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*Fuad T. Aleskerov, Vladimir V. Pislyakov, Timur V. Vitkup*

**RANKING JOURNALS  
IN ECONOMICS, MANAGEMENT  
AND POLITICAL SCIENCES  
BY THE THRESHOLD  
AGGREGATION PROCEDURE**

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*Fuad T. Aleskerov<sup>1</sup>, Vladimir V. Pislyakov<sup>2</sup>, Timur V. Vitkup<sup>3</sup>*

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Abstract: An analysis of journal rankings based on five commonly used bibliometric indicators (impact factor, article influence score, Source Normalized Impact per Paper, SCImago Journal Rank, and the Hirsch index) has been conducted. It is shown that despite a high correlation, these single indicator-based rankings are not identical. Therefore, a new approach to ranking academic journals is proposed based on the aggregation of single bibliometric indicators using threshold aggregation. The main property of this procedure is its non-compensability, which reduces opportunities for manipulation.

JEL Classification: C71, D71.

Keywords: bibliometrics, journal rankings, threshold aggregation.

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<sup>1</sup> National Research University Higher School of Economics, Moscow, and Institute of Control Sciences of Russian Academy of Science, Moscow, Doctor of Science, Professor, Head of Laboratory; E-mail: alesk@hse.ru

<sup>2</sup> National Research University Higher School of Economics, Moscow, Cand.Sc., Assistant Library Director; E-mail: pislyakov@hse.ru

<sup>3</sup> National Research University Higher School of Economics, Moscow, student; E-mail: timur-vitkup@bk.ru

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# 1. Introduction

Academic journals are playing an increasingly important role in the dissemination of scientific information. The number of journals is growing very fast. For these and other reasons, several indicators, such as impact factor, Hirsch index (h-index), Source Normalized Impact per Paper (SNIP) and others, have been proposed to evaluate the various qualities and merits of individual journals. Based on these indicators we obtain different rankings, which do not fully coincide. However, there is insufficient reason to presume that any indicator is somehow inferior to others. Moreover, ranking based on only one bibliometric indicator may not fully reflect the quality and significance of an academic journal because of their complexity and multidimensionality. In addition, single-indicator-based rankings give more opportunities for manipulation by journal editors. For example, according to [Epstein, 2007], impact factor, which is the most popular and commonly used citation indicator, is easy to manipulate. There are several ways to do it such as self-citations, review articles, increasing non-citable items in the journal and others.

The key purpose of this paper is to construct consensus rankings of journals in economics, management and political science based on threshold aggregation, developed in [Aleskerov et al., 2010] and applied to author evaluation for the first time in [Aleskerov et al., 2013a]. The approach we use evaluates journals according to a set of criteria, which, in our case, consists of impact factor, article influence score, SNIP, SJR and h-index.

The main property of this procedure's non-compensability. This means that it is impossible to compensate for low values of some citation indicators by high values of the others. Therefore, the threshold procedure reduces opportunities for manipulation.

The text is organized as follows. In Section 2 we provide the definitions of the bibliometric indicators. Section 3 contains a description of the empirical data and the correlation analysis of single-indicator-based rankings. In Section 4 the threshold procedure is formally described. Section 5 presents the analysis of the aggregate rankings. The summary of the results and suggestions for further research are given in the conclusion. In Appendix 1 the advanced analytic approach to threshold aggregation is given. Appendix 2 contains the ranks of journals in single-indicator-based and aggregate rankings. In Appendix 3 the journals excluded from the analysis are listed.

## 2. Bibliometric indicators

We will give brief definitions of several measures of journals' citedness that are used in this study.

### 2.1. The impact factor (IF)

Impact factor (IF), first introduced in [Garfield and Sher, 1963], is the most popular and commonly used indicator. It shows the average number of citations of the published paper in a particular journal. In order to calculate the impact factor of a journal, the number of citations received in a given year by journal's papers published within a specified number of years is divided by the number of these papers. Stated more formally [Egghe, 1988; Rousseau, 1988], let  $PUB(t)$  be the total number of papers published in journal  $j$  during year  $t$  and  $CIT(T, t)$  be the total number of citations received in year  $T$  by all papers published in the journal  $j$  during the year  $t$ . Then the  $n$ -year impact factor for the year  $T$  can be defined as follows:

$$IF = \frac{\sum_{t=1}^n CIT(T, T-t)}{\sum_{t=1}^n PUB(T-t)}$$

The impact factor is published by Thomson Reuters Corporation, in its database Journal Citation Reports (JCR),<sup>5</sup> for  $n = 2$  and  $n = 5$ . However, the optimal "publication window" (parameter  $n$ ) is still being debated. The two-year impact factor ( $n = 2$ ) is thought to be the classical case. However, sometimes the 5-year impact factor is more appropriate than 2-year because in certain fields of science it takes longer to assimilate new knowledge. Moreover, depending on the area of research and the type of papers, there are differences between how quickly they become obsolete and stop being cited in the literature.

Both of these publication windows have been analyzed in this study. However, the discrepancies between rankings based on impact factor with different publication windows were found to be insignificant. Therefore, we use only the 2-year impact factor for further analysis.

### 2.2. Source Normalized Impact per Paper (SNIP)

The SNIP indicator, introduced in [Moed, 2010], measures the citation impact of scientific journals corrected for the differences in citation practice between scientific fields.

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<sup>5</sup> This product is based on another Thomson database, Web of Science (WoS). WoS contains citation data on an individual paper level, while JCR aggregates citation indicators for journals as a whole.

Another advantage of this indicator is that it does not require a field classification system in which the boundaries of fields are explicitly defined and not flexible. A journal's subject field is defined as the set of papers published in a current year and citing at least one of the 1-10 year old papers published in the journal.

SNIP is defined as the ratio of journal's raw impact per paper (RIP) to the relative database citation potential (RDCP):

$$SNIP = \frac{RIP}{RDCP} \quad (2)$$

RIP is similar to the impact factor except that three instead of two years of cited publications are used and only citations of publications of the specific document types (article, conference paper, or review) are included.

To calculate the RDCP, a journal's database citation potential (DCP) is divided by the median DCP value for all journals in the database. In its turn, the DCP equals the average number of "active references" in the papers belonging to the journal's subject field. "Active references" are references to papers that appeared within the three preceding years in sources covered by the database (Scopus). All references to documents older than three years or not indexed by Scopus do not affect DCP.

Thus, SNIP: (a) corrects for different citation practices in different fields (average number of references); (b) equalizes a field relatively well represented in the database and a field where there are many references to sources outside the database (for instance, a discipline where books are cited more frequently than journal articles); (c) makes equal those fields where the most recent literature is cited with those where older documents receive a considerable number of citations.

The SNIP indicator is made available in Elsevier's Scopus database, together with another journal indicator, the SCImago Journal Rank (SJR), which is described below.

Data on SNIP are regularly updated. In our analysis we use data downloaded from the Scopus web site<sup>6</sup> in October 2012.

### **2.3. SCImago Journal Rank (SJR)**

This indicator was introduced in [Gonzalez-Pereira et al., 2010]. It evaluates journals taking into account not just the number of citations received, but also the quality of the source of

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<sup>6</sup> <http://www.journalmetrics.com/values.php>. As of 2012 'optimized' values of SNIP (so called SNIP2: [Waltman et al., 2013]) are published. We use older version of SNIP intentionally, since it has already been tested for a while by the academic community. The latest published data are the values for the first half of 2011. The same is to be said about SJR (see below).

these citations. For this reason, weights are assigned to all citations based on the ‘prestige’ of the journals where they come from, so that citations received from the more prestigious journals are more valuable than those from less prestigious ones. The prestige is computed recursively, i.e., the prestigious journals are those which receive many citations from other prestigious journals.

At the first stage of the procedure all journals get an equal level of prestige. Then the new level of prestige is computed based on citations received by a journal. At the next stage the prestige of each journal is re-evaluated by counting citations received, each citation is taken with the weight corresponding to the prestige of the citing journal. The algorithm iterates until a steady-state solution is reached, and the final prestige values reflect the journals’ scientific importance. The precise mathematical description can be found in [Gonzalez-Pereira et al., 2010].

