5	0.3	1.0	0.0	2.3	0.0	1.0	1.0	2.0
Lithuania	3.0	5.7	17.7	10.5	8.3	10.3	30.0	11.6	5.2	9.0	43.9	10.0	11.1	13.2	7.9
Luxembourg	0.0	1.0	1.0	0.0	1.5	0.0	1.8	2.8	0.0	0.5	4.2	8.8	5.4	6.7	12.7
Malta	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.5	2.0	2.2	2.5	3.2	1.0
Netherlands	145.9	142.3	130.4	178.2	162.9	140.0	189.7	154.1	161.2	163.3	161.7	181.4	166.4	167.2	153.8
Poland	138.5	128.2	175.3	187.8	226.9	199.0	224.0	227.6	211.8	207.6	277.7	296.8	330.4	289.3	330.3
Portugal	26.3	33.4	30.6	49.1	73.4	78.7	82.2	76.2	98.8	102.8	105.0	110.9	159.8	134.9	150.9
Romania	50.9	48.4	58.6	61.9	74.4	81.1	73.2	68.9	68.3	79.0	114.2	104.0	141.6	151.2	120.9
Slovakia	26.2	13.7	20.6	27.4	35.4	27.9	17.7	25.7	23.8	22.7	36.8	34.2	30.8	34.9	30.7
Slovenia	18.2	24.8	22.3	28.3	28.6	65.5	38.0	49.2	50.6	46.7	82.5	62.8	70.4	67.3	47.3
Spain	320.8	317.8	439.8	510.1	528.7	495.3	550.1	565.5	533.9	617.4	675.6	683.3	705.7	688.6	608.9
Sweden	100.3	118.2	132.4	137.6	130.0	130.2	146.1	159.8	155.7	179.9	171.5	164.4	164.3	152.9	142.6
United Kingdom	638.9	673.1	713.3	803.9	739.0	701.2	758.3	699.8	720.2	887.0	901.1	872.8	908.2	895.4	913.9
Other Europe															
Albania	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	1.3	0.5
Andorra	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belarus	10.7	13.0	16.0	14.8	18.3	9.5	12.4	12.8	14.3	15.2	15.9	10.3	11.5	12.2	15.8
Bosnia and Herzegovina	1.0	0.5	0.5	2.5	0.0	1.0	0.5	0.0	1.5	4.0	3.5	3.2	1.7	4.8	3.5
Croatia	14.3	19.3	9.5	21.0	20.4	15.2	9.2	17.2	20.7	28.0	24.8	32.1	29.9	29.0	27.8
Iceland	4.0	2.0	1.7	0.3	4.1	2.5	3.0	2.1	1.8	3.5	5.0	5.7	6.6	10.2	3.7
Kosovo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liechtenstein	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Macedonia	1.0	0.0	2.0	0.5	1.0	0.0	1.0	2.0	0.0	0.0	0.0	1.5	1.5	0.5	3.7
Moldova	4.5	5.5	1.0	2.0	1.5	0.3	0.8	1.0	2.0	1.8	2.5	1.0	1.5	0.0	2.0
Monaco	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Montenegro	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	1.0	1.0	0.8	3.5	7.3

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Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Eritrea	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	3.0	3.0	1.3	1.8
Gabon	0.0	0.5	0.0	0.5	1.5	0.5	1.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.5
Gambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghana	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.3	0.0	1.5	0.0
Guinea	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.2
Lesotho	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5
Liberia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Libya	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.8	0.0	3.0	1.0	1.0
Madagascar	0.0	1.3	0.0	0.0	0.0	0.0	0.5	0.5	0.0	1.0	0.0	1.5	0.0	1.0	0.0
Malawi	2.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Mali	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Mauritania	0.0	0.0	0.0	0.3	0.8	0.8	0.5	0.3	1.8	1.5	0.7	0.0	0.0	0.0	1.0
Mauritius	0.0	0.0	0.0	0.0	1.0	0.5	0.5	0.0	0.0	1.0	0.0	4.5	3.0	1.5	0.0
Morocco	21.2	20.2	32.7	31.2	48.7	31.2	41.3	33.3	35.2	38.2	32.7	31.0	37.7	36.2	29.2
Mozambique	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Namibia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Niger	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0
Nigeria	6.0	2.5	6.0	6.0	7.0	3.0	1.5	2.0	2.8	3.0	6.5	2.3	1.0	5.2	2.8
Rwanda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
São Tomé and Príncipe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senegal	1.3	0.5	0.0	0.0	1.5	0.8	2.5	1.3	1.3	2.4	1.0	3.8	2.6	4.8	3.7
Senegambia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seychelles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	25.5	34.8	52.7	43.9	40.6	42.2	37.6	33.6	37.7	44.7	67.8	53.1	65.4	42.9	47.9
Sudan	0.0	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	1.0
Swaziland	0.0	0.5	0.5	0.3	0.0	0.5	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Tanzania	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.3
Togo	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tunisia	15.6	21.8	25.9	27.7	38.3	37.0	32.4	32.7	44.2	43.3	48.8	45.8	60.0	62.7	66.1
Uganda	0.0	0.5	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.3	1.0	0.0
Zambia	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zimbabwe	1.0	0.0	0.0	0.5	0.5	0.5	0.3	0.5	0.0	0.0	1.3	0.0	0.8	0.0	1.0
Asia															
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	0.7	6.5	3.3	4.5	1.5	10.1	6.3	8.0	2.0	9.2	8.3	7.0	12.5	9.0	9.5
Azerbaijan	2.3	0.0	2.5	3.5	5.3	3.8	4.0	5.5	6.0	8.3	12.3	8.7	12.3	10.6	9.8
Bangladesh	1.5	2.0	1.0	0.5	0.5	2.5	0.0	0.0	1.0	1.0	0.3	0.5	0.0	1.0	1.8

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Region/country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Tonga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vanuatu	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available; country did not exist as such.

NOTES: Article counts are from the set of journals covered by the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Articles are classified by their year of publication and are assigned to a region/country/economy on the basis of the institutional address(es) listed in the article. Articles are credited on a fractional-count basis (i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on the basis of the proportion of its participating institutions). Detail may not add to total because of rounding.

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

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