# Publication incentives based on journal rankings disadvantage local publications

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The effect of globalisation on knowledge exchange, which is mediated very largely through scientific journals published in English that have their origins in Europe and North America, has resulted in the neglect of regional journals.[1] Analyses of publication output and citation impact of about 200 South African journals showed that the vast majority of local journals were virtually invisible within the global science arena.[2] These and related concerns have resulted in various nationally led incentive schemes to promote South African research.

The government's incentive system works through the Department of Higher Education and Training (DHET) by funding universities for articles published in accredited journals or other accepted publication outlets (books etc). The DHET does not currently differentiate between national and international publications and will award the subsidy if the publication appears on one of its accreditation lists for journal articles. Research incentive systems are believed to be one of the drivers of the increase in paper publication numbers in South Africa.

Institutions may decide how the incentive funds are spent. Some use the money for general research funds, while others give a proportion to the faculty. In the latter case, funds may be further divided between the faculty and the author. Several universities have adopted the DHET policy and procedures for measuring research output and rating and rewarding researchers for publishing papers, although there is considerable variation in how incentive funding is spent within institutions. North-West University offers larger rewards for articles in internationally published journals than local journals, while University of Cape Town offers no direct financial incentives to academic staff to publish in international or local journals. Stellenbosch University offers ~10% of the subsidy to the authors, with no distinction between journals. At the University of Johannesburg, a minimum of 70% is paid to the researcher for publication in international journals while a maximum of 30% accrues by the faculty, and in the case of DHET-accredited South African journal articles, of the subsidy transferred to the faculty, a minimum of 50% goes to the researcher and a maximum of 50% to the faculty. While most other universities pay a flat fee for publication, all actively encourage academic staff to publish in international journals because of NRF scoring criteria and, by extension, discourage them from publishing in national journals that are frequently also society journals.

This Commentary was prompted by learning that the University of KwaZulu-Natal (UKZN) will be implementing graded financial incentives to authors based on the Scimago Journal Rank (SJR) indicator quartile system. SJR is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance, or prestige, of the journals from which such citations come: higher SJR values are meant to indicate greater journal prestige. Journals are then categorised into quartiles depending on this index and academic category, with journals in Q1 and Q2 associated with greater prestige (and, in the case of UKZN, higher financial incentives) than those in Q3 and Q4.

The SJR indicator is a variant of the eigenvector centrality measure used in network theory. Such measures establish the importance of a node in a network based on the principle that connections to high-scoring nodes contribute more to the score of the node. SJR is now considered an alternative to the well-established journal impact factor (IF), because of its open-access nature, larger source database, and assessment of the quality of citations.[3] Our issue is with the definition of prestige, as algorithms have a particularly problematic history of processing information about race.[4]

To investigate this concern we examined the database of rated journals available at https://www.scimagojr.com/journalrank.php?out=xls. We selected only journals ($n$=23 226). An examination of SJR as a function of IF (listed as citations per document) using a negative binomial generalised linear model (even the log-transformed distribution of SJR displayed this distribution) showed a very strong effect (an increase of log(SJR+1) of 0.12±0.001 per IF score, z=84.66, $p$<0.001). However, there is a large amount of spread in the residuals, partly a consequence of very high SJR scores for only a handful of journals.

A straightforward analysis of South African local journals was not forthcoming using the ScimagoJR database, as only 82 journals are attributed to South Africa: several local journals hosted in partnership with international publishers are listed as international, for example Taylor and Francis co-hosts *Ostrich* and *African Zoology,* the journals of BirdLife South Africa and the Zoological Society of Southern Africa, respectively. Nevertheless, SJR scores are negatively weighted for this set of journals (-0.62±0.24, z=-2.62, $p$=0.009). Of greater concern, for a subset of journals for which the title contained the word 'Africa' or its derivatives ($n$=162), SJR was also negatively weighted (-0.53±0.16, z=-3.32, $p$<0.001). By contrast, journals that contained 'America' or derivatives in their title ($n$=434) had higher SJR scores (median of log(SJR+1) for America = 0.42; Other = 0.27; $p$<0.001, Figure 1). The comparatively low scores for African journals may not only be a consequence of low visibility, but also perceptions of quality (see below).

