



Description

In Western science culture, it is often expected that research will be done out of a desire to advance knowledge. It is not the norm for scientists to be given financial rewards for their academic publications. Chinese scientists work in a system where monetary incentives are given for publishing in prestigious international journals. Of course, the more prestigious the journal, the greater the cash reward. In June 2017, the Sichuan Agricultural University [gave 13.5 million yuan](#) (US\$2 million) to a team of its researchers who had published in *Cell*. Li Ping, the co-author of the paper and director of the university's rice research institute, clarified that only 0.5 million yuan was for personal use. The 0.5 million yuan will be shared among 27 researchers involved with the publication. This situation highlights the reward system of science in China where researchers are paid to publish.

Monetary Reward System

The practice of being paid for publications began in the 1990s as a way of rewarding research success. Nanjing University's Physics Department started paying researchers \$25 per published paper. This incentive idea led to Nanjing University becoming the number one Chinese university in terms of having published the most papers in Web of Science journals for seven years straight. Rewarding research participants was working for Nanjing University so other Chinese universities initiated their own incentives in research.

Currently, rewarding scientists is the norm in China. How much money is really tied to publication? A group of researchers recently sought to answer that question based on publicly available data. They found that, on average, a Chinese scientist with a publication in *Nature* or *Science* would [get about \\$44,000](#) with the highest possible amount being \$165,000. This is a significant way of rewarding research considering the fact that a university professor earns about \$8,600. Publishing in other international journals would result in smaller rewards. A paper in the *Proceedings of the National Academy of Sciences* is worth \$3,513, a paper in the *Journal of the Association for Information Science and Technology* could earn a researcher \$2,488, while a paper in *PLOS One* is worth \$984.

Impact of the Reward System in Research

This incentive program is driving Chinese scientists to be more productive and to do more high-quality research. However, it is also having some negative consequences. For example, a researcher at

Heilongjiang University published 279 papers in *Acta Crystallographica Section E*. This scientist collected more than 50% of the rewards handed out by that university. Rewarding publication in this way can lead to scientists seeking to publish in a particular journal instead of organically pursuing worthwhile scientific questions. It can also switch the focus from finding the best way to build on experiments to simply doing what is needed to publish.

The reward system is based on the [impact factor of the journal](#). This is only one way to measure the quality of a journal and it was never intended to be used to judge the quality of an individual paper. Selecting just one metric as the basis for a monetary award may encourage scientists to game the system. This kind of pressure to publish in high impact factor journals may be the reason why more than half of the published biomedical research cannot be replicated. Tying prizes to impact factors assigns the impact factor an inflated importance while preventing a true assessment of the significance of the paper.

The overall investment in science had led to many Chinese scientific achievements. Chinese authors feature in about 20% of the most cited papers in the world. China produces more research articles than any other country second only to the United States. China also has some [unparalleled scientific facilities](#). For instance, they are building the world's largest single aperture telescope and they house a PandaX dark-matter detector in the world's deepest underground laboratory.

However, most of the funding in China is geared toward translational research that can solve current problems. As a result, China spends only [4.7% of its research budget](#) on basic research. This is significantly less than France (24.1%), the USA (17.6%) and Japan (12.6%). Scientific discoveries contributed 55% to China's economy in 2015 compared to 88% in the USA. Investing in the quality and integrity of basic research could boost Chinese innovation and the economy.

Incentive or Stumbling Block?

It is clear that giving financial rewards to Chinese scientists for their academic publications has increased the overall productivity. However, these incentives are also causing Chinese research participants to be more concerned about getting their data published rather than on pursuing the answer to a research question.

The current system incorrectly uses the impact factor of a journal to judge the significance of the work. In rewarding Chinese scientists for publishing in certain journals, prizes are being given before the true impact of the paper can be assessed. Is this paper going to be highly cited? Will it be the basis for the development of a significant technology? Only time will tell. One thing is for certain—if you reward scientists for doing a particular type of research, you skew the process of innovation.

Category

1. Publishing Research
2. Understanding Ethics

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