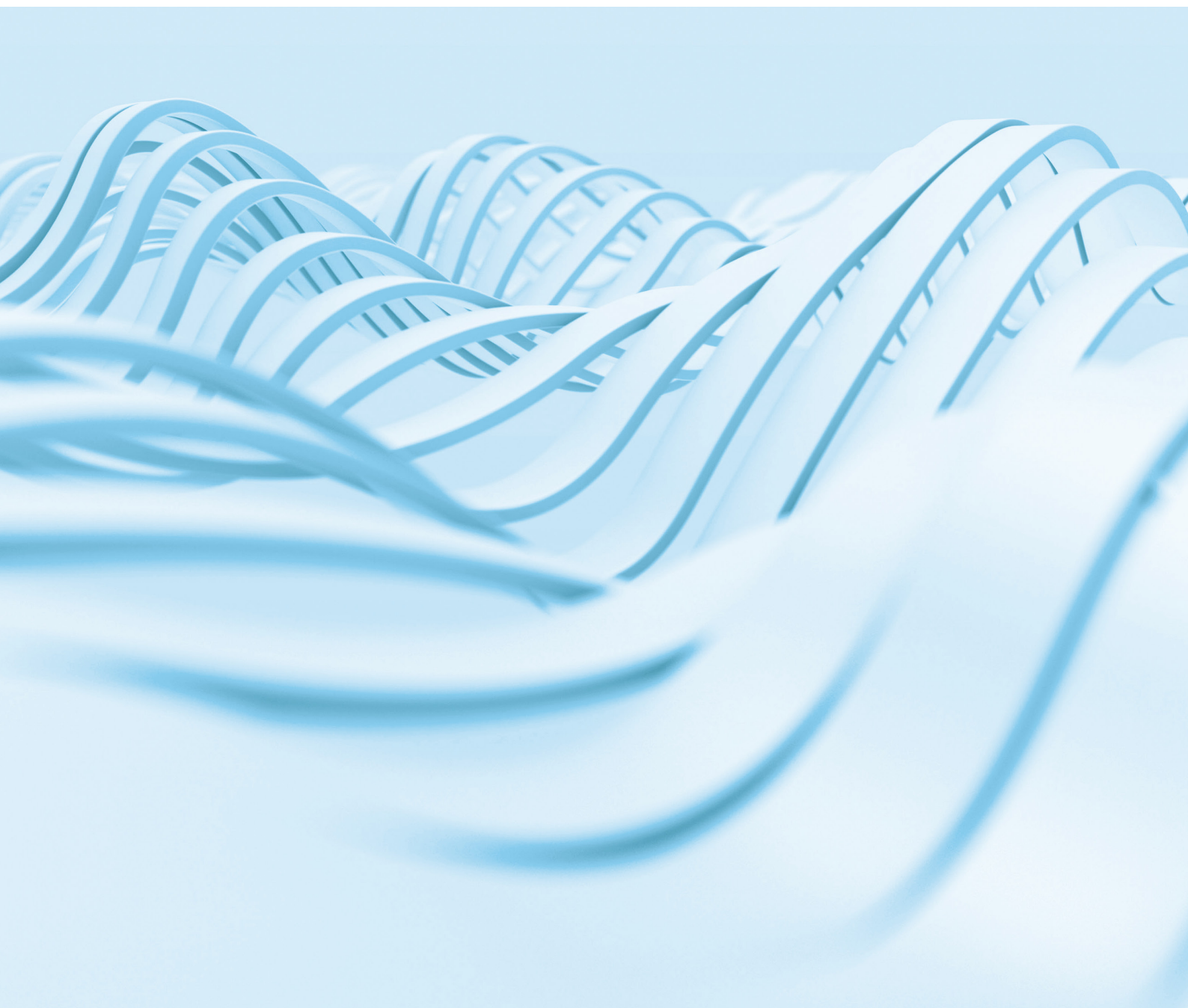




# **5-year Productivity Inquiry: From learning to growth**

Interim report



**The Productivity Commission acknowledges the Traditional Owners of Country throughout Australia and their continuing connection to land, waters and community. We pay our respects to their Cultures, Country and Elders past and present.**

---

## **The Productivity Commission**

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website ([www.pc.gov.au](http://www.pc.gov.au)).

---

© Commonwealth of Australia 2022



With the exception of the Commonwealth Coat of Arms and content supplied by third parties, this copyright work is licensed under a Creative Commons Attribution 4.0 International licence. In essence, you are free to copy, communicate and adapt the work, as long as you attribute the work to the Productivity Commission (but not in any way that suggests the Commission endorses you or your use) and abide by the other licence terms. The licence can be viewed at: <https://creativecommons.org/licenses/by/4.0>.

The terms under which the Coat of Arms can be used are detailed at: [www.pmc.gov.au/government/commonwealth-coat-arms](http://www.pmc.gov.au/government/commonwealth-coat-arms).

Wherever a third party holds copyright in this material the copyright remains with that party. Their permission may be required to use the material, please contact them directly.

An appropriate reference for this publication is:  
Productivity Commission 2022, *5-year Productivity Inquiry: From learning to growth*, Interim Report, Canberra, September

Publication enquiries:

Media, Publications and Web | phone 03 9653 2244 | email [publications@pc.gov.au](mailto:publications@pc.gov.au)

## Opportunity for comment

The Commission thanks all participants for their contribution to the inquiry and now seeks additional input for the final report.

You are invited to examine this interim report and comment on it by written submission to the Productivity Commission, preferably in electronic format, by 21 October 2022.

Further information on how to provide a submission is included on the inquiry website: [www.pc.gov.au/inquiries/current/productivity](http://www.pc.gov.au/inquiries/current/productivity)

The Commission will prepare the final report after further submissions have been received and discussions held with participants. The Commission will forward the final report to the Government in February 2023.

## Public hearing dates and venues

Dates and venues will be listed on the inquiry website once confirmed.

## Commissioners

For the purposes of this inquiry and draft report, in accordance with section 40 of the *Productivity Commission Act 1998* the powers of the Productivity Commission have been exercised by:

Michael Brennan	Chair
Alex Robson	Commissioner
Stephen King	Commissioner
Lisa Gropp	Commissioner

## Terms of reference

I, Josh Frydenberg, Treasurer, pursuant to parts 2 and 3 of the *Productivity Commission Act 1998*, hereby request that the Productivity Commission undertake an inquiry into the Australia's productivity performance and provide recommendations on productivity-enhancing reform. This inquiry is the second of a regular series, undertaken at five-yearly intervals, to provide an overarching analysis of where Australia stands in terms of its productivity performance. The first report, *Shifting the Dial* was completed in 2017.

## Background

Australia's economy has performed strongly in recent decades enjoying robust growth in incomes and living standards following 28 years of consecutive economic growth interrupted by the COVID-19 pandemic. Australia's economic recovery from the pandemic has been world leading however to ensure Australians continue to enjoy higher living standards, we need to continue to focus on the task of lifting productivity.

Productivity growth is vital for Australia's future, particularly as the Australian and global economies emerge and begin to recover from the economic impacts of COVID-19. The 2021 Intergenerational Report makes it clear that future growth in income and living standards will be driven from productivity growth as the participation effects of young migration are offset by an ageing population. Global and domestic productivity growth in recent decades however has slowed. Changes brought about by the COVID-19 pandemic and the global and domestic policy responses will also provide a unique historical context for this Review.

Given the scale and nature of the economic shock caused by the COVID-19 pandemic, it is expected to have an enduring impact on Australia's productivity challenge. The acceleration in the uptake of technology by business and individuals has stimulated growth in remote work, online commerce, businesses' digital presence and innovative delivery of public services like health and education. The pandemic has affected business models in some key sectors and underscored the need for labour mobility across the economy.

In this environment, Australia needs policy settings that foster a flexible and dynamic economy, that is able to adapt in the face of economic challenges and opportunities. Policy settings should encourage the economy to adapt to the growing importance of digital technologies, including through developing a skilled labour force. They must also be forward looking and support an environment that promotes economic dynamism, entrepreneurship and appropriate risk-taking, and innovation and technological adoption.

Against this background, the Review can play a critical role in making high-value and implementable recommendations to support Australia's productivity growth. Lifting Australia's productivity growth will involve a combination of economy-wide and structural reforms, in addition to targeted policies in particular sectors to push Australian industries closer to the global frontier.

## Scope of the inquiry

The Commission is to review Australia's productivity performance and recommend an actionable roadmap to assist governments to make productivity-enhancing reforms. Each recommendation should qualitatively and quantitatively estimate the benefit of making the reform and identify an owner for the action and a timeframe in which it might occur.

---

Without limiting related matters on which the Commission may report, its report to the Government should:

1. Analyse Australia's productivity performance in both the market and non-market sectors, including an assessment of the settings for productive investment in human and physical capital and how they can be improved to lift productivity.
2. Identify forces shaping Australia's productivity challenge as a result of the COVID-19 pandemic and policy response.
3. Consider the opportunities created for improvements in productivity as a result of Australia's COVID-19 experience, especially through changes in Australia's labour markets, delivery of services (including retail, health and education) and digital adoption.
4. Identify priority sectors for reform (including but not limited to data and digital innovation and workforce skills) and benchmark Australian priority sectors against international comparators to quantify the required improvement.
5. Examine the factors that may have affected productivity growth, including domestic and global factors and an assessment of the impact of major policy changes, if relevant.
6. Prioritise and quantify the benefit of potential policy changes to improve Australian economic performance and the wellbeing of Australians by supporting greater productivity growth to set out a roadmap for reform.
7. Revisit key recommendations and themes from the previous five yearly review in light of the above, where relevant.

The Commission should have regard to other current or recent reviews commissioned by Australian governments relating to Australia's productivity performance and include comparisons of Australia's productivity performance with other comparable countries. The Commission should support analysis with modelling where possible and qualitative analysis where data is not available, and this is appropriate.

## **Process**

The Commission should consult widely and undertake appropriate public consultation processes, inviting public submissions. The Commission should actively engage with Commonwealth, and state and territory governments. The final report should be provided to the Government within 12 months of receipt of these terms of reference.

**The Hon Josh Frydenberg MP**  
Treasurer

[Received 7 February 2022]

## **Acknowledgements**

The Commission acknowledges and thanks Matthew Forbes, Elina Gilbourd, Natalie Baker, Colin Burns, Sara Collard, Zoe Chalmers, Kathleen Hurley, Yael Jacoby, Matt Maltman, Guy McInnes, Paulene McCalman and Anuraag Roy for their work on this interim report and its underlying analysis. Rosalyn Bell and Commissioner Catherine de Fontenay provided guidance and input to this interim report.

# Contents

<b>Opportunity for comment</b>	<b>iii</b>
<b>Terms of reference</b>	<b>iv</b>
<b>Foreword</b>	<b>ix</b>
<b>1. The value of human capital</b>	<b>1</b>
1.1 Education is vital for productivity	2
1.2 What skills are needed for Australia's future workforce?	7
1.3 The education sector context	9
<b>2. Building productivity in schools</b>	<b>15</b>
2.1 Lifting productivity in schools is essential	15
2.2 Making best practice teaching common practice	18
2.3 Leveraging digital technology in schools	20
2.4 Making the best use of school staff	28
2.5 Disrupting the school model?	34
<b>3. Investing for future skill needs</b>	<b>43</b>
3.1 Challenges in managing demand for tertiary education	45
3.2 Improving governments' subsidy allocations	50
3.3 Setting prices based on efficient costs	64
3.4 Expanding access to tertiary education loans	69
3.5 Potential support for lifelong learning	74
<b>4. Boosting learning outcomes for tertiary students</b>	<b>79</b>
4.1 Obstacles to quality teaching	80
4.2 Prioritising teaching quality and relevance	85
4.3 Supporting retention and completion	99
<b>References</b>	<b>111</b>





---

## Foreword

**A quality education benefits both individuals and society.** Evidence shows a significant earnings premium for those with extra years of schooling or post-school qualifications. In addition, rising skill levels have accounted for about one-fifth of Australia's labour productivity growth in recent decades, and will become increasingly important in maintaining future growth. The benefits extend beyond improved productivity — education can provide fulfillment, improve health outcomes, reduce crime, and increase social and economic mobility.

But education has a cost. It uses valuable resources — including students' time. From an economic perspective, the key question is how effectively our education system — schools, vocational education and training (VET), higher education and lifelong learning — delivers improved and relevant skills, in return for the time and resources spent.

**The demand for formal qualifications is rising.** The National Skills Commission estimated that 9 out of 10 new jobs created in the next five years will require skills developed through post-school education. These include skills to innovate and adopt new technologies, practices and growth opportunities from the global frontier.

In addition, **the nature of the skills demanded by the Australian economy are shifting**, in part due to technological change and the ongoing shift to a services-based economy. Routine manual skills (such as repetitive assembly on a production line) are less important now than they were several decades ago, while demand for non-routine skills (such as abstract reasoning, interpersonal communication or managing teams) has increased. These non-routine skills are in demand partly because they are hard to automate. They can also be hard to teach.

These trends create opportunities and challenges for Australia's education system. The lifelong importance of core fundamentals like literacy and numeracy is higher than for past generations. Economy-wide, future gains from primary and secondary education will not come from more years of school, but from better quality schooling. Improving school outcomes depends on getting evidence-based practice into classrooms, integrating technology within schools and the efficient use of the limited resources available to maximise learning opportunities.

For VET and higher education, the question is not just what to teach but how and when to teach it. The system needs to balance many demands — from the mix of generalist and job-specific skills, to engagement in education throughout people's lives, and the opportunities and risks of emerging technologies. The range of possibilities suggest a degree of variety and the need for innovation, competition and informed student choice.

As a developed and sophisticated economy, **Australia's current education outcomes are relatively good overall. But recent trends point to some cause for concern.** Academic results for foundational skills such as reading, writing and numeracy have been flat for over a decade, even as the spending on schools has increased. The employment rates for both university and VET graduates have decreased over the past decade, and employer satisfaction with the quality of VET graduates has fallen.

The challenge for the system is to arrest and reverse these declines, and achieve generational progress: such that future workers are equipped with materially higher average learning outcomes and skill levels than we have today.

**Technology has a significant role to play.** Digital technologies can dramatically change classroom teaching at all levels, complementing traditional in-person instruction. Artificial intelligence and interactive online approaches have potential to save teachers' time, support individualised learning and provide real-time formative assessment. But thus far the evidence on technology's role in lifting learning outcomes is mixed. Finding the right processes for technology adoption is an emerging challenge for education systems. The COVID pandemic provided a glimpse of the possibilities of remote or hybrid learning but showed that, implemented poorly, online delivery can negatively impact education quality and the student experience.

Basic models of classroom education look similar across the developed world and have changed little over many decades. This could reflect a successful and well settled 'technology' for imparting basic knowledge, or resistance to innovation; more likely a bit of both.

The culture of using and disseminating evidence in education — through rigorous trials and broad take up of evidence-based approaches — is not well developed compared, say, to the health sector, where scientific advances have cured diseases and increased life expectancy. Australia now has a dedicated evidence institute for school and early childhood education in the Australian Education Research Organisation but **getting evidence-based practice into classrooms remains a challenge.** Increased use of professional learning and structured observation and feedback is a vector for diffusing best practice across schools.

Notwithstanding reforms to initial teacher education, the task of improving educational outcomes still relies overwhelmingly on our existing teacher workforce. But **the role of the classroom teacher needs to evolve.** Students would benefit from teachers spending less time on low-value administrative tasks and more time on quality teaching. Teachers could benefit from greater support with quality, evidence-based lesson planning. And technology, if well deployed, can complement teacher efforts in planning, instruction, assessment and administration.

In post-school education, governments' ability to promote better outcomes is mainly **through funding and regulatory levers.** Current funding structures distort the choices of students in favour of universities over VET, ration the number of places in universities, and limit competition between providers. Limitations to informed student choice (in both VET and higher education) and a greater focus on research by universities create weak incentives to deliver quality learning and teaching outcomes. Better targeting of subsidies and student loans could encourage providers to flexibly deliver, and students to take up, education and training that meets Australia's workforce needs.

Governments need to promote and oversee high-quality standards for teaching in both higher education and VET, as skill needs become more diverse and complex, and as education delivery models evolve further. However, there is no panacea and a range of strategies are needed for ongoing improvement, such as better access to information about course quality and more systematic external reviews of teaching in higher education. A more flexible approach to designing some types of VET courses could also improve the system's ability to adapt to Australia's changing skill needs.

This interim report presents the Commission's early findings about Australia's education system and outlines several potential directions for governments to improve education outcomes and support future productivity. The Commission invites stakeholders to respond to the issues raised in this interim report as it works towards delivering a final report in February 2023.

# 1. The value of human capital

## Key points

- \* **Education increases people's capabilities — allowing them to do more or better work in the same time. It also makes society healthier, safer, better informed, and more civically engaged, and can foster social mobility.**
- \* **Skills developed through education, training and on-the-job experience underlie the capacity to make the fullest use of the technology embedded in capital equipment, and the generation of new ideas and absorption of knowledge between producers of goods and services, both within Australia and from overseas.**
  - Rising skill levels have accounted for about 19% of the growth in output per hour in the market sector from 1994-95 to 2020-21.
  - One in five Australians have low basic skills, which limits their job opportunities, versatility, capacity to acquire further skills and lifetime wages. Quality education can help prevent young Australians from ending up with low basic skills, and also improve social inclusion.
- \* **As our reliance on the services sector expands, people's capabilities ('human capital') will play a more important role than physical capital in improving productivity.**
  - **General and foundational skills** will continue to underpin the workforce's contribution to productivity, and as routine tasks are automated, newly created jobs will increasingly rely on areas such as interpersonal skills, critical thinking, working with more complex equipment, and accomplished literacy and numeracy.
  - **Specific skills** in areas such as data and digital technology, allied health care and community services will be increasingly needed due to a changing composition of the economy and an ageing population.
- \* **Beyond these trends, we cannot predict many of the jobs that will emerge over the coming decades. An adaptable system teaching general skills can provide resilience to these changes.**

## 1.1 Education is vital for productivity

Education is vital in developing 'human capital', which describes the economic and social value of a person's skills and experience. Investments in human capital can increase an individual's earnings, health, capacity to participate in the broader community, and their ability to appreciate art and culture. Education is a primary investment in human capital as it can improve all these outcomes. Reflecting its importance, in 2020-21 government expenditure on education totalled \$116 billion (ABS 2022b). This report focuses specifically on how education enables workforce productivity.

Many inquiry participants highlighted the importance of education for productivity, including those within the sector (Australian Education Union Federal Office, sub. 21, The Smith Family, sub. 26, National Tertiary Education Union, sub. 36, Primary Focus, sub. 56, Universities Australia, sub. 70) and those with a broader interest in productivity (gemaker, sub. 13, Gordon, sub. 17, Grattan Institute, sub. 37, Australian Chamber of Commerce and Industry, sub. 47, Australian HR Institute, sub. 54, KPMG, sub. 60). Many of these submissions remark on the role of education in developing human capital and how this drives productivity growth.

The Commission has considered parts of the education sector in recent years (PC 2017b, 2019, 2020c). This inquiry is an opportunity to examine its role in promoting productivity, as well as lessons and opportunities from the COVID-19 pandemic. While this report is primarily focused on the formal education system, this is only one channel that contributes to skill formation and labour productivity. For example, on-the-job training and experience also plays a key role in developing human capital.

Improved education can contribute to productivity across the whole economy. But it is even more important for future productivity growth in the services sector, where human capital plays a much greater role. In agriculture and traditional manufacturing, physical capital accumulation and increasing mechanisation allowed far fewer workers to produce far more. This might not be replicated in many parts of the services sector — as discussed in *The Key to Prosperity*, the first interim report in this inquiry. For example, increased productivity in residential aged care is likely to reflect *better* care by staff rather than reductions in staffing to resident ratios facilitated by new technologies.

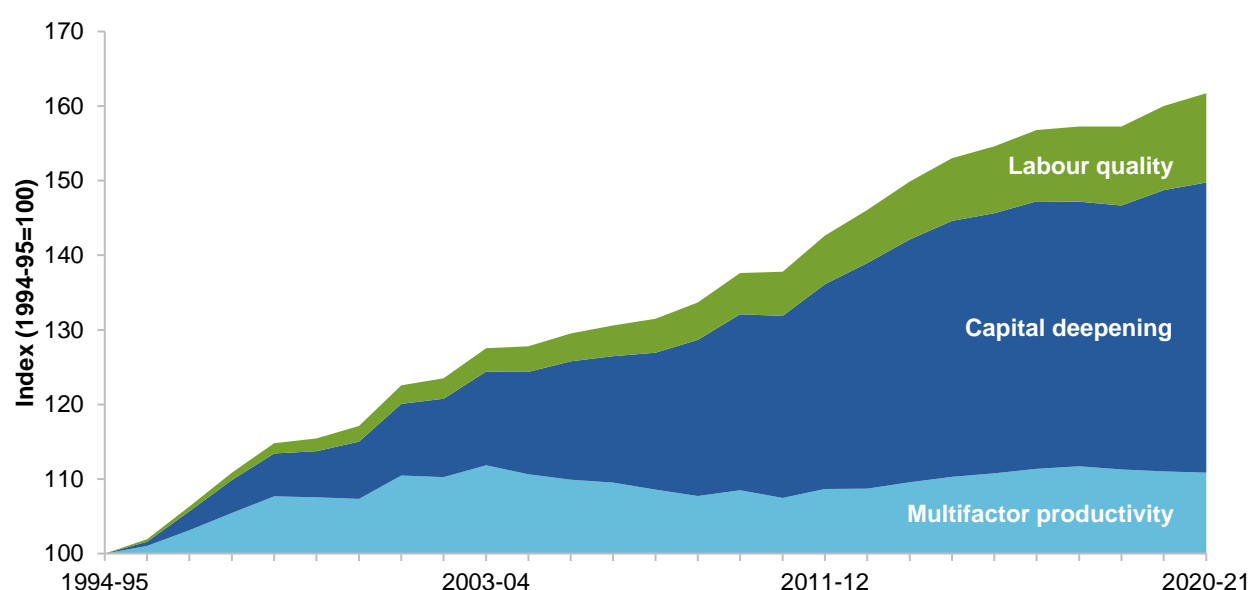
Education will also be critical for reaping the economy-wide benefits of automation and digital technologies — future growth is likely to involve a greater level of skill-biased technological change. These factors have prompted a growing need for tertiary graduates in the labour force. At the same time, school student test scores have been stagnant and sometimes declined, and new modes of education delivery have emerged. Although these challenges are not new, the COVID-19 pandemic has been an accelerant. Securing the right system settings now is imperative to ensure that Australia does not miss the opportunities of a world economy changing at an increasingly rapid rate.

### **Rising skill levels have underpinned Australia's recent productivity growth**

There is compelling evidence that education plays an important role in productivity growth. From 1993 to 2020, the share of Australian adults with less than a high school education fell from 47% to 16%, while the share of adults holding tertiary qualifications rose from 22% to 49% (OECD 2022). As this happened, the quality of labour in the economy has improved. Figure 1.1 shows the factors accounting for growth in labour productivity, which measures how much we produce for each hour we work. Labour quality — reflecting the education and experience of the workforce — has accounted for about 19% of labour productivity growth in recent decades. Moreover, it has accounted for a larger share of labour productivity growth as other drivers have started to slow or stall.

And this method only captures part of the story. It accounts for growth in GDP per hour worked based only on: the amount of capital in the economy; labour quality;<sup>1</sup> and multifactor productivity, which captures all other contributions to productivity, including innovation. However, education can do more than increase the number of educated workers, also increasing capital investment, innovation, or allowing workers to better use capital (Cole, Paulson and Shastry 2014; Kong, Zhang and Zhang 2022; Parker and van Praag 2006; Riddell and Song 2017). Although significant, this estimate misses a myriad of ways in which education could boost productivity. That said, multifactor productivity has stagnated in recent decades despite the growth in educational attainment.

**Figure 1.1 – Labour productivity has grown partly due to a more skilled workforce<sup>a</sup>**  
**Factors accounting for labour productivity growth since 1994-95**



a. Capital deepening reflects the increase in GDP per hour worked that can be explained by higher levels of capital (such as physical equipment). Labour quality reflects the increase in GDP per hour worked that can be explained by higher levels of workforce education and experience and is not the causal effect of education. Multifactor productivity is the change in GDP per hour worked that cannot be explained by these factors.

Source: ABS (2021).

## Education improves worker productivity

This relationship is driven in large part by education improving the productivity of individual workers, with more educated workers more likely to be employed and earning higher wages (figure 1.2).

These effects remain strong when controlling for two well-known confounders in the relationship between education and earnings:

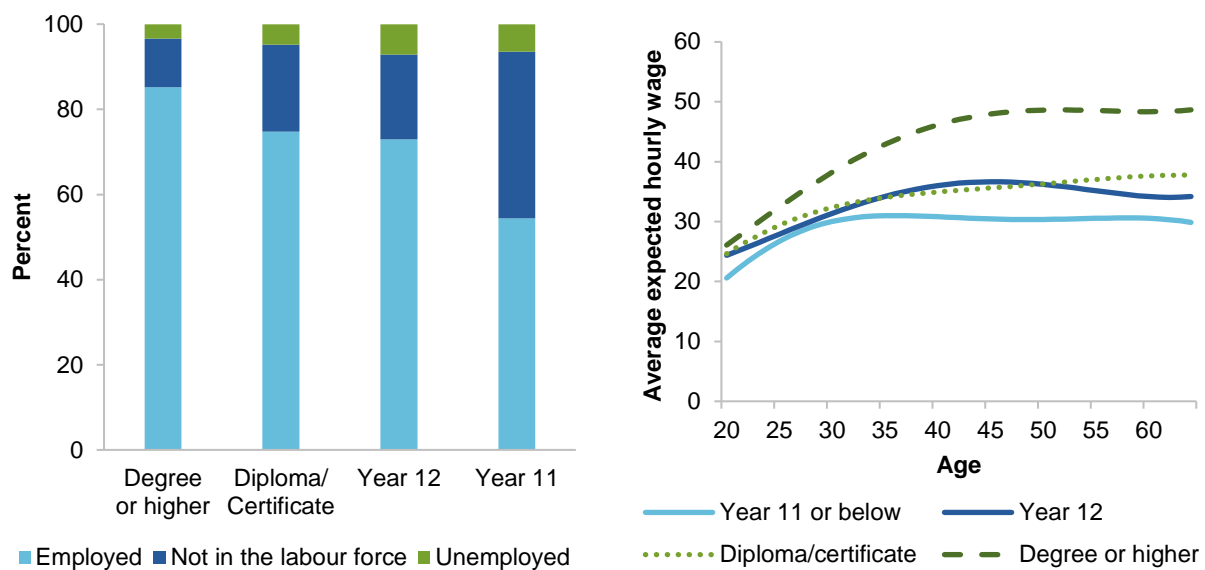
- People with more innate ability take part in more education, meaning some of the effects of education will reflect pre-existing ability rather than the effect of education itself. Nonetheless, the Australian evidence still finds substantial earnings and labour force participation benefits to the completion of secondary

<sup>1</sup> Measured by workforce education and experience.

school, vocational education, and higher education after accounting for unobserved innate ability (Leigh 2008).<sup>2</sup>

- The ‘signalling’ theory holds that education could provide little benefit to worker productivity, but nevertheless increase earnings by showing employers the worker has the ability to complete their qualification. However, empirical evidence suggests that strong earnings benefits remain beyond the impact of signalling (box 1.1).

**Figure 1.2 – More educated workers are more likely to be in the labour force and earn more over their life course**



Source: Productivity Commission estimates using wave 20 of the *Household, Income and Labour Dynamics in Australia* survey.

### Box 1.1 – Human capital and signalling theory – does a qualification make you smarter or just signal that you are smarter?

Economists have long debated why workers with greater levels of education earn a higher income.

**Human capital theory** holds that education — from schooling to university — increases a worker’s productive capacity, which is rewarded by higher pay (Becker 1962). **Signalling theory**, however, holds that education has little or no intrinsic benefit, and that educated workers are only paid more because their higher innate ability makes it easier for them to complete qualifications, which they use to signal to employers that they are innately smart or hard-working (Spence 1973). Ultimately, there is evidence to support both human capital and signalling benefits of education, and recent work centres on measuring the extent of each effect (Huntington-Klein 2021).

<sup>2</sup> The method used to account for this ‘ability bias’ credibly found that this inflates the apparent earnings benefits of education by about 10% for secondary school students. However, it simply assumed that this bias is of the same magnitude in vocational and higher education.

### **Box 1.1 – Human capital and signalling theory – does a qualification make you smarter or just signal that you are smarter?**

But there is evidence against the most extreme form of signalling theory in that the earnings benefits from greater levels of education for workers with the same initial ability persist over time — if education is only valuable as a signal of ability, why would the effects persist even after employers can directly observe the ability of employees? There are two possible explanations. First, that employers are unable to ascertain the ability of their employees. And second, that starting out in a high-paid position locks workers onto a permanently higher-paying career trajectory.

Recent research has challenged these explanations and therefore signalling theory, comparing graduates who were just above or just below the threshold for university awards or had their marks arbitrarily rounded higher or lower — with the same ability, but different signals of their ability. In two studies, earnings for those with this false signal were higher initially, but differences disappeared after two years (Khoo and Ost 2018; Toft Hansen, Hvidman and Sievertsen 2021). The employers saw through the misleading signals, instead paying workers based on their ability. And starting out in a higher-paid position did not seem to have lasting effects.

Given this, persistent earnings benefits over time among workers with the same initial ability imply genuine human capital development from education. In fact, earnings benefits seem to grow over time (Bhuller, Mogstad and Salvanes 2017). These findings are significant, implying that tertiary education increases total workforce productivity by developing human capital, rather than merely redistributing the same jobs from less to more educated individuals through signalling effects.

### **Education develops general labour force skills ...**

Education is critical to general skills development. There is evidence of benefits from both secondary and tertiary education to general cognitive performance (Kamhöfer, Schmitz and Westphal 2015; Ritchie and Tucker-Drob 2018). Literacy and numeracy skills, although largely developed at school, also increase at a faster rate among university students compared to other people of the same age (Hampf 2020).<sup>3</sup>

It also improves other non-cognitive skills, with evidence that this occurs into the post-schooling years. For example, an Australian study found that non-cognitive skills — such as sociability and tendency to co-operate — improve at a faster rate among those who go to university compared to those who do not (Kassenboehmer, Leung and Schurer 2018). And people who finish high school are often better equipped to make informed decisions, a skill that leads to a range of other benefits (OECD 2010).

Educated workers undertake more formal and informal on-the-job training (OECD 2012) which has similar benefits for productivity (Dostie 2010).<sup>4</sup> Overall, the OECD estimates that increasing the skills of workers in median-productivity firms up to the skills of workers in firms on the productivity frontier could close the productivity gap between these firms by 19% (Criscuolo et al. 2021).

<sup>3</sup> While this study estimated notable increases in both literacy and numeracy skills, the timing of tests means that some of these skills may have been gained while in the workforce, rather than at university.

<sup>4</sup> Although some research finds that the benefits to the worker and the firm are roughly equal (Nilsson 2010), other work suggests wage benefits to workers, although positive, are smaller than the increase in their productivity (Konings and Vanormelingen 2015).



Beyond developing skills, education can also enable workers' skills to be put to better use. There is evidence that higher education can improve the matching of workers to jobs, as indicated by how long graduates stay with their first employer (Floyd, Tomar and Lee 2022), another channel through which education can increase productivity.

### **... fosters greater levels of innovation ...**

An educated workforce has the potential to facilitate innovation. Clearly, advanced education in areas such as science, digital technology or medicine is a key input to technological breakthroughs in many areas. Similarly, increases in the number of educated workers lead to greater levels of innovative activity from firms (Kong, Zhang and Zhang 2022). Managers with greater levels of education invest more in research and development (Huang et al. 2020). And education increases the success of entrepreneurs (Parker and van Praag 2006).

However, as emphasised in the interim report on innovation, Australia can also see significant gains from adopting and putting into practice innovations from overseas, or from broader diffusion of Australian innovations. An educated workforce may support this diffusion, partly because educated workers are more likely to adopt new technologies (Riddell and Song 2017). Given the key role of innovation for productivity growth, this presents an additional mechanism through which education can drive productivity.

### **... and delivers broader benefits to society**

Education improves productivity partly due to the positive spillovers it creates — benefits to society beyond the educated person. For example, workers may pass their skills or insights from their learning on to their peers, co-workers, or children and so increase their productivity (Bentsen, Munch and Schaur 2019; Suhonen and Karhunen 2019). A greater overall level of education may also create new jobs for lower skilled workers (Schultheiss, Pfister and Backes-Gellner 2018).

Education could also improve health and reduce crime by enabling people to make better-informed life choices (Hai and Heckman 2022; Hjalmarsson, Holmlund and Lindquist 2014; Jha and Polidano 2016; Kamhöfer, Schmitz and Westphal 2015). Higher employment rates and earnings can also reduce government support payments and raise tax receipts, which could be used to fund productivity-enhancing reforms or lower the tax burden.