This procedure is equivalent to counting how often a reader would visit a certain journal, if she randomly walks from journal to journal following citation links.

Only citations to papers published within last three years are taken into account in SJR. If the number of journal self-citations is large then it is artificially reduced and is set to 33% of all citations of this journal. Finally, a journal’s SJR is normalized by the number of its articles; therefore the value of this indicator is independent of journal size.

In 2012 a new ‘optimized’ SJR2 indicator was introduced [Guerrero-Bote, Moya-Anegón, 2012], but we use the previous version of this indicator (year 2011).

## **2.4. Article influence score**

Another weighted indicator, the article influence score, also takes into account the relative importance of the citing journals. It is calculated similarly to SJR, the main difference being the citation database it is based on. For calculating article influence the Web of Science is used as a source of the data, so the values for this indicator are published in the JCR database.

There are several other technical distinctions between the methodologies, the main are: (a) the publication window for the article influence calculation is 5 years, not 3 years as for SJR; (b) self-citations are totally excluded, whereas for SJR they just have upper limit of 33% of all citations.

JCR has published article influence values since 2007; they also may be found with a 2-year embargo in open access at <http://eigenfactor.org/> (but see [Jacsó, 2010] on differences in data obtained from two different systems). In this study we use values for 2011.

## 2.5. Hirsch index (h-index)

The Hirsch index [Hirsch, 2005] evaluates both the number of papers and their citedness. By definition, the h-index for a set of papers equals  $h$ , if exactly  $h$  papers from the set have received no less than  $h$  citations, while the others have received no more than  $h$  citations. This indicator does not involve a calculation of the averages, thus the h-index is robust with respect to outliers (e.g. when there is one paper with enormously large number of citations which significantly affects their average number). To have a high value of h-index a journal has to publish many frequently cited papers.

Initially the h-index was introduced to assess the output of a scientist, but it can also be applied to journals. For instance, [Braun et al., 2006] consider the set of articles published in a journal in a certain year and calculate their citedness at present (in their case, four years after publication). In this paper we use a more balanced approach adopted in the work on the computation of aggregate rankings for economic journals [Aleskerov et al., 2013b]: we take into account papers published in a journal over five years (from 2007 to 2011) and citations received over the same period. The values of the h-index depend upon a database used. We use the Web of Science database to calculate the h-index.

The h-index has certain disadvantages. The most evident one is that papers with low citedness (below and, in certain cases, equal to  $h$ ) are completely ignored. Indeed, suppose there are two journals with 50 papers published in each of them. In the first journal each paper has received 10 citations, while 10 papers in the second one have received 10 citations each, but the other 40 papers have not been cited at all. The journals are clearly unequal by their ‘influence’, but their h-index values are the same—10.

## 3. Data and the analysis of single-indicator-based rankings

Three sets of journals are studied hereafter, representing three academic disciplines: economics, management and political science. We analyze the degree of consistency between the bibliometric indicators (impact factor, article influence score, SNIP, SJR and h-index), for each set of journals separately. In 2011, the JCR database included 168 journals in management, 318 journals in economics and 147 journals in political science which were also indexed in the Scopus database. Thus, the values of indicators for the selected journals could be extracted (or calculated in the case of h-index). However, for 70 journals in management science some of the indicators were missing from JCR. Five more journals did not have their SJR and/or SNIP values. These 75 journals are excluded, leaving 93 journals in management for further analysis. For the same reason 108 economic and 48 political science journals are excluded as well. As a

result, for 210, 93 and 99 journals in economics, management and political sciences respectively, the values of impact factor (2011), article influence (2011), h-index (2007-2011), SNIP (2011) and SJR (2011) have been extracted. The data sources are summarized in Table 1.

**Table 1. Data sources**

Indicator	Database	Year(s)
IF (2-year)	JCR/WoS	2011
SNIP	Scopus	2011
SJR	Scopus	2011
article influence	JCR/WoS	2011
h-index	WoS	2007–2011 (papers and citations)

The values of these bibliometric indicators are used to rank journals. Basically, ranking is a set of positions (called ranks) in which one or more journals can be put. Journals with matching values are given the same position in the ranking, and this corresponds to the same rank. Meanwhile, journals with different values are given different positions, which are ordered by descending values of indicators and are identified by natural numbers, from the ‘best’ value to the ‘worst’ one. Ranks of journals in economics, management and political science for each indicator are listed in the Appendix 2 (Tables 8–10).

As our ranks are ordinal variables, rank correlation can be estimated by *Spearman’s ρ measure*. Since percentage of duplicate values in the rankings is relatively low, this coefficient is calculated as follows:

$$\rho = 1 - \frac{6 \sum_{i=1}^n (x_i - y_i)^2}{n(n^2 - 1)}, \quad (3)$$

where  $x_i, y_i$  are ranks of journal  $i$  in two compared rankings X and Y, and  $n$  is the total number of journals.

To give an example, let us suppose that there are two rankings, which rank journals as follows:



	Ranking 1	Ranking 2
Journal A	1	7
Journal B	2	4
Journal C	3	5
Journal D	4	1
Journal E	5	3
Journal F	6	2
Journal G	7	8
Journal H	8	6

$$\text{In this case, } \rho = 1 - \frac{6*((1-7)^2+(2-4)^2+(3-5)^2+(4-1)^2+(5-3)^2+(6-2)^2+(7-8)^2+(8-6)^2)}{8*(8^2-1)}$$

Hence, the Spearman correlation between the two rankings is approximately 0.07.

However, if ranks of journals are equal, their values are recalculated so that they are given by the arithmetic average of their positions in ranking. Then, the whole procedure is repeated as above.

Spearman's  $\rho$ , unlike the broadly used Pearson's coefficient, is not affected by outliers, as it limits them to the values of their ranks. Its value ranges from +1 to -1.  $\rho=1$  means that rankings are the same and  $\rho=-1$  that they are completely reversed. Results for Spearman's  $\rho$  measure for all academic disciplines under consideration are given in Tables 2.1–2.3.

**Table 2.1. Spearman's  $\rho$  (economics)**

	IF	article influence	h-index	SNIP	SJR
IF	1.000	0.821	0.816	0.872	0.868
article influence	0.821	1.000	0.790	0.850	0.850
h-index	0.816	0.790	1.000	0.758	0.812
SNIP	0.872	0.850	0.758	1.000	0.821
SJR	0.868	0.850	0.812	0.821	1.000

**Table 2.2. Spearman's  $\rho$  (management science)**

	IF	article influence	h-index	SNIP	SJR
IF	1.000	0.821	0.843	0.856	0.820
article influence	0.821	1.000	0.835	0.867	0.896
h-index	0.843	0.835	1.000	0.906	0.872
SNIP	0.856	0.867	0.906	1.000	0.886
SJR	0.820	0.896	0.872	0.886	1.000

**Table 2.3. Spearman's  $\rho$  (political science)**

	IF	article influence	h-index	SNIP	SJR
IF	1.000	0.848	0.850	0.833	0.822
article influence	0.848	1.000	0.850	0.845	0.815
h-index	0.850	0.850	1.000	0.783	0.838
SNIP	0.833	0.845	0.783	1.000	0.812
SJR	0.822	0.815	0.838	0.812	1.000

For all academic disciplines,  $\rho$  reveals significant correlation between rankings based on each bibliometric indicator. In fact, Spearman's  $\rho$  for every pair of rankings is not less than 0.82 for journals in management science, 0.75 for economic journals, and 0.78 for journals in political science.

The highest level of correlation for management science journals is between the h-index and SNIP rankings (0.906), and the second highest correlation is between the article influence and SJR rankings (0.896). The correlation between economic journal rankings is not as high as for management science; however, the  $\rho$  coefficient exceeds 0.8 for the majority of pairs of indicators. In turn, journals in political science are correlated quite strongly, with the Spearman's  $\rho$  of 0.85 for IF/h-index and nearly the same for IF/article influence.

