

Compilation of an International Journal List in the HAS IX. Section of the Doctoral Committee for Economics and Management

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Abstract

Only some of the Sections of the Hungarian Academy of Sciences (HAS) compile a list of journals. One of these is the IX Section of Economics and Law of the MTA. The section's doctoral committees evaluate candidates for the title of Doctor of the Academy of Sciences on the basis of eight lists of journals. The lists are generally stable in the sense that they remain unchanged for about five years, but renewal of the lists becomes necessary from time to time. In this publication, we describe the process of renewing the list of journals of the Qualification Committee for Doctoral Candidates in Economics and Management, Section IX of the Academy of Sciences, from the method of compiling the list of journals to the statistical methods used to determine the journal categories A, B, C, and D.

KEYWORDS: scientometrics, list of journals, linear regression

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1. Introduction

Within the framework of the Hungarian Academy of Sciences, Section IX. Economics and Law, doctoral and academic committees compile lists of journals to decide whether candidates' academic and professional performance is sufficient to start the doctoral process. The points needed to start the process are obtained on the basis of well-defined specifications and calculations, which are available in several places. (Zalai, 2006; Csaba et al., 2014; MTA GJO, 2019) The minimum scientific performance required is determined on the basis of a list of journals compiled in advance according to the rules established by the committees of the MTA IX. Section responsible for doctoral matters.

The journal lists used in the field of economics were originally based on the “Vienna List”, in which journals were classified into ABCD, i.e. a list of four categories. Today, this list contains only journals in category A, the best of the four. Its aim is to encourage the staff of the Vienna University of Economics and Business to publish in journals of the highest ranking. (WU, 2021) It should be noted that this “Vienna List” was also included in Ann-Will Harzing's Journal Quality List until the most recent edition, the 68th. (Harzing, 2021) As expected, this rating site is producing up to three issues a year. It is also interesting to note that the latest edition now includes Scopus and its CiteScore indicator. However, Hungarian academic journal lists are updated only at longer intervals, every three to five years.

The paper describes the process that resulted in the new journal list in the field of economics.

The publication first describes the algorithm used to create the journal list, in statistical language the database. In the next chapter, the statistical method for determining the SCImago Journal Ranking (SJR) index is presented for journals that are not included in the SCImago database. Finally, a comparison is made between the current and the new list of journals. We also present the nationally published journals that have been included in the new list. The paper concludes with a summary.

2. Compilation of the database

To compile the list of journals, our dataset was extracted from three databases. These databases are the following

- ▶ freely available dataset from Scopus/SCImago (SCImago, n.d.),
- ▶ the Web of Science/Clarivate database (Clarivate, n.d., c) and
- ▶ 68th edition of the Harzing list.

Two methods could have been used to compile the new dataset. One could have been to merge all the datasets under consideration and filter out journals that were listed more than once. The other solution could be to extend the datasets sequentially. We have chosen the latter method to compile the list of journals.

The journal list was based on the SCImago database. (SCImago, 2022) The date of data collection was 9 September 2022. SCImago updates its lists in May each year,

therefore the status analysed corresponds to May 2022. Journals can be included or excluded from the list by not complying with strict quality rules. Therefore, the number of papers included in the journal list may vary from year to year.

In this database, economic journals are available at the subject area level, and the subject categories are found within this level. Our analysis is performed at the subject area level, which consists of two fields:

- ▶ Economics, Econometrics and Finance (EEF), and
- ▶ Business, Management and Accounting, BMA)

The two groups include 1,111 and 1,427 journals respectively, i.e. 1,111 economics journals and 1,427 management journals are included in the SCImago dataset. Within the two groups of journals, there are, of course, journals that include articles from both subject areas. The number of these is 410, giving a total of 2,228 journals in the economic field at the time of the data collection. The two disciplines are divided into thirteen subject categories, which are presented in Table 1 with the journal numbers per subject category. The number of journals in the table cannot be automatically summed up because journals may belong to more than one subject category and thus to both subject areas together.

