

Performance Examination of “Scopus” Publication Activity with Selected Webometrics Indicators for Leading Russian Universities



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Abstract: *The paper is based on a comparative analysis of a joint set of Russian federal, national research and global universities (43 universities) in terms of their “Scopus” publication activity along with the Webometrics Openness and Excellence indicators (January 2018). The authors proposed a rough 5-level classification of the quality characteristics of Google Scholar Citation and Scopus profiles, studied the consistency of these characteristics across the entire sample of the universities, and carried out a regression analysis between the “Scopus” publication activity and the Openness and Excellence indicator ranks for the universities under study. The study showed that comparing these indicator ranks with the “Scopus” publication activity of the universities made it possible to see the effect of their integration into the Open Access movement.*

Keywords : *federal universities, national research universities, global universities, publication activity, comparative analysis, Open Access, Openness Rank, Excellence Rank, Webometrics, Google Scholar Citation profile, Scopus.*

I. INTRODUCTION

The year of 2012 saw the start of the publication race in Russia, which was supposed to result in five leading Russian universities entering TOP-100 of one of three global rankings (THE, QS, ARWU) by the end of 2020. Such universities were, in the first place, identified through two federal competitions. The network of such “global” universities included 21 universities, of which 6 were federal, 11 – national research and 4 – other universities.

This Russian publication race in question is best described as “Project 5-100”. The cluster of publications associated with this project and detected by Google Scholar search engine includes about 2,500 publications. It was defined as follows. On 21 February 2019, an advanced Google Scholar search for the exact phrase “Project 5-100” (in Russian) as a query returned 2710 responses, and with a similar search for

the term “Project 5–100” (in English) – 1880 responses, with the majority of responses to the English-language term being among the responses of the first search due to their English headlines and keywords of articles in Russian. Considering the roughly unreliable and duplicated responses, the final count will make up about 2,500 publications.

The most relevant articles of this cluster of publications, the authors of which are both positive and negative about the “Project 5-100” achievements, insist on increasing publication activity and citation as the most important indicators of major global university rankings.

From this quite a large pool of sources, the most important ones were selected for the analysis – critical, analytical and constructive scientific articles, which will be analyzed below in chronological order.

The earliest paper should be an article by E.V. Kharchenko, E.V. Spitsina and L.A. Voitash, published in 2013 [1]. The authors of that article asked the question – why are the leading Russian universities poorly represented in the global university rankings? By analyzing various methodologies used for global ranking, they came to the conclusion that the methods of assessment, ranking and data collection may not be well adapted for the Russian circumstances. Having classifying such rankings by type, structure, and data sources, they concluded that the ranking itself could change, depending on selecting a certain evaluation parameter. The authors also posed an important problem of university rankings being sensitive to changes in the weights of ranking indicators. In this regard, the authors mentioned an interesting experiment conducted by V.Kitashev [2]. If in the QS ranking, the weights of the four indicators (Academic reputation, Employer reputation, Faculty/Student ratio, Citation per faculty) from their current weights (40%, 10%, 20%, 20%) to specially selected different weights (5%, 35%, 45%, 5%), then you could obtain a far better result for Russian universities. So, Moscow State University would have been ranked 44th (instead of 116th), Bauman Moscow State Technical University – 108th (instead of 352nd) [2]. In this regard, the authors of [1] emphasize that “the goal of entering a ranking can be considered achieved without any additional organizational or financial costs – just by changing the viewpoint of what a leading university means.” So rankings are a fairly arbitrary system, since one can hardly say which indicators are more important for assessment. The authors further made an important conclusion that in order to move up to higher positions in world rankings, universities have to set a target and further develop a program to improve the relevant business processes [1].