Unlike in our previous studies [Aleskerov et al., 2011, 2013b, 2014], these similarities between rankings based on pairs of indicators cannot be explained by the same database, the similar methodology or even the same publication window involved in their calculation. It seems that the maximum correlations are observed for rankings based on quite different measures. The only exception is in political science, where the two most correlated pairs of rankings are based on indicators taken from the same database (h-index/IF; article influence/IF). Another peculiarity is that the most specific indicator, h-index, is the most correlated ranking in two out of the three disciplines, management and political science. On the other hand, the impact factor also appears in two out of the three most correlated pairs of rankings (economics, political science), which is in accord with the results of previous studies [Aleskerov et al., 2011; Aleskerov et al., 2013b] (there a 5-year impact factor ranking demonstrated the maximum correlation with the others).

As for the minimum values, the lowest correlation for journals in management science occurs between impact factor and SJR rankings ( $\rho=0.82$ ). Journals in economics and political science demonstrated the lowest correlation between h-index and SNIP rankings, with a Spearman correlation of 0.76 and 0.78, respectively.

The analysis of correlations presented in this Section shows that different indicators generate similar but not identical rankings. We believe that the disparities result mainly from complexity and multidimensionality of journal quality and significance. Furthermore, the indicators differ to a great extent conceptually. Therefore, rather than trying to choose the best indicator it is worth finding an aggregate ranking that combines information contained in separate variables. Thus, the ranking of journals becomes a multi-criteria evaluation problem.

#### 4. A construction of aggregate ranking using the threshold procedure

A standard solution to a multi-criteria evaluation problem is to calculate a weighted sum of criteria values for each alternative, and then rank alternatives by the value of this sum. However, there is a severe restriction on this approach—the weights should be justified. We have no such justification for the problem under consideration. Therefore, we cannot be sure that a weighted summation of bibliometric indicators is a correct procedure yielding meaningful results.

The possible alternative solution is an application of the threshold procedure [Aleskerov et al., 2010, 2013c], which possesses the so-called ‘non-compensatory’ nature. This means that high values of some citation indicators cannot be traded for low values of the others.

Before we give a formal definition of the procedure, let us provide an informal explanation of it. Assume that we have only three journals  $J1$ ,  $J2$ ,  $J3$  evaluated with respect to 3 criteria, such as impact factor, h-index and SJR. Let the ranks of the journals with respect to the indicators be given in Table 3, the smaller is the number of rank, the better is the journal.

**Table 3. An example of the ranks of three journals according to IF, h-index and SJR**

	IF	h-index	SJR
J1	3	3	1
J2	2	2	2
J3	3	2	2

Then, according to the threshold procedure, for  $J1$  the value of 1 for SJR index does not compensate the worst values for IF and h-index, so  $J1$  in aggregated ranking gets lower rank than  $J2$ . Even  $J3$ , since it has less lower ranks than  $J1$ , is placed in the final ranking above  $J1$ . The final ranking looks as  $J2 > J3 > J1$ .

In other words, the procedure punishes low positions in single-indicator-based rankings stronger than it rewards high positions. This is exactly the reason why we suggest using it in the construction of aggregated ranking.

Now, let us give a formal definition of the procedure. Let  $A$  be a finite set of alternatives, which are evaluated on  $n$  criteria. In the present paper different journals are alternatives and different bibliometric indicators are criteria.

For each indicator, the sample is split into  $m$  grades<sup>7</sup>, where the first grade corresponds to the ‘best’ journals. At the next stage, to each alternative  $x$  from  $A$ , a vector  $(x_1, x_2, \dots, x_n)$  is assigned, where  $x_j$  is the grade of the alternative according to criterion  $j$ , i.e.  $x_j \in \{1, \dots, m\}$ .

The goal of the threshold procedure is to rank the set  $A$  based on the vector of grades  $(x_1, x_2, \dots, x_n)$  for each  $x \in A$ .

We assume that the set  $A$  consists of all possible vectors of this form.

Let  $v_j(x)$  be the number of ranks  $j$  in the vector  $x$ , i.e.  $v_j(x) = |\{I \leq i \leq n: x_i = j\}|$ . It should be noted that  $0 \leq v_j(x) \leq n$  for all  $j \in \{1, \dots, m\}$  and  $x \in A$ , and  $v_1(x) + \dots + v_m(x) = n$  for all  $x \in A$ .

The alternative  $x \in A$  is said to be (strictly) preferred to another alternative  $y \in A$  ( $x$  dominates  $y$  or, shortly,  $xPy$ ) if we can find the number  $k$  such that  $\forall j \in [k+1, m]$   $v_j(x) = v_j(y)$  and  $v_k(x) < v_k(y)$  (if  $k=1$ , the condition  $v_j(x) = v_j(y)$  can be omitted). The relation  $P$  is called the threshold relation.

In other words, a vector  $x$  is more preferable than a vector  $y$  if  $x$  has less grades  $m$  than  $y$ ; if both of these vectors have the same number of grades  $m$ , then the numbers of grades  $m-1$  are compared, and so on.

After making these comparisons, we obtain a weak order  $P$ , the undominated elements of which are the best journals; to these journals the rank 1 is assigned. After excluding these journals, we get the set of the second best alternatives to which we assign the rank 2. Then, we proceed in this way until all the journals are ranked. In the Appendix 1 the formula is given for the Threshold Index, to avoid making all these pairwise comparisons and get the final ranking directly.

## 5. Aggregated rankings for journals

Depending on  $m$  we receive rankings with different precision. The greater  $m$  is, the better is the ‘resolution’ of the ranking. According to [Hudson, 2013], it appears arbitrary to definitively call one journal better than another if they have very close values of indicators. Moreover, we believe that allocating all journals into several large tiers better reflects the

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<sup>7</sup> The choice of the optimal  $m$  is discussed in the next Section.

intuition about the differences between the quality and significance of an academic journal. For example, many subjective rankings, such as the Keele list, the ranking of the Australian Research Council, the Association of Business Schools list [Hudson, 2013], allocate journals into one of four tiers. On the other hand, sometime there is a need for distinguishing between all alternatives. Thus, the question of the best ranking precision remains open. We obtained the aggregate rankings for  $m=5$ ,  $m=10$  and  $m=15$ ; their precision is shown in the table below:

**Table 4. The number of positions in aggregate rankings**

m=	5 grades	10 grades	15 grades	Total number of journals
Economics	86	145	176	210
Management science	50	67	86	93
Political science	55	77	93	99

Ranks of the journals in the aggregate rankings with different numbers of grades are given in the Appendix 2. However, as more grades have almost no effect on the overall result of the obtained rankings, i.e., aggregate rankings in the same field with a different number of grades turn out to be highly correlated based on  $\rho$  indicator presented in Table 5 below, we will use 5-gradation ranking in the following analysis.

**Table 5. The values of  $\rho$  for aggregate rankings with different grades**

Economics				Management science				Political science			
Number of grades	5	10	15	Number of grades	5	10	15	Number of grades	5	10	15
5	1.00	0.97	0.96	5	1.00	0.99	0.99	5	1.00	0.99	0.99
10	0.97	1.00	0.99	10	0.99	1.00	1.00	10	0.99	1.00	1.00
15	0.96	0.99	1.00	15	0.99	1.00	1.00	15	0.99	1.00	1.00

We estimate the efficiency of the consensus rankings based on their degree of the consistency with the single-indicator-based rankings.

**Table 6. The values of  $\rho$  for 5-grade threshold index against single-indicator-based rankings**

	Economics	Management science	Political science
IF	0.85	0.90	0.93
article influence	0.96	0.94	0.92
h-index	0.89	0.93	0.92
SNIP	0.85	0.95	0.90
SJR	0.90	0.95	0.90

The  $\rho$  coefficient between the threshold index ranking and those based on the separate indicators is considerably greater than correlation between single-indicator-based rankings themselves (Tables 2.1–2.3).

