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ORIGINAL ARTICLE

Russia and post-Soviet countries compared: coverage of papers by Scopus and Web of Science, languages, and productivity of researchers

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Abstract

Objective: To analyse the productivity of post-Soviet countries, adjusted by population, in terms of research papers published and the proportions of those papers indexed by Scopus and the Web of Science.

Methods: Relevant data on the journals indexed in Scopus and the Web of Science were analysed. Where required, data were also extracted from Russian Science Citation Index databases and websites of journals.

Results: On average, the post-Soviet countries had 31 researchers per 10,000 people. The average numbers of publications per researcher in journals indexed by Scopus was 1.04 and the corresponding figure for the Web of Science was 0.87. In terms of the number of journals indexed in Scopus and the Web of Science, the leading countries were Estonia, Latvia and Lithuania.

Conclusion: Although the post-Soviet countries differed considerably in terms of bibliometric indices, the overall values were low. Main features of the journals were as follows: articles published in national languages – in Russian in many cases – and in English, articles mostly by authors within the region, and only a minority of foreigners as members of editorial boards. Thus most of the journals cannot be considered international. All the journals examined have websites in a national language and/or in English and invariably carry information on ethical practices, although such information is not given in a uniform format and varies from country to country.

Keywords: ethical guidelines, journal instructions, multilingual journals, post-Soviet countries

Introduction

During the early 1980s, about 1.5 million scientists – quarter of the world's total – were working in the USSR.[1] However, following the emergence of the Russian Federation and 14 post-Soviet countries, this number decreased significantly.[2] At the same time, the post-Soviet countries continued to finance scientific research, and the share of Russian-speaking researchers in research publications remained relatively high: publishing in journals indexed by international citation databases was a priority for these researchers[3,4] and was considered a major instrument of integrating national research organizations and scientists into the international scientific community[5] and of increasing their visibility in international scientific information space.[6]

To fulfil these tasks, a set of measures can be used, including those to be undertaken by the state, one such measure being to support editorial efforts aimed at getting international citation databases – primarily Scopus and the Web of Science (WoS)[7] – to index the national journals. Coverage by these databases ensures that papers published in national journals from post-Soviet countries are part of national and international electronic repositories of scientific information;[8,9,10] and therefore more accessible; the increased visibility and accessibility promote interaction between these journals from Russia and other post-Soviet countries, facilitate the exchange of editorial board members, and encourage authors to publish in high-ranking journals (both national and foreign).

Scholarly publications from Russia have been studied earlier in terms of the publishing patterns of Russian scientists and academics, indexing of Russian journals in Scopus and WoS,[5,11,12] compliance with publication ethics,[13,14] and some other related topics.[3,6,15] However, we found no publications that compared the journals from different post-Soviet countries, and the present study seeks to fill that lacuna.

Methods

Journals covered by Scopus and WoS and published in 15 post-Soviet countries were examined, using the request form available on the website of the Russian Science Citation Index (RSCI) to collect data (https://elibrary.ru/titles.asp). This resource is integrated into eLIBRARY.RU, Russia's largest electronic library of scientific publications with an extensive search engine and capabilities for scientometric analyses. Using this form, we could easily determine the number of journals listed in the RSCI for each country and the total number of extant journals in each of the post-Soviet countries. The form offers three options for selecting the journals indexed by Scopus and WoS, namely ***a***, or indexed; ***b***, or indexed in the translated version; and ***c***, or partially indexed. The first category subsumes the journals in the second whereas listings from the first two categories and those from the third are mutually exclusive.

According to the data retrieved from www.elibrary.ru (accessed 29 September 2018), WoS lists 55 Russian journals

in category ***c*** and 349 in category ***a***. Journals from other post-Soviet countries in category ***c*** are fewer than those from Russia. Therefore, the sample for the study comprised the 349 journals from category ***a***.

Data on total population, the number of researchers and their publications, and other indicators were obtained from various statistical compilations.[2] The proportion of articles in these journals written by foreign authors, whether jointly with authors from the post-Soviet countries or without, cannot be easily ascertained from the RSCI nor are these details published on the websites of the journals themselves.

We also examined the websites of about 120 Russian and foreign journals, including those from 15 post-Soviet countries, and rated the websites on the following criteria: composition of editorial boards (proportion of foreign members and the variety of organizations represented by national scientists), languages used for publication (national, English, or Russian), pages if any on publication ethics and the quantum of text devoted to that topic, and the phrasing used in the texts of these rules.

Results

Data on the population, number of researchers, and their publications are presented in Table 1.

