
World Flash on Basic Research

**The counting of core journal gatekeepers
as science indicators really counts.
The scientific scope of action and strength of nations**

TIBOR BRAUN,^{a,b} ILDIKÓ DIÓSPATONYI^a

^a *Information Science and Scientometrics Research Unit (ISSRU), Institute for Research Policy Studies,
Hungarian Academy of Sciences, Budapest (Hungary)*

^b *Institute of Inorganic and Analytical Chemistry, L. Eötvös University, Budapest (Hungary)*

Introduction

Journal gatekeeping indicators were suggested and first published in the early eighties.^{1,2} This was based on the fact that publication of papers in primary research journals is widely accepted as having a central role to play in the continuance of science as an intellectual and social activity. In particular, it is recognized as being both a means by which researchers are able to establish and advance themselves professionally, and the medium through which contributions are made to a discipline's body of ratified knowledge. As a consequence, those who control that activity, i.e., the gatekeepers of science journals exert a special influence on the orchestration of the international research activity. The selection of gatekeepers is a self-organizing process science has developed during the last three centuries, and participation in or invitation to a gatekeeper position is a distinction and represents one of the forms of reward science has instituted.

Although as mentioned, the initial steps of our methodology were first outlined in 1982, at that time we did not fully recognize the importance of this process.

This paper presents the results of our most recent investigations on the topic by concentrating on the year 2003.

Received November 2, 2004

Address for correspondence:

TIBOR BRAUN
Information Science and Scientometrics Research Unit (ISSRU)
Institute for Research Policy Studies, Hungarian Academy of Sciences
P. O. Box 123, H-1443 Budapest 70, Hungary
E-mail: braun@mail.iif.hu

0138–9130/2005/US \$ 20.00

Copyright © 2005 Akadémiai Kiadó, Budapest
All rights reserved

The basic inspiration of the gatekeeping indicators idea has been based on the preliminary work by Crane³ on gatekeeping and de Candolle⁴ on ranking nations by membership of their scientists in academies and elite scientific societies.

Later on gatekeeping indicators were successfully used in some scientometric applications.^{5–10}

A short outline of the methodology

We have built a database of international core journal gatekeepers for the year 2003. Science journals were defined as “international” if their editorial boards included scientists from at least eight countries, regardless of the journal title in question. The “international” label in the title of some journals may hide a truly national one. On the other hand, the editorial board of the *American Heart Journal* includes not only US scientists but also others, mostly from ten European countries.

The current database contains data for 240 core journals from 12 science fields including the top 20 ranked by impact factor in each of the fields. The total number of analyzed gatekeepers can be considered as statistically significant. The classification system of Glänzel and Schubert¹¹ was at work for the delimitation of the fields of science and the selection of the core journals.

The gatekeepers for each journal included the editor-in-chief, the editor(s), the deputy editor(s) (-in-chief), the managing editor, the members of the editorial and advisory board, that is, primarily the names that appeared on the cover pages of the journals.

Results and discussion

Some important remarks have to be mentioned from the very beginning.

1. The criteria of the selection of science core journals in our gatekeepers database are based and the way these are categorized are just one of the options which can be adopted in such a study. However, our previous studies^{1,8,10} have shown that the data of other sample gatekeeper databases are convergent, that is why we consider that a sample of other core journals selected in any field or subfield of science would yield also convergent results. Many science journals are working also with gatekeepers whose names are not mentioned on their title pages. However, the best of them do reach those pages and those who are enumerated on those pages represent a statistically correctly selected sample of the total population of gatekeepers.
2. Using data for other year or years could lead to different results, although we have noticed previously that the stability (in time) of gatekeeping data is

remarkably high, i.e., the names and source nations of the gatekeepers do not change too frequently in time.

3. The gatekeeping indicators are valid only for data extracted from international journals. However, we have defined the internationality of journals, i.e., we have set, as mentioned, internationality arbitrarily to journals whose gatekeepers belong to at least 8 different nations. As a control experiment, we have compiled also data from journals totalizing gatekeepers from 5 different countries. It has to be noted that in the two cases the titles of the two journal sets didn't overlap perfectly, although they did match quite well.
4. We consider as a special advantage of gatekeeping indicators that they are not showing the language bias frequently mentioned as a problem when using indicators based on counting of journal papers.
5. The same has to be mentioned for the problems related to coauthorship in case of publication indicators. Gatekeeping is exempt of the bias of multiauthored papers.

Tables 1–13 present results for 2003 and include the number and percentage of gatekeepers for many countries as well as the number of papers in them and the citations in 2000–2002 to papers published in 2000, for science and for 12 science fields.

In Figures 1–3 we have plotted the percentage of gatekeepers, papers and citations for the US and the EU(15). As already visible, the ranking by national output of papers and citations in the UK and EU(15) is as previously published.^{12,13} However, as seen in Figure 1, with a few exceptions the number of US gatekeepers dominate the world of science at an extent which is considerably higher than their share in publications and citations.

As visible in Figures 4 and 5, the values of national gatekeeping indicators show a fairly good correlation with journal papers and citations data during overlapping time periods.

Although as interpreted in this paper, it is the absolute number of gatekeepers per nation, which counts in the international scientific power and scope of action of nations, we were interested also in the specific value of the gatekeeping indicator, i.e., the number of gatekeepers per total population of the country in question. Table 15 is presenting those data.

In the editorial gatekeeping process the editors-in-chief of the journals are playing a very special, important and powerful role. In Table 16 we have represented the national distribution of those gatekeepers for 15 nations. Figure 6 represents the correlation between the national distribution of the number of editorial board members and editors-in-chief. As visible in Table 16 and Figure 6, the dominance of US scientists is clearly revealed also in case of the editors-in-chiefs of the 240 journals examined and the correlation of US editors-in-chief and US members of the editorial boards is strikingly high.

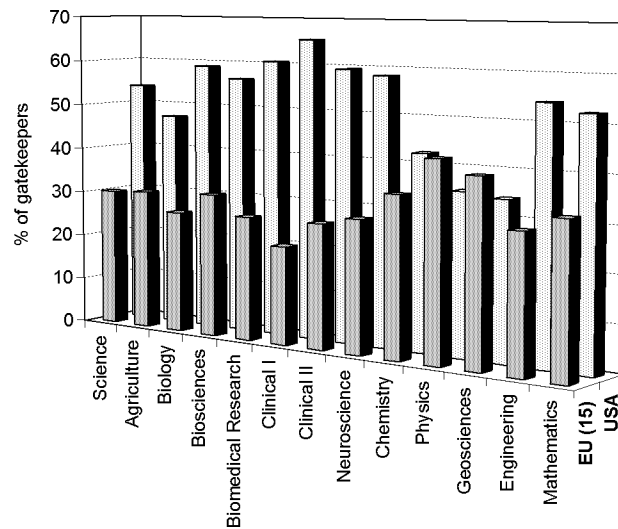


Figure 1. Percentage distribution of journal gatekeepers in 20 core journals in science and 12 disciplines in the US and the EU(15). Source: as in Table 1

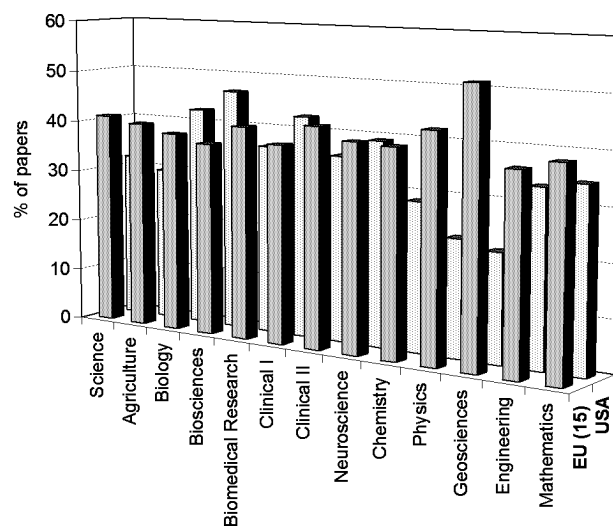


Figure 2. Percentage distribution of journal papers productivity in 20 core journals in science and 12 disciplines in the US and the EU(15). Source: as in Table 1

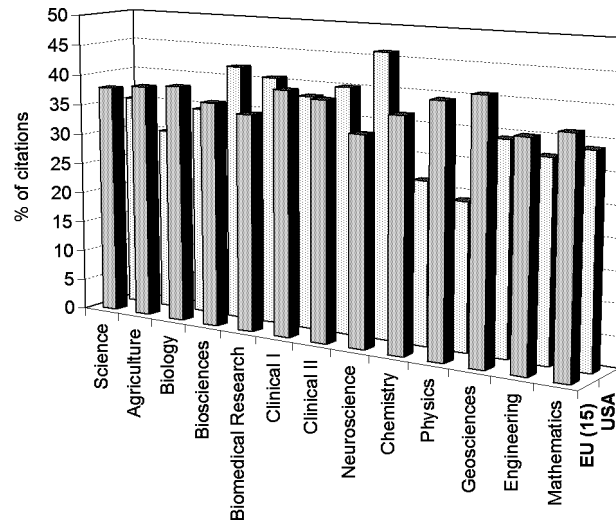


Figure 3. Percentage distribution of citations during 2000–2002 for papers in 2000 in science and 12 disciplines in the US and the EU(15). Source: as in Table 1

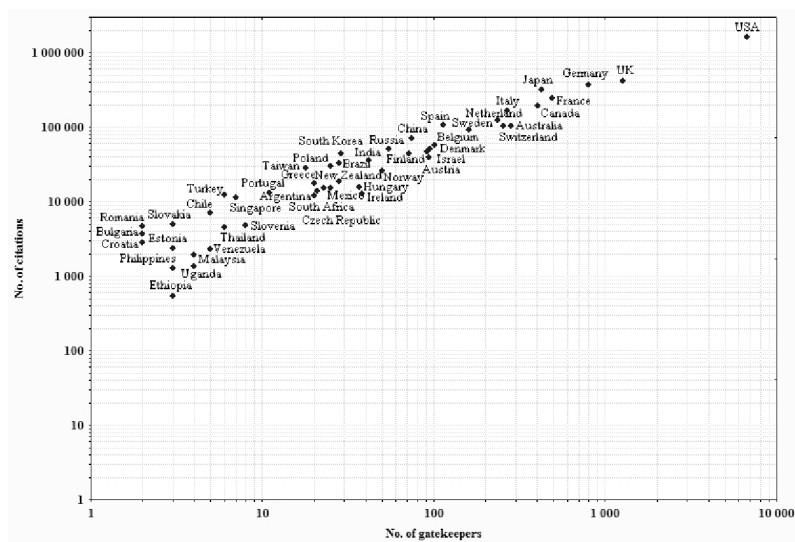


Figure 4. Correlation between the number of gatekeepers and papers in 240 science core journals (2003) for 50 nations. Source: as in Table 1

