

China seeks to showcase research clout by building its own publishing realm

A bid to be self-reliant and set its own agenda might explain concerted push to produce homegrown journals. **By Brian Owens**

Over the past two decades, China has risen to become the world's largest producer of scientific knowledge. According to Digital Science's Dimensions database, last year there were almost 830,000 papers featuring researchers based in China, representing around 15% of the world's 5.4 million articles. In 2022, the country overtook the United States in the Nature Index for contributions to natural-sciences articles for the first time. The majority of this research was disseminated in journals published by companies based in Western countries, rather than China's own domestic publishers. The biggest 20 international publishers by output published 83% of all research articles involving authors based in China from 2012 to 2021.

"China's journals are generally not that high-profile, so Chinese researchers tend to publish in international journals," says Nicko Goncharoff, managing director of the London-based company Osmanthus Consulting. Goncharoff co-authored a 2023 report on the scientific-publishing market in China.

China is making efforts to reverse that trend by launching several initiatives to build its portfolio of domestic academic journals. Those changes, albeit slow, could not only transform China's publishing sector, but also have major effects on how international scientific collaboration is conducted and communicated.

Part of the motivation for this is economic. China spends more than US\$1 billion on scientific publishing each year, and that expenditure is growing fast, with the rise of 'gold' open-access publishing models, in which authors are charged article processing charges (APCs) by a journal to get their papers published. APC spending in China has increased, on average, by 25% per year from 2017 to 2020. Around 90% of that money went to international publishers. "China is looking for a way to capture a portion of that APC spend that is currently going to international publishers," says Goncharoff.

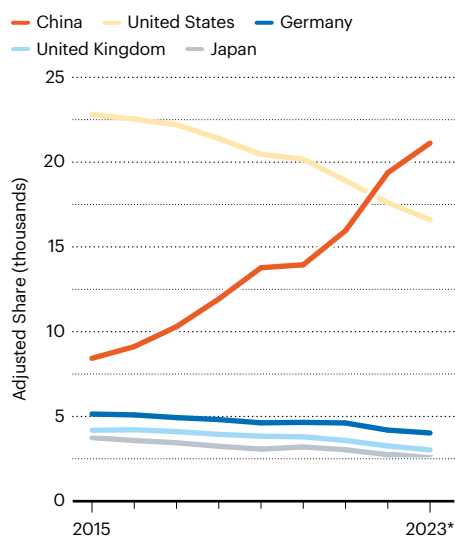
But Lili Yang, a higher-education researcher at the University of Hong Kong, says China is also motivated by a desire to move away from Western-dominated agendas in science and

encourage more research that better serves the country's needs. "To meet [international journals'] expectations, our research might not directly tackle local issues and topics," she says. So, the Chinese government and the country's research institutions hope domestic journals can help researchers "connect with local communities and domestic issues better".

Beyond that, China wants to become more active in helping to shape how the global academic-publishing system works, and not always be following models and rules set up by Western countries, she says.

RAPID RISE

China overtook the United States for its contribution to natural-science journals tracked by the Nature Index in 2022 after a steep rise in its adjusted Share over the past eight years. The only blip was from 2019 to 2020, a year impacted by the COVID-19 pandemic.



*Data for 2023 represent the period August 2022–July 2023.

Journal plans

Reforming China's fragmented publishing sector will be a major undertaking. In 2020, the latest year for which data are available, 4,963 journals were published by 4,261 publishers, 96% of which publish a single journal. Just 375 of those journals are English-language

and 184 are in English and Chinese. Of these, just a handful have any international impact, says Goncharoff.

Most efforts at developing domestic publishers have had modest success. The most recent initiative, and most consistently funded and supported, is the China Journal Excellence Action Plan (CJEAP). Launched by the government in 2019, the CJEAP is a five-year plan that aims to create a portfolio of 400 world-class journals owned by Chinese institutions. The first tranche of 285 journals was announced in late 2019, with funding of 205 million yuan (US\$29 million). Another 30 journals were announced in July 2020 and September 2021, and a further 50 in September 2022. The plan includes extra support such as a digital publishing platform and a training programme to develop local publishing and editorial talent.

Being selected for support under the CJEAP is not easy, says Shu Fei, who studies scholarly communication at Hangzhou Dianzi University in China. "It requires an ambitious plan for improvement, and to be indexed in the Web of Science within three years," he says. That indexing can be difficult to attain if the journal is not affiliated with a top university or the Chinese Academy of Sciences, the country's largest research institution, in Beijing. One journal Shu is involved with, which he helped launch in 2021, has so far been unsuccessful in its attempts to become part of the CJEAP, he says.