Table 1. Basic data on publications by authors from post-Soviet countries

		Number of researchers (end of 2016)[a]		Publications indexed in Scopus (2012–2016)		Publications indexed in Web of Science (2012–2016)	
State	Population (2018)	Total	Per 10,000 people	Total	Per researcher	Total	Per researcher
Russia	146 880 432	428 884	60	281 925	0.66	205 641	0.48
Azerbaijan	9 730 500	16 137	34	3 870	0.24	3 004	0.19
Armenia	2 982 900	3 856	30	5 378	1.39	4 577	1.19
Belarus	9 491 800	16 953	35	8 484	0.50	6 681	0.39
Estonia	1 318 705	4 186	62	13 185	3.15	11 707	2.80
Georgia	3 729 600	5 152	26	5 433	1.05	3 461	0.67
Kazakhstan	18 329 370	12 552	15	10 290	0.82	5 881	0.47
Kyrgyzstan	6 140 200	3 441	15	727	0.21	580	0.17
Latvia	1 932 200	3 613	41	8 331	2.31	8 175	2.26
Lithuania	2 812 713	8 124	62	15 529	1.91	15 104	1.86
Moldova	3 550 900	2 694	20	2 137	0.79	1 775	0.66
Tajikistan	9 031 000	2 467	7	540	0.22	378	0.15
Turkmenistan	5 758 075	No data	No data	108		110	—
Uzbekistan	32 511 900	15 385	13	2 476	0.16	1 863	0.12
Ukraine	42 098 982	43 016	22	48 618	1.13	31 285	0.73
Total	296 299 277	466 460	—	407 031	—	300 222	—
Average	—		31	27 135	1.04	20 014	0.87

[a]includes both living and dead

Source Gorodnikova NV, Gokhberg LM, Ditkovsky KA *et al* (Ed). Indicators of science: 2018: statistical compilation. Moscow: Higher School of Economics, 2018. p 320.

The proportions of all the journals for each country indexed by three citation databases are given in Table 2.

Table 2. Proportions of journals indexed in Russian Science Citation Index, Scopus, and the Web of Science, by country (2018)

	eLIBRARY.RU			Scopus			Web of Science		
State	Journals (N)	Journals listed[a] (N)	Indexed in RSCI	Journals (N)	Journals listed[a] (N)	R_4	Journals (N)	Journals listed[a] (N)	R_5
Russia	14 391	12 171	5 148	478	476	1.11	349	347	0.81
Azerbaijan	77	72	8	3	3	0.19	8	8	0.50
Armenia	113	107	8	3	3	0.78	4	4	1.04
Belarus	499	398	159	5	5	0.29	6	6	0.35
Estonia	67	61	4	25	25	5.97	14	14	3.34
Georgia	46	41	4	7	7	1.36	3	3	0.58
Kazakhstan	299	278	32	3	3	0.24	8	8	0.64
Kyrgyzstan	82	67	36	0	0	0.00	0	0	0.00
Latvia	66	52	0	12	12	3.32	9	9	2.49
Lithuania	119	110	1	44	43	5.29	36	36	4.43
Moldova	77	66	10	5	5	1.86	5	5	1.86
Tajikistan	70	63	31	0	0	0.00	0	0	0.00
Turkmenistan	13	7	0	0	0	-	0	0	-
Uzbekistan	70	64	7	2	2	0.13	1	1	0.06
Ukraine	1849	1677	289	51	50	1.16	66	63	1.46
Total	17 838	15 234	5 737	638	634		509	504	
Average						1.55			1.25

[a]listed as on 29 Sept. 2018 in the database; R_4 and R_5: Scopus and WoS scores for a country are obtained, respectively, by dividing the number of journals indexed as on 29 Sept. 2018 by the number of researchers in that country (from Table 1) but expressed per 1000 people. For example, for Russia the calculation was as follows: 476/428 884 = 0.0019 × 1000 = 1.11.

Among the group of journals indexed by eLIBRARY.RU, journals published in English are dominant in some post-Soviet countries, especially Estonia, Latvia, and Lithuania. The titles of some journals (about 5%) are in the national language and transliterated from that language into Latin script whereas titles of some journals are printed in Latin script as well (and therefore do not have to be transliterated). In some post-Soviet countries, especially Belarus, titles of some journals are in Russian. For the majority of the post-Soviet countries (excluding Estonia, Latvia, and Lithuania) the number of journals indexed in RSCI is roughly the same as that indexed in Scopus and in WoS.

Among the group of journals indexed in Scopus, a significant number consists of "translated" or "translated composite" content (published by Allerton Press, Pleiades Publishing, Springer, and New York Consultants Bureau). The total number of journals and that of currently published journals is the same or almost the same, indicating their stability.

Statistics for journals from post-Soviet countries indexed in WoS: this number is lower than that for journals in Scopus in five countries, higher – in four countries, and the same in six (including three countries for which this number is zero).

Discussion

The disparity in the measures given in Table 1 reflects wide differences in the level of researchers: for example, the absolute number of researchers varies from 2467 in Tajikistan to 428,884 in Russia, and the relative indices (per 10,000 people), from seven in Tajikistan to 62 in both Lithuania and Estonia.

In terms of the number of papers indexed in Scopus (R_4 index) per 10000 researchers, the leading countries are Estonia (3.15) and Latvia (2.31), whereas the score for Russia (0.66) is lower than the average value (l.04) of all the fifteen countries.

