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## Will others follow China's switch on academic publishing?

Guillermo J Creus 21 March 2020

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The 1 March edition of *University World News* brought two important articles on the **Chinese government notice** on academic publication and research funding.

China is today second in the world for research papers published in international journals, behind the United States. Now, after years of demanding researchers publish in international journals, China's Ministry of Education and Ministry of Science and Technology released a document aiming to **reduce its excessive reliance on the Science Citation Index (SCI)** for academic promotions, job offers and allocation of research funding.

The move was first mooted by President Xi Jinping during a national education conference in 2018, when he said academic standards in higher education institutions could not just be led by Western standards and stressed that China should have its own academic standards and norms. The aim was to establish an evaluation system to stimulate research that could be used to solve Chinese problems.

In the future, Chinese scientists will still be encouraged to publish outstanding work in leading international journals (such as *Nature*, *Science* and *Cell*), but research that appears in less influential journals in the SCI index will no longer attract government funding.

Thus, for research in basic disciplines, evaluation will focus on the originality and scientific value of the research papers, not on their number. And applied research and research for technological innovation will focus on the actual contribution to social and economic development.

### Scientific publishing

After the Second World War, research entered a period of unprecedented growth. Science became a byword for innovation, particularly in relation to defence because it was the beginning of the Cold War. The government emerged as the major patron of scientific endeavour in the United States and in most nations, funding both research and research publications.

Despite the narrow audience for such papers, **scientific publishing is a remarkably big business**. With total global revenues of more than £19 billion (US\$23 billion), it weighs in somewhere between the recording and the film industries in size, but is far more profitable.

In 2010, Elsevier's scientific publishing arm reported profits of £724 million on just over £2 billion in revenue. This was a 36% margin – higher than Apple, Google or Amazon posted that year.

Publishers created an impact factor (Science Citation Index) as a rough calculation of how often papers in a given journal were cited in other papers. For publishers, it became a way to rank and advertise the scientific reach of their products.

Scientists who published in high-impact journals were rewarded with jobs and funding. And, as more papers meant more profit, the publishing houses were ready to allow more space for regular papers, making their quality criteria more friendly. As a consequence, the cost of financing the system has placed a heavy burden on many

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universities and research centres.

And there is another negative aspect. In the present context, given a choice of projects, a scientist may reject the long and risky pursuit of an important result in favour of a middle ground: a topic that is popular with editors and likely to yield regular international publications. And many research lines which are internationally popular are not of real importance for most countries, particularly those classified as emergent.

China is looking at science as the source of innovations that will result in economic and social development. This is the idea behind the motto: Research funding is not an expense but an investment. Thus, after building a strong scientific establishment in a record time, the Chinese seem now to be taking strong measures in a new direction.

This move may be followed by the governments of other countries, particularly those in developing countries, which have particular needs in the areas of health, security, energy, transportation and housing, which can be tackled by local research.

#### **A clever move?**

The growing cost of scientific publications, many of them redundant, represents a real problem both for scientists and for public research institutions.

A well-controlled **open access alternative**, as proposed, for instance for the European Open Science Cloud, is a possible solution to this difficult and expensive process. Artificial intelligence may also be of use to select and classify the best contributions.

At the present time, the Chinese proposal seems to be a clever idea. It will monitor the cost of research and the number of publications without hindering the growth of the best scientific ideas, stressing quality over quantity and addressing new intellectual efforts toward the solution of practical economic and social problems.

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