Learned societies as publishers in the international journal landscape

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Abstract

The study aims to address the place of learned society journals in the international scholarly communication landscape. To achieve this aim, we classified journals listed in the Master Journal List of Web of Science considering commercial, learned society, and university publishers based on publisher and owner data from the International ISSN Center. It helped us find collaborative journals published by two or more publisher types. The results show that publisher types differ significantly according to publication languages, regions, citation indexing, subject categories, and citation potential. These results shed light on important differences among Web of Science indexed journals and help to understand the role and collaboration of different types of publishers that shape the international publishing industry.

Introduction

The main aim of our ongoing project is to understand the place and role of journals (co)published by learned societies in the international scholarly communication landscape over the years. We aim to show the main challenges and difficulties faced by the learned society journals in the international publishing arena, including open access publishing. This preliminary study aims to address the following research questions:

- Do country of origins of journals or publication languages differ across publisher types?
- Do indexing preferences of citation indexes differ across publisher types?
- Do subject categories of journals differ across publisher types?
- Do the publisher types affect the number of citations?

According to Kiger & Evans (1963, p. 2) a learned society is "an organization composed of individuals devoted to a particular learned discipline, branch or group of disciplines in the humanities, social sciences, or natural sciences, and primarily committed to the study and acquisition of knowledge in such discipline". Learned societies offer intellectual companionship, which is a universal need for joining with peers and sharing knowledge specific to the area (Stone, 1959, p. 4). This companionship transforms the learned societies into information sources (Millson, 1978) and publishers (De Reuck, 1963). Learned societies as publishers have strong roles in disseminating national scholarly publishing and supporting disciplinary diversity in science (Late et al., 2020, p. 11).

In the past, three ways of learned society publishing were presented: (1) the society owns and publishes the journal itself, (2) the society may own the journal but employ a publisher, (3) the

journal may be owned/published by a commercial publisher, but the society appoints the editors (De Reuck, 1963, p. 197). The classification is still valid today. However, many challenges such as controlling society (Heward-Mills, 2000), costs of publishing (Waltham, 2006, p. 26), and financial sustainability (Johnson & Fosci, 2015), restrain learned society publications from being published entirely by the communities. According to Diamond Open Access Study (Becerril, Arianna et al., 2021), the main funding sources of learned societies are membership fees, but they are threatened by changes in policies or sudden crises like the COVID-19 pandemic. The report statistically shows that learned societies are the third less confident group in their financial sustainability. To handle this problem, some studies suggest closer working and partnerships between commercial publishers and societies (Roscoe, 2022), however, there are new challenges behind these partnerships: Selling prestigious community-driven journals to big commercial oligopoly publishers (Larivière et al., 2015) and also predatory buyers of these journals (Gillis, 2017). All these challenges require fast and long-term solutions to protect one of the important publication channels of science. Understanding the main characteristics of learned society journals and changes in their publication patterns over the years is vital.

Data and method

To understand the main characteristics of learned society journals and answer the research questions, we design the data collection process as shown in Figure 1.

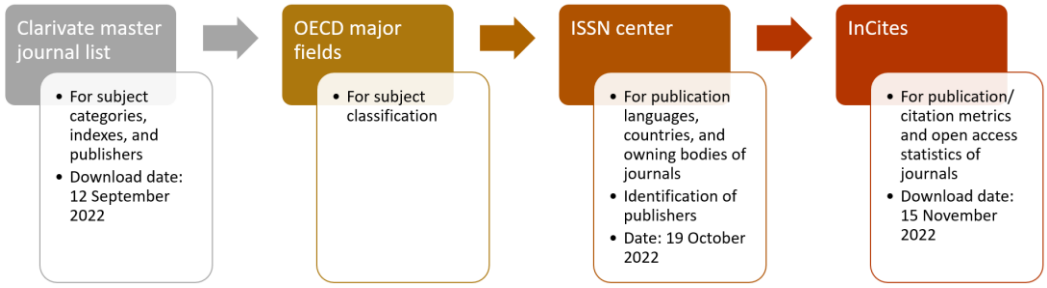

Figure 1. Data collection process and data sources.