To demonstrate the non-compensatory nature of the threshold aggregation, let us list ranks of the following management science journals:

**Table 7. Comparing ranks of several management science journals**

	IF	article influence	h-index	SNIP	SJR	Threshold Index
Human Resource Management	3	3	3	3	3	13
Technovation	1	4	2	2	2	14
Academy of Management Learning and Education	1	2	2	2	3	7
Service Industries Journal	2	5	5	4	3	26

The threshold ranks for management science journals span from 1 to 32, and they are ordered from ‘best’ ‘worst’. These ranks can be divided by 5 equal groups (or grades) as listed. In other words, grade 1 corresponds to the ‘best’ value whereas grade 5 stands for the ‘worst’. It is clear from Table 7 that *Technovation* has rather high ranks for all the indicators except one, which grade equals to 4. According to the nature of the threshold procedure, this low value cannot be compensated by the other high values. Thus, *Technovation* is 14. In contrast, *Academy of Management Learning and Education* has one grade “3” instead of “4”; this is why its threshold rank 7. Meanwhile, *Human Resource Management* ranks are all given average values, but its position in aggregate ranking is higher than that of *Technovation*. Finally, figures for *Service Industries Journal* are quite low for all indicators but impact factor; its corresponding grade is equal to two. This single value of 2 does not compensate for the other small values, so the journal position in the aggregate ranking is only 26.

Hence, we can conclude that the aggregate ranking significantly limits all opportunities for manipulation. On top of that, it combines information contained in single indicators. For all these reasons, the use of the threshold procedure is reasonable and advantageous.

## 6. Conclusion

The analysis of journal rankings based on five commonly used bibliometric indicators (impact factor, article influence score, SNIP, SJR and h-index) has been conducted. It has been shown that despite the high correlation, these single-indicator-based rankings are not identical. The disparities may result from the complexity and multidimensionality of the notion of journal quality and significance. Therefore, to solve the problem of competing evaluations an aggregate journal ranking has been constructed. We propose a new approach to the construction of consensus rankings based on the threshold procedure, which main property is its non-compensability. This means that it is impossible to compensate for low values of some citation indicators by high values of the other ones. Therefore, the proposed procedure reduces opportunities for manipulation.

The rank correlation analysis showed that there is an advantage in replacing single-indicator-based rankings by aggregate rankings, because the latter combine information contained in single-indicator-based rankings.

However, the threshold procedure is not the only way of constructing aggregate rankings. For example, in [Aleskerov et al., 2014] several aggregation methods, such as the Copeland rule, the Markov ranking, the uncovered set and the minimal externally stable set, have been used. Thus, applying new aggregation rules as well as an extension of the empirical data could be possible directions for further research.

## Appendix 1

Instead of making pairwise comparison over each grade of different alternatives, we need an index, which would enable us to easily find a journal position in the final ranking. That index can be calculated as follows, which was proved in [Aleskerov and Chistyakov, 2013c].

Let us note that the number of ranks in the ranking defined by the threshold procedure is given by the following formula:

$$r_{\max} = \frac{(n+m-1)!}{n!(m-1)!}, \quad (4)$$

where  $r_{\max}$  is the number of ranks,  $n$  is the number of indicators, and  $m$  is the number of grades.

The rank ( $r$ ) of an alternative  $x=(x_1, \dots, x_n)$ ,  $x \in \{1, \dots, m\}$  is defined as (see Aleskerov et al., 2010; Aleskerov, Chistyakov, 2013c):

$$r = \sum_{j=1}^m C_{n-V(j)+m-j-1}^{m-j}, \quad (5)$$

with  $C_{-1}^0=1$  and  $C_k^{k+1}=0$ ,  $V(j) = \sum_{q=1}^j v_q(x)$ ,  $v_q(x)$  is the number of ranks  $q$  in the vector  $x$ .

To understand this formula, let us look at three examples. Let  $n=4$ ,  $m=4$ , Then

$$r_{\max} = \frac{(n+m-1)!}{n!(m-1)!} = \frac{7!}{4!3!} = 35.$$

Let us consider now three journals with the following estimates:  $x_1 = (1,1,1,1)$ ,  $x_2 = (4,4,4,4)$ ,  $x_3 = (4,2,1,2)$  and calculate their rankings.

For the first journal  $V(1) = V(2) = V(3) = V(4) = 4$ , then

$$r = \sum_{j=1}^4 C_{4-V(j)+4-j-1}^{4-j} = C_2^3 + C_1^2 + C_0^1 + C_{-1}^0 = 0 + 0 + 0 + 1 = 1.$$

For the second journal  $V(1) = V(2) = V(3) = 0$ ,  $V(4) = 4$ , then

$$r = C_6^3 + C_5^2 + C_4^1 + C_{-1}^0 = \frac{6!}{3!3!} + \frac{5!}{2!3!} + \frac{4!}{1!3!} + 1 = 20 + 10 + 4 + 1 = 35.$$

For the third journal  $V(1) = 1$ ,  $V(2) = 3$ ,  $V(3) = 3$ ,  $V(4) = 4$ , then

$$r = C_5^3 + C_2^2 + C_1^1 + C_{-1}^0 = \frac{5!}{3!2!} + 1 + 1 + 1 = 13$$

We introduce as well a notion of normalized index as

$$I_{Threshold} = \frac{r}{r_{\max}}, \quad (7)$$

where  $r_{\max}$  is the maximum value of this index given by (4).



Hence, the normalized threshold index is between 0 and 1 and is lower for better estimates.

For our examples,  $r_{\max} = \frac{7!}{4!3!} = 35$ , and the values of the normalized threshold index are

$$r_{Th}^1 = \frac{1}{35}, r_{Th}^2 = 1, r_{Th}^3 = \frac{13}{35} .$$

## Appendix 2

**Table 8. Ranks of management science journals in single-indicator-based and aggregate rankings (journals are ordered by Threshold Index, m=5)**

	IF	article influence	SNIP	SJR	H-index	Threshold Index (m=5)	Threshold Index (m=10)	Threshold Index (m=15)
Academy of Management Journal	2	1	4	7	3	1	1	2
Academy of Management Review	1	2	2	4	2	1	1	1
Journal of Applied Psychology	8	5	5	2	1	1	1	2
Journal of Management	4	4	7	6	7	1	1	3
Journal of Operations Management	6	16	3	3	5	1	2	4
MIS Quarterly	5	7	1	6	9	1	2	2
Strategic Management Journal	12	9	6	13	4	1	3	5
Journal of Management Studies	9	14	18	15	10	2	6	8
Omega - International Journal of Management Science	16	29	13	1	8	2	9	10
Organization Science	7	8	15	14	6	2	4	6
Personnel Psychology	20	6	10	11	10	2	5	6
Administrative Science Quarterly	10	3	9	14	15	3	4	6
Journal of International Business Studies	15	19	14	16	5	3	6	7
Management Science	36	12	21	9	9	3	11	14
Organizational Behavior and Human Decision Processes	19	11	36	9	12	3	10	13
Organizational Research Methods	18	10	23	5	15	3	7	9
Information Systems Research	31	13	12	21	16	4	13	15
Journal of Organizational Behavior	11	17	29	16	15	4	12	11
Leadership Quarterly	21	25	17	20	13	4	12	12
Research Policy	24	23	19	10	6	4	8	9
Information and Management	29	41	11	11	12	5	17	18
International Journal of Management Reviews	14	20	22	12	20	6	15	17
M&SOM - Manufacturing and Service Operations Management	48	15	30	8	19	6	24	25
Operations Research	41	18	24	5	14	6	14	16
Tourism Management	22	48	8	17	11	6	22	24
Academy of Management Learning and Education	3	28	31	22	19	7	18	20
Academy of Management Perspectives	13	27	52	14	16	7	23	32
Journal of Management Information Systems	49	31	16	23	15	7	25	26
Journal of Product Innovation Management	32	34	25	24	18	8	19	21
Organization Studies	27	22	27	25	13	8	16	19
Industrial and Corporate Change	51	33	47	11	18	9	30	36
California Management Review	40	35	33	23	20	10	20	23