Table 1: Number of Scopus/SCImago economic journals by subject categories (Subject Categories by Subject Areas)

Subjects Areas	Subject categories	SCImago Journal (pcs)
Business, Management and Accounting	Accounting	159
	Business and International Management	423
	Business, Management and Accounting (miscellaneous)	343
	Industrial Relations	59
	Management Information Systems	116
	Management of Technology and Innovation	262
	Marketing	199
	Organizational Behavior and Human Resource Management	207
	Strategy and Management	458
Tourism, Leisure and Hospitality management	126	
Economics, Econometrics and Finance	Economics and Econometrics	694
	Economics and Econometrics (miscellaneous)	407
	Finance	298

Source: Own edited based on SCImago data

The other database used is the Web of Science (WoS)/Clarivate database. In Clarivate, journals are divided into two groups:

- ▶ impact factor (IF), and
- ▶ Emerging Sources Citation Index (ESCI)

economic journals. In the latest Clarivate analyses, there are already several analyses of ESCI journals, which are classified in the same structure as IF journals. When defining the set of economic journals, we did not distinguish between the two groups (IF and ESCI), because the WoS is also slowly blurring the boundary between the two sets by providing all the important information about the journals except the impact factor.

In this WoS dataset, 21 groups were created and then classified into 254 categories. Journals in the economic area were moved to the Economics & Business group. The group contains 21 categories, which are divided into two subcategories according to whether the journal has an impact factor or is included in ESCI. A rough breakdown by category, without subcategory, is contained in Table 2. As shown in the table, several categories seem unfamiliar according to the economic division. According to the information provided by the Clarivate's Hungarian officer, journals were classified into the 21 categories in consultation with Clarivate and with the involvement of members of the editorial board. The principles of selection can be found on the Clarivate, (n.d., a) website.

Following preliminary economic considerations, 15 of the 21 categories were not included in the sequential expansion, because those subcategories are more distant from the truly economic categories. The categories considered are indicated in bold italics in Table 2. They are as follows

- ▶ *Agricultural Economics & Policy*,
- ▶ *Business*,
- ▶ *Business, Finance*,
- ▶ *Economics*,
- ▶ *Industrial Relations & Labour and*
- ▶ *Management*.

The interesting thing about Table 2 is that we have included not only the number of journals in WoS, but also the number of journals in the SCImago database. 82% of the journals in the six categories are also included in SCImago, so only the remaining 260 journals not included in SCImago had to be added to the SCImago list. The journals in the 15 categories not included in the study were only sporadically included in the two economic subject areas of SCImago, so their omission did not affect the overall results.

Table 2: Number of Clarivate/Web of Science journals by subject category (Categories by Group)

ECONOMICS & BUSINESS group	IF and ESCI indexed journals in SCImago (number) I.	Total journals indexed by WoS (number) II.	Proportion (%) I./II.
AGRICULTURAL ECONOMICS & POLICY	29	35	83
BUSINESS	245	298	82
BUSINESS, FINANCE	191	221	86
ECONOMICS	465	572	81
INDUSTRIAL RELATIONS & LABOR	39	51	76
MANAGEMENT	322	394	82
AREA STUDIES	20	167	12
COMMUNICATION	21	218	10
DEMOGRAPHY	3	50	6
DEVELOPMENT STUDIES	14	60	23
ECOLOGY	1	190	1
ENVIRONMENTAL STUDIES	33	171	19
ETHNIC STUDIES	0	39	0
FORESTRY	2	90	2
GEOGRAPHY	18	167	11
HEALTH CARE SCIENCES & SERVICES	6	160	4
HEALTH POLICY & SERVICES	15	115	13
OPERATIONS RESEARCH & MANAGEMENT SCIENCE	35	100	35
PUBLIC ADMINISTRATION	29	85	34
TRANSPORTATION	10	50	20
URBAN STUDIES	10	76	13

Source: Own edited based on Clarivate data

In this case, as in the case of SCImago, journal numbers cannot be added automatically, because some journals may belong to more than one category. Thus, a total of 260 journals included in Clarivate but not in SCImago have been added to the SCImago list, which is considered as the base.

