The COVID-19 Pandemic slowed but not reversed the 2020 growth momentum for R&D expenditure in Australian Universities.

Professor Emeritus Frank Larkins
Professorial Fellow
Melbourne Centre for the Study of Higher Education.
And
School of Chemistry
The University of Melbourne

The Australian Bureau of Statistics has since 1992 published biennially data on the research and experimental development performance of Australian Higher Education Organisations, known as the HERD collection. The most recent report for 2020, published on 6 May 2022, uses data sourced from 42 universities. The seventeen-month time delay before publication represents the time taken for data collection and processing. The ABS HERD time series collection provides consistent and credible data sets profiling trends in university R&D activities for 30 years. The 2020 HERD performance is particularly significant because it includes the first year of institutions managing the impact of the COVID-19 pandemic on R&D activities.

The conclusion to be drawn from analysis of the 2020 data is that the pandemic had a variable impact of R&D outcomes. Financial investment in R&D did increase from $12,158 million in 2018 to $12,668 million in 2020, representing an additional outlay of $510 million. The 2020 figure was a new high for university R&D expenditure; however, the two-year increase, at 4.2%, represented the lowest growth rate for any two-year period in the last decade. This outcome does indicate that the momentum for R&D had slowed. As a proportion of national GDP HERD also decreased by 0.01% to 0.61%. R&D as an expenditure priority for university investment also has progressively proportionally declined from 41.3% of all expenditures in 2012 to the present 37.3% figure.

Universities reduced their capital expenditure by $266 million in 2020 and increased their current expenditure by $776 million. Labour costs increases of $467 million accounted for 60% of the increased current expenditure, while scholarships accounted for 18%. While many universities have reported higher staff termination costs for 2020, interestingly, the HERD data shows that from 2018 to 2020 universities actually increased academic and support R&D staff by 766 (2%) Person Years of Effort- (PYE), while the postgraduate student cohort was reduced by 1,392 (-3%) PYE. Hence, the total human resources devoted to R&D decreased overall by 627 (-0.8%) PYE for the first time in the decade from 2010. There were wide variations between States. The decrease in postgraduate researchers was anticipated, but the reported increase in research-related staff does not align with data provided in university annual reports where staff losses are reported. A collection timing issue may account for the discrepancy.

Australian competitive grants and other commonwealth government funding increased from 2018 to 2020 by $315 million, while general university funds supporting R&D decreased by $87 million. R&D expenditure in all other categories, state and local government, business, donations, increased. For 2020 commonwealth grants and other funding represented 31% of all HERD expenditure and general university funds 53%. This was the first year that the amount

of R&D funding, classified by the ABS as general university funds, had declined. It reflects the reduction in overseas student fee income, a proportion of which has been used to cross-subsidise research, and lower 2020 investment returns.

The proportion of all R&D funds invested in pure basic and strategic basic research has also continued to decline to 37% of all R&D expenditure, while applied research is now at an all-time high of 53% and experimental development accounted for 10%. The trend for universities to classify a decreasing proportion of their research as basic research has been occurring for more than a decade. In 2010 45.3% of all R&D expenditure was directed towards basis and strategic basic research. The robustness of research classifications is open to scrutiny as researchers self-classify and are not unreasonably influenced by the priorities of funding bodies. Nevertheless, Australian Learned Academies and several other influential bodies have expressed concern about the reduced focus on fundamental research in Australian universities. New knowledge generated from breakthrough research underpins competitive innovation and commercialisation leading to growth in national economic prosperity and social benefits.

Australian university R&D is strongly concentration in the eastern states. NSW has maintained its position as the dominant state for R&D accounting for 31.2% of all expenditure in 2020, followed by Victoria at 28.2% and Queensland at 16.5%. These three states produced more than three quarters of all the university R&D undertaken. Western Australia and Tasmania were the only states or territories to report a decreased in R&D activity.

It is possible that we will not be able to confidently assess the impact of the pandemic on Australian university research at least until the 2022 ABS HERD data is available in 2024. Research programs span several years so there may be a long lead time before the real effect of the pandemic on R&D can be reliably measured. What is well established is that research students represent around 55% to 60% of the human resources devoted to research. Overseas students have accounted for all the postgraduate growth in the sector over the past decade, while domestic researchers have declined. Until more overseas postgraduate students are recruited and universities can afford to cross-subsidise more research, at least at previous levels, growth in Australia university research from these sources will be restricted.

The Commonwealth government one-off special allocation of $1 billion additional funding for research in 2021 has been an important short-term stimulus but continuing increased government funding, especially by recognising the full cost of sponsored research programs, is required to maintain momentum and international competitiveness. Continuing strong advocacy for the national importance of university R&D is required.

Frank P. Larkins
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