Decision Sciences	52	26	26	22	19	10	26	33
European Journal of Work and Organizational Psychology	33	30	44	19	22	10	27	35
Human Relations	37	37	42	24	17	10	20	22
R and D Management	25	44	34	18	21	10	26	28
Group and Organization Management	26	40	28	25	21	11	28	29
International Journal of Forecasting	47	24	43	19	20	11	28	27
Small Business Economics	42	45	37	25	15	11	21	30
Journal of Occupational and Organizational Psychology	34	38	50	25	21	12	31	37
Journal of Small Business Management	50	49	32	25	22	12	31	39
Long Range Planning	30	42	48	24	20	12	29	31
Supply Chain Management	43	52	39	23	18	12	29	34
British Journal of Management	45	43	55	28	21	13	32	40
Human Resource Management	45	47	45	26	21	13	32	38
Technovation	17	60	20	19	14	14	33	41
Harvard Business Review	55	32	56	22	16	15	34	42
Industrial Marketing Management	44	67	38	29	14	16	40	54
Journal of Economics and Management Strategy	62	21	49	27	21	16	35	45
IEEE Transactions on Engineering Management	68	55	49	26	20	17	41	55
International Journal of Operations and Production Management	61	58	35	26	18	18	37	43
Journal of Information Technology	28	36	41	31	23	18	36	49
Corporate Governance - An International Review	35	71	57	28	20	19	42	56
Small Group Research	53	48	58	20	23	19	38	44
Journal of the Operational Research Society	67	51	62	23	19	20	43	50
Management Learning	38	61	53	29	22	20	39	47
Organization	39	39	51	31	22	20	43	46
International Small Business Journal	46	66	40	31	22	21	44	51
Journal of Forecasting	69	50	68	26	25	21	48	60
MIT Sloan Management Review	67	46	61	27	23	21	44	57
International Journal of Human Resource Management	63	68	59	34	17	22	47	59
Gender, Work and Organization	58	54	60	30	24	23	45	48
International Journal of Selection and Assessment	54	59	64	32	22	23	45	52
Group Decision and Negotiation	65	63	65	29	25	24	49	58
Journal of Engineering and Technology Management (JET-M)	64	56	66	29	23	24	46	53
Interfaces	75	57	71	29	25	25	50	62
Leadership	60	69	77	34	25	25	54	65
New Technology, Work and Employment	71	70	69	33	27	25	51	68

Personnel Review	81	73	72	34	24	25	55	69
Public Management Review	70	65	63	35	22	25	50	61
Technology Analysis and Strategic Management	80	64	67	30	23	25	50	67
Service Industries Journal	23	74	75	33	20	26	53	64
System Dynamics Review	74	62	54	29	26	27	52	63
Journal of Organizational Change Management	79	75	70	33	24	28	55	69
Total Quality Management and Business Excellence	82	85	73	32	25	28	62	74
Journal of Management Inquiry	59	53	80	36	25	29	58	71
Journal of Sport Management	76	77	46	35	25	29	57	66
Organizational Dynamics	77	72	76	35	24	30	56	70
Cornell Hospitality Quarterly	73	87	87	35	28	31	66	84
International Journal of Manpower	84	76	74	35	25	31	61	73
Journal of Organizational Behavior Management	56	81	86	38	27	31	64	82
Journal of Service Management	57	80	81	35	29	31	59	77
Negotiation Journal	88	84	90	33	28	31	65	83
Research Technology Management	72	79	89	39	25	31	63	79
Review of Industrial Organization	87	58	79	36	27	31	64	76
Service Business	66	86	78	34	26	31	60	75
Canadian Journal of Administrative Sciences - Revue Canadienne des Sciences de L'Administration	84	82	82	37	27	32	66	78
Chinese Management Studies	83	89	88	38	29	32	67	85
International Journal of Technology Management	85	83	83	36	25	32	66	80
South African Journal of Economic and Management Sciences	90	91	92	41	30	32	67	86
Systemic Practice and Action Research	86	88	84	35	27	32	66	81
Systems Research and Behavioral Science	78	78	85	34	26	32	61	72
Zeitschrift für Personalforschung	89	90	91	40	30	32	67	86

**Table 9. Ranks of economic journals in single-indicator-based and aggregate rankings (journals are ordered by Threshold Index, m=5)**

	IF	article influence	SNIP	SJR	H-index	Threshold Index (m=5)	Threshold Index (m=10)	Threshold Index (m=15)
American Economic Review	15	9	13	13	3	1	1	2
Economic Journal	31	25	19	20	12	1	3	4
Journal Of Development Of Economics	27	28	24	25	12	1	4	4
Journal Of Econometrics	63	21	21	32	9	1	16	16
Journal Of Economic Geography	10	34	12	32	11	1	2	5
Journal Of Economic Literature	1	2	1	1	11	1	1	1
Journal Of Economic Perspectives	5	6	6	6	8	1	1	1

Perspectives

Journal Of Environmental Economics And Management	25	33	22	19	14	1	5	4
Journal Of Finance	4	5	3	12	5	1	1	1
Journal Of Financial Economics	7	8	4	17	4	1	1	2
Journal Of Health Economics	22	36	62	5	11	1	7	15
Journal Of Monetary Economics	32	15	27	33	12	1	3	6
Journal Of Political Economy	11	3	5	11	10	1	1	1
Journal Of Public Economics	52	31	30	21	13	1	9	10
Journal Of The European Economic Association	62	20	59	22	16	1	19	23
Journal Of Urban Economics	32	41	20	16	15	1	3	7
Quarterly Journal Of Economics	2	1	2	3	4	1	1	1
Review Of Economic Studies	12	4	9	15	13	1	1	3
Review Of Economics And Statistics	16	11	10	18	10	1	1	3
Review Of Environmental Economics And Policy	26	32	60	20	18	1	9	17
Review Of Financial Studies	3	7	7	11	6	1	1	1
Experimental Economics	60	14	15	26	21	2	18	22
Journal Of Accounting And Economics	9	24	8	35	14	2	7	8
Journal Of Economic Growth	19	10	16	33	21	2	16	27
Journal Of Human Resources	20	17	17	14	19	2	6	9
Journal Of International Economics	36	22	11	39	14	2	8	16
Journal Of Money Credit And Banking	78	37	50	49	17	2	31	41
European Economic Review	47	42	51	37	18	3	14	12
International Economic Review	41	23	43	41	20	3	13	25
Journal Of Applied Econometrics	35	27	42	36	20	3	13	21
Journal Of Business And Economic Statistics	33	18	26	34	20	3	10	19
Journal Of Financial And Quantitative Analysis	34	30	35	40	20	3	11	24
Journal Of Labor Economics	40	13	23	34	21	3	19	29
Journal Of Law And Economics	103	39	80	35	21	3	48	49
Rand Journal Of Economics	50	16	37	43	19	3	20	21
World Bank Economic Review	75	29	38	43	18	3	23	30
Ecological Economics	14	68	45	13	2	4	17	18
Energy Economics	21	61	26	18	7	4	7	14
Health Economics	28	54	71	7	13	4	18	28
Industrial And Corporate Change	59	70	63	28	17	4	23	26
Pharmacoeconomics	17	71	79	2	12	4	22	31
Value In Health	24	75	102	4	1	4	45	48
World Development	45	69	44	23	14	4	21	20
Econometric Reviews	117	43	89	27	21	5	53	66
Journal Of Economic Behavior And Organization	91	60	111	48	16	5	53	68

Journal Of Economic Dynamics And Control	108	65	57	36	17	5	47	62
Journal Of Economic Psychology	80	80	73	34	18	5	25	33
Journal Of Economic Surveys	65	58	36	32	20	5	21	26
Oxford Review Of Economic Policy	116	55	68	16	20	5	46	61
Economic Geograpaphy	6	48	28	36	18	6	12	11
Economic Inquiry	94	59	129	35	21	6	68	83
Games And Economic Behavior	112	44	106	45	19	6	62	73
International Journal Of Forecasting	50	50	52	38	18	6	15	13
Journal Of Regional Science	30	78	76	44	21	6	26	34
Land Economics	67	82	109	43	19	6	49	64
Mathematical Finance	70	45	18	42	21	6	24	32
Brookings Papers On Economic Activity	8	12	31	24	24	7	43	60
Economic Policy	23	26	25	29	24	7	44	59
Journal Of Risk And Uncertainty	46	38	53	30	22	7	29	37
Review Of Economic Dynamics	61	19	48	39	22	8	30	38
Economy And Society	37	52	85	51	17	9	34	51
Jcms-Journal Of Common Market Studies	66	79	61	54	17	9	48	63
Econometric Theory	108	49	94	42	22	10	58	71
Economica	74	67	84	47	22	10	40	47
International Journal Of Industrial Organization	109	56	70	51	21	10	55	75
Journal Of Comparative Economics	85	72	56	50	21	10	39	47
Journal Of Economics And Management Strategy	78	47	67	49	20	10	33	42
Journal Of Policy Analysis And Management	77	57	87	52	19	10	54	54
Labour Economics	101	64	95	49	20	10	59	56
Oxford Bulletin Of Economics And Statistics	92	62	69	44	23	10	39	46
Regional Science And Urban Economics	90	77	98	51	21	10	42	57
Scandinavian Journal Of Economics	146	51	97	47	24	10	86	95
Journal Of Law Economics & Organization	86	40	77	53	22	11	57	72
Quantitative Marketing And Economics	49	35	85	50	24	11	56	70
Canadian Journal Of Economics-Revue Canadienne D Economique	135	84	93	50	23	12	71	93
Economic Development And Cultural Change	95	73	91	49	24	12	60	77
Journal Of Industrial Economics	82	46	65	51	23	12	41	55
Oxford Economic Papers	76	81	115	51	23	12	59	78
Environmental & Resource Economics	48	89	119	31	17	13	51	65
Food Policy	29	88	47	9	17	13	28	36