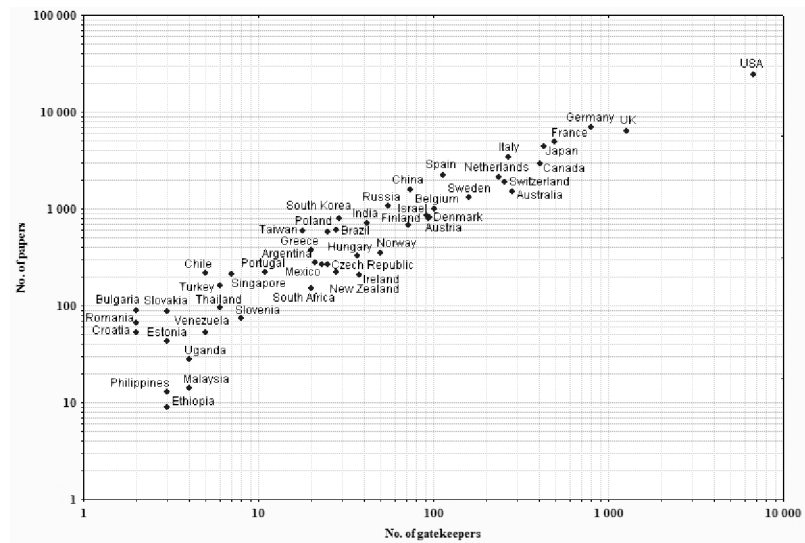


Figure 5. Correlation between the gatekeepers in 240 science core journals (2003) and science journals citations in 2000–2002 for papers in 2000 for 50 nations. Source: as in Table 1

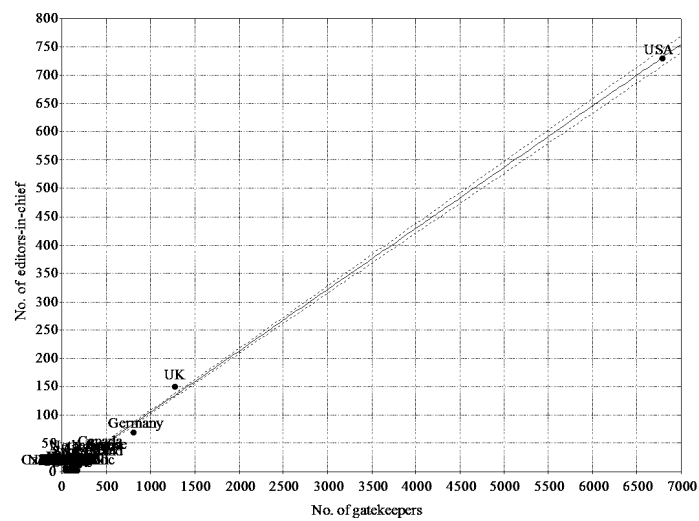


Figure 6. Correlation between gatekeepers (editorial board members) and editors-in-chief in 240 journals for 50 nations. Source: as in Table 1

Table 1. Gatekeepers, journal papers and citations for 50 nations.
Science

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio*	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	6734	53.87	1.0	1	24526	32.07	1.0	1	1627684	35.32	1.0
UK	2	1265	10.12	5.3	3	6356	8.31	3.9	2	412217	8.94	3.9
Germany	3	797	6.38	8.4	2	6899	9.02	3.6	3	364841	7.92	4.5
France	4	493	3.94	13.7	4	4944	6.47	5.0	5	247247	5.36	6.6
Japan	5	427	3.42	15.8	5	4359	5.70	5.6	4	313590	6.80	5.2
Canada	6	405	3.24	16.6	7	2941	3.85	8.3	6	190696	4.14	8.5
Australia	7	284	2.27	23.7	12	1511	1.98	16.2	10	104726	2.27	15.5
Italy	8	267	2.14	25.2	6	3422	4.48	7.2	7	165009	3.58	9.9
Switzerland	9	256	2.05	26.3	10	1874	2.45	13.1	11	103734	2.25	15.7
Netherlands	10	235	1.88	28.7	9	2100	2.75	11.7	8	123716	2.68	13.2
Sweden	11	160	1.28	42.1	13	1316	1.72	18.6	12	91707	1.99	17.7
Spain	12	113	0.90	59.6	8	2238	2.93	11.0	9	106744	2.32	15.2
Belgium	13	101	0.81	66.7	15	1011	1.32	24.3	14	57684	1.25	28.2
Denmark	14	95	0.76	70.9	17	813	1.06	30.2	16	50529	1.10	32.2
Austria	15	94	0.75	71.6	19	797	1.04	30.8	20	38680	0.84	42.1
Israel	16	91	0.73	74.0	16	862	1.13	28.5	17	47052	1.02	34.6
China PR	17	74	0.59	91.0	11	1570	2.05	15.6	13	71208	1.55	22.9
Finland	18	72	0.58	93.5	21	681	0.89	36.0	18	44302	0.96	36.7
Russia	19	55	0.44	122.4	14	1064	1.39	23.1	15	50546	1.10	32.2
Norway	20	50	0.40	134.7	26	354	0.46	69.3	25	25992	0.56	62.6
India	21	42	0.34	160.3	20	717	0.94	34.2	21	36145	0.78	45.0
Ireland	22	38	0.30	177.2	35	207	0.27	118.5	33	12582	0.27	129.4
Hungary	23	37	0.30	182.0	27	324	0.42	75.7	28	15778	0.34	103.2
South Korea	24	29	0.23	232.2	18	801	1.05	30.6	19	44004	0.95	37.0
Brazil	25-26	28	0.22	240.5	22	610	0.80	40.2	22	32329	0.70	50.3
New Zealand	25-26	28	0.22	240.5	32	220	0.29	111.5	26	18558	0.40	87.7
Czech Republic	27-28	25	0.20	269.4	30	268	0.35	91.5	30	15001	0.33	108.5
Poland	27-28	25	0.20	269.4	24	574	0.75	42.7	23	30261	0.66	53.8
Mexico	29	23	0.18	292.8	29	269	0.35	91.2	29	15069	0.33	108.0
Argentina	30	21	0.17	320.7	28	282	0.37	87.0	31	14037	0.30	116.0
Greece	31-32	20	0.16	336.7	25	376	0.49	65.2	27	17743	0.38	91.7
South Africa	31-32	20	0.16	336.7	37	151	0.20	162.4	35	11955	0.26	136.2
Taiwan	33	18	0.14	374.1	23	588	0.77	41.7	24	28504	0.62	57.1
Portugal	34	11	0.09	612.2	31	221	0.29	111.0	32	13066	0.28	124.6
Slovenia	35	8	0.06	841.8	41	75	0.10	327.0	39	4740	0.10	343.4
Singapore	36	7	0.06	962.0	34	212	0.28	115.7	36	11441	0.25	142.3
Thailand	37-38	6	0.05	1122.3	38	95	0.12	258.2	41	4470	0.10	364.1
Turkey	37-38	6	0.05	1122.3	36	161	0.21	152.3	34	12257	0.27	132.8
Chile	39-40	5	0.04	1346.8	33	219	0.29	112.0	37	7068	0.15	230.3
North Korea	39-40	5	0.04	1346.8	50	0	0.00	—	50	0	0.00	—
Venezuela	39-40	5	0.04	1346.8	43-44	53	0.07	462.8	45	2282	0.05	713.3
Malaysia	42-43	4	0.03	1683.5	47	14	0.02	1751.9	46	1899	0.04	857.1
Uganda	42-43	4	0.03	1683.5	46	28	0.04	875.9	47	1346	0.03	1209.3
Estonia	44-47	3	0.02	2244.7	45	43	0.06	570.4	44	2385	0.05	682.5
Ethiopia	44-47	3	0.02	2244.7	49	9	0.01	2725.1	49	541	0.01	3008.7
Philippines	44-47	3	0.02	2244.7	48	13	0.02	1886.6	48	1257	0.03	1294.9
Slovakia	44-47	3	0.02	2244.7	40	88	0.12	278.7	38	4995	0.11	325.9
Bulgaria	48-50	2	0.02	3367.0	39	90	0.12	272.5	42	3645	0.08	446.6
Croatia	48-50	2	0.02	3367.0	43-44	53	0.07	462.8	43	2849	0.06	571.3
Romania	48-50	2	0.02	3367.0	42	66	0.09	371.6	40	4619	0.10	352.4

*Ratio = US/other nation

Sources: Thomson–ISI Web of Science; Gatekeepers Database of the ISSRU

Table 2. Gatekeepers, journal papers and citations for 47 nations.
Agriculture and Environment

