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Viewpoint

Alternative explanations for a publication paradox with gold open access

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Abstract

A paradox was observed with regard to an increase in gold open access publications despite the increase in financial constraints. While this was viewed positively by some as an indication of strategic adaptation and financial sacrifice to publish in open access journals with an impact factor instead of conference proceedings, there could be alternative explanations for the paradox. I propose views that reflect more negative issues with citations, peer review, and an arguably suboptimal mutually propagating publishing loop for gold open access publications.

Keywords:

Article processing charge (APC), gold open access (OA), impact factor, publications, self-citation

A publication paradox

Romania's 2016 research reforms have introduced rigorous publication quotas and criteria, with academics being required to publish a minimum number of articles in journals with an Impact Factor of 1 or higher, and a reduced emphasis on conference proceedings. These reforms coincided with a reduction in research funding, and Cernat's recent analysis indicated a significant decline in overall Romanian scientific production.[1,2] As a result of the reforms, there was indeed a reduction in publications in conference proceedings accompanied by an increased number of publications in online only, gold open access (OA) journals (with an article processing charge [APC]), particularly those with a distinct regional presence, but the latter could not compensate for the former.

A similar pattern was found in Ukraine,[3] Malaysia, Thailand, and Indonesia.[4] Such a general increase in gold OA-type academic papers from eastern and central European countries[5,6] and Asia[4] would be paradoxical in view of the hefty APCs and funding constraints. Such a paradox may well apply to many other countries in other geographical regions, as academic publishing via gold OA has increased worldwide. While Cernat viewed this trend negatively as it results in "a stagnation in publications in more prestigious journals,"[1,2] there are comments on his results that have a more positive take.[2] The explanation of the paradox is thus that academics/scientists/researchers in the countries concerned have strived to meet the financial burden imposed by the APCs, and despite funding reductions have nonetheless elevated the standard of their publications by writing in journals with higher impact factors instead of conference proceedings.[3] This may well have occurred in some cases, and the research evaluation reforms have indeed stimulated researchers to publish better work. However, I suggest below that there are alternative explanations, of which there are two related aspects, one pertaining to citation impact factors and the other the perceived financial burden of APC.

Alternative explanations for the publication paradox

Some gold OA journals, such as those from publishers such as Springer, Wiley, Elsevier, Frontiers and Multidisciplinary Digital Publishing Institute (MDPI), have indeed achieved astonishing growth in impact factor (Web of Science Core Collection) and Scimago Journal Rank (Scopus) over a rather short period. On the whole, analyses have shown that OA journals tend to receive higher and more diverse citations.[7] Another major reason for the quick growth of some of these journals, as gleaned from a survey conducted on MDPI, is the very much favoured quick turnaround time from submission to publication.[8] These gold OA publishers and their journals have thus quickly achieved steady rates of publication and citation, and their indexing in prime databases such as Scopus and Web of Science gave apparent prestige and facilitated bibliometric assessment of publication output for their authors and the institutions.

However, there is potentially a darker side to this growth in gold OA publications. Comments and opinions on the quality of such papers notwithstanding, it is factually apparent that some of these journals have a self-citation issue.[9,10] For example, a journal

in which more than a thousand papers in the recent 3-year period were published by Romanian authors has a staggering 47% of its citations contributing to its latest impact factor being from papers published in the journal itself.[11] Such journal-level self-citation is also an apparent issue for other gold OA journals.[12] Furthermore, there is a related issue of citation in a journal by other "sister" journals from the same publisher. This mode of inter-journal, same-publisher citation is particularly prominent for publishers that have many journal titles with broadly overlapping and poorly differentiated aims and scopes.