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Let's see how this could work for QS ranking. The weightiest indicators in it are Academic reputation (40%); Faculty/Student ratio (20%), and Citation per faculty (20%). Dropping the average indicator, according to which the best Russian universities are highly competitive with the best foreign universities, two interrelated indicators can be obtained. Indeed, the global academic reputation of a university strongly depends on the citation of its publications in English, and for this a very large number of high-quality papers in English needs to be written. Therefore, the university leadership need stimulate the publication activity of the employees in English-language journals from Scopus database (for QS and THE rankings) and Web of Science database (for ARWU ranking), publish their own journals simultaneously in two languages, encourage international collaboration, and also have, in the case of QS ranking, as many Russian scientists as possible in the QS academic contact lists so that they could take part in an annual academic reputation survey. Among the publications of 2014, four most important papers were identified, which are presumably the most significant for the entire time interval under study (2013-2018). In turn, the best among them is the article by S.S.Donetskaya from Novosibirsk State University, published in the first issue of Higher Education in Russia for the year of 2014 [3]. It contains a table showing the positions of the 11 leading Russian universities in the ARWU, THE and QS rankings in 2012 and 2013. For 10 of them, there is another table presenting their positions in the QS rankings for 2007 and 2013, along with their scores for 6 indicators of the ranking. In the same table, the author calculated the average scores for the above indicators for the TOP-100 universities in the QS ranking, universities ranked from the 101st to the 200th and from the 201st to the 300th. That table shows that the scores of our leading universities, except Moscow State University and St. Petersburg State University, are far lower than the average scores of universities ranked from the 201st to the 300th in four indicators. The gap is insignificant in the Proportion of international students, and only in the Faculty/Student ratio the Russian universities are leaders in the world. Six Russian universities – Novosibirsk State University (NSU), Moscow Institute of Physics and Technology (MIPT), Saint Petersburg State University (SPbU), Ural Federal University (UFU), Higher School of Economics (HSE), Tomsk State University (TSU), Tomsk Polytechnic University (TPU) had the scores in Faculty/Student ratio exceeding the average for TOP-100 universities (71.2% in 2013). Similar scores are given for the 6 indicators of the ARWU ranking for NSU and MIPT (2012), in comparison with the same graduations for TOR-300 universities as those for QS [3]. These two universities had comparable scores in the indicator “Alumni of an institution winning Nobel Prizes and Fields Medals” (10%) with the leading universities of the world, approximately 2-3 time lower scores in the indicator “Papers indexed in Science Citation Index-expanded and Social Science Citation Index“ (20%) and zero scores for the other indicators, except for the last indicator “Per capita academic performance of an institution” (10%), which was not calculated.

This situation naturally makes it challenging for the leading Russian universities to enter the TOP-100 of the ARWU ranking by 2020, with the exception of Moscow State University, which has been in this ranking range interval since 2004.

A similar comparative analysis was made for MEFPhI (Moscow Engineering Physics Institute) and TOP-100 universities in THE rankings, in which this university was ranked 226-250 in 2012. It had slightly better positions compared to the average of THE rankings TOP-100 scores in Citations indicator (30%) and Industry income (knowledge transfer) indicator (2.5%), but lagged far behind in the other three indicators. As in 2013 the method of calculating the Citation indicator in THE rankings was changed, MEFPhI, having no “strength reserve” in other indicators, dropped below the 400th rank [3].

Here are some other important conclusions from [3]:

1. For seven years (from 2007 to 2013), there were no improvement in the positioning of the leading Russian universities in global rankings, whereas a number of foreign universities managed to do this (among the examples are Sungkyunkwan University (South Korea), Al-Farabi Kazakh National University (Kazakhstan) and L.N.Gumilyov Eurasian National University (Kazakhstan), which made a considerable progress in QS rankings).

2. To enter the TOP-100 of THE rankings, it is necessary to increase the citations level to 7-8 references per paper. This was the level of citations recorded for the publications of the faculty of Delft University of Technology (Netherlands), which was ranked 77th in 2012 THE rankings, with the lowest citation per paper level among the TOP-100 universities. Unfortunately, all the 15 universities from Project 5-100 which have received federal subsidies, except MEFPhI, are too far from reaching even this indicator (it varied from 1.1 (TSU) to 3.7 (NSU)).

3. Over the period from 2008 to 2012, 15 Russian “global” universities published no more than 3000 articles each, while Delft University of Technology published four times as many papers over the same period, and the leader of publishing activity, Harvard University (USA), produced more than 39,100 articles.

4. From the conclusions made in 2 and 3 above, it follows that the main problem of Russian universities is a low level of publication activity and citations. The solution can be found in the leading Russian universities generating new areas of fundamental and applied research, strengthening cooperation with the institutes of the Russian Academy of Sciences at the same time. This close cooperation is so far characteristic of only for three universities – MIPT, NSU, and Lobachevsky University (Nizhny Novgorod State University).