American Journal Of Agricultural Economics	73	100	86	41	16	14	38	53
Economics Human Biology	13	85	105	8	19	14	50	50
Journal Of Banking & Finance	18	94	14	37	13	14	27	35
Small Business Economics	44	96	34	47	14	14	31	40
Insurance Mathematics & Economics	68	91	32	42	19	15	32	39
Journal Of Agricultural Economics	43	106	116	28	22	16	64	76
Journal Of Risk And Insurance	57	86	81	10	22	16	35	45
Regional Studies	72	113	49	51	14	16	53	67
Cambridge Journal Of Economics	54	110	58	49	19	17	52	52
Economics Of Education Review	80	96	46	51	19	17	37	44
Information Economics And Policy	97	111	78	46	23	17	59	78
Journal Of Agrarian Change	64	93	39	37	22	17	36	43
Journal Of Population Economics	100	87	110	53	21	17	65	80
Papers In Regional Science	55	115	66	49	21	17	55	69
Public Choice	102	95	122	54	19	17	75	87
Quantitative Finance	120	116	147	48	24	17	88	108
Work Employment And Society	71	117	54	53	20	17	63	74
Cambridge Journal Of Regions Economy And Society	39	99	150	53	24	18	87	106
Journal Of Productivity Analysis	106	119	99	52	23	18	66	79
KYKLOS	105	98	87	51	23	18	61	58
Southern Economic Journal	130	104	134	53	23	18	82	97
Economic Theory	128	74	132	56	21	19	84	98
World Bank Research Observer	56	53	90	35	25	19	67	81
Econometrics Journal	107	63	107	54	25	20	77	90
Federal Reserve Bank Of St Louis Review	141	83	169	52	26	20	116	129
Real Estate Economics	87	76	41	49	25	20	69	82
European Review Of Agricultural Economics	58	92	96	40	25	21	70	84
Journal Of Development Studies	115	114	127	56	21	21	81	91
Journal Of Transport Economics And Policy	96	118	82	43	25	21	72	86
Review Of International Political Economy	83	105	138	57	21	21	79	101
Explorations In Economic History	99	97	74	54	25	22	74	88
Feminist Economics	134	109	108	55	23	22	83	96
Journal Of Real Estate Finance And Economics	104	122	55	53	25	22	77	89
Journal Of Regulatory Economics	110	103	135	51	25	22	80	97
Review Of Income And Wealth	114	90	75	56	23	22	76	88
Review Of World Economics	118	121	124	55	24	22	83	92
Social Choice And Welfare	156	102	164	55	23	22	113	132
World Economy	125	107	131	58	21	22	91	109

Journal Of Economic History	89	66	40	57	25	23	78	100
Astin Bulletin	149	120	103	57	25	24	92	113
International Journal Of Game Theory	172	112	131	57	26	24	114	146
Macroeconomic Dynamics	154	108	118	57	25	24	92	113
Review Of Industrial Organization	152	123	157	59	26	24	118	136
Australian Journal Of Agricultural And Resource Economics	81	128	116	39	22	25	73	85
Economics Letters	155	136	163	52	20	25	112	131
China Economic Review	98	144	64	49	23	26	71	94
Contemporary Economic Policy	137	137	161	54	24	26	105	128
Journal Of Policy Modeling	129	160	112	52	23	26	89	107
Applied Economics	153	164	153	58	22	27	100	121
Canadian Journal Of Agricultural Economics-Revue Canadienne D Agroconomie	88	149	160	53	25	27	113	127
Economic Modelling	123	157	133	55	23	27	93	112
Empirical Economics	136	139	128	55	24	27	85	103
International Tax And Public Finance	144	124	139	57	24	27	98	104
Journal Of African Economies	140	134	113	50	26	27	91	102
Journal Of Evolutionary Economics	92	127	148	56	22	27	90	111
Journal Of Macroeconomics	148	141	117	58	24	27	95	116
Review Of Development Economics	124	130	145	56	24	27	93	99
Tijdschrift Voor Economische En Sociale Geografie	126	159	140	58	24	27	98	117
Bulletin Of Indonesian Economic Studies	53	152	29	59	26	28	96	120
Cesifo Economic Studies	133	125	160	57	25	28	117	130
Economic Record	161	138	136	59	24	28	115	135
Economics Of Transition	127	146	143	58	25	28	102	114
Fiscal Studies	149	145	114	58	26	28	101	118
Journal Of Competition Law And Economics	111	149	100	59	26	28	97	115
Journal Of Forest Economics	113	150	121	58	26	28	98	117
Journal Of Housing Economics	143	140	104	57	25	28	93	105
Journal Of Mathematical Economics	175	143	146	56	25	28	115	147
Journal Of The Japanese And International Economies	159	132	152	59	26	28	119	137
Post-Soviet Affairs	38	131	88	58	26	28	94	110
Scottish Journal Of Political Economy	185	151	155	58	26	28	129	162
Theory And Decision	150	126	156	57	25	28	99	119
Economics And Philosophy	121	109	101	43	28	29	103	144
Applied Economic Perspectives And Policy	42	116	33	50	29	30	127	160
Economic History Review	116	101	85	60	25	31	110	126
Agricultural Economics	119	129	112	41	28	32	104	145
Journal Of Agricultural And Resource Economics	122	162	116	39	27	32	111	133



Journal Of Real Estate Research	79	147	92	53	27	33	109	125
Europe-Asia Studies	139	161	126	61	24	34	115	134
Geneva Risk And Insurance Review	132	133	83	55	29	34	128	161
International Labour Review	166	163	174	61	25	34	124	150
International Review Of Law And Economics	156	156	181	59	26	34	131	149
Journal Of Institutional And Theoretical Economics	173	158	187	61	26	34	133	166
National Tax Journal	163	142	154	55	27	34	121	140
New Political Economy	84	135	130	60	24	34	106	122
Studies In Nonlinear Dynamics And Econometrics	158	148	125	56	27	34	121	139
Japanese Economic Review	180	154	172	61	27	35	135	151
Journal Of Economics/ Zeitschrift F	138	153	159	60	27	35	122	141
Open Economies Review	156	155	151	59	27	35	120	138
Inzinerine Ekonomika Engineering Economics	51	195	72	45	18	36	126	159
Futures	69	169	144	53	20	37	108	124
Transformations In Business And Economics	93	192	162	54	22	38	130	163
Economic Development Quarterly	131	165	119	55	23	39	107	123
China & World Economy	145	168	170	58	26	40	123	141
Journal Of Post Keynesian Economics	174	176	142	57	25	40	122	148
Australian Economic History Review	170	184	185	54	28	41	137	155
American Journal Of Economics And Sociology	171	172	184	61	26	42	135	153
Applied Economics Letters	184	180	179	61	24	42	138	157
Developing Economics	191	167	175	57	28	42	135	167
Journal Of Economic Issues	169	182	171	62	24	42	134	152
Manchester School	181	171	173	60	26	42	135	153
Pacific Economic Review	142	171	167	60	26	42	124	142
South African Journal Of Economics	157	187	177	58	28	42	133	154
Australian Economic Review	178	183	180	61	27	43	140	158
Cliometrica	151	166	137	62	27	43	132	150
Defence And Peace Economics	160	170	178	63	26	43	136	165
Eastern European Economics	168	188	183	62	28	43	144	158
Ekonomicky Casopis	176	200	186	62	27	43	142	173
European Journal Of The History Of Economic Thought	187	186	120	64	28	43	143	171
Finanzarchiv	188	178	182	62	28	43	144	170
Hacienda Publica Espanola	186	184	190	61	31	43	144	174
History Of Political Economy	183	181	141	62	27	43	139	156
Hitotsubashi Journal Of Economics	197	202	197	64	31	43	145	176
Independent Review	177	174	191	63	28	43	142	172
International Journal Of Transport Economics	165	175	165	59	29	43	136	164