Other work suggests that the benefits to education could be even broader. Higher levels of education appear to be associated with community engagement, advocacy and volunteering, trust and tolerance, healthy behaviours, environmental conservation activities, employment and business management, lower financial stress, and reduced reliance on government support payments (DESE 2019a).<sup>5</sup>

Investment in education has been found to reduce inequality (Fournier and Johansson 2016) and generally 'improves society by increasing equity and social cohesion' (Australian Education Union, sub. no. 21, p. 3), potentially improving the prospects of the most disadvantaged students by fostering social mobility. Intergenerational cycles of disadvantage can also be disrupted by education, with parental education increasing a child's attainment and reducing the chance that they repeat a grade (Havari and Savegnago 2014; Oreopoulos, Page and Stevens 2006).

---

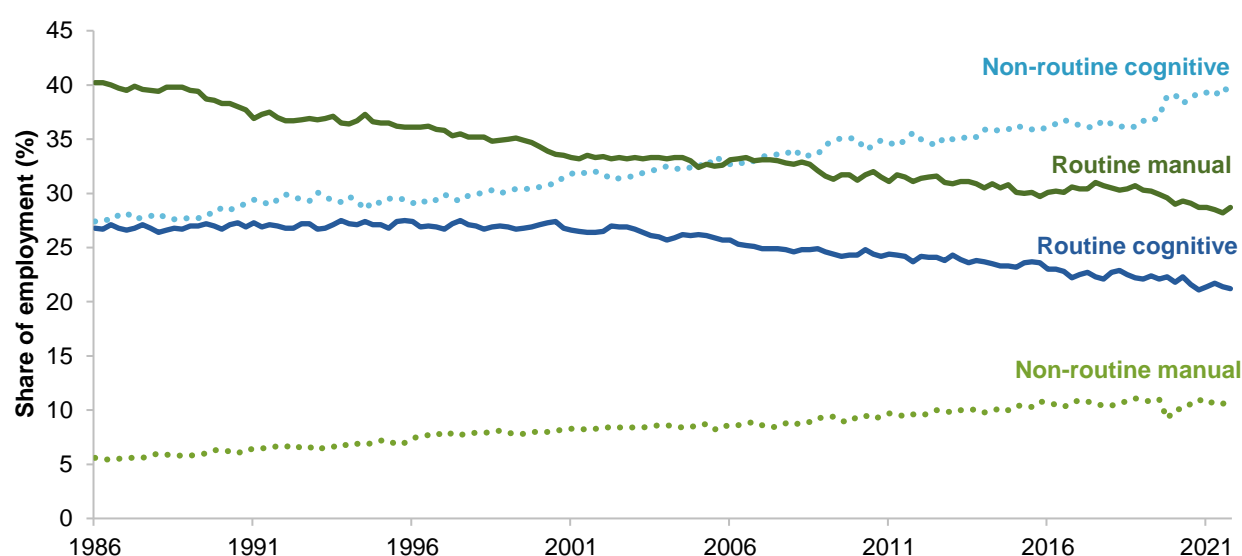
<sup>5</sup> While education is linked to a greater probability of these outcomes, it is difficult to disentangle the contribution of education, as those who opt in to additional education may be independently more likely to achieve them. However, international analyses that account for this have found beneficial effects in line with the Australian results for these outcomes (Hai and Heckman 2022; Kämpfen 2021; Österman 2021).



## 1.2 What skills are needed for Australia's future workforce?

The education sector needs to adapt to emerging skills requirements of the Australian economy. The skills demanded have been shifting, and there is also likely to be ongoing structural adjustment in the wake of the COVID-19 pandemic. Over time, technological change and automation has replaced or enhanced aspects of some jobs, and generated demand for others (PC 2017b). An increasing proportion of jobs require non-routine skills, which typically demand workers with higher levels of education or training (figure 1.3). Past experience suggests automation is likely to shift tasks and occupations to new areas rather than simply eliminate them.

**Figure 1.3 – Non-routine skills are increasingly demanded, particularly cognitive**  
Job types in the labour force (share of total)<sup>a</sup>



a. Based on a mapping from ABS labour force to Australian and New Zealand Standard Classification of Occupations. Non-routine, cognitive: Managers, Professionals; Non-routine, manual: Community and Personal Service Workers; Routine, cognitive: Clerical and Administrative Workers, Sales Workers; Routine, manual: Technicians and Trades Workers, Machine Operators and Drivers, Labourers.

Source: ABS (2022d) Labour Force detailed, table 7. Leal, Lai and Rosewall (2019).

In addition, the services sector now predominates, accounting for 90% of workers, up from about 50% in 1900, which affects the skills required in the economy (PC 2021b). Similarly, population ageing has meant rising demand for health and care workers. Education can develop the skills needed to meet these structural shifts, and reskill workers who become displaced (Ernst, Merola and Samaan 2019).

### Foundational skills underpin productivity

The quality of the education received early in life affects wellbeing and has a long-term influence on Australia's economic growth and prosperity. Education prepares children for their future lives by providing foundational skills required to participate in further education or training, enter the workforce, and participate wholly in society as adults. It is at primary and secondary school that students acquire the foundations of learning in literacy, numeracy and digital skills recognised as 'essential skills for every student' (Education Council 2020).

Conversely, poor literacy, numeracy, and digital skills limit workers' ability to perform many tasks or engage in further training. Put bluntly by one participant in this inquiry:

[P]roductivity enhancing attainment at TAFE and University are bounded by the limits of achievement at earlier levels of schooling. Poor readers make poor students at any stage of education. (Primary Focus sub. 56, p. 4)

Many Australians are still limited by these skills. One in five adults have low basic skills, leaving them unable to perform tasks that could include reading a petrol gauge or understanding the label on painkillers (OECD 2017). This is associated with lower likelihood of being in employment, education or training; and lower incomes. A better education system would reduce the share of lower-skilled people and promote their wellbeing and the productivity of the workforce. And foundational skill deficits will become even more damaging as the demand for routine manual skills continues to decline (figure 1.3).

## **Soft skills are critical to non-routine work**

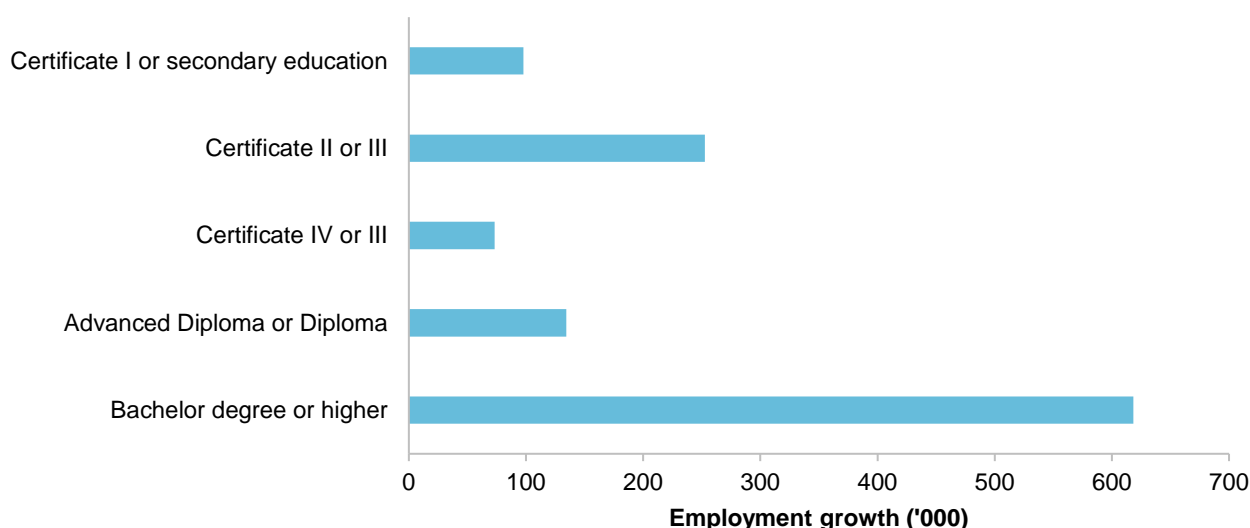
Interpersonal skills are also critical to many workplaces, with effective and respectful engagement with co-workers, managers, customers, or clients as their foundation. While interpersonal skills will often reflect family characteristics and general social norms, education and training can also play a role. For example, the ethos of customer-centric care in aged and disability care involves some teachable practices. Research has found strong earnings and productivity benefits to soft skills, and that these skills can be built through education at many levels, ranging from preschool to on-the-job training (Heckman and Kautz 2012; Prada, Rucci and Urzúa 2019).

## **Skill formation will be essential to the future workforce**

Skill requirements will grow in future decades, with the National Skills Commission (NSC) projecting that more than nine out of ten jobs created in the next five years will require post-school education, and that three out of every five new jobs will be high-skilled (NSC 2022) (figure 1.4).

The NSC identified computing (including data, digital and cybersecurity skills), cognitive abilities, communication, and care as key areas of expected future job growth (NSC 2021a). Developments in 'caring' sectors in particular will drive future skill needs. In 2020-21, for every one retirement age person, there were 3.9 working age people, but by 2060-61, there will only be 2.7. The number of working age people for every person over the age of 85 is expected to fall from 33.2 to 12.5 over the same period (Centre for Population Projections 2021). This will increase the demand for aged care workers. And growing health spending, partly due to the ageing population, will continue requiring more healthcare workers. Occupations in these areas require varying levels of education (usually including post-school qualifications), and all benefit from the cognitive and non-cognitive skills developed in secondary and tertiary education. The tertiary sector, in particular, must be prepared to provide the skills necessary for the care workforce to expand in coming years.

Although we can make predictions that skills in some broad areas will experience greater demand in the future, exact skill needs are hard to predict. Many occupations that will be created in coming decades may be hard to even conceptualise, relying on technologies that are yet to be invented — necessitating lifelong learning to update skills in response to changing technologies and occupational demands. Ongoing and continual learning will complement and transcend what occurs in traditional institutions of education. In this context, it is important that the education sector remains dynamic and adaptable and that businesses have internal capacities and incentives to train their employees.

**Figure 1.4 – Almost all new jobs over the next 5 years will require tertiary education<sup>a,b</sup>**

**a.** From the National Skills Commission Employment Projections, five years to November 2026. 'New jobs' refers to employment growth and does not include mobility between existing positions. **b.** **Certificate IV or III** includes Certificate III level qualifications that include at least two years on-the-job training. **Certificate II or III** includes Certificate III level qualifications that do not include at least two years on-the-job training.

Source: Adapted from NSC (2022).

## 1.3 The education sector context

Schooling in Australia consists of primary and secondary education, ranging from the Foundation Year to Year 12, with school attendance compulsory to Year 10. Of the 9600 schools, approximately 70% are run by State and Territory governments, with remaining schools operating as part of the Catholic education systems (18%) or as independent schools (12%) (ABS 2022e, table 35b). In 2021, there were about four million students enrolled in primary, secondary and special education school across Australia (ABS 2022e, table 42b).

Although a large share of learning occurs on the job, the tertiary education sector plays a vital role in providing both general and occupation-specific skills. The tertiary education sector can be divided into:

- **higher education** comprising universities and other higher education providers (just under 200 providers in total);
- **vocational education and training (VET)** comprising TAFE colleges and institutes, adult and community education providers, private providers, community organisations, schools, higher education institutions, commercial, industry body and enterprise training providers (over 4000 providers in total).

The higher education sector delivers both generalist education and training for highly specialised professional occupations. Conversely, VET is mostly focused on targeted vocational training, developing skills for a particular job function or trade; but also plays an important role in developing foundational skills. Over recent decades, massive open online courses (MOOCs) and microcredentials have entered the market — often delivered by industry as well as higher education institutions — providing alternative avenues for skill formation.

## How the sector is performing

Academic achievement of Australian school students has stagnated over the past decade. Student achievement is often gauged using results from the National Assessment Program — Literacy and Numeracy (NAPLAN) or Programme for International Student Assessment (PISA) tests.<sup>6</sup> Average PISA scores for both mathematics and reading have declined over recent surveys, while NAPLAN scores have been generally steady across all year levels. Recent Commission analysis suggests the fall in PISA results has been more modest than is commonly reported (PC 2022d).

Overall student achievement can also be assessed by looking at ‘performance bands’ (figure 1.5). Performance bands represent increasingly challenging skill levels and correspond with increasingly higher scores on the NAPLAN scale. Over recent years there has been an increase in the proportion of high-performing students in primary schools. Other than this, the proportions of students in the bottom and top performance have remained relatively constant across year levels.

The lack of improvement in academic results has been accompanied by an increase in the amount of money spent on schools over the same time (figure 1.6). Overall, gross school income per student has increased by nearly 20% in real terms since 2011, with little discernible improvement in test scores. A lack of improvement in such student outcomes may reflect where this additional money has been spent: school income per student from government sources for government schools increased by about 18% in real terms since 2011, while the increase was 34% for Catholic schools and 47% for Independent schools. Productivity of the schools sector is discussed in chapter 2.

Australia’s tertiary attainment rate is high, with more than half (53%) of 25-34 year-olds holding a tertiary qualification in 2019, well above the OECD average of 45% (OECD 2021a).<sup>7</sup> However, a large share of students commence qualifications without completing them, raising the question of whether attainment rates could be improved or the matching of students to different parts of the education system could be more effective (chapter 3; chapter 4). For tertiary education the best data available on performance quality comprises student and employer satisfaction surveys. Student and employer surveys mostly point to reasonable and stable satisfaction. In the years leading to the COVID-19 pandemic, university student satisfaction hovered around 80%, although it has fallen since the pandemic (QILT 2021c), likely owing to the rapid move online. Employer satisfaction is in the mid-eighties overall and over 90% in relation to technical and foundation skills — key aspects of university education. Government-funded VET qualification completers also reported high rates of satisfaction, averaging 88% over the past decade (NCVER 2021c).<sup>8</sup> In recent years, employer satisfaction with VET qualification holders has decreased, although it has increased slightly for university graduates (NCVER 2021a; QILT 2021b).

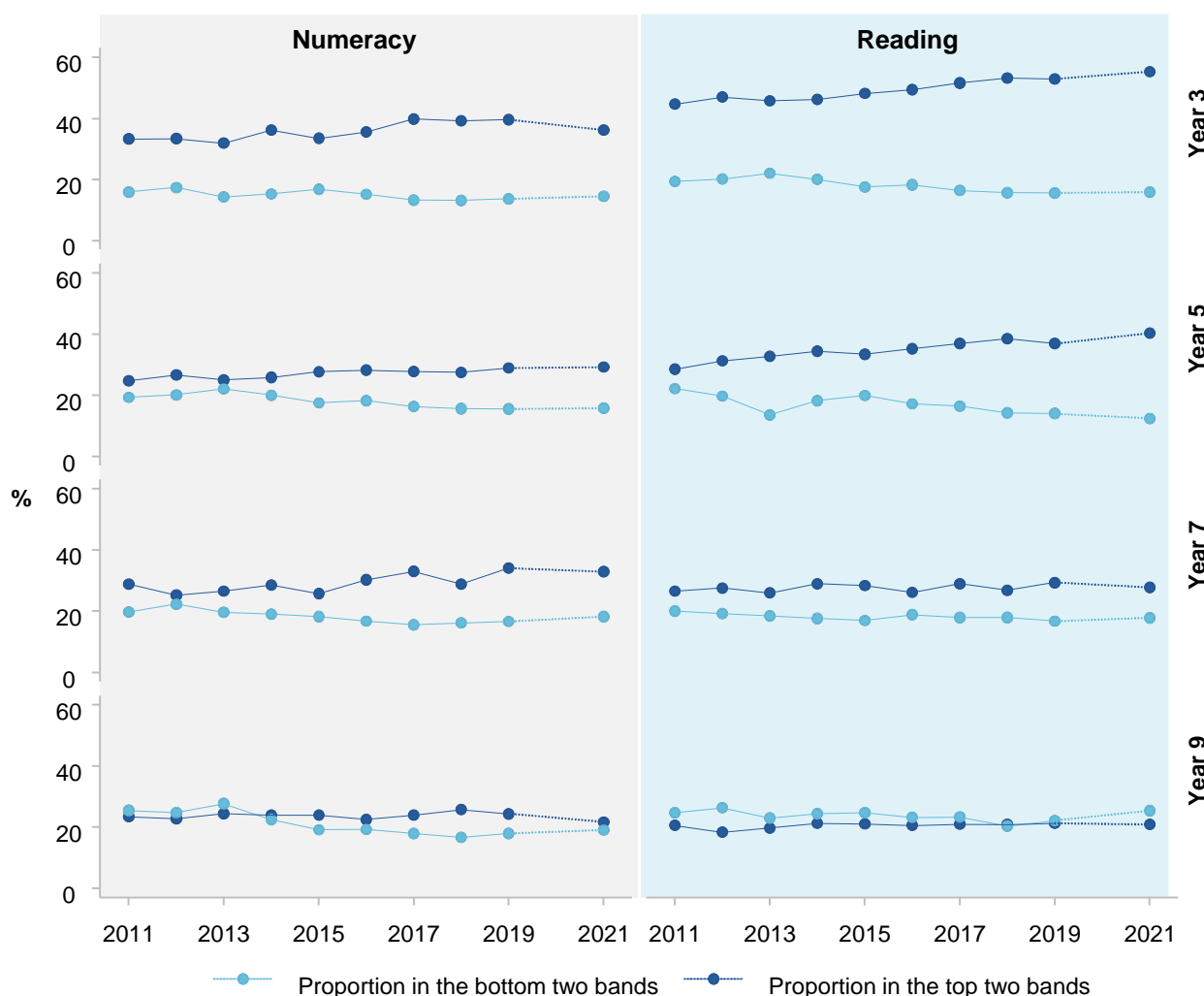
---

<sup>6</sup> NAPLAN is a national assessment taken each year by year 3, 5, 7, and 9 students, whereas PISA is an international standardised test for 15-year-old students — regardless of what year they are in at school — conducted each year by the OECD.

<sup>7</sup> Tertiary education is defined as Diploma and above under OECD classifications. For this report more generally, tertiary education refers to qualifications that are Certificate III and above.

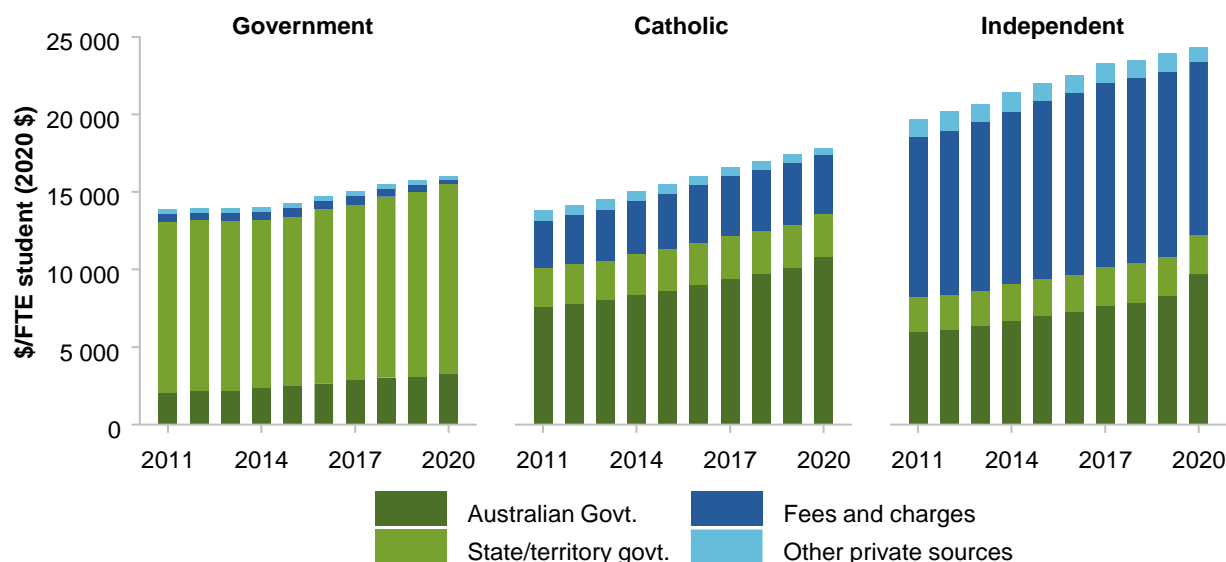
<sup>8</sup> This does not capture students who do not complete their qualification, or students who do not receive government funding (non-government funded students comprise the majority of total VET students).

**Figure 1.5 – NAPLAN suggests that performance has not improved in recent years<sup>a,b</sup>**  
**Percentage of students in the top or bottom two bands, 2008–2021**



**a.** NAPLAN testing was not conducted in 2020. **b.** Students assessed as being in the bottom two bands are at or below the national minimum standard. NAPLAN assessment scores for reading and numeracy can be grouped into 'bands' indicating proficiency in each domain. There are ten bands overall for each domain, with national minimum standards steadily increasing as year levels increase. Students are assessed as being in one of the six bands relevant to their year level, with band 2 the national minimum standard for Year 3, band 4 is the minimum standard for Year 5, band 5 is the minimum standard for Year 7 and band 6 is the minimum standard for Year 9.

Source: ACARA *National Report on Schooling in Australia* data portal.

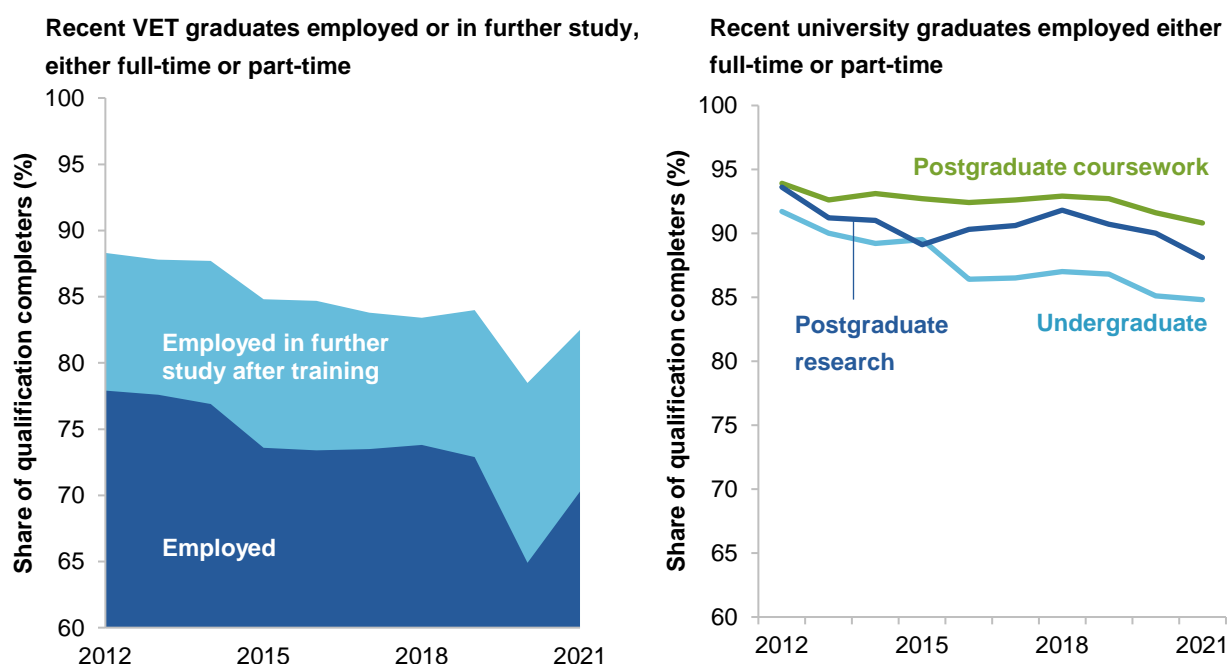
**Figure 1.6 – Spending on schools has increased<sup>a,b</sup>****Gross income from different sources, by school sector**

**a.** Total gross income excludes capital grants. **b.** Amounts are deflated using General Government Final Consumption chain prices (table 2A.26, SCRGSP 2022).

Source: ACARA National Report on Schooling in Australia data portal.

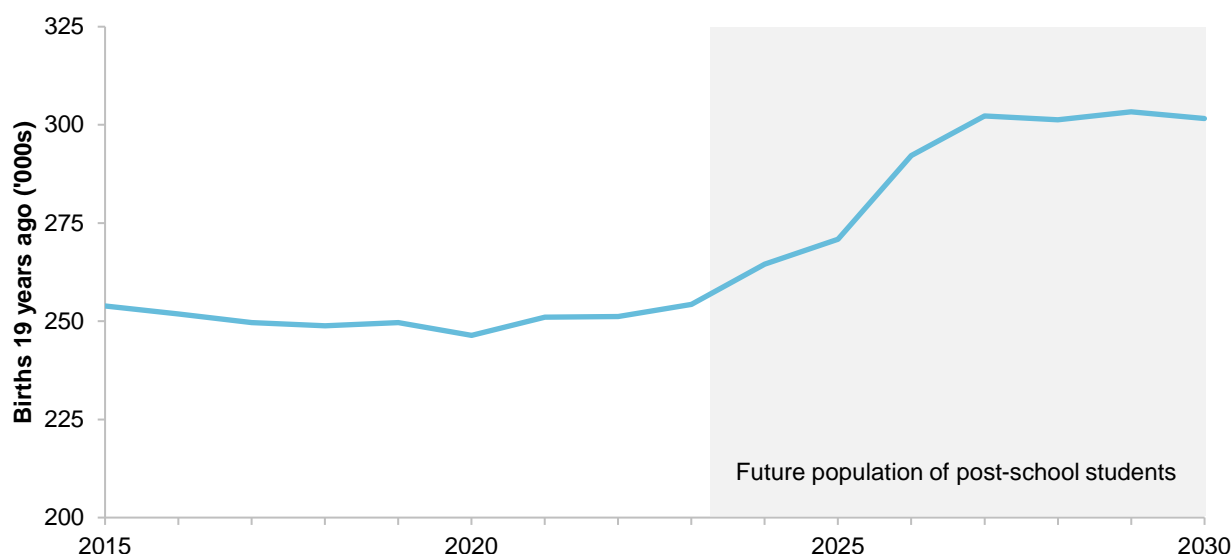
Most tertiary graduates find employment soon after completing their qualification. However, young people are not faring as well as previous generations with graduate employment rates declining across the sector (figure 1.7). It is difficult to attribute this to a change in the quality of education, given changing student characteristics and (until recently) macroeconomic trends are likely to have exerted downwards pressure on employment rates (PC 2019, 2020d). Still, even if these declines cannot be attributed to the tertiary sector, they should prompt institutions to redouble their attention on improving student outcomes — to ensure they are able to support a student body with more diverse needs, and to prepare graduates for an increasingly challenging labour market.

The sector is also not set up to meet rising demand for tertiary education. Those born during the ‘Costello baby boom’ of 2005–2008 will start to leave school shortly, dramatically increasing the population of potential students (figure 1.8). The higher education sector in particular will be unable to meet this additional demand under current funding arrangements (chapter 3).

**Figure 1.7 – Employment outcomes for VET and university graduates have declined<sup>a,b</sup>**

a. The NCVER National Student Outcomes survey is administered to VET graduates about 6 to 8 months after course completion. The QILT Graduate Outcomes Survey is administered to university graduates about 4 months after course completion. The two surveys are not directly comparable, including that the QILT Graduate Outcomes Survey does not report the share of graduates in employment or further study. b. NCVER National Student Outcome survey data includes completed government-funded qualifications only.

Sources: NCVER (2021b); QILT (2021b).

**Figure 1.8 – The population of school leavers will expand considerably in coming years<sup>a</sup>**  
**People reaching tertiary age over time**

a. This does not include the effects of migration and mortality, and is included indicate the upcoming increase in the number of school leavers, rather than to forecast their exact number.

Source: ABS (2021a).

## What this interim report covers

Given the breadth of the education system, this interim report for the 5-year Productivity inquiry does not review the sector comprehensively. There have been many reviews into various aspects of both school and tertiary education over recent years.

- School performance and student achievement were examined in the second Gonski review (Gonski et al. 2018), and there have been reviews of the Australian Curriculum (ACARA 2022b) and initial school teacher education (Paul et al. 2021). The Commission's concurrent Review of the National Schools Reform Agreement examines how well national policy initiatives by the Australian, State and Territory Governments have achieved the objectives and outcomes (PC 2022e).
- Recent reviews into the tertiary education sector have assessed the governance of the sector, including the role of the regulator ASQA (Braithwaite 2018) and the higher education provider category standards (Coaldrake 2019); regional education (Halsey 2018; Napthine 2019); funding (PC 2019); and the performance of the VET sector (Joyce 2019a; PC 2020c).

The early childhood family environment and quality early childhood education and care services can also be important for the development and future prospects of children, and lay the groundwork for effective education. However, this report focuses on the school and tertiary education system.

Both the quantity of education delivered, and its quality are important to Australia's ongoing productivity and prosperity. While there is evidence of a need for greater levels of skill formation, over time it may become more challenging to achieve productivity improvements solely through increases in the *quantity* of education (that is, the number of people attaining higher levels of education). Gains from additional years of secondary schooling have mostly been exhausted, and although additional tertiary students still benefit greatly from their education (Deming 2022), these returns could diminish over time. More people flowing through the education system makes the *quality* of education — what people gain from the years invested — increasingly important. Getting better outcomes for a given number of years of education by raising its quality and better matching what is taught to emerging skill needs will become critical.

In this light, the remainder of this report considers improvements that support:

- schools to provide the foundational skills required to improve economic performance, including through effective teaching practices and better use of technology in the classroom (chapter 2)
- post-school education to develop the skills demanded by Australian businesses, achieved through better targeting government investment and loan arrangements, among other factors (chapter 3)
- better student outcomes in post-school education, by encouraging quality and relevant teaching and facilitating completion where it is in the best interest of students (chapter 4).



## 2. Building productivity in schools

### Key points

- ✱ **Ensuring school resources are deployed efficiently to improve student outcomes over time is vital to Australia's ongoing productivity and prosperity.**
  - Looking to the longer term, it is important to consider the directions in which schooling could evolve to better equip students with strong foundational skills that underpin a productive workforce and healthy society.
- ✱ **School systems need to prioritise gathering and spreading evidence to improve school practice. While there has been progress in developing an education evidence base this is not enough on its own.**
  - Professional learning is key to getting evidence-based teaching practice into classrooms. Master teachers can be used to spread best practice across schools. Within schools, instructional leaders and increased use of observation and feedback practices can be used to promote ongoing improvement in teaching.
- ✱ **Adoption of digital technology has the potential to be transformative, but it needs to be evidence-based, combined with effective pedagogy and integrated carefully.**
  - Governments need to consider how best to ensure digital technologies are integrated into the classroom by enhancing support provided to schools and staff in the purchase and use of technology.
- ✱ **Schools will need to rebalance the roles of teachers and other school staff to better use their expertise.**
  - Teachers should be supported to spend less time on non-core teaching tasks, such as administration, and more time on tasks that directly enable quality teaching and learning.
- ✱ **As in other sectors of the economy, there should be scope to innovate in education — variations on conventional approaches to schooling may better meet the needs of some students.**

### 2.1 Lifting productivity in schools is essential

The role of education in fostering future productivity growth is broadly accepted (chapter 1).

By contrast, applying a productivity lens to the operation of schools can seem foreign and is opposed by some. Yet school productivity improvement is about getting better quality outcomes for students from the inputs (teachers, other staff, and physical capital) or using these resources more efficiently for the same

quality outcomes. In aggregate, future productivity improvements, however, are unlikely to come from additional years spent in school education (Primary Focus, sub. 56, p. 11, 23).<sup>9</sup>

Evidence suggests school productivity may be trending downwards, although it is difficult to reliably estimate (box 2.1). Given the size of the sector<sup>10</sup> and the role of schools in providing the fundamental building blocks of future human capital, any improvement in the way schools work is likely to result in future economy-wide productivity gains. But these gains will be over a long time horizon.

As the system designer, main funder and a supplier of formal school education, governments play a key role. To achieve a better functioning school system geared to long-run productivity improvement, governments can:

- strengthen and embed the mechanisms to diffuse evidence-based practices in the classroom (section 2.2)
- embed digital technologies into the classroom in a way that captures potential quality improvements (section 2.3)
- rethink the role of the teacher, and how other staff can support high quality education (section 2.4)
- consider trials of different models of school operation, to potentially reach those students whose needs are not currently being met (section 2.5).

To lift the quality of long-term student outcomes, the Commission's education policy reform directions are focused on influencing what happens in the classroom. There is a poor connection between education policy making and implementation in the classroom (PC 2022e, p. 28). Some stakeholders have advocated that a greater understanding of classroom practice is essential to designing effective education policy (PC 2022e, p. 159).

### **Box 2.1 – Simple measures exaggerate a decline in school productivity**

Productivity is a measure of how well a school uses available inputs to achieve its desired outputs. Schools primarily seek to use their 'inputs' — capital (school buildings) and labour (teachers and other staff) — to produce 'outputs' in the form of educational achievements, broadly defined. It is hard to measure school productivity because it is difficult to measure output and to account for changes in its quality (PC 2021b, pp. 25–26). The failure to properly account for improvements in quality means that productivity improvements can be substantially underestimated (OECD 2001, p. 37).

The ABS 'experimental' estimates of school labour productivity and multifactor productivity (MFP) (figure) do not account for changes in the *quality* of inputs or outputs and so should not be seen as an authoritative measure of productivity. They simply provide an indication of how aggregate changes in the number of students educated relates to changes in the volume of inputs used:

- labour 'productivity' compares the changes in the volume of services produced (full-time equivalent enrolments, weighted by costs) with the change in the volume of labour used (hours worked).
- multifactor productivity compares the volume of outputs to a measure of combined inputs. Inputs used in these measures include labour, capital, and intermediate inputs (energy, materials and purchased services).