5. Russian universities need to move away from the parochial mentality in research and from the so-called “VAK” science (VAK is Higher Attestation Commission, a national government agency in Russia that oversees awarding of advanced academic degrees), when research is made only to cut corners and move up the career ladder [4]. Therefore, it is vital to look for common interests with foreign universities and together solve scientific problems which are important to the global scientific community.

6. Universities should develop programs to stimulate publication activity, which can take form of reimbursement of costs on preparing a manuscript for publication in peer-reviewed journals, various awards, differentiated distribution of study load depending on the level of scientific activity.

7. The main driver for increasing scientific activity is its proper funding. As noted in [5], the level of funding research in Russia is 3-4 times lower than in developed countries. It is important that subsidizing Russian “global” universities go beyond 2020.

8. Of the 15 Russian universities which have received federal subsidies, three universities – MPhI, MIPT, NSU – have competitive advantages in some indicators of global rankings (though, in no more than two out of 5-6 indicators).

Another key paper of 2014 with rigorous analysis was an article by a group of authors published in The Bulletin of Leningrad State University [6]. In it, like in [3], the positions of the leading Russian universities in QS rankings are considered together with scores. At the beginning of the article, the authors analyze these indicators for six leading Russian universities (Moscow State University, St. Petersburg State University, Bauman Moscow State Technical University, Novosibirsk State University, and RUDN (Russian University of Peoples’ Friendship)) for 2011-2013, pointing out that for that period Moscow State University moved down the ranking list from the 112th to 120th position, though the final score, which may seem strange, increased from 61.3 points in 2011 to 63.9 – in 2013. At the same time, The University of Alberta (Canada) had been ranked 100th with 64.0 points in 2011, however, in 2012, the same position was taken by the University of California (Davis), but with 65.8 points.

These examples show how tough the competition is in the ranking race. Further, the authors of [6] determine the threshold scores sufficient for entering TOP-100, TOP-200, TOP-300 and TOP-400 of the QS rankings and calculate their growth rate over the two-year time interval under study. This rate ranged from 6% for QS TOP-100 to 13% for QS TOP-400. It is worth mentioning that this approach is more logical if you compare it with calculating average scores for QS TOP-200 for universities ranked from 101st to 200th in this ranking, etc., as was shown in [3].

It was noted that if the two-year trend of 6% continued, by 2020 the threshold for entering the QS TOP-100 could reach or even exceed 70 points. The article mentioned also that 23 universities managed to get their scores over 90 points in 2013, with 93 universities having their scores over 70 points [6]. When analyzing the scores of the leading Russian universities, the authors of [6] noted that Moscow State University was the only Russian university, which had approached the QS TOP-100, our second contender – St. Petersburg State University – scoring a meager 45.9 points. A linear extrapolation of the current dynamics of QS ranks was carried out up to 2020 for the above universities, except for MSU, which showed that these universities might have a chance to enter the tail of the QS TOP-200. It means that in order to achieve the goal of entering the TOP-100 of the QS rankings by 2020, it is vital to significantly increase the rates of improving the positions of the leading Russian universities in this ranking. The authors of [6] also note small fluctuations in the dynamics of university positions in the QS TOP-100, which makes the task of entering the QS TOP-100 more difficult. Therefore, they believe that it is necessary to concentrate resources on the most important factors providing for the improvement of positions in this ranking. For this purpose, they, like in [3], studied the structure of this ranking according to the six indicators for the six Russian universities, which had been earlier studied as of 2013, and compared it with a similar structure for the six foreign

universities positioned along the scale of 1-99 in the QS TOP-100. For all of these universities, radial charts were made, and to originally six Russian universities, SPbSU and MIPT were added, which had been averaged, and this made it possible to visually show in which indicators Russian universities lagged behind or were in the lead in comparison with foreign universities.

Looking at the two juxtaposed diagrams, one can see that the top Russian universities lead by the indicator “Faculty/Student ratio”, fall behind about as much as twice by the indicators “Academic reputation”, “Employer reputation” and “Proportion of international students”, with most straggling in “Citation per faculty”. So it is clear the weakest point for Russian universities is citation.