Investigacion Economica	189	198	194	64	30	43	145	176
Jahrbucher Fur Nationalokonomie Und Statistik	179	177	175	61	27	43	136	158
Japan And The World Economy	167	173	149	61	27	43	125	143
Journal Of Economic Education	182	189	123	62	29	43	141	168
Journal Of Economic Policy Reform	193	191	193	64	29	43	145	176
Journal Of Media Economics	147	171	158	59	28	43	133	150
Journal Of World Trade	164	179	176	63	27	43	136	169
Politicka Ekonomie	162	193	168	62	27	43	140	165
Portuguese Economic Journal	192	192	189	63	28	43	145	175
Post-Communist Economies	153	185	166	61	28	43	139	153
Revista De Economia Aplicada	194	190	188	64	30	43	145	176
Revista De Economia Mundial	172	197	195	64	31	43	144	175
Revue D'Economie Politique	195	194	196	65	29	43	145	176
Revue D'Etudes Comparatives Est-Ouest	198	201	199	65	31	43	145	176
South African Journal Of Economic And Management Sciences	190	196	198	64	29	43	145	176
Trimestre Economico	196	199	192	64	30	43	145	176

**Table 10. Ranks of political science journals in single-indicator-based and aggregate rankings (journals are ordered by Threshold Index, m=5)**

	IF	article influence	SNIP	SJR	H- index	Threshold Index (m=5)	Threshold Index (m=10)	Threshold Index (m=15)
American Political Science Review	2	3	3	1	1	1	1	1
American Journal of Political Science	1	2	2	4	2	1	1	1
Public Opinion Quarterly	11	4	1	6	6	1	3	3
Journal of Conflict Resolution	17	11	4	11	6	1	5	5
Political Analysis	14	9	10	12	4	1	4	7
Global Environmental Politics	4	6	7	8	5	1	1	2
Politics and Society	9	14	11	10	5	1	4	6
Political Geography	5	1	5	3	7	1	2	4
Journal of Peace Research	3	8	9	2	3	1	1	3
Policy Studies Journal	15	25	8	10	8	2	7	9
Annual Review of Political Science	8	17	20	11	3	2	6	8
Political Psychology	11	15	26	7	8	2	7	13
Post-Soviet Affairs	22	10	14	18	5	3	9	11
Political Behavior	18	7	21	9	4	3	8	10
Comparative Political Studies	13	13	25	14	12	3	12	19
African Affairs	23	19	12	17	8	4	10	12
Governance	16	20	13	19	10	4	15	14
New Left Review	24	18	15	16	10	4	14	16
British Journal of Political Science	7	12	27	19	8	4	13	15
Journal of Politics	31	30	19	18	7	4	15	20
European Journal of Political Research	15	28	24	16	9	5	11	18
Environmental Politics	21	27	22	18	5	5	11	17
International Political Sociology	35	34	34	20	10	6	16	21
JCMS - Journal of Common Market Studies	6	44	23	11	8	7	17	22

International Studies Quarterly	10	54	17	10	9	7	24	32
European Union Politics	32	38	16	21	10	8	20	26
Political Communication	41	23	18	17	8	8	18	23
Human Rights Quarterly	28	31	28	19	12	9	21	25
Journal of Political Philosophy	26	26	20	20	12	9	19	24
Quarterly Journal of Political Science	18	16	54	20	8	10	25	33
International Journal of Press/Politics	39	36	52	18	7	10	27	34
Review of International Political Economy	34	43	49	13	9	10	27	28
New Political Economy	19	51	46	15	8	11	26	30
West European Politics	48	22	48	23	9	12	30	37
Journal of Democracy	25	56	37	23	12	12	30	35
Annals of the American Academy of Political and Social Science	42	21	33	21	13	12	28	29
Social Science Quarterly	30	52	57	23	11	12	33	40
Party Politics	37	29	40	21	8	12	22	27
Journal of Strategic Studies	53	39	53	22	12	13	31	39
Political Research Quarterly	45	32	44	21	13	13	29	36
Terrorism and Political Violence	46	48	43	19	12	13	23	31
Public Choice	38	40	42	23	13	14	32	38
Cooperation and Conflict	33	33	59	13	6	15	34	41
Political Studies	27	5	64	18	12	16	35	48
Legislative Studies Quarterly	20	37	55	24	8	17	37	50
Armed Forces and Society	62	52	35	5	13	18	40	44
Ethics and Global Politics	12	50	32	21	14	18	38	49
Comparative Politics	56	47	30	18	14	19	39	43
Publius - The Journal of Federalism	29	46	61	20	9	19	36	42
Scandinavian Political Studies	57	53	36	23	12	20	41	45
Electoral Studies	75	49	38	23	13	20	46	68
American Politics Research	49	43	62	23	12	21	42	46
Policy and Politics	52	45	56	22	14	21	42	51
Historical Materialism - Research in Critical Marxist Theory	47	24	6	24	14	22	48	52
Studies in Comparative International Development	43	68	39	20	14	23	47	55
Acta Politica	70	35	58	22	13	23	49	59
Parliamentary Affairs	40	71	41	23	14	24	53	60
New Republic	54	62	51	24	13	24	44	47
Political Theory	50	61	65	23	12	24	43	53
International Political Science Review	60	64	66	19	13	25	45	56
Survival	59	67	53	24	12	26	50	57
Europe-Asia Studies	58	57	45	24	14	26	50	54
Communist and Post-Communist Studies	64	66	68	24	11	27	51	58
Politikon: South African Journal of Political Studies	51	70	69	24	14	28	57	65
Government and Opposition	69	41	71	24	13	28	54	62
Studies in Conflict and Terrorism	68	55	70	25	13	28	55	64
PS - Political Science and Politics	61	68	50	25	15	28	55	63
Monthly Review - An Independent Socialist Magazine	63	59	63	25	12	28	52	61
Dissent	67	69	76	25	14	29	58	67

Canadian Journal of Political Science - Revue Canadienne de Science Politique	65	72	73	23	15	29	56	66
Political Science Quarterly	36	58	31	26	14	30	60	69
Journal of Theoretical Politics	69	81	47	24	13	31	61	70
Local Government Studies	74	78	72	23	13	32	62	71
Latin American Politics and Society	84	60	67	21	14	32	59	79
Swiss Political Science Review	72	65	74	26	13	33	63	72
East European Politics and Societies	76	73	75	25	13	33	64	73
Politická ekonomie	73	87	77	25	15	33	70	80
Latin American Perspectives	71	57	78	25	15	33	64	75
State Politics and Policy Quarterly	77	80	60	24	13	34	65	74
Political Quarterly	83	42	29	26	15	35	66	81
Australian Journal of Political Science	44	63	80	26	16	36	67	76
Nation	66	75	95	28	17	37	73	88
Journal of Women, Politics and Policy	81	74	79	25	16	37	68	77
Independent Review	89	83	83	18	17	38	71	84
Problems of Post-Communism	55	79	93	27	18	39	74	85
Internasjonal Politikk	94	89	92	28	18	40	77	93
Studies in American Political Development	85	82	85	27	17	40	69	83
Scottish Journal of Political Economy	80	76	84	26	15	40	69	82
Current History	82	95	91	28	17	40	75	91
Issues and Studies	95	93	96	28	18	40	77	93
Policy Review	86	90	82	26	17	40	72	86
SWS-Rundschau	79	77	81	26	17	40	69	78
Political Science	78	85	94	28	19	40	75	90
Política y gobierno	92	94	88	28	19	40	77	92
Russian Politics and Law	87	84	86	27	19	40	72	87
Pensée	90	86	97	26	18	40	76	89
Revue d'Économie Politique	93	88	89	28	1	40	76	89
Commentary	91	92	90	27	19	40	77	91
Internationale Politik	88	91	87	27	19	40	76	89

## Appendix 3

### Journals excluded from the analysis

1 stage of exclusion – journals with their article influence score value missing.