We used different sources to gather and classify journal data. All data on the journals indexed in the Web of Science Core Collection (WoS) were downloaded from the Master Journal List (MJL) (Web of Science Group, 2022) on 12th September 2022. This includes Science Citation Index Extended (SCIE), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (AHCI) and Emerging Sources Citation Index (ESCI). The data covers basic metadata for the journals such as WoS subject categories, indexes, languages, and publishers. We classified the WoS subject categories into major fields using the OECD category scheme (Clarivate Analytics, 2012). Six major fields were determined as medical sciences, natural sciences, engineering & technology, agricultural sciences, social sciences, and humanities & art. We used International Telecommunications Union's classification to group countries by geographical regions.

Although MJL provides data about publishers, we also needed all related information on governing bodies of the journals. We sent our list to the ISSN center and requested data for owning bodies. Manual checks will be carried later in the project to establish the accuracy and up-to-dateness of the ISSN Centre publisher/owning body data. The main challenge and limitation of our study is how to classify journals into sub-classes regarding their publisher types. We classified the publishers into the following groups:

- *Commercial publishers*: There are dozens of commercial publishers in the MJL list. However, differentiating all the publishers by type is a complex work. Therefore, we

decided to use the list of "usual oligopoly of major publishing companies" provided by (Nishikawa-Pacher, 2022) and classified journals accordingly. This classification has its own limitations, such as not covering small publishers and their journals, however, we are trying to find solutions for the limitation within the context of our ongoing project.

- *Learned societies*: We checked the journals maintained by associations, foundations, societies, or communities and classified them as "learned societies journals". Different languages were considered (e.g. gesellschaft, associação). However, some languages might have been overlooked or some societies might not have these keywords in their names. We try to find solutions to this limitation of our classification method.
- *University publishers*: We classified universities, research institutes, and science academies as "university publishers". All languages were considered but with the same limitations as in the case of learned societies.
- *Learned societies and university publishers*: This class indicates collaborative governing bodies of journals including learned societies and universities but without commercial publisher support.
- *Commercial publishers with learned society support*: This class includes journals published by commercial publishers but having learned societies indicated as governing bodies.
- *Commercial publishers with university support*: This class includes journals published by commercial publishers but having universities indicated as governing bodies.
- *Commercial publishers with university and learned society support*: journals published by commercial publishers but involving both universities and learned societies as governing bodies.
- *No information*: Some publishers were impossible to determine due to some limitations such as language or unavailable information on the web. We classified these journals in our data as "no information", but we will work to solve this issue within the context of the ongoing project. We include these journals in the analyses and figures to show the difficulties of classification of publishers and the number of journals.

To answer research questions, we downloaded publication and citation metrics from InCites. We limited our search with 2021. It means articles published in 2021 and citations gathered in 2021 were considered in this study. For the next phase of this study, we plan to create a dataset that covers more years to clearly show the publication and citation potentials of the different types and combinations of publishers.

After the classification, we created a dataset for 21,886 journals. We used R Commander with kmggplot plug-in, and IBM SPSS Statistics 26 for statistical tests and visualizations. Effect sizes (Cramer V for Chi Square, and Cohen's formula (2013) for Kruskal Wallis tests) were also presented in addition to *p* values to provide more insights about the statistical tests.

Findings

Do country of origins of journals or publication languages differ across publisher types?

According to our dataset, 29% of journals have learned society support, however, only 10% of the journals are solely published by learned societies. The top share is commercial publishers, as expected. 35% of journals are published by commercial publishers, and additionally, 24% of journals have commercial publishers and community and/or university support. All these findings show the dominance of commercial publishers in the international journal landscape. Figure 2 also shows the distribution of publication languages and the geographical positions of the publishers. According to the test results, the publisher types differ according to the country of origin of journals ($\chi 2(35)=3675.129$, $p<0.001$, $V= 0.183$) and publication languages ($\chi 2(14)=4884.289$, $p<0.001$, $V= 0.334$).

One of the early findings of our study is the dominance of commercial publishers in the European and North American English language journal publishing, whereas societies and especially universities play an important role in the landscape including other regions and languages. The share of society owned/supported journals is largest in North America, Africa and Asia & Pacific. Most journals with "no information" belong to non-English language publishers from peripheral countries (Figure 2). In the next phase of the project we plan to investigate journals with "no information" more thoroughly. In 1989, Arunachalam & Manorama presented their concerns about the poor coverage of bibliographic databases for developing countries. Our study shows that after three decades, even though a regional expansion policy was implemented and ESCI was founded, the coverage of regions and languages remains limited in the citation indexes.

