

Péter Sasvári – Anna Urbanovics

The Journals on the Domestic Lists of the IX Section of the Hungarian Academy of Sciences in Light of the Requirements of International Journal Selection

SUMMARY: Publish or Perish places researchers under increasing pressure, but 20 percent of the publications receive more than 80 percent of the citations according to Garfield's Law of Concentration. The international indexing databases Scopus and the Web of Science try to index all the relevant publications. Being indexed by these databases must be a priority for Hungarian journals. The present study aims to analyse the journals on the domestic lists of the IX Section of the Hungarian Academy of Sciences. We use descriptive statistical analysis to explore the most important indicators. Our results show that 80 percent of the journals have their own website, half of them are published on time, one fifth have an archiving policy and one tenth have a code of ethics. On average, 42 months have passed since the publication of the most recent issue. These indicators depend on the quality categories, and there is a significant correlation between the category, the number of papers and the number of citations per paper.

KEYWORDS: IX Section of the Hungarian Academy of Sciences, journal selection, scientometrics, Scopus, Web of Science

JEL CODES: A20, A23, O31, O35, O38

DOI: https://doi.org/10.35551/PFQ_2019_3_4

In this post-information explosion world, where infocommunication devices eliminate the distance between countries, research results need to be published internationally. It is easy to see: if you publish your valuable insights in the journal of your local community or a volume of studies published by your

university, you can only reach a relatively limited audience. Members of the scientific community feel the pressure of *publish or perish* throughout their career: as they are pushed to publish an increasing number of papers, they often turn to local journals since that seems easier. Among many others, the reasons for this are the lengthy process of the double-blind review of internationally listed journals, the problem of foreign languages and the

E-mail address: sasvari.peter@uni-nke.hu

negative impact of the Matthew-effect. Here the Matthew-effect means that even when the journals where authors from different countries publish their papers are of the same quality, there is a remarkable difference to the benefit of authors from certain countries and there is an obviously negative effect on authors from other regions. It is mostly authors from Western countries who benefit from this as they receive a higher number of citations (Merton, 1968). These are all factors that direct Hungarian researchers and authors towards journals published by Hungarian universities, research groups or other publishers. The requirements of international publication should be met by Hungarian journals achieving an international level, but there is an alternative to consider, namely to register our local journals in the database of a large international publisher (Bartol et al., 2013). For this the current situation needs to be explored and international requirements need to be assessed. This study aims to present the requirements of the two major international databases (Scopus, Clarivate Analytics Web of Science), and to analyse the journals categorised by the IX Section of the Hungarian Academy of Sciences (Magyar Tudományos Akadémia, MTA) according to international criteria.

THEORETICAL BACKGROUND

As the number of publications is soaring, getting an overview of all research results of a broader or narrower field poses an increasing challenge (Weilenmann, 2014). Research was already conducted in the 1990s to determine the proportion of papers that had a real impact on science, and this research area became more prominent in the 21st century (Wuchty et al., 2007). Another factor is grant-based funding, which is getting increasingly common in

Hungary and also globally, both on the individual level and for universities. This model is based on competitiveness, transparency and a set of criteria that are basically quantifiable and objective, and it expects authors who have received grants to publish in journals with a high impact factor (Brito, Rodríguez-Navarro, 2019). According to Bradford's Law, you can find 1000 journals for every scientific field where the significant results are published, and practically no-one reads the rest (Bradford, 1934). Narrowing this down, Garfield's Law says that in every scientific field, a mere 20% of the journals get 80% of all citations, which suggests that positioning the journals and making them easily accessible to international audiences should be a priority for every publisher (Garfield, 1971). It is easy to see that it is also a self-generating process, as the most renowned researchers will publish their most valuable results in this limited group of journals as this is where they can expect the most citations. And this explains how the group of top international journals evolves, as the process is also facilitated by the concentration effect.

Publish or perish created such a huge pressure that a lot of predator journals with pseudo-international activities with no impact or audience were created (Demir, 2018). The best way to identify the more valuable journals is to continuously monitor the international cataloguing databases, the most important of which are Scopus and Web of Science (WOS) (Guz, Rushchitsky, 2009). The aim of both cataloguing databases is to index scientifically valuable journals, conference proceedings, books and book series, and they create a stringent selection process and set of criteria that encompass several aspects (Mongeon, 2015). The set of criteria and the current indexed content of both databases are available online: for Scopus at the Scimago (SJR) site, and for Web of Science in the Master Journal

List. For decades, Web of Science was the only complex international database covering every scientific field where authors could collect and evaluate their citations, but Scopus and Google Scholar, both launched in 2004, have become powerful alternatives (Martín-Martín et al., 2018). The reason for this is that the three databases have different scope, and they use different methodologies to rank the quality of the content indexed.

Scopus is an international citation database of journals, books, book series and conference proceedings. There are strict requirements for being indexed, different for every category. Elsevier has set qualitative and quantitative minimum criteria for journals. The minimum criteria provide that journals must:

- consist of peer-reviewed content and have a publicly available description of the peer review process,

- be published on a regular basis and have an International Standard Serial Number (ISSN),
- have English language abstracts and titles,
- have Roman script for an international audience,
- have a publication ethics and publication malpractice statement.

There are detailed criteria associated with the minimum criteria, following the scope of the general requirements (*see Table 1*).

WOS has several indices: Science Citation Index, Social Science Citation Index, AHCI and the ESCI-system. Regional journals are in a special situation as they don't necessarily target international audiences, but they still have the opportunity to be included in the WOS index if they meet the minimum criteria (Hicks, Wang, 2010). Special requirements apply to these journals: even though they

Table 1

CRITERIA (IN ADDITION TO THE MINIMUM CRITERIA) FOR SELECTION FOR THE SCOPUS DATABASE

Category	Criteria
Journal Policy	Convincing editorial policy Type of peer review Diversity in geographical distribution of editors Diversity in geographical distribution of authors
Content	Academic contribution to the field Clarity of abstracts Quality of and conformity to the stated aims and scope of the journal Readability of articles
Journal Standing	Citedness of journal articles in Scopus Editor standing
Publishing Regularity	No delays or interruptions in the publication schedule
Online availability	Full journal content available online English language journal home page available Quality of journal home page

Source: Scopus, Content Policy and Selection

can be written in a national language, key bibliographic data must be available in English, and they must play a major role in publishing research results about regionally significant topics. Being international is essential for both databases (Calver et al., 2010).

Both the Scopus and the WOS databases refer to the current year and are reviewed annually. WOS takes the 3 most recent volumes of the journals into consideration, while in Scopus, editors have 1 year to improve the journal if the results of the evaluation are not satisfactory. This process greatly enhances the visibility of the content indexed in the databases, and it helps retain a global audience and continuously monitor competitive content.

The two tables show the essential criteria all journals must meet in order to be indexed internationally:

- title and abstract in English,
- Code of Ethics,
- the abstracts of all papers are available and downloadable,

- In Scimago and WOS, journals that are not published regularly are ranked lower, as they cannot be cited (this can lead to exclusion in the long term).

Publishers that dominate the two cataloguing databases – e.g. Elsevier, Springer, Wiley-Blackwell, IEEE – have their own business intelligence-based academic search engines (Sasvári, 2019a). Authors can use these at the beginning of their research already by providing a title and abstract in English, narrowing the results by scientific field or the criterion of Open Access publishing. Using the search platform can help authors make informed decisions about selecting a journal, as it shows the key metrics of the most relevant international publications that suit the topic the best. These metrics are: relevance scale, impact factor, CiteScore score, length of the review and publication period, acceptance rate, Open Access status, in case of non-open access journals the embargo period and the open access publication fee. In addition to

Table 2

CRITERIA FOR BEING INCLUDED IN THE CLARIVATE ANALYTICS WEB OF SCIENCE DATABASE

Category	Criteria
Basic publishing standards	Type of peer review Availability of the Code of Ethics Timeliness of publication Format: informative titles, bibliographic information, title and abstract in English
Editorial content	Can the journal enrich the scientific field? How the editors position the journal
International focus	International audience Internationally diverse authors and editors
Citation Analysis	Measuring the significance and impact of the journal through citation data

Source: Testa James, Journal Selection Process, Clarivate Analytics Web of Science

the search functions, you can send your paper directly to the editors of the journal, which is also helpful for the researchers. To survive in the international scientific environment, journals listed in Hungary must adapt, they must meet the criteria of both Scopus and Web of Science and must provide all metrics required by international academic search engines.