Acta Oeconomica	European Political Science	Lex Localis
Action Research	European Review Of Economic History	Management Accounting Research
Actual Problems Of Economics	Forum - A Journal of Applied Research in Contemporary Politics	Management and Organization Review
Advances in Strategic Management	Geopolitics	Management Communication Quarterly
Agribusiness	German Economic Review	Management Decision
American Law And Economics Review	German Politics	Management International Review
Amfiteatru Economic	Global Economic Review	Managing Service Quality
Annals Of Economics And Finance	Historia y Política	Marine Resource Economics
Argumenta Oeconomica	Human Resource Development Quarterly	Mediterranean Politics
Asia Pacific Business Review	Human Resource Management Journal	Metroeconomica

Asia Pacific Journal of Human Resources	Human Resource Management Review	MIS Quarterly Executive
Asia Pacific Journal of Management	Iktisat Isletme Ve Finans	Nations and Nationalism
Asian Business and Management	IMA Journal Management Mathematics	Nonprofit Management and Leadership
Asian Economic Journal	Imf Staff Papers	North American Journal Of Economics And Finance
Asian Economic Papers	Industry and Innovation	Österreichische Zeitschrift für Politikwissenschaft
Asian Economic Policy Review	Industry And Innovation	Pacific Economic Bulletin
Asian Journal Of Technology Innovation	Information and Organization	Panoeconomicus
Asian-Pacific Economic Literature	Information Systems and E-Business Management	Perspectives on Politics
Asian-Pacific Economic Literature	Information Technology and Management	Philippine Political Science Journal
Australian Economic Papers	Innovar: Revista de Ciencias Administrativas y Sociales	Political Studies Review
Australian Journal of Management	Innovation: Management, Policy and Practice	Politics
B E Journal Of Economic Analysis & Policy	International Environmental Agreements: Politics, Law and Economics	Politics & Gender
B E Journal Of Macroeconomics	International Environmental Agreements- Politics Law And Economics	Politics, Philosophy and Economics
B E Journal Of Theoretical Economics	International Feminist Journal of Politics	Politische Vierteljahresschrift
Baltic Journal Of Economics	International Finance	Politix
Baltic Journal of Management	International Journal of Contemporary Hospitality Management	Polity
British Journal of Politics & International Relations	International Journal Of Economic Theory	Prague Economic Papers
British Politics	International Journal Of Health Care Finance & Economics	Project Management Journal
Bulletin Of Economic Research	International Journal of Logistics Management	RAE - Revista de Administração de Empresas
Business Strategy and the Environment	International Journal of Logistics Research and Applications	Recherches Economiques De Louvain- Louvain Economic Review
Cambridge Review of International Affairs	International Journal of Physical Distribution and Logistics Management	Research in Organizational Behavior
Career Development International	International Journal of Project Management	Review of African Political Economy
Cepal Review	International Journal of Strategic Property Management	Review Of Agricultural Economics
Citizenship Studies	International Politics	Review Of Derivatives Research
Comparative European Politics	International Review Of Economics & Finance	Review Of Economic Design
Computational Economics	International Studies Review	Review Of Economics Of The Household
Computational Economics	International Transactions in Operational Research	Review Of Finance
Contemporary Political Theory	Investigaciones Economicas	Review Of International Economics
Corporate Social Responsibility and Environmental Management	Japanese Journal of Political Science	Review of International Organizations
Cross Cultural Management	Journal for East European Management Studies	Review Of International Organizations
Culture and Organization	Journal Of Australian Political Economy	Review of Managerial Science
Decision Analysis	Journal of Australian Political Economy	Review Of Network Economics
Democratization	Journal Of Behavioral Finance	Review of Policy Research

Disaster Prevention and Management	Journal Of Business Economics And Management	Review Of Radical Political Economics
E & M Ekonomie A Management	Journal of Business Logistics	Revista Brasileira de Política Internacional
E + M Ekonomie a Management	Journal Of Cultural Economics	Revista de Ciencia Política
Econ Journal Watch	Journal Of Economic Inequality	Revista De Ciencias Sociales
Economia Chilena	Journal Of Economic Interaction And Coordination	Revista de Estudios Políticos
Economia Mexicana-Nueva Epoca	Journal Of Empirical Finance	Revista De Historia Economica
Economia Politica	Journal Of Financial Econometrics	Revista del CLAD Reforma y Democracia
Economic Computation And Economic Cybernetics Studies And Research	Journal Of Financial Stability	Revista Venezolana de Gerencia
Economic Systems Research	Journal of Human Rights	RGBN - Revista Brasileira de Gestão de Negócios
Economics & Politics	Journal Of Institutional Economics	Romanian Journal Of Economic Forecasting
Economics and Politics	Journal of International Management	Romanian Journal of Political Science
Economics-The Open Access Open-Assessment E-Journal	Journal of International Relations and Development	Scandinavian Journal of Management
Economy And Society	Journal Of International Trade & Economic Development	Science, Technology and Society
Ekonomista	Journal of Knowledge Management	Singapore Economic Review
Ekonomiska Istrazivanja-Economic Research	Journal Of Korea Trade	Socio-Economic Review
Electronic Commerce Research	Journal of Management and Organization	Socio-Economic Review
Electronic Markets	Journal of Managerial Psychology	South African Journal of Business Management
Emerging Markets Review	Journal of Nonlinear Optical Physics and Materials	South European Society and Politics
EMJ - Engineering Management Journal	Journal of Nursing Management	Spanish Economic Review
Engineering Economist	Journal Of Pension Economics & Finance	Spatial Economic Analysis
Estudios Constitucionales	Journal Of Public Economic Theory	Strategic Organization
Estudios De Economia	Journal of Public Policy	Technological And Economic Development Of Economy
European Journal Of Health Economics	Journal of Purchasing and Supply Management	Telos
European Journal of International Management	Journal Of Sports Economics	Theoretical Economics
European Journal Of Law And Economics	Journal of Supply Chain Management	World Trade Review
European Journal Of Political Economy	Journal of Technology Transfer	Zbornik Radova Ekonomskog Fakulteta U Rijeci-Proceedings Of Rijeka Faculty Of Economics
European Journal of Political Economy	Journal Of The Asia Pacific Economy	Zeitschrift Fur Wirtschaftsgeographie
European Management Journal	Knowledge Management Research and Practice	

## 2 stage of exclusion – journals with their SNIP or SJR values missing.

Academy of Management Annals  
 Academia - Revista Latinoamericana de Administración  
 Betriebswirtschaftliche Forschung und Praxis  
 International Journal of Shipping and Transport Logistics

Strategic Entrepreneurship Journal  
American Economic Journal-Applied Economics  
American Economic Journal-Economic Policy  
American Economic Journal-Macroeconomics  
American Economic Journal-Microeconomics  
Annual Review Of Economics  
Annual Review Of Financial Economics  
Annual Review Of Resource Economics  
China Agricultural Economic Review  
Economist-Netherlands  
  
IMF Economic Review  
Journal Of Applied Economics  
Series-Journal Of The Spanish Economic Association

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Fuad T. Aleskerov

National Research University Higher School of Economics, Moscow, and Institute of Control Sciences of RAS, Moscow, Doctor of Science, Professor, Head of Laboratory  
E-mail: alesk@hse.ru, Tel. +7 (495) 621 13 42

Vladimir V. Pislyakov

National Research University Higher School of Economics, Moscow, Cand.Sc., Assistant Library Director  
E-mail: pislyakov@hse.ru, Tel. +7 (495) 621 37 85

Timur V. Vitkup

National Research University Higher School of Economics, Moscow, student  
E-mail: timur-vitkup@bk.ru, Tel. +7 (919) 728 32 14

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