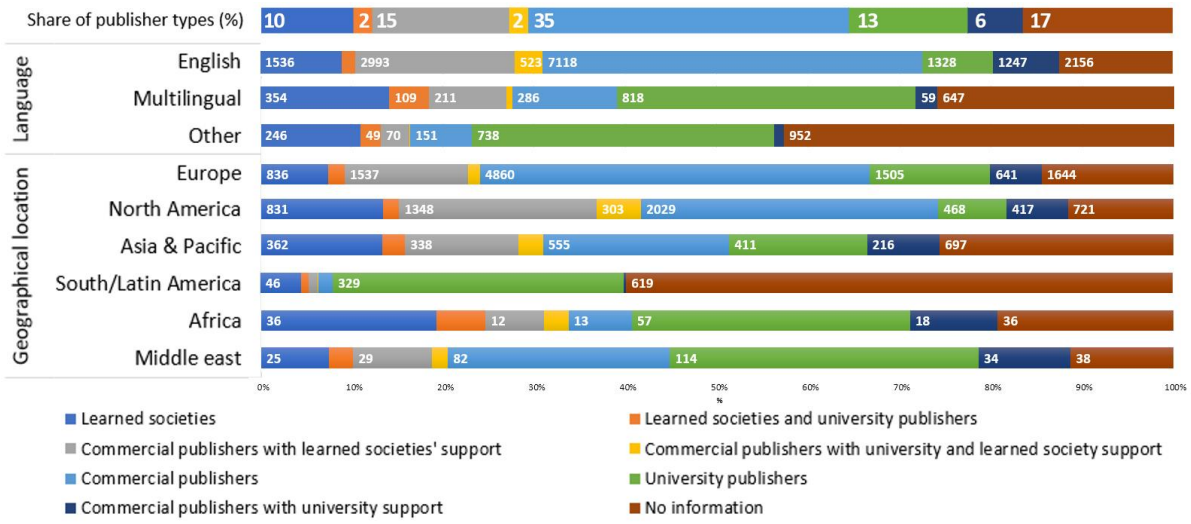

Figure 2. Distribution of journals to the publication languages and geographical locations

Do indexing preferences of citation indexes differ across publisher types?

The Figure 3 shows the indexing information of journals. The distribution of publisher types to the citation indexes is statistically significant ($\chi 2(21)=2710.271$, $p<0.001$, $V= 0.209$) when journals indexed in more than one index are excluded from the analysis. There are no large differences in distribution of learned society journals to the citation indexes but the share of journals with commercial publishers and learned society support is largest in SCIE and SSCI. University publishers have a dominant position for AHCI and ESCI indexes but it is not clear to what extent this is due to the large share of journals we currently have "no information" for. This is an important finding to differentiate university and learned society journals.

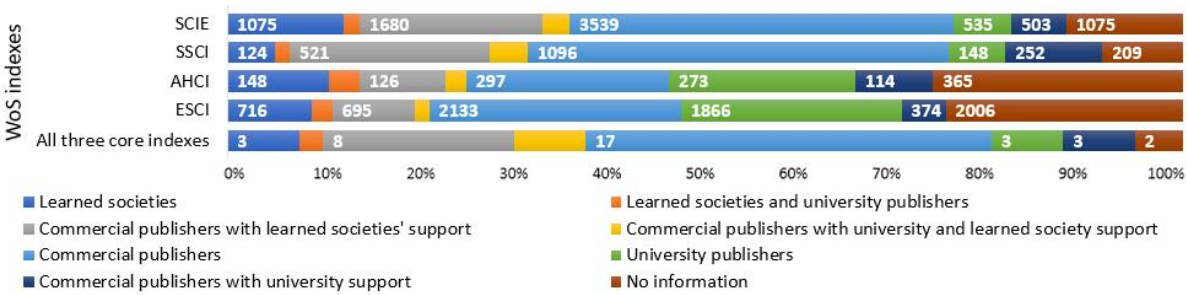

Figure 3. The distribution of the journals to WoS indexes

Do subject categories of journals differ across publisher types?

Figure 4 shows the interest of commercial publishers in pure sciences and multidisciplinary journals. While collaborative journals published by learned societies and universities distribute to the subject categories more equally and there is a considerable number of social sciences and humanities journals in this class, half of the journals owned by learned societies and published by commercial publishers are from medical and natural sciences. This finding is important to show the possibility of buying pure sciences or multidisciplinary journals of learned societies by commercial publishers. According to the chi square test results, publisher types differ according to the OECD major fields ($\chi 2(42)=2449.872$, $p<0.001$, $V= 0.137$).