THE RESEARCH PROCESS

The quality metrics of journals listed by the IX Section of the MTA should be analysed using these indicators. Eight scientific committees of the Section of Economics and Law of the MTA created their own list of journals to measure the scientific performance of researches associated with the committees. When they apply for a promotion, researchers undergo a complex professional evaluation based on their publication list, and a key element of this process is when their publication performance is checked in the Hungarian National Scientific Bibliography (Magyar Tudományos Művek Tára, MTMT). Journals are classified into categories: international *A, B, C, D* and national *A, B, C, D*, and authors receive scores according to them (Ügyrend, 2016). As the Scopus and WOS databases are committed to manage journals that publish internationally relevant scientific results, these databases are good examples for the committees, and their journals must have priority among Hungarian researchers as well. The other reason is that these two international databases play a major role in rankings, whichever international ranking you consider (e.g. QS World University Rankings, Academic Ranking of World Universities, World University Rankings, CWTS Leiden Ranking) (Sasvári, Urbanovics, 2019).

The 8 scientific committees are the following:

- Committee on Legal and Political Sciences (ÁJB),
- Committee on Demography (DEM),
- Committee on Economics (GMB),
- Committee on Military Science (HTB),
- Committee on World Economics and Development Studies (NFDB),
- Committee on Political Science (PTB),
- Committee on Regional Studies (RTB),
- Committee on Sociology (SZOC).

A total of 531 ranked journals from the 2018 lists of the committees of the IX Section are included in our analysis, 298 items of which are different. This is due to the fact that certain journals are included in the list of several scientific committees. We examined 73, 140, 177 and 141 journals from quality categories *A, B, C* and *D*, respectively. However, it should be noted a given journal can be classified into different categories by the different committees. AJB has the most extensive list (105 items), and it is followed by PTB (99 items) and SZOC (81 items). NFDB, GMB and HTB have the shortest lists with 46, 45 and 38 items, respectively. Proportionally, AJB lists the most category *A* journals (21%), while GMB and NFDB list the fewest (6.7 and 6.5%). Proportionally, GMB and AJB have the most category *D* journals (42.2 and 34.3%).

We analysed journals from the lists of the 8 scientific committees with descriptive and other statistical methods, and we evaluated the results in light of international sets of criteria.

RESEARCH RESULTS

Figure 1 shows how the lists of journals approved by the scientific committees of the IX Section of the MTA changed over time. In 2016, 310 journals were listed by the committees, which increased to 531 in 2018. The committees include the journals on several lists, so of the

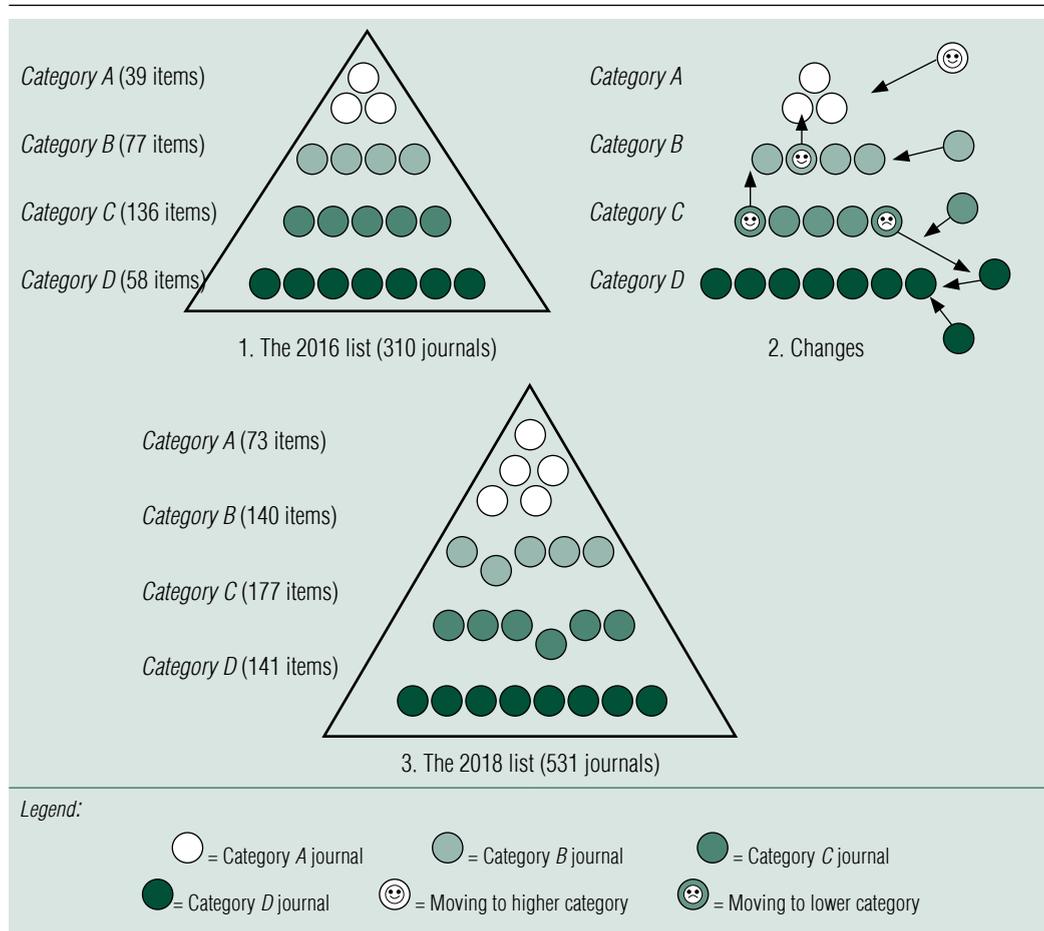
310 items in 2016, 184 were different, and from the 531 items in 2018, 298. 302 items from the 2016 list are included in the 2018 list, the other 43% (229 items) were new. 10% (53 items) of the previously included journals were moved to a higher quality category and 5% (29 items) were moved to a lower one. 41% (220 items) of the journals remained in the previous category, which implies that there is no significant selection system and there are weak criteria. The fact that newly ranked

journals get the same ranking retrospectively further weakens these lists, and it may lead to conscious changes and a less efficient management after jump-starting the journals. The figure shows how the quality categories change over time, but these changes only occur in case of journals with major problems.

After the overview of the changes in the lists of journals, it is useful to analyse the specific journals with descriptive statistical methods. The data clearly show that the distribution of

Figure 1

THE EXTENSION OF THE DOMESTIC LISTS OF JOURNALS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES



Source: Edited by the author

the journals across the quality categories is not even, with 14% (73 items) being in category *A*, 26% (140 items) in category *B*, 33% (177 items) in category *C* and 27% (141 items) in category *D*. You can see that the most items are in categories *B* and *C*, and the reason for this is that items downgraded from category *A* and many newly listed journals are in these categories.

The publishing frequency of the journals is varied (*Figure 2*), with a large number of the journals, 51%, published quarterly (264 items), 14% published monthly and 10% published every second month. These are the periods we should consider when we examine the timeliness of publication. It is important to note that 3% (14 items) are admittedly published irregularly: these include thematic and special issues.