<sup>9</sup> Nevertheless, it is likely that completing year 12 will have benefits to the individual, their families and communities.

<sup>10</sup> In 2021, there were over 9500 schools across Australia, employing over 300 000 teachers and 140 000 non-teaching staff (ABS 2022e).

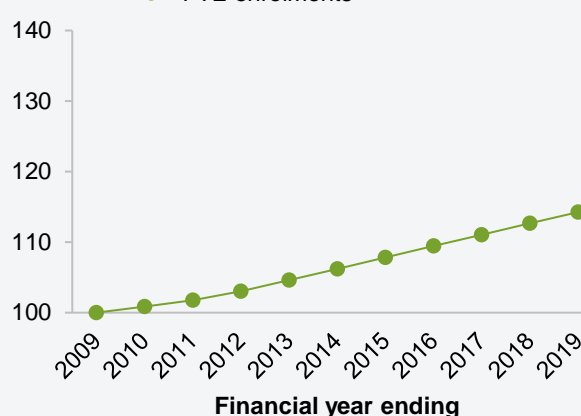
### Box 2.1 – Simple measures exaggerate a decline in school productivity

As school education is a labour-intensive service, the multifactor productivity index moves in a similar way to the labour productivity index: multifactor productivity fell on average 1.2% each year over the period 2008-09 to 2018-19, while labour productivity fell on average 1.1% each year over the same period. This reflects the fact that the annual growth in outputs (about 1.3%) is less than the measured growth in inputs (about 2.7% each year for combined inputs). Around 65% of the decline in labour productivity and 60% of the change in MFP is attributable to the decline in student-staff ratios.<sup>11</sup>

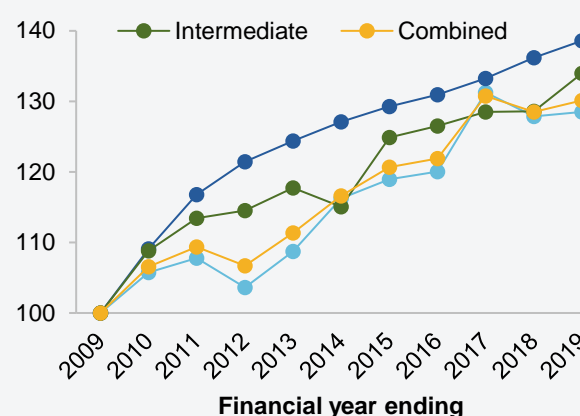
#### Inputs and outputs in the school sector<sup>a</sup>

Index value 2008-09 = 100

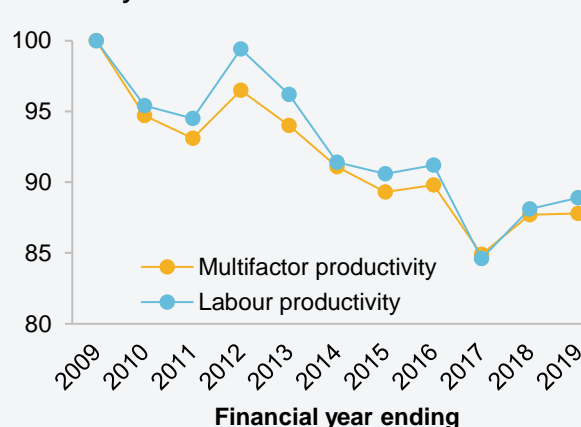
**Outputs** — FTE enrolments



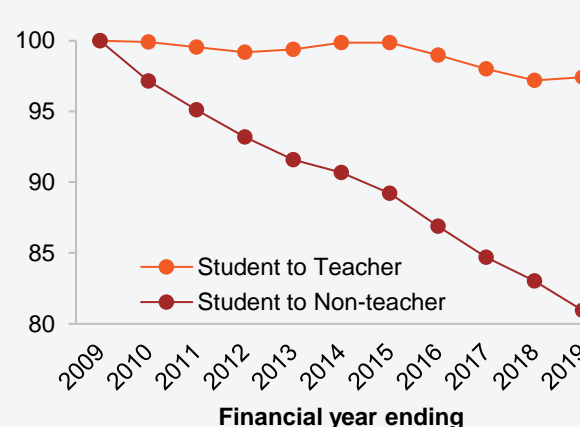
**Inputs** — Labour, Capital, Intermediate, Combined



**Productivity indices**



**Student-to-staff ratio**



Source: ABS (2020).

Some studies make adjustments for education quality. The Queensland Productivity Commission estimated productivity in schools by the number of students, adjusted for the proportion of students that met the minimum standards. These estimates also used cost shares to weight schools by type (primary or secondary) or sector (Independent, Catholic or government) and used total deflated revenue as the

<sup>11</sup> The average annual rate of decline would have been around 0.3% if student-staff ratios had been held constant.

### **Box 2.1 – Simple measures exaggerate a decline in school productivity**

measure of inputs (Cornell-Farrow 2019, pp. 8, 26). By this metric, school productivity in Australia appears to have decreased modestly, with an annual rate of decline (across Australia) of about 0.14% between 2009 and 2016 compared to 0.72% growth of MFP in the market sector (16 industries) over the same time period (ABS 2021b; Cornell-Farrow 2019, p. 22).<sup>12</sup> Nevertheless, achievement of minimum standards is still a narrow indicator of education quality.

Overall, the evidence suggests that the resources required to educate a single child in schools has increased significantly over time, but that when quality adjusted, there is likely to have been only a modest decline in productivity in the school sector. Estimates of school productivity that allow for quality-adjusted inputs and outputs at the school level provide a more detailed picture of the performance of the different elements of the schools sector over time.

## **2.2 Making best practice teaching common practice**

A strong education evidence base helps policy makers, school leaders, and teachers make informed decisions about the policies, programs and classroom practices that would lift student outcomes (PC 2022e, p. 8). In recognition of this, the Australian Education Research Organisation (AERO), which seeks to develop an evidence base relevant to Australian schools, was created in 2021 (AERO 2022).<sup>13</sup>

But a strong evidence base on its own will not ensure improvements in educational outcomes — this requires changing what happens in the classroom. But this is one of the main gaps in the process of diffusion: how best to convert knowledge about educational best practice into common practice (AERO 2021; PC 2016, p. 29) (box 2.2). For example, AERO (2021) found up to 71% of teachers reported using teaching strategies that are generally not shown to be effective for student learning, in most or every lesson.

### **Box 2.2 – Getting evidence into the classroom requires a systematic approach to implementation**

Making sure that evidence-based practices are successfully applied in the classroom is a complex and ongoing process of change, relying on the judgement and ability of teachers, principals, and other school leaders to plan, implement, and evaluate change. School leaders and teachers need to be able to:

- identify a student learning issue that is a priority and is amenable to change
- be aware of relevant, quality evidence applicable to their specific needs

<sup>12</sup> Market sector multifactor productivity (MFP) differs from the school productivity measure used here in that the former used labour and capital inputs weighted by their cost shares while the latter uses total revenue deflated by the Government Final Consumption Expenditure implicit deflator. Also, the market sector figures use financial years ending in those years while the Queensland Productivity Commission figures use calendar years.

<sup>13</sup> The development of a strong evidence base is discussed more extensively in the interim report of the Review of the National School Reform Agreement (PC 2022e, p. 65).

### **Box 2.2 – Getting evidence into the classroom requires a systematic approach to implementation**

- analyse this evidence to form a judgment about the benefits of a program or practice, and whether they are likely to be applicable to their specific local context and conditions
- adopt and adapt an evidence-based program or practice successfully in this context
- deliver the program, ensuring staff are trained, supported and able to implement the program in a way that is faithful to the evidence used
- sustain or scale up the program over time in a way that maintains observed benefits (Evidence for Learning 2019b, pp. 6–8).

Ultimately, school leaders will need to decide whether to conclude or continue the program or practice. This decision should not only be informed by the observed effect and the supporting evidence, but also by the cost of the program (both in terms of resources and time).

## **Professional learning spreads and embeds best practice**

Effective professional learning is key to getting evidence-based teaching into classrooms. Professional learning needs to be integrated and embedded in the daily operation of schools, not viewed as an optional extra:

[P]rofessional learning is central to [teachers'] jobs. It is not an add-on. It is not something done on Friday afternoons or on a few days at the end of the school year. Teacher professional learning is how they all improve student learning; it is how they improve schools; and it is how they are evaluated in their jobs. They work in systems that are organized around improvement strategies explicitly anchored in teacher professional learning. (Jensen et al. 2016, p. 5)

Governments and schools need to change the current system of professional learning to spread evidence-based classroom practices. The aim is to change teachers' thinking, knowledge, and skills about instruction in order to change classroom practice (Hobbs et al. 2022, p. 36). One way of achieving this is through the use of classroom observation and feedback as a means of promoting on-the-job learning (Hobbs et al. 2022, p. 36).

On-the-job learning that involves feedback obtained from a range of potential sources including peers, more experienced colleagues, and subject experts can lead to ongoing and persistent improvement. High-performing school systems 'cultivate an open-door culture' that ensures teachers have the time to observe others to develop their knowledge and expertise and to provide feedback to assist others (Jensen et al. 2016, p. 39). The opportunity to observe others and receive feedback about their work is particularly essential in supporting teacher development (OECD 2018, pp. 107–108). For example, teachers work together in small groups to analyse and improve their practice has been found to have significant positive effects on teaching quality and student academic achievement. Teachers report enhanced morale, stronger individual and collective efficacy, and improved school culture (PC 2022e, pp. 13–14).

Feedback needs to be recognised and promoted within the schools sector in terms of the professional accountability of teachers — where teaching is promoted as a collaborative endeavour, and performance is improved through an ongoing process of constructive feedback (OECD 2018, pp. 115–116). Unfortunately, teachers often see feedback as an administrative burden that is not linked to meaningful professional development (OECD 2014, p. 1). However, the idea of 'professional accountability' for teachers emphasises

a professional obligation to students, their parents, and fellow teachers, as well as a commitment to ongoing learning and improvement.

### Using master teachers and instructional leaders to spread great teaching

To drive the spread of evidence-based practice, professional learning can be assisted by the creation of dedicated roles within schools and within school systems to spread knowledge, provide detailed feedback and assist in the change of practices. Although the use of instructional lead teachers to guide improvement in teaching practices is widespread across Australian school systems, there is limited evidence that changes in practice persist due to time constraints and a lack of subject-specific expertise on the part of lead teachers.

A combination of ‘master teachers’, and ‘instructional leaders’ based on approaches observed in Singapore and Shanghai can be used to guide teachers in the use of evidence-informed practice (Jensen et al. 2016, p. 36). Master teachers are pedagogical leaders who are not responsible for classroom teaching and operate across multiple schools to identify teacher needs, coordinate training, and connect schools with research. In contrast, instructional leaders split their time between classroom teaching and instructional leadership, working in their own schools to support and guide other teachers in specific subjects (Goss and Sonnemann 2020, p. 11).

Improving teaching quality requires professional development of teachers to be prioritised. When schools are under staffing pressure, observation and feedback practices are often the first to go. However, an ongoing commitment to improvement requires that professional learning be recognised as part of daily teaching practice. Prioritising observation and feedback means timetables need to be adjusted, and resources allocated at the school level. This could be achieved in a number of ways, including changes to existing professional learning, the number and length of staff meetings, school assemblies, changes to class sizes, attendance of extra-curricular activities, or specific allocation of funding (Jensen et al. 2014, pp. 13–16).



#### Information request 2.1

##### How to spread best practice teaching

- What are the most effective ways of sharing evidence-based teaching practices? What are the barriers to implementing these in the classroom and making sure that they ‘stick’?
- Would ‘master teachers’ and ‘instructional leaders’ facilitate spreading and maintaining effective teaching practices?

## 2.3 Leveraging digital technology in schools

Technology has changed the way students learn, teachers practice their profession, and schools operate. It has evolved from one computer for the school, to one per class, to personal devices operating in networked schools that wirelessly save outputs to the cloud and that are shared with teachers and other students. Classrooms have moved away from blackboards to whiteboards and projectors, and gone are the mimeographs and, to a lesser extent, photocopiers, that have been replaced by emailed or shared files. And it is not just about the hardware and its ubiquitous spread — applications have become integrated into schools, improving the way they operate and expanding the educational possibilities.

Historically, public discussion on the use and spread of technology in schools has focused on hardware, perhaps motivated by a sense that access to computers would help students learn about technology. In fact, future gains in educational outcomes will likely come through software, as applications get integrated into classroom practice, and technology is used to augment the teaching of ‘traditional’ core subjects such as maths, reading or history (OECD 2021c, pp. 15–17). Many different applications are likely to play a role in future education (Southgate et al. 2018). Instruction and assessment are already being supported by AI-enabled software. Digital communications can provide remote learning options to complement in-person teaching.

Digital technologies have the advantage of being able to ‘scale up’ practices or tasks across schools more easily and potentially at lower cost than other school inputs, augmenting teacher capabilities and in some cases replacing low-value tasks. In some ways, the future role of technology in school education could be similar to the role it has played in the advancement of the quality of health care provision over the last century (Ambinder 2005, pp. 54–56; HATI International 2017).<sup>14</sup>

## Reaping the benefits of digital technology in schools

### Improving student learning with digital technology

Digital technologies offer an array of new possibilities to support student learning, including providing opportunities for learning unconstrained by space or time and providing access to learning tasks that were not previously possible (box 2.3).

#### Box 2.3 – A framework for integrating technology into student learning

The Substitution, Augmentation, Modification, Redefinition framework outlines how digital technology can be integrated into student learning with reference to traditional teaching methods or materials (Terada 2020).

- *Substitution*: Technology acts as a direct substitute replacing traditional material with no functional change. For example, lessons and worksheets are converted into PDFs and posted online for students to access rather than a paper version being distributed in class.
- *Augmentation*: Technology acts as a direct substitute with some functional improvement to enhance learning. For example, worksheets that are converted to PDFs may also include hyperlinks to additional material or have a media clip embedded in the PDF for students to watch.
- *Modification*: Technology allows the learning task to be significantly redesigned. For example, to encourage student participation in class, instead of students orally asking questions, students can use software to ask their questions, such as in a chat function.
- *Redefinition*: Technology allows for the creation of new tasks, previously inconceivable. For example, a school 400 kilometres south of Darwin used cameras to locate spiky pokipain (echidna), which had not been seen in the region for years (Fitzgerald 2022).

<sup>14</sup> The increase in precision and accessibility of medical imaging technology (such as MRI scans), for example, allows doctors to find diseases in their early stages — leading to better outcomes for patients (better prognosis and less invasive procedures) (PBMC Health 2018). When combined with other technologies, such as artificial intelligence, further quality improvements can be achieved (such as better diagnoses) along with easing the workloads of radiologists (Walach 2022).



Technology can support students of different abilities and/or learning paces through personalised learning programs, where students work through material in an online application supported by a teacher (Major, Francis and Tsapali 2021, pp. 1938–1939). For example, online apps present information to students using varied methods (such as passages of text or video) to cater for the different ways students prefer to learn.

Technology can increase student engagement by making learning more appealing, such as by using game-based learning. Students can be engaged with learning in a playful and dynamic way using principles of competition, points, incentives and rewards. Using these programs, students learn through repetition, failure and by accomplishing goals. For example, Mathletics, an online maths program, provides students with animated maths activities and challenges that allow students to earn rewards for correct answers, consistency of work over a number of weeks, and participating in live competitions. These rewards can take the form of certificates, ranking on a world leader board or credit points to purchase items for a student's online avatar (3P Learning 2014).

Digital technology can be more adaptive to new learning content. In the past, textbooks would be set and used for a number of years, and it could take some time for new information to be reflected in these books. Online programs, including digital texts, can be updated with new information in a much shorter timeframe and can provide access to information and specialised material beyond that included in a textbook (OECD 2022, p. 78).<sup>15</sup>

With expanded access to resources and knowledge, students may become less reliant on teachers to directly tutor — the role of the teacher may shift away from that of the sole instructor or the distributor of knowledge to 'more important roles such as the organiser of learning, curator of learning resources, counsellor to students, community organiser, motivator and project manager of student learning' (Zhao and Watterston 2021, p. 7).

### **Remote delivery of class instruction to reduce teaching out of field**

Technology can offer the remote delivery of class instruction or blended learning opportunities. Throughout widespread school closures due to the pandemic, many teachers delivered class content to students using technology, ranging from emailing class instructions to offering classes via video conferencing packages such as Zoom. Other schools, even before COVID, offered online remote education as part of standard instruction — either entirely remote or blended with other face-to-face classes. Some of these schools have emerged out of traditional correspondence schools (such as Tasmanian eSchool and the Virtual School Victoria) while others have developed out of a desire to have a new approach to schooling (such as Khan World School) (Horn 2022; Tasmanian eSchool 2022; VSV 2022).

The use of technology to deliver blended in-class and remote learning opportunities can help reduce the downsides associated with teaching out of field, including poor student outcomes, and additional teacher stress (PC 2012, pp. 95–96; Shah, Richardson and Watt 2020, pp. 9–10).<sup>16</sup>

---

<sup>15</sup> Although there will be search costs and issues of quality assurance that need to be considered.

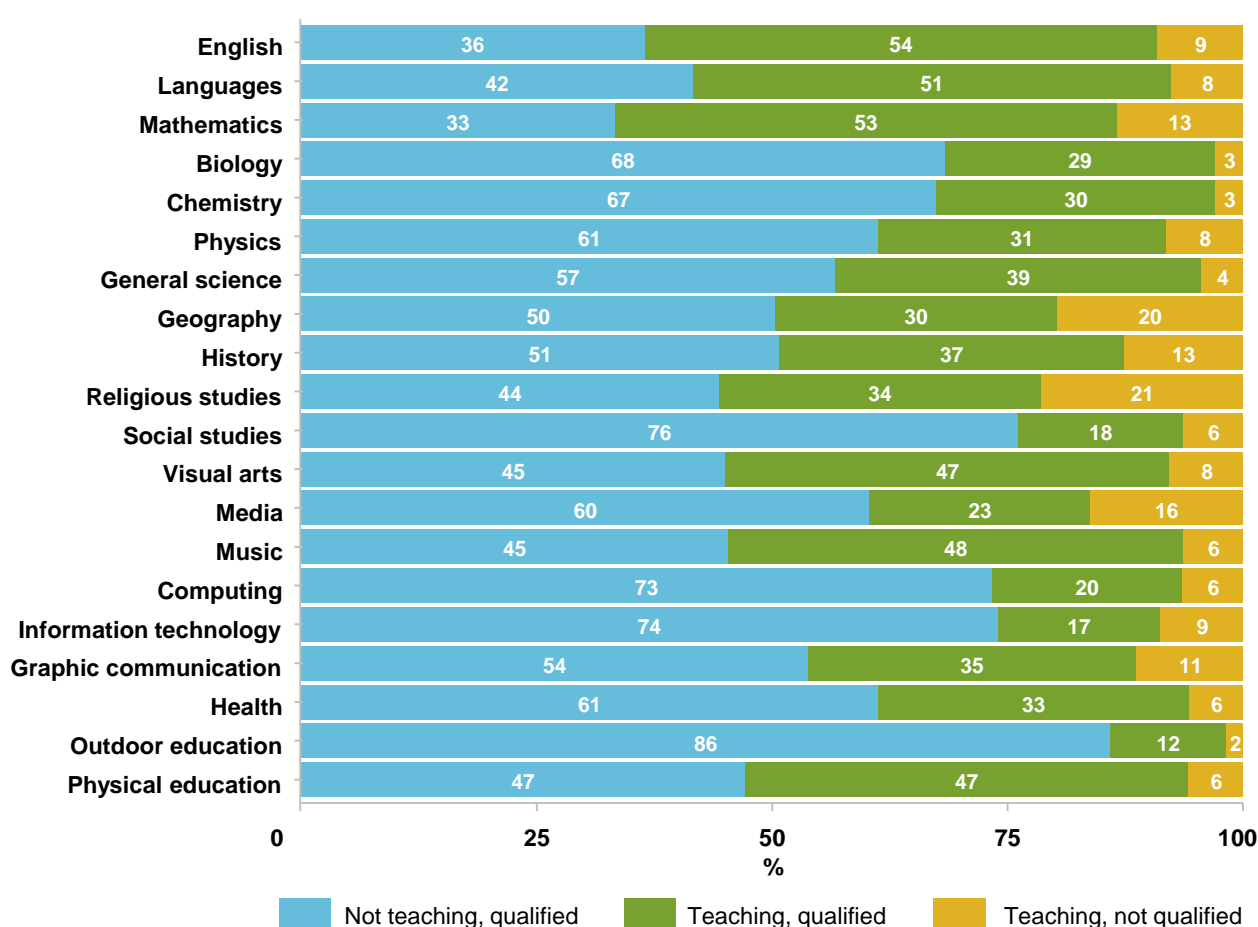
<sup>16</sup> The Commission's Review of the National Schools Reform Agreement has a discussion of teaching out of field (PC 2022e, pp. 132–133).



While teaching out of field can reflect a shortage of teachers, it also reflects a mismatch of teachers across schools.<sup>17</sup> That is, there are specialist teachers not teaching in their area of speciality, while in other parts of the school system, there are non-specialist teachers teaching that subject (figure 2.1). The number of teachers who have specialised but are not currently teaching their specialisation (blue of figure 2.1) outweighs the number of teachers who are teaching that subject out of field (gold in figure 2.1) (Weldon 2016, pp. 4–5).<sup>18</sup> For example, of those either qualified to teach English or actually teaching English, 36% were not teaching but qualified, and 9% were teaching out of field (figure 2.1).

**Figure 2.1 – There are many qualified teachers not teaching while others are teaching out of field**

**Percentage of secondary teachers either teaching or qualified to teach, by subject**



Source: Weldon (2016).

Online portals and video technologies offer a way of ensuring access to qualified teachers. This is a viable alternative to either denying students access to subjects or using an unqualified teacher, when a suitably

<sup>17</sup> This mismatch is caused by the complexities of school class scheduling, autonomy, and the nature of student-teacher ratio funding making it difficult for some schools, particularly small schools, to have the right mix of teachers to cover the full spectrum of classes demanded by secondary school students (Hobbs and Porsch 2021, p. 1).

<sup>18</sup> Teachers who are not teaching a subject for which they are qualified may be at a school that does not offer that subject, or they may be teaching a subject that has a higher priority in that school (and for which they are also qualified to teach).

qualified teacher is not available. Offering tuition remotely affords a number of flexibilities: lessons could be pre-recorded or live, with pre-recorded lessons allowing schools timetabling flexibility. Students could be located at school while learning, although schools could put in place different arrangements for senior students. Students would still require school support while studying, including distributing resources and supervising assessments. Offering this service would increase transparency for the school community regarding the gaps in the teacher workforce at that school.

A similar schooling model is currently offered at Virtual School Victoria. While it is a model that caters for all subjects to be taught virtually, it also accommodates blended learning options — that is, where students want to maintain their current enrolment in their mainstream school, complete one or two subjects through Virtual School Victoria that are not offered at their school or not available due to timetabling clashes. An alternative approach involves interschool, video-based collaboration where students take classes at other local schools, attending lessons remotely. At least once a term the student could attend in-person for one-on-one tuition with the teacher.



#### Information request 2.2

##### Using digital technology to reduce teaching out of field

- How can virtual schools be more widely used to ensure that students are able to take a broader range of subjects with appropriately qualified teachers?
- What is the best model for providing access to classes in a virtual setting?
- What are the risks of providing access to virtual schooling? How can they best be addressed?

## Supporting teachers with digital technology

Digital technologies can aid teachers in a range of activities, including planning and presenting lessons, sharing resources, individualising lesson plans, and assessing students. Digital technologies can also help teachers with other tasks such as administration that are separate from learning activities.

Formative assessments that use digital technologies may help teachers move away from a resource-intensive, paper-based practice to one that is more streamlined and provide support to the teacher in analysing individual learning (table 2.1).<sup>19</sup> While formative assessment can be done manually by teachers, software can potentially automate repetitive, time-intensive tasks such as marking student assessments, doing so with minimal delay and providing more granular insights into student learning. Students are likely to experience greater benefit where ‘individualised feedback is provided instantaneously and more frequently’ (Lane et al. 2019, p. 97). The potential benefit of this area is recognised with the development of an online formative assessment tool included in the eight policy initiatives in the National School Reform Agreement between the Australian, State and Territory Governments (PC 2022e, p. 61).

Digital technologies can also assist in monitoring student engagement in learning activities. Teachers are able to monitor whether teaching materials have been accessed and which questions have been attempted and answered correctly, providing feedback about active participation with assigned tasks.

---

<sup>19</sup> Formative assessment encompasses both formal and informal assessment procedures that are used to modify future teaching and learning activities.

**Table 2.1 – Technology can support teachers in their formative assessment practice**

	Manual approach	Technology-enabled approach
<b>Teaching &amp; learning</b>	The teacher develops their own resources.	The teacher uses existing digital content or interactive applications.
<b>Assessment questions</b>	The teacher creates paper-based assessments, using a photocopier outside of class time.	The teacher can select from pre-existing assessments or create their own. Distributing the assessments can be done digitally, reasonably quickly.
<b>Administer assessment</b>	Students can only sit paper-based assessments if they are in school. Students who are not present miss the assessment at that time.	Students sit the assessment digitally, available through an app or browser. This flexibility enables students to take assessments 'on-demand', as opposed to having to be present in the classroom. Other issues, such as managing potential cheating, need to be managed.
<b>Mark assessments</b>	The teacher marks each student's responses on paper with pen.	The teacher retains the ability to mark papers individually or could make use of automatic marking solutions, such as self-marking quizzes.
<b>Student Feedback</b>	Students physically receive their returned assessment, graded by the teacher. In some instances, the teacher will provide additional written feedback.	The teacher can provide individual feedback and make use of voice notes and/or video to provide richer, deeper feedback to students. Student grades and performance can be shared with parents through dashboards and apps.
<b>Data Capture &amp; Storage</b>	The teacher stores the data in a spreadsheet, manually inputting individual student scores.	The teacher can make use of assessment platforms to automate data capture, which can be shared more widely with other staff members or with parents.
<b>Gap Analysis &amp; Spotting Trends</b>	The teacher analyses the scores manually, looking for knowledge gaps or trends in performance.	The teacher can make use of solutions that intelligently analyse student performance, either at an individual level or across cohorts.

Source: EdTech Impact (2022).

### Digital technology to reduce teacher administrative load

Technology can also help reduce teaching administration, ideally freeing the teacher from some tasks. As teachers and school staff are busy (section 2.4), this type of automation is likely to be welcomed by the school sector as it aims to remove teacher tasks that are often tedious or time-consuming and may not directly contribute to student learning. Examples include:

- a phone accessible interactive portal that lets parents give permission for their child to attend an excursion (with email or text message reminders for parents so they do not miss the due date, which would otherwise require teachers to follow up with a phone call)

- an application that can efficiently book a series of parent-teacher interviews for parents to meet with their child's high school teachers, at mutually convenient times with minimal need for teachers to manage the process.

Implementation of digital technologies for administrative purposes needs to consider staff (including non-teachers) workflow, staff training and skill requirements, interoperability of systems, and the successful transition from paper-based systems. A shift from total to partial reliance on paper-based administrative tasks can require staff to manage more administrative processes, actually increasing workflow. Based on survey evidence from the United Kingdom, the majority of headteachers (74%) and teachers (65%) indicated that technology already had, or would in the future, contribute to reduced workload. These headteachers in particular believed that the use of technology had saved them time on key tasks, most commonly for financial management, engaging with parents and governance, student data management, and timetabling for secondary schools (CooperGibson Research 2021, p. 14).<sup>20</sup>

## **But technology is not a silver bullet**

### **Technology and learning outcomes are mixed**

While there remains scope for schools to extend the use of technology and improve the use of existing technologies, past studies have shown that that digital technology use at school does not always improve student outcomes (OECD 2022, p. 27). At the classroom level, the frequency and effectiveness of digital technology use by teachers is often related to their training, ability to integrate digital technology into teaching processes, collaboration with colleagues, perceived self-efficacy, and beliefs about teaching (OECD 2022, p. 79). For example, the effective use of formative assessments that involve digital technologies require both assessment knowledge and data literacy, meaning that implementation needs an increased focus in initial teacher education and teacher professional development. Effective use requires a classroom philosophy that considers mistakes as opportunities to learn, and a pedagogy that allows teachers to break down critical concepts and redesign instruction to match student needs (Lane et al. 2019, p. 15).

### **A digital divide in learning persists**

Inclusion remains an important consideration in formulating approaches to the use of digital technology in schools. The COVID-19 pandemic highlighted the challenges education systems face in addressing the 'digital divide' — that is, structural differences in the ability of students to access and effectively use digital technologies. For example:

- 91% of students who live in advantaged communities have internet access at home, compared to 68% of Australian children living in disadvantaged communities (The Smith Family 2017)
- 99% of advantaged students report that they have a computer at home to use for school work compared to 84% of disadvantaged students (Thomson 2020)
- 91% of students in advantaged homes report having three or more computers in the home compared to 41% of students from disadvantaged families, suggesting that children in disadvantaged families may have to share their use of a home-based computer with other family members (Thomson 2020)
- 32% of teachers in disadvantaged schools (compared to 13% of teachers in more advantaged schools) report a shortage or inadequacy of digital technology for instruction (Thomson and Hillman 2019, p. 66).

---

<sup>20</sup> The Commission could not source similar data for Australia.

Meaningful digital inclusion depends on more than just access to devices and functioning internet.<sup>21</sup> Students and teachers need to have the knowledge, skills and motivation to make the most of the technology offered. The digital divide exists between students who are using digital technologies in active and creative ways to support their learning, and students who mainly use them for passive content consumption (Vlies 2020). There are also gaps in access to these opportunities between socioeconomic groups (Thomson 2020).

### **The array of digital products needed creates other considerations**

The system and software requirements of schools vary according to the size of the school, the social and economic demographic of the students, the availability of internet access, the age of students, and the technical proficiency of educators within the school (PwC 2020).<sup>22</sup>

Many schools, complement their centralised student information systems with commercial off-the-shelf products in order meet their specific needs.<sup>23</sup> This requires school staff and potentially teachers or principals to consider a range of factors including software integration (interoperability), privacy and security of data, and the efficacy of the product. Teachers and principals do not always have the training, nor the time, to make these choices well.

A number of State and Territory Education departments provide support to schools purchasing software.<sup>24</sup> For example, the Victorian Department of Education provides guidance on privacy impact assessment. This process helps schools identify privacy and security risks, evaluate compliance with the *Victorian Privacy and Data Protection Act 2014* and *Health Records Act 2001*, and document what actions are required to mitigate any identified risk (Victorian Department of Education 2020). The Australian Government's eSafety Commissioner provides online safety assessment tools and checklists to screen new technologies (eSafety Commissioner 2022). Even with such supports, staff may be ill-equipped to make such decisions given variation in their experiences and capabilities. A recent analysis of over 150 educational apps and websites found that close to 90% of those used could put children's privacy at risk. These products requested access to students' contacts and locations and monitored their keystrokes. Some of these products had undergone a privacy impact assessment (Duffy and Stewart 2022).

### **Support needed to implement digital technologies**

Given the cost of some purchases, it is essential that school staff have the skills and capabilities to choose technologies that are fit for purpose, provide value for money, have the necessary safeguards, and are also beneficial for student learning, support teachers to teach, or improve the operation of schools. However, there is limited available information about how schools identify the need for digital technologies, understand how they are best deployed, and assess their relative costs and benefits.

<sup>21</sup> The Australian Digital Inclusion Index (ADII) covers three core aspects of inclusion: access, affordability and digital ability which includes enthusiasm, confidence, and a sense of control when using the internet, as well as experience, skills, and knowledge in internet use.

<sup>22</sup> A schools' student information system is the central source of information at a school. It holds information about a student — their name, contact details, medical information, and academic information. Some jurisdictions have mandated centrally delivered systems, while others allow schools a choice (PwC 2020).

<sup>23</sup> Off-the-shelf packages offer a range of functions such as establishing channels of communication with parents; offering and scheduling parent-teacher interviews; managing parent payments for tuition or excursions; providing canteen services and uniform shops (sometimes without cash); recording visitors to school premises; and recording and monitoring student attendance and results.

<sup>24</sup> The NSW Government has a centralised process for information technology purchases (NSW Department of Education 2022b).

To make these decisions, schools need to have access to information about the products available and be able to assess this information to make an informed decision. Evidence from other markets that sell complex products, such as financial products, suggests consumers can resort to decision making processes that are less than ideal when the information available is complex and opaque, or pricing structures are difficult to compare (PC 2018, pp. 353–354, 361–362).

To support purchase decisions, it is likely schools will benefit from advice and information because of:

- the complex nature of these products
- the varying level of technology literacy among school staff
- the severity of consequences if wrong decisions are made.

In making digital procurement decisions, there appears to be a role for governments to provide a greater level of support, or one that is more coordinated for school staff. It is likely that this support would vary from school to school, with some schools needing considerably more support than others. Given the limited information on current practices in the adoption of technology and associated barriers in Australian schools, there could be value in establishing this evidence base. The UK Department of Education has undertaken a survey to establish the state and usage of technology across schools in England (CooperGibson Research 2021, p. 13). This research has provided insights, such as that schools in England need to have a strategy and budget for replenishing and upgrading digital technology to ensure it meets their needs, now and in the future (CooperGibson Research 2021, p. 20).