Finally, as a third step, the journals from the Harzing list that were not included in the list created by merging the two datasets were added to the previous list. From the 956 journals in the Harzing list, we have included those that were not found in the previous two. In 2021, the Harzing list was in its 68th edition. We have used this edition to compile our list, although there is already a 69th edition. The list is public and can be downloaded from the Harzing (2021) website. The journals are divided into Subject Areas in the same manner as in SCImago. The subject area breakdown is contained in Table 3. Psychology, sociology, public administration, etc. have been excluded from the areas, as was done for Clarivate. The categories considered below are also indicated in bold italics in this case. We had 764 journals left, of which about 82% were already on the combined SCImago and WoS lists, leaving 137 journals to add to the previous list. However, out of these additional 137 journals, we had to exclude 27 journals, either because they are no longer continuously published, or because they are not journals but book periodicals, or simply because their ISSN number is not accurate. This adds another 110 journals to our list in the last round. Fortunately, all the journals that were transferred from the Harzing list were included in the SCImago database.

Table 3: The Harzing list of journals by subject area

Subject Areas	Harzing journal (number)
<i>Management Information Systems, Knowledge Management</i>	75
<i>Operations Research, Management Science, Production & Operations Management</i>	84
<i>Economics</i>	210
<i>Organization Behavior/Studies, Human Resource Management, Industrial Relations</i>	77
<i>Marketing</i>	65
<i>Finance & Accounting</i>	118
<i>General & Strategy</i>	65
<i>Innovation</i>	17
<i>International Business</i>	18
<i>Tourism</i>	19

Subject Areas	Harzing journal (number)
<i>Entrepreneurship</i>	11
<i>Business History</i>	5
Psychology	46
Public Sector Management	58
Sociology	45
Communication	19
Education	23
Multidisciplinary	1
Total amount	956

Source: Own edited based on SCImago data

It should be noted that the journals that are not included in the already combined list are a fraction of the category, so there is no material loss in the merged list of journals.

Table 4: Combined journal list of SCImago, Clarivate and Harzing journals by origin

Place of origin	Journal (number)
Only from SCImago (BMA & EEF)	1010
SCImago and WoS together (BMA & EEF and Business & Economics)	565
SCImago, WoS and Harzing together (BMA & EEF and Business & Economics)	654
Only from Harzing (SCImago and WoS, Other)	110
Only from WoS (Business & Economics)	260
Total	2599

Source: Own edited based on SCImago data

Table 4 shows the distribution of the combined journals of the three datasets according to whether the journals are available in SCImago, WoS and the Harzing list. SCImago was chosen as the starting base, but it can also be noted that a total of 1,588 journals out of 2599 journals are also included in the Clarivate database, while 2,338 journals are included in the SCImago dataset.

3. Estimation of the SJR indicator

It should be noted that the SCImago Journal Rank (SJR) indicator in the SCImago database is known for all journals that are included in Clarivate, but these WoS journals are divided into two groups of journals (IF and ESCI), and thus they cannot be compared because ESCI journals do not have an impact factor. The total number is 1,218 Clarivate journals, i.e. a total of 1328 journals including the 110 journals from the Harzing list. However, the fact that the total number of citations (TC) and the Journal Citation Indicator (JCI2021) are known for all IF and ESCI journals from Clarivate provides a solution to this problem. The latter is defined in Clarivate, (n.d., b). This indicator is not the same as IF, but is rather a normalised indicator.

This means that, using the 1,346 journals in the SCImago and Clarivate intersection, and excluding IF, we can estimate the SJR index using total citations and the JCI index. Once we know the SJR estimate for the 1,346 journals, we can make the estimate for the remaining journals not included in SCImago.