Our concern is thus that financially weighted national incentive schemes based on SJR will further disadvantage locally published journals by effectively leaving local journals with the 'leftovers'[5] and encouraging an institutionalised acceptance of intellectual colonialism, i.e. academics are encouraged to publish local research in high impact factor journals based overseas. In cases of author-pays models of open access (e.g. *PLoS One*), South Africa incurs a double whammy of not only exporting our research, but of paying dearly for the privilege to do so.

The importance of local journals cannot be overstated. Local research and management organisations, and even government, are usually aware of their existence and can easily keep tabs on articles they publish. By contrast, articles published overseas can be lost in what amounts to academic point scoring. As a real example, a BirdLife

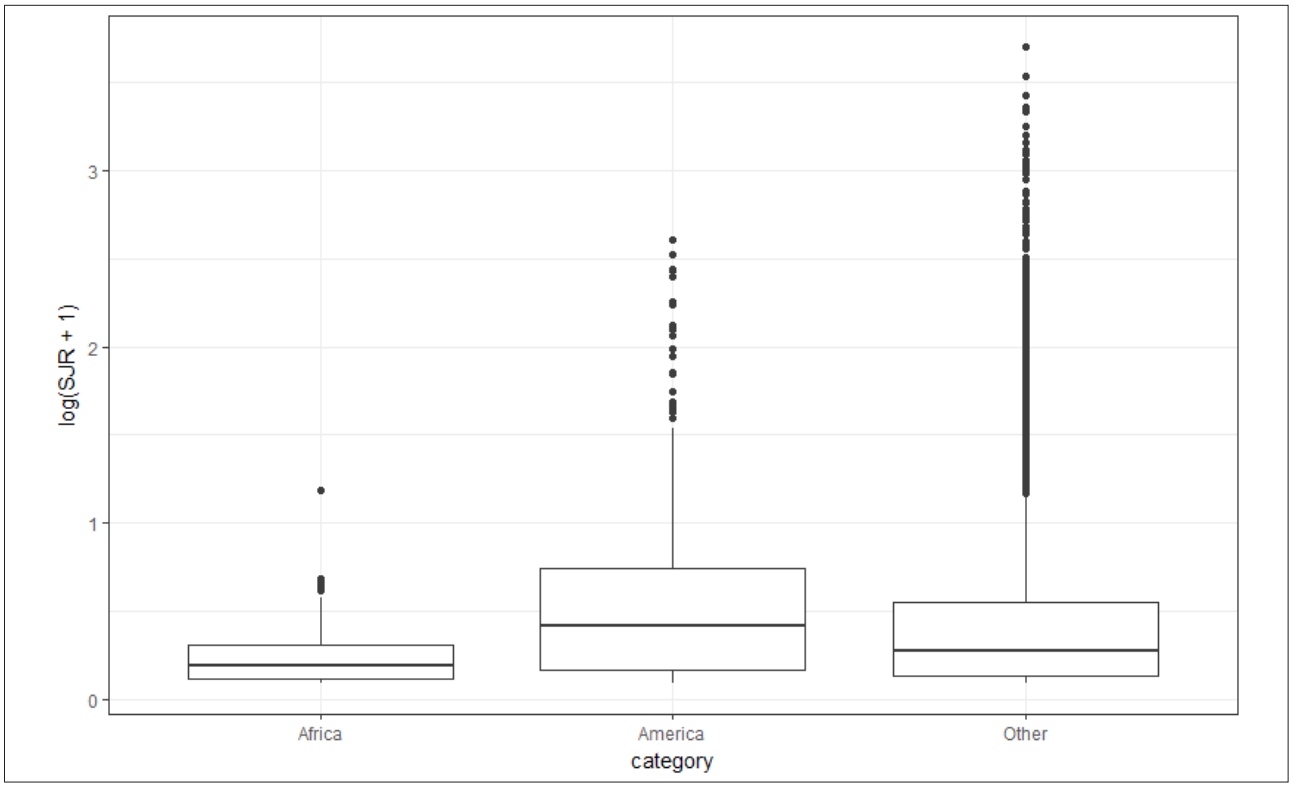


**Figure 1:** Box plots of log-transformed SJR scores for different journal categories: those containing 'Africa' in the title; those containing 'America' in the title, and the group of other journals. Journals with 'African American' in their titles ($n=4$) are included in the 'Africa' category.