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	438	47.15	1.0	1	1190	29.74	1.0	1	34390	30.20	1.0
UK	2	76	8.18	5.8	2	291	7.27	4.1	2	10242	8.99	3.4
Germany	3	57	6.14	7.7	4	245	6.12	4.9	4	6360	5.58	5.4
Canada	4	50	5.38	8.8	5	211	5.27	5.6	3	7353	6.46	4.7
France	5	39	4.20	11.2	3	255	6.37	4.7	6	5523	4.85	6.2
Australia	6	33	3.55	13.3	9	110	2.75	10.8	8	4115	3.61	8.4
Japan	7	27	2.91	16.2	6	184	4.60	6.5	5	5844	5.13	5.9
Netherlands	8	21	2.26	20.9	10-11	105	2.62	11.3	9	3426	3.01	10.0
Italy	9-10	16	1.72	27.4	8	134	3.35	8.9	10	2945	2.59	11.7
Switzerland	9-10	16	1.72	27.4	16	57	1.42	20.9	13	2008	1.76	17.1
Denmark	11-12	14	1.51	31.3	17-18	55	1.37	21.6	12	2341	2.06	14.7
Sweden	11-12	14	1.51	31.3	12	90	2.25	13.2	11	2882	2.53	11.9
Finland	13	13	1.40	33.7	13	74	1.85	16.1	15	1706	1.50	20.2
Belgium	14	11	1.18	39.8	14	73	1.82	16.3	18	1378	1.21	25.0
Spain	15	9	0.97	48.7	7	163	4.07	7.3	7	4246	3.73	8.1
Brazil	16-18	7	0.75	62.6	21	43	1.07	27.7	20	1217	1.07	28.3
New Zealand	16-18	7	0.75	62.6	20	46	1.15	25.9	19	1309	1.15	26.3
Norway	16-18	7	0.75	62.6	23	37	0.92	32.2	14	1773	1.56	19.4
Argentina	19-23	5	0.54	87.6	25	33	0.82	36.1	32	559	0.49	61.5
Greece	19-23	5	0.54	87.6	24	36	0.90	33.1	27	706	0.62	48.7
Israel	19-23	5	0.54	87.6	33-34	15	0.37	79.3	25	873	0.77	39.4
Mexico	19-23	5	0.54	87.6	26-27	28	0.70	42.5	23	917	0.81	37.5
South Africa	19-23	5	0.54	87.6	29-30	18	0.45	66.1	31	573	0.50	60.0
Austria	24-26	4	0.43	109.5	22	38	0.95	31.3	28	659	0.58	52.2
China PR	24-26	4	0.43	109.5	10-11	105	2.62	11.3	16	1671	1.47	20.6
Hungary	24-26	4	0.43	109.5	33-34	15	0.37	79.3	35	299	0.26	115.0
Chile	27-30	3	0.32	146.0	31	17	0.42	70.0	36	263	0.23	130.8
India	27-30	3	0.32	146.0	17-18	55	1.37	21.6	17	1494	1.31	23.0
Ireland	27-30	3	0.32	146.0	28	20	0.50	59.5	24	890	0.78	38.6
Poland	27-30	3	0.32	146.0	32	16	0.40	74.4	26	729	0.64	47.2
Estonia	31-38	2	0.22	219.0	37	10	0.25	119.0	43	94	0.08	365.9
Morocco	31-38	2	0.22	219.0	39	8	0.20	148.8	41	138	0.12	249.2
Philippines	31-38	2	0.22	219.0	42-43	4	0.10	297.5	34	320	0.28	107.5
Portugal	31-38	2	0.22	219.0	29-30	18	0.45	66.1	30	587	0.52	58.6
Russia	31-38	2	0.22	219.0	26-27	28	0.70	42.5	29	601	0.53	57.2
Singapore	31-38	2	0.22	219.0	45-46	1	0.02	1190.0	38	172	0.15	199.9
South Korea	31-38	2	0.22	219.0	15	68	1.70	17.5	22	986	0.87	34.9
Venezuela	31-38	2	0.22	219.0	38	9	0.22	132.2	44	93	0.08	369.8
Bulgaria	39-47	1	0.11	438.0	35	13	0.32	91.5	45	87	0.08	395.3
Croatia	39-47	1	0.11	438.0	44	3	0.07	396.7	42	98	0.09	350.9
Czech Republic	39-47	1	0.11	438.0	36	11	0.27	108.2	33	443	0.39	77.6
Egypt	39-47	1	0.11	438.0	40-41	5	0.12	238.0	40	160	0.14	214.9
Malaysia	39-47	1	0.11	438.0	40-41	5	0.12	238.0	37	188	0.17	182.9
North Korea	39-47	1	0.11	438.0	47	0	0.00	–	47	0	0.00	–
Slovenia	39-47	1	0.11	438.0	42-43	4	0.10	297.5	39	165	0.14	208.4
Taiwan	39-47	1	0.11	438.0	19	54	1.35	22.0	21	1017	0.89	33.8
Yugoslavia	39-47	1	0.11	438.0	45-46	1	0.02	1190.0	46	44	0.04	781.6

Table 3. Gatekeepers, journal papers and citations for 39 nations.
Biology (Organismic and Supraorganismic Level)

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	601	58.92	1.0	1	2033	42.51	1.0	1	118023	34.47	1.0
UK	2	104	10.20	5.8	2	459	9.60	4.4	2	35732	10.44	3.3
Germany	3	39	3.82	15.4	3	358	7.49	5.7	3	24996	7.30	4.7
France	4	37	3.63	16.2	4	331	6.92	6.1	4	19883	5.81	5.9
Canada	5	34	3.33	17.7	6	177	3.70	11.5	6	15777	4.61	7.5
Australia	6	32	3.14	18.8	9	128	2.68	15.9	7	12709	3.71	9.3
Netherlands	7	25	2.45	24.0	7	148	3.09	13.7	8	10763	3.14	11.0
Japan	8	24	2.35	25.0	5	183	3.83	11.1	5	19770	5.77	6.0
Italy	9	23	2.25	26.1	10	126	2.63	16.1	10	7968	2.33	14.8
Switzerland	10	21	2.06	28.6	11	125	2.61	16.3	11	7641	2.23	15.4
Sweden	11	13	1.27	46.2	13	70	1.46	29.0	12	7259	2.12	16.3
Belgium	12	11	1.08	54.6	12	87	1.82	23.4	13	5569	1.63	21.2
Finland	13-14	6	0.59	100.2	17	27	0.56	75.3	17	3216	0.94	36.7
Spain	13-14	6	0.59	100.2	8	146	3.05	13.9	9	9988	2.92	11.8
Denmark	15-16	4	0.39	150.3	14	41	0.86	49.6	14	4714	1.38	25.0
Thailand	15-16	4	0.39	150.3	27-28	14	0.29	145.2	30	992	0.29	119.0
Hungary	17-20	3	0.29	200.3	27-28	14	0.29	145.2	31	880	0.26	134.1
Israel	17-20	3	0.29	200.3	15-16	37	0.77	54.9	20	2851	0.83	41.4
Mexico	17-20	3	0.29	200.3	24-25	17	0.36	119.6	26	1800	0.53	65.6
Norway	17-20	3	0.29	200.3	26	16	0.33	127.1	18	3176	0.93	37.2
Argentina	21-25	2	0.20	300.5	20	22	0.46	92.4	27	1744	0.51	67.7
Austria	21-25	2	0.20	300.5	15-16	37	0.77	54.9	24	2383	0.70	49.5
China PR	21-25	2	0.20	300.5	19	25	0.52	81.3	16	3239	0.95	36.4
New Zealand	21-25	2	0.20	300.5	29-30	12	0.25	169.4	19	2959	0.86	39.9
South Africa	21-25	2	0.20	300.5	23	18	0.38	112.9	23	2412	0.70	48.9
Algeria	26-39	1	0.10	601.0	38-39	0	0.00	–	38	37	0.01	3189.8
Brazil	26-39	1	0.10	601.0	29-30	12	0.25	169.4	15	3309	0.97	35.7
Colombia	26-39	1	0.10	601.0	36-37	1	0.02	2033.0	36	295	0.09	400.1
Ethiopia	26-39	1	0.10	601.0	34-35	2	0.04	1016.5	37	85	0.02	1388.5
India	26-39	1	0.10	601.0	24-25	17	0.36	119.6	22	2629	0.77	44.9
Ireland	26-39	1	0.10	601.0	31	11	0.23	184.8	29	1322	0.39	89.3
Kenya	26-39	1	0.10	601.0	32	10	0.21	203.3	32	555	0.16	212.7
Panama	26-39	1	0.10	601.0	36-37	1	0.02	2033.0	34	310	0.09	380.7
Russia	26-39	1	0.10	601.0	21-22	20	0.42	101.7	25	2058	0.60	57.3
South Korea	26-39	1	0.10	601.0	21-22	20	0.42	101.7	21	2844	0.83	41.5
Taiwan	26-39	1	0.10	601.0	18	26	0.54	78.2	28	1658	0.48	71.2
Turkey	26-39	1	0.10	601.0	34-35	2	0.04	1016.5	33	525	0.15	224.8
Uganda	26-39	1	0.10	601.0	33	9	0.19	225.9	35	307	0.09	384.4
Yemen Arab Rep	26-39	1	0.10	601.0	38-39	0	0.00	–	39	7	0.00	16860.4

Table 4. Gatekeepers, journal papers and citations for 33 nations.
Biosciences (General, Cellular and Subcellular Biology; Genetics)

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	634	56.31	1.0	1	1967	46.59	1.0	1	348299	42.06	1.0
UK	2	160	14.21	4.0	2	491	11.63	4.0	2	82027	9.90	4.2
Germany	3	70	6.22	9.1	3	383	9.07	5.1	3	66784	8.06	5.2
France	4	37	3.29	17.1	4	246	5.83	8.0	5	46856	5.66	7.4
Switzerland	5	36	3.20	17.6	7	134	3.17	14.7	8	20036	2.42	17.4
Japan	6	35	3.11	18.1	5	231	5.47	8.5	4	61172	7.39	5.7
Italy	7	23	2.04	27.6	9	78	1.85	25.2	7	23689	2.86	14.7
Canada	8	20	1.78	31.7	6	139	3.29	14.2	6	33806	4.08	10.3
Netherlands	9	18	1.60	35.2	8	112	2.65	17.6	9	19426	2.35	17.9
Australia	10	17	1.51	37.3	11–12	58	1.37	33.9	10	17218	2.08	20.2
Sweden	11	15	1.33	42.3	10	63	1.49	31.2	11	16580	2.00	21.0
Austria	12–13	8	0.71	79.3	11–12	58	1.37	33.9	16	7262	0.88	48.0
Israel	12–13	8	0.71	79.3	13	56	1.33	35.1	14	9475	1.14	36.8
Spain	14	7	0.62	90.6	14	53	1.26	37.1	12	15425	1.86	22.6
Finland	15	6	0.53	105.7	17	23	0.54	85.5	17	7210	0.87	48.3
China PR	16	5	0.44	126.8	19	12	0.28	163.9	18	5974	0.72	58.3
Denmark	17–19	3	0.27	211.3	16	26	0.62	75.7	15	8345	1.01	41.7
India	17–19	3	0.27	211.3	26–27	4	0.09	491.8	23	3057	0.37	113.9
Ireland	17–19	3	0.27	211.3	26–27	4	0.09	491.8	26	1918	0.23	181.6
Belgium	20–23	2	0.18	317.0	15	30	0.71	65.6	13	9919	1.20	35.1
Malta	20–23	2	0.18	317.0	29	0	0.00	–	33	0	0.00	–
New Zealand	20–23	2	0.18	317.0	22	7	0.17	281.0	24	2463	0.30	141.4
Poland	20–23	2	0.18	317.0	23	6	0.14	327.8	22	3478	0.42	100.1
Brazil	24–33	1	0.09	634.0	24–25	5	0.12	393.4	20	3806	0.46	91.5
Egypt	24–33	1	0.09	634.0	30–33	0	0.00	–	29	322	0.04	1081.7
Hungary	24–33	1	0.09	634.0	20–21	8	0.19	245.9	25	2140	0.26	162.8
Jamaica	24–33	1	0.09	634.0	30–33	0	0.00	–	32	33	0.00	10554.5
Malaysia	24–33	1	0.09	634.0	30–33	0	0.00	–	31	145	0.02	2402.1
Mexico	24–33	1	0.09	634.0	28	2	0.05	983.5	28	1402	0.17	248.4
Norway	24–33	1	0.09	634.0	20–21	8	0.19	245.9	21	3696	0.45	94.2
Panama	24–33	1	0.09	634.0	30–33	0	0.00	–	30	170	0.02	2048.8
Russia	24–33	1	0.09	634.0	18	13	0.31	151.3	19	4547	0.55	76.6
South Africa	24–33	1	0.09	634.0	24–25	5	0.12	393.4	27	1514	0.18	230.1

