

The Saturday Paper

COMMENT

John Hewson

Research and development cuts short-change the nation

An important reason why Australia has fallen short of its potential to be the “clever country”, as many have aspired to over the years, such as prime minister Bob Hawke in the 1980s, is a shortage of research funding. Successive governments have happily cut or restrained this funding over many years, and it has also been difficult to interest the private sector – business, charities or high-net-worth individuals – in donating to research, let alone providing sustained funding.

In a recent important op-ed in *The Australian Financial Review*, Richard Holden, professor of economics at UNSW Sydney and president of the Academy of the Social Sciences in Australia, refers to the years of “bipartisan disinvestment” in research expenditure. “Relative to GDP, Australia’s R&D spend was 32 per cent higher when Kevin Rudd was prime minister in 2008 than in 2022.” Over this period, both government and business spending is down, and only university spending on research and development has risen.

It is important to note that Australia’s research spending relative to GDP is less than half the OECD average, with Israel and South Korea at the top and the United States the biggest spender in dollar terms.

I sat in on the expenditure review committees during the Fraser government, and have since followed these processes from the outside. The committees usually work to an aggregate spending cut target number, and roll through each portfolio, line entry by line entry, to see where additional cuts can be made on top of those proposed by the relevant minister. In the bouts of tightening we have seen under governments of both persuasions, there are certain “easy” areas to cut – in the sense of the lowest risk of negative

political fallout from the affected constituencies. Unfortunately, research and overseas aid have been considered among the easiest.

However, mistakes get made as political consequences are misjudged or not fully realised. These experiences serve as warnings. I remember a nominal cut in the wheelchair allowance under the Fraser government. Indeed, I vividly recall standing with Malcolm in his office in Old Parliament House, watching hundreds of people in their wheelchairs, some assisted by carers, attempting to get up the steep steps to gain entry to King's Hall. The decision was finally declared to have been a mistake – and this generated a political sideshow over who actually made that mistake, the prime minister or then treasurer John Howard.

Australia's research spending relative to GDP is less than half the OECD average, with Israel and South Korea at the top, and the US the biggest spender in dollar terms.

The main point of Richard Holden's column was to emphasise that for almost two decades, university research has been funded almost entirely by international student fees.

This has prompted others to comment that, in the absence of effective overall funding from governments, universities have had to raid their education budgets to fund research – for academics to effectively do their jobs. As such, the proposed restrictions on international students, which were first flagged by the Coalition in an anti-immigration manoeuvre and now seem to have a degree of bipartisan support, reflect priorities that are clearly against our national interest. This is an entirely political proposal that is economically counterproductive and to the detriment of the national research effort in the immediate future.

Not only has aggregate research funding been restrained, but the allocation of that funding has reflected distorted priorities. This point was made very clearly by several people who contacted me, including a group that got in touch after my column on August 3, "Can Australia still become the Clever Country?", in relation to the funding of research in mathematical sciences. The group is Matrix, a joint partnership between the Australian National

University, University of Melbourne, Monash University and the University of Queensland. Matrix is Australia's residential research institute in mathematical sciences, with the role of facilitating new collaborations and mathematical advances through intensive residential research programs. The initiative began in 2015 and has developed strong international partnerships with similar institutes in Germany, Japan, the US and South Korea.

This is the way research happens in mathematics – by bringing minds together. I have a friend who claims to have benefited enormously from having attended, as a PhD student, a residential conference hosted by the London Mathematical Society, which gathered the finest minds in statistical genetics from Oxford, Harvard, Stanford, Chicago and Cambridge at a critical time in the field. He says it was “highly productive and personally transformative”. He is now a leading professor in the School of Mathematics and Statistics at the University of Melbourne.

This underscored to me that an investment in research infrastructure for mathematics, by supporting a number of collaborative research places, could pay huge dividends from a relatively small investment.

However, it's well documented that mathematical science researchers have less access to various government funding programs and to Australian Research Council (ARC) schemes. There has also been a significant cut in higher education research and development (HERD) investment and research infrastructure support under the two main vehicles for funding.

The result is a critically low level of HERD expenditure in mathematical sciences – a share of just 1.26 per cent (down from 1.85 per cent during 2014-2018) compared with about 34 per cent for medical and health sciences, almost 12 per cent for engineering, and less even than law and legal studies at 1.34 per cent. The decline in support for mathematical sciences has seen a \$74.5 million reduction in real terms compared with 2018.

Moreover, between 2011 and 2022, only one grant was awarded to support mathematical science infrastructure through the ARC Linkage Infrastructure, Equipment and Facilities scheme, compared with 706 grants to other STEM fields, despite the political interests in STEM subjects.

Another disturbing trend in funding has been an increasing bias against basic or theoretical research in favour of applied research. You can easily see the

political concerns that lead to cutting support for mathematical sciences instead of medical and health sciences, as politicians don't want to see a mass of doctors and medical researchers in white lab coats protesting in the streets (holding signs that noone can read).

And yet as investment in mathematical sciences research in Australia has sunk to critical lows, threatening our global standing in the field, the value for money of mathematical sciences research has never been greater.

Matrix emphasises that maths is the universal language of science, technology and engineering, without which discovery evidence and innovation is impossible. Truly transformative ideas and discoveries in mathematical science research often arise out of left field. International collaboration is often the key ingredient for breakthroughs, leading to further groundbreaking research in science, technology, engineering and medical research. Such discoveries have already played essential roles in technologies that are now indispensable, such as the internet, geophysical and medical imaging, blockchain, responding to pandemics, wi-fi predictions and management of natural disasters, genomics and GPS. Highly promising, key enabling technologies such as AI and quantum information depend heavily on new developments and advanced mathematical and statistical insights and methodologies.

Almost every industrial country has recognised the value and effectiveness of mathematical sciences research institutions. Many of Australia's comparator countries have long histories of successful residential research institutes dating back to the early 20th century. This century has also seen a new wave of institutes established across the region.

A residential maths research institute is the equivalent of national infrastructure such as radiation research centre the Australian Synchrotron, the National Computational Infrastructure facility and the radio telescope project, the Square Kilometre Array.

Another political mood that has led to the cutting of funding for scientific research has been the sporadic public backlash against science and scientists. This reached a crescendo in relation to climate science, when the deniers sought to distrust the evidence. Similarly, there have been many occasions where the CSIRO has been attacked over its scientific advice, particularly recently in relation to the costs of various power alternatives. Opposition Leader Peter Dutton has tried to deny the overwhelming evidence about the

cost and delay in delivery of nuclear power, claiming the CSIRO has been “discredited” without any supporting evidence. It is easy to see just how swiftly he could move on slashing CSIRO funding as part of his promised cuts to public sector spending.

A challenge for all our political leaders is to move beyond short-term combative politics to reassess Australia’s priorities, especially in terms of the significance of higher education and research. It is essential to our national interests that they do. Clearly, this will never be a truly clever country if successive governments continue to underfund higher education and its research capabilities.



[Give this article](#)