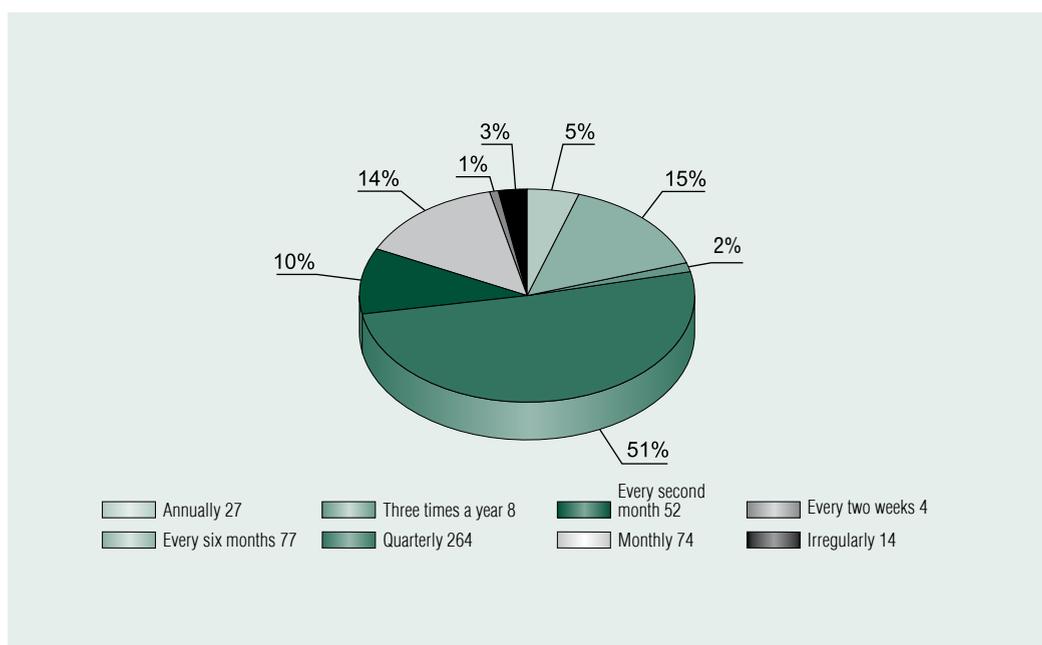
The cross-tabulation of categories *A*, *B*, *C* and *D* and

- the use of the Sherpa/ RoMEO system,
- the availability of the archiving policy on the website,
- the existence of an own website of the journal,
- the availability of an English title in the journal,
- the availability of an English abstract in the journal,
- the use of the DOI number,
- the use of the REAL_J repository,
- being indexed by Scimago/Scopus

shows a significant but weak correlation (according to Lambda, Goodman and Kruskal tau values). No clear correlation was found in the case of the availability of a code of ethics and being indexed by Web of Science.

Figure 2

PUBLISHING FREQUENCY OF THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES



Source: Edited by the author

The key data in *Table 3* is the column Asymptotic Significance (2-sided), where the value of significance is below 0.05 in several cases, which means the differences in the table are really significant. This means that in case of higher-ranked journals, the previously discussed Scopus and WOS criteria are met more often.

A large number of journals have no archiving policy available (see *Table 4* and *Figure 3*), 82% have no requirement whatsoever in this aspect, and an additional 6% are unclassified. From the remaining 12%, 6% (33 items) have chosen the blue archiving policy, i.e. that authors can archive the post-print version (the final draft, post-refereeing), 5% (26 items)

made pre-print and post-print free to use, and the remaining 1% (5 items) do not allow archiving by the authors.

From these categories, the white archiving policy of Sherpa RoMEO is the strictest, as it does not give the authors the right to use the papers in any way, but with that journals risk not getting enough citations as they reach only limited audiences. Nature, the top international scientific journal is classified as yellow and Science as green, which makes it clear that they want to reach wider audiences globally. Regarding their business models, using these two archiving policies and setting an embargo period is also the best solution for journals that want to maximize their profits.

Table 3

PEARSON'S CHI SQUARE, ASYMPTOTIC SIGNIFICANCE, LAMBDA, GOODMAN AND KRUSKAL TAU AND THE UNCERTAINTY COEFFICIENT

	Pearson's chi square	Asymptotic Significance (2-sided)	Lambda		Goodman and Kruskal tau		Uncertainty coefficient	
			Value	Approx. Sig.	Value	Approx. Sig.	Value	Approx. Sig.
Sherpa/RoMEO	30.827	0.000	0.031	0.093	0.058	0.000	0.066	0.000
Archiving policy	8.379	0.039	0.050	0.637	0.016	0.039	0.010	0.040
Journal's website	10.551	0.014	0.00		0.020	0.015	0.011	0.011
English title	11.515	0.009	0.00		0.022	0.009	0.011	0.008
English abstract	13.154	0.004	0.00		0.025	0.004	0.013	0.004
DOI	27.808	0.000	0.130	0.460	0.520	0.000	0.028	0.000
Use of the REAL_J repository	62.339	0.000	0.046	0.141	0.117	0.000	0.057	0.000
Indexed by Scimago/Scopus	18.072	0.000	0.02	0.116	0.340	0.000	0.230	0.000
Code of Ethics	5.101	0.165	0.000		0.010	0.165	0.006	0.160
Indexed by Web of Science	2.749	0.432	0.005	0.527	0.005	0.433	0.004	0.425

Source: Edited by the author

Table 4

SELF-ARCHIVING POLICY LEVELS ACCORDING TO THE SHERPA ROMEIO SITE

RoMEO colour	Archiving policy
Green	Can archive pre-print and post-print (i.e. final draft post-refereeing)
Blue	Can archive post-print (i.e. final draft post-refereeing)
Yellow	Can archive pre-print (i.e. pre-refereeing)
White	Archiving not formally supported
Unclassified	Journal registered on the site but not classified

Source: Sherpa RoMEO publisher copyright contracts & self-archiving

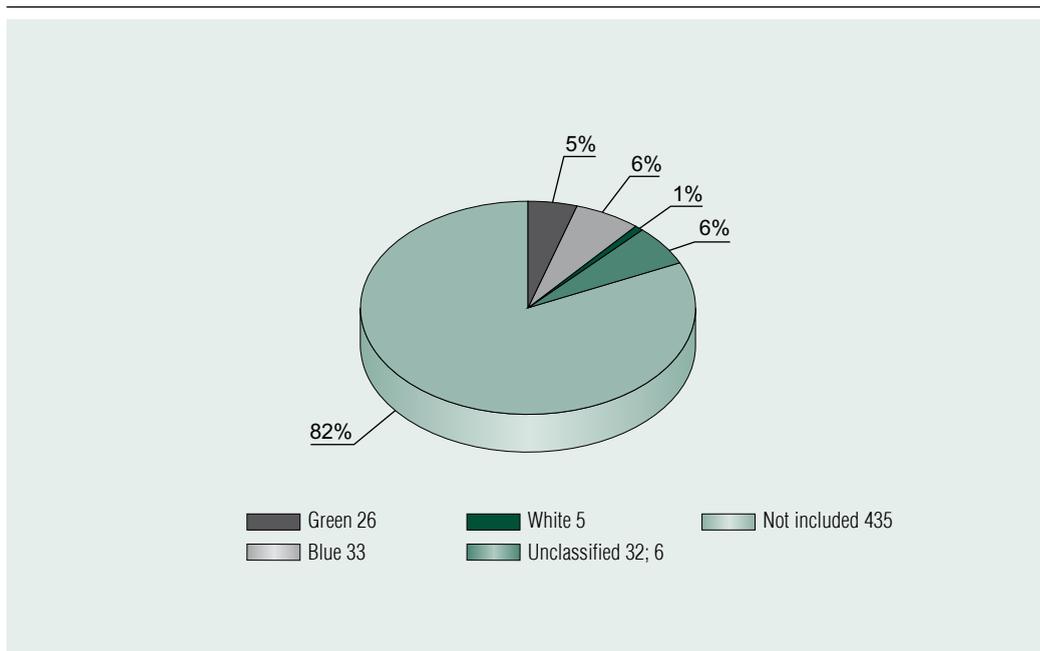
Figure 4 shows the key elements of journal management by quality category. These are: own website, code of ethics, available archiving policy, and the fact whether the journal itself is archive. Every journal that has not published a new paper for three years according to the

databases of the National Széchényi Library, MATARKA, MTMT and the website of the journal is considered archive.