Table 5. Gatekeepers, journal papers and citations for 34 nations.
Biomedical Research

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	661	60.42	1.0	1	1691	36.30	1.0	1	131169	40.68	1.0
UK	2	128	11.70	5.2	2	478	10.26	3.5	2	28360	8.80	4.6
Germany	3	50	4.57	13.2	3	394	8.46	4.3	4	22122	6.86	5.9
Canada	4	37	3.38	17.9	6	228	4.89	7.4	5	15717	4.87	8.3
Japan	5	29	2.65	22.8	4	284	6.10	6.0	3	25024	7.76	5.2
Australia	6	25	2.29	26.4	8	145	3.11	11.7	10	6922	2.15	18.9
France	7	24	2.19	27.5	5	233	5.00	7.3	6	15244	4.73	8.6
Netherlands	8	21	1.92	31.5	9	144	3.09	11.7	8	8880	2.75	14.8
Switzerland	9	16	1.46	41.3	10	111	2.38	15.2	9	8113	2.52	16.2
Italy	10	15	1.37	44.1	7	194	4.16	8.7	7	11764	3.65	11.2
Sweden	11	12	1.10	55.1	13	80	1.72	21.1	11	6062	1.88	21.6
Denmark	12	11	1.01	60.1	11	89	1.91	19.0	14	3353	1.04	39.1
Austria	13	9	0.82	73.4	16	49	1.05	34.5	17	2996	0.93	43.8
Belgium	14	8	0.73	82.6	14	67	1.44	25.2	13	4606	1.43	28.5
Finland	15	7	0.64	94.4	15	59	1.27	28.7	15	3061	0.95	42.9
Israel	16	6	0.55	110.2	19	35	0.75	48.3	19	2271	0.70	57.8
China PR	17-18	5	0.46	132.2	18	37	0.79	45.7	16	3001	0.93	43.7
Ireland	17-18	5	0.46	132.2	27-28	12	0.26	140.9	32	663	0.21	197.8
South Korea	19-20	4	0.37	165.3	17	41	0.88	41.2	18	2365	0.73	55.5
Spain	19-20	4	0.37	165.3	12	84	1.80	20.1	12	5858	1.82	22.4
Argentina	21-23	2	0.18	330.5	29	11	0.24	153.7	31	682	0.21	192.3
Brazil	21-23	2	0.18	330.5	22	21	0.45	80.5	20	2157	0.67	60.8
Hungary	21-23	2	0.18	330.5	20	30	0.64	56.4	24	1192	0.37	110.0
Chile	24-34	1	0.09	661.0	32	7	0.15	241.6	33	374	0.12	350.7
Czech Republic	24-34	1	0.09	661.0	26	14	0.30	120.8	27	938	0.29	139.8
Greece	24-34	1	0.09	661.0	23-24	18	0.39	93.9	26	991	0.31	132.4
India	24-34	1	0.09	661.0	30	10	0.21	169.1	23	1452	0.45	90.3
Mexico	24-34	1	0.09	661.0	27-28	12	0.26	140.9	25	1010	0.31	129.9
New Zealand	24-34	1	0.09	661.0	23-24	18	0.39	93.9	22	1685	0.52	77.8
Norway	24-34	1	0.09	661.0	21	29	0.62	58.3	21	1792	0.56	73.2
Portugal	24-34	1	0.09	661.0	31	8	0.17	211.4	29	712	0.22	184.2
Russia	24-34	1	0.09	661.0	25	15	0.32	112.7	28	914	0.28	143.5
South Africa	24-34	1	0.09	661.0	33	6	0.13	281.8	30	685	0.21	191.5
Thailand	24-34	1	0.09	661.0	34	4	0.09	422.8	34	315	0.10	416.4

Table 6. Gatekeepers, journal papers and citations for 41 nations.
Clinical and Experimental Medicine I (General and Internal Medicine)

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	978	65.42	1.0	1	4662	42.65	1.0	1	284794	38.19	1.0
UK	2	87	5.82	11.2	2	815	7.46	5.7	2	72977	9.79	3.9
Germany	3	57	3.81	17.2	3	768	7.03	6.1	3	50014	6.71	5.7
Japan	4	54	3.61	18.1	6	570	5.21	8.2	4	46083	6.18	6.2
France	5	46	3.08	21.3	4	631	5.77	7.4	5	38495	5.16	7.4
Canada	6	37	2.47	26.4	7	500	4.57	9.3	6	35342	4.74	8.1
Australia	7	36	2.41	27.2	10	262	2.40	17.8	9	19811	2.66	14.4
Italy	8	34	2.27	28.8	5	598	5.47	7.8	7	34382	4.61	8.3
Netherlands	9	26	1.74	37.6	8	343	3.14	13.6	8	25780	3.46	11.0
Switzerland	10	17	1.14	57.5	11	247	2.26	18.9	11	16512	2.21	17.2
Spain	11	15	1.00	65.2	9	275	2.52	17.0	12	15133	2.03	18.8
Sweden	12	14	0.94	69.9	12	183	1.67	25.5	10	17180	2.30	16.6
Austria	13	13	0.87	75.2	14	134	1.23	34.8	17	7141	0.96	39.9
Belgium	14-15	10	0.67	97.8	13	149	1.36	31.3	13	11191	1.50	25.4
Israel	14-15	10	0.67	97.8	15-16	110	1.01	42.4	16	7718	1.03	36.9
Ireland	16-17	6	0.40	163.0	23	30	0.27	155.4	25	2448	0.33	116.3
Norway	16-17	6	0.40	163.0	18	65	0.59	71.7	18	5810	0.78	49.0
Denmark	18	5	0.33	195.6	15-16	110	1.01	42.4	14	9748	1.31	29.2
China PR	19-22	4	0.27	244.5	19	63	0.58	74.0	19	5171	0.69	55.1
Finland	19-22	4	0.27	244.5	17	70	0.64	66.6	15	9476	1.27	30.1
Hungary	19-22	4	0.27	244.5	29-31	17	0.16	274.2	28	1563	0.21	182.2
India	19-22	4	0.27	244.5	32-33	16	0.15	291.4	27	1696	0.23	167.9
Mexico	23-24	3	0.20	326.0	29-31	17	0.16	274.2	30	1426	0.19	199.7
Russia	23-24	3	0.20	326.0	26	20	0.18	233.1	34	781	0.10	364.7
Brazil	25-29	2	0.13	489.0	22	36	0.33	129.5	21	3475	0.47	82.0
Greece	25-29	2	0.13	489.0	21	38	0.35	122.7	23	2999	0.40	95.0
Poland	25-29	2	0.13	489.0	25	27	0.25	172.7	24	2637	0.35	108.0
Taiwan	25-29	2	0.13	489.0	20	56	0.51	83.3	20	3937	0.53	72.3
Uganda	25-29	2	0.13	489.0	34	8	0.07	582.8	35	574	0.08	496.2
Argentina	30-41	1	0.07	978.0	32-33	16	0.15	291.4	26	2039	0.27	139.7
Croatia	30-41	1	0.07	978.0	38-39	1	0.01	4662.0	38	301	0.04	946.2
Czech Republic	30-41	1	0.07	978.0	35	6	0.05	777.0	31	1345	0.18	211.7
Ethiopia	30-41	1	0.07	978.0	38-39	1	0.01	4662.0	40	63	0.01	4520.5
Madagascar	30-41	1	0.07	978.0	40-41	0	0.00	–	41	26	0.00	10953.6
New Zealand	30-41	1	0.07	978.0	24	29	0.27	160.8	22	3126	0.42	91.1
Portugal	30-41	1	0.07	978.0	28	18	0.16	259.0	33	984	0.13	289.4
Romania	30-41	1	0.07	978.0	40-41	0	0.00	–	39	117	0.02	2434.1
Singapore	30-41	1	0.07	978.0	29-31	17	0.16	274.2	32	1112	0.15	256.1
Slovakia	30-41	1	0.07	978.0	37	2	0.02	2331.0	37	336	0.05	847.6
Slovenia	30-41	1	0.07	978.0	36	3	0.03	1554.0	36	564	0.08	505.0
Turkey	30-41	1	0.07	978.0	27	19	0.17	245.4	29	1465	0.20	194.4

Table 7. Gatekeepers, journal papers and citations for 43 nations.
Clinical and Experimental Medicine II (Non-internal Medicine Specialties)