Thus, when performing the estimation, we obtain the following results. If a constant is included in the linear regression, the regression equation takes the following form

$$SJR = -0.315770 + 1.414066 \cdot JCI2021 + 0.0000766 \cdot TC$$

(<0.001) (<0.001) (<0.001)

The R-squared of the linear equation is 0.553, which indicates a strong estimate. All three coefficients are also significant, which may suggest that they can be used for forecasting. However, the fault of this equation is that for some journals the estimate of the SJR indicator will be negative, so we use an estimate where the constant is removed. This consideration leads to the following equation

$$SJR = 1.171597 \cdot JCI2021 + 0.00008042 \cdot TC,$$

(<0.001) (<0.001)

for which the SJR estimate for each journal becomes non-negative. However, R squared indicator in this case cannot be used, but both coefficients are significant. We therefore compared the two estimates with a correlation coefficient for the common journals not included in SCImago and obtained a high correlation of 0.743, so this second estimate is also satisfactory for all journals not included in SCImago.

In summary, we have found statistical variables in the Clarivate database that can be used to estimate an SJR-like indicator, and thus the ranking of journals by SJR can be established.

At the same time, the question arises whether 2599 journals is not too many as a new list of international journals in a subject area. A positive change is if the list of journals, or «target list», is larger, without any qualitative concessions, so that a paper published in an economics journal is more likely to be recognised as an achieve-

ment by the GMB for candidates. At the same time, the number of items in the list of 1,901 journals increases by 37 percent (698).

If the committee finds the 2,599 journals too many, it would seem logical to omit ESCI journals that are not in the SCImago database. However, this would still only reduce the number of journals to a small amount.

We also note that the list of journals has been reduced by 49 journals based on the «business model for novel science communication» published by the five Gold Open Access publishers (MDPI, Frontiers, Hindawi, PLoS and BioMed).

4. Considerations for the categorisation

In a previous submission, we proposed a ratio of 10-20-30-40 percent to set the categories. We can then consider how many journals are placed in each category when the percentage is allocated. Since the number of journals will be increased, the proportion of category A journals in the previous 1901 journals may be retained, and the number of categories B, C, and D may also be adjusted accordingly. In the current list, the proportion of category A journals is around 15.3%, while the proportion of category B, C and D journals is 26.0%, 28.8% and 29.9% respectively.

Table 5: Proportion of journals A, B, C and D

Category	Percentage	15,3-26,0-28,8-29,9	10-20-30-40	15-25-30-30
A		398	260	390
B		676	520	650
C		748	780	779
D		777	1039	780
Total		2599	2599	2599

As can be seen from Table 5, the distribution of the current list by category is closest to the 15-25-30-30 percentages and is therefore considered to be retained. This would also meet the original expectations of Academician Ernő Zalai.

The evolution of the SJR boundaries is shown in Table 6. Since only estimated SJR values are available for 260 journals, this should not be confused with the actual, existing values. It should also be noted that the SJR values may vary according to SCImago Subject Categories, which would imply further analysis and impact assessment. However, as a first approach, this may be sufficient to provide an easily transparent categorisation, and it does not differ significantly from the average.

Table 6: 4 SJR boundaries for journals A, B, C and D

Category allocation			
Percentage	number	SJR (x)	Category
[0; 15)	390	$1.315 < x$	A
[15; 40)	650	$0.523 \leq x < 1.315$	B
[40; 70)	776	$0.233 \leq x < 0.523$	C
[70; 100]	783	$0.000 \leq x < 0.233$	D
	2599		

Source: Own edited based on SCImago data

5. Comparison of the current and new international journal lists of the Doctoral Committee for Economics and Management

According to the doctoral decision of the Board of the MTA, only scientific works, books, book chapters, journal articles and conference publications of scientific classification will be considered by the IX Section of Economics and Law of the MTA. Only publications and citations longer than three journal pages in internationally registered scientific journals with ISSNs will be considered. GJO-listed journals are the published lists of journals of scientific and doctoral committees, which list, in ABCD categories, which journal publications and their citations are taken into account by default, and with which point values. Each committee also includes journals, as category D, which are not included in its own list but are included in the list of other GJO committee(s).

Table 7: Number of internationally valid and proposed journals of the Doctoral Committee for Economics and Management by category

New category * Old category Cross table							
		Old category					Total
		A	B	C	D	N.A.	
New category	A	191	89	35	6	69	390
	B	70	175	126	81	198	650
	C	0	64	155	180	377	776
	D	0	8	49	117	609	783
Total		261	336	365	384	1253	2599

Source: Own edited based on SCImago data

The journal lists distinguish between two categories, according to the target professional audience (authors and readers) and their international recognition: international and non-international (Hungarian-language domestic or foreign, or foreign-language non-international) journals, which are evaluated differently.