To support the integration of digital technology into the classroom, an ongoing commitment to teacher development is essential, especially considering the changing environment in which teachers are operating (section 2.4).



### Information request 2.3

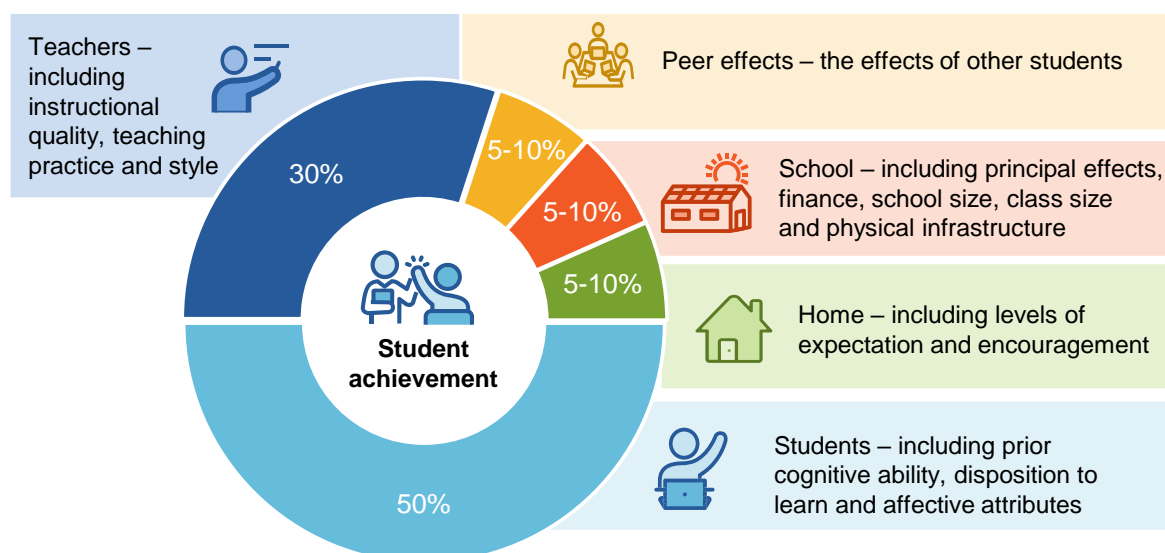
#### Better support for schools in accessing and using digital technologies

- How can digital technologies be better adopted and integrated into schools for the benefit of students, teachers, and the operation of the school?
- What are the barriers to change?
- What are the respective roles for Australian, State and Territory Governments to coordinate and support technology adoption?
- What level of evidence should be required prior to procurement of digital technology by schools? What is the process for generating evidence?
- What professional development would help teachers adopt and implement technology that is beneficial to effective teaching and student learning?
- How can students have equitable access to, and develop the necessary skills to effectively use technology?

## 2.4 Making the best use of school staff

School outcomes are influenced by a range of factors inside and outside of school (figure 2.2). While young people's personal attributes and home environment strongly influence how they perform at school, the act of teaching and the person delivering that teaching make a big difference, explaining about 30% of the variation in student achievement.

**Figure 2.2 – Variation in student achievement is explained by a range of factors inside and outside of school<sup>a</sup>**



a. Student- and home-level factors are affected by the child's and family's wellbeing, which are influenced by the family's context and environment and broader policy settings. The relative effect of these factors is likely to differ by cohort and environment.

Source: PC (2022e), adapted from Hattie (2003).

As education is a labour-intensive process, making the best use of the staff deployed in schools is critical to achieving the objectives of the education system with the resources available. Staff salaries in government schools account for approximately 64% of total in-school expenditure (ACARA 2022a, p. 104).<sup>25</sup>

Choices need to be made about the tasks teachers undertake (and the relative effort afforded to each of these), the best way to do these tasks, and how teachers can be supported by other resources (such as other staff, infrastructure and technology) in their teaching practice and for the general operation of a school. But the future vision of the role of the teacher and their most valued tasks is often shaped, and possibly limited, by the system that is currently operating.

## The role of the teacher is changing

A teacher's role and how they teach students is arguably becoming more complex and time-consuming.

There is increasing focus on personalised learning, where instruction and assessment is adjusted to meet the needs of the individual student. A more customised learning experience means that teachers need to understand a student's prior knowledge, provide appropriate instruction to that student's need, evaluate knowledge learnt through assessment (increasingly formative assessment), provide feedback to students and determine the next step in the learning progression.

The skills, capability and time needed for teachers to personalise learning for their students is significant when the spread of ability in individual classes is large. For example, Commission research found a 4-year learning gap, on average, in numeracy within individuals schools (PC 2022e, p. 62).

<sup>25</sup> Teacher salaries make up around half of all in-school expenses and around 80% of salary costs. In-school expenses include user cost of capital as well as those that relate to teaching, learning, school administration and library functions.



Inclusive education and greater diversity of students' needs is also changing the role of the teacher. Inclusive education, while valuable to student outcomes of both those who do and do not experience disability (CYDA 2022, p. 1), takes time and skill to do well, adding to the complexity and intensity of the work of a teacher (Australian Education Union, sub. 21, p. 9) and requires additional training for teachers.<sup>26</sup> The OECD Teaching and Learning International Survey data shows that Australian lower secondary classrooms have a higher proportion of students with special needs and migrant backgrounds, and more non-native speakers and refugees than the OECD average (Thomson and Hillman 2019, p. 46). The Australian Curriculum, Assessment and Reporting Authority (2022c, p. 7) highlighted the diversity of student abilities in classrooms but the limited resources to address these teaching needs:

... teachers are working with diverse classroom environments in terms of their students' ability levels, socio-economic backgrounds and demographic composition. In addition, many systems face budget constraints which limit the amount and quality of support available to teachers to face these new challenges and demands.

## Are teachers working on the right tasks?

Teachers are busy.<sup>27</sup> The Commission's Review of the National School Reform Agreement received numerous submissions raising concerns about increasing and excessive teacher workload during school term time (PC 2022e, p. 146). In August 2022, Education Ministers met with principals and teachers at the Teacher's Summit to discuss teacher workforce supply issues, including the effect of teachers' workload on the attractiveness of teaching as a profession (Clare 2022). Teachers and principals report that teaching and learning is hindered by their high workload during school term time (Hunter, Sonnemann and Joiner 2022, p. 13; McGarth-Champ et al. 2018, p. 2).

Time spent teaching face-to-face represents just one element of a teacher's week (figure 2.3). Teachers undertake a range of tasks beyond teaching in the classroom. Full-time classroom teachers spend about 21 to 24 hours in face-to-face teaching in a typical teaching week (AITSL 2021, p. 66). The main non-teaching tasks performed by full-time members of the teaching workforce were planning lessons (26% of non-teaching time), marking/assessing student work (17%), general administrative work (15%) and student supervision and counselling (15%) (AITSL 2021, p. 68).<sup>28</sup> Personal anecdotes from teachers outline how their day is filled with a breadth of tasks. For example, one teacher observed:

My days are filled with behaviour management, the bombardment of emails, writing programs, marking work, giving feedback, reporting to parents, setting student goals, writing individual programs, attending meetings and professional development to remain registered. And, dare I forget, the uploading of data into the system before the deadline. If only I could just teach! (Stroud 2022).

---

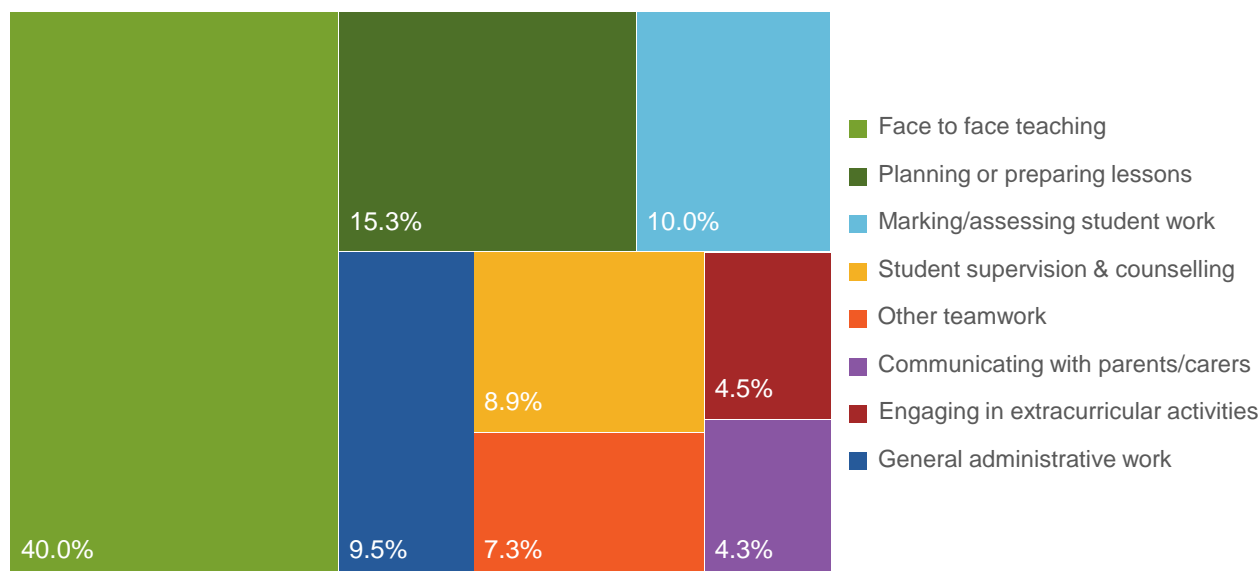
<sup>26</sup> Inclusive education recognises the right of every student to be included in a general education setting — adapting the environment and teaching approaches to ensure genuine and valued full participation of all students.

<sup>27</sup> Survey data supports that some teachers are working long hours with estimates ranging from 44 to 57 hours for full-time teachers in term time. A more extensive discussion of teachers' working hours is provided in the Review of the National Schools Reform Agreement (PC 2022e, p. 146).

<sup>28</sup> The allocation of time across these tasks is similar for primary and secondary school teachers and for part-time teachers. While teacher workload has increased over time, the composition of their time spent on tasks has remained reasonably constant (PC 2022e, p. 150).



**Figure 2.3 –Time teaching face-to-face is only one part of a teacher’s week<sup>a</sup>**  
**Average proportion of weekly hours spent on teaching tasks by full-time teachers, 2018**



a. Survey respondents are from New South Wales, the Northern Territory and South Australia. Figure includes responses for full-time workers only.

Source: Australian Teacher Workforce Data Teacher Survey 2018.

Non-face-to-face teaching tasks can be a core part of teachers’ work. High-value non-teaching tasks enable teachers to track and analyse students’ progress, inform parents of their child’s achievement, and maintain and improve their professional practice (NSW Department of Education 2021, p. 2).

But some teacher time is spent on tasks that are overly burdensome or do not actively support quality teaching — almost 10% of teacher time is spent on ‘general administrative work’ (such as manually processing forms or checking attendance) (figure 2.3). In a post-COVID world, teachers have also been managing health regulations relating to rapid antigen tests for students. One teacher reported that planning time was reduced to hand out COVID tests, reflecting the opportunity cost of adding tasks to a teacher’s workload:

... this year I have spent hours of planning time handing out RATs to students, a task that anyone could do. Why am I doing this? Our deadlines are not extended when planning time is taken away because we’re expected to use our weekend to catch up on work (Stroud 2022).

Some have argued that school autonomy has increased teacher workload, reducing centralised support and increasing reporting requirements. School autonomy devolves responsibilities from large government departments to schools — with the aim to empower those who work in schools to operate more efficiently, effectively, and produce better outcomes. Indeed, the World Bank concludes that most countries whose students perform well give their schools substantial authority to shape local education provision and determine the allocation and management of resources (Bruns, Filmer and Patrinos 2011, p. 88). However, an emerging consequence of devolution has been the increased workload of heightened accountability and teacher ‘responsibility’ combined with greater work intensification (Gavin and Stacey 2022, p. 5). The Australian Institute for Teaching and School Leadership, in their review of red tape for teachers and school leaders, noted that ‘increased administrative and accountability requirements supporting increased school autonomy’ are among the ‘primary sources of compliance and administrative requirements’ (AITSL 2020, p. 4). The Australian Curriculum, Assessment and Reporting Authority also noted that:

... schools are arguably becoming more bureaucratic, teachers report having weak work autonomy in their daily activities and being overloaded with non-teaching activities, especially administrative tasks (2022c, p. 7).

The NSW Government acknowledged, following a review of teachers' workload, that too much time is spent on low-value administrative work.

We have heard from teachers and principals that too much time is spent on low-value administrative work that is overly burdensome, such as manually processing forms. Teacher time needs to be redirected to high-value tasks, such as adapting and differentiating lesson content and resources for the individual needs of their students (NSW Department of Education 2021, p. 2)

## More school staff, but are they used well?

The mix of different types of staff in schools, their responsibilities, and how they are managed can deeply impact teachers' use of time (Boeskens and Nusche 2021, p. 67).<sup>29</sup> For example, teaching assistants, by providing increased attention on certain students, can have a positive effect on cohesion in the classroom, reduce disruption and allow more time for teachers to teach (Evidence for Learning 2019a, p. 7). Additionally, administrative staff could reduce the workload of teachers by doing non-core teaching tasks, such as processing excursion permission slips, to free up teachers to focus on core teaching functions (Evidence for Learning 2019a, p. 7).

Delegating these non-core teaching tasks may, therefore, be a promising strategy to help teachers better use their time and focus on the activities that allow them to have the greatest positive impact on student learning. Changing resource allocation between the types of staff, including employing more non-teaching staff, could free up time for teachers to focus on core teaching functions to improve the quality of teaching and reduce teacher workload.

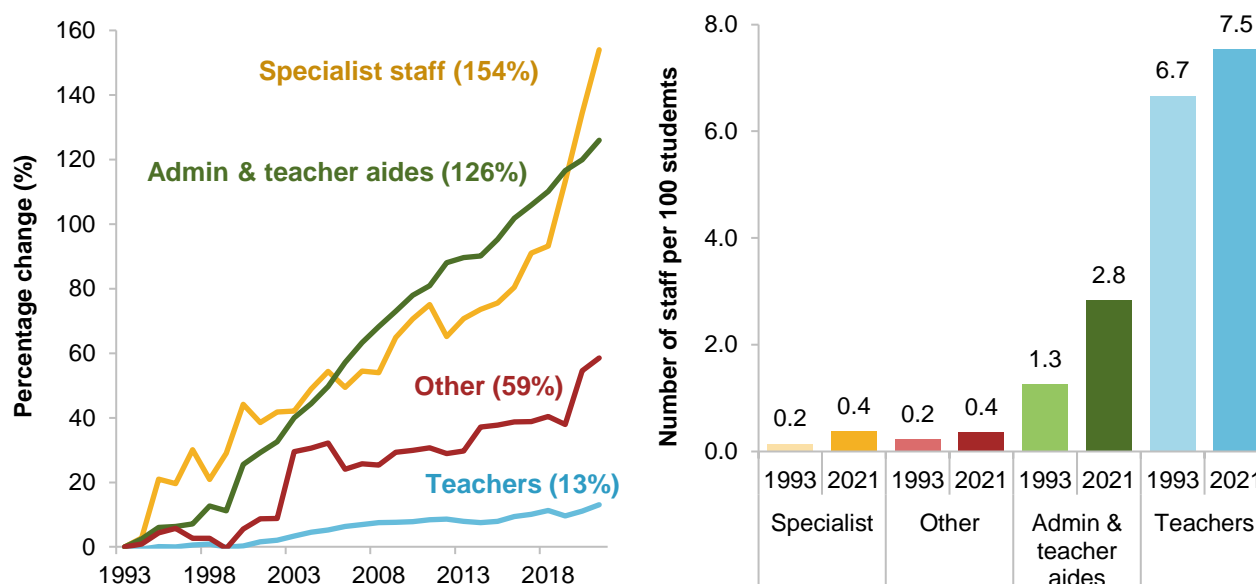
Over the last 30 years, all categories of non-teaching staff (relative to students) have grown considerably (from a very low base), while the growth in teaching staff has been somewhat lower (figure 2.4). This increase in school staff has occurred at the same time as the intensification of teacher workload.

Rather than more staff overall, what appears to be required may be better use of existing non-teaching staff, particularly teaching assistants. The research on the impact of teaching assistants in Australia is not extensive. Considerable research undertaken in the United Kingdom over the last decade or so provides some insight on where Australia may look to make improvements on how teaching assistants are used in classrooms. A range of challenges have been identified (Evidence for Learning 2019a, pp. 6, 8–9). Evidence suggests teaching assistants:

- are used by schools as an informal teaching resource for students in most need
- tend to be more focussed on students completing a task and are less concerned with them developing an understanding of the material
- are not always prepared for their role in the classroom
- are being deployed in the classroom in a way that is not leading to improvements in academic outcomes.

---

<sup>29</sup> Schools employ a range of staff in addition to teachers and school leaders, including teacher assistants, administrative staff, maintenance staff as well as specialist support staff (such as guidance counsellors and school librarians).

**Figure 2.4 – A greater diversity of types of staff in schools<sup>a</sup>****Change in staff to student ratio between 1993 and 2021**

**a. Administrative staff and teacher aides** include classroom assistants, library assistants, teacher aides, bursars/school administrators, IT support staff, accountants; **Specialist Support Staff** include student support services, such as career advisers, student counsellors or liaison officers; educational development, such as staff and curriculum development; school psychologists and social workers. **Other** includes janitors, building or grounds maintenance staff, technical services and general maintenance staff, school nurses, canteen workers.

Source: ABS (*Schools, various years*, Cat. no. 4221.0, table 51a).

## What is the role of the teacher?

To date, many national education policy reforms, while necessary, have been focused on establishing the national architecture — a national curriculum, the creation of national bodies, such as the AERO, and attempts to introduce a universal student identifier (PC 2022e, p. 9).

To lift student outcomes, education policy reforms should now have a greater focus on supporting effective teaching through influencing what happens in the classroom. This starts with thinking about how the role of the teacher could be recast. What opportunities are available and how do we create that vision and move toward it?

To support teachers' focus on teaching — accommodating the changing learning and school system environment — a range of supports show potential, including:

- curating quality lesson plan resources to allow teachers to focus time on the delivery of teaching (better allocating teacher time among tasks)
- introducing new ways to make better use of support staff to support the operation of the classroom and student learning (better allocating tasks across different types of school staff)
- using technology to improve the allocation of teachers with different specialisations between schools (better allocating teachers across school systems) (section 2.3).



#### Information request 2.4

##### The future role of the teacher

- How can the role of the teacher and other school staff be recast to better use their expertise and improve student outcomes?
- What policies and decisions should be taken now to start mapping out a plan that would progressively develop the role of the teacher?
- How can non-teaching tasks be better allocated to other school staff?
- How should teaching assistants support teachers in the classroom?
- How can teaching assistants be supported to learn and develop their skills?

## 2.5 Disrupting the school model?

So far, this chapter has discussed possible areas of reform that are focused on influencing what happens in the classroom, as teaching makes a big difference to students — explaining about 30% of the variation in student achievement (figure 2.2).<sup>30</sup>

How the school operates also affects student outcomes. Reforms to school operations may offer options for students that are not thriving in the current system — particularly those who are not attending. Highly effective teaching only benefits students attending school.

Given the desire to lift productivity growth in schools, there may be value in trialling alternative models that better meet student needs (box 2.4). As Catholic and Independent schools currently have more scope to explore different ways of teaching and more variations in their approach to education, public schools are most likely to benefit from the opportunity to trial alternative models. Trial options for changing the education model in public schools range from relatively minor changes that preserve the existing school structure — such as increasing the number of school hours — to more substantial reforms — such as the adoption of untimed syllabuses or the changes to the autonomy of public schools.

### Box 2.4 – Trials can identify worthwhile programs when supported by quality evaluation

Trialling potential reforms offers an avenue for innovation before implementing changes across the whole school system. Not all innovations are designed to be system wide. Some innovations cater to the needs of particular types of students or communities. Trialling these potential reforms is still worthwhile as it builds in a review and evaluation process to ensure objectives and outcomes are being achieved (and cost-effectively).

Trials can give policymakers and the public valuable information about the potential benefits, implementation issues and trade-offs involved in a proposed reform direction without having to incur the

<sup>30</sup> These findings consider factors influencing student outcomes overall, and may not be reflective of the experiences of students from specific cohorts.

### **Box 2.4 – Trials can identify worthwhile programs when supported by quality evaluation**

full cost of broadscale reform. They can also be terminated at much lower cost (compared to state-wide implementation) if the expected benefits do not eventuate.

Public schools are most likely to benefit from the trialling of alternative models of education as Catholic and Independent schools currently have more scope to explore different ways of teaching and more variations in their approach to education.

However, it is important that trials are properly evaluated, the lessons from these evaluations are incorporated into future policymaking, and that trials do not get used as a tool by policymakers to simply postpone needed largescale reform.

While evaluation strategies should be tailored to specific research questions, there are some general principles that underpin good policy evaluation (PC 2020a, pp. 12–19).

- **Credible** — this encompasses a number of features but includes that evaluations are rigorous and fit-for-purpose; answer the questions that policymakers and other stakeholders want answered; and use a combination of evaluation types, approaches and methods (including both qualitative and quantitative).
- **Useful** — evaluations should be undertaken with the intention of actually using the information gained for future policy creation. Individual evaluations are most useful when their findings are synthesized into the evidence base and form part of meta-analysis of multiple evaluations to provide broader insights into policy and program effectiveness.
- **Ethical** — evaluations need to be conducted ethically with ethical risks identified and managed, preferably in consultation with stakeholders. The ethical risks of sharing data from evaluations will also need to be considered.
- **Transparent** — the findings of evaluations need to be shared transparently as widely as possible, balancing this against privacy risks. Policymakers should also publish a response to trial evaluations.

## **School hours – time to rethink what works?**

School hours have been broadly unchanged for many years — set at a time where society's norms, knowledge, and economy were very different. A variety of reasons have been put forward as to why current school hours may not be appropriate — particularly for student learning and parents' labour force participation.<sup>31</sup> The Commission's focus is on the impact of changing school hours on productivity and student outcomes — while acknowledging that there could be other labour market impacts.

<sup>31</sup> The primary purpose of schooling is teaching and learning. Students being supervised is a by-product of the time spent at school learning, although supervision is more relevant for younger primary school children than older students, particularly high school students. Nevertheless, students attending school provides an opportunity for parents and carers to work in paid employment.

State and Territory Governments are responsible for setting of school hours. While all jurisdictions allow individual schools to determine specific times based on local factors, the usual school day is about 6 to 7 hours (8:30-9:00 am to 3:00-3:30 pm).<sup>32</sup>

Despite this autonomy, school changes to start and finish times generally appear to be minor — within 15 minutes to a half an hour of the usual time. Some changes can be to accommodate local bus timetabling, for example. Most schools making more substantial changes to start and finish times are high schools, although this also occurs at other levels. For example, one NSW primary school, Merrylands East Public School, operates from 8:00 am to 1:15 pm, with playground supervision from 7:30 am. It has a recess break and no lunch break but offers the same amount of teaching time as other public schools.

Internationally, there is some variation in school hours. At a national level, some countries have longer school hours than the Australian standard day. In Shanghai, Hong Kong, Taiwan and South Korea, school hours range between 7 hours and 8.5 hours a day (NCEE 2018). Elsewhere, decisions about school hours are made at a local level. Academies in the United Kingdom, for example, have the ability to vary the length of the school day and term if they think their students would benefit (UK Academies Commission 2013, p. 44).<sup>33</sup>

Some governments and industry advocates have proposed extending the school day to broaden the range of subjects and activities students could explore (Chen 2022; NSW Department of Education 2022a; Strahle 2016; UK Government 2022, p. 20).

More hours could allow students to explore enrichment activities such as music, the arts (dance, drama and painting), and physical activities. The NSW Government, for example is trialling extended operating hours with a focus on broadening the activities in which school students participate and supporting parental participation in the workforce (NSW Department of Education 2022a; White 2022).

Others have proposed longer school hours to support learning, particularly for those that are falling behind learning benchmarks. This has garnered interest in recent years with disrupted and lost learning opportunities due to COVID-19 (Kim and Ashbury 2021; Weale 2021). Owing to the cumulative nature of learning, students that have missed learning foundational concepts will struggle to learn further concepts that build on these ideas. The United Nations Accelerated Education Working Group recommends extending teaching time as an appropriate strategy when pupils have missed out on up to one year of education (AEWG 2021, p. 6,19). Schools could use the additional hours of instructional time to provide extra support to students struggling in specific subjects.

The decision to lengthen the school day needs to take into account the costs and benefits of this approach. The benefits of longer school days are contingent on what happens during the longer hours. Extended hours may improve learning. They may expose children to extracurricular activities that are more efficiently and equitably provided at school. They may reduce stress on harried parents trying to balance work and their children's needs, increasing parental labour force participation rates. Whatever their benefits, these will need to be traded off against the additional wage costs of teachers and other staff, and the displaced time of children, which should also be valued.

---

<sup>32</sup> Independent and Catholic schools set their own start and finish times, but these are broadly similar to public schools.

<sup>33</sup> In order to help children catch-up on school time lost due to the pandemic, there has been a review of school hours in the UK (UK Department of Education 2021). This has led to the requirement that state-funded schools, including academies, provide a minimum of 32.5 hours of face-to-face schooling per week (UK Department of Education 2022).



### Information request 2.5

#### Changing school hours to support learning

- Is there a need for a greater range of school hours?
- What objective would be fulfilled with any change in school hours?
- Given the existing flexibility in hours, what are the barriers for change?

## Untimed syllabuses as a different way of organising learning?

Another feature of school operation that appears to have changed little is how students progress through various year levels. Students are generally grouped by age, and progress through school together (Masters 2022, p. 13). Despite the increasing emphasis that is placed on individualised learning — students are broadly taught the same curriculum at the same time and given the same opportunities to master the content before being assessed and moving on.

The downside of the conventional approach is that low-achieving students often lack the skills necessary to progress and fall further and further behind, increasing their likelihood of disengagement. At the same time, high-achieving students who are ready to progress to more challenging and advanced material can be held back.

An alternative approach that sees learning as a continuous process that is flexible to the needs and proficiencies of individual learners is the use of ‘untimed syllabuses’, as suggested in a recent review of the NSW curriculum (NESA 2020). This restructures the curriculum as a sequence of levels that students progress through at their own pace:

The underlying principle is that learning is maximised when learners are presented with appropriately challenging material, rather than being under-challenged by what they already know or over-challenged by what they are not yet ready to learn. (NESA 2020, p. xv)

Schools would still be organised in year groups, with students in each year group made up of students working at different levels. In practice, this would likely involve a highly personalised approach to learning that would be reliant on effective use of digital technologies (Deunk et al. 2018; Li and Wong 2021) (section 2.3).

While teachers regularly differentiate teaching within classes as a strategy to maximise student learning, there is no current evidence supporting the implementation of untimed or differentiated curricula at a system level (Wilson 2021). At a school level, differentiation may lead to small to moderate student improvements in student performance when it is implemented as part of a program of broader school reform including appropriate teacher training and implementation of technology (Deunk et al. 2018). In seeking to improve student outcomes, it may be worth trialling untimed syllabuses in Australian schools to shore up the skills of lower-achieving students and extend the capacity of those at the higher end.





### Information request 2.6 Untimed syllabuses

- What are the expected benefits of using untimed syllabuses? And what are the possible downsides?
- Is it possible to effectively implement untimed syllabuses? What professional development and technological supports would primary and secondary teachers need to implement differentiated curricula?

## Reconsider approaches to school

Rethinking approaches to schooling that, in certain cases, are not working may justify a more fundamental change to the school model. For example, the Nawarddeken Academy is an Independent school in West Arnhem Land established to meet local needs that were not being met by government schools (box 2.5).

On a much larger scale, state-funded autonomous schools may provide more radical opportunities to innovate in providing education services, particularly in situations where the standard model of schooling is not flourishing. Academies in England and charter schools in the United States provide examples of where alternative approaches to schooling have been used to varying degrees of success (box 2.6).

The benefits of giving state-funded schools increased autonomy are contested. Part of the rationale for increased autonomy is that it should increase opportunity for innovation. In urban areas, autonomous schools may also provide competitive pressures that inspire improvement in government-run schools (Gill 2016).

### Box 2.5 – Nawarddeken Academy as an example of innovation

Nawarddeken Academy is an Independent primary school that provides full-time education from teachers and Aboriginal elders. In 2015, the Kabulwarnamyo campus, based in an outstation in west Arnhem land with a population of just over 50 people, was established using a grant from the Karrkad Kanjdji Trust and Gunbalanya School. It was not until 2019 that it was able to register as an Independent school making it eligible for recurrent funding from the Australian Government (Nawarddeken Academy 2020, p. 5). In 2022, two further campuses at Manmoyi and Mamadawerre were established (Vivian 2022).

The genesis of Narwaddeken Academy lies in an Indigenous ranger program established in part by recognised artist, Elder and traditional knowledge holder, Bardayal 'Lofty' Nadjamerrek OAM. Indigenous rangers sought education for their children to be delivered on Country so that they would not have to leave their children with family in larger towns.

#### 'Country as classroom'

The school uses a 'two-way' or 'two tool-box' (Fogarty 2012, p. 90) approach that emphasises 'respect, and the ability to integrate customary modes of learning guided by our old people with a 'western' educational curriculum' (Nawarddeken Academy 2020, p. 9). In doing this, the Academy seeks to, among other things:

- empower young people to be strong and confident in western and Indigenous knowledge systems
- preserve Nawarddeken languages and culture through bilingual and bicultural experiential learning.



### **Box 2.5 – Nawarddeken Academy as an example of innovation**

Nawarddeken Academy uses a curriculum based on the concept of ‘Country as classroom’ which links people’s desire for environmental and social outcomes on their own land with an alternate school education that works for their children. The unique curriculum is based around:

[O]ur land, language and culture, using formal and informal teaching and learning approaches; emphasising mental and physical health, while cultivating individual and collective respect and responsibility. (Nawarddeken Academy 2020, p. 9)

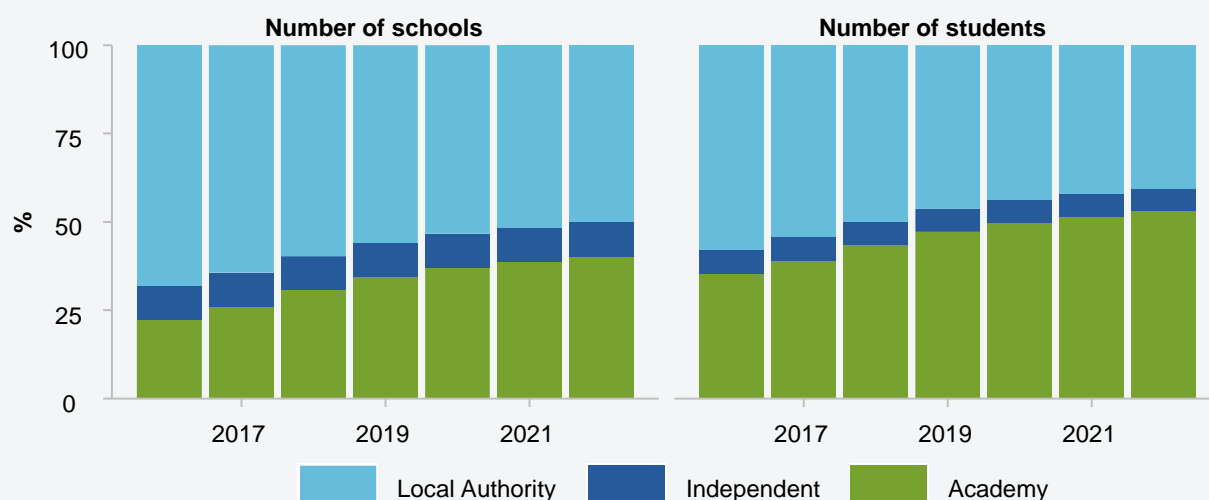
This approach simultaneously recognises that ‘education that is not connected to the reality of a student’s life will fail’ (Fogarty 2012, p. 83), and the ‘importance of country in the social and economic fabric of everyday life in remote communities’ (Fogarty and Schwab 2013, p. 13). Implementation of this approach saw attendance rates of between 78 and 93% over the four school terms in 2020 (Nawarddeken Academy 2020, p. 59), and increased student engagement (Masters 2021). By comparison, the student attendance rate for years 1-10 was 52% for Aboriginal and Torres Strait Islander students in very remote areas of the Northern Territory in 2019 (SCRGSP 2022).

### **Box 2.6 – Academies and charter schools allow for different approaches in schooling**

#### **English academies**

The replacement of public schools with privately administered academies in England radically transformed their education system. English academies are former state-run schools that were converted into autonomous schools and managed by a trustee board, outside the control of the local authority. Academies have typically replaced poor-performing secondary schools in areas with concentrated social disadvantage.

The academy program started in 2002 with three academies, and steadily grew, making up around 200 academies in 2009. Over the course of two decades, they have become the predominant model of secondary school in England, making up around 80% of secondary schools. Overall, 40% of schools are now academies, with more than half of English students (53%) now attending an academy (figure).