It is clear that category A stands out in every aspect, and that most archive journals are in category D. Overall, 82% of the journals have

Figure 3

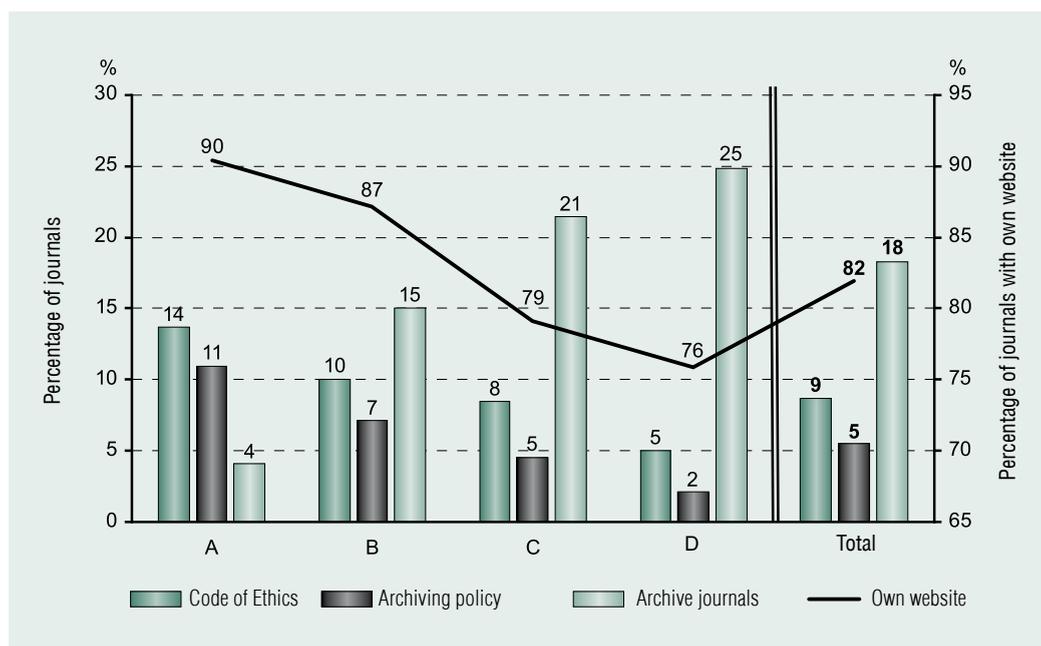
THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES IN SHERPA ROMEIO



Source: Edited by the author based on publishers' copyright contracts and self-archiving in Sherpa RoMEO

Figure 4

THE CHARACTERISTICS OF THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY CATEGORY



Source: Edited by the author

their own website, 9% have a code of ethics, and only 5% have an archiving policy. This is interesting, as both the code of ethics and the archiving policy can be displayed easily and without any cost at any journal. 18% of the journals are archive, in this respect category *D* and category *C* stand out with 25% and 21%, respectively. It is surprising, however, that even in category *A* 4% of the journals are archive, which is a big problem as these journals do not publish new papers and their only advantage is the citations their previous articles get.

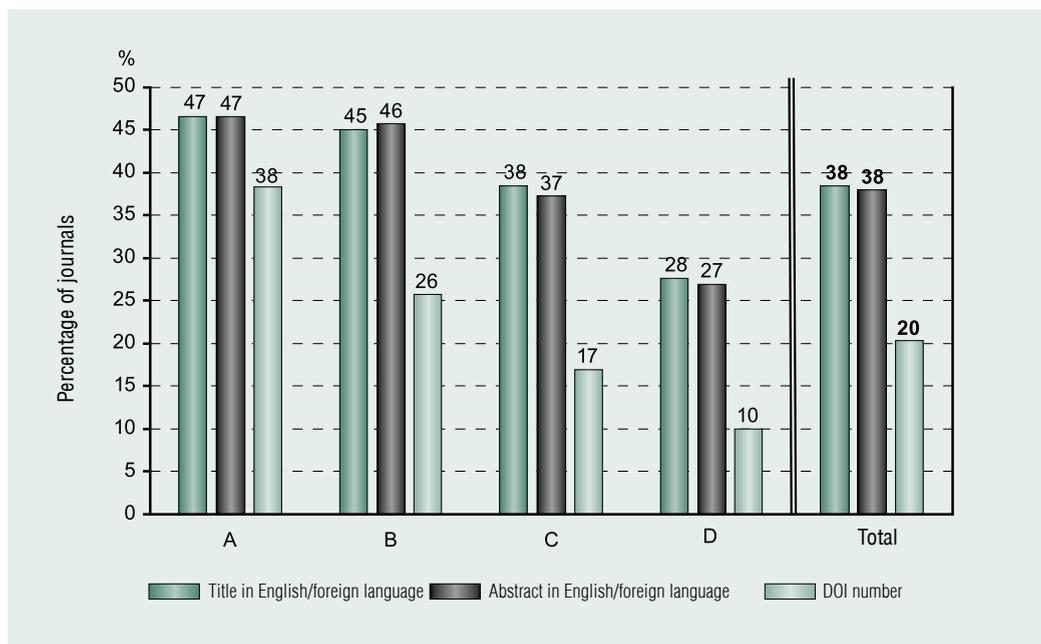
Three factors that increase international visibility can be highlighted: title in English or a foreign language, abstract in English or a foreign language and a DOI number. The digital object identifier is a unique identification number that makes it easier to find papers with targeted search. We can see

that category *A* journals stand out in all these aspects, especially when it comes to the DOI number. On average, 38% percent of the journals have an English title and also 38% have an English abstract, and only 20% of the journals have a DOI number. This suggests that category *A* journals are managed more consciously, with a focus on international visibility at almost 50% of the journals (see Figure 5).

Having a DOI number is a key step in enhancing the international visibility and access to the papers. The current situation regarding this factor is described in Table 5 by committee. Overall 20% of the listed journals have this identification number, with an outstanding rate, 38%, in category *A* and only 10% in category *D*. As far as the committees are concerned, HTB has the lowest value (8%),

Figure 5

THE CHARACTERISTICS OF THE ARTICLES IN THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY CATEGORY



Source: Edited by the author

and it is followed by PTB (12%), AJB (14%) and NFDB (15%). It is perhaps an even bigger problem that at some committees, in category *D* no journal has a DOI number; these committees are HTB, NFDB and SZOC.

As for category *A* journals, AJB and HTB have very low values, 9% and 17%, respectively. At the other end of the list, there is RTB and SZOC with 34 and 31%, respectively: these committees tried to create lists of journals with DOI numbers in all categories. The best value is 67%, achieved by categories *A* and *B* at GMB, category *A* at NFDB and category *A* at SZOC.

The use of the repository is another cornerstone of visibility, as it guarantees the digital accessibility of the papers via the same path for a long period (25 years).

In 2012, the President of the MTA made

a decision about the open access of scientific papers written with support from the MTA (currently open to the papers written without such support) and about providing the location of the open access documents in MTMT (MTA elnökének 27/2012 számú határozata/ Resolution 27/2012 of the President of the MTA, 2012).

Subtypes of repositories with Open Access:

- REAL (Publications and reports from the research programmes funded by MTA and/or OTKA and/or NKFIH.)
- REAL-D (Dissertation by the Doctors (DSc) and the Candidates (CSc) of the MTA.)
- REAL-EOD (Digital collection of previously copyrighted books now in the public domain.)
- REAL-J (Collection of digitized or digitally

Table 5

PERCENTAGE OF JOURNALS WITH A DOI NUMBER ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY COMMITTEE AND CATEGORY

Committee, category	Has a DOI number (percent)				
	A	B	C	D	Percentage
AJB	9	19	15	14	14
DEM	57	24	22	7	23
GMB	67	67	18	21	29
HTB	17	10	8	0	8
NFDB	67	23	11	0	15
PTB	33	14	9	5	12
RTB	50	54	26	20	34
SZOC	67	33	25	0	31
Percentage	38	26	17	10	20

Source: Edited by the author

published journals and periodicals. Stores scientific journals by year/volume or year/issue.)

- REAL-MS (Full manuscripts from the Department of Manuscripts & Rare Books and the Oriental Collection.)
- REAL-PHD (PhD dissertations.)
- REAL-R (Full books from the Department of Manuscripts & Rare Books and the Oriental Collection.)

For the editors of Hungarian journals, the most important is the centralised REAL-J, which is operated by the MTA. 23% of the journals analysed upload their content to this repository, with category A having an outstanding value again, 56%. The other categories are rather far behind, only 27% of category B journals use the opportunities provided by REAL actively (see Figure 6).

The timeliness of publication is essential in the indexing system of both Scopus and WOS,

and in journal selection the time since the latest published issue is a basic requirement and metric. Considering this, it is easy to see that only journals published on time have the chance to build a real reputation and audience and to achieve international visibility. Even though in many cases it also depends on other factors (such as funding problems), the professional management of a journal can be assessed by the timeliness of publication.

