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The relevance of bibliometric indicators and academic criteria in economics

Mădălina Dumitru[a,1]

[a] *Bucharest University of Economic Studies*

Abstract

Research Question: Are the bibliometric indicators included in the Journal Citation Reports (JCR) and the academic criteria in the Economics domain relevant from the point of view of the assessment of the quality of the research activity?

Motivation: This study is motivated by the fact that the research landscape changed significantly during the last years, with the growth of open access publishers. In addition, the number of journals and the value of the bibliometric indicators included in the JCR are growing. As such, the relevance of the academic criteria is affected.

Data: Data for this study were collected from the JCR for 50 journals edited by five publishers.

Tool: An original database created by the author starting from the JCR was used as a tool for the present study.

Findings: The results have shown that the fast-publish editor selected for the study registers a high number of self-cites within the publishing house, and also that the self-cites are mostly directed towards the recently published papers, so that they influence the value of the bibliometric indicators.

Practical implications: The importance of the findings of such research stems from providing evidence on the rise of a new type of publisher, open access, fast growing, fast publishing, fast citing. Also, the behaviour of Romanian academics and the criteria they have to comply with in their careers are affected. The results have implications for the authorities setting the criteria for academics.

Keywords: self-cites, Clarivate, fast research, fast publish, fast cite, academic publishing.

JEL codes: A10; A19

[1] *Corresponding author*: Department of Accounting and Audit, Bucharest University of Economic Studies; Bucharest, Romania; Email: madalina.dumitru@cig.ase.ro

"We're on our way into a night when we question everything we have ever done, all that we are, and the entire society that we've built. Because what is it? The whole lot of it? Only the sum of all our choices. Only the result of us. Can we cope with the way it turned out?" (Backman, 2022).

1. Introduction

The number of articles published during the last years increased at an exponential rate and, along with them, the number of citations. Based on the citations, Clarivate computes various indicators which determine for many universities in many countries financing, ranking, academic tenure, etc. The values of these indicators are of paramount importance to universities and academics. The journal impact factor (JIF), a default indicator, is computed by Clarivate with or without considering the self-cites. According to Clarivate, the self-cites are the citations in articles published in the same journal. However, important publishing houses are editing hundreds of journals, which means that different journals might cite each other. In a study published in 2002, Clarivate states that 'the removal of self-citations from the impact factor calculation had little effect on the relative rank of high impact journals' (Journal self-citation in the Journal Citation Reports – Science Edition (2002) - Web of Science Group (clarivate.com)). From this reality, the first research question is the following: *Is the way Clarivate defines a self-cite relevant from the point of view of the assessment of the quality of the research activity?*

Clarivate is the only database used to assess the work of academics in the economic domain in Romania. An academic's score when applying for a full or associate professor job or for periodic evaluation is calculated based on a maximum of ten articles and ten citations indexed in Clarivate. This means that at least in 2016, at the time of establishing the present criteria, quality was preferred over quantity. The rise of publishers offering simple solutions, covering any requirement, determines the second research question: *Are the criteria relevant from the point of view of the assessment of the quality of the research activity, considering the changes that occurred in the publishing industry during the last years?*

To answer the research questions, a sample of 50 journals edited by five publishers (top four according to Clarivate and a fast-growing publisher) included in the first quartile (Q1) according to the Clarivate JIF was selected. We focus on Clarivate, as it is used for evaluation purposes in many countries (Albu & Albu, 2012; Kulczycki *et al.*, 2021) and was used in most bibliometric studies (Chersan, 2017).

The targeted contribution of this research is to determine the relevance of the figures used by Clarivate to compute the indicators based on which the ranking of the journals is established. A priori, it is considered that the way a self-cite is defined

significantly influences the journal ranking. Although previous research focusses mostly on citations coming from articles published in the same journal (Andrade *et al.*, 2009; Yu *et al.*, 2010), I focus on citations coming from all journals edited by the same publisher. My opinion is based on the fact that "A journal is the product of a publishing house, a commercial enterprise dedicated to preparing and distributing the periodical, but interested in it largely from an economic point of view" (Braun and Dióspatonyi, 2005).

The paper is organised as follows: The next section is dedicated to a literature review on self-citations and the relevance of academic criteria. The research methodology section follows. The results of the study are presented, followed by the discussion and conclusions section.

2. Review of the literature

2.1 The relevance of the bibliometric indicators

The best known indicator that sets the ranking of the academic research in the present environment is the JIF (Kulczycki *et al.*, 2021), a rather quantitative indicator, conferring prestige to the journals and the articles (Bordons *et al.*, 2002; Sombatsompop *et al.*, 2004). Some advantages of the JIF are that it is easy to obtain, to compare, to check the data based on which it is computed, it is more relevant than absolute values (such as the number of citations), it is useful in predicting the future impact of a published research (Abramo *et al.*, 2023). However, there are some disadvantages, such as: its value is affected by the category of the journal, it does not take into account the "bad news" (e.g. papers that are not cited at all), the country context in which the journal is based (Bordons *et al.*, 2002), it shows the value of the journal and not of the articles (Chersan, 2017), it does not consider the characteristics of the citing journal, the type of cited items, the two years for which the citations are considered may not be enough to see the real impact of an article (Sombatsompop *et al.*, 2004), it is not a predictor of the citability of a paper, as in many cases it relies on a small number of highly cited articles (Abramo *et al.*, 2023), it does not consider the size of the journal's publisher.