South Africa regional division had recently embarked on a monitoring exercise to determine vulnerability of a target set of birds, only to discover later that similar information was already published abroad.[6] This information had not been brought to the attention of the local organisation, and this certainly cost the organisation time, if not money.

Similarly, focused journals should allow readers and researchers to understand themes, trends, and knowledge gaps. This is far more difficult to undertake when research is scattered to the diaspora of available international journals. Again, to illustrate this point, the conclusions of a recently published article, entitled 'Trends and themes in African ornithology'[7], were based on a meta-analysis of five journals which were identified to have an African ornithological focus. This article was criticised by some who pointed out that South Africa's top ornithologists were not represented in the review as they publish in ad-hoc high impact factor journals.[8] In his response, Beale[9] raises concern regarding 'scientific colonialism' and the lack of on-the-ground support for local researchers – sentiments echoed by Cresswell[10].

The local scientific community is further harmed by the reluctance of top local researchers to publish locally when the journal in question is published by a scientific society. The main objectives of scientific societies include promoting, facilitating and encouraging research within a discipline[11] (e.g. ZSSA constitution, 2017). Thus, income generated from society journals is usually ploughed back into the research community.[11] This scenario is clearly illustrated when considering *African Zoology* – a journal which generates most of the income for its parent society, the Zoological Society of Southern Africa. This income is used to provide each society member with a subscription to the journal, seed money to organisers of the biannual conference and financial support for students to attend these, and sometimes international, conferences. In addition, the best undergraduate final-year and honours students in zoology, as nominated by their institutions, are awarded free membership to the society for a year. Income for the society, and consequently the services that it may provide for the community, increases with an increase in the number of quality articles published in their journal. For example, one of the most highly cited and viewed papers in *African Zoology* is a review paper published in 2011. To date, it has been cited 90 times, and, in 2017 alone, it received 1008 hits on BioOne, which generated income equivalent to the cost of the prizes of free membership for undergraduate and honours students for up to 2 years.

Impact factor and similar indices are important as indicators of the quality and reach of journals, but conditions leading to initial journal IF may have changed, and instead now persist as a result of perception rather than quality: in effect, an impact factor trap. Previously, many journals published in Africa and other developing regions were not very visible in developed countries because they were not indexed in the bibliographic databases that are largely produced in developed countries.[2,5,12] Historically, international readers struggled to access journals published in Africa and other developing countries,[5,12] meaning that even high quality research would not be as widely read and cited as it deserved. Furthermore, society journals (which account for several local journals) publish information that may be of high quality, but not with high immediate impact, thus reducing the contribution that citations of these publications may have on the journal impact factor.[11] These factors would have contributed to the low impact factors achieved by such journals. As more local researchers published in international (glam) journals, local journals were essentially left with the 'leftovers',[5] making it increasingly difficult for local journals to attain high impact factors. However, many local journals are now published by, or in partnership with, international publishing houses, or are open access, so limited access to regional journals is no longer relevant. Initiatives such as African Journals Online promote easy access to African content.[13] In a review of the trends of 17 South African journals ranked by Thomson Reuters (now Clarivate Analytics) Journal Citation Reports®, 11 of these improved their impact factors between 2002 and 2009, albeit not enough to change quartiles for the most case.[14] The point is, the factors that may originally have contributed to the low impact factors of local journals are not the factors that are now discouraging authors from submitting high quality research to them. Thus, local journals are still faced with a difficult task (attracting research away from glam journals), now made

impossible with financial incentives to authors scored only on impact factor or SJR. It is certainly already the case that at a department of the University of Pretoria which implements an economic incentive scheme to authors scaled by IF, some researchers there are reluctant to publish in *Ostrich*, despite requests to do so and even though *Ostrich*'s impact factor has been increasing over recent years.