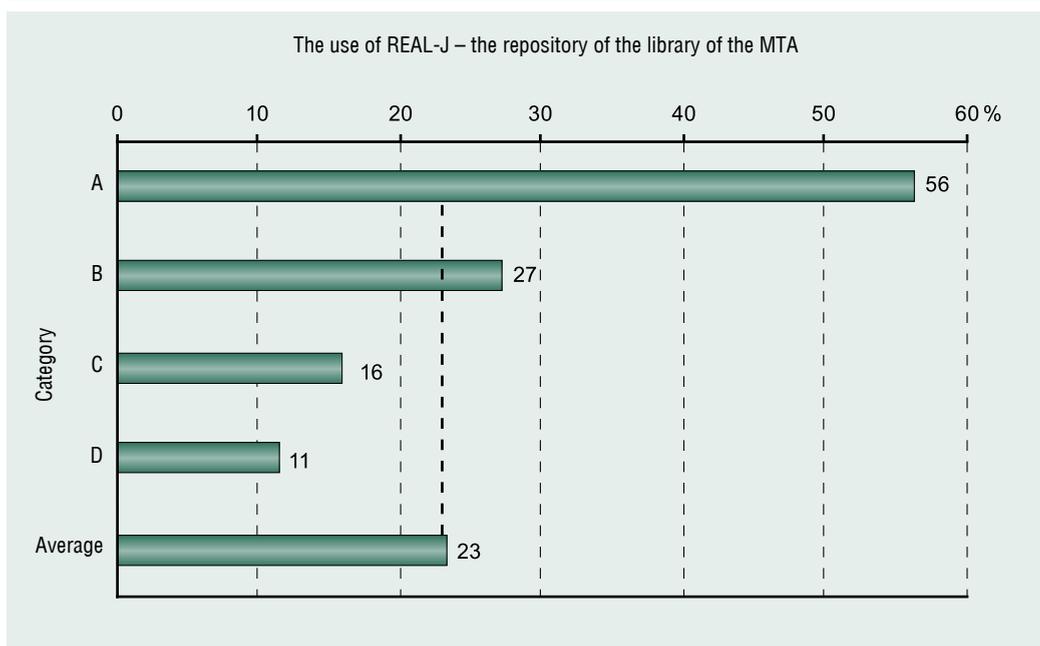
Publishing delay occurs when, considering publishing frequency, the next issue of the journal is not published on time. The length of this publishing delay is the number of months that has passed since the time the next issue should have been published. (Our analysis is based on data from November 2018.)

Table 6 summarises the average delay of the journals in months, and the average of the whole list is 41 months (3.5 years).

RTB has the lowest value (20 months), and

Figure 6

THE USE OF REAL-J – THE REPOSITORY OF THE LIBRARY OF THE HUNGARIAN ACADEMY OF SCIENCES – BY CATEGORY



Source: Edited by the author, <http://real-j.mtak.hu/>

HTB has a value more than 4 times higher than that (86 months). Even though it is clear that it is category *D* journals that distort the average with their average delay of 59 months, within this group it is category *D* in HTB that has a significant negative effect with its 216 months (18 years) delay. This is followed by category *C* in GMB with a delay of 111 months (9.25 years). The most punctual are the category *A* journals of GMB, where there is no delay at all. Category *A* in NFDB has a good value (1 month) and so do category *A* in PTB (3 months), category *B* in GMB (3 months) and category *A* in SZOC (4 months).

Table 7 shows that from the 298 journals 101 are published on time (delay of 0-3 months), 35 are acceptable (delay of 4-6 months), 24 are delayed (delay of 7-11 months) and 138 are very delayed (delay of over 1 year).

After the statistical analysis of items that are essential for being indexed internationally, it is also worth taking a look whether the journals on the domestic lists are indexed by Scopus or WOS. Figure 8 shows that this is the lowest in category *D* with 2 journals being indexed by each, in category *C* 9 journals are indexed by Scopus and 4 by Web of Science, in category *B* 17 by Scopus and 6 by Web of Science, and in category *A* 10 by Scopus and 3 by Web of Science. It is clear that more journals are indexed by Scopus, and this is due to the fact that the Scopus database has a more extensive list of journals in social sciences. Journals in categories *A* and *B* are clearly more often indexed, in category *A* it is Scopus that is more common, while in category *B* it is Web of Science.

As for the committees, SZOC has the best

Table 6

**THE PUBLISHING DELAY IN MONTHS OF THE JOURNALS
ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY
OF SCIENCES BY COMMITTEE AND CATEGORY**

Committee, category	Publishing delay in months (month)				
	A	B	C	D	Average
AJB	22	19	19	31	24
DEM	19	25	24	36	27
GMB	0	3	111	78	76
HTB	16	17	69	216	86
NFDB	1	32	68	63	52
PTB	3	30	80	42	47
RTB	16	8	16	39	20
SZOC	4	37	38	60	35
Percentage	12	25	51	59	41

Source: Edited by the author, based on data from November 2018

Table 7

ASSESSMENT OF THE TIMELINESS OF PUBLICATION OF JOURNALS

Assessment of the timeliness of publication	No. of journals
On time (delay of 0-3 months)	101
Acceptable (delay of 4-6 months)	35
Delayed (delay of 7-11 months)	24
Very delayed (over 1 year)	138
Total	298

Source: Edited by the author, based on data from November 2018

value in both international indices with 17.3% (14 items) and 7.4% (6 items). It is followed by RTB with 6.8% (4 items) indexed in both Scopus and WOS, and at the other end of the spectrum there is HTB with 0% for both (see Figure 7).

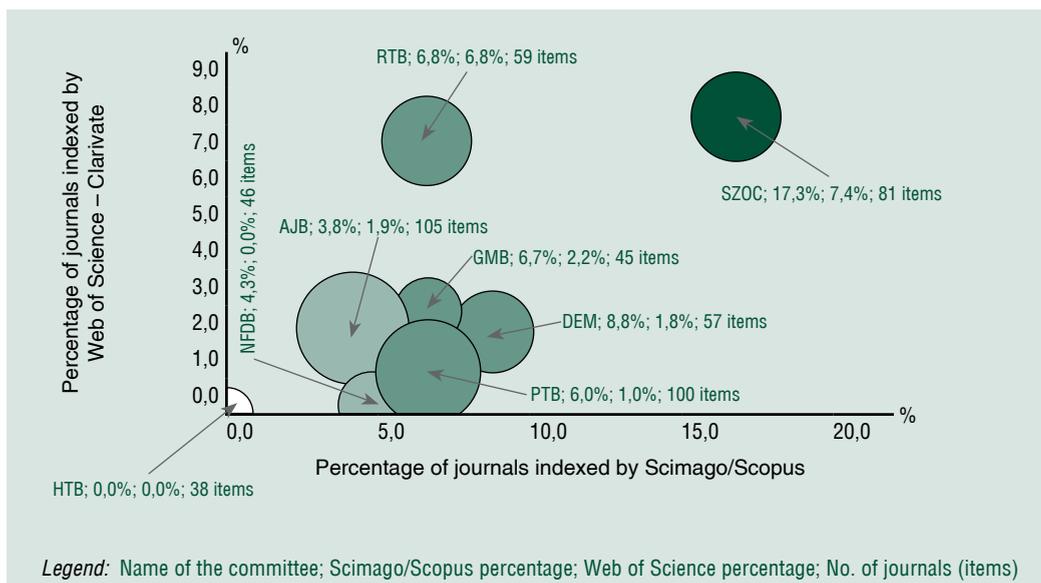
The *H*-index is an index widely used internationally instead of the impact factor (IF). Scimago uses the *H*-index and the WOS Master Journal List uses IF to evaluate journals.

The *H*-index was proposed by *Tibor Braun* (and his colleagues) in 2006. The advantage of this index is that it evaluates both quantitative (number of papers) and qualitative (number of citations the papers get) aspects (Braun et al., 2006). With this index, the ‘overvaluation’ of ‘review’-type journals can be compensated for, and it measures a given period (usually the past 2 years) (Braun, 2010).