The JIF is computed as the number of cites during the year ended before the publication of the JCR (e.g. N-1) for the articles published during the previous two years (e.g. N-2 and N-3) divided by the number of citable items published during the same period (e.g. N-2 and N-3). It is also computed by excluding self-cites. In this case, self-cites refer to cites coming from a journal citing itself. As such, an author or a publishing house citing themselves are not considered.

As the impact factor matters, there are attempts to manipulate it. Of the three factors that contribute to the value of the JIF (the number of articles, citations, and the self-

cites), the easiest to influence are self-cites. A strategy to do this is to ask the authors (for instance, in one of the review rounds) to cite recent papers published by the same journal or publisher (Andrade *et al.*, 2009; Chersan, 2017; Yu *et al.*, 2010). This strategy has a valid argument in the background, as before publishing you should know the activity of the chosen journal. In terms of the articles, Zhang (2021) shows that an increase in the number of citable items can even increase the JIF.

Yu and Wang (2007) show that self-cites particularly influence the low value impact factors. The result is normal, as well-established journals are cited for the quality of what they publish and in a large number of works. They do not have to be creative to preserve their indicators.

As citations matter at an individual level (e.g. by increasing the Hirsch index and, accordingly, the visibility of a researcher) and at the journal level (e.g. by improving the different indicators), scholars cite themselves (Kulczycki *et al.*, 2021). In order to grow, you have to do better than others, to have results, just like in any other aspect of life. The authors are customers of the journals (Beall, 2013). There is a pressure to publish in order to maintain one's status and, moreover, to help the university maintain its status and funding (for example, there are three categories of universities in Romania: research-intensive, teaching and research, and teaching). A 'symbolic violence' ('a gentle violence, imperceptible and invisible even to its victims, exerted for the most part through the purely symbolic channels of communication and cognition' – Bordieu, 2001, pp. 1–2, cited by Hasrati & Tavakoli, 2019) appears in the process, as the authors have to follow financial and other non-academic considerations. Some publishers offer vouchers for reviews conducted by scholars. They can be used to cover a part of the future article processing charge. In this way, a community is formed around a publisher, with scholars motivated to return but also to become 'article sponsors' in some cases.

A modified JIF computation method is published by Sombatsompop *et al.* (2004) and "is based on the ratio of the number of current year citations of articles from the previous X years to that of articles published in the previous X years, the X value being equal to the value of the cited half-life of the journal in the current year." Other authors suggest that the JIF should be replaced with other indicators which are more reliable (e.g. reliability-based impact factor – Kuo & Rupe, 2007; Yu *et al.*, 2010). I argue in this article that in the computation of the JIF the citations coming from the journals edited by the same publisher should be considered self-cites as well.

2.2 The Romanian Economics academia assessment criteria

Goals in any domain, including education, must be set in order to motivate a person to do their best. A person's efforts to reach a target are a desired reaction (Blanco *et al.*, 2020). Thus, a target should be set with responsibility, as it will trigger a response

from the people aimed at (Gendron, 2008; Bordons *et al.* 2002), who will search to preserve the position that he or she has or to access a new position, in line with the person's abilities or opportunities. Quantitative criteria are generally easier to implement.

The research criteria are diverse. Items such as books, articles indexed in various databases or included in various lists, national or international conferences, visibility obtained by participating in boards, associations, etc. may matter for universities ranking and financing or for an academic (Martin-Sardesai & Guthrie, 2018). Also, the criteria matter when applying for a full or associate professor position, habilitation thesis defence, or becoming a Ph.D. coordinator, research financing, the periodic assessment (which is compulsory every other five years in universities), increase in wages, etc. When setting the criteria, an institution or the ministry may have as a goal to promote the universities abroad, to access external or internal funds, etc. However, when the criteria are poorly set, the resulting behaviour of an academic may not be the expected one (Charreaux & Schatt, 2005), looking, for instance, for metrics, quantity, or fast obtained results to the expense of meaningful outcomes.

In the late 90s, Romanian academics in the economic domain were mostly required to teach and to support that activity by publishing books, articles, and attending conferences. Some of the research had to be conducted individually. The criteria could be fulfilled with Romanian resources, without opening up towards an external environment. Today, Romanian journals indexed in economic categories in Clarivate were very young back then. For example, Amfiteatru Economic, the Romanian core economic journal with the best scientometric indicators, was founded in 1999.