**Box 2.6 – Academies and charter schools allow for different approaches in schooling****The charter school sector in England continues to grow<sup>a</sup>**

a. Figure contains data for both primary and secondary schools and students.

Source: National Statistics (UK) (2022).

An ‘academy trust’ administers the school, with most academies belonging to trusts that administer multiple schools. These trusts have the autonomy to vary ‘curriculum, school year, staff pay and conditions of service’ (Hutchings and Francis 2018, p. 8). They are independent, non-selective in their student intake and state-funded, and are generally sponsored by philanthropists or business partners seeking to improve local education. In most cases, they are conversions of pre-existing government-run secondary schools that inherit already enrolled pupils, but with significantly more autonomy in operation (Eyles and Machin 2019, p. 1107).

**Charter schools in the United States**

The United States’ experiment with publicly funded autonomous schooling began in Minnesota in 1991. The degree of autonomy accorded to charter schools varies by state, but they are typically unable to be selective in their student intake and unable to charge fees for schooling (Eppele, Romano and Zimmer 2015, p. 2). Where there is an excess of demand for charter school services, students are typically chosen through a lottery process. Since 2009, the proportion of all public schools that were charter schools has increased from 5% to 8%, making up around 7500 schools across the United States.

Despite not legally being allowed to be selective in their student intake, charter schools are not necessarily representative of the general population. Charter schools tend to be more urban and more ethnically and racially diverse than public schools, with higher shares of Hispanic and African-American students. They tend to have lower proportions of students who speak English and lower proportions of students with special needs than the national average. Econometric evidence indicates that charter schools tend to be set up in areas where expenditure per student is high, teacher pay is low and student achievement is low (Eppele, Romano and Zimmer 2015, p. 6).

The evidence for academies and similar autonomous schools is typically positive and it is likely they improve the results of the disadvantaged students they serve (Hatton and Drake 2019; Worth 2016). However, they

appear to benefit certain cohorts of students more than others and it is difficult to find evidence that is applicable to all academies and charter school students while having confidence in the direction of causation.

- While English academies are less likely to be rated as ‘good’ or ‘outstanding’ and more likely to be underperforming than state-run schools (Angel Solutions 2022, p. 10), this does not account for underperformance prior to schools becoming academies.
- Propensity score matching has been used to compare academies with similar state-run schools, controlling for factors including past history and student socio-economic advantage. This suggests that underperforming schools typically improved and reached the national average of similar schools after becoming academies (Hatton and Drake 2019, pp. 4–5; Worth 2016, pp. vi–x).
- Benefits may be larger for students from more disadvantaged backgrounds and those studying in London (Eyles, Hupkau and Machin 2016, p. 1). Research found similar superior performance among schools that become academies (Eyles and Machin 2019).

It is unclear what drives the improved performance of academies. Advocates highlight the increased ability of autonomous schools to meet the unique circumstances and needs of the community in which they operate, while others tend to attribute success to the practice of academies becoming more selective in their student intake (and barring students who would otherwise bring down results). While academies may demonstrate some degree of selectivity in their student intake, this could also be a result of disciplinary policies, rather than a deliberate strategy to distort grades (Machin and Sandi 2020). Others find no evidence that selection of students played a role in driving academic results (Eyles and Machin 2019, pp. 1132–1133). A survey of the academies themselves showed that they believed the most important factors driving improvement were changes to curriculum, school management and school hours (Cirin 2014, p. 5).

There may be some benefit in trialling state-funded but privately administered schools as an alternative when public schools are not meeting the needs of their local community. In essence, this is what has already been done with the establishment of Independent schools that are entirely reliant on government funding, such as Nawarddeken Academy, but there may be merit in governments easing the process for establishing similar academies. Receipt of government funding would also require guidelines to ensure equitable access to services — for instance, a government-funded academy would need to accept all students eligible to attend and should not be permitted to charge fees.



### Information request 2.7

#### **Trials of different models of school operation**

- Is there a role for charter schools or academies in Australia? Are there other models that should be considered?
- What would be the appropriate context for trialling an alternative school model?
- What would be the costs and benefits involved for the Australian and/or State and Territory Governments to trial ‘academisation’ of poorly performing public schools?



### 3. Investing for future skill needs

#### Key points

- \* To support productivity growth, the tertiary education system needs stronger incentives for providers to deliver courses that adapt to growing and changing skill needs.
- \* Rationing places in tertiary education — through skill lists or provider funding caps — impedes efficient skill acquisition by limiting access or distorting course choice. Concerns about fiscal costs are better addressed through other means, such as changes to subsidies or expanding income-contingent loans.
- \* Government subsidies for tertiary education could be allocated more efficiently and equitably, without necessarily increasing the total amount of public funding.
  - Currently, governments set differential subsidies based on targeting public benefits and skill needs, but these have little impact on student choice because income-contingent loans eliminate upfront fees and make price differences less salient.
  - Many students receive large subsidies despite strong private incentives to study.
  - While the public benefits of tertiary education provide a strong rationale for subsidisation, they cannot be reliably estimated by course. Setting subsidies with reference to the private benefits of tertiary education (expected lifetime earnings) or simply offering a flat subsidy could be more efficient and equitable.
  - ‘Skills shortages’ are a poor basis for setting subsidies in both theory and practice.
- \* Unlike students, providers are highly responsive to course prices. Setting prices to better reflect course delivery costs would encourage providers to meet skill needs and dampen incentives to prioritise enrolments in high margin courses.
- \* Increasing the competition for funding across education providers could encourage sector innovation, competition, and student choice.
- \* Expanding loan access for vocational education and training (VET) students at the Certificate III and IV levels would reduce barriers to participation and reduce distortions for students choosing between VET and higher education, but would need to manage the risks of abuse that occurred with VET FEE-HELP.
- \* Given the growing importance of lifelong learning, rebalancing public funding to support ongoing skill acquisition may be warranted.

Investment in tertiary education — primarily funded by government directly or through loan programs, as well as student contributions — is critical to developing the skills of Australia's workforce (chapter 1). This chapter explores whether current arrangements are well designed to support the tertiary sector's growing importance in meeting labour market needs and driving Australia's long-term productivity. While the tertiary sector has generally performed well against key metrics (chapter 1), there remain significant opportunities for improvement.

Government investment is a particular focus of this chapter given its pervasive influence on the operation of providers, the choices of students, the outcomes within Australia's tertiary system, and therefore labour market and social outcomes more generally. However, Australia's tertiary system is bifurcated, with vocational and higher education funded, regulated, and delivered separately with provision continuing to overlap. Governments use broadly similar levers across both sectors to influence investment, but these are implemented in distinct ways (table 3.1).

**Table 3.1 – Differences in regulating, funding and financing VET and higher education**

How do governments...	Vocational education and training	Higher education
<b>Regulate the sector</b>	<ul style="list-style-type: none"> <li>Primarily State and Territory Government responsibility</li> <li>Most qualifications at AQF 1-6 <sup>a</sup></li> <li>Admission to individual provider, or through employer for apprenticeship pathways</li> <li>ASQA <sup>b</sup> responsible for regulating national minimum standards and qualification content</li> <li>State and Territory Governments regulate quality standards of funded providers through contracts</li> <li>Competency-based assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Primarily Australian Government responsibility</li> <li>Most qualifications at AQF 5-10</li> <li>Admission centralised nationally for the majority of school leavers</li> <li>TEQSA responsible for regulating national minimum standards for all providers</li> <li>Some providers (mostly universities) self-accredit qualification content, and TEQSA regulates materials for most non-universities</li> <li>Proficiency-based assessment.</li> </ul>
<b>Regulate places</b>	<ul style="list-style-type: none"> <li>State and Territory governments manage demand through a 'skills list' of courses eligible for subsidies, but also cap subsidised places for certain courses or registered training organisations (RTOs).</li> </ul>	<ul style="list-style-type: none"> <li>Places not directly set but constrained by the maximum basic grant amount. Universities can enrol more students but do not receive a government contribution after reaching the maximum basic grant amount. <sup>c</sup></li> </ul>
<b>Set course prices</b>	<ul style="list-style-type: none"> <li>Prices not regulated in most jurisdictions, but some set maximum prices, and some set minimum prices.</li> </ul>	<ul style="list-style-type: none"> <li>Maximum prices for undergraduate courses set based on median cost of delivery.</li> </ul>
<b>Set government subsidies</b>	<ul style="list-style-type: none"> <li>Government contribution varies based on skill shortages and economic or social returns.</li> </ul>	<ul style="list-style-type: none"> <li>Government contribution varies based on national priorities and estimated employment prospects.</li> </ul>
<b>Allocate funding</b>	<ul style="list-style-type: none"> <li>Subsidised providers contracted by the State and Territory Government.</li> </ul>	<ul style="list-style-type: none"> <li>Subsidised providers block funded through Commonwealth Grant Scheme (CGS).</li> </ul>
<b>Offer loans</b>	<ul style="list-style-type: none"> <li>Australian Government administers VET Student Loans and Trade Support Loans.</li> <li>Loans available for Diploma and above, only for a subset of courses with industry need. Full fee-paying students incur a 20% loan fee.</li> </ul>	<ul style="list-style-type: none"> <li>Australian Government administers Higher Education Loan Program (HELP).</li> <li>Loans available to all domestic students, but some full-fee-paying students incur a 20% loan fee.</li> </ul>

**How do****governments...****Vocational education and training****Higher education****Fund other  
programs**

- Governments fund apprenticeship support, as well as employer assistance for apprentices.
- Contingent funding for equity groups through the Higher Education Participation and Partnerships Program (HEPPP).

**a.** Australian Qualifications Framework. **b.** State-based regulators (the Victorian Registration and Qualifications Authority and the Western Australian Training Accreditation Council) also play a role in Victoria and Western Australia. **c.** Demand driven funding (that is, a guaranteed Commonwealth supported place) applies to Aboriginal and Torres Strait Islander students who live in regional and remote Australia.

### 3.1 Challenges in managing demand for tertiary education

Education improves productivity and brings broader benefits to the Australian community (chapter 1).

However, investment in education needs to be efficient — it is not just the aggregate level of government investment that influences productivity and public benefits, but also how it is spent and targeted. Where subsidies and loans differ across courses and sectors (VET and higher education), they may influence choices about whether to study, and where to study. Appropriate funding settings can encourage students to pursue education with long-term individual and societal benefits. But poorly targeted funding can lead to students studying courses that are a poor fit, resulting in lower completion rates, lifetime earnings, and productivity growth.

The public benefits from investing in education are sizeable, but there is also an opportunity cost — investment in supporting students must be funded by taxpayers and, like other government investments, funding can always be used elsewhere.<sup>34</sup> As such, there is a finite capacity for public investment in tertiary education.

Additional investment needs to be considered through this lens, particularly as the public benefits from investing in education are likely to diminish as the share of the population participating rises. At some point, additional investment risks attracting students who would get little out of studying and might be better off directly entering the labour market.

Saying this, policies should enable students to attend regardless of their background and financial situation.<sup>35</sup> Educational attainment is often determined by factors other than innate ability or potential public and personal gains. Circumstance, health, familial responsibility and financial situation can limit students with high potential; continuing support for such students is essential for an equitable system.

Due to the finite capacity of the Australian, State and Territory governments to subsidise tertiary education, all governments use mechanisms to limit financial outlays. Some notable exceptions highlight the challenge of sustainably managing demand — and corresponding budget — pressures (discussed below). Many State and Territory governments partly or fully cap funded places available in their training programs (PC 2020c,

<sup>34</sup> Additional investment in education requires either raising funds through taxes — which have distributional impacts and can distort economic activity (for example, income taxes reduce labour market participation) — or reducing funding from other government services and payments, such as healthcare, transport, or welfare payments.

<sup>35</sup> While this pertains to access to education, the quality dimension of the student experience also becomes increasingly important to outcomes as the student body becomes more diverse (chapter 4).

pp. 454–468), and the Australian Government similarly limits the total funding available for each university which effectively acts as a cap on places (DESE 2021c).<sup>36</sup>

## **Demand for tertiary-educated workers continues to grow, meaning pressure on government budgets or students missing out**

The growth in Australia's educational attainment — with over half of 25-34 year-olds now having a tertiary qualification — has contributed to historical productivity growth (chapter 1). But despite record participation in tertiary education, the need for tertiary-educated workers is still growing — reflecting an increasingly digital and service-oriented economy. This suggests that the tertiary sector will need to ensure that it has capacity to provide up to date initial qualifications and support upskilling and reskilling.

Inquiry participants have questioned what constitutes an appropriate funding growth rate for tertiary education (ACCI, sub. 47; AEU, sub. 21; NTEU, sub. 36; Master Builders Australia, sub. 58). For example, participants from the university sector argue that planned growth rates in university funding are unlikely to keep pace with population growth in the next decade (Universities Australia, sub. 70). Funding amounts allocated to each university are currently indexed to the consumer price index (DESE 2021c). But as the population of young people increases, this will mean funding per potential student will decline.

The population of post-school students will grow, with an expected 20% increase in the number of 19 year-olds in the decade to 2030 (chapter 1). This growth will mean governments will either have to accept a smaller proportion of young people attending tertiary education, spend significantly more, or alter funding structures to allow more places to be delivered for the same fiscal cost.

Forecasts of jobs growth for university-qualified roles exceed the forecast growth of additional university places by a factor of 8:1 by 2026.<sup>37</sup> Forecast growth in jobs includes all workers with a bachelor's degree or higher, not just new graduates. This gap might otherwise be met through skilled migration programs or by workers with a degree but working in a position that does not require one. Nonetheless, in this context, current settings may be unsuitable for the tertiary sector to adequately support future skill needs and productivity growth.

From an economy-wide perspective, short-term fiscal constraints alone are not a strong rationale for limiting places in tertiary education. Limiting places reduces long-term human capital development, productivity growth and the economic opportunities of some — for the short-term benefit of the taxpayer.<sup>38</sup>

While this chapter focuses on the role of government investment in determining domestic places, international students are also a key source of tertiary education demand in Australia. They also provide a key source of revenue to tertiary institutions. However, international students are not likely to have a significant bearing on productivity except to the extent that they transition into the skilled migration intake (box 3.1).

---

<sup>36</sup> Places in Medicine are specifically capped by the Australian Government, but restrictions on full-fee domestic undergraduate places, combined with the maximum funding amounts for universities can effectively constrain places each year (DESE 2021c).

<sup>37</sup> Commission estimate based on NSC (2022) and Warburton (2021). The number of university places is not set directly, rather the Australian Government sets a maximum basic grant amount for each university. Actual places depend on course enrolments, given the different Commonwealth contribution levels by field of study.

<sup>38</sup> Notwithstanding, there remain good reasons for careful management of education and training programs from a fiscal perspective, as has been demonstrated by the experience of budget blowouts and subsequent cuts under recent policy experiments. These issues can occur even in programs that are more constrained, as recently occurred with the ACT's Skilled Capital training initiative, for example (Jervis-Bardy 2020).



### **Box 3.1 – International students are a key financial factor in tertiary education, but less relevant to productivity**

From 1996 to 2000, the Australian government cut real tertiary funding by 26% (Hawthorne 2010). Providers looked abroad to compensate for lower domestic funding. As such, over the past 20 years education has grown as a major export industry, with gross contributions valued at around \$37 billion dollars in 2019-20, inclusive of both fees paid (\$15.6 billion) and onshore spending (\$21.5 billion) (ABS 2022c). International education has been one of Australia's recent export success stories, accounting for 8% of total exports in 2018-19, which was the fourth largest category overall (DFAT 2020). Some universities rely heavily on international students for revenue, as highlighted by the COVID-19 pandemic. International students tend to be concentrated in predominantly large, metropolitan institutions. In particular, international student revenue accounts for over 30% of total revenue at 5 of the 8 Group of Eight universities (DESE 2020a).

International students are not a focus of this inquiry, as they do not have a direct impact on productivity, except:

- where they remain in Australia after studying and add to the human capital stock. However, most international students (84%) do not stay in Australia long-term after studying (Treasury and Department of Home Affairs 2018). In theory, the Government can take greater advantage of the productivity dividend of this human capital accumulation by offering pathways to permanent residency, or broader migration incentives. But such policy needs to be applied cautiously. For example, changes in 2001 led to a large number of enrolments in cooking and hairdressing — courses that were listed on the Migrant Occupations in Demand List, with poor outcomes (Birrell, Hawthorne and Richardson 2006). As such, any migration mechanism to keep international students onshore after studying needs to be well designed. Migration policy more broadly is discussed in the Commission's separate interim report covering labour market issues.
- where they might affect the quality of education provided to domestic students, for example if those with poor language skills are affecting domestic student participation in learning, such as in group work settings. The Australian Government has significant control over the language requirements for student visas if concerns emerge about peer effects and the quality of international students.

## **Are current policy settings optimal? Lessons from recent changes**

Several recent government policy experiments have changed tertiary education access settings.

- The national entitlement to training implemented in the VET sector, where each jurisdiction implemented their own version of an 'entitlement' to a Certificate III or above.<sup>39</sup> The most expansive and 'demand-driven' was the Victorian Training Guarantee for VET qualifications. This policy was successful in significantly expanding access and providing greater choice of qualifications for students, but was also

<sup>39</sup> The national training entitlement was agreed to by the Council of Australian Governments in 2012, as part of the renegotiation of the *National Agreement on Skills and Workforce Development* and the *National Partnership Agreement on Skills Reform*. Under this agreement, State and Territory governments committed to establishing or expanding existing training programs, with a view to improving VET access and affordability. As part of this, the Australian Government also expanded VET FEE-HELP to provide ICLs for Diploma and above courses, which was subsequently wound back and abandoned due to escalating costs and roting (PC 2020c, pp. 84–85).

associated with major budget and quality concerns, resulting in the recapping of course places, and major funding cuts to VET in Victoria (David Hetherington and Jarrod Rust 2013). Other States and Territories implementing the training entitlement in subsequent years also had significant increases in enrolments, such as in the case of South Australia's Skills for All (ACIL Allen Consulting 2015), but subsequent programs in other jurisdictions were more tightly constrained (PC 2020c, p. 148).

- The 'demand driven' university system for universities in place between 2010 and 2017,<sup>40</sup> which resulted in a university place for every domestic undergraduate student that universities decided to enrol (PC 2019, p. 19). This significantly increased university participation, from 53% to 60% between 2010 and 2016 (PC 2019) but also led to budget concerns and the reintroduction of funding caps.
- The expansion of VET places under the JobTrainer Fund also saw significant uptake (Hare 2021), although implemented in a unique context — as part of a broader package of counter-cyclical measures in response to the COVID-19 pandemic. JobTrainer sought to expand places in VET by up to 163 000 in areas of skill need, with matched funding by the Australian, State and Territory governments (DESE 2022e; White and Rittie 2022). While this provides an indication of unmet demand for training, it is difficult to disentangle the various effects of: additional places (discussed in this section); low or negligible fees (section 3.2); and the COVID-19 recession. This limits the ability to draw broader conclusions about the extent of future unmet demand, as well as the relative costs and benefits of training in this specific program.<sup>41</sup>

Although these now terminated schemes were imperfect, they appeared to produce good labour market outcomes for 'additional' students. This suggests that under current supply constraints, there are potential students that would benefit from tertiary education but are unable to pursue a pathway that would best suit their preferences and ability. This implies that there is scope to enhance Australia's long-term productivity potential through future expansion — provided students have the right supports to find the right education pathway (Leung et al. 2014; McVicar and Polidano 2018; PC 2019).

However, expanding access to education poses some risks. Budget blowouts occurred under some of the previous demand-driven systems. This could be mitigated by a gradual approach to expanding places or by recalibrating subsidy and loan settings so more of the costs are borne by students (section 3.2, section 3.4).

An unconstrained system may also encourage 'overskilling' or 'overeducation' — additional education that may be unnecessary and merely a form of credentialism (box 3.2). However, if and where this is occurring, it is unclear how much this is being driven by tertiary education policy. Other culprits could include increasing regulatory barriers to entry in certain professions and labour market conditions. The Commission welcomes stakeholder views and evidence on whether overskilling is occurring.

<sup>40</sup> The demand-driven system involved a 5% increase in the cap on student numbers in 2010 and 2011, with places uncapped from 2012 to 2017 for almost all fields of study. Funding was then frozen in 2018 (PC 2019, p. 5).

<sup>41</sup> Enrolments under JobTrainer might indicate an upper-bound measure of unmet demand for subsidised training, given the unique labour market circumstances in the context of the pandemic. Uptake through the latter tranches of the program might provide a better indication of the extent of latent demand for training of this kind.

### Box 3.2 – Would expanding tertiary places result in overqualification?

There are concerns that expanding participation in tertiary education might lead to ‘overskilling’ or ‘credentialism’.<sup>42</sup> Overskilling emerges when people compete for a limited number of positions by obtaining additional qualifications beyond what is needed for the role. For example, students might obtain a masters’ degree for a role that requires only an undergraduate degree.

While there is limited recent Australian analysis, there is reasonable evidence of overskilling, but varying views about the severity of its impacts. Some analysis finds that the effects are modest as overeducated workers still received an earnings premium from education (Dockery and Miller 2012).<sup>43</sup> However, other work finds evidence of persistent overskilling that leads to income scarring (that is, a lasting earnings reduction), with the impact varying by education levels. Lower-educated workers experience greater persistence of overskilling but more limited wage consequences. Conversely, university-educated workers were less likely to be overskilled, but experience a greater wage penalty — likely because they are in better paid positions (Mavromaras et al. 2013).

These studies point to negative consequences for workers who are overskilled, similar to labour market mismatch more generally. This suggests the benefit of a more careful approach to expanding access, alongside the need to support student preparedness for further study.

Sustainably expanding places in tertiary education would also require a careful consideration of the balance of places, and other policy settings, across VET and higher education. For example, the introduction of the demand-driven system in universities coincided with a decline in VET enrolments, although the complex factors affecting enrolments in each are difficult to disentangle. To the extent that VET and higher education are substitutable pathways for some students, growth in places should be set with reference to both sectors to avoid shifting students from one sector to another.

The barriers to educational attainment, and paths forward to improve investment in the sector, also differ across the university and VET sectors.

In higher education, caps on places are largely determined by government investment, with little scope for domestic students to undertake fee-for-service undergraduate education, for instance.<sup>44</sup> The demand-driven university policy expanded participation by increasing available places — if governments wished to increase attainment in higher education without significantly increasing fiscal outlays, they could consider redesigning

<sup>42</sup> Concerns regarding the poorer labour market experience of recent graduates might point to issues with overskilling, given evidence of higher rates of underemployment, lower average incomes and less employment in high-status occupations, compared with previous graduates (de Fontenay et al. 2020; PC 2020d). However, falling *average* labour market outcomes of graduates do not imply that the marginal student would not benefit from attending education. Rather this points to the importance of macroeconomic stabilisation policies.

<sup>43</sup> A caveat on this finding is that it only considered the wage premium at a point in time, and does not consider earnings over the lifetime, nor the private and public costs associated with the provision of education (Dockery and Miller 2012).

<sup>44</sup> Undergraduate domestic full-fee places are only available to students who are not eligible for a Commonwealth supported Place. For example, an Australian Citizen who is living overseas while studying, or international students who were granted permanent residency during their course of study (The University of Melbourne 2022; The University of New England 2022). According to Universities Australia (2020), around 0.9% of total full-time study was fee-paying bachelor’s degrees.

subsidy settings, such that the average subsidy for a given student is lower, but more students are able to attend (section 3.2).

In VET, where students can pursue fee-for-service training (and fee-for-service enrolments outweigh government-funded enrolments), access to loans may be the main constraint on demand. Unlike higher education, most VET students are unable to access a government-supported loan. Some may also be unable to afford upfront course fees, which would reduce VET participation. Expanding loan access to more VET students would overcome this barrier and would allow for greater participation without a significant increase in expenditure. Further, although difficult to quantify, the lack of loan arrangements in the VET sector may encourage some students to pursue university instead even when it is not the best pathway for them (section 3.4).



### **Recommendation direction and information request 3.1** **Supporting sustainable growth in tertiary education**

The Commission is considering a recommendation in its final report to expand the number of places in tertiary education to better support future workforce needs. To inform the development of this recommendation, we are seeking further views and evidence on:

- Do funding caps place a binding constraint on education providers, or conversely, is there evidence on the extent of unmet demand for tertiary education?
- How should places be expanded across VET and higher education?
  - Should growth in places be determined using a formula?
  - Should demand-driven funding be expanded to support more students (such as equity groups)?
- To what extent is ‘overskilling’ or ‘overeducation’ a problem in Australia, and what should be done to reduce it?

## **3.2 Improving governments’ subsidy allocations**

Governments use a range of inter-related controls to influence investment in tertiary education, which in turn affects human capital and skills acquisition. Typically, governments:

- set limits on the availability of subsidised student places (discussed above)
- set maximum prices (course fees), or maximum loan amounts (as a de facto maximum fee)
- subsidise course costs based on a determined government contribution and/or student contribution
- offer student loan programs to improve education access and affordability
- offer other funding programs and incentives, to support capital investment or equity group participation.

Governments’ investments in tertiary education aim to support equity of access to education and efficient investment in skill acquisition to meet labour market needs. However, the suite of subsidies, funding allocations and prices set by governments can undermine achievement of these goals (table 3.2).

Addressing these incentive problems would result in more efficient skill acquisition and support Australia’s long-term productivity growth — explored in further detail in the subsections below.

**Table 3.2 – Incentive problems affect the efficacy of government investment**

	Levers used to manage investment	Incentive problem	Recommendation directions
<b>Subsidy setting</b>	<ul style="list-style-type: none"> <li>Government and student contributions calibrated to encourage students to select courses that align with skill needs and public benefits.</li> </ul>	<ul style="list-style-type: none"> <li>Subsidies to influence student choice are ineffective and inequitable.</li> </ul>	<ul style="list-style-type: none"> <li>Government subsidies should be set more equitably, either in line with private benefits or as a flat rate.</li> </ul>
<b>Price setting</b>	<ul style="list-style-type: none"> <li>Prices and loan caps set to incentivise efficient service delivery, limit market power and support fiscal sustainability.</li> </ul>	<ul style="list-style-type: none"> <li>Provider incentives to enrol in high margin courses, rather than meeting labour market demand.</li> </ul>	<ul style="list-style-type: none"> <li>Improve data collection on costs of provision.</li> <li>Set annual prices (and loan caps), based on the efficient cost of delivery determined through robust cost data.</li> </ul>
<b>Funding allocation</b>	<ul style="list-style-type: none"> <li>Funding determinations for VET and higher education are based on historical allocations and are determined independently.</li> </ul>	<ul style="list-style-type: none"> <li>Policies may distort student choice toward greater funding, rather than where skill acquisition may be the most efficient.</li> </ul>	<ul style="list-style-type: none"> <li>Loans should gradually be made more readily available to VET students at the Certificate III and above level.</li> </ul>

## Setting government subsidies

Governments have used various (and changing) subsidy models to influence student incentives (box 3.3). The range of models used historically — coupled with the lack of consensus amongst stakeholders — calls into question the approach that would best support efficient skill acquisition. The more recent model has been a partial subsidy that differs by course type, combined with an income-contingent loan (ICL) available to almost all higher education and some Diploma students. ICLs also have an implicit subsidy as many students do not fully repay their loan (section 3.4).

### Box 3.3 – Governments use different models for subsidy setting

Different principles have informed subsidy determination at different times. At the extreme ends of the spectrum, a student may be:

- **Fee-for-service (full private cost)** — the full cost is paid by the student. This is the case for students who do not receive a government-funded place, including some postgraduate students, non-university undergraduate students as well as students undertaking many VET qualifications not on skill lists, or those not eligible for a subsidised place.
- **Fully funded (full public cost)** — the full cost is incurred publicly, as occurred in 1974 when tuition fees were abolished. However, demand pressures and a growing fiscal burden led to the introduction of fees through the Higher Education Contribution Scheme (HECS) (PC 2019, p. 20). More recently, some State and Territory governments have offered ‘Free TAFE’ programs, but only for students at public providers — a policy that undermines the viability and competitive role of private providers (PC 2020c, p. 97).

### Box 3.3 – Governments use different models for subsidy setting

However, most courses have some combination of a subsidy and private contribution (which may take the form of an up-front fee or a loan). To determine how large each contribution should be, governments usually consider:

- **the private benefits** — there are significant private benefits to tertiary attainment (chapter 1).
- **the public benefits** — governments may subsidise qualifications based on the social benefits they provide. In principle, without such subsidies there would be underinvestment in tertiary education because individuals only take into account the private costs and benefits of undertaking study.
- **skills shortages or labour market needs** — all governments use skill lists to allocate subsidies, with higher subsidies applied in particular for apprenticeships. The Australian Government also revised subsidies under the Job-Ready Graduates package to encourage demand for courses deemed to meet skill needs.

### Governments fund courses based on public benefits and skill needs...

There is clear evidence of the public (or social) benefits of tertiary education (chapter 1).

Subsidy setting policies across VET and higher education aim to encourage uptake of training that is socially desirable or is in demand in the labour market — primarily through higher subsidy rates for select courses. In VET, governments subsidise qualifications with differential rates depending on whether the qualification is a deemed priority (PC 2020c, p. 256).<sup>45</sup> In higher education, the 2020 Job-Ready Graduates package also altered government subsidies to better align with ‘industry and community priority’ (box 3.4).

### Box 3.4 – How did Job-Ready Graduates alter subsidies for university courses?

The 2020 Job-Ready Graduates package (JRG) altered the student and government contribution to courses in different fields of study. Subsidies were increased for certain fields of study deemed to produce more ‘job-ready’ graduates, and decreased for fields where graduates were deemed less employable. These changes were partly aimed at improving matching of students to skill needs and therefore, productivity:

... the Government needs to maintain fairer cost-sharing arrangements for taxpayers, while also encouraging study in fields most necessary for the jobs of the future and positioning

<sup>45</sup> Jurisdictions typically use a combination of quantitative and qualitative labour market analysis (including industry forecasts, mapping qualifications to occupations, industry consultation and labour market testing) to make a judgement on the qualifications demanded in the labour market, and therefore, the extent of subsidy. Typically, governments target subsidies to the areas deemed to have high returns, either publicly (such as foundation skills courses) or privately (such as apprenticeships). Subsidies can also differ depending on whether a student studies at a public or private provider, the level of the qualification, and the mode of study (e.g. apprenticeships). However, there is limited transparency regarding how these criteria influence subsidy setting.

### Box 3.4 – How did Job-Ready Graduates alter subsidies for university courses?

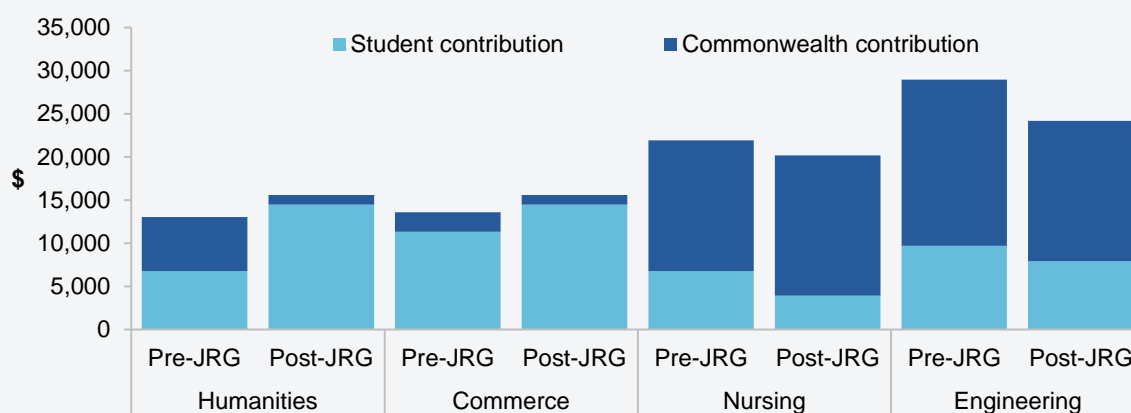
Australia to capitalise on opportunities to increase productivity and national prosperity in the decades ahead. (DESE 2020b, p. 4).

The objective was to direct funding ‘... to areas of expected employment growth, as well as industry and community priority’, by encouraging students to make more job-relevant choices (Tehan 2020). However, there is little public information about how the particular choices of fields receiving more (or less) in subsidies were made. For example, DESE estimates show some fields that were incentivised under the reforms, such as English and Foreign Languages, had some of the lowest public and private benefits. Conversely, the four fields with the highest public and private benefits all had little change to the student contribution or had fees increase (DESE 2020b).

The package also changed the Commonwealth Grant Scheme payments made to universities. Previously, universities received less than the cost of delivery for some courses and significantly more for others (DESE 2020b).

The overall outcome was that total resourcing for each degree was changed, comprising changes to both the student contribution and the government contribution.

#### Job-Ready Graduates made large changes to prices and subsidies for some courses<sup>a</sup>



a. Amounts are for new 2021 enrolments but will vary over time due to CPI indexation.

### ... but these rationales are flawed, particularly given income-contingent loans

While economically intuitive, the case for differential subsidies to encourage uptake of courses — in areas of labour market need or social priority — is flawed for three key reasons.

