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## Payouts push professors towards predatory journals

If South Africa truly wants to encourage good research, it must stop paying academics by the paper, says David William Hedding.

When my university announced the publications that qualified for South Africa's research-output bonuses for 2018, a colleague congratulated me for the payout I would receive, not for the quality of the science I had produced. This encounter made me realize, yet again, that something is very wrong with the research system in my country.

Predatory journals accept papers (and collect publication fees) regardless of quality. A 2017 analysis of predatory journals in the database Scopus found that the share of publications in such journals by South African researchers was roughly five times those for the United States and Brazil, and two-and-a-half times that for China, which is frequently criticized for boosting publication numbers in inferior journals (see [go.nature.com/2tecsqx](http://go.nature.com/2tecsqx)).

Why are South Africans relying so much on journals that do little or nothing to ensure quality? In an effort to boost academic productivity, the country's education department launched a subsidy scheme in 2005. It now awards roughly US\$7,000 for each research paper published in an accredited journal. Depending on the institution, up to half of this amount is paid directly to faculty members. At least one South African got roughly \$40,000 for research papers published in 2016 — about 60% of a full professor's annual salary. There is no guarantee (or expectation) that a researcher will use this money for research purposes. Most simply see it as a financial reward over and above their salaries.

South African publications listed in the Scopus database each year more than doubled in the decade after the payout programme began. But the number of publications by South African researchers in predatory journals jumped more than 140-fold in the same period (J. Mouton and A. Valentine *S. Afr. J. Sci.* **113**, 2017-0010; 2017). Clearly, many researchers in South Africa are being forced to choose: cash or quality?

The most obvious problem is inadequate accreditation of journals. South Africa's Department of Higher Education and Training (DHET) typically extracts qualifying publications from journal databases such as the ISI Web of Knowledge, although it accredits some journals independently. The proliferation of predatory journals (plus the fact that many adopt titles similar or identical to those of credible outlets) means that some predatory journals creep onto the accredited list, even though the process has become more stringent. Many researchers, especially early-career ones, remain unaware of the pitfalls, and the DHET is inadvertently training them not to care — because such publications can win funds for them, their universities and their research.

Another problem is how the funds are disbursed. Subsidies are split on the basis of the number of authors from each institution. This discourages collaboration with researchers from different institutions and countries. That could reduce the impact and dissemination of the resulting

research: collaborations that span institutions and nations tend to be more highly cited. An informal study of more than 800 articles published by health-science researchers at the University of Cape Town found a negative correlation between subsidies and both citation counts and field-weighted citation impact (see [go.nature.com/2qbdouw](http://go.nature.com/2qbdouw)).

In my experience, publication subsidies promote several other counterproductive practices. Some researchers salami-slice their research to spread it across more papers. Others target low-quality journals that are deemed less demanding.

In short, subsidies corrode the quality of scholarship in South Africa. China went through the same cycle — paying researchers per paper and seeing poor-quality publications soar. Its leading academies and universities are now rowing back from the practice.

My critics will say that publication payouts are an important revenue stream for universities. Fine; universities can retain their portion of the subsidy money, based on publication in accredited journals, and redirect the funds to two measures that really do promote better research.

First, our universities must boost the academic community by setting up more postgraduate-student fellowships. The cost of university education in South Africa sparked nationwide student protests in 2015. The #feesmustfall movement led to the announcement of free higher education for poor and working-class students starting from 2018, but it is limited to undergraduates. South Africa aims to graduate 5,000 PhDs a year by 2030, but this will require increases in funding. Right now, many master's and doctoral students must work part-time to survive. In 2016, 2,797 PhDs graduated from public institutions in South Africa (very few private institutions in the country offer them).

Second, the per-paper bonus fund should be reallocated to extend and develop in-depth researcher-evaluation programmes. These enable hiring and promotion committees to recognize quality. An exemplar is the South African National Research Foundation's Incentive Funding for Rated Researchers Programme, which benchmarks a scientist's publications and other outputs over eight years. I believe this programme has done much to boost productivity and, more importantly, quality in South African research. (I am rated under the programme.) However, funding was slashed in 2017 owing to budgetary constraints.

Calling for an end to subsidies is not going to make me any richer, or more popular with my academic compatriots, at least not in the near term. But if South Africa hopes to drive innovation, it must stop publication payouts — they are the enemy of research quality. ■

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