The first national journal ranking emerged in 2005 (Albu and Albu, 2012). In line with this, the criteria for an academic changed, too. The journals considered were the ISI ones, followed by journals indexed in at least three recognised international databases (e.g. Scopus, CEEOL, DOAJ, and RePec), for which the authors obtained fewer points. Additionally, if an item had several authors, the points were divided by the number of authors. A person also had to be a part of research grants or contracts as a director or a member. Grants or contracts could be obtained in a national competition or financed by a third party. At the beginning, there was no requirement regarding the domain of the journals in which an academic disseminated his or her research or the bibliometric indicators of the respective journals, which created an opportunity to elude the system (e.g. there were journals such as Metallurgia International or African Journal of Agricultural Research, which published for a fee easier than other journals and were taken into consideration). In 2011 requirements for a journal to have a computed impact factor and a relative influence score above a threshold were introduced.

The criteria to become a full professor or associate professor changed again in 2016. The new criteria for the economic domain, still in force nowadays, ask for a professor to publish at least four articles in journals indexed in Clarivate. At least two of the articles have to be published in journals with an article influence score greater than 0.15. Also, at least two of the articles have to be published in journals indexed in Core Economics or Info Economics. Only the Social Science Citation Index (SSCI) and Science Citation Index Expanded (SCIE) are taken into account. The points obtained for the articles are no longer divided by the number of authors. For any additional author with Romanian affiliation, the points per author decrease by 10%, creating the conditions for a 'collectivisation phenomenon' (Chersan, 2017). This means that in the last 30 years, as a result of the pressure to publish, most 'research is performed by a team, while during the last century single-author articles were the rule and collaboration between authors was quite rare.' The same trend is acknowledged by Kuld and Hagan (2017), who add that most of the solo-authors are young and emphasise some positive aspects of co-authorship (e.g. the rise in the number of articles with cross-country authors, decreasing communication costs, the larger number of citations for the articles with more authors). The points obtained for a citation depend on the category and quartile in which a citing journal is included and are not affected by the number of authors of the item cited. The books and conference proceedings matter in a very low percentage (maximum 25% of the minimum required points for the articles) and have to be edited in a publishing house recognised by the Ministry.

The standards were considered high at the moment (Chersan, 2017), but were implemented before the exponential growth of open-access publishers. For example, Frontiers Media SA published in 2021 5.41 times more articles indexed in SCI / SSCI compared to 2016. Another fast-growing publisher, anonymous here since it is part of the sample considered for this research, published 10.86 times more articles indexed in SCI/SSCI in 2021 compared to 2016 (Csomós and Farkas, 2022).

3. Research method

In order to answer the first research question, the JIF was chosen because it is a default indicator, computed for a long time by Clarivate, it is simple, easy to calculate, and verify, and all the data used in the formula are available. The Q1 journals published by the top four publishers in terms of the number of journals included in Clarivate were selected (Publisher A – abbreviated PA, Publisher B – PB, Publisher C – PC, Publisher D – PD) and a fast growing publisher from JCR (Publisher E – PE). My choice is determined by the fact that, thanks to a good strategy, during the last years PE became a top publisher in terms of the number of articles published (https://scholarlykitchen.sspnet.org/2022/11/08/guest-post-publishing-fast-and-slow-a-review-of-publishing-speed-in-the-last-decade/), attracting the attention of scholars searching for a publication outlet. Furthermore, in

2021 it published 28% of the SCI / SSCI articles authored by central and eastern European researchers, a percentage equal to the one reached by PA and PC together (Csomós & Farkas, 2022). Although PA publishes most of the articles written worldwide, in 2021, 48.13% of the articles authored exclusively by persons with Romanian affiliation and 34.18% of the articles with at least one author with Romanian affiliation are published by PE (Csomós & Farkas, 2022). These represent the highest percentages at the world level (Csomós and Farkas, 2022). It can publish several articles received from the same author in the same issue. For the top four publishers, I selected the option 'unified'. While the first four publishers have mainly hybrid journals, most of the articles being available based on a subscription, the fifth publishes open access in exchange for an article processing charge.

The sample list includes 50 journals, ten journals per publisher, regardless of the categories in which they are included. The journals were coded as follows: the journals published by PA were coded from A1 to A10, the journals published by PB were coded from B1 to B10, etc.

The journals with the highest JIF were selected. The selection criteria were the following: the list was extracted from JCR Year 2021, the journals were included in the SSCI or SCIE indexes, and the journals had JIF quartile Q1. All the data available for the journals from JCR, including 2021 JIF, JIF without self-cites, citations in 2021 to items published in 2019 and 2020, number of citable items in 2019 and 2020, self-cites according to Clarivate, were exported. Afterwards, I entered each journal and the cites coming from the journals published by the same publishing house were selected. A threshold of 1% of the citations was established to select the citing journals edited by the same publishing house. This was established according to the number of cites of the respective journal. For example, if one journal had a total of 1000 citations, only the journals edited by the same publisher that cited the respective journal more than 10 times were considered. This part of the data was collected by hand.