Indexing in the Web of Science, a database of research publications owned by US firm Clarivate, is seen as a mark of quality for journals in China, says Shu. "If you're not indexed, you have no attraction for Chinese scientists," he says. Only 2–3% of journals in the index are published in China, so increasing that presence is a major goal of the Chinese government, says Shu.

So far, China has kept to its schedule of selecting new journals for the CJEAP, but progress on improving quality and impact has been intermittent, says Goncharoff. However, "once they put their mind to something, sooner or later, it gets done".



One way for journals to kick-start their growth under the CJEAP is to partner with international publishers, a practice that is common for Chinese journals that are seeking more global impact. Because of the relative lack of publishing expertise within China, most of the country's English-language journals are published in partnership with international publishers, which provides Chinese institutions with access to technology and expertise. The Chinese partner, usually a research institute or university, retains copyright and editorial control, and the foreign publisher gets to maintain a foothold in the country, says Goncharoff. Between them, the major publishers, Springer Nature and Elsevier, publish more than 200 China-based journals. (Nature Index's news and supplement content is editorially independent of its publisher, Springer Nature.)

The CJEAP is not the only tool that China has to develop its domestic publishing system. The government can also use its influence to dictate where researchers publish, says Goncharoff. Over the past five years or so, the country has been working to reform its research assessment and academic promotion systems,

moving away from rewarding scientists on the number of papers they publish to a more nuanced evaluation based on quality that is similar to those used in many other countries, says Yang. According to Goncharoff's report, researchers focused on basic science are now assessed on 'representative works', of which at least one-third must be published in domestic journals with international influence, with the rest published in top international journals or presented at major international conferences. "They are trying to encourage more Chinese publications," says Yang.

Many Chinese funders, research institutes and universities maintain lists of preferred journals and 'warning lists' of ones to avoid. As these directly reflect the wishes of the government and the researchers' employers, these lists have a big influence on where scientists publish and the publications to which libraries subscribe.

"These lists are very important," says Yang. When assessing researchers for promotion, "universities will often have specific requirements" for how many publications were in journals deemed to be of a higher level, she

says. "So, to meet that bar you need to benchmark against the preferred lists."

One particularly influential list is the Chinese Academy of Sciences' Early Warning List, which aims to identify journals that are viewed as having poor management, a lower academic reputation or favouring commercial interests. Launched at the end of 2020, the list evaluates journals based on a number of criteria that have included self-citation rates, retraction rates, the cost of APCs and, most recently in 2024, citation manipulation. The first iteration of the list included 65 journals; the 2024 version had just 24, with only two remaining from the original list.

Yang says Chinese universities pay close attention to the Early Warning List, and papers in listed journals risk not being counted for assessment and promotion, or worse, can damage an author's academic reputation. This has had a major impact on the journals, with some seeing submissions from China decline by as much as 70% within six months of being listed, as well as an increased number of requests to retract submissions and China-based editors stepping down from editorial boards.

Access issues

One aspect of publishing that China seems less interested in pursuing is open access. The country produces hundreds of thousands of open-access articles each year, and the total is growing fast, but as a proportion of all research output, it remains lower than the rest of the world: just under half of China's 2022 articles were open access, according to data from Dimensions, compared with 65% for non-China papers. There are only around 178 English-language open-access journals published in China, just 0.9% of the total registered in the Directory of Open Access Journals – although this does not include all of the journals that are co-published by Chinese and international organizations.

Although the Chinese government and many leading institutions officially support open access, they remain suspicious of it, says Goncharoff, especially the trend towards gold open access. “China is quite resistant to gold open access. They see it as a Western business model that is being foisted on them,” he says. The gold model could be costly for China. Goncharoff estimates that if most publishing shifts to gold open access, China might have to spend three to four times more on APCs than it does now, even with some declines in subscription costs.

In an effort to control rising costs, there has been much discussion in China of what ‘reasonable’ APCs would be. There is funding available for Chinese researchers to pay APCs, but if the cost exceeds about US\$2,800, it must be reviewed by an academic committee. Some universities have started rejecting any APC above US\$2,000, and there are suggestions that a reasonable APC is around US\$1,200.