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	810	59.38	1.0	1	2885	35.64	1.0	1	213221	40.14	1.0
UK	2	143	10.48	5.7	2	891	11.01	3.2	2	53773	10.12	4.0
Germany	3	63	4.62	12.9	3	616	7.61	4.7	3	39139	7.37	5.4
Canada	4	52	3.81	15.6	6	374	4.62	7.7	4	24700	4.65	8.6
France	5	47	3.45	17.2	5	407	5.03	7.1	6	22163	4.17	9.6
Japan	6	41	3.01	19.8	4	462	5.71	6.2	5	24433	4.60	8.7
Italy	7-8	28	2.05	28.9	7	362	4.47	8.0	7	18803	3.54	11.3
Netherlands	7-8	28	2.05	28.9	8	309	3.82	9.3	8	18263	3.44	11.7
Australia	9	24	1.76	33.8	9	200	2.47	14.4	9	13648	2.57	15.6
Switzerland	10	17	1.25	47.6	11	176	2.17	16.4	11	9936	1.87	21.5
Spain	11-12	13	0.95	62.3	10	181	2.24	15.9	12	9398	1.77	22.7
Sweden	11-12	13	0.95	62.3	12	145	1.79	19.9	10	13382	2.52	15.9
Belgium	13	10	0.73	81.0	13	123	1.52	23.5	13	7792	1.47	27.4
Austria	14	8	0.59	101.3	16	86	1.06	33.5	16	6083	1.15	35.1
Israel	15	7	0.51	115.7	17	83	1.03	34.8	17	5019	0.94	42.5
Finland	16	6	0.44	135.0	14	111	1.37	26.0	14	6975	1.31	30.6
China PR	17-19	5	0.37	162.0	18	75	0.93	38.5	18	3556	0.67	60.0
Denmark	17-19	5	0.37	162.0	15	96	1.19	30.1	15	6292	1.18	33.9
Mexico	17-19	5	0.37	162.0	30-31	17	0.21	169.7	29	1387	0.26	153.7
Norway	20	4	0.29	202.5	22	40	0.49	72.1	19	3417	0.64	62.4
Argentina	21-22	3	0.22	270.0	28-29	18	0.22	160.3	30	1364	0.26	156.3
Ireland	21-22	3	0.22	270.0	23-24	34	0.42	84.9	27	1756	0.33	121.4
Brazil	23-30	2	0.15	405.0	19	69	0.85	41.8	21	2943	0.55	72.5
Greece	23-30	2	0.15	405.0	23-24	34	0.42	84.9	24	2244	0.42	95.0
Hungary	23-30	2	0.15	405.0	34	15	0.19	192.3	31	1211	0.23	176.1
India	23-30	2	0.15	405.0	25	31	0.38	93.1	25	2150	0.40	99.2
South Africa	23-30	2	0.15	405.0	26	26	0.32	111.0	28	1723	0.32	123.7
South Korea	23-30	2	0.15	405.0	20	56	0.69	51.5	20	3192	0.60	66.8
Taiwan	23-30	2	0.15	405.0	21	50	0.62	57.7	22	2886	0.54	73.9
Turkey	23-30	2	0.15	405.0	30-31	17	0.21	169.7	23	2741	0.52	77.8
Czech Republic	31-43	1	0.07	810.0	35	11	0.14	262.3	35	781	0.15	273.0
Ethiopia	31-43	1	0.07	810.0	40	2	0.02	1442.5	42	111	0.02	1920.9
Iceland	31-43	1	0.07	810.0	37	6	0.07	480.8	38	340	0.06	627.1
Lebanon	31-43	1	0.07	810.0	38-39	4	0.05	721.3	40	241	0.05	884.7
Madagascar	31-43	1	0.07	810.0	41-43	0	0.00	–	43	15	0.00	14214.7
Malaysia	31-43	1	0.07	810.0	41-43	0	0.00	–	41	148	0.03	1440.7
New Zealand	31-43	1	0.07	810.0	28-29	18	0.22	160.3	26	2103	0.40	101.4
Portugal	31-43	1	0.07	810.0	32-33	16	0.20	180.3	33	912	0.17	233.8
Russia	31-43	1	0.07	810.0	32-33	16	0.20	180.3	34	880	0.17	242.3
Slovenia	31-43	1	0.07	810.0	41-43	0	0.00	–	36	405	0.08	526.5
Thailand	31-43	1	0.07	810.0	27	20	0.25	144.3	32	955	0.18	223.3
Uganda	31-43	1	0.07	810.0	36	9	0.11	320.6	37	381	0.07	559.6
Venezuela	31-43	1	0.07	810.0	38-39	4	0.05	721.3	39	286	0.05	745.5

Table 8. Gatekeepers, journal papers and citations for 33 nations.
Neuroscience and Behavior

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	738	58.25	1.0	1	1199	39.22	1.0	1	117260	46.12	1.0
UK	2	136	10.73	5.4	2	319	10.44	3.8	2	24371	9.58	4.8
Germany	3	96	7.58	7.7	3	270	8.83	4.4	3	18917	7.44	6.2
France	4	49	3.87	15.1	5	173	5.66	6.9	6	10302	4.05	11.4
Japan	5	48	3.79	15.4	4	206	6.74	5.8	5	12843	5.05	9.1
Canada	6	47	3.71	15.7	6	156	5.10	7.7	4	14484	5.70	8.1
Sweden	7	22	1.74	33.5	10	64	2.09	18.7	8	5816	2.29	20.2
Switzerland	8	18	1.42	41.0	9	72	2.36	16.7	12	4706	1.85	24.9
Australia	9-10	15	1.18	49.2	13	42	1.37	28.5	9	5441	2.14	21.6
Spain	9-10	15	1.18	49.2	8	74	2.42	16.2	11	5071	1.99	23.1
Italy	11	12	0.95	61.5	7	126	4.12	9.5	7	8058	3.17	14.6
Denmark	12-13	9	0.71	82.0	16	29	0.95	41.3	16	1869	0.74	62.7
Israel	12-13	9	0.71	82.0	15	35	1.14	34.3	13	2717	1.07	43.2
Netherlands	14	8	0.63	92.3	11	47	1.54	25.5	10	5129	2.02	22.9
Hungary	15	7	0.55	105.4	18-19	17	0.56	70.5	20	1340	0.53	87.5
Finland	16	6	0.47	123.0	12	43	1.41	27.9	15	2176	0.86	53.9
Austria	17-20	4	0.32	184.5	18-19	17	0.56	70.5	18	1454	0.57	80.6
China PR	17-20	4	0.32	184.5	17	27	0.88	44.4	17	1484	0.58	79.0
Ireland	17-20	4	0.32	184.5	29-31	5	0.16	239.8	26	603	0.24	194.5
Norway	17-20	4	0.32	184.5	23	8	0.26	149.9	21	1119	0.44	104.8
Belgium	21-23	2	0.16	369.0	14	38	1.24	31.6	14	2299	0.90	51.0
Mexico	21-23	2	0.16	369.0	24-27	7	0.23	171.3	28	453	0.18	258.9
Poland	21-23	2	0.16	369.0	22	13	0.43	92.2	23	779	0.31	150.5
Argentina	24-33	1	0.08	738.0	24-27	7	0.23	171.3	24	693	0.27	169.2
Brazil	24-33	1	0.08	738.0	21	14	0.46	85.6	19	1407	0.55	83.3
Czech Republic	24-33	1	0.08	738.0	32	3	0.10	399.7	30	323	0.13	363.0
Greece	24-33	1	0.08	738.0	29-31	5	0.16	239.8	31	296	0.12	396.1
New Zealand	24-33	1	0.08	738.0	24-27	7	0.23	171.3	22	1056	0.42	111.0
Peru	24-33	1	0.08	738.0	33	0	0.00	—	33	0	0.00	—
Portugal	24-33	1	0.08	738.0	24-27	7	0.23	171.3	29	363	0.14	323.0
Russia	24-33	1	0.08	738.0	28	6	0.20	199.8	25	686	0.27	170.9
Singapore	24-33	1	0.08	738.0	29-31	5	0.16	239.8	32	186	0.07	630.4
Taiwan	24-33	1	0.08	738.0	20	16	0.52	74.9	27	561	0.22	209.0

Table 9. Gatekeepers, journal papers and citations for 37 nations.
Chemistry

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	374	42.40	1.0	1	2559	28.50	1.0	1	136734	26.46	1.0
UK	2	80	9.07	4.7	4	530	5.90	4.8	4	34474	6.67	4.0
Germany	3	77	8.73	4.9	2	1002	11.16	2.6	3	49425	9.57	2.8
Japan	4	54	6.12	6.9	3	809	9.01	3.2	2	55849	10.81	2.4
France	5	46	5.22	8.1	5	522	5.81	4.9	5	30533	5.91	4.5
Canada	6	29	3.29	12.9	9	344	3.83	7.4	9	15630	3.02	8.7
Italy	7	25	2.83	15.0	7	366	4.08	7.0	8	18319	3.55	7.5
Switzerland	8	23	2.61	16.3	10	201	2.24	12.7	10	11702	2.26	11.7
Australia	9-10	19	2.15	19.7	14	127	1.41	20.1	15	8355	1.62	16.4
Netherlands	9-10	19	2.15	19.7	12	180	2.00	14.2	11	11631	2.25	11.8
Sweden	11	14	1.59	26.7	13	134	1.49	19.1	16	8052	1.56	17.0
Spain	12	12	1.36	31.2	6	433	4.82	5.9	7	18661	3.61	7.3
Czech Republic	13-15	11	1.25	34.0	21	75	0.84	34.1	24	3659	0.71	37.4
Russia	13-15	11	1.25	34.0	20	85	0.95	30.1	14	9138	1.77	15.0
South Korea	13-15	11	1.25	34.0	11	183	2.04	14.0	12	11095	2.15	12.3
China PR	16	10	1.13	37.4	8	362	4.03	7.1	6	22853	4.42	6.0
Belgium	17-18	9	1.02	41.6	18-19	90	1.00	28.4	18	5715	1.11	23.9
Denmark	17-18	9	1.02	41.6	24-25	52	0.58	49.2	22	4309	0.83	31.7
Austria	19	8	0.91	46.8	18-19	90	1.00	28.4	23	4120	0.80	33.2
India	20	6	0.68	62.3	15	122	1.36	21.0	13	10498	2.03	13.0
Hungary	21-22	5	0.57	74.8	26	50	0.56	51.2	26	2816	0.54	48.6
Israel	21-22	5	0.57	74.8	17	93	1.04	27.5	21	5189	1.00	26.4
Finland	23-24	3	0.34	124.7	27	49	0.55	52.2	25	2850	0.55	48.0
Poland	23-24	3	0.34	124.7	22	74	0.82	34.6	17	6245	1.21	21.9
Argentina	25-30	2	0.23	187.0	32	24	0.27	106.6	31	1839	0.36	74.4
Brazil	25-30	2	0.23	187.0	23	62	0.69	41.3	20	5221	1.01	26.2
New Zealand	25-30	2	0.23	187.0	34	19	0.21	134.7	35	1345	0.26	101.7
Norway	25-30	2	0.23	187.0	36	10	0.11	255.9	33	1370	0.27	99.8
Portugal	25-30	2	0.23	187.0	28	36	0.40	71.1	29	2435	0.47	56.2
Taiwan	25-30	2	0.23	187.0	16	121	1.35	21.1	19	5306	1.03	25.8
Greece	31-37	1	0.11	374.0	29	35	0.39	73.1	28	2469	0.48	55.4
Ireland	31-37	1	0.11	374.0	30	27	0.30	94.8	34	1364	0.26	100.2
Mexico	31-37	1	0.11	374.0	31	26	0.29	98.4	32	1558	0.30	87.8
Pakistan	31-37	1	0.11	374.0	37	1	0.01	2559.0	37	178	0.03	768.2
Singapore	31-37	1	0.11	374.0	24-25	52	0.58	49.2	27	2751	0.53	49.7
South Africa	31-37	1	0.11	374.0	35	12	0.13	213.3	36	918	0.18	148.9
Turkey	31-37	1	0.11	374.0	33	22	0.25	116.3	30	2095	0.41	65.3