IF can be calculated for journals on the

Figure 7

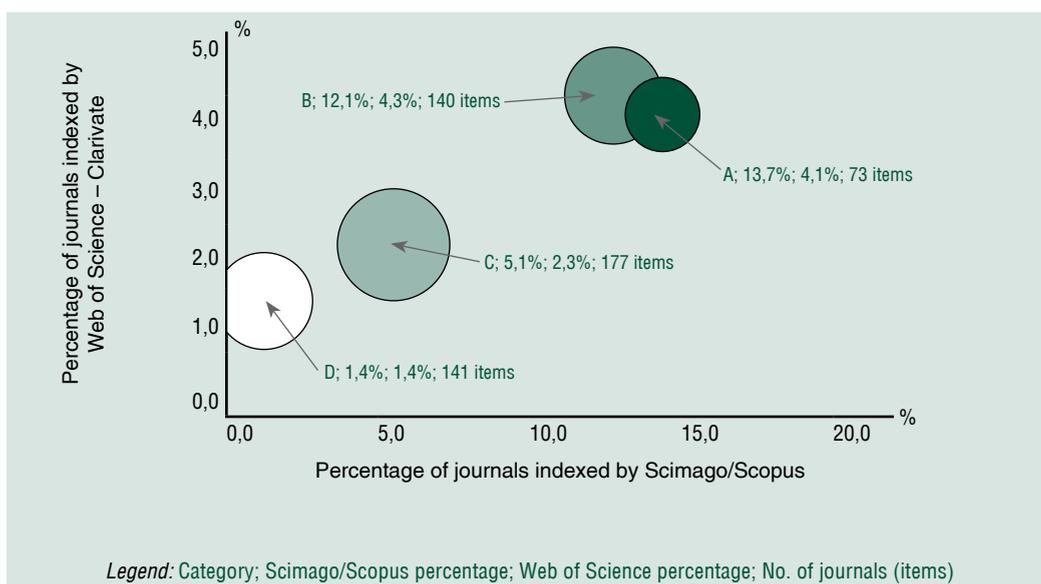
PERCENTAGE OF JOURNALS INDEXED BY WEB OF SCIENCE (CLARIVATE) AND SCIMAGO/SCOPUS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY COMMITTEE



Source: Edited by the author

Figure 8

PERCENTAGE OF JOURNALS INDEXED BY WEB OF SCIENCE (CLARIVATE) AND SCIMAGO/SCOPUS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY CATEGORY



Source: Edited by the author

domestic lists as well, based on MTMT data. According to these, we can see that 81 journals have no registered publications from the past 2 years (Figure 9). The ratio of papers to citations is below 1 in case of most journals, which means the number of papers registered is higher than the number of citations. This suggests that most papers have no effect on science, and that popular ‘star articles’ get most of the citations. Only one journal, *Acta Medicinae et Sociologica* has a value of 2.6 for this metric (Sasvári, 2019c).

The *H*-index can be calculated for authors and also for journals, using the indices of the registered papers and corresponding citations in the MTMT database. In this case the *H*-index shows how many papers in a given journal had at least that many citations. The majority of the journals examined has an *H*-index value

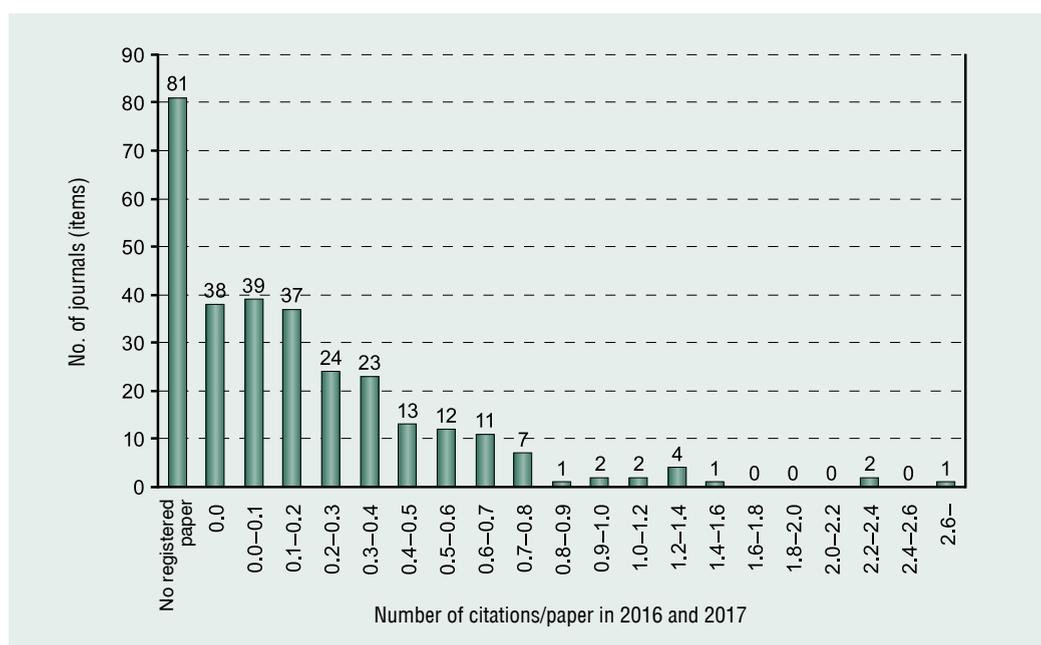
below 10. 20 journals have an *H*-index value of 6, which means they have exactly 6 papers that have 6 citations each (Sasvári, 2019b). From the journals with higher *H*-index, 12 have an *H*-index value over 15. 4 of these have an *H* index of 18, and at the top of the list there is a journal with a value of 35. This is the journal *Tér és Társadalom* (Space and Society) listed in category *A* by DEM, PTB, RTB, SZOC, in category *B* by ÁJB, and in category *C* by GMB, and it is also included in the WOS database (see Figure 10).

The average citation per paper ratio is 0.35, and if we calculate it by quality category, the value of category *A* journals stands out with 0.43. The other categories have almost the same value (see Table 8).

If we analyse this on the level of scientific committees, we get larger differences. HTB

Figure 9

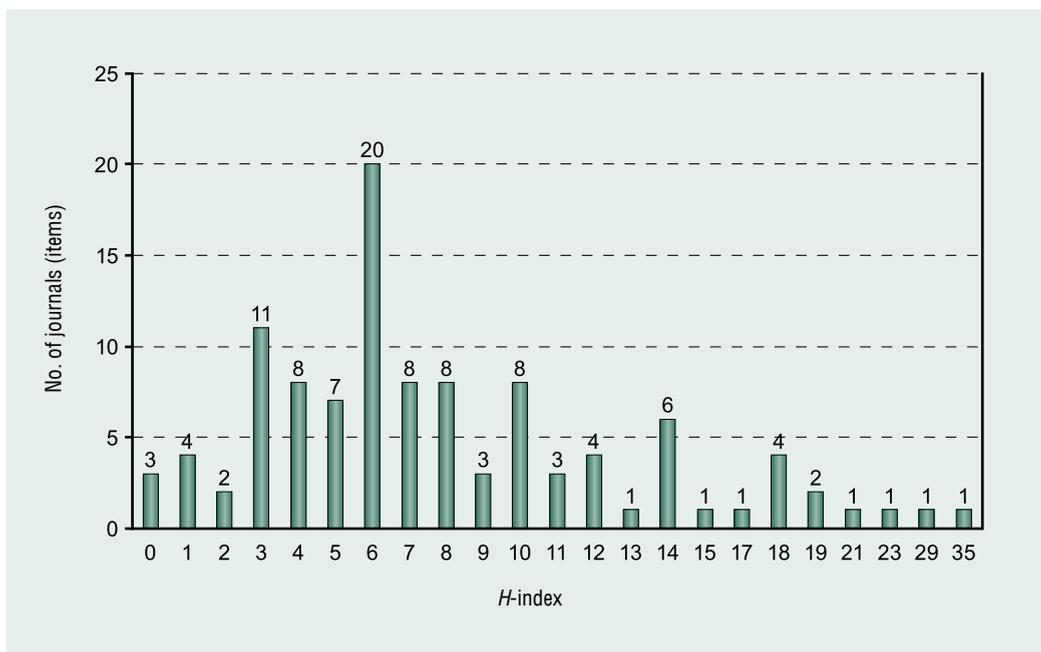
NUMBER OF CITATIONS PER PAPER IN THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BASED ON 2016 AND 2017 DATA



Source: Edited by the author

Figure 10

THE H-INDEX OF JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES IN DECEMBER 2018



Source: Edited by the author

has the highest value (0.49), and it is followed by AJB (0.45) and GMB (0.46). DEM has the lowest value, 0.25. This may be because, as compared to the other committees, few papers were registered by HTB, while authors generally register the citations. However, this also largely depends on the fact that HTB has the longest delays in the publication of the journals (See Table 9).