The second analysis consisted of extracting the publishers of the top 20 journals citing or cited by a journal included in the sample by the number of citations. "The Journal Relationships visualization displays the citing or cited data relationships between the parent journal and the top twenty journals in its network" (http://help.incites.clarivate.com/incitesLiveJCR/JCRGroup/jcrJournalProfile/jcrJournalProfileEgoNetwork.html). These data were collected by hand. The extracted values are in absolute amounts. As they vary significantly between journals and publishers, they were transformed into percentages, so that each journal weighed in the same degree in the analysis.

4. Results

Most of the journals included in the sample belong to STEM categories (e.g. chemistry, biology, medicine), but there is a journal indexed in economics, a journal indexed in ethics, etc. In terms of category, the sample is heterogeneous.

The selected Clarivate indicators for the journals included in the sample are presented in Appendix 1.

The JIF is computed by Clarivate with or without self-cites (cites in the same journal). As such, there are three factors that affect the value of indicators (number of cites, number of self-cites, and number of citable items).

The first is the number of citations. Table 1 includes the relevant information in this regard. The total number of citations represents the total number of citations indexed in Clarivate for a journal in 2021, regardless of the cited item.

Table 1. Cites of the sample journal in 2021

Indicator	Average		St. Dev.	Min.	Max.
	Number	%			
Publisher A					
Total citations in 2021	108,035.20	100	147,112.30	3,096.00	403,222.00
Citations in 2021 to items published in 2019 and 2020, of which:	25,690.70	23.78	29,791.95	2,069.00	99,338.00
Self-cites according to Clarivate	235.20	0.92	238.32	26.00	723.00
Recomputed self-cites	357.40	1.39	317.69	0.00	834.00
Publisher B					
Total citations in 2021	8,835.80	100	7,702.97	3,459.00	28,964.00
Citations in 2021 to items published in 2019 and 2020, of which:	2,244.40	25.40	2,594.52	190.00	8,023.00
Self-cites according to Clarivate	80.20	3.57	105.28	0.00	276.00
Recomputed self-cites	104.20	4.64	118.62	0.00	276.00
Publisher C					
Total citations in 2021	13,043.40	100	13,679.49	1,942.00	35,676.00
Citations in 2021 to items published in 2019 and 2020, of which:	4,743.00	36.36	4,185.05	501.00	12,972.00
Self-cites according to Clarivate	93.70	1.98	99.14	4.00	303.00
Recomputed self-cites	127.70	2.69	172.77	0.00	573.00

Indicator	Average		St. Dev.	Min.	Max.
	Number	%			
Publisher D					
Total citations in 2021	84,421.90	100	114,467.90	1,341.00	361,407.00
Citations in 2021 to items published in 2019 and 2020, of which:	27,935.30	33.09	31,666.93	1,164.00	93,178.00
Self-cites according to Clarivate	1,024.40	3.67	1,271.25	34.00	3,402.00
Recomputed self-cites	2,739.90	9.81	3,652.84	0.00	10,388.00
Publisher E					
Total citations in 2021	49,030.30	100	63,301.87	4,574.00	211,519.00
Citations in 2021 to items published in 2019 and 2020, of which:	25,857.00	52.74	28,957.70	1,987.00	97,722.00
Self-cites according to Clarivate	2,999.40	11.60	2,965.39	154.00	9,445.00
Recomputed self-cites	5,145.40	19.90	4,741.67	376.00	15,352.00

Source: Author's compilation based on JCR

PD has the highest number of citations (27,935.30 cites on average per journal), followed by PE (25,857 cites on average per journal), and PA (25,690.70 cites on average per journal). We notice that these numbers are comparable. There is a big difference when comparing them with the other two publishers. We also note that the largest part of the citations recorded during 2021 for PE were for items published in 2019 and 2020. Indeed, the total citations are on average 49,030.30 and the ones for 2019 and 2020 are 25,857 (representing 52.74%), without observing a normal distribution. We keep in mind that these are the citations on which the JIF is computed. PC follows with 36.36%. The average of this indicator for the top four publishers (A to D) is 29.66% (representing 56.24% of the value of PE).

Regarding the second factor, self-cites, the data in Table 1 show that the average values range from 80.20 per journal for PB to 2,999.4 per journal for PE (37.40 times more). The self-cites represent 11.6% of the citations in 2021 to items published in 2019 and 2020 for PE, but only 0.92% for PA.