Table 10. Gatekeepers, journal papers and citations for 35 nations.
Physics

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	292	35.05	1.0	1	3315	22.39	1.0	1	123629	23.98	1.0
Germany	2	117	14.05	2.5	2	1665	11.25	2.0	2	57416	11.13	2.2
UK	3	74	8.88	3.9	4	1084	7.32	3.1	5	35040	6.80	3.5
France	4	51	6.12	5.7	3	1167	7.88	2.8	4	35850	6.95	3.4
Japan	5	50	6.00	5.8	5	1033	6.98	3.2	3	46390	9.00	2.7
Switzerland	6	41	4.92	7.1	9	475	3.21	7.0	8	16591	3.22	7.5
Italy	7	40	4.80	7.3	6	825	5.57	4.0	6	23987	4.65	5.2
Canada	8	24	2.88	12.2	11	367	2.48	9.0	11	12810	2.48	9.7
Netherlands	9	21	2.52	13.9	12	326	2.20	10.2	12	10234	1.98	12.1
Russia	10-11	14	1.68	20.9	7	576	3.89	5.8	7	23796	4.61	5.2
Israel	10-11	14	1.68	20.9	15	271	1.83	12.2	17	6998	1.36	17.7
Australia	12	12	1.44	24.3	19	178	1.20	18.6	20	5756	1.12	21.5
Sweden	13-14	11	1.32	26.5	16	265	1.79	12.5	14	9434	1.83	13.1
Belgium	13-14	11	1.32	26.5	20	175	1.18	18.9	18	5835	1.13	21.2
Spain	15-16	10	1.20	29.2	10	428	2.89	7.7	10	15085	2.93	8.2
Austria	15-16	10	1.20	29.2	22	160	1.08	20.7	24	4430	0.86	27.9
India	17	6	0.72	48.7	13	307	2.07	10.8	16	8950	1.74	13.8
Denmark	18	5	0.60	58.4	21	170	1.15	19.5	22	5084	0.99	24.3
China PR	19	4	0.48	73.0	8	518	3.50	6.4	9	15748	3.05	7.9
Poland	20-22	3	0.36	97.3	14	288	1.95	11.5	15	9086	1.76	13.6
Finland	20-22	3	0.36	97.3	25	86	0.58	38.5	23	4986	0.97	24.8
Argentina	20-22	3	0.36	97.3	26-27	83	0.56	39.9	28	2002	0.39	61.8
Brazil	23-26	2	0.24	146.0	18	206	1.39	16.1	19	5758	1.12	21.5
Taiwan	23-26	2	0.24	146.0	23	139	0.94	23.8	21	5203	1.01	23.8
Ireland	23-26	2	0.24	146.0	33	29	0.20	114.3	34	864	0.17	143.1
North Korea	23-26	2	0.24	146.0	35	0	0.00	—	35	0	0.00	—
South Korea	27-35	1	0.12	292.0	17	228	1.54	14.5	13	9570	1.86	12.9
Ukraine	27-35	1	0.12	292.0	24	91	0.61	36.4	25	3003	0.58	41.2
Mexico	27-35	1	0.12	292.0	26-27	83	0.56	39.9	27	2786	0.54	44.4
Czech Republic	27-35	1	0.12	292.0	28	76	0.51	43.6	26	2828	0.55	43.7
Norway	27-35	1	0.12	292.0	29	50	0.34	66.3	30	1559	0.30	79.3
Turkey	27-35	1	0.12	292.0	30	44	0.30	75.3	31	1056	0.20	117.1
Bulgaria	27-35	1	0.12	292.0	31	42	0.28	78.9	32	1022	0.20	121.0
Romania	27-35	1	0.12	292.0	32	38	0.26	87.2	29	1904	0.37	64.9
New Zealand	27-35	1	0.12	292.0	34	18	0.12	184.2	33	953	0.18	129.7

Table 11. Gatekeepers, journal papers and citations for 43 nations.
Geosciences and Space Sciences

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	238	34.15	1.0	1	1543	20.82	1.0	1	71850	34.22	1.0
UK	2	110	15.78	2.2	4	621	8.38	2.5	2	23301	11.10	3.1
Germany	3	44	6.31	5.4	2	875	11.81	1.8	3	19107	9.10	3.8
Australia	4	41	5.88	5.8	13	171	2.31	9.0	7	7491	3.57	9.6
France	5	40	5.74	6.0	3	717	9.67	2.2	4	14080	6.71	5.1
Canada	6	29	4.16	8.2	8	266	3.59	5.8	5	9652	4.60	7.4
Switzerland	7	20	2.87	11.9	11	195	2.63	7.9	12	3643	1.74	19.7
Japan	8-9	15	2.15	15.9	9	240	3.24	6.4	8	7242	3.45	9.9
Sweden	8-9	15	2.15	15.9	14	154	2.08	10.0	15	2799	1.33	25.7
Netherlands	10	14	2.01	17.0	6	283	3.82	5.5	9	6539	3.11	11.0
Norway	11	13	1.87	18.3	24	58	0.78	26.6	19	1596	0.76	45.0
Denmark	12-13	12	1.72	19.8	17	105	1.42	14.7	14	2919	1.39	24.6
Italy	12-13	12	1.72	19.8	5	443	5.98	3.5	6	9227	4.39	7.8
China PR	14	10	1.43	23.8	12	191	2.58	8.1	13	3057	1.46	23.5
Finland	15-16	8	1.15	29.8	19	94	1.27	16.4	20	1445	0.69	49.7
Russia	15-16	8	1.15	29.8	10	233	3.14	6.6	11	4378	2.09	16.4
Austria	17-20	6	0.86	39.7	20	75	1.01	20.6	25	1023	0.49	70.2
Belgium	17-20	6	0.86	39.7	15	118	1.59	13.1	22	1346	0.64	53.4
India	17-20	6	0.86	39.7	16	110	1.48	14.0	17	1726	0.82	41.6
South Africa	17-20	6	0.86	39.7	30	33	0.45	46.8	26	967	0.46	74.3
Greece	21-22	4	0.57	59.5	22	60	0.81	25.7	24	1057	0.50	68.0
New Zealand	21-22	4	0.57	59.5	31	28	0.38	55.1	23	1112	0.53	64.6
Brazil	23-28	3	0.43	79.3	18	99	1.34	15.6	18	1700	0.81	42.3
Czech Republic	23-28	3	0.43	79.3	28	37	0.50	41.7	31	607	0.29	118.4
Hungary	23-28	3	0.43	79.3	26	45	0.61	34.3	28	878	0.42	81.8
Ireland	23-28	3	0.43	79.3	32	25	0.34	61.7	32	318	0.15	225.9
Israel	23-28	3	0.43	79.3	27	41	0.55	37.6	16	1771	0.84	40.6
Spain	23-28	3	0.43	79.3	7	279	3.76	5.5	10	4442	2.12	16.2
Slovakia	29-31	2	0.29	119.0	33	16	0.22	96.4	34	122	0.06	588.9
Taiwan	29-31	2	0.29	119.0	29	35	0.47	44.1	29	840	0.40	85.5
Venezuela	29-31	2	0.29	119.0	35-36	4	0.05	385.8	35	104	0.05	690.9
Argentina	32-43	1	0.14	238.0	25	55	0.74	28.1	27	909	0.43	79.0
Estonia	32-43	1	0.14	238.0	34	15	0.20	102.9	33	266	0.13	270.1
Malaysia	32-43	1	0.14	238.0	35-36	4	0.05	385.8	39	34	0.02	2113.2
North Korea	32-43	1	0.14	238.0	43	0	0.00	0.0	43	0	0.00	0.0
Oman	32-43	1	0.14	238.0	39-41	2	0.03	771.5	41	19	0.01	3781.6
Philippines	32-43	1	0.14	238.0	39-41	2	0.03	771.5	37	65	0.03	1105.4
Poland	32-43	1	0.14	238.0	21	72	0.97	21.4	21	1440	0.69	49.9
Saudi Arabia	32-43	1	0.14	238.0	37-38	3	0.04	514.3	40	31	0.01	2317.7
Slovenia	32-43	1	0.14	238.0	37-38	3	0.04	514.3	36	80	0.04	898.1
South Korea	32-43	1	0.14	238.0	23	59	0.80	26.2	30	701	0.33	102.5
Tanzania	32-43	1	0.14	238.0	42	1	0.01	1543.0	42	15	0.01	4790.0
Zimbabwe	32-43	1	0.14	238.0	39-41	2	0.03	771.5	38	45	0.02	1596.7