The authors of [6] note that chance of Russian universities getting into the QS ranking is very much due to a good Faculty/Student ratio at the level of 1:10, which was a standard approved back in the 1990s. In the final part of the article, the authors define the Citation indicator as a key factor of moving up in the QS rankings and link it with publication activity in general. This publication activity is studied in different countries using Scopus-based statistics, which can be found on SCImago platform.

China’s “big jump” (ranked second after the United States by publication activity), the authors with good reason associate with its university stimulating publication measures for articles indexed in the Scopus and Web of Science databases, as well as with the fact that Elsevier Publishing House publishes over 50 scientific journals in China in English. The authors of [6] believe that such measures of state support are vital in Russia.

It should be noted that the papers [3] and [6] perfectly complement each other.

The issue under study was thoroughly investigated in an article by a PhD student M.I. Meleshkin from St. Petersburg State University, published in 2014 in Economic Analysis Journal: Theory and Practice [7]. This author has recently defended the first PhD thesis in Russia's on the issue of leading Russian universities entering TOP-100 of the major university rankings.

M.I.Meleshkin conducts a detailed analysis of citation of the faculty members of Moscow State University, St. Petersburg State University, Novosibirsk State University and MPhI, using the InCites database, and the data about citation of scientists from eight selected countries, using the data from SCImago Journal and Country Rank platform in terms of promotion in THE rankings. Unfortunately, he does not correlate these databases with the Web of Science and Scopus databases, and makes a mistake claiming that the SCImago Journal and Country Rank data are used as a source pool for ARWU ranking. In fact, these data are generated from the Scopus statistics, whereas ARWU ranking is calculated on the base of the Web of Science database.

The analysis of the above data for the 15 first “global” universities, as well as Moscow State University and St. Petersburg State University, made it possible to conclude that Moscow State University (MSU), St. Petersburg State University, Novosibirsk State University and Moscow Engineering Physics Institute had the highest chances to enter TOP-100 of THE rankings by 2020.

But this does not follow from the further data analysis, as the author makes no analysis of the THE rankings score structure, nor does he compare it with the structure of foreign universities from TOP-100 of this ranking, as was done in [3,6]. But using the InCites (Web of Science) databases and the SCImago Journal and Country Rank (Scopus), the author managed to build useful 9-year time series of publication activity and citation values – five for MSU, St. Petersburg State University, Novosibirsk State University and MEPHI (Web of Science database) and two for the USA, Great Britain, Germany, Japan, China, India, Brazil and Russia (Scopus database) [7].

Besides, M.I. Meleshkin analyzed the structure of publications and citations in five disciplines (Mathematics, Physics, Chemistry, Engineering, and Astronomy) for four universities mentioned above, as well as the data on the Russian journals published in Russia and included in the Web of Science (the fact is that most of such Russian journals are published abroad).

Finally, some important, though well-known, conclusions are made that international co-authorship and high citation rates play a decisive role in improving positions in world university rankings, with international co-authorship actually resulting in increased citation. Some risks in changing the ranking methodology are also highlighted. Indeed, whereas at the time of writing the article [7], publication activity and citation for THE rankings were calculated using the Web of Science database, now it is done by means of the Scopus database.

Another paper published in 2014 on the problem under study was written by A.L. Arefiev [8]. Below are the two important inferences made in it:

1. The dominance of Anglo-American universities in the global rankings of the best universities makes it difficult for Russian universities to get into these rankings from their current positions.

2. Since academic institutions generate most of significant research results, the integration of resources of the Russian Academy of Sciences (RAS) and higher educational institutions is the most effective measure for increasing the global competitiveness of Russian universities.

In fact, the global university rankings and the publication race with its scientometric indicators in the Web of Science and Scopus databases were all invented in the West. All this, along with the linguistic and financial competitive advantages of the Anglo-American universities, makes any attempt to compete with them useless, as such competition is just a waste of money. Priority should be given not to rankings with their publication activity and citations, but to high-quality fundamental and applied research.

With reference to the second inference made in [8], it should be said that in early January 2019, the Government of the Russian Federation made the RAS responsible for supervision of research done at universities.

The above is in accord with the statement made by of E.S. Vorobyova and I.V. Krakovetskaya in [9]: “It is ineffective to directly compete with the leaders of rankings of universities global competitiveness. There is national specialization. It has no purpose for leaders in certain subjects to strive for general university rankings.”