#### Public benefits are difficult to estimate by course level and type

While there is strong evidence on the existence of public benefits and changing skill needs, this does not extend to using these as a basis for determining subsidies.<sup>46</sup> This is because changes to subsidies have

<sup>46</sup> There is a consensus regarding the existence of public benefits of education, but estimates of their magnitude — and therefore implications for subsidy setting — are more complex and long debated. Previous reviews have taken different perspectives on how subsidies should be set, from the Wran report (Committee on Higher Education Funding 1988)



limited additionality when students have high private benefits for choosing to study and will likely do so irrespective of the size of the subsidy. Norton (2017) for example, warned against using public benefits to estimate subsidies, noting that:

... the presence of public benefits does not of itself lead to sub-optimal levels of education. This will only happen if the total net private benefits are too low to justify enrolment. In those cases, tuition subsidies reduce costs and make it easier to get to positive net private benefits. This may encourage prospective students to enrol when otherwise they would not.... Even though market failures are possible, with income contingent loans there are only limited empirical circumstances in which they actually exist.

As well as concerns regarding additionality, attributing public benefits by level of education is not clear cut. While taxation benefits are likely to be larger for higher education qualifications, other social benefits like reduced crime or intergenerational benefits are likely to be higher for Certificate I and II qualifications (PC 2020c, p. 112). Moreover, attributing public benefits by field of study is even more challenging — either requiring normative judgements about what professions are socially beneficial, or conceptually weak assumptions about the economic contribution of different sectors.

Similarly, there are significant limitations in the methods used to estimate skill needs (box 3.5). There is little evidence that differential subsidies effectively address skills shortages, particularly as some occupations have remained in persistent shortage for over a decade, irrespective of subsidy settings (PC 2017a, p. 113).<sup>47</sup> A range of occupations, including hairdressers, arborists and panel beaters, have been deemed to be in persistent shortage for most years in the decade to 2018 despite subsidised qualifications on offer (DESE 2019c).

### **Box 3.5 – Skills shortages are a poor basis for setting subsidies**

Governments set subsidy levels and available places to favour courses relevant to skills that are, or will be, in apparent short supply. In VET, all State and Territory governments use skill lists to determine the courses eligible for subsidies, with the rate of subsidy based on deemed skill shortages. Similarly, government subsidies for university courses vary by field of study depending on their estimated employment prospects (box 3.4). This reduces the relative price of courses in these fields, encouraging greater enrolment.

However, skills shortages are a poor basis for setting subsidies both theoretically and methodologically.

- Subsidy differentials have little effect on behaviour (for reasons discussed further below).
- Market sector areas with genuine skills shortages elicit rising wages. Forward-looking students therefore already have incentives to study courses with strong employment and wage prospects.

---

which established the design of the HECS system, to the more recent Bradley review (2008), Lomax-Smith review (2011), and Kemp-Norton review (Norton and Kemp 2014). Work by the Grattan Institute (Norton 2012) and Deloitte (2016) — while proposing novel methods to estimate the public benefits of tertiary education — do not provide robust methods to inform subsidy determination.

<sup>47</sup> While increasing wages would be the usual approach to reducing persistent skill shortages, where there was some unforeseen barrier to that, other options such as scholarships or employer-sponsored places would be less costly than broad-based subsidies.



### Box 3.5 – Skills shortages are a poor basis for setting subsidies

Paying subsidies for the relevant courses acts as an ineffective and potentially inequitable transfer to people with good long-term prospects.

- The delay between training and working in the profession may be significant, such that the ‘shortage’ may have disappeared before a student graduates. Migration is likely a faster and more efficient mechanism, particularly for addressing temporary shortages.
- To the extent that subsidies change behaviour at the margin, this may still be undesirable as it presupposes that students cannot make good choices themselves (discussed below).

Regardless of the generally limited effectiveness of subsidies, there are significant concerns about the methodology, currency, and underpinning conceptual framework of skills lists that suggest they are a poor basis for allocating subsidies (PC 2020c, p. 116). Skills lists are broad in nature and may not accurately reflect local skill needs (CCF, sub. 38, p. 5). For universities, which are less vocational in orientation, there are more fluid and ambiguous links between future jobs and the fields of study that might be relevant. For example, digital technologies like gaming require graphic designers and artists as much as software programmers. Inquiry participants have similarly raised concerns regarding Australia’s (similarly-derived) skilled occupation list for migration, commenting that it is ‘arbitrarily complex and outmoded’ (TCA, sub. 51, p. 16) — discussed in the separate interim report on labour market issues.

### Students are unlikely to be responsive to price differences

The overall demand for university enrolment in Australia appears to be unresponsive even to significant price increases against the background of ICLs and existing subsidies (Dawkins and Dixon 2015, p. 3),<sup>48</sup> which also appears to be true for the VET system (PC 2020c, p. 282). In particular, the HELP loan scheme makes university fees less salient as they are deferred, contingent on future income, and with debt not subject to any real interest rate (box 3.6). This implies that in the context of ICLs, very large changes to course subsidies would be needed to induce significant increases in overall tertiary enrolments.<sup>49</sup>

There is less evidence on the extent to which varying subsidies by field or course affects the choices of students who have already decided to attend a tertiary institution. However, the effects for university courses are also likely to be low due to the same moderating effect of HELP loans, as suggested by early evidence from the Job-Ready Graduates package (box 3.6). Moreover, choices for specific tertiary education courses often reflect students’ underlying interests and aptitudes, as well as factors like their perceived quality, and how and where they are delivered (Brown 2017). Offering greater subsidies for a course of little interest to a student will often not elicit a change in demand.

<sup>48</sup> A global meta study of the responsiveness of enrolments to university tuition fees found price elasticities of close to zero, even though the policy settings across countries are different (Havranek, Irsova and Zeynalova 2018).

<sup>49</sup> Students are more responsive to subsidies where loans are not available. Evidence from the entitlement schemes implemented in Victoria and South Australia point to significant VET uptake, where these programs had few restrictions on course selection or caps on training places (Polidano, van de Ven and Voitchovsky 2017a, 2017b). These entitlement programs removed significant financial barriers that students would have faced, given more limited loan availability, prior restrictions on government-funded places and large out-of-pocket costs associated with fee-for-service enrolments. The demand response was also particularly strong from disadvantaged groups, such as the long-term unemployed.

### **Box 3.6 – Large subsidies can result in small behavioural effects with income-contingent loans**

It is rational for students to be unresponsive to differential subsidies given that the expected private benefits (including lifetime income) far exceed the price change resulting from differential subsidies. Income-contingent loans (ICLs) are designed to *reduce* the price responsiveness of students, and evidence from both Australia and similar models implemented in the UK and New Zealand suggest that large changes in price have little effect on demand, meaning students are likely to be even less responsive to changes in price than in countries that rely on private loans or upfront tuition costs (Hubble and Bolton 2018; Smyth 2020). Indeed, existing research identifies large lifetime private benefits associated with tertiary education (chapter 1), such that significant changes in tuition fees in the context of an ICL are unlikely to influence students' choice of qualification, or choice to study at all.

The income-contingent and interest-free nature of Australian student loans mean that higher fees only affect a student's finances at the date when they would have otherwise paid off their debt. For example, under changes made as part of the Job-Ready Graduates package, the student contribution for a humanities degree in 2021 doubled from \$6803 to \$14 500 per year. While this was a major change in the price of the degree, the effect of this change with income-contingent repayment for the median humanities student would only occur beyond age 33, experienced as additional loan payments to age 39 under the new settings — a consequence occurring 15 years into the future (Chapman and Khemka 2022). Indeed, early evidence of applications suggests little change even in courses that had large increases in fees, such as humanities degrees (Norton 2021).

### **Students make good choices**

Students appear to make good choices of their own volition. They have the best information about their own abilities and interests, making them well placed to make decisions about what they will enjoy — and benefit from — studying. During the Victorian Training Entitlement — which gave students a reasonably free choice in what to study — one study found there was a 'significant improvement in the match between course choices and the officially recognised skills in demand' (Polidano, van de Ven and Voitchovsky 2017a, p. 3).

Policies that limit students' choices may lead some students to train in areas that do not align with their interests, which may be harmful to their careers in the long term. Some international evidence points to the benefits of students' studying in line with their preferences, given that a student's comparative advantage is highly relevant to their labour market outcomes. For example, a Norwegian study examined students who were just above and below the admission score for a course in their preferred field, finding that their earnings usually increased when they were admitted to their first choice of course, even if it led them to study in a course with lower average earnings (Kirkeboen, Leuven and Mogstad 2016).<sup>50</sup>

While subsidising tertiary education to align with skill needs has been a key priority of governments, there has been different rationales and models for how subsidies should be set. Such a range of approaches calls into question the approach that would best support efficient skill acquisition.

<sup>50</sup> For students whose first choice was science and second choice was social science, studying science increased their early-career earnings by \$70 000 USD. For students whose first choice was social science and second choice was science, studying social science rather than science increased early-career earnings by \$56 000 USD (Kirkeboen, Leuven and Mogstad 2016).

## Options for improving subsidy allocation

### Changes to subsidy rates could reduce the fiscal cost of additional places

The relatively low responsiveness of students to subsidies, particularly in the context of ICLs, suggests that decreasing subsidy rates is unlikely to materially reduce access to — or demand for — tertiary education. Given the weaknesses associated with setting subsidies based on public benefits, other options could be considered. There may be an opportunity to reduce subsidy rates in a way that enables additional tertiary places for a given funding envelope. This would more effectively target the barriers to skill attainment, and hence promote productivity (section 3.1).

While reducing subsidy rates could limit fiscal cost, it would also result in either larger upfront costs faced by students without loan access, or increase the time taken to repay loans. For students without access to ICLs, primarily in VET, reducing subsidy rates would be inconsistent with expanding access to tertiary education, and should therefore only be considered following expanded access to loans (section 3.4).

Moreover, if governments increase the number of tertiary places, other forms of funding may be required to support the additional students, who may not have the same level of academic preparation. The funding model could also take into account the changing student cohort by providing additional subsidies ('loadings') for certain types of students. For example, in VET many jurisdictions apply equity group or location-based loadings to per-student subsidies received by providers, in recognition of the additional costs of delivery.

### Alternative approaches to setting subsidies

The Commission previously proposed methods to simplify subsidy setting in the VET sector, in place of the highly granular rates used in some jurisdictions (PC 2020c, p. 285). These recommendations remain relevant. In addition, rather than basing subsidies on poorly defined skill needs or priority occupations, this interim report proposes two options for setting subsidies across tertiary education:

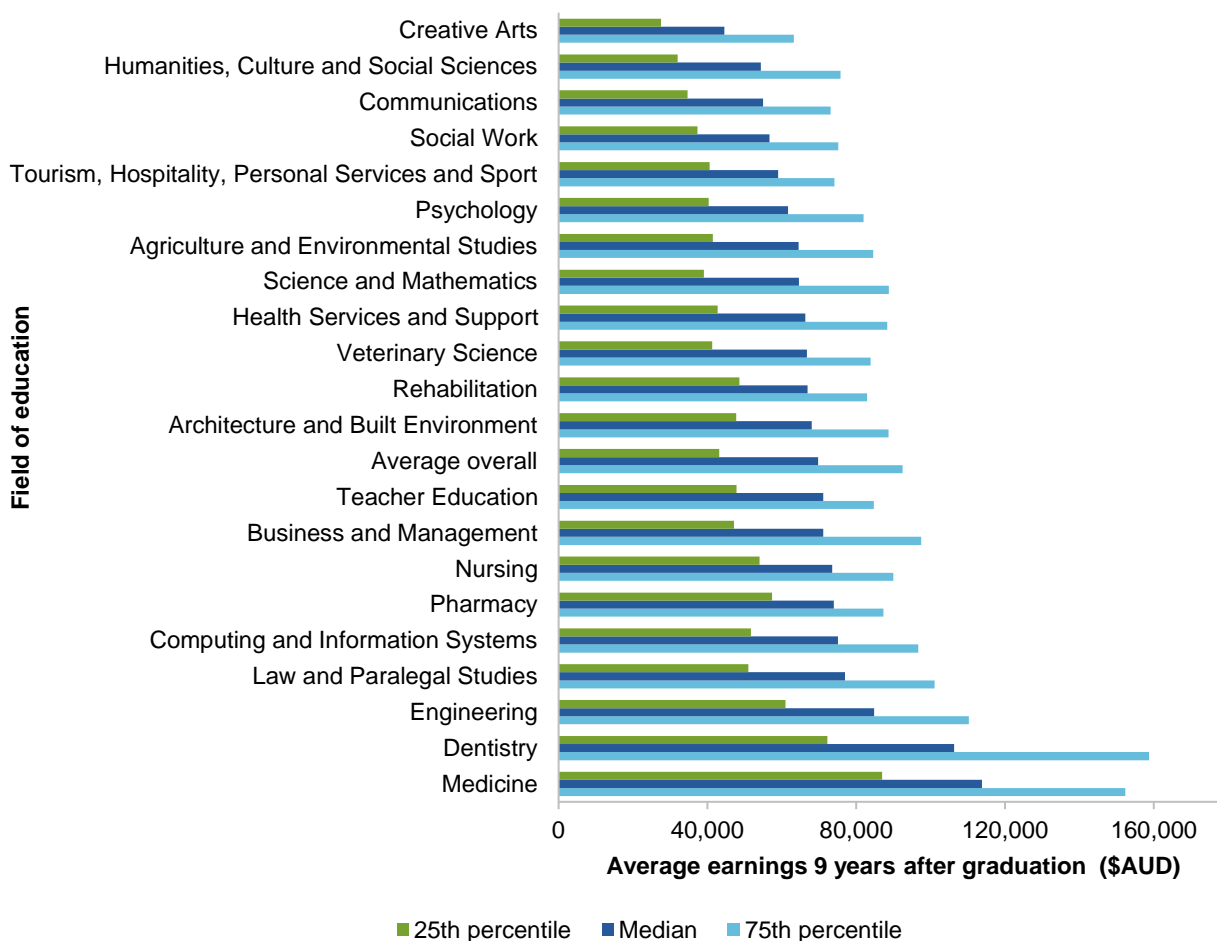
- Lower subsidies would be given where the private benefits by field of education were higher. Courses would be grouped into a small number of categories to reduce the complexity of highly granular subsidy rates present in some jurisdictions. In the context of expanded ICLs (section 3.4) that limit the repayment burden for low-income earners, reallocating subsidies in this way would be more efficient and equitable.
- Uniform treatment of courses — based on either providing the same value of subsidy regardless of course or setting a common rate applied to the efficient course cost. This would not require any assessment of the benefits — either private or public — of courses.

### Lower subsidies for courses with higher private benefits?

Unlike the public benefits of tertiary education which are difficult to quantify, information on the lifetime income profiles of students provides reasonable estimates of the private benefits of tertiary education.

Employment rates and lifetime income are higher for those with increasing levels of education even when accounting for their higher levels of ability (chapter 1), suggesting a high private return associated with tertiary education — particularly university. The high lifetime earnings of higher education graduates for certain fields suggests that many receive large government subsidies despite significant private benefits and strong incentives to attend (figure 3.1).

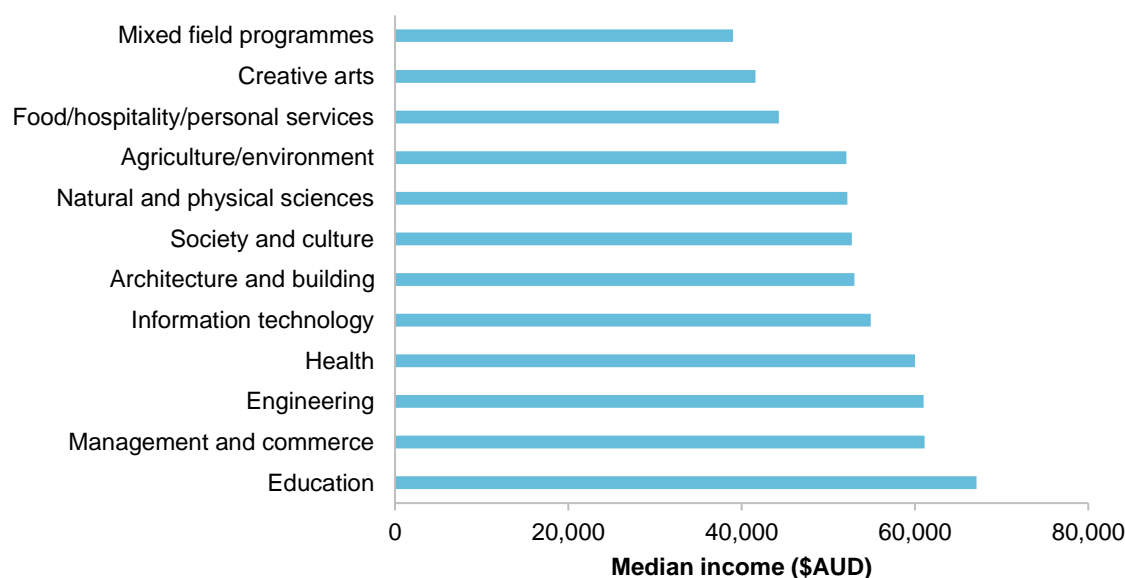
**Figure 3.1 – The private benefits of education vary by field of education<sup>a</sup>**  
**Average earnings 9 years after university graduation, for those graduating in 2008**



a. This provides only a proxy for private benefits, as it is difficult to attribute the earnings differentials directly to education. This chart contains data for those who graduated in 2008, and reflects their average income 9 years after graduation, in 2017-18.

Source: QILT (2021a).

The earnings and lifetime income of VET graduates also vary across different fields of education (figure 3.2). These differences can be estimated at relatively granular levels, using student outcome surveys or through administrative data held by governments, such as data on incomes acquired through the administration of the tax system.

**Figure 3.2 – VET students' earnings vary by field of study****Median annual income for VET graduates employed full time with a Cert II and above**

Source: NCVER (2021).

The higher earnings premium of university students suggests that the private benefits exceed that of VET, particularly in areas like medicine, dentistry, engineering, and law. This suggests that reducing subsidy rates for these courses is unlikely to affect student participation in these fields. However, private returns are not high across all fields of study and there is significant variation in average incomes even nine years after completing study (figure 3.1). This difference suggests that there could be some variation in subsidy rates by field of education to better align them with their private benefits. Qualifications could be grouped into a small number of high-level categories based on the private benefits (such as low, medium, or high private benefit). Under such a model, courses with relatively low private benefits would attract the greatest proportionate share of public subsidy (that is, a large share of the price paid by the student would be publicly subsidised). In line with this rationale, there may be some courses with high private return that should not attract any public subsidy.

There are three problems in setting higher subsidies for courses with lower private financial benefits. The first, is that private benefits to education are not always financial and that other private benefits — such as more favourable working conditions — cannot readily be quantified. Conversely, high private financial benefits may be offsetting unfavourable working conditions. This means that earnings may sometimes be a weak proxy for private benefits.

The second is that some fields with comparatively low incomes — such as nursing and teaching — have wages that are heavily regulated and controlled by governments. To the extent that the real problem is excessive wage bargaining power by governments, the solution would be to set wages that would be offered in a more competitive labour market rather than to provide higher course subsidies. (Of course, from a government fiscal perspective, course subsidies that just target new entries into the profession will cost less.)

The final issue is that ICLs already provide additional subsidies for students who undertake courses associated with lower lifetime incomes. This is because they reach the income threshold for repayment later (or never) and, as such, pay back a smaller share of their loan than other students. This provides additional grounds for extending ICLs to the VET sector (section 3.4).

### Applying uniform subsidies?

An alternative subsidy-setting approach would be to set the same subsidy levels or preferably, a uniform share of the estimated efficient costs of the course (the calculation of which is discussed in section 3.3). Given the minimal effect of price on student behaviour, this approach recognises that subsidies do little to influence student's choice. While efficient costs by course would need to be estimated, a common rate applied to efficient costs would encourage better resource allocation across courses (section 3.3).

The distributional impact of the various subsidy options depends on course costs and their impacts on lifetime earnings. For example, a student undertaking a low-cost course with high lifetime returns would benefit from a flat dollar or cost-reflective subsidy compared with a subsidy that fell with higher private returns. Conversely a student undertaking a high-cost course with low lifetime earnings would fare better with either a flat dollar subsidy or a subsidy based on lifetime earnings compared with a cost-reflective subsidy.

Given that ICLs reduce the sensitivity of demand to prices, under any of these subsidy options, the government has some scope to expand places without budgetary impacts by cutting its contribution to tuition fees and raising the effective price to students.

### **'Free' tertiary education carries a fiscal cost and is unlikely to improve outcomes**

Australia has required student contributions for tertiary education since the 1980s, when free tertiary education was gradually replaced by the current system of ICLs through HECS and HELP. This shift reflected the unsustainability of full subsidisation of a rapidly expanding system (PC 2019, p. 20). Moreover, it was recognised that free university represented a large transfer from all taxpayers to a group with relatively higher employment and income prospects. Free education also transfers the cost from those who study to the broader tax base — some of whom do not study. It is preferable to recover the cost of education more directly from those who benefit from it (as discussed above).

A similar logic applies today. To offer free or cheaper courses, the Australian Government would have two options, neither of which appear to meet sound equity or efficiency criteria. It could cut places to accommodate the higher costs, which would favour students with higher Australian Tertiary Admission rankings (ATARs) as this is the principal mechanism for rationing places. This would disadvantage students from lower socio-economic backgrounds who tend to have lower ATARs (Manny 2020) and would involve larger transfers from taxpayers to students with high expected lifetime earnings. Alternatively, the Government could meet the costs of free university by raising taxes (which tends to discourage economy-wide labour supply and investment) or by cutting other (presumably valuable) government spending.

Free TAFE policies are also unlikely to provide community-wide benefits as suggested by the outcomes of this policy in Victoria (PC 2020c, pp. 94–97):

- Although enrolments increased at TAFEs, this probably reflected substitution from students who would have otherwise studied at private providers. For example, there was a decrease in enrolments in the Diploma of Nursing at non-TAFE providers, against the trend of previous years. Some private providers claimed that many students were feeling a financial pressure to study at TAFE.
- It weakened competition as the market share of TAFEs in Victoria increased at the expense of private providers, diverging from the national trend. In some courses, TAFEs increased their already dominant market share, with the concern that this limited contestability by other providers.

There is also no evidence that the quality of delivery is higher at public than private providers (PC 2020c, pp. 102–103). Students are equally satisfied with public and private RTOs, while employer satisfaction is higher for private RTOs. Therefore, free TAFE would not increase quality of outcomes.<sup>51</sup>

In that context, the additional cost of funding free TAFE would be better spent elsewhere, potentially on widening access to VET, other forms of skills acquisition or other ways of improving the functioning of the education system.

Mass loan forgiveness of HELP (and remnant VET Student Loan debts) is sometimes seen as a desirable approach to alleviating financial costs on young people who have large outstanding debts. As such a policy relates to already completed education, it could not enhance skills, and so would be a purely redistributive measure. As in the case of free higher education, it would be regressive and favour people with higher lifetime incomes. The degree of regressivity would be particularly high because debts are higher for students studying courses with higher expected lifetime earnings, such as medicine, law, and engineering (DESE 2021b). In 2021–22, the fair value of HELP debt was about \$56 billion, but only about 2.9 million Australians have HELP debts.<sup>52</sup> For the same cost of cancelling all HELP debt in Australia, the Government could give about \$5600 to every household (AIHW 2022; Commonwealth of Australia 2020, pp. 9–45, 2022, p. 277–298; Ferguson 2021b).

Nevertheless, there may be merit in free or heavily subsidised Certificate I and II courses given their large public benefits to foundational skills and the relatively low lifetime incomes of students. Debt forgiveness is also appropriate in some circumstances, for example where a student has undertaken a fraudulent course, as was frequently the case for VET FEE-HELP. Indeed, many loans under that scheme have been forgiven (Commonwealth Ombudsman 2020).

## Funding allocation may inhibit competition

Across both VET and higher education, funding is often allocated to providers based on historical grant allocations, rather than contestable arrangements.

- In vocational education, TAFEs receive significant block funding in some jurisdictions, but a lack of transparency on funding arrangements (and a lack of comparability across jurisdictions) makes this difficult to estimate.
- In higher education, the majority of funding for teaching is allocated through grants under the Commonwealth Grants Scheme, equivalent to \$7.7 billion in 2020, or 42% of total Australian Government financial assistance (DESE 2021a).<sup>53</sup> Under the Commonwealth Grants Scheme, a university holds a funding agreement with the Australian Government, under which a maximum basic grant amount (MBGA) is set annually based on the funding for student places the university received at the end of the demand-driven system in 2017.<sup>54</sup>

The impacts on competition vary across the tertiary sector.

<sup>51</sup> In any case, if quality is the major problem, then the better solution is to identify poor performers attempt to rectify their quality issues, or defund them regardless of ownership status.

<sup>52</sup> The 'fair' value of HELP debt reflects that a share of students will never pay off their debt.

<sup>53</sup> An additional \$6.1 billion of assistance is provided to universities through loan schemes, equivalent to a further 33%. While the loan component is somewhat 'activity-based' (albeit constrained by universities' maximum grant amount) and the majority is ultimately paid by the student, the total value of the CGS and loan contributions account for over 75% of total government assistance provided to universities (including government funding for research).

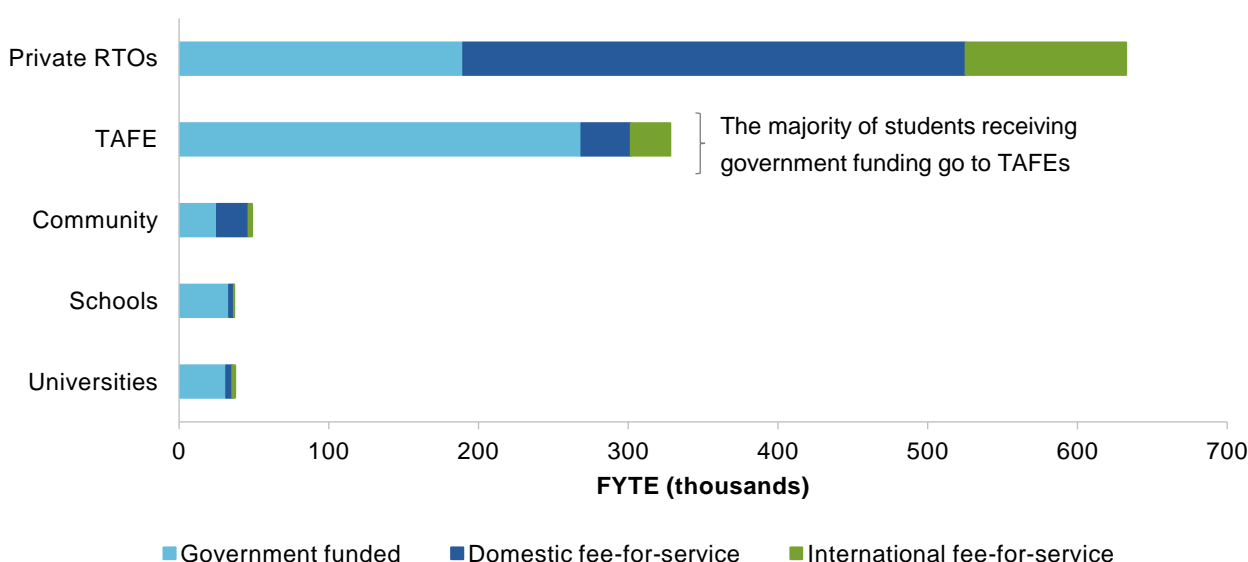
<sup>54</sup> 7.5% of CGS funding is also performance-based, discussed further in chapter 4.



In the VET sector, although many students do not receive government funding, those that do tend to study at TAFE (figure 3.3). As a result, a small number of providers receive the majority of government funding. Despite this distribution of funding, there is a ‘reasonable’ degree of competition within VET, with 87% of students having a choice of registered training organisation (RTO), with 30% of students studying in highly competitive markets and 20% in moderately competitive markets (PC 2020c, p. 94). This reflects the emphasis since the 1990s on reforms to increase competition between RTOs. Indeed, around 4000 RTOs service VET markets, compared with the 192 higher education providers delivering qualifications (EY 2021; TEQSA 2022c). However, there is scope to increase the role of contestable funding given that some jurisdictions still prioritise public providers (PC 2020c).

**Figure 3.3 – Private RTOs deliver more VET training, but the majority of government-funded students attend TAFEs<sup>a,b</sup>**

**VET program student enrolments, by funding type**

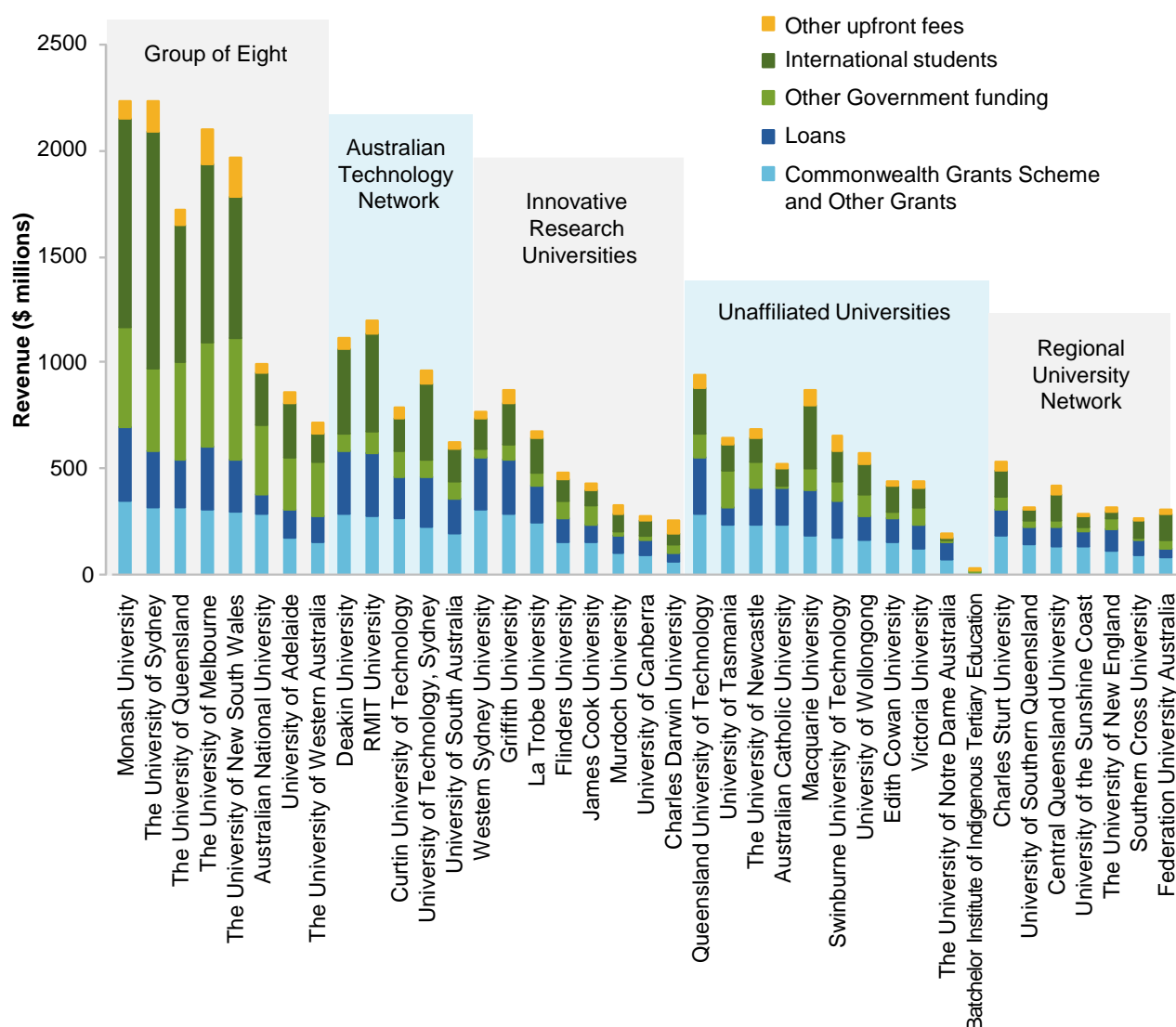


**a.** For government-funded students, the amount of subsidy provided for each course varies by State or Territory, depending on the specific subsidy program in each jurisdiction. **b.** **FYTE** means full year training equivalent.

Source: NCVER (2022) VOCSTATS — Total VET Activity data.

In the university sector, the spread of funding allocated through the Commonwealth Grants Scheme across the 39 public universities appears more evenly distributed than in VET (figure 3.4). But the spread of *total* funding is more concentrated after accounting for research funding. Given the powerful branding of research-intensive universities, this may further entrench incumbency (particularly given the revenue from international students). And unlike VET where there is a broad diversity of providers in the fee-for-service market, non-university higher education providers service less than 10% of full-time domestic enrolments (DESE 2022f).



**Figure 3.4 – A small number of large universities****Total revenue of universities by source, 2020**

Source: DESE Higher Education Finance Statistics (2021a).

Unlike VET subsidy programs, funding is not contestable between providers in the higher education sector. While allocating funding based on historical arrangements gives certainty to governments and providers, it can also limit competition. There is little incentive for higher education providers to innovate, improve their quality (chapter 4), or differentiate their offering from others, and little opportunity for new providers to enter the market. Block funding also prevents the sector from adjusting to changes in demographics or skill needs. Similarly, the separate determination of funding allocations between VET and higher education — given differing Australian, State and Territory government responsibilities — might also be a barrier to a flexible tertiary system that adapts to changing skill needs. Funding that follows the student (rather than being allocated directly to providers) might allow for greater flexibility for students to move between providers and the two sectors, as well as enhancing competition across the tertiary sector as a whole.