Table 12. Gatekeepers, journal papers and citations for 35 nations.
Engineering

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	511	54.19	1.0	1	616	33.33	1.0	1	34235	32.15	1.0
UK	2	90	9.54	5.7	2	164	8.87	3.8	2	8903	8.36	3.8
Germany	3	56	5.94	9.1	3	125	6.76	4.9	4	7530	7.07	4.5
France	4	37	3.92	13.8	5	91	4.92	6.8	5	5112	4.80	6.7
Japan	5	33	3.50	15.5	4	105	5.68	5.9	3	7603	7.14	4.5
Canada	6	24	2.55	21.3	6	76	4.11	8.1	7	3779	3.55	9.1
Switzerland	7	21	2.23	24.3	10	47	2.54	13.1	11	2379	2.23	14.4
Italy	8	18	1.91	28.4	7	70	3.79	8.8	6	4069	3.82	8.4
Austria	9-10	13	1.38	39.3	20	21	1.14	29.3	25	808	0.76	42.4
Netherlands	9-10	13	1.38	39.3	17	30	1.62	20.5	9	2787	2.62	12.3
Australia	11-12	12	1.27	42.6	18	29	1.57	21.2	12	2328	2.19	14.7
Israel	11-12	12	1.27	42.6	11	41	2.22	15.0	21	1219	1.14	28.1
China PR	13-14	10	1.06	51.1	9	49	2.65	12.6	8	3557	3.34	9.6
Spain	13-14	10	1.06	51.1	8	51	2.76	12.1	13	2138	2.01	16.0
Belgium	15	9	0.95	56.8	15-16	31	1.68	19.9	18	1444	1.36	23.7
Denmark	16	8	0.85	63.9	24-25	13	0.70	47.4	19	1265	1.19	27.1
India	17-18	7	0.74	73.0	19	25	1.35	24.6	17	1525	1.43	22.4
Sweden	17-18	7	0.74	73.0	13-14	32	1.73	19.3	16	1816	1.71	18.9
Finland	19-21	6	0.64	85.2	15-16	31	1.68	19.9	23	893	0.84	38.3
Poland	19-21	6	0.64	85.2	28	10	0.54	61.6	24	856	0.80	40.0
South Korea	19-21	6	0.64	85.2	13-14	32	1.73	19.3	10	2473	2.32	13.8
Ireland	22	5	0.53	102.2	32	6	0.32	102.7	30-31	306	0.29	111.9
Taiwan	23	4	0.42	127.8	12	33	1.79	18.7	14	2060	1.93	16.6
Greece	24-28	3	0.32	170.3	22	19	1.03	32.4	26	796	0.75	43.0
Hungary	24-28	3	0.32	170.3	27	11	0.60	56.0	29	424	0.40	80.7
Portugal	24-28	3	0.32	170.3	31	7	0.38	88.0	27	564	0.53	60.7
Russia	24-28	3	0.32	170.3	24-25	13	0.70	47.4	15	2047	1.92	16.7
Slovenia	24-28	3	0.32	170.3	34-35	1	0.05	616.0	32	267	0.25	128.2
Brazil	29-31	2	0.21	255.5	23	16	0.87	38.5	22	920	0.86	37.2
New Zealand	29-31	2	0.21	255.5	30	8	0.43	77.0	33	256	0.24	133.7
Norway	29-31	2	0.21	255.5	26	12	0.65	51.3	28	493	0.46	69.4
Chile	32-35	1	0.11	511.0	34-35	1	0.05	616.0	34	80	0.08	427.9
Cyprus	32-35	1	0.11	511.0	33	3	0.16	205.3	35	21	0.02	1630.2
Czech Republic	32-35	1	0.11	511.0	29	9	0.49	68.4	30-31	306	0.29	111.9
Singapore	32-35	1	0.11	511.0	21	20	1.08	30.8	20	1237	1.16	27.7

Table 13. Gatekeepers, journal papers and citations for 36 nations.
Mathematics

Country	Gatekeepers				Papers				Citations			
	Rank	No.	%	Ratio	Rank	No.	%	Ratio	Rank	No.	%	Ratio
USA	1	459	52.34	1.0	1	866	34.54	1	1	14080	33.82	1.0
UK	2	77	8.78	6.0	2	213	8.5	4.1	4	3017	7.25	4.7
Germany	3	71	8.10	6.5	3	198	7.9	4.4	3	3031	7.28	4.6
France	4	40	4.56	11.5	4	171	6.82	5.1	2	3206	7.70	4.4
Canada	5	22	2.51	20.9	6	103	4.11	8.4	7	1646	3.95	8.6
Italy	6-7	21	2.39	21.9	7	100	3.99	8.7	6	1798	4.32	7.8
Netherlands	6-7	21	2.39	21.9	8	73	2.91	11.9	12	858	2.06	16.4
Australia	8	18	2.05	25.5	10	61	2.43	14.2	11	932	2.24	15.1
Japan	9	17	1.94	27.0	11	52	2.07	16.7	8	1337	3.21	10.5
Belgium	10	12	1.37	38.3	19	30	1.2	28.9	15	590	1.42	23.9
China PR	11	11	1.25	41.7	5	106	4.23	8.2	5	1897	4.56	7.4
Denmark	12-14	10	1.14	45.9	20-21	27	1.08	32.1	25	290	0.70	48.6
Sweden	12-14	10	1.14	45.9	14-15	36	1.44	24.1	18	445	1.07	31.6
Switzerland	12-14	10	1.14	45.9	16	34	1.36	25.5	17	467	1.12	30.1
Austria	15-18	9	1.03	51.0	18	32	1.28	27.1	22	321	0.77	43.9
Israel	15-18	9	1.03	51.0	12	45	1.79	19.2	10	951	2.28	14.8
Russia	15-18	9	1.03	51.0	13	39	1.56	22.2	13	720	1.73	19.6
Spain	15-18	9	1.03	51.0	9	71	2.83	12.2	9	1299	3.12	10.8
Norway	19	6	0.68	76.5	22-23	21	0.84	41.2	30-31	191	0.46	73.7
Czech Republic	20-22	4	0.46	114.8	27-28	12	0.48	72.2	26	251	0.60	56.1
Finland	20-22	4	0.46	114.8	25-26	14	0.56	61.9	24	308	0.74	45.7
New Zealand	20-22	4	0.46	114.8	29	10	0.4	86.6	30-31	191	0.46	73.7
Brazil	23-26	3	0.34	153.0	20-21	27	1.08	32.1	21	416	1.00	33.8
Hungary	23-26	3	0.34	153.0	30	9	0.36	96.2	27	248	0.60	56.8
India	23-26	3	0.34	153.0	24	17	0.68	50.9	20	419	1.01	33.6
Poland	23-26	3	0.34	153.0	27-28	12	0.48	72.2	16	491	1.18	28.7
Ireland	27-28	2	0.23	229.5	34	4	0.16	216.5	33	130	0.31	108.3
South Africa	27-28	2	0.23	229.5	33	5	0.2	173.2	32	131	0.31	107.5
Argentina	29-36	1	0.11	459.0	31-32	6	0.24	144.3	34	109	0.26	129.2
Greece	29-36	1	0.11	459.0	25-26	14	0.56	61.9	28	228	0.55	61.8
Mexico	29-36	1	0.11	459.0	31-32	6	0.24	144.3	29	196	0.47	71.8
North Korea	29-36	1	0.11	459.0	36	0	0	–	36	0	0.00	–
Singapore	29-36	1	0.11	459.0	17	33	1.32	26.2	23	313	0.75	45.0
Slovenia	29-36	1	0.11	459.0	35	3	0.12	288.7	35	91	0.22	154.7
South Korea	29-36	1	0.11	459.0	14-15	36	1.44	24.1	19	422	1.01	33.4
Taiwan	29-36	1	0.11	459.0	22-23	21	0.84	41.2	14	609	1.46	23.1

Table 14. Ratios of US to UK, EU(15) and EU(25) gatekeepers, publications and citations

	Science		
	G	P	C
UK	5.32	3.86	3.95
EU (15)	1.79	0.78	0.93
EU (25)	1.74	0.75	0.89

	Agriculture and Environment			Biology			Biosciences		
	G	P	C	G	P	C	G	P	C
UK	5.76	4.09	3.36	5.78	4.43	3.30	3.96	4.01	4.25
EU (15)	1.54	0.75	0.78	2.22	1.10	0.88	1.80	1.26	1.14
EU (25)	1.48	0.72	0.75	2.19	1.10	0.88	1.78	1.24	1.12

	Biomedical Research			Clinical and Experimental Medicine I			Clinical and Experimental Medicine II		
	G	P	C	G	P	C	G	P	C
UK	5.16	3.54	4.63	11.24	5.72	3.90	5.66	3.24	3.97
EU (15)	2.23	0.89	1.14	3.06	1.12	0.96	2.19	0.85	1.03
EU (25)	2.21	0.87	1.12	2.97	1.11	0.94	2.17	0.84	1.02

	Neuroscience and Behavior			Chemistry			Physics		
	G	P	C	G	P	C	G	P	C
UK	5.43	3.76	4.81	4.68	4.83	3.97	3.95	3.06	3.53
EU (15)	2.02	0.99	1.35	1.22	0.72	0.70	0.82	0.52	0.59
EU (25)	1.97	0.96	1.32	1.15	0.68	0.66	0.81	0.49	0.56

	Geosciences and Space Sciences			Engineering			Mathematics		
	G	P	C	G	P	C	G	P	C
UK	2.16	2.48	3.08	5.68	3.76	3.85	5.96	4.07	4.67
EU (15)	0.86	0.40	0.82	1.84	0.89	0.89	1.60	0.88	0.91
EU (25)	0.83	0.38	0.79	1.75	0.85	0.85	1.54	0.85	0.85

Source: idem as in Table 1

G – gatekeepers (2003)

P – papers (2002)

C – citations (articles 2000, citations 2000–2002)