The self-cites is a very important indicator. The JIF is computed with or without them, but the default indicator according to JCR is the JIF including self-cites. Also, these include only the cites coming from the journal itself. However, since all of the publishers included in the sample edit a large number of articles indexed in the JCR, I assumed that the number of self-cites is actually significantly larger. As a consequence, I recomputed the number of self-cites considering all the cites coming from journals edited by the same publisher, which are above 1% of the total number of cites of a journal. The biggest difference between the recomputed self-cites and

the self-cites according to Clarivate is registered by PD (1.58 cites per article), followed by PE (0.72 cites per article). The recomputed self-cites percentage range from 1.39% (for PA) to 19.90% (for PE). The highest percentage of self-cites in the sample is 25.34%, according to JCR, and is calculated for journal B5. The highest percentage of recomputed self-cites is registered for E10 (34.85%). This shows that the articles published by PE are significantly cited by other journals edited by the same publishing house.

Another remark is that all the journals edited by PE have themselves as the first citing journal in terms of number of cites in 2021 for citable items published in 2019 and 2020 (which are the cites based on which the JIF is computed). The second largest citing journal follows at a very big difference from the first. For instance, E2 has 6509 self-cites, and the next citing journal (which is edited by PE as well) counts for 1112 of the cites. This shows a difference of 5397 cites (485.34%).

The third factor affecting the JIF is the number of citable items. Data on the number of cites in 2019 and 2020 and the cites per article are presented in Table 2.

Table 2. Number of citable items for 2019-2020 and 2021 cites per article

Publisher	Average citable items/ journal	Citations/ article	Self-cites/ article		Recomputed self-cites/ article	
			Number	%	Number	%
Publisher A	285.70	89.92	0.82	0.92	1.25	1.39
Publisher B	151.00 (min. 8)	14.86	0.53	3.57	0.69	4.64
Publisher C	119.30	39.76	0.79	1.98	1.07	2.69
Publisher D	1,082.00	25.82	0.95	3.67	2.53	9.81
Average four top publishers	*409.5*	*42.59*	*0,77*	*2.53*	*1.39*	*4.63*
Publisher E	4,091.80 (max. 15,742)	6.32	0.73	11.6	1.26	19.90

Source: Author's compilation based on JCR

The highest number of citable items was registered in 2019 - 2020 by PE (4,091.8 on average per journal), followed by PD (1,082 on average per journal). As such, the number of articles published in one journal by PE is 3.78 times higher than that recorded by the next publisher and ten times higher than the average of the top four publishers. The maximum number of articles published in a journal is 15,742 (journal E5), and the minimum number is eight (journal B1).

While the top four publishers register an average number of 42.59 citations per citable item, PE registers only 6.32. Of these, the self-cites are almost equal in

absolute value (0.77 as compared to 0.73), but significantly different in percentages (11.6% for PE compared to 2.53% for the others).

Based on the previous indicators, the various forms of JIF registered for the sample journals are presented in Table 3.

Table 3. JIF for the sample journal in 2021

Category	Average	St. Dev.	Min.	Max.
Publisher A				
2021 JIF	84.55	44.19	51.77	202.73
JIF without self-cites	83.76	43.99	51.04	201.48
Recomputed JIF without self-cites	83.04 (99.14%)	44.20	49.27	201.48
Publisher B				
2021 JIF	15.33	3.74	11.36	23.75
JIF without self-cites	14.73	4.06	10.96	23.75
Recomputed JIF without self-cites	14.51 (98.51%)	4.22	9.80	23.75
Publisher C				
2021 JIF	37.14	5.79	24.90	46.35
JIF without self-cites	36.31	6.30	22.27	46.08
Recomputed JIF without self-cites	35.99 (99.12%)	6.41	21.05	45.20
Publisher D				
2021 JIF	55.03	83.26	17.52	286.13
JIF without self-cites	53.66	83.27	15.92	285.50
Recomputed JIF without self-cites	52.22 (97.32%)	83.86	14.55	286.13
Publisher E				
2021 JIF	6.25	0.64	5.56	7.68
JIF without self-cites	5.46	0.61	4.68	6.75
Recomputed JIF without self-cites	4.84 (88.64%)	0.48	4.04	5.54

Source: Author's compilation based on JCR

The sample is heterogeneous in terms of JIF, with the lowest value of 5.56 and the highest of 286.13. We notice that the lowest values are registered for PE. As such, open-access research does not lead to higher impact factors. Also, this publisher registers the highest decrease when recomputing the JIF. While the difference between JIF and JIF without self-cites computed by JCR is 12.64%, the difference between JIF and recomputed JIF without self-cites is 22.56%.

The analysis of the maximum percentage of cites obtained by a journal from a publishing house is presented in Table 4. The analysis is made for the top 20 citing journals.