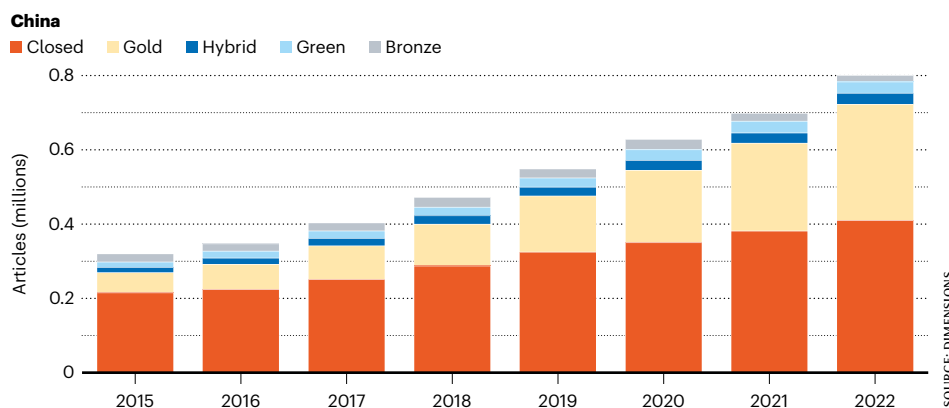
Chinese universities talk about making transformative agreements, which are designed to gradually shift publishers from subscription to open-access models, cost neutral. This could seriously hit the profits of international publishers because many Chinese institutions have already been able to negotiate deep discounts on subscriptions, says Goncharoff.

Given the reticence around open access, neither Goncharoff nor Yang expect China to introduce a national policy on it anytime soon. But the country is pragmatic about the direction of travel in global publishing, says Goncharoff. Every journal supported by the CJEAP offers open-access options – some gold, but many diamond, where the costs are covered by a publisher or a sponsoring institution.

It is not clear whether, or how, China's efforts to boost domestic journals will affect international scientific collaboration. It will probably play out differently according to the type of Chinese institution, says Simon Marginson, a higher-education researcher at the

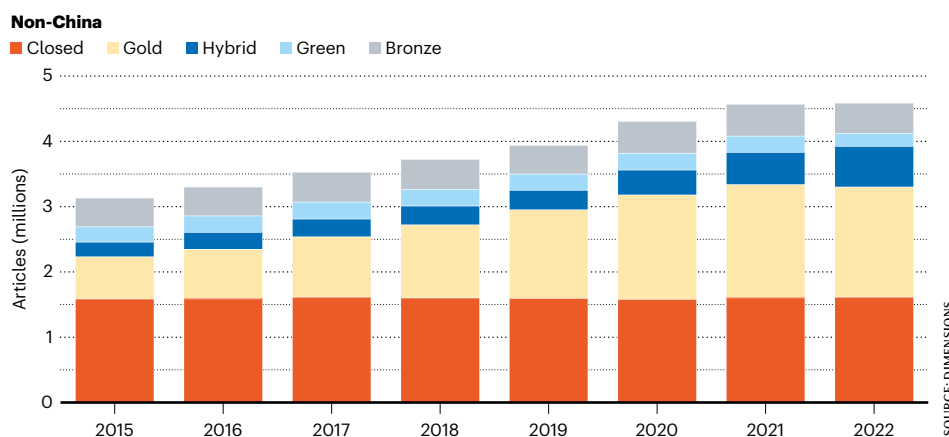
GOLD GROWTH

The proportion of China's research articles that fall into one of four open-access types – gold, hybrid, green and bronze – has grown rapidly but was still under half of articles indexed in Dimensions in 2022. Articles classed as gold, which require an article processing charge, rose by almost 500% from 2015 to 2022.



ACCESS SHIFT

For research articles without a China-based author, open access is comparatively a more standard route to publication. Around 65% of all non-China articles indexed in the Dimensions database in 2022 were open access in some form, with hybrid seeing the most growth from 2020 to 2022.



University of Oxford, UK. Big universities with strong ties to the rest of the world will likely maintain links and keep publishing in major international journals, but smaller institutions with fewer connections might become less concerned with pursuing international publications, he says. The goal of building up domestic journals is not just to capture the output of China's own scientists. “The goal is to attract a global author base and build a world-class portfolio of journals that is used by the global research community,” says Goncharoff.

Some of China's strongest Chinese-language journals in the field of education studies are establishing English versions and are inviting global scholars to join their editorial board, says Yang. “They're not just for Chinese authors, they want to be properly international.”

Many Western scientists might be hesitant to publish in Chinese journals, says Goncharoff. Worries about political interference and policies in their own countries that discourage

certain kinds of collaboration with China have cooled cooperation. But, says Marginson, China increasingly has a great deal of influence at the global level, especially in emerging economies such as those involved in its Belt and Road global trade initiative. Scientists from those countries might be more willing to publish in their Chinese partners' preferred journals, he says. This might especially be the case if Chinese partners are making the biggest financial contribution to the project.

Although changes to China's domestic publishing landscape will take time, it is a process that can't be ignored by researchers and publishers elsewhere. “China is a big ship that takes a lot of time to turn, but when they do, they go all the way around and completely reorient,” says Marginson. “If they want to” grow their science-publishing capacity, he adds, “it will happen”.

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