The situation is similar for journals indexed in WoS (R_5): Estonia (2.80), Latvia (2.26), and Lithuania (1.86) are the leading countries, whereas Russia's score (0.48) is well below the average value of 0.87. The higher scores of Estonia and Lithuania, and also Latvia, are owing to a significant number of publications being in English, whether in national journals or foreign journals. Russian scientists, on the other hand, continue to publish mostly in Russian-language journals, which are mostly not indexed by Scopus and WoS.

Comparing Russia and other post-Soviet countries in terms of R_4 and R_5 indicators is valid only if the following assumptions are true: eLIBRARY.RU is representative of the majority of scientific journals in Russia and other countries; the overwhelming majority of authors publish in journals from their own countries; and only a few foreign authors publish in the national journals. In the case of Estonia, Lithuania, and Latvia, the first two conditions are not met. Those two indicators can be assumed to reflect the status of a country with its journals indexed by Scopus and WoS (many are indexed by both)—and the status of Estonia, Lithuania, and Latvia in those terms was the highest among all post-Soviet countries.

The analysis of authors and members of editorial boards, citations, and websites also led to a few other conclusions.

1. The Russian Science Citation Index continues to be important for journals and authors from the majority of post-Soviet countries. Tajikistan chooses to place the contents of all its authoritative journals on www.elibrary.ru, and all of them are indexed in RSCI. Kyrgyzstan takes into account the papers published in journals indexed by RSCI in evaluating researchers (if these journals score high on RSCI scientometric indicators). Kazakhstan maintains a national scientific portal (a Russian-language version on www.nauka.kz/page.php), which provides information on scientists from Kazakhstan and their achievements including publication in journals indexed by Scopus and WoS and individual scientometric indicators. However, researchers from Kazakhstan have published many papers in foreign journals that were subsequently excluded from Scopus and WoS.[16]
2. Scientific journals from the post-Soviet countries publish articles in many languages, including their national languages and English, and some post-Soviet countries (for example Belarus) also publish papers in Russian. Irrespective of the language, English translations of titles of articles, author affiliations, abstracts, and keywords are also included.
3. Russian researchers regularly cite papers from Ukrainian and Belarusian journals (including papers published in the national languages of these countries). These citations improve the RSCI scientometric indicators of the authors of the cited papers, but not their Scopus and WoS indicators.

   National scientific journals of Turkmenistan are archived on the Internet; these websites give the titles of papers – but not full texts. This practice makes it less likely that such papers will be cited by Russian researchers.
4. Only a few journals offer open access to previously published materials. Access policy and financial policy are considered separate from publication ethics.
5. The relative proportions of journals indexed and not indexed by RSCI from Russia and from other post-Soviet countries are very different. For Latvia, Lithuania, and Estonia, the proportion of journals indexed by RSCI is much lower than that of journals indexed in Scopus and WoS.
6. Websites of all the journals examined here featured some material on publication ethics. However, details of editorial boards, reviewers, and authors are not always highlighted. This makes it difficult to assess the extent to which such ethics are followed (especially by editorial boards and reviewers). For Russian journals, indirect evaluations are possible based on scientometric indicators of journals and publications as calculated and published by RSCI.
7. Editorial boards of almost all the reviewed journals featured some members from other countries. However, these members accounted for no more than 10%–15% of the total (and rarely more than 20%), and it is difficult to ascertain how actively they participate in the work of the editorial boards.
8. In Russia, all journals that are listed by the "Highest Attestation Commission" check all the submitted articles for plagiarism and originality of text. The most popular resource for this purpose is www.antiplagiat.ru. However, such checks and resources are seldom mentioned in the instructions to authors published by these journals.
9. In Russia, a few agencies other than journal publishers are also involved in checking articles for originality. These agencies include www.dissernet.org, which is managed by the Russian association of scientific editors and publishers; the Commission on action against falsification of research, which is part of the Russian Academy of Sciences; and the Higher Attestation Commission of Russia (a state organization) under the Ministry of Education and Science of the Russian Federation.

Journals published from post-Soviet countries and indexed by Scopus or WoS have remained stable over time.

To compare countries that differ greatly in their populations, relative measures of publishing (for example, corrected for population size by expressing them per 10,000 people) are more valid. Although the post-Soviet countries differed considerably in terms of these indicators, overall they fared poorly when compared to the developed countries.

Some characteristic features of leading journals from the post-Soviet countries are as follows: articles are published in national languages, in English, and in Russian even in some countries other than Russia; researchers mostly publish in journals from their own countries; in editorial boards, members from foreign countries are a minority as a rule—therefore, most of the leading journals from post-Soviet countries should be considered primarily as national journals and not international journals.

All the journals examined in the present study have websites in their respective national language, in English, or in both; some non-Russian journals also feature web pages in Russian.

Differences among journals in their technical requirements and specified structure for articles hinder the "publishing mobility" of researchers, especially their international mobility.

Although the websites of all the reviewed journals publish information on ethics, the content and the placement of such information are far from uniform.

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