We realise that scaled financial schemes are being considered given concerns that the DHET research output subsidy model may inadvertently penalise high-citation publication[15], and that the current subsidy model has led to what has been called 'an overabundance of weak journals'[16]. African journals need to be given more time to play catch up with international journals before institutional graded incentives are introduced. Should academic institutions wish to pursue graded financial incentives for authors, we advocate that 'local' needs be recognised. This could easily be done by up ranking current quantile categories (e.g. a local Q2 journal could be Q3), or using an alternative ranking system e.g. altmetrics[17].

We finish by reminding readers of the first recommendation from the ASSAf 2006 report[1]:

> *Recommendation no. 1: that all stakeholders in the South African research enterprise should each in their own way support local/national research journals that actively seek to be of international quality and are indexed in an internationally recognised, bibliometrically accessible database, through following best practice in editorial discernment and peer review, including adaptations.*

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## References

1. Academy of Science of South Africa (ASSAf). Report on a strategic approach to research publishing in South Africa. Pretoria: ASSAf; 2006. Available from: https://www.assaf.org.za/files/2011/02/2466-ASSAF-Strategic-approach-to-research-publishing-2.pdf
2. Tijssen RJ, Mouton J, Van Leeuwen TN, Boshoff N. How relevant are local scholarly journals in global science? A case study of South Africa. Res Eval. 2006;15(3):163–174. https://doi.org/10.3152/147154406781775904
3. Falagas ME, Kouranos VD, Arencibia-Jorge R, Karageorgopoulos DE. Comparison of SCImago journal rank indicator with journal impact factor. FASEB J. 2008;22(8):2623–2628. https://doi.org/10.1096/fj.08-107938
4. Sandvig C, Hamilton K, Karahalios K, Langbort C. Automation, algorithms, and politics| when the algorithm itself is a racist: Diagnosing ethical harm in the basic components of software. Int J Commun. 2016;10:19.
5. Gibbs WW. Lost science in the third world. Sci Am. 1995;273(2):92–99. https://doi.org/10.1038/scientificamerican0895-92
6. Barshep Y, Erni B, Underhill LG, Altwegg R. Identifying ecological and life-history drivers of population dynamics of wetland birds in South Africa. Glob Ecol Conserv. 2017;12:96–107. https://doi.org/10.1016/j.gecco.2017.09.001
7. Beale CM. Trends and themes in African ornithology. Ostrich. 2018;89(2):99–108. https://doi.org/10.2989/00306525.2017.1407834
8. McKechnie AE, Amar A. Missing the bigger picture: A response to Beale (2018). Ostrich. 2018;89(2):151–152. https://doi.org/10.2989/00306525.2018.1467979
9. Beale CM. Missing the bigger picture: Reply to McKechnie and Amar (2018). Ostrich. 2018;89(2):153–154. https://doi.org/10.2989/00306525.2018.1471646
10. Cresswell W. The continuing lack of ornithological research capacity in almost all of West Africa. Ostrich. 2018;89(2):123–129. https://doi.org/10.2989/00306525.2017.1388301
11. Schloss PD, Johnston M, Casadevall A. Support science by publishing in scientific society journals. Am Soc Microbiol. 2017;8(5):e01633–e01637. https://doi.org/10.1128/mBio.01633-17
12. Lor PJ, Britz J. Knowledge production from an African perspective: International information flows and intellectual property. Int Inf Lib Rev. 2005;37(2):61–76.
13. Smart P. Increasing the visibility of published research: African journals online. Afr Today. 2005:39–53. https://doi.org/10.1353/at.2006.0018
14. Pouris AE, Pouris A. An assessment of South Africa's research journals: Impact factors, Eigenfactors and structure of editorial boards. S Afr J Sci. 2015;111(3-4), Art. #2013-0358, 8 pages. https://doi.org/10.17159/sajs.2015/20130358
15. Harley YX, Huysamen E, Hlungwani C, Douglas T. Does the DHET research output subsidy model penalise high-citation publication? A case study. S Afr J Sci. 2016;112(5–6), Art. #2015-0352, 3 pages. https://doi.org/10.17159/sajs.2016/20150352
16. Koenig R. A call to improve South Africa's journals. Science. 2006;312:831. https://doi.org/10.1126/science.312.5775.831b
17. Onyancha OB. Altmetrics of South African journals: Implications for scholarly impact of South African research. Pub Res Q. 2017;33(1):71–91. https://doi.org/10.1007/s12109-016-9485-0