The average *H*-index value is 9, with RTB and DEM having outstanding values, 11 and 11, respectively, and at the other end of the list there is HTB with 6 and AJB with 8. In categories *C* and *D* HTB lags behind with *H*-index values of 5 and 3. In category *A*, the 9 *H*-index of the journals listed by AJB are the lowest, while DEM and RTB have the highest values (23 and 21, respectively) (See Table 10).

CONCLUSIONS AND RECOMMENDATIONS

The present study compared the journals on the domestic lists of the scientific committees of the IX Section of the Hungarian Academy of Sciences, based on the set of criteria for journal selection of the two best-known international multidisciplinary cataloguing databases, Scopus and Web of Science. Journals published in Hungary need to set their priorities based on these databases, as on the growing international scientific market the survival of journals depends on compliance with their criteria. Accordingly, we would like to raise the attention of decision-makers, editors and experts who have an influence on these parameters of Hungarian journals and those who compile the recommended lists of

Table 8

NUMBER OF CITATIONS AND PAPERS IN THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY CATEGORY IN 2016 AND 2017

Category	No. of papers		No. of citations		No. of citations (2016, 2017)/ No. of papers (2016, 2017)
	2016	2017	2016	2017	
A	2,457	2,638	1,568	613	0.43
B	3,985	3,936	1,628	1,001	0.33
C	3,371	3,049	1,415	788	0.34
D	2,288	2,294	914	554	0.32
Total	12,101	11,917	5,525	2,956	0.35

Source: Edited by the author

Table 9

NUMBER OF CITATIONS AND PAPERS IN THE JOURNALS ON THE DOMESTIC LISTS OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY COMMITTEE IN 2016 AND 2017

Committee	No. of papers		No. of citations		No. of citations (2016, 2017)/ No. of papers (2016, 2017)
	2016	2017	2016	2017	
AJB	2,053	2,000	1,140	667	0.45
DEM	1,565	1,632	528	284	0.25
GMB	941	1,048	561	354	0.46
HTB	654	685	412	240	0.49
NFDB	997	953	413	185	0.31
PTB	2,161	2,165	787	433	0.28
RTB	1,714	1,640	865	497	0.41
SZOC	2,016	1,794	819	296	0.29
Total	12,101	11,917	5,525	2,956	0.35

Source: Edited by the author

Table 10

**THE H-INDEX OF THE JOURNALS
OF THE IX SECTION OF THE HUNGARIAN ACADEMY OF SCIENCES BY CATEGORY
AND COMMITTEE IN DECEMBER 2018**

Committees, categories	A	B	C	D	Average
AJB	9	10	8	5	8
DEM	23	12	9	7	11
GMB	17	15	9	8	10
HTB	10	9	5	3	6
NFDB	20	11	6	6	8
PTB	19	10	6	7	9
RTB	21	11	12	5	11
SZOC	14	9	10	5	9
Average	15	10	8	6	9

Source: Edited by the author

journals for the members of the committees of the IX Section of the MTA. We believe that the criteria used by international cataloguing databases are good examples for Hungarian journals to follow as they try to meet the needs and expectations of the international scientific community, which would significantly improve their competitiveness. Compliance with these criteria can greatly enhance the reach and the number of citations, which are both priorities for every journal.

This is the need we considered as we wrote our recommendations for the 4 quality categories. We recommend that journals that have been operational for 3 consecutive years be categorised. The basic publishing requirements are technical ones and apply to all journals. The most important ones are a journal website and on-time publication with a delay of no more than 3 months. The website of every journal must include: the code of ethics, guidelines for

authors, the mission statement of the journal, whether and where it is indexed, the ISSN number and the form of reviews. In addition, the journal is easier to identify if the name and contact details of the editor-in-chief and the contact person are indicated, along with the editors, and the name and contact details of the publisher. Another basic piece of information is publication frequency and the indication if it is an Open Access journal.

In category *D*, in addition to the above, there must be an abstract and a title in English, a statement on the archiving policy of the journal, and papers must be uploaded to the MTMT system within 3 months of publication. Registering over 90% of all papers published in the past 3 years in the MTMT system is mandatory.

In category *C*, in addition to the criteria set for category *D*, we recommend that the DOI number be indicated and that over 90% of

the papers be listed in a repository certified by MTMT.

In addition to the criteria set for category *C* journals, journals in category *B* must have a diverse editorial board and a geographically diverse group of authors. Members of the editorial board must be from at least 3 institutions and authors must represent at least 6 different institutions. At least 1/3 of the editorial board must have at least one paper indexed by Scimago/Scopus or Web of Science.

In addition to the above, journals in category *A* must get ready for compliance with international academic search engines and they must indicate their acceptance rate and the review and publishing period on their website, and they must use a journal management system. Diversity is sufficient if members of the editorial board are from at least 5 different institutions and authors are from at least different 8 institutions. In addition, 2/3 of the editorial board must have at least one paper indexed by Scimago/Scopus or Web of Science, and the journal must be indexed by an international indexing organisation.

All categories must meet the following criteria, to a different extent: number of citations per paper from journals listed by Scimago/Scopus from the past 2 years (firstly), number of citations calculated with the same method from journals listed by Web of Science (secondly), and the number of citations from journals listed by the IX Section of the MTA (thirdly).

The full list of criteria is available in the appendix of the study. The criteria of every indicator of this set of requirements are from international cataloguing databases and as such they facilitate compliance with international scientific trends. Some criteria are purely technical, these can be improved within a matter of weeks. On the other hand, the diversity of the editorial boards and group of authors requires conscious decisions, and this process must be started by the editors as soon as possible. If these items are successfully implemented by the journals, it will greatly increase their international competitiveness, which will lead to their international success in the long term.

APPENDIX

Category	Minimum criteria
	<p>Basic publishing standards:</p> <ul style="list-style-type: none"> ▶ Availability of the Code of Ethics, ▶ Availability of the goal and mission of the journal, ▶ Availability of the name, address and e-mail address of the editor-in-chief and/or the contact person on the website, ▶ Information on indexing (domestic: which section of the MTA lists the journal; international: whether it is indexed by, for example, EBSCO, Proquest, Scopus or Web of Science) ▶ ISSN and/or e-ISSN number, ▶ Availability of the name, address and e-mail address of the publisher on the website, ▶ Review method (e.g. double-blind process - double blind peer review), ▶ Availability of the publishing frequency, ▶ Continuous operation for at least 3 years, ▶ Indication of Open Access status (if it is OA), ▶ On-time publication (delay of max. 3 months), ▶ Own, independent website in Hungarian, ▶ Availability of the name, institution and country of the members of the editorial board on the website, ▶ Guidelines for authors, ▶ The journal is listed in the WorldCat (link: https://www.worldcat.org/) library catalogue.
<p>D</p>	<p>In addition to the minimum publishing criteria:</p> <ul style="list-style-type: none"> • the paper has an abstract in English and Hungarian, available on the journal's website, • the paper has a title in English and Hungarian, available on the journal's website, • availability of the archiving policy of the journal, which provides what the author can do with the pre-print (manuscript before the review) and the post-print (final, reviewed manuscript) of the paper, • over 90% of the papers published in the past 3 years are uploaded to MTMT, • papers are uploaded to MTMT no more than 3 months after publication, • the journal must be in the 4th quarter with respect to citations per paper from journals listed in Scimago/ Scopus in the past two years (primarily), • the journal must be in the 4th quarter with respect to citations per paper from journals listed in Web of Science in the past two years (secondarily), • the journal must be in the 4th quarter with respect to citations per paper from journals listed by the IX Section of the MTA (excluding the journal examined) in the past two years (thirdly)
<p>C</p>	<p><i>In addition to the criteria of category D:</i></p> <ul style="list-style-type: none"> • use of DOI number for every paper, • own, independent website in English, • over 90% of the papers published in the past 3 years are uploaded to a repository certified by MTMT, • the journal must be in the 3rd quarter with respect to citations per paper from journals listed in Scimago/ Scopus in the past two years (primarily), • the journal must be in the 3rd quarter with respect to citations per paper from journals listed in Web of Science in the past two years (secondarily), • the journal must be in the 3rd quarter with respect to citations per paper from journals listed by the IX Section of the MTA (excluding the journal examined) in the past two years (thirdly).