Criticism of the leading Russian universities participating in the global rating race aimed at obtaining formal results to the detriment of the quality development of higher education was also expressed by A.I. Balashov and V.M. Khusainov in

[10]: “... through the direction chosen was correct and there are already some positive effects, the intermediate results of the Project 5-100 point at effectiveness of certain university management models, aimed at achieving formal performance targets, rather than the substantial development of the higher education system in Russia and an increase in its global competitiveness.” Further to this criticism, L.D. Taradina in [11] questions the conformity of the idea of competition to the mission of modern universities and states that participation in rankings takes place within a rigid framework, depriving universities of the right to set their own priorities, and thereby limiting possibilities for their academic development. N.M. Kozhevnikov in [12] states that participation of leading Russian universities in the global rankings – QS, THE and ARWU – can result in these universities losing their independence in running the academic system, while P.S. Avetisyan and G.E. Galikyan in [13] emphasize that reforming Eurasian universities in order to improve their positions in some world ranking systems does not always help their effective performance.

The closer the completion date of the Project 5-100, the more skepticism experts have regarding the aim of having five leading Russian universities in TOP-100 of three global university rankings. For example, G.A. Klyucharev and A.V. Neverov [14], mentioning a fairly large amount of funds allocated for this project (86.5 billion rubles, or about 1.67 billion dollars), refer to the data of expert surveys, most of whom doubt that the main goal of the Project would be achieved, although some reservations are made that the Project might be considered successfully completed if presence of five leading Russian universities in TOP-100 Subject rankings was counted, though such an assumption cannot be viewed as serious.

II. MATERIALS AND METHODS

The sampling of the leading Russian universities was made from a union of sets of federal, national research and global universities, having 43 universities in the end. For the purpose of the present study, the publication activity and citation of scientists from these universities were linked to the Scopus and Google Scholar scientometric databases, the former being used to calculate the British THE rankings and QS rankings, and the latter – the Webometrics ranking. For all universities, the number of Scopus publications was counted as of 2016, because for this year, indexing has been almost completed in the Scopus database, unlike publications of 2017 (data were collected from May 24, 2018 to June 9, 2018).

Besides, Webometrics ranking (January 2018 edition) provided the data for Openness Rank and Excellence Rank indicators, relating to Google Scholar, respectively, – citation and the number of the most cited Scopus publications (TOP-10%) obtained by SCImago Lab.

Using the above mentioned indicators, a rough classification was made of the quality characteristics of the universities’ Google Scholar Citation and Scopus profiles, as well as their regression analysis.

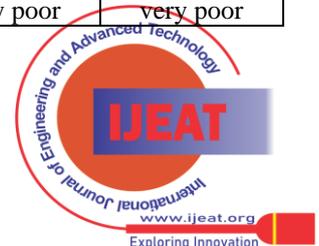
III. RESULTS AND DISCUSSION

Table 1 lists 43 federal, national research, and global universities in descending order of the number of their Scopus publications in 2016. It also shows the data on the ranks (places) of the Openness and Excellence indicators from the Webometrics ranking (January 2018). The first indicator characterizes the university's Google Scholar Citation profile, that is, the total number of citations of the

TOP-10 university's scientists, except the first one, and the second indicator – the number of Scopus publications from TOP-10% by citation, obtained by the Spanish SCImago Lab. Table 2 shows a rough classification of quality characteristics of the universities' Google Scholar Citation and Scopus profiles, according to the rank of the above indicators (Table 1).

Table 1. Quality of Google Scholar Citation and Scopus profiles for leading Russian universities