Table 4. Major citing publishers per journal

Items	Max (%)
Publisher A	37.17
From publisher … (for journal)	Publisher E (A1)
Publisher B	80.72
From publisher … (for journal)	Publisher A (B9)
Publisher C	50.42
From publisher … (for journal)	Publisher E (C4)
Publisher D	46.15
From publisher … (for journal)	Publisher A (D4)
Publisher E	80.38
From publisher … (for journal)	Publisher E (E1)

Source: Author's compilation based on Top 20 journals citing the journal by number of citations

It can be seen that the highest percentage of cites from one publishing house is registered for B9. In this case, the citing publishing house is A. As such, although the percentage is very high, it cannot be considered a self-citation and should not affect the indicators. The next maximum figure is registered for PE, journal E1. In this case, the value is 80.38% and comes from the journals published by the same editor.

The same analysis was conducted at the publishing house level. The analysis is made for the top 20 citing journals and is presented in Table 5.

Table 5. Major citing publishers per editor

Citing publisher	Cited publisher				
	Publisher A	**Publisher B**	**Publisher C**	**Publisher D**	**Publisher E**
Publisher A (%)	14.98	**29.67**	11.87	24.35	12.86
Publisher B (%)	0	11.82	0.84	0.28	1.36
Publisher C (%)	13.65	7.26	17.79	4.98	4.40
Publisher D (%)	1.85	3.65	1.98	**26.23**	0.71
Publisher E (%)	**27.76**	20.15	**20.99**	8.51	**66.94**
Average (%)	11.65	14.41	10.69	12.87	17.25
Average excluding cites within the same publisher (%)	10.82	15.18	8.92	9.53	4.83
Sum of citations	207,542	29,667	38,263	276,678	155,771
Minimum number of citations per journal	757	964	495	616	1,528

Citing publisher	Cited publisher				
	Publisher A	Publisher B	Publisher C	Publisher D	Publisher E
Maximum number of citations per journal	85,844	8697	11,055	112,955	54,431
Standard deviation	27,272.36	2,273.02	3,691.42	37,354.5	16,156.56

Source: Author's compilation based on Top 20 journals citing the editor by number of citations

The cites range from 0 (PB citing PA) to 66.94% (PE citing PE). We notice that the major publishers A and C are mostly cited by PE. Major citing journals for publishers D and E come from themselves. However, journals edited by PE are cited within the same publishing house in a percentage equal to 66.94%. This is 3.78 times more than the average of the other publishers. The largest number of citations are registered for PD, but almost half of them are for one journal. In the case of PB, it is relevant to note that the number of articles published is the smallest (see Table 1).

The only publisher citing itself less than the average is PB. As such, when computing the average that excludes cites within the same publisher, PB has the highest percentage. The biggest difference is registered for PE. Including the self-cites, it has the biggest average (17.25%), but excluding them, the percentage is 4.83, 2.3 times smaller than the average of the other publishers.

Another statistic disclosed in the JCR refers to the cited journals. In this regard, the publishers of the cited journals were extracted for the sample on which the study is based. The analysis of the maximum percentage of publishers cited per journal is presented in Table 6. The analysis is made for the top 20 journals cited.

Table 6. Major publishers cited per journal

Items	Max (%)
Publisher A	49.84
From publisher … (for journal)	Publisher A (A9)
Publisher B	70.58
From publisher … (for journal)	Publisher A (B3)
Publisher C	44.38
From publisher … (for journal)	Publisher C (C3)
Publisher D	38.15
From publisher … (for journal)	Publisher D (D8)
Publisher E	63.35
From publisher … (for journal)	Publisher A (E10)

Source: Author's compilation based on the top 20 journals cited by the journal by number of citations

It can be seen that for three out of five publishers, the most cited is PA. This is a normal result, as PA edits the largest number of journals. Publishers C and D cite mostly the journals edited by themselves.

The same analysis was conducted for the top 20 journals cited per publishing house. The analysis is performed for the top 20 cited journals and is presented in Table 7.

Table 7. Major cited publishers per editor

Cited publisher	Citing publisher					Average	Average excluding cites within the same publisher
	Publisher A	Publisher B	Publisher C	Publisher D	Publisher E		
Publisher A (%)	**32.66**	**29.58**	9.91	16.25	**26.11**	22.90	20.46
Publisher B (%)	0	16.60	1.55	0	1.41	3.91	0.74
Publisher C (%)	10.10	9.69	**27.51**	8.17	11.66	13.43	9.91
Publisher D (%)	4.17	5.33	3.27	**29.71**	2.02	8.90	3.70
Publisher E (%)	0	0.72	0	0	15.74	3.29	0.18
Sum of citations	41,404	21,607	36,340	220,634	587,562	-	-
Minimum number of citations per journal	1,005	58	715	1,280	9,391	-	-
Maximum number of citations per journal	14,846	7,818	10,066	74,383	208,389	-	-
Standard deviation	4,149.52	2,238.65	2,481,05	26,798.3	62,524.13	-	-

Source: Author's compilation based on the top 20 journals cited by the publisher by number of citations

Publishers C and D cited themselves the most. The most cited publisher is A, the first for publishers A, B, and E. The least cited is PE, with an average of 3.29% or 0.18% when excluding cites within the same publisher. PE has zero cites from publishers A, C, and D. Furthermore, PB registers very low scores, but in this case the fact that the number of articles published is the lowest should also be considered (see Table 1). The highest number of citations comes from PE, but the contribution of the top four publishers to the visibility of PE is almost zero.