Options for more contestable funding could include a move toward delivering subsidies directly to students, for example as a voucher-style entitlement, rather than funding flowing directly to education providers, as is the case under the status quo. For example, all VET students could be given access to a voucher to access education, equivalent to some or all of the subsidy that would otherwise have gone to the provider, redeemable once they enrolled in a course. Likewise, those students currently deemed eligible to attend universities could access a voucher. A system where funding follows the student could stimulate competition between institutions, as well as between the VET and higher education sectors.

Whether alternative mechanisms for allocating funding improve current arrangements depends on the extent to which more competition would enhance the quality and flexibility of the tertiary education system. The Commission welcomes feedback from stakeholders on this issue.



### Recommendation direction and information request 3.2 More effective targeting of government investment in education

The Commission is considering a recommendation in its final report to alter qualification subsidy rates across tertiary education to improve the effectiveness of government investment and support expanded access. To inform the development of this recommendation, we are seeking further views and evidence on:

- Which approach: public benefits, private benefits, a flat-rate subsidy or some other variant, is the best method of setting subsidies?
- How should subsidy rates vary by field and level of education? Should there be any adjustments for particular types of students?
- While skill lists and differential subsidies do not appear to be effective ways to address skills shortages, could they be improved in some way that would support good outcomes?
- Can funding be better allocated in tertiary education to encourage competition across providers? To what extent would this (or other funding approaches) support more efficient or high-quality education, and improve the flexibility of the tertiary system to changing skill needs?

## 3.3 Setting prices based on efficient costs

### Prices are based on cost of delivery, but can result in poor provider incentives

Governments use price and loan caps to influence how funding is used within tertiary education. Unlike students, education providers are responsive to prices, which are set by governments for undergraduate degrees and for some parts of VET.<sup>55</sup> In instances where fees are *not* government regulated (such as for VET courses in most States and Territories), subsidy rates are applied to an estimated cost of delivery for a particular qualification — a form of ‘price’ (NSC 2021b). Where prices are not regulated, loan caps are also often used by governments as *de facto* price regulation to reduce the risk of unduly high prices.

<sup>55</sup> The ‘price’ of a course is the amount that a provider charges. For government-funded courses, the price paid to the provider has two parts: a subsidy (paid by the government, also known as the government contribution) and a student fee which may be paid through a loan or upfront (paid by the student or an employer, known as the student contribution).

Governments use estimates of the efficient cost of delivery to set price caps, loan caps, and to calculate the base cost to which subsidy rates are applied. Poor cost estimation and price setting can have major adverse impacts.

- Prices set below efficient cost may compromise the quality of courses offered, or — in the case of loan caps on VET courses — result in significant out-of-pocket costs for students. As a result, other regulatory tools and provider performance indicators are important complements to ensure providers are not reducing service quality in the context of regulated prices.
- Prices set above efficient cost may undermine incentives to contain costs and encourage providers to enrol students in high-margin courses rather than those that align with labour market needs — as appears to be the case for universities under the Job-Ready Graduates reforms (box 3.7). In the case of loans, caps set higher than the efficient cost may not deter students from enrolling (as discussed above) but would result in increased debt burdens for students and additional costs for the Australian Government associated with greater subsidies and non-repayment on the larger total debt.

However, estimating 'efficient' costs is difficult. There are very wide differences in the estimated costs of delivery by different universities, only some of which will reflect differences in efficiency (figure 3.5). In this context, an average cost derived from historical expenditure provides a practical benchmark for moving towards efficient pricing, although historical costs may deviate from the theoretical 'efficient' cost.<sup>56</sup>

### **Box 3.7 – Universities have an incentive to enrol students in high-margin courses**

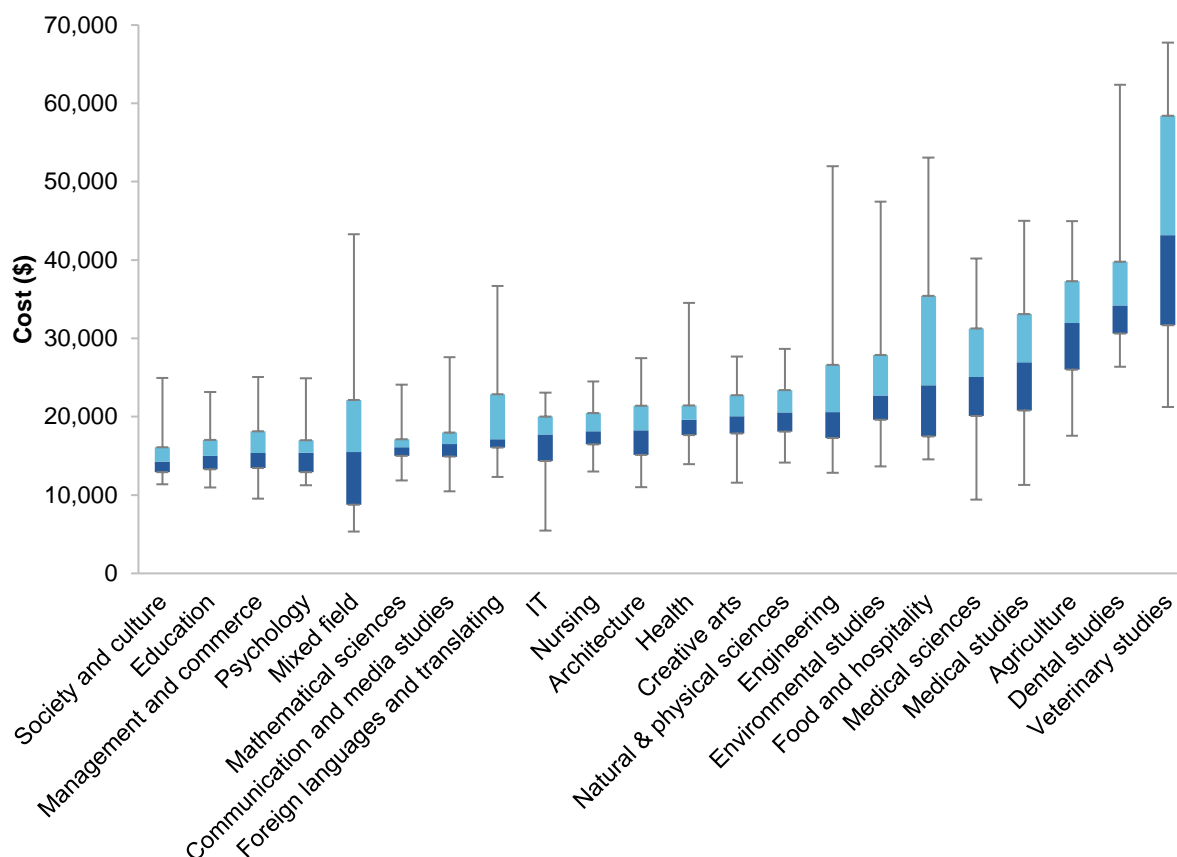
While the intent of recent university funding reforms was to encourage students to take courses linked to skill needs and 'national priorities', the combined effect of changes to both price caps and government contributions had unintended effects. The reforms provided an incentive for universities to enrol students in some courses that the reforms intended to discourage, particularly at the margin.<sup>57</sup> Under the current arrangements, the government contribution is set with reference to perceived employability, with courses deemed to have greater prospects receiving a larger contribution to encourage students to take courses in these areas. However, universities are responsive to their margin (not the government contribution), meaning there is an incentive to enrol students in courses deemed to have poor job prospects if the university can deliver the course at less than the regulated price (set to the median cost).

This incentive becomes stronger as the university approaches its maximum funding cap, known as the maximum basic grant amount (MBGA). For example, if a university has \$30 000 left in its MBGA, the university could either offer a place to one agriculture student, or to 27 humanities, commerce or law students based on the regulated pricing structure. The former would result in \$31 228 in total revenue, yet the latter would result in \$424 953 in revenue (based on 2022 rates). Indeed, these effects may encourage universities to enrol students in high-fee, low-subsidy (and therefore non-priority) courses for all students.

<sup>56</sup> In a perfectly competitive market, the efficient price is the marginal cost incurred by the producer

<sup>57</sup> Each university's block funding amount was based on the number of student places that were offered at the conclusion of the demand driven system. While this determines the maximum funding envelope, it does not specify any course or student mix within this maximum funded amount. This means that universities can choose which students to enrol for a Commonwealth supported place, with funding provided based on the fee structure (the sum of the government and student contribution) set by the Australian Government (Ferguson 2021a).

**Figure 3.5 – Costs of course delivery vary substantially by institution<sup>a</sup>**  
**Estimated costs per student (EFTSL) by field of study in 2018<sup>b</sup>**



a. The boxes represent the universities with costs between the first and third quartiles, the colour changes at the median cost institution. The 'whiskers' show the institution with the highest and lowest cost. For some fields of study, data are available for 32 institutions, for others there are as few as four. a. EFTSL means equivalent full-time student load.

Source: QILT (2020).

## Cost data can (still) be improved

In its previous Productivity Review, the Commission highlighted the importance of cost-reflective resourcing for Commonwealth supported places in universities (PC 2017d, p. 2). Since then, the Australian Government revised the maximum price and government contributions in line with estimated costs of delivery as part of the Job-Ready Graduates funding reforms. This major change — the first to explicitly separate the costs of teaching and research — was a crucial step towards cost-reflective resourcing for universities (box 3.8). The Australian Government also increased the frequency of an exercise to collect data on the costs of teaching at universities, known as the *Transparency in Higher Education Expenditure* (Deloitte Access Economics 2019).<sup>58</sup>

Similarly in VET, the Australian Government introduced reforms to provide a national evidence base to estimate the costs of delivering VET qualifications, coordinated through the National Skills Commission

<sup>58</sup> This periodic exercise was undertaken by Deloitte Access Economics for 2017 and 2018. However subsequent collections have been deferred due to COVID-19 and are anticipated for release later in 2022 (DESE, pers comm. 11 August 2022). The initiative establishes common cost allocation methods to estimate the cost of delivering different qualifications.

(NSC) (to be replaced by Jobs and Skills Australia) (Ferguson 2020). A core part of the NSC's functions involved collecting better data on the cost of delivering qualifications, given significant variability in the methods used across jurisdictions, which often rely on poor or outdated data (PC 2020c, p. 279). This information could then inform State and Territory governments' VET subsidy determinations.

### **Box 3.8 – Breaking the nexus? Separating research and teaching costs**

A key change from the Australian Government's 2020 reforms to university funding was explicitly separating teaching and research funding, and aligning funding to the costs of teaching:

Better aligning funding with the cost of teaching will fix distortions in the funding system and ensure universities can respond to student preferences rather than funding incentives.  
(DESE 2020b)

However, many stakeholders from the university sector claimed the importance of the research-teaching nexus (NTEU, sub. 36, p. 7), stating that these core activities were not separable from a funding perspective. The Commission found limited evidence to support this claim. Rather, as the Commission previously noted (PC 2017d, p. 41):

...various empirical studies in Australia and elsewhere have found little evidence to support a positive relationship between teaching outcomes and research capabilities ... evidence that finds no reliable link between research and teaching quality does not mean that universities should forgo trying to nurture a link, however. If a university can succeed in raising teaching quality through synergies with research, then it increases its attractiveness to students...

A key benefit of separating research and teaching costs for funding is that it provides a better basis for establishing the actual (and therefore, efficient) cost of teaching and research, where prior evidence points to ongoing cross-subsidies between these activities (Norton and Cherastidtham 2015). Moreover, separating research and teaching for funding purposes can improve comparability across tertiary education, where VET and non-university higher education providers do not typically hold research functions, unlike universities.

While these recent actions by governments reflect positive steps to improve the transparency and reliability of data on the costs of delivering tertiary education, there remains areas to improve, including:

- **better cost allocation methods** — some acknowledged deficiencies of the method used by Deloitte Access Economics (2019) to estimate university costs point to opportunities to improve the robustness and comparability of future cost exercises, including greater granularity of cost attribution (for example, to allocate costs between undergraduate and postgraduate education within faculties) and more realistic assumptions regarding the allocation of staff time.
- **greater breadth and frequency of collection** — introducing annual reporting requirements for all universities would also improve the accuracy of cost estimates, as would extending a comparable exercise to a broader sample of VET providers. To ensure compliance, mandatory reporting could be included in university agreements with the Australian Government as a condition of Commonwealth funding, and in RTO registration or State and Territory government contracts with providers.

- **a linked cost exercise for research activity** — despite previous government commitments, data on the cost of delivering research is deficient.<sup>59</sup> Undertaking a cost exercise for research is essential to improving cost estimates of both research and teaching, as well as providing a basis to understand appropriate funding levels for research. Overseas examples suggest this is feasible, as in the UK's Transparent Approach to Costing, which covers research and teaching costs (box 3.9).
- **introducing greater benchmarking over time** — using historical cost data for regulated prices can create an incentive for providers to inflate costs over time to increase revenue ('gold-plating'). In this context, benchmarking the cost of provision between providers is an important safeguard, where benchmarking analysis — with reference to providers in other jurisdictions — also provide a helpful basis to inform prices and avoid gold-plating (Houghton, Bagranoff and Jubb 2021).
- **alignment of VET and higher education** — given parallels in estimating the cost of teaching across VET and higher education, a consolidated costing exercise could be undertaken through a central function within government. With more robust cost exercises across both VET and higher education (as well as separately costing research and teaching activity), comparing costs across all tertiary qualifications could also help benchmarking and efficient price setting.

Governments have implemented policies that lay the foundations for cost estimation exercises in recent years, but the adjustments described above would significantly improve current arrangements. Notwithstanding, a limitation of cost estimates more generally is that they do not capture variations in quality — which is problematic as increasing quality would improve productivity (chapter 4). While useful for price setting, cost exercises are only one aspect of understanding provider performance and the sector more broadly. The NCVER's surveys of VET and the QILT higher education surveys on employer satisfaction, student satisfaction and graduate outcomes also provide information about performance that can influence funding and regulatory decisions.

### Box 3.9 – International examples of cost estimation exercises

#### The UK Transparent Approach to Costing

The UK Government's Transparent Approach to Costing, introduced in 2000, provides estimates of the annual teaching and research costs of universities. It mostly focuses on the share of total costs that are incurred during teaching, research, and other activities, and the proportion of these costs recovered in revenue. It provides an example of the simultaneous measurement of teaching and research costs, and allows for analysis of drivers of costs, although it does not attempt to estimate the costs of delivery for different courses (Office for Students 2018).

#### The US Higher Education Research and Development (HERD) Survey

The HERD Survey has been conducted annually by the US National Science Foundation since 2010. It collects information on R&D expenditure at 915 public and private non-profit universities and colleges in the US. It provides extensive information on research costs, how they change over time, and their components. Despite a focus on science and a lack of information on teaching costs, the HERD shows the level of detail that can be revealed through a costing exercise, which can provide significant value for universities' understanding of their costs, as well as increasing accountability (NSF 2020).

<sup>59</sup> The ABS conducts the Higher Education Expenditure on R&D Survey every two years. However, expenditure is reported in high-level categories and is not reported on an institutional basis.

### Box 3.9 – International examples of cost estimation exercises

#### The US Delaware Cost Study

The University of Delaware collects annual data on university teaching costs across multiple disciplines, finding that costs vary significantly by discipline and have increased substantially in recent years (Hemelt et al. 2018). Online education does not seem to have a clear relationship with costs. Although not representative, as it is based on a voluntary survey, it provides international benchmarks of teaching costs and their drivers at a granular level.



#### Recommendation direction and information request 3.3 Improving price setting in tertiary education

To improve incentives for providers to deliver courses that adapt to growing and changing skill needs, the Commission is considering a recommendation in its final report to improve price setting in tertiary education. To inform this recommendation, we are seeking further views and evidence on:

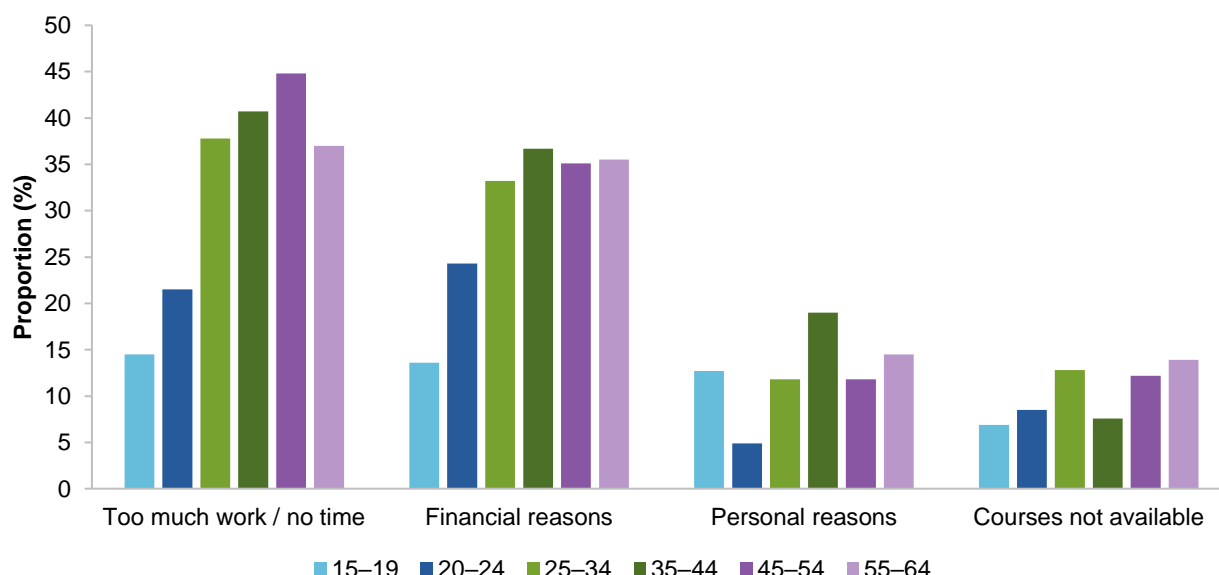
- Is median cost a suitable benchmark for efficient prices?
- How could existing methods for estimating efficient costs be improved?

## 3.4 Expanding access to tertiary education loans

Financial barriers prevent education uptake for some Australians. About 7% of all Australians who did not participate in formal study in the past year wanted to, but could not, with one third of them listing financial barriers as a reason for this (ABS 2022a). Two-thirds of these Australians wanted to enrol in a qualification below the bachelor level, suggesting financial barriers are greater for vocational than higher education. By reducing investment in skills, financial barriers undermine economic opportunity and lower future productivity.

These financial barriers mainly originate from direct tuition costs and living costs when studying. Students have limited time to earn a wage while studying, yet many do not have access to enough savings to fund study. ICLs are generally available for higher education and overcome the barrier of upfront tuition costs. However, loans are not available to meet living costs while studying at university, and loans for VET are highly restricted.



**Figure 3.6 – Financial barriers prevent many people from formal study<sup>a</sup>****Reasons those who wanted to engage in formal study could not**

a. This survey was undertaken during COVID, and so there was a relatively high proportion of respondents choosing 'Other' reasons why they could not access study. This has been omitted in this chart. The respondents include those wanting to enrol in a higher education qualification, although barriers were more likely to be faced by those wishing to undertake vocational education or training.

Source: ABS (2022a).

This is problematic as vocational education is a reliable path to employment in many areas at risk of skill shortage or with large projected employment growth, from the trades to aged care. The NSC has projected that while 53% of newly created jobs over the next five years will require higher education, 39% will require vocational education (NSC 2022). Ensuring access to VET for students at initial career stages and for those upskilling and reskilling is important. For many students, VET is their best chance at a fulfilling and productive career, whether due to their strengths, their interests, or their desired career path.

### **Income-contingent loans are an effective tool to reduce course costs, but current policy settings create distortions**

ICLs provide students with credit to pay course fees. They differ from conventional 'mortgage-style' loans in that repayments are deferred until the borrower earns more than a set threshold. Repayments are calculated as a percentage of the income above this threshold and on a sliding scale. ICLs allow students who could not otherwise afford to pay course fees to defer payment to a time when they have higher incomes. ICLs have been successful in higher education, but their rationale applies equally to VET, where their use is currently highly limited. The VET Student Loans (VSL) program is available for only some courses at Diploma level and above. In 2019, only 277 of 635 Diploma courses were eligible for VSL, despite many ineligible courses having strong employment outcomes (PC 2020c, p. 301). And VSLs are not available for

any course below the Diploma level. This means that VET students, unlike higher education students, often face upfront fees.<sup>60</sup>

The lack of harmonisation of funding arrangements between higher and vocational education distorts student choices and results in poorer matching of skill formation with skill needs. This arises for two reasons.

First, students unable to meet the upfront costs of VET may opt for university education instead, even though VET may have been their preferred choice if equivalent loans were available. Some higher education students have poor outcomes, either not completing their qualification or not finding relevant employment, with costs to the students and government. At least some of these students would have completed their studies and entered their desired job if they had been able to undertake a VET qualification.

Second, upfront costs may discourage a student from accessing VET education altogether — meaning they miss out on any kind of post-school study despite its growing necessity. This would be costly for students and society, as completion of VET courses improves students' earnings (Polidano and Ryan 2016). These damaging effects may be larger for more disadvantaged students for whom any upfront fee will be more burdensome.

The current VSL scheme has had some success at removing financial barriers to VET; 94% of VSL students reported that without their loan, they would not have been able to afford their course fees (KPMG 2019). But this also suggests that financial barriers are significant for students unable to access a loan.

### **Expanding loan access to more VET courses**

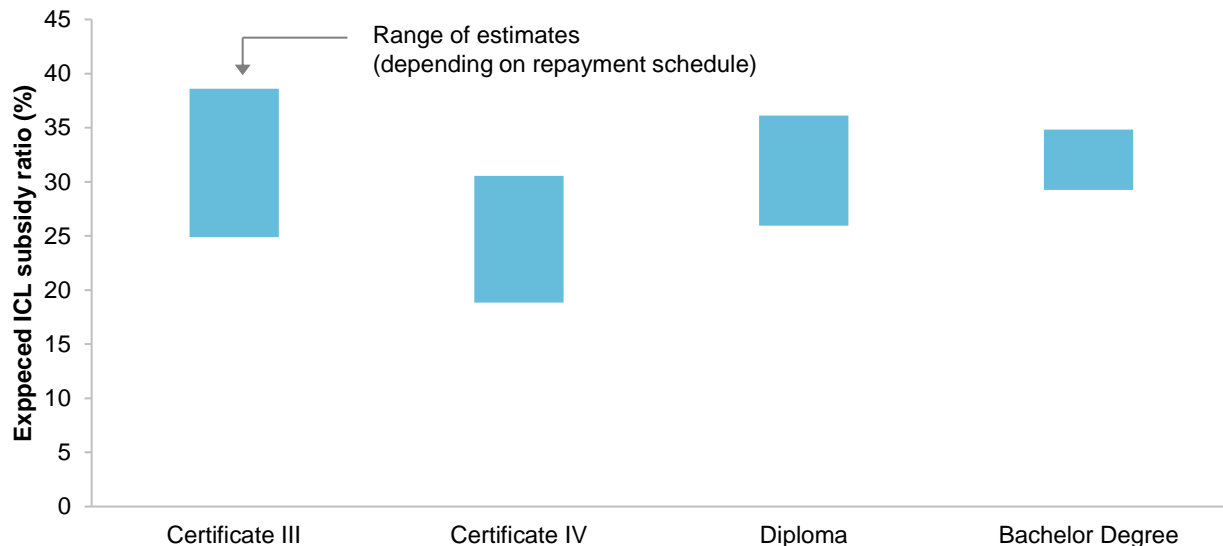
For these reasons, there is merit in expanding VSL to more Diploma-level courses, as well as to Certificate III and IV courses. Certificates III/IV provide comparable increases in earnings and other employment outcomes as diplomas (Polidano and Ryan 2016), and these courses are often shorter and cheaper, meaning debts are likely to be smaller. While their lower costs mean that the barriers posed by upfront fees will typically be less than for diplomas, the costs can still be significant for some cohorts. If students are only able to access loans for diplomas, they would be financially encouraged to undertake higher-level VET courses even if these suited them less well.

Repayment prospects appear to be qualitatively similar across AQF levels (figure 3.7).<sup>61</sup> Nonetheless, expansion of loan arrangements poses some budgetary risks. Consequently, the Australian Government Actuary should be tasked with investigating more thoroughly how different repayment settings would affect debt recovery before a full expansion.

<sup>60</sup> Students that are accepted into university for undergraduate degrees receive a Commonwealth supported place, and have the costs of their education subsidised by the Australian Government, with the remainder of the cost of the qualification deferred through an income-contingent, interest-free loan known as HECS-HELP. University students that do not receive a Commonwealth supported place — for example, because they are undertaking a masters degree — are also often eligible for another ICL, FEE-HELP.

<sup>61</sup> While the modelling underpinning the estimates appears to show that ICL recovery rates are more positive for Certificate IV level courses than bachelor degrees, this may not be a robust result for two reasons. First, the estimated average loan size for Certs III and IV may be too low, and second, the modelling does not exclude Trade Support Loan Students, who already have access to ICLs, and have positive repayment prospects. A full summary of these issues is discussed in box 10.2 in the NASWD review (PC 2021a).

**Figure 3.7 – Repayment prospects are reasonably similar across AQF levels<sup>a</sup>**  
**Expected income-contingent loan subsidy ratio by qualification under various repayment scenarios**



a. Original modelling results were separated by gender; they have been pooled according to the gender split at each level. The upper range estimate corresponds with 2015 HELP repayment terms, and the lower range estimate corresponds with 2015 HELP repayment terms plus 3% of income between \$50 000 and \$54 000, 2% of income between \$40 000 and \$50 000, and 1.5% of income between \$35 000 and \$40 000.

Source: PC (2021a).

As in the case of HELP loans, the precise income thresholds for repayment will need to be assessed as a necessary component of any ICL scheme is to not require full repayment if future income is low.

The successful expansion of loans in VET would also need to address some risks:

- There should be a gradual transition to the broader application of VSLs. They should initially be available for Certificate IV and above courses, which could be extended to Certificate III courses depending on the outcomes of the initial expansion.
- The approach to implementation and regulatory oversight would need to be mindful of avoiding the roting seen under VET FEE-HELP, although the regulatory framework underpinning VSL has addressed many deficiencies of VET FEE-HELP and has not faced similar issues (PC 2021a, p. 298).
- Courses primarily undertaken for leisure or that yield poor employment outcomes should be excluded.
- There should be a 'loan fee' to contain government expenditure. A loan fee is a charge added to a student's loan to increase the amount of cost recovery across the cohort. Currently, a loan fee of 20% applies to VSL students receiving training from a fee-for-service provider. There is no compelling reason why this fee does not apply to students in subsidised places (or, for that matter, higher education students).
- Loan caps are also necessary to limit costs to students and the Government. As ICLs reduce student sensitivity to course fees, their wider application means that providers may be able to increase course prices well above their delivery costs. Under a loan cap arrangement, RTOs are not prevented from charging fees higher than the cap. However, as the student pays the difference, they must be convinced that the additional cost is justified. In its review of the NASWD, the Commission recommended that the number of loan caps be expanded, and reformulated based on efficient delivery cost data (PC 2020c, p. 322).

- ‘Cost sharing’ arrangements may be needed to limit ‘cost-shifting’ across levels of government. ICLs are provided by the Australian Government, while VET subsidies are offered by State and Territory governments. Accordingly, expanding loans may encourage State and Territory governments to reduce subsidies to VET. Additionally, the Australian Government currently bears the cost of loans not expected to be repaid. Sharing the fiscal risk associated with loans would mitigate these problems.

The argument to expand loans to shorter courses is less compelling. Certificates I/II generally provide smaller and less consistent earnings benefits, and they are also heavily subsidised (Polidano and Ryan 2016). And while microcredentials contribute to lifelong learning, they are generally cheaper and more likely to be undertaken by those already in the workforce and funded by employers or by private means. As such, the relevance of ICLs to this (still critical) part of the skill formation system is less clearcut, and more evidence is needed.

## Other financial or non-financial barriers to participation?

While governments subsidise the costs of tuition, there are no provisions to cover the indirect costs of studying. These costs include textbooks, moving costs to attend an institution, and living expenses while studying, such as the costs of housing, food, and utilities. These costs will be strongest felt by students who are unable to live with, or receive financial assistance from, their family, need to move to attend study, or cannot supplement their income through paid work. Disadvantaged students will be disproportionately represented in this group.

These problems are partly addressed by existing policies.

- Youth Allowance and Austudy provide assistance to some students, but most students are ineligible for these payments, and those eligible may still face financial challenges. For example, over 70% of Youth Allowance recipients are in rental stress (AIHW 2022).
- The Australian Government currently offers a Student Start Up Loan on a voluntary basis to students who receive Youth Allowance, Austudy, or ABSTUDY. The loan is available twice a year, is worth \$1132, and is income-contingent with the same repayment schedule as HELP debt (Services Australia 2022). It is unclear whether uptake is sufficiently high and the policy achieves its goals at its current settings.

Currently, Student Start Up Loans are complements to government income support payments for students. However, to the extent that these students have good lifetime earnings prospects, there may be an in-principle argument to give greater weight to ICLs as a funding mechanism for living costs rather than fully taxpayer-funded social welfare payments. Income support for studying appears to be resolving short-term credit constraints, in the same manner as deferring tuition costs through HELP or VSL.

Equally, there may be scope to expand the role of Student Start Up Loans to students not eligible for income support payments, or to change the level of payment. The barriers to study posed by daily living costs are the same as those presented by upfront tuition fees.

There are several risks in extending the role of ICLs to cover living expenses and other non-tuition costs. First, to the extent that ICLs for living expenses partly displace income support payments, this could reduce participation by some disadvantaged students.

Second, there is some risk of rorting. ICLs are concessionary, having been characterised as the ‘best loan you will ever get’. It would almost always be rational for an eligible student to take out a ‘living cost’ loan even if they did not really need the loan. Loan caps could reduce the fiscal and fraud risks, but not eliminate them entirely. That suggests that loan caps would be essential, that only some groups of students should be eligible (for example, those living in high-cost settings or where job markets were weak) and that loans might be subject to a real interest rate to reduce their concessional nature.

The Commission is more broadly interested in whether there are financial barriers to studying that are not well addressed by current policy. Additionally, the Commission is interested in information related to the take-up and efficacy of existing financial assistance programs here and abroad, and whether there are other meaningful financial or non-financial barriers to studying.



#### **Recommendation direction and information request 3.4** **Equalising access to loans across tertiary education**

The Commission is considering a recommendation in its final report to expand eligibility for income-contingent loans to reduce barriers to VET participation. To inform this recommendation, we are seeking views and evidence on:

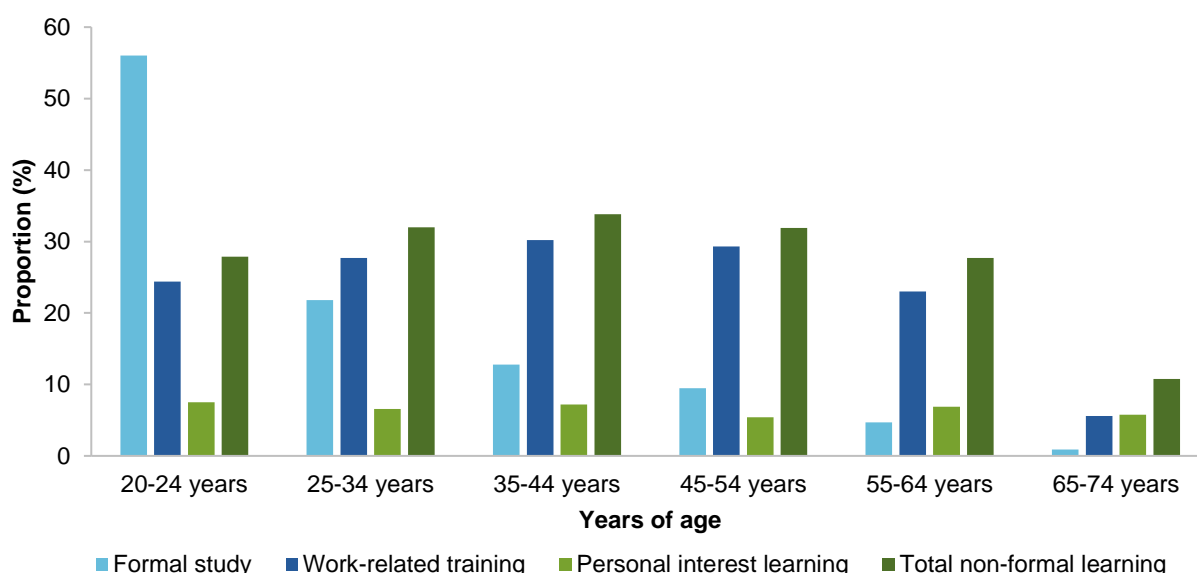
- How far down the Australian Qualifications Framework should income-contingent loans extend?
- How should a transition to greater loan availability be managed?
- Are loan caps sufficient to constrain price increases when an income-contingent loan is offered?
- Should HELP loans include a loan fee (similar to VSL)?
- How should the costs of debt not expected to be recovered be shared between governments?
- What other policies are needed to address other barriers to participation in tertiary education, such as living costs while studying?