n/n	University	N ₂₀₁₆	Open ness Rank	Exce llenc e Rank	Profile quality	
					Google Scholar Citation	Scopus
1.	National Research Tomsk Polytechnic University ^{1,3}	2999	617	1217	good	moderate
2.	Kazan (Volga region) Federal University (KFU) ^{1,2}	2835	1597	905	moderate	good
3.	Novosibirsk State University ^{1,3}	2672	61	657	very good	good
4.	National Research Nuclear University MEPhI (Moscow Engineering Physics Institute) ^{1,3}	2607	1294	764	moderate	good
5.	Tomsk State University ³	2381	1774	1009	moderate	moderate
6.	ITMO university ^{1,3}	1989	591	1146	good	moderate
7.	Ural Federal University ^{1,2}	1941	1421	1457	moderate	moderate
8.	Moscow Institute of Physics and Technology (MIPT) ^{1,3}	1846	2299	863	poor	good
9.	National Research University Higher School of Economics (HSE University) ^{1,3}	1845	336	1269	good	moderate
10.	Peter the Great Saint-Petersburg Polytech University ^{1,3}	1779	1075	1025	moderate	moderate
11.	National University of Science and Technology (MISIS) ^{1,3}	1095	2681	1772	poor	moderate
12.	Lobachevsky State University of Nizhni Novgorod ^{1,3}	1022	2737	1772	poor	moderate
13.	Southern Federal University ²	955	1926	1876	moderate	moderate
14.	Far Eastern Federal University ^{1,2}	942	3835	2079	poor	poor
15.	Samara University ^{1,3}	798	2267	1985	poor	moderate
16.	<i>1) I.M. Sechenov First Moscow State Medical University (Sechenov University)¹</i>	771	7392	4162	very poor	very poor
17.	Bauman Moscow State Technical University ³	765	3560	2676	poor	poor
18.	RUDN University ¹	764	5926	2780	very poor	poor
19.	South Ural State University (National Research University) ^{1,3}	603	1821	2780	moderate	poor
20.	Siberian Federal University ^{1,2}	590	2077	2446	poor	poor
21.	Pirogov Russian National Research Medical University (RNRMU) ³	581	5935	3066	very poor	poor
22.	<i>IV. SAINT PETERSBURG ELECTROTECHNICAL UNIVERSITY "LETI"¹</i>	545	5603	2933	very poor	poor
23.	Saratov State University ³	497	1405	1845	moderate	moderate
24.	Belgorod State National Research University ³	450	1343	2573	moderate	moderate
25.	Moscow State National Research University of Civil Engineering ³	425	5230	3780	very poor	poor
26.	National Research University "Moscow Power Engineering Institute" (MPEI) ³	405	2913	3139	poor	poor
27.	Saint-Petersburg Mining University ³	402	5761	3988	very poor	poor
28.	Perm National Research Polytechnic University ³	392	2775	3911	poor	poor
29.	Kazan National Research Technological University ³	386	4144	2339	very poor	poor
30.	Moscow Aviation Institute ³	334	4544	5777	very poor	very poor



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31.	North-Eastern Federal University in Yakutsk ²	293	3038	5246	poor	very poor
32.	Perm National Research Polytechnic University ³	289	2775	3911	poor	poor
33.	Kazan National Research Technical University named after A. N. Tupolev - KAI ³	271	5582	4914	very poor	very poor
34.	University of Tyumen ¹	260	3522	3529	poor	poor
35.	National Research University of Electronic Technology (MIET) ³	214	6235	4914	very poor	very poor
36.	Ogarev Mordovia State University ³	207	6593	5777	very poor	very poor
37.	Immanuel Kant Baltic Federal University ^{1,2}	201	3970	5777	poor	very poor
38.	North-Caucasus Federal University ²	196	4773	5246	very poor	very poor
39.	V. ST. PETERSBURG ACADEMIC UNIVERSITY OF RUSSIAN ACADEMY OF SCIENCES³	188	3321	5777	poor	very poor
40.	National University of Oil and Gas "Gubkin University" (Gubkin University) ³	185	4613	3622	very poor	poor
41.	V.I. Vernadsky Crimean Federal University ²	160	4496	5777	very poor	very poor
42.	Irkutsk National Research Technical University ³	160	5962	3911	very poor	poor
43.	Northern (Arctic) Federal University ²	111	6254	5777	very poor	very poor

¹Global universities

²Federal universities

³National research universities

Table 2. Classification of Quality Characteristics of Google Scholar Citation and Scopus Profiles

Variation interval of Openness и Excellence Ranks	Profile quality
0 - 500	very good
501 - 1000	good
1001 - 2000	moderate
2001 - 4000	poor
> 4000	very poor

According to this classification, Table 1 lists the quality characteristics of Google Scholar Citation and Scopus profiles of the universities in question.

Comparing the ranks of the indicators under study with the universities' Scopus publication activity, it is possible to see what effect on the citation indicators is produced by the integration of a university into the Open Access (OA) movement.