4. Discussions and Conclusions

My research was driven by two questions. The first of them was: *Is the way Clarivate defines a self-cite relevant from the point of view of the assessment of the quality of the research activity?* The analysis performed on the collected data showed that the top four publishers have a maximum share of self-cites considered for the computation of the JIF of 3.67%. The percentage is 11.60% for PE. More than 50% of the citations recorded by PE in 2021 were for items published in 2019 and 2020, influencing the value of the JIF and resulting in an abnormal distribution. As compared, the average for the other four publishers included in the sample is less than 30%. When recomputing the self-cites at the level of the publisher, the

percentage is almost double for PE. Furthermore, the analysis revealed that PE cites primarily the journals published by itself, with a percentage of 66.94%. It is relevant that this percentage is 3.78 times higher than the average computed for all other publishers included in the sample. When analysing what the publishers cite, we notice that the first four cite PE in a share of 0.18%, but E cites itself in a percentage of 15.74% (87.44 times more). This shows that PE is basically excluded by the others from the main research flow. More than 50% of the articles published only by authors with Romanian affiliation in 2021 are published by PE (Csomós & Farkas, 2022). As such, this phenomenon promoted by PE through exponentially growing research publications is relevant to Romanian authorities. Through the criteria set, the government leads to a distortion of the research activities (Martin-Sardesai *et al.*, 2021). Individual or university-level action is not possible because the respective university would lose financing and the academic would be disadvantaged in his/her career.

The analysis shows that even though at the level of the entire database Clarivate states that the self-cites are not relevant (Journal self-citation in the Journal Citation Reports – Science Edition (2002) - Web of Science Group (clarivate.com)), an analysis on publishing houses is more revealing. A recommendation is for Clarivate to provide more transparent data. For example, the list of citing journals taken into account for the computation of the JIF cannot be accessed. When one clicks on the name of the journal, the publisher is not presented. Also, when searching for self-cites one cannot distinguish between cites coming from the authors.

If we agree that there are issues with the indicators provided by Clarivate to provide a 'true and fair view,' we reach my second research question: *Are the criteria relevant from the point of view of the assessment of the quality of the research activity, considering the changes that occurred in the publishing industry during the last years?* With the journals included in the sample, you can become a full professor in Romania in a domain related to Economics, even though none of them is primarily a core Economics journal (but they have Economics listed as one of the categories). The criteria to become a professor, as it is today, can be achieved in less than a month, as there are plenty of examples of scholars who publish more than four articles (which are the minimum required to become a full professor) in less than one month. As such, I wonder whether the relevance of academic research in economics is lost. From my point of view, we are in the same place as ten years ago, when the criteria promoted 'opportunistic behaviours' (Albu & Albu, 2012), such as publishing the results in Metallurgia International and declaring the results to become an accounting professor, finding creative ways to become a grant manager, etc. In the Romanian dictionary (dexonline.ro) ethics are defined as "The set of norms in relation to which a human group regulates its behavior to distinguish what is legitimate and acceptable in the pursuit of goals" (["*Ansamblu de norme în raport cu care un grup uman își reglează comportamentul pentru a deosebi ce este legitim*

și acceptabil în realizarea scopurilor"]). Do we show ethical behavior when selecting our publication outlets? Is PE and other similar publishing houses legitimate and acceptable? Is it worth for institutions to pay article processing charges, publication prizes, and performance-based salaries for these articles (Csomós & Farkas, 2022)?

The results of this research have implications for the authorities that establish criteria in economics. I envision a few solutions to regain their relevance. First, predatory journals included, for instance, in Beall's and Cabell's lists, should be excluded (Kulczycki *et al.*, 2021). Second, for the economic criteria in force, the books are recognised only if they are edited by major recognised publishers. A simple solution would be to use the same list for the journals as well. A third solution would be to rely on individual research (or indicators, such as the Hirsch-index), as opposed to team production, at least for a part of the requirements. This strategy would also discourage free riders. A fifth solution would be to require international visibility, such as attending conferences on congresses on the domain abroad, serving as a reviewer or editor for international journals edited by recognised publishing houses, co-authoring papers with international researchers, etc.

Unfortunately, another solution would be for the criteria to change dramatically. It is my understanding that they were developed with an increase in quality (as opposed to quantity) as a purpose (i.e. only ten papers and citations are taken into account). Also, they were established before the exponential growth of some publishers and before the increase in publication volumes. As such, at the moment, in my opinion, they do not achieve the purpose for which they were created. Even the proponent of the JIF considered that there are better indicators: 'It would be more relevant to use the actual impact (citation frequency) of individual papers in evaluating the work of individual scientists rather than using the JIF as a surrogate' (Garfield, 2001).