Category	Minimum criteria
B	<p><i>In addition to the criteria of category C:</i></p> <ul style="list-style-type: none"> • -members of the editorial board must be from at least 3 institutions, • -authors of the papers from the past year must be from at least 6 different institutions, • -1/3 of the editorial board must have at least one paper indexed by Scimago/Scopus or Web of Science, • -the journal must be in the 2nd quarter with respect to citations per paper from journals listed in Scimago/Scopus in the past two years, • -the journal must be in the 2nd quarter with respect to citations per paper from journals listed in Web of Science in the past two years (secondarily), • -the journal must be in the 2nd quarter with respect to citations per paper from journals listed by the IX Section of the MTA (excluding the journal examined) in the past two years (thirdly).
A	<p><i>In addition to the criteria of category B:</i></p> <ul style="list-style-type: none"> • members of the editorial board must be from at least 5 institutions and 3 countries, • authors of the papers from the past year must be from at least 8 different institutions, • 2/3 of the editorial board must have at least one paper indexed by Scimago/Scopus or Web of Science, • the journal must be in the 1st quarter with respect to citations per paper from journals listed in Scimago/Scopus in the past two years (primarily), • the journal must be in the 1st quarter with respect to citations per paper from journals listed in Web of Science in the past two years (secondarily), • the journal must be in the 1st quarter with respect to citations per paper from journals listed by the IX Section of the MTA (excluding the journal examined) in the past two years (thirdly), • it is verified that the journal is listed by at least one international indexing organisation (EBSCO, Proquest, Scopus, Web of Science), • the journal must use a journal management system (e.g. Open Journal Systems, Public Knowledge Project),

REFERENCES

- BARTOL, T., BUDIMIR, G., DEKLEVA-SMREKAR, D., PUSNIK, M., JUZNIC, P. (2013). Assessment of research fields in Scopus and Web of Science in the view of national research evaluation in Slovenia. *Scientometrics*, 98(2), pp. 1491-1504, <https://doi.org/10.1007/s11192-013-1148-8>
- BRADFORD, S. C. (1934). Sources of information on specific subjects. *Engineering*, 26, pp. 85-86
- BRAUN T., GLÄNZEL, W., SCHUBERT A. (2006). A Hirsch-type of Index for Journals. *Scientometrics*, 69, p. 169, <https://doi.org/10.1007/s11192-006-0147-4>
- BRAUN T. (2010). Új mutatószámok tudományos folyóiratok értékelésére (New metrics for the evaluation of scientific journals). *Magyar Tudomány*, Vol. 2010, 2, pp. 212-217
- BRITO, R., RODRÍGUEZ-NAVARRO, A. (2019). Evaluating research and researchers by the journal impact factor: Is it better than coin flipping? *Journal of Informetrics*, 13 (1), pp. 314-324, <https://doi.org/10.1016/j.joi.2019.01.009>
- CALVER, M., WARDELL-JOHNSON, G., BRADLEY, S., & TAPLIN, R. (2010). What makes a journal

international? A case study using conservation biology journals. *Scientometrics*, 85 (2), pp. 387-400, <https://doi.org/10.1007/s11192-010-0273-x>

DEMIR, S. B. (2018). Predatory journals: Who publishes in them and why? *Journal of Informetrics*, 12(4), pp. 1296-1311, <https://doi.org/10.1016/j.joi.2018.10.008>

GARFIELD, E. (1977). The Mystery of the Transposed Journal Lists—Wherein Bradford's Law of Scattering Is Generalized According to Garfield's Law of Concentration, Current Content No. 7 5(August 4 1971) Reprinted in Essays of an Information Scientist; *ISI Press*: Philadelphia, PA, USA, 1977; Volume 1, pp. 222-223

GUZ A. N., RUSHCHITSKY, J. J. (2009). Scopus: A system for the evaluation of scientific journals. *International Applied Mechanics*, 45 (4), pp. 351-362, <https://doi.org/10.1007/s10778-009-0189-4>

HICKS D., WANG J. (2010). Coverage and overlap of the new social sciences and humanities journal lists. *Journal of the American Society for Information Science and Technology*, 62(2), pp. 284-294, <https://doi.org/10.1002/asi.21458>

MARTÍN-MARTÍN, A., ORDUNA-MALEA, E., THELWALL, M., & DELGADO LÓPEZ-CÓZAR, E. (2018). Google Scholar, Web of Science, and Scopus: A systematic comparison of citations in 252 subject categories. *Journal of Informetrics*, 12 (4), pp. 1160-1177, <https://doi.org/10.1016/j.joi.2018.09.002>

MERTON, R. K. (1968). The Matthew Effect in Science: The reward and communication systems of science are considered. *Science*, 159 (3810), pp. 56-63, <https://doi.org/10.1126/science.159.3810.56>

MONGEON, P., PAUL-HUS, A. (2015). The journal coverage of Web of Science and Scopus: a comparative analysis. *Scientometrics*, 106 (1), pp. 213-228, <https://doi.org/10.1007/s11192-015-1765-5>

SASVÁRI, P. (2019a). Néhány folyóiratkereső rendszer felsorolása és példa segítségével vázlatos bemutatása (A selected list of academic search engines: brief introduction with examples). February 2019, *Working Paper*, <https://doi.org/10.13140/RG.2.2.28994.22721>

SASVÁRI, P. (2019b). Az MTA IX. osztály hazai folyóiratainak H-indexe és az összes dokumentumainak a száma az MTMT alapján (The h-index of the Hungarian journals and the total number of the documents of the IX Section of the Hungarian Academy of Sciences according to MTMT). January 2019, *Working Paper*, <https://doi.org/10.13140/RG.2.2.27122.56001>

SASVÁRI, P. (2019c). Az MTA IX. osztályának, hazai folyóiratainak hivatkozásai és közleményeinek a száma és az aránya 2016 és 2017 esetén (The number and ratio of citations and papers in the Hungarian journals of the IX Section of the Hungarian Academy of Sciences in 2016 and 2017), January 2019, *Working Paper*, <https://doi.org/10.13140/RG.2.2.16427.08486>

SASVÁRI, P., URBANOVICS, A. (2019). Nemzetközi egyetemi rangsorok (International University Rankings), April 2019, <https://doi.org/10.13140/RG.2.2.24779.03365>

TESTA J.: Journal Selection Process, Clarivate Analytics Web of Science (WOS), <https://clarivate.com/essays/journal-selection-process/>

WEILENMANN, A.-K. (2014). A new paradigm for the scientific article. *Information Services & Use*, 34 (3-4), pp. 315-319, <https://doi.org/10.3233/isu-140753>

WUCHTY, S., JONES, B. F., UZZI, B. (2007). The Increasing Dominance of Teams in Production of Knowledge. *Science*, 316 (5827), pp. 1036-1039, <https://doi.org/10.1126/science.1136099>

A Magyar Tudományos Akadémia elnökének 27/2012 (IX. 24.) számú határozata, Tudományos művek nyílt hozzáférésű közzétételének irányelvei (Guidelines for the open access publication of scientific papers. Decision No. 27/2012 (IX.24.) of the President of the Hungarian Academy of Sciences), https://mta.hu/data/dokumentumok/hatteranyagok/akademiai_szabalyozasok/27_2012_elnoki_hat_Open_Access5.pdf

Edanz Journal Selector, <https://www.edanzediting.com/journal-selector>

Elsevier journal finder Find the perfect journal for your article, <https://journalfinder.elsevier.com/>

IEEE Publication Recommender, Find the best match for your scholarly article, <http://publication-recommender.ieee.org/home>

JournalGuide, Find the best journal for your research, <https://www.journalguide.com/>

Scopus: Content Policy and Selection, <https://>

www.elsevier.com/solutions/scopus/how-scopus-works/content/content-policy-and-selection

Springer Journal Suggester, Personalized recommendation, <https://journalsuggester.springer.com/>

Ügyrend (2016): Az MTA Gazdaság- és Jogtudományok osztályának az MTA Doktora Tudományos cím megszerzéséért indított eljárásban való közreműködéséről (Rules of Procedure (2016): On the participation of the Section of Economics and Law of the Hungarian Academy of Sciences on the procedure for the attainment of the scientific title Doctor of the Hungarian Academy of Sciences), https://mta.hu/data/dokumentumok/doktori_tanacs/IX.%20Osztyal/Doktori_Ugyrend_IX_Osztyal.pdf

Welcome to Jane Journal/Author Name Estimator, <http://jane.biosemantics.org/>

Wiley Journal Finder Beta, Find the journal that's right for your research, <https://journalfinder.wiley.com/search?type=match>