The Doctoral Committee for Economics and Management currently lists 1,901 international and 48 non-international journals. Of these, SCImago's Business, Management and Accounting (BMA) or Economics, Econometrics and Finance (EEF) discipline list contains 1,346 (70.8%) GMB journals. The data are detailed in Table 7.

The question arises as to how the old and new journal lists in Table 7 are stochastically related to each other. Since the ABCD classification in this form can be considered as nominal scale values, we can use association measures to measure the relationship. Of these measures, the Cramér ϕ indicator is the one that most closely resembles correlation coefficients in the sense that its values fall between zero and one. In our case, the Cramér ϕ indicator takes a value of 0.422, showing a moderate degree of association between the two category classifications with a strong level of significance.

The two nominal scales were then transformed into ordinal scales, with the best, i.e. category A journals being assigned a value of one, category B journals a value of two, category C journals a value of three, and category D journals a value of four. We then measured the probability relationship between the two lists of journals using two different correlation indicators.

First, we examined the Kendall rank correlation τ -b. This correlation was found to be highly significant at 0.583, a relatively strong correlation. If the Spearman's correlation ρ was set at a very high significance level, it gave a value of 0.666, which is considered to be moderately strong. Note that these two correlations could only be determined for the 1,346 journals where both categories existed, that is, the omitted and newly added journals were not measured. However, the Cramér ϕ indicator became 0.427 when only 1,346 journals were considered, which implies a moderate association.

Summary In the list of journals of the MTA GJO Doctoral Committee for Economics and Management, 29.1 percent of the journals, i.e., 555 journals, are not closely related to economics and management according to the SCImago ranking. This raises the question of the basis on which these journals were added to the list and whether they should remain on the list in the future. Since SCImago is a freely available list of journals that is renewed annually, we argue that the economic journals of this list should form the basis of the future list. The association and correlation analyses show that there is a strong relationship between the classification of the current list and the proposed list, so the new list is also strongly related to the list that has been in use so far. This can also be interpreted as the fact that the new list has a similar structure to the old list in force.

Finally, let us examine the proposed list of journals and the current list of 1,901 journals. The new proposed list does not include 555 journals with limited relevance to the subject area, but it does include 1,253 new journals with this relevance. This increased the number of journals by 698, or 36.7 percent, which means that the “target list” increased.

Table 8: 4 Comparison of the proposed list with the current list

	Current list of journals (number)	Proposed list of journals (number)
Journals omitted	555	–
Remaining journals	1346	1346
New journals	–	1253
Total	1901	2599

Source: Own edited based on SCImago data

6. Position of Hungarian journals in the new list of economic journals

Eight Hungarian journals are added in the list of international economic journals. However, seven of these are in English. The journal *Területi Statisztika* (Regional Statistics) in Hungarian ranked second according to the SJR indicator. It should be noted, that so far only *Acta Oeconomica* has been included in the international list, so the number of Hungarian journals published in Hungary but included in the international list is growing significantly.

Table 9: Ranking of Hungarian journals according to the SJR indicator

Ranking	Journal name	Subject area	SJR	H- index	New category
1.	<i>Regional Statistics</i>	EEF	0.568	10	C
2.	<i>Területi Statisztika</i>	EEF	0.370	6	C
3.	<i>Acta Oeconomica</i>	EEF	0.292	13	C
4.	<i>Periodica Polytechnica, Social and Management Sciences</i>	BMA	0.223	11	C
5.	<i>Society and Economy</i>	BMA/EEF	0.157	11	D
6.	<i>Corvinus Journal of Sociology and Social Policy</i>	EEF	0.127	4	D
7.	<i>Public Finance Quarterly</i>	EEF	0.108	2	D
8.	<i>Studies in Agricultural Economics</i>	EEF	-	1	C

Source: Own edited based on SCImago data

Among the Hungarian journals, only *Society and Economy* falls into both of the subject categories we have examined, i.e. economics and management science. We also note that although the journal *Studies in Agricultural Economics* is new to SCImago and thus Scopus, it was listed as an ESCI journal in the Clarivate database, and therefore had a calculated SJR indicator.