There are many things that an academic does (e.g. authoring articles published in journals indexed in other databases, such as Scopus) that are not taken into account. There is a need for new lectures, new teaching methods, etc., but the criteria give no incentive to innovate there (Martin-Sardesai *et al.*, 2021) as there is no recognition for teching. When considering the performance of a company, for instance, a stakeholder has a complete set of indicators available (the profit, the turnover, the cash flow etc.) as it is very unlikely to find one figure which can show the whole picture. This is valid for an academic as well. The criteria in force before 2016 was considering a larger range of contributions (e.g. lectures or other books published, articles in various types of journals, conferences attended etc.). Thus, in my opinion, considering a more varied set of contributions would increase the relevance of the work of an academic. Perhaps instilling the criteria of the social sciences is an avenue to be explored.

However, my data may not be complete from several points of view. For example, I could not check whether the articles cited edited by other publishers are related in any way to the authors of the articles published in the sample journals. Another limit of my research is the selection of the top ten journals for each publisher, without considering everything they edit or the domain of the journals. Furthermore, selecting the self-cites above 1% of the total citations does not offer a complete image. For a part of the analysis, Clarivate provides only the top twenty citing or cited journals. The values might have been slightly different if everything was available, but I consider that the material amounts were taken into account. In addition, I selected the JIF as a representative indicator for Clarivate, but there are other values available that might determine different results.

Another limitation of my research is the selection of journals from only five publishers. The absolute number of articles, journals, and citations per publisher varies significantly. Therefore, a comparative approach should be used to be scientifically sound in future research. Additionally, a longer time frame could be useful. However, the purpose of the article was not to discuss the activity of one publishing house, but rather the relevance of the indicators computed by Clarivate and, eventually, the assessment of our universities and of our lifetime career achievements based on them. I myself am the author of articles published by PE. I understand that there are also issues with other publishing houses (see, for instance, https://beallslist.net/#update). As an academic, I think we should be aware of the impact of our work and demand its recognition. I believe that research work is hard and the reward is not at the level of effort. Also, I do understand the frustrations we face when we wait for years on end for an article to be published in a journal issued by an important publishing house, for a review to be provided, for financing to be obtained, etc.

In the end, some questions to be considered in future research are as follows. What is the relevance of our work? Do the over 1,000,000 articles published by PE by December 14, 2022, help advance the research? Is this something to celebrate or, rather, something that raises questions for us? The purpose of research is to advance knowledge, create and maintain a market of ideas (Chersan, 2017). At the end of the day, at least in Romania, we are first and foremost educators. Does our research work help the generations we teach acquire more knowledge, or in which way does it help? Does it make us better teachers? Do we better fulfil our role as leaders of our society?

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Appendix 1. Selected bibliometric indicators for the sample journals

Category	Average	St dev	Min	Max
Publisher A				
5 Year JIF	61.76	28.22	29.61	130.84
Immediacy Index	21.31	11.55	10.14	47.43
2021 JCI	9.82	4.91	4.81	21.87
Eigenfactor	0.17	0.20	0.01	0.57
Article Influence Score	21.73	9.76	9.25	42.78
% of OA Gold	0.35	0.34	0.07	0.98
Publisher B				
5 Year JIF	16.25	6.39	9.71	31.73
Immediacy Index	3.93	3.82	1.36	13.30
2021 JCI	1.72	1.10	0.59	3.89
Eigenfactor	0.01	0.01	0.00	0.03
Article Influence Score	3.92	3.27	1.70	12.81
% of OA Gold	0.23	0.29	0.00	1.00
Publisher C				
5 Year JIF	28.42	7.50	17.88	38.10
Immediacy Index	5.57	2.21	2.42	8.33
2021 JCI	3.42	1.37	2.04	6.64
Eigenfactor	0.02	0.02	0.00	0.05
Article Influence Score	7.38	3.07	3.51	11.48
% of OA Gold	0.57	0.39	0.00	1.00
Publisher D				
5 Year JIF	57.58	98.42	12.20	334.26
Immediacy Index	15.30	33.37	2.56	109.83
2021 JCI	9.94	20.76	1.56	68.74
Eigenfactor	0.11	0.13	0.00	0.41
Article Influence Score	13.04	22.58	2.78	75.68
% of OA Gold	0.42	0.40	0.02	0.89
Publisher E				
5 Year JIF	6.45	0.70	5.71	7.89
Immediacy Index	1.13	0.18	0.83	1.53
2021 JCI	1.00	0.22	0.70	1.37
Eigenfactor	0.06	0.08	0.00	0.25
Article Influence Score	0.94	0.20	0.65	1.25
% of OA Gold	0.96	0.01	0.94	0.96

Source: author's compilation based on Journal Citation Reports