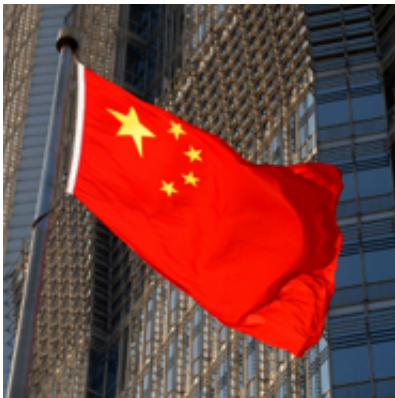


China's reform of R&D budget management doesn't go far enough, research shows

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In almost 20 years, China's R&D expenditure as a percentage of its gross domestic product has more than tripled, reaching 1.98 per cent in 2012. This figure surpasses the 28 member states of the EU, which collectively managed 1.96 per cent.

However, despite this, China saw a sharp decline in money spent on scientific research, in particular applied research. Basic research funding plummeted from 5.2 per cent in 1995 to 4.7 per cent in 2011, and applied research funding fell from 26.4 per cent to 11.8 per cent in the same years.

This is Dr Cao's second *Science* article in a year. Last August, he led a

group of scholars from the US and China to publish an article on the reform of China's science and technology (S&T) system.

This article, in collaboration with Dr Yutao Sun, from the Dalian University of Technology in China, acknowledges a recent move by the Chinese government to increase transparency of its R&D expenditure, details of which have benefited the research.

Dr Sun and Dr Cao of the School of Contemporary Chinese Studies said: "China's recent requirement that central government agencies release their departmental annual reports indicates that the nation is catching up to international norms in disclosing the government's expenditure, including its R&D expenditure profile, emphasising not only aggregate statistics but also the structure of, and government's contribution to, the expenditure."

A need for further reforms

Although recent reforms have decentralised distribution of China's R&D spending, through a series of agencies, which the authors acknowledge could be advantageous, they also present new challenges, including a lack of top-level design, effective coordination, and transparency in budgeting and spending. This has led to a both an overlap between agencies or even a rush to spend funds in certain programmes.

While the improved transparency goes some way to bringing China's R&D reporting processes in line with international norms, the authors criticise the fact that the Chinese government embeds its R&D expenditure in its broader S&T expenditure statistics. Instead, they argue, China's government should switch its reporting from S&T to R&D expenditure, as well as ensuring the government's R&D expenditure is cited in the country's R&D statistics.

"It is a key step to bringing transparency to government R&D funding and helping reduce corruption, as well as harmonising with international norms," explained Dr Sun and Dr Cao.

A missing link?

The authors believe the shift from spending on predominantly applied research to development research may be attributed to China's innovation policy, which favours development over scientific research.

Dr Cao said: "The low share of scientific research expenditure has negatively affected China's innovation capability and may jeopardise China's ambition to become an innovation-oriented nation. Shrinking of applied research is a serious problem, because applied research links basic and development research."

The authors recommend that, ultimately, if China wants its research and development to compete on a world stage, its [government](#) needs to increase its contribution from 21.7 per cent in 2011 of gross expenditure in R&D to 30 per cent by 2020, bringing it in line with competing nations.

More information: www.sciencemag.org/content/345/6200/1006.full

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