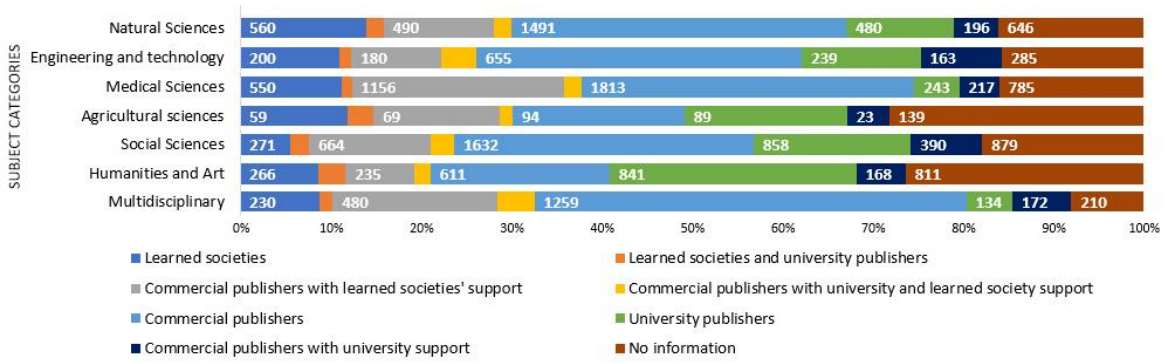

Figure 4. The distribution of journals to OECD major fields

Do the publisher types affect the number of citations?

One of the reasons behind selling the journals to commercial publishers might be the visibility and citation potential of commercial publishers. Figure 5 proves the citation potentials of journals published by commercial publishers. According to the Kruskal Wallis test results, the share of cited documents differs significantly for the publisher types ($H(7)=4204.257$, $p<0.001$, $\eta_H^2= 0.197$). The journals published by universities have the lowest shares of citations. However, our data covers only 2021 statistics, which means Figure 5 has some limitations to show the differences in scientific fields (e.g. social sciences and humanities). Therefore, more detailed analyses of disciplinary differences and skewed distributions of citations to the scientific fields are planned to be conducted in the next steps of our project.

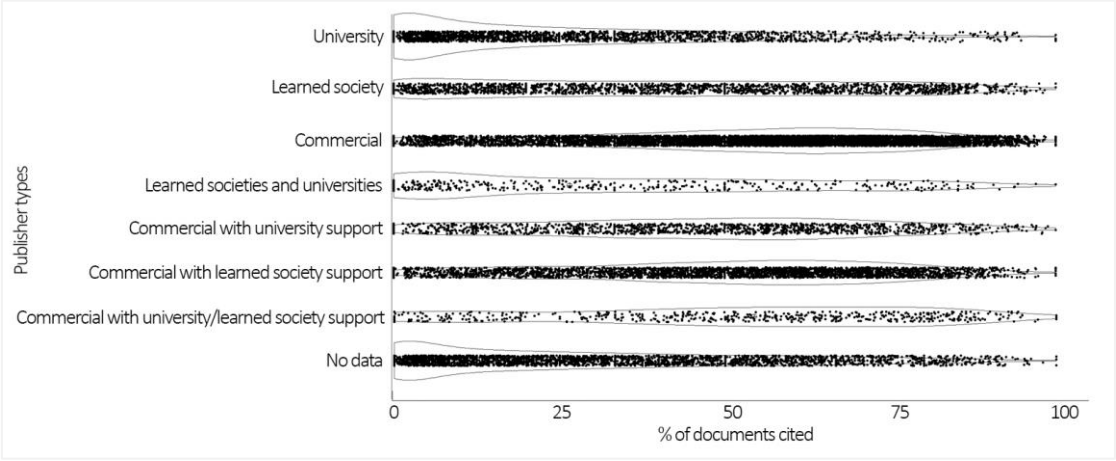

Figure 5. The violin plot showing the share of cited documents by publisher types

Preliminary conclusions

This paper presents the preliminary findings of an ongoing project on learned society journals. The focus of the research project is to reveal the challenges and characteristics of learned society journals over the years and the effects of the commercialization of the publishing sector on learned societies. According to the preliminary results, there are significant differences between commercial and learned society/university publishers in terms of publication languages, regions, indexed databases, subject categories, and citations. The future analyses of our project will help us to understand the place of learned society journals in the scholarly communication landscape, including open access publishing, and broaden our knowledge on the role of learned societies in the contemporary academia.

Acknowledgments

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