7. Conclusions

In this publication we have attempted to develop a journal list on a new basis. The base dataset for the journal list consists of the SCImago journals in the disciplines of Business, Management and Accounting, Economics, Econometrics and Finance, Clarivate Economics & Business and the relevant journals from the 68th edition of the Harzing list. Journals can be grouped into ABCD categories using the SCImago Journal Ranking (SJR) indicator. The great advantage of this method is that 70.8 percent of the journals on the current GMB list would remain on the new list, and only those journals not closely related to the two underlying economic disciplines would be excluded.

We also found that there are eight journals published in Hungary among the 2,599 disciplinary journals. These journals were only included in categories C and D.

In our case, the classification was easy because economics clearly has a Subject Area in the SCImago. However, in the case of sociology or political science, the journal sets should be searched by Subject Category.

Of course, the journal lists do not mean that researchers should place all their publications only in that set of journals, but that the majority of their journal articles should be in that area. ■

References

1. Clarivate, (n.d., a) — Essential Science Indicators Journal Category Scope Notes [Portal]. <http://help.prod-incites.com/inCites2Live/8300-TRS.html>
2. Clarivate, (n.d., b) — Journal Citation Indicator, [Portal]. <https://clarivate.com/webofsciencegroup/wp-content/uploads/sites/2/2021/06/JCI-2021.pdf>
3. Clarivate, (n.d., c) — Journal Citation Reports™, [Portal]. <https://jcr.clarivate.com/jcr/browse-journals>
4. Csaba, L., Szentes, T., Zalai, E. (2014). Tudományos-e a tudománymérés? Megjegyzések a tudománymetria, az impaktfaktor és MTMT használatához, In Magyar Tudomány, 2014/4. szám, 442-466. <http://www.matud.iif.hu/2014/04/12.htm>
5. Dobos, I., Sasvári, P. (2022). Javaslat nemzetközi folyóiratlisták összeállítására az MTA IX. Osztály Gazdaságtudományi Doktori Minősítő Bizottság példáján= Proposal for the Compilation of an International Journal List in the HAS IX. Section on the Example of the Doctoral Committee for Economics and Management. Magyar Tudomány, 183, 4, 495-508. <https://doi.org/10.1556/2065.183.2022.4.9>
6. Guerrero-Bote, V. P., Moya-Anegón, F. (2012). A Further Step Forward in Measuring Journals' Scientific Prestige: The SJR2 Indicator. Journal of Informetrics, 6, 4, 674–688. <http://dx.doi.org/10.1016/j.joi.2012.07.001>
7. Harzing, Anne-Wil (comp., ed.) (2021). Journal Quality List. Sixty-eight Edition. https://harzing.com/download/jql68_title_2.pdf
8. MTA, GJO. (2019). Az MTA Gazdaság- és Jogtudományok Osztályának doktori követelményrendszere https://mta.hu/data/dokumentumok/doktori_tanacs/IX.Osztaly/2019/9GJO_DoktoriMinimumkovetelmenyekTara_20190628tol.pdf
9. SCImago, (n.d.). SJR — SCImago Journal & Country Rank [Portal]. <http://www.scimagojr.com>
10. WU – Wirtschaftsuniversität Wien (2021). Journal Ratings & Performance Bonus <https://bach.wu.ac.at/d/research/ratings/>
11. Zalai E. (2006). Az MTA doktora címre pályázók habitusvizsgálatának értékelése, 2001–2005. Magyar Tudományos Akadémia, IX. Osztály Gazdaságtudományi [Evaluation of the Disposition Survey of Candidates for a Hungarian Academy of Sciences Doctorate. Guide for Candidates for a Hungarian Academy of Sciences in the Field of Economic Sciences]. Közgazdasági Szemle, 53, 4, 380–386. <http://epa.oszk.hu/00000/00017/00125/pdf/06ttmti.pdf>