Belgorod State University (BelSU) is the Russian leader in this movement, with one of the largest OA repositories and about a dozen OA journals. Ranked 24 by the number of Scopus publications in 2016, it was in the 7th place by the Openness indicator among the universities under study, which means that the BelSU Open Access policy has resulted in a relatively better citation of the publications of its researchers when compared with most other leading Russian universities with more Scopus publications. This policy also helped the University move up the ranking table in terms of the number of highly-cited publications (17th position among 43 universities).

Comparing the publication activities of BelSU and KFU shows that the latter had 6 time more Scopus publications than the former. At the same time, BelSU was ranked 254 (1597-1343=254) positions higher than KFU in terms of the Openness indicator, which characterizes the total citation numbers of the best university scientists obtained through the Google Scholar search engine.

Table 1 shows poor coordination in the quality characteristics of both profiles. Of the 43 universities, about 50% of universities (21 universities) had the coordinated profiles. Among the first twenty universities, there were 8

such profiles (40%, universities as listed in Table 1: 5, 7, 10, 13, 14, 16, 17, 20).

The results of the regression analysis between the ranks of the indicators under study and the Scopus publication activity are shown in Figures 1 and 2. Two quite close pair regression equations were obtained, with the average values of the coefficient of determination. In both figures, two clusters of points can be seen quite clearly, and the second cluster with very low values of N_{2016} and poor positioning by two Webometrics indicators included ten universities.

The multiple regression equation in the form $Y = -0.08969 X_1 - 0.32845 X_2 + 2206.109$ was obtained using Excel, and it showed a high Pearson correlation coefficient ($R=0.813888$). In this equation, $X_1 =$ Openness Rank, $X_2 =$ Excellence Rank, $Y = N_{2016}$.

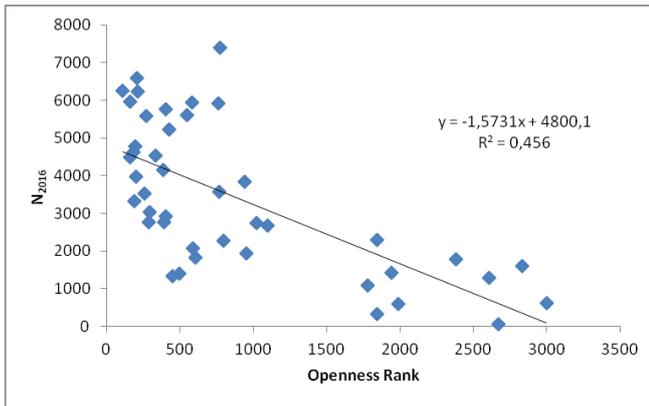


Figure 1: Regression relationship between Openness Rank and N₂₀₁₆.

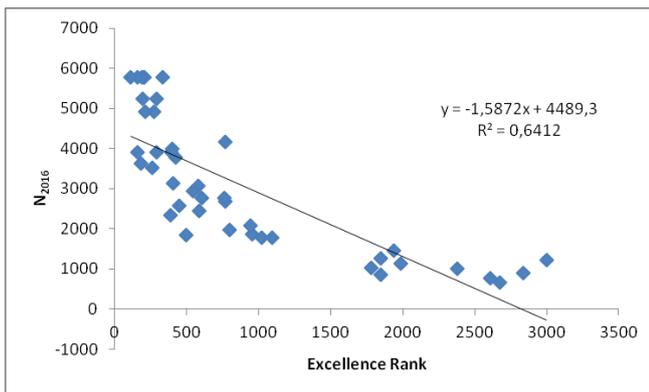


Figure 2: Regression relationship between Excellence Rank and N₂₀₁₆.

VI. CONCLUSION

Using a joint set of Russian federal, national research and global universities (43 universities in total), a comparative analysis of Scopus publication activity was conducted as of 2016, with the ranks of the Openness and Excellence indicators from the Webometrics ranking (January 2018 edition). This analysis made it possible to make a rough classification of the quality of the universities' Google Scholar Citation and Scopus profiles according to the ranks of the above mentioned indicators. Comparing the ranks of these indicators with the Scopus publication activity helped to see the webometric effect on the publication activity indicators. Poor coordination in the quality characteristics of both profiles was shown. The regression analysis of the indicators under study rendered good results. The Pearson correlation coefficient for the multiple regression equation between the ranks of the Openness and Excellence indicators and the number of Scopus publications was 0.81.

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