Ratio (example): $US\%/UK\% = 53.87\%/10.12\% = 5.32$

Table 15. Gatekeepers per million population

Country	Science	Agri.	Biol.	Bios.	Biom.	Clin.I.	Clin.II.	Neur.	Chem.	Phys.	Geos.	Engn.	Math
Switzerland	34.98	2.19	2.87	4.92	2.19	2.32	2.32	2.46	3.14	5.60	2.73	2.87	1.37
USA	23.19	1.51	2.07	2.18	2.28	3.37	2.79	2.54	1.29	1.01	0.82	1.76	1.58
UK	21.05	1.26	1.73	2.66	2.13	1.45	2.38	2.26	1.33	1.23	1.83	1.50	1.28
Sweden	18.02	1.58	1.46	1.69	1.35	1.58	1.46	2.48	1.58	1.24	1.69	0.79	1.13
Denmark	17.64	2.60	0.74	0.56	2.04	0.93	0.93	1.67	1.67	0.93	2.23	1.49	1.86
Israel	14.88	0.82	0.49	1.31	0.98	1.63	1.14	1.47	0.82	2.29	0.49	1.96	1.47
Netherlands	14.55	1.30	1.55	1.11	1.30	1.61	1.73	0.50	1.18	1.30	0.87	0.80	1.30
Australia	14.39	1.67	1.62	0.86	1.27	1.82	1.22	0.76	0.96	0.61	2.08	0.61	0.91
Finland	13.87	2.50	1.16	1.16	1.35	0.77	1.16	1.16	0.58	0.58	1.54	1.16	0.77
Canada	12.57	1.55	1.06	0.62	1.15	1.15	1.61	1.46	0.90	0.75	0.90	0.75	0.68
Austria	11.48	0.49	0.24	0.98	1.10	1.59	0.98	0.49	0.98	1.22	0.73	1.59	1.10
Norway	11.00	1.54	0.66	0.22	0.22	1.32	0.88	0.88	0.44	0.22	2.86	0.44	1.32
Belgium	9.82	1.07	1.07	0.19	0.78	0.97	0.97	0.19	0.87	1.07	0.58	0.87	1.17
Ireland	9.68	0.76	0.25	0.76	1.27	1.53	0.76	1.02	0.25	0.51	0.76	1.27	0.51
Germany	9.67	0.69	0.47	0.85	0.61	0.69	0.76	1.17	0.93	1.42	0.53	0.68	0.86
France	8.19	0.65	0.61	0.61	0.40	0.76	0.78	0.81	0.76	0.85	0.66	0.61	0.66
New Zealand	7.09	1.77	0.51	0.51	0.25	0.25	0.25	0.25	0.51	0.25	1.01	0.51	1.01
Italy	4.60	0.28	0.40	0.40	0.26	0.59	0.48	0.21	0.43	0.69	0.21	0.31	0.36
Slovenia	4.13	0.52				0.52	0.52				0.52	1.55	0.52
Hungary	3.68	0.40	0.30	0.10	0.20	0.40	0.20	0.70	0.50		0.30	0.30	0.30
Japan	3.36	0.21	0.19	0.28	0.23	0.42	0.32	0.38	0.42	0.39	0.12	0.26	0.13
Spain	2.81	0.22	0.15	0.17	0.10	0.37	0.32	0.37	0.30	0.25	0.07	0.25	0.22
Czech Republic	2.44	0.10			0.10	0.10	0.10	0.10	1.07	0.10	0.29	0.10	0.39
Estonia	2.13	1.42									0.71		
Greece	1.88	0.47			0.09	0.19	0.19	0.09	0.09		0.38	0.28	0.09
Singapore	1.52	0.43				0.22		0.22	0.22			0.22	0.22
Portugal	1.09	0.20			0.10	0.10	0.10	0.10	0.20			0.30	
Taiwan	0.80	0.04	0.04			0.09	0.09	0.04	0.09	0.09	0.09	0.18	0.04
Poland	0.65	0.08		0.05		0.05		0.05	0.08	0.08	0.03	0.16	0.08
South Korea	0.60	0.04	0.02		0.08		0.04		0.23	0.02		0.12	0.02
Slovakia	0.55					0.18					0.37		
Argentina	0.54	0.13	0.05		0.05	0.03	0.08	0.03	0.05	0.08	0.03		0.03
South Africa	0.47	0.12	0.05	0.02	0.02		0.05		0.02		0.14		0.05
Croatia	0.45	0.23				0.23							
Russia	0.38	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.08	0.10	0.06	0.02	0.06
Chile	0.32	0.19			0.06							0.06	
Bulgaria	0.27	0.13								0.13			
North Korea	0.22	0.04								0.09	0.04		0.04
Mexico	0.22	0.05	0.03	0.01	0.01	0.03	0.05	0.02	0.01	0.01			0.01
Venezuela	0.20	0.08					0.04				0.08		
Malaysia	0.17	0.04		0.04			0.04				0.04		
Uganda	0.16		0.04			0.08	0.04						
Brazil	0.15	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.02
Thailand	0.09		0.06		0.02		0.02						
Romania	0.09					0.04				0.04			
Turkey	0.09		0.01			0.01	0.03		0.01	0.01			
China PR	0.06								0.01	0.00	0.01	0.01	0.01
Ethiopia	0.05		0.02			0.02	0.02						
India	0.04								0.01	0.01	0.01	0.01	
Philippines	0.04	0.02									0.01		
Algeria			0.03										
Colombia			0.02										
Cyprus												1.30	
Egypt		0.01		0.01									

Table 15. (continued)

Country	Science	Agri.	Biol.	Bios.	Biom.	Clin.I.	Clin.II.	Neur.	Chem.	Phys.	Geos.	Engn.	Math
Iceland							3.56						
Jamaica				0.37									
Kenya			0.03										
Lebanon							0.27						
Madagascar						0.06	0.06						
Malta				4.99									
Morocco		0.06											
Oman											0.36		
Pakistan									0.01				
Panama			0.34	0.34									
Peru								0.04					
Saudi Arabia											0.04		
Tanzania											0.03		
Ukraine										0.02			
Yemen Arab Republic				0.05									
Yugoslavia		0.09											
Zimbabwe											0.08		

Sources: Gatekeepers: gatekeepers database of the ISSRU

Population: <http://www.cia.gov/cia/publications/factbook/index.html>

Table 16. Editors-in-chief of science journals

Country	Science	Agri.	Biol.	Bios.	Biom.	Clin.I.	Clin.II.	Neur.	Chem.	Phys.	Geos.	Engn.	Math
USA	726	56	56	64	57	100	105	68	64	35	22	47	52
EU (15)	343	38	32	32	25	25	25	25	19	42	33	26	21
UK	152	13	22	16	15	8	12	14	8	9	16	10	9
Germany	68	10	2	7	3	2	5	6	5	13	6	6	3
Canada	35	7	2	0	1	6	4	3	5	2	1	3	1
France	30	4	3	0	0	3	2	3	0	4	6	4	1
Japan	28	4	2	2	3	2	1	4	5	2	1	1	1
Netherlands	28	2	2	1	3	3	3	1	3	4	3	1	2
Italy	25	2	3	5	2	0	1	0	1	6	1	1	3
Australia	21	8	1	0	2	1	3	0	1	0	2	1	2
Switzerland	18	1	1	2	3	0	2	1	2	4	1	1	0
Austria	10	0	0	0	0	6	0	0	0	2	0	2	0
Belgium	9	2	0	0	1	1	0	0	1	3	0	0	1
Denmark	8	4	0	0	1	0	1	1	0	0	0	0	1
Sweden	8	0	0	2	0	1	0	0	1	1	1	1	1
Finland	5	1	0	1	0	1	1	0	0	0	0	1	0
Russia	5	0	0	0	0	0	0	0	0	3	0	0	2

Conclusions

We have confirmed our previous results that journal editorial gatekeeping and the counting of national gatekeepers can work as an indicator of national scientific power and scope of action. Such indicators are free of the language and co-authorship bias when using indicators based on journal publications and citations. The most important result of our present paper is the demonstration of the overwhelming dominance of the gatekeepers (as editorial board members and as editors-in-chief) of the US. This can be

clearly seen in Tables 1–14 and Figures 1–3. In our opinion, this represents one of the explanations, and probably one of the most important one, which interprets the world dominant position of the US in science publication in most of science fields. The dominance is materialized by a self organizing mechanism of a world wide decision making on what, when, and where is made public, i.e., published in the formal publication and communication process of the sciences.

As visible from the tables, behind or in addition to the US scientists, gatekeepers from approx. 15 differently sized nations contribute most importantly to the international gatekeeping selection process of the science journal literature. Nations from the South represent a negligible role in this process at the beginning of the 21st century. All the abovementioned refer, as already explained in the methodology section, to the printed, i.e., hard copy version of the journal literature of science. At which extent the present situation will be changed or influenced by the growth and development of electronic publishing is difficult to preview. We suppose that this will probably induce some changes. But at least for the moment and for some years to come not too much will change, in the US world dominance of the science journal control and influence process.

References

1. S. ZSINDELY, A. SCHUBERT, T. BRAUN, Editorial gatekeeping patterns in international science journals. A new science indicator, *Scientometrics*, 4 (1982) 37.
2. T. BRAUN, E. BUJDOSÓ, Gatekeeping patterns in the publication of analytical chemistry research, *Talanta*, 30 (1983) 161.
3. D. CRANE, The Gatekeepers of science: Some factors affecting the selection of articles for science journals, *Am. Sociol.*, November (1967) 195.
4. A. DE CANDOLLE, *Histoire des sciences et des savants depuis deux siècles précédée et suivie d'autres études sur les sujets scientifiques en particulier sur l'hérédité et la sélection dans l'espèce humaine*. Deuxième édition considérablement augmentée. H. Georg, Lyon, Genève, Bâle, 1885.
5. S. ZSINDELY, A. SCHUBERT, T. BRAUN, Citation patterns of editorial gatekeepers in chemistry journals, *Scientometrics*, 4 (1982) 69.
6. P. BAKKER, H. RIGTER, Editors of medical journals: Who and from where? *Scientometrics*, 7 (1985) 11.
7. M. E. SIEVERT, M. HAUGHAWOUT, An Editor's influence on citation patterns: A Case study of elementary school journal, *J. Am. Soc. Inf. Sci.*, 40 (1989) 334.
8. TH. E. NISONGER, The Relationship between international editorial board composition and citation measures in political science, business, and genetic journals, *Scientometrics*, 57 (2002) 257.
9. T. BRAUN, Keeping the gates of science journals. Gatekeeping indicators of national performance in the sciences, In: H. F. W. MOED, W. GLÄNZEL, V. SMOCH (Eds), *Handbook of Quantitative Science and Technology Research*, Kluwer–Springer, Berlin, 2004.
10. T. BRAUN, I. DIÓSPATONYI, The main players in the international gatekeeping orchestration of analytical chemistry journals. Gatekeeping indicators, *J. Am. Soc. Inform. Sci. Technol.*, to be published, 2005.
11. W. GLÄNZEL, A. SCHUBERT, A new classification scheme of science fields and subfields designed for scientometric evaluation process, *Scientometrics*, 56 (2003) 357.
12. D. A. KING, The scientific impact of nations, *Nature*, 430 (2004) 311.
13. R. MAY, The scientific wealth of nations, *Nature*, 275 (1997) 793.