A study comparing country self-citations between 1996–2019 has shown that while for most countries self-citations tend to decrease over time, some countries (including Romania and Ukraine) exhibit anomalous increases, which according to the authors might be attributed to recent aggressive science policy initiatives that incentivise an emphasis on citations.[3] The issues mentioned previously would at the very least indicate that the impact factor or Scimago Journal Rank alone cannot be justifiably used to properly gauge journal quality, and that it can be manipulated or abused.[12] As such, an overall increase in publications in gold OA journals with impact factors does not necessarily mean an overall increase in the quality of work. In fact, the 2012 San Francisco Declaration on Research Assessment has urged for research papers to be assessed based on their own credit and limits rather than the journal it is published in, and to eliminate journal impact factors from research output assessments.[13]

Article processing charges shifted the financial burden from readers to authors and could in general significantly constrain one's publication in the gold OA mode. Some funding agencies/institutions have entered into agreements with the publishers to pay for these APCs, which basically redistributes the financial burden to the public. Most gold OA publishers have other ways of alleviating the APC burden from the individual authors, for example discounts or exemptions that could be granted for developing or low- and middle-income countries, which are sensible and empathetic measures. However, there are other measures that could be potentially abused. One such measure is incentives in return for peer review.

While peer review has conventionally been voluntary, several publishers have now incentivised reviewers with tokens in the form of APC discount vouchers. The APC for a paper could often be completely covered by several reviews for a publisher, a task that many might happily undertake, particularly if they do not have to labour on these personally. Of course, this need not mean that peer review quality would definitely be diminished by those working hard at peer review to earn the discount so that they could publish their own paper. However, just as there are hyper-prolific authors,[14] there are also reviewers who are in high demand with excessive loads of review requests.[15]

There can be no guarantee that the quality of the reviews would not be compromised by overloading oneself, increasing half-hearted attempts to review manuscripts that are not really within one's own area of expertise, or simply having the tasks offloaded unto others who are not exactly qualified, such as one's trainees. This potential issue would

be compounded by the already perceptible use of large language model-based generative artificial intelligences in peer review,[16] as strict rules against such practices are not yet widely declared, adopted or effectively implemented.

A disconcerting mutually sustaining/propagating publishing circle

The discussions mentioned previously on self-citation and APC alleviation could lead, albeit not inevitably, to the disconcerting hypothetical scenario below. Gold OA publishers invested in expediting their journals' editorial process to gain popularity and submissions. The way the journals operate enhances citations, particularly journal level or publisher level self-citations, which subsequently gain and inflates the journals' impact factors, thus promoting even more submissions and citations. Any financial constraint on the part of authors imposed by APCs could potentially be alleviated by several mechanisms including discounts for individuals who review manuscripts, which heighten the activities of those that seek financial defrayment in publishing their own papers, thus potentially compromising stringency if not integrity. The attainment of an impact factor by any of these journals would attract a critical mass of authors that would ensure a mutually sustaining if not propagating loop of submissions, reviews and publications.

However, such a mutually propagating and sustaining circle in publishing within the scientific community would be undesirable in at least two ways. The first is that it is all too easy for all involved to sink into a (or yet another) state of collective mediocrity, which is likely what Cernat was referring to as a "... significant decline in overall scientific production following the intervention".[1] The second is that such a loop could be unstable, and its breakdown would be rather disruptive for individual authors. The Web of Science (Clarivate) has delisted a good number of OA journals from multiple publishers[17] and has recently suspended the indexing of high-volume journals, including *Heliyon, Cureus* and *Bioengineered*. What such delisting and suspensions mean is that until reinstatement of indexing status, a journal would no longer receive an impact factor. Such a disruption could leave those who have recently published or have manuscripts under review in the journal and those intending to do so soon in disarray, particularly those whose portions of publication track records associated with the journal could significantly impact timely career advancement.

There are different, often polarising, perspectives of the gold OA phenomenon, and one that either credits its contribution to open science,[18,19] or its prompting of academics to strive to publish higher quality papers even when under financial constraints,[3] has merits in general. However, to fully evaluate the benefits of gold OA would entail considerations on issues

that include self-citations, potentially inflated impact factors, questionable resolutions to the APC barrier and the mutually propagating publishing loop that have been discussed previously, none of which are particularly conducive to true academic well-being.

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