## **3.5 Potential support for lifelong learning**

Labour market trends suggest a continued need for upskilling and reskilling given changes in the nature of work and structural shifts in the economy, particularly the rising importance of a digital, dynamic, and services-oriented economy (chapter 1). Lifelong learning, however achieved, is critical to stable employment, wages and the adaptability of an economy (PC 2020c, p. 416).

Australia has relatively high adult participation in formal training among OECD countries. We have the equal highest rate of enrolment with Finland for people aged 40–64 years (3 times the OECD average), and equal third for people aged 30–39 years (2.3 times the OECD average) (PC 2020c, p. 417). Furthermore, 42% of Australians aged 15–74 years have participated in learning in the past 12 months (ABS 2022a), including learning that is both formal (resulting in a qualification or certification) and non-formal (figure 3.8). Formal study is more common at younger ages while non-formal learning, which includes work-related training, is more common later in life.

**Figure 3.8 – Learning occurs throughout life but formal study declines sharply with age**  
**Proportion of people undertaking learning in the past 12 months by age and type of learning, 2021**



a. Formal study includes any study or training resulting in qualifications or certification, non-formal learning involves work-related training which does not result in certification and personal interest learning.

Source: ABS (*Work-related training and adult learning*, 2022, Cat no. 4234.0).

## Balancing public funding for initial education and ongoing skills acquisition

Most government investment in tertiary education discussed so far in this chapter focuses on initial post-school qualifications rather than skills acquisition later in an individual's working life. As such, younger people benefit more.

- In VET, a greater proportion of younger students are government-funded, with 51% of students receiving government funding aged between 14–24 years in 2021 (Commission estimates based on VOCSTATS data, 2021).
- In the university sector, higher-level degrees typically have far fewer Commonwealth supported places than undergraduate courses. More generally, older individuals are less likely to enrol in university than in VET (Coelli, Tabasso and Zakirova 2012).
- Apart from VET and higher education providers, industry-delivered training and microcredentials can offer targeted, short-form learning options that are viewed as more relevant for ongoing (rather than initial) skills acquisition (PC 2022a, p. 63). However, these options are generally privately funded.

This is reflective of the importance of education in the first 18–25 years of life, as younger people require broad foundational skills and credentials to secure early-career jobs (PC 2021a). Earlier investment in education and training is also able to create larger economic benefits and positive spillovers. A person who completes their degree, certification, or apprenticeship early in life may spend 50 years in the workforce, contributing to the Australian economy and its productivity. But public funding for further supplementary training has a shorter time horizon in which to recoup the investment. A stronger government emphasis on initial training is therefore warranted.

However, as working lives lengthen and the economy's composition shifts over time, the positive spillovers from lifelong learning may increase as occupations change more rapidly and workers are required to upskill or reskill to meet evolving skills needs (chapter 1). For example, lifelong learning helps displaced workers transition to new occupations and industries, such as by enabling workers to take advantage of the job opportunities created by Australia's shift towards a services-dominated economy. This could help to avoid or shorten unemployment spells and lower transition costs, particularly in some regional areas where an inadequate skills base is an impediment to economic transition (PC 2017c, p. 73).

In this context, it is worth considering the balance of government funding for initial post-school education and ongoing learning throughout a worker's lifetime, and whether the potential for increasing positive spillovers from lifelong learning should motivate greater public investment.

Many workers are already participating in ongoing education and training throughout their working life (figure 3.8), despite the focus of government investment on initial post-school skills acquisition. This is likely because in addition to the broader benefits and positive spillovers discussed above, lifelong learning also has *private* benefits to both workers and employers. Previous research has found that mature-age education has positive (though modest) impacts on wages, job satisfaction, retention and higher use of skills in workers' jobs (Coelli, Tabasso and Zakirova 2012). And the benefits for employers from a more skilled workforce motivates them to invest in lifelong learning, though they may underinvest as they do not necessarily capture the full benefits of training, since employees may change jobs and careers.

The Australian Government has recently introduced a Small Business Skills and Training Boost to encourage small businesses to invest in ongoing training. Between March 2022 and June 2024, businesses with less than \$50 million in annual turnover that invest in eligible training courses for their employees will receive an additional tax deduction of 20% of the training expenditure (ATO 2022). In addition, the Skills Checkpoint for Older Workers program helps people aged 40 years and over who are employed or recently unemployed to get career advice and subsidised training (with reimbursements up to \$2200) (DEWR 2022).

Submissions to this inquiry have also highlighted the importance of policies that encourage people to remain in the workforce by encouraging lifelong learning and training (AHRI sub. 54, ASBFEO sub 64).

There are various government programs overseas that fund lifelong learning. In the United Kingdom, the Lifetime Skills Guarantee offers free technical courses for people at any stage of life who do not have a high school diploma. The Compte Personnel de Formation in France provides a personal online account where training rights are accumulated throughout one's working life and financed by a compulsory levy on employers. And the Canada Training Credit gives workers a refundable tax credit to fund up to half the cost of a training course, with a lifetime limit of CAD \$5000 (OECD 2021b).

In its review of the NASWD, the Commission recommended that governments could support lifelong learning by trialling ICL schemes for mature-age Australians to upskill and reskill (PC 2020c, p. 55). But other approaches that better target parts of the labour market and economy where the positive spillover benefits of lifelong learning are largest (for example, communities undergoing economic transitions or workforce segments with significant skill gaps) might exist. The Commission is therefore interested in hearing stakeholder views about whether there is a greater role for governments to fund lifelong learning and how this could be implemented in a way that maximises the positive spillovers that could be achieved from additional education and training.



**Recommendation direction and information request 3.5****Governments' role in lifelong learning**

Labour market trends suggest a continued need for upskilling and reskilling. In this context, greater government support for lifelong learning might be justified.

The Commission is considering a recommendation in its final report to expand taxpayer support for lifelong learning. To inform this recommendation, we are seeking views and evidence on:

- Is the current balance between government funding for initial post-school education and training, and ongoing skills acquisition and lifelong learning fit for purpose? Or, does it need to be reconsidered given evolving labour market needs?
- Should there be a greater public investment in lifelong learning? If so, what areas have the largest positive spillovers that governments should target with their support?
- What would be the best mechanisms to encourage additional uptake of ongoing education and training, given that private benefits for both workers and employers exist, and many adults are already engaging in lifelong learning?
- How might any changes to government funding arrangements to support lifelong learning affect various parts of the formal tertiary education system (such as universities and RTOs) and providers of other training options (such as industry-delivered short courses and unaccredited microcredential providers)?



## 4. Boosting learning outcomes for tertiary students

### Key points

- ✱ **High-quality teaching in the tertiary education system is essential for developing a productive workforce. But there are obstacles to high-quality learning for students.**
  - Incentives to invest in teaching quality are dampened by limitations to informed student choice and tightly controlled system settings. This is particularly the case for universities, which are primarily rewarded based on research (not teaching) outcomes.
  - Technology could improve access and outcomes, but poorly delivered online courses can worsen the quality of the learning experience. The rapid shift to online learning during COVID-19 left many students unsatisfied.
- ✱ **Continuous improvement in teaching quality is crucial to ensure investment in post-secondary education is worthwhile for both students and taxpayers. This requires a multi-pronged approach.**
  - Information to guide student choice has improved in higher education, but remains deficient in VET. It also needs to be more readily available to students at the time they decide on a course.
  - The new university performance-based funding (PBF) scheme appears sound, but is yet to be tested. Given the potential pitfalls of PBF, once operational it needs to be subject to ongoing monitoring and refinement.
  - Teaching quality in higher education is measured indirectly with proxies such as student and employer surveys. More systematic external review of teaching quality could spur continuous improvement, but can be costly to implement.
  - Recent regulatory changes allowing teaching-only ‘university colleges’ have opened the door to higher education providers that distinguish themselves on the basis of teaching excellence. However, there may be other barriers to specialising in teaching that remain unaddressed.
  - VET graduates need to be more adaptable to rapidly changing skill needs, career progression and lifelong learning. This could be supported by piloting a more flexible approach to developing course content for certain types of training, such as digital or other professional skills.
- ✱ **Some students face higher risks of non-completion due to factors that can be mitigated through better supports and guidance. While it is not feasible nor desirable for every student to complete their studies, excess non-completions can waste resources and talent, and leave students with debt.**
  - A more systematic approach to evaluating retention and support programs — and targeting programs at students at risk of non-completion beyond equity groups — is a ripe area for improvement.

The tertiary education sector's contribution to productivity depends not only on the number of graduates, but the quality and relevance of the capabilities they take into the workplace. Tertiary institutions need to ensure that what is taught is relevant and is being delivered effectively. As with schools, quality teaching is essential for getting the most from mass investment in post-secondary education for students and government.

From a student's perspective, 'quality' ranges from course delivery (content, teaching and assessment) to broader interactions with providers. A better experience means students gain more from the time and resources devoted to formal learning, and are ultimately able to bring more to the workforce. There is an opportunity to improve providers' incentives to focus on students' educational experiences, particularly given increasing diversity amongst students, technological challenges, and rapid changes in skill needs. This chapter considers two dimensions of the learning experience:

- **teaching and course quality:** enhancing incentives to improve quality and relevance so that tertiary study yields more valuable skills
- **retention and completion:** ensuring the system provides quality supports for struggling students to complete their studies where retention is in their long-term interest, or where not, to facilitate early exit to limit waste of time and other resources.

The Commission's review of the *Skills and Workforce Development Agreement* ('NASWD review') identified a suite of reforms to improve VET training quality relating to: student experience, course content, and course delivery (PC 2019a, chapters 6 and 7). As a result, this chapter is primarily focused on improving quality in the higher education sector, although issues relating to VET are also raised where relevant.

## 4.1 Obstacles to quality teaching

Surveys of students and employers tell a broadly positive story about the performance of the tertiary sector (chapter 1). However, there are grounds to question whether the quality of tertiary education and training will keep up with Australia's economic and social needs and an increasingly competitive global market. First, provider incentives to invest in teaching quality are muted by several characteristics of the market. Second, while technology presents an opportunity to improve outcomes, in practice, student experience of online learning has been mixed. The growing proportion of courses delivered online poses risks to the quality of learning if it is not accompanied by adequate design and investment.

### Providers lack incentives to invest in teaching quality

#### Incentives for quality teaching are dulled across the tertiary sector...

In most competitive markets, providers are financially motivated to focus on quality where consumers value this. But this dynamic is challenged in tertiary education by inherent limitations to informed student choice as well as the system's funding and regulatory architecture.

While students can choose where they study, this provides limited incentive for quality teaching as tertiary education is an 'experience good':

... students, by definition, cannot know in advance what they are going to learn, or make an informed judgement about what they are learning. They have to rely, to a substantial extent, on their teachers to select the right topics of study and to teach them appropriately ... Students may judge, in retrospect, that particular teachers, courses or institutions were good or bad, but in either case they are unlikely to return, so that there is no direct market return to high quality

performance. The result is that education does not rely on market competition to any significant extent to sort good teachers and institutions from bad ones. (Quiggin 2016)

This means prospective students are unlikely to choose their institution based on teaching quality. Instead, they often rely on other aspects of the institution — such as field of study, campus location and a vague perception of overall quality — in making their choice. Moreover, given that part of the benefit of education relates to its signalling value (chapter 1), institutional reputation and prestige is likely to play a larger role in student choice than teaching quality. Indeed, the US experience suggests there is no evidence the quality of learning determines an institution's success in the marketplace — instead the market favours selectivity, brand names, visibility and major research portfolios (Probert 2013). In Australia, lack of funding contestability in parts of the sector can also limit the influence of student choice on the quality of teaching (chapter 3).

This can be remedied to some extent through public information about others' experience, but there are limitations in the use and availability of information about provider quality, and the extent to which students would be influenced by it (section 4.2).

As student choice has a limited effect on course quality, regulation plays an important role in ensuring access and minimum quality standards. However, while there are strong rationales for minimum standards, this does little to inspire excellence in teaching. A combination of price and product restrictions limits the ability for providers to innovate and frustrates incentives to improve teaching quality over time.

- For universities, the majority of Commonwealth Grant Scheme (CGS) funding is block-based and capped, referencing each university's historical level (chapter 3). This limits universities' incentives to compete for domestic undergraduate students. However, the Australian Government recently introduced a performance-based component of the CGS (section 4.2).
- For VET providers and higher education providers without self-accreditation status, course content is accredited by the Australian Skills and Quality Authority (ASQA) and the Tertiary Education Quality and Standards Agency (TEQSA), respectively. This means it must meet approved course descriptions and standards (including, for example, the specific competencies to be achieved). As a regulated 'product' therefore, there is less room to differentiate in the delivery of qualifications, particularly compared with universities who self-accredit courses.
- Further, where VET registered training organisations (RTOs) have short-term annual renewal funding contracts with State and Territory governments, this can also create uncertainty that hampers their ability to invest in training quality (such as equipment, extended employment contracts, or professional development) (PC 2020c, pp. 224–225).
- Fixed or capped fees for domestic undergraduate degrees and some VET courses also limit incentives for providers to compete on quality (as there is no premium for doing so) — although fees are not regulated for postgraduate courses, or education provided to international students.

### **... and compounded for universities by the primacy of research**

To the extent that research is the best-rewarded function of universities, this can provide poor incentives to invest in quality teaching (PC 2017d, p. 13).

Research is more easily rewarded than teaching. While the impact of research can be difficult to establish, it involves outputs whose quality and quantity are more readily measurable (for instance, by volume of publications and citations, and using journal tiers as a proxy for 'quality'). International rankings, which are heavily weighted towards research outputs, play an important role in attracting students, particularly international students. This means that universities' incentives are poorly aligned with delivering quality

teaching. And as a result, the incentives created for research-and-teaching academics are also tilted towards research and away from teaching. Coaldrake and Stedman (2016) note the primacy of research:

... academics seek 'relief' from teaching in order to pursue research as they would take medication to relieve a headache. ... The situation is not helped when resources for teaching are continually squeezed and it can be exacerbated in mass systems that require academics to manage ever increasing numbers of students with changing and diverse needs, backgrounds and attitudes to study. At the same time, ever-higher levels of competition in research make it harder for researchers to devote scarce and valuable time to teaching. (p. 96)

### Teaching-focused roles are more likely to be casual

While most academic staff are in research-teaching or research-only roles, the number of teaching-only staff has grown dramatically over the last decade – increasing by 51% from 2011 to 2019 (DESE 2022c). Although there are a growing number of teaching-only roles, participants in this inquiry consistently pointed to the low value placed on teaching-only roles, and their lack of career progression. In 2019, 74% of teaching-only FTEs were employed on a casual basis. This contrasts with the proportion of research-only academics (7%) and traditional teaching-and-research academics (2%) employed on a casual basis (DESE 2022c).

Indeed, teaching in Australian universities has largely been 'unbundled' from research and is predominantly delivered by an army of lower-ranked casual staff, while senior staff focus on research and administration. The National Tertiary Education Union (NTEU) estimates around 70% of teaching is undertaken by casual staff (NTEU, sub. 36, p. 3).<sup>62</sup> Most casual teaching staff are below lecturer level, although the relative share of casual senior roles has increased over the last decade (figure 4.1). Further, the share of staff employed on casual contracts does not account for an additional group that is employed on a sessional basis but counted among full-time (or fractional full-time) staff.

While using casual teaching staff might present a viable workforce model, and creates opportunities for postgraduate students to develop teaching skills while studying, it can limit quality improvements in teaching. With high rates of replacement, neither universities nor casually employed teaching staff have incentives to invest adequately in training and development. The quality of learning may also be affected if casual staff have lower levels of qualifications or heavy teaching loads, which may limit adaptability to new challenges, such as a growing diversity of students. As noted by the NTEU (sub. 36):

Increasing pressure on higher education institutions to cut research, casualise teaching (reducing quality and skill accumulation in teaching staff) and focus on private revenue streams over core activity threaten to undermine the quality of education available in Australia. (p. 10)

The structure of university teaching semesters can also limit high-performing teaching staff from gaining access to full employment, thus reducing the attractiveness for and retention of high-quality teaching staff. This is also partly because casualisation increases the vulnerability of workers, with contracts that can be terminated with little notice or security. Indeed, across all role types, casual staff bore the brunt of COVID layoffs (DESE 2022c).

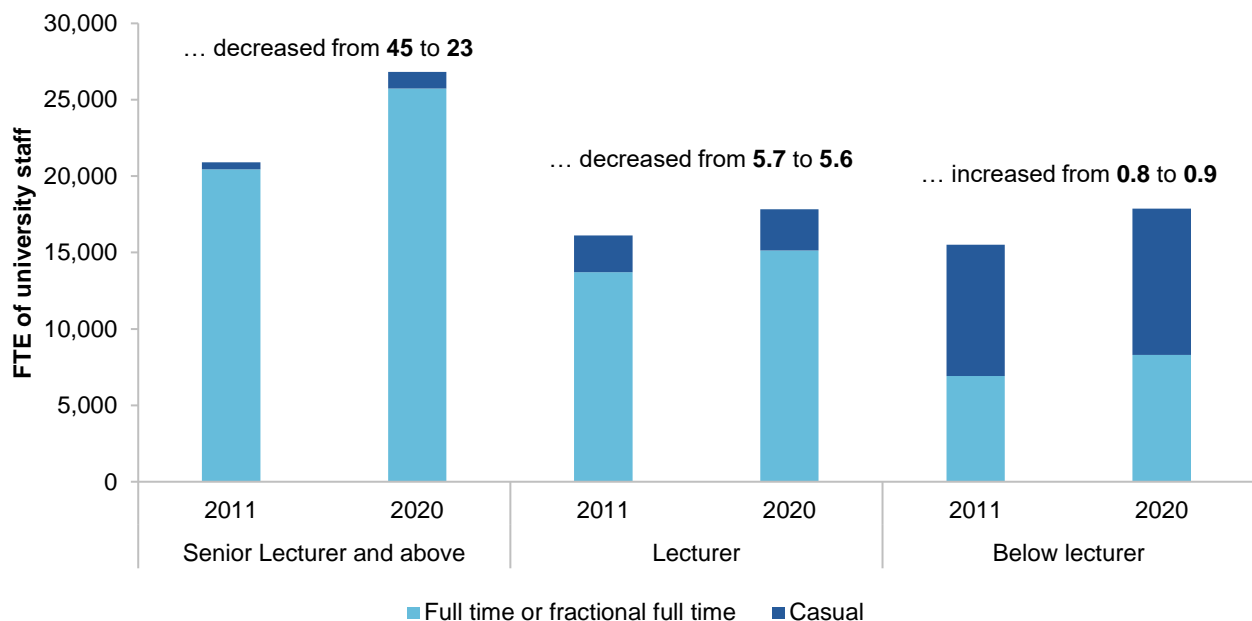
This is further exacerbated by issues of widespread unlawful underpayment of casual academic staff (TEQSA 2022a).

---

<sup>62</sup> The NTEU also noted that the majority of research only staff are on rolling or fixed-term contracts (usually between 1-3 years), however this is beyond the focus of this report on the role universities play in supporting human capital development.

**Figure 4.1 – Casual academic staff are concentrated at junior levels<sup>a</sup>**  
**Number of FTE staff by work contract and academic classification, 2011 and 2020**

Between 2011 and 2020 the number of full-time staff per casual worker ...



a. Full-time equivalent (FTE) staff includes full time or fractional full-time staff (staff that work on full-time or part-time contracts for less than 52 weeks a year).

Source: DESE (2022c).

While casualisation has potential negative consequences for teaching quality and career development, it may have some countervailing benefits. Facilitating flexibility for individuals temporarily moving from industry into teaching, or to work part time in both, could be beneficial — particularly in VET, which works closely with industry to maintain relevance of skills (PC 2020c, p. 242).

## The rapid expansion of online learning has magnified issues of teaching quality

Online learning has two broad formats. ‘External’ students complete the entirety of their learning and assessment online. ‘Hybrid’ or ‘multi-modal’ students complete a portion of their learning or assessment face-to-face, and the remainder online. External and hybrid learning can take many forms, ranging from the learner-centric flipped classroom, to intensive models that concentrate face-to-face learning at certain points in the semester (Heilporn, Lakhali and Bélisle 2021).

The progressive expansion of online learning in Australia began long before the COVID-19 pandemic. Large private providers have emerged online, such as Coursera and edX, and universities have recognised the potential to scale up offerings through massive open online courses (MOOCs). In the years leading to the pandemic, around 30% of higher education enrolments were already external or multi-modal (DESE 2022g). However, beyond making existing courses and curricula available online, genuine digital transformation of course delivery has been sparse, with the bulk of teaching continuing to be delivered in person.



In 2020, pandemic-related restrictions saw universities shift tuition online by necessity. Online delivery has since remained a necessary element of the university model in the face of continued uncertainty and the need to accommodate international students who were unable to return in person due to COVID restrictions.

In VET, a smaller proportion of RTOs shifted to fully external learning and assessment, given requirements for face-to-face work placement. Nonetheless, ASQA's review of online learning in the sector revealed that many providers moved instruction to blended or external formats – the percentage of fully face-to-face providers fell from 49% to 18% during the pandemic. This is likely to endure, with 62% of RTOs who moved instruction online stating they would use more blended learning in course delivery (ASQA 2021).

The growth in online learning necessitated by the COVID pandemic has not been smooth. The first year of the pandemic saw a spike in student complaints to TEQSA (TEQSA 2022b). A survey of 787 Australian students in mid-2020 reported that 75% of respondents found it more difficult to study online than in-person (Dodd et al. 2021). Students overseas were similarly dissatisfied with the rapid transition under COVID restrictions (Almendingen et al. 2021; Elshami et al. 2021; Mok, Xiong and Bin Aedy Rahman 2021). However, these findings reflect the dramatic change in the early stages of the pandemic, which prevented institutions from effectively planning online delivery. Given the rapid nature of this shift, it is difficult to gain clear insight into the potential of online learning purely from the COVID experience.

Online learning improves access to tertiary education. Offering the opportunity to study online gives prospective students a greater choice of courses and providers. This makes qualifications accessible to people who might otherwise be unable to take classes in person, such as adults with work and other responsibilities and those who are far from campuses. Online learning models offer varying levels of asynchronous and off-campus delivery, and have allowed employed adults worldwide to enrol in courses part-time (Xu and Xu 2019). In Australia, pre-pandemic studies of online courses typically focused on the experience of the archetypal, mature-age online student (Signor and Moore 2014; Stone 2019; Stone and O'Shea 2019). Online learning similarly expands access to those in regional and remote areas unable to attend metropolitan campuses (Stone 2017) if they can access adequate internet service.

Online formats also facilitate uptake of new, innovative technologies to improve student learning. In recent years, this has been particularly apparent with the use of virtual and augmented reality in health science instruction (Barteit et al. 2021; Chen et al. 2020; Smith and Hamilton 2015). In Australia, Canty et al. (2019) compared learning outcomes for cardiac ultrasound training through a four week self-directed simulator course with a traditional workshop. They found that both groups performed similarly on an interpretive knowledge exam, and that the simulator group performed better on the image acquisition test.

Hybrid learning allows students to enjoy the above benefits without sacrificing learning outcomes. Evidence suggests that hybrid and face-to-face students have similar academic performance, and that hybrid learning can save students time for similar outcomes (Alpert, Couch and Harmon 2016; Bowen et al. 2013; Paul and Jefferson 2019). Much of the literature on the 'flipped classroom' model, a popular hybrid model, also documents improved learner outcomes (Akçayır and Akçayır 2018). The model can support higher quality teaching through smaller groups and use of innovative technologies.

Further, where the availability of online options facilitates access for students that would otherwise not have been able to participate at all, this lifts individual outcomes as well.

However, in the absence of adequate incentives to improve teaching quality, online course delivery may not be accompanied by adequate investment or planning to ensure a quality experience for all students. This may expose students opting for external formats to poor quality teaching. Studies isolating the causal effect of learning format on students' grades often find that the external format leads to poorer student outcomes compared with face-to-face learning (Alpert, Couch and Harmon 2016; Figlio, Rush and Yin 2013). In the

United States, students taking more online classes were more likely to engage in quantitative reasoning but rarely participated in collaborative learning tasks (Dumford and Miller 2018). Concerningly, these students also felt less exposed to effective teaching practices and high-quality faculty interactions, despite having selected these online courses. A literature review of online learning in US college courses found that most students anticipate 'compromised learning experiences in an entirely online course' (Xu and Xu 2019, p. 29). These expectations were real, with online modes adversely affecting student course performance and repetition.

Further, some types of students respond especially poorly to online learning. Those without stable internet access or adequate technology do not have an equivalent learning experience to their peers. This disparity was clear during the pandemic. For example, US undergraduate students from lower-income households reported more hardware and connectivity problems than their higher-income peers, which contributed to their lower rates of satisfaction (Means and Neisler 2021). This is also true in school education where a digital divide in access persists and depends on more than just access to devices (chapter 2). The flexibility afforded by online learning also depends on educators making their courses accessible for those with disabilities, particularly the vision- and hearing-impaired (Pittman and Heiselt 2014; Prytz 2020).

In sum, growing online delivery creates an opportunity to improve learning outcomes and to increase access for those otherwise constrained by distance or time. An effective transition online could increase competition among providers as geographical considerations become less important to student choice. But the student experience can suffer where providers transition online rapidly or do so in pursuit of efficiency gains rather than improved outcomes. As with any change, if the transition to new teaching methodologies is done badly, learning outcomes will suffer. It is important that there are incentives for providers to look toward innovative models of online learning that harness its potential.

## 4.2 Prioritising teaching quality and relevance

Governments control a range of funding, regulatory and other levers in the tertiary system (table 3.1), so can encourage better teaching quality through several mechanisms. These include providing financial incentives for providers to improve teaching quality, and ensuring that system settings — including institutional standards and classifications, and the structure and design of courses — do not impede providers from focusing on teaching excellence. Facilitating more informed student choice can also encourage provider improvement.

Multiple approaches are needed as spurring ongoing improvement is challenging, and each of these mechanisms comes with limitations.

### Information about quality to underpin student choice

For higher education, public information — including about teaching quality — to support student choice between providers and courses was vastly improved with the launch of the ComparED website in 2019 (DESE 2019b). It allows potential students to search for a subject area, find all institutions offering courses in that area, and view summarised Quality Indicators for Learning and Teaching (QILT) data on:

- satisfaction and ratings about the overall experience, skills development, teaching practices, staff/student interactions, facilities/resources, and support services
- employment rates and rates of full-time further study
- median graduate salaries one, five and nine years after graduation.

These metrics are presented alongside national medians for comparison.

For the VET system, there is still room to improve the availability of similar measures at an RTO level. The Commission's NASWD review recommended addressing information gaps in the availability of RTO-level information, including quality measures such as graduate outcomes, student and employer satisfaction, and indicators of teaching quality (PC 2020c, p. 211).

### **How to ensure the information is used by prospective students?**

More accessible information about teaching quality in different providers and courses will only drive ongoing quality improvements if it is used by students in choosing their provider and course. There is a risk that such resources could be underused. For example, in the UK, only 23% of university applicants in 2019 reported awareness of the Teaching Excellence Framework — a rating of higher education providers' teaching — and less than half used the ratings to inform their choice of provider (DfE and UCAS 2021). As such, ongoing assessment is needed to monitor whether target cohorts are using ComparED, and any future information that is made available on VET RTOs, and if it provides information that informs their choice.

Information should also be made available to students when it is most salient to their decision-making. For example, the resource could be included prominently in career guidance, provider websites, or at the time school students enter their course preferences as part of the Universities Admissions Centre application process.

The information also needs to be updated over time to reflect changes in the underlying data and types of quality measures available to inform student choice. For example, only around 40% of students respond to the Graduate Outcomes Survey (QILT 2021b), which feeds into the QILT data. In time, linked administrative data should be used to provide a more comprehensive measure of employment outcomes to supplement survey data.

Beyond this, an option put forward is introducing a single 'combined measure' of course quality — such as a star rating — to inform student choice. A combined measure for each area of study could be required to be displayed more prominently alongside qualification materials and at key decision points, and thereby inform a wider base of potential students. If such a measure were more widely used by prospective students in choosing their course and institution, this would create a more powerful incentive for providers to continuously improve course delivery. Moreover, if it used consistent indicators across both higher education and VET options, it could help students to compare across these provider types and make a more informed decision based on teaching quality and student outcomes across all parts of the tertiary education system.

However, such an approach poses several major design challenges:

- students may have different priorities (for example, some may value employment outcomes more than the quality of the student experience, or vice versa)
- a single rating can oversimplify the distinction between different options particularly when combining disparate factors (for example, some 3-star rated options may be very close to 4-star rated options when considered on disaggregated metrics)
- the credibility of ratings would be paramount, requiring a consistent framework that is reliable and kept up to date.

To help overcome these challenges, a consultation process could be undertaken to inform how metrics are weighted in determining the combined measure; as well as making information about the basis of the ranking easily accessible. The measure could also be presented in a format that is granular enough to limit the potential for arbitrary distinctions between options.



#### Recommendation direction and information request 4.1

##### Better informed student choice in tertiary education

To improve incentives for institutions to invest in teaching quality, the Commission is considering a recommendation in its final report to support students making more informed choices when selecting a tertiary provider, and is interested in views about:

- What mechanisms or channels should be used to provide students with relevant information about higher education course quality when they make their enrolment decisions?
- Would a single combined measure of higher education course quality improve teaching outcomes? Are there other options that could support better student choice? What are the benefits and risks?
- Could a similar approach be applied to the VET system once RTO-level information is publicly available? Or, are there additional challenges that would need to be addressed for the VET sector?

## Performance-based funding to incentivise better teaching in higher education

Performance-based funding (PBF) can create incentives to improve teaching in higher education, where performance is based on measures that relate to quality teaching. The Australian Government introduced a PBF scheme in 2020, in which 7.5% of CGS funding for universities is to be determined by performance assessed through four quantitative measures (table 4.1). These measures are supplemented with a qualitative submission outlining a university's action plan to address any issues highlighted by the performance data.

Due to COVID-19, PBF has yet to come into effect.<sup>63</sup> It is anticipated that PBF will be considered as part of the process to implement the new Government's commitment to introduce a Universities Accord (DoE, pers. comm. 11 August 2022). Most recently, the new Government has announced a plan to strengthen the link between performance and funding of school teacher education, with an expert panel to advise on how Commonwealth supported places (CSPs) for school teaching should be allocated based on quality and other relevant factors (DoE 2022).

However, there are risks of gaming and perverse consequences with any PBF scheme. For example, it can create incentives not to fail poorly performing students, or to avoid enrolling disadvantaged students to improve graduate employment outcomes. Potential pitfalls of PBF have played out both in Australia and overseas:

- The most significant Australian PBF scheme was the Learning and Teaching Performance Fund, which overwhelmingly rewarded universities that were able to attract better-performing students. In 2006, 63% of funding went to the Group of Eight and 0% to the Australian Technology Network of Universities despite the two groups serving similar numbers of students. In later years these disparities were reduced, but still remained very large (Harvey, Cakitaki and Brett 2018).
- Most US states and many European countries also have PBF. Systematic reviews and a meta-analysis of US schemes have generally found no effects on graduation rates, the metric targeted by these schemes,

<sup>63</sup> Specifically, implementation of the *Higher Education Relief Package* in 2020 and the 2021-2023 *Higher Education Continuity Guarantee* as part of the Job-Ready Graduates reforms meant that the PBF scheme can have no impact on higher education providers' CGS funding levels until 2024.

but often found decreases in participation by racial minority and low-SES students (Kivistö and Kohtamaki 2015; Li 2021; Ortagus, Kelchen, Rosinger & Voorhees 2020).

A PBF scheme must therefore be designed to avoid these unintended consequences. The model introduced in Australia in 2020 was mindful of these concerns, and designed differently to avoid some of the pitfalls experienced by similar schemes overseas. Graduate outcomes and student satisfaction with teaching quality are considered alongside student success (table 4.1), meaning universities have incentives to improve teaching quality and to support completion. The inclusion of the equity group metric allows better consideration of student backgrounds. These metrics are well-aligned to the areas where government and students have an interest. And, the approach reflects some desirable features for such a scheme previously outlined by the Commission in *Shifting the Dial*, such as incorporating student-reported experience and outcome measures and differentiating by student type and discipline (PC 2017d, p. 35).

**Table 4.1 – Performance-based funding metrics and weightings<sup>a</sup>**

Metric	Weight	How is it measured?	How is it assessed?
Graduate employment outcomes	40%	The overall graduate employment rate four months after graduation for domestic bachelor students based on QILT data, adjusted for local employment rates.	A university's performance against its own 5-year average.
Student satisfaction	20%	Domestic bachelor student satisfaction with teaching quality based on QILT data, adjusted by study area.	
Student success	20%	Attrition rates adjusted for students moving providers/courses, and controlling for factors that influence attrition, including: full/part-time study, mode of attendance, entry basis, field of education, and age.	A university's performance against its predicted outcomes after controlling for the listed factors.
Equity group participation	20%	Participation of Aboriginal and Torres Strait Islander, low-SES and regional students.	A university's equity group participation rates compared to sector averages. <sup>b</sup>

**a.** Funding is allocated based on incremental bands within each outcome metric category. Universities receive 100% of the total for high performance, down to 80% and then 60% for poor performance. There is further scope for the lowest band to be ratcheted down gradually where a university performs poorly year-on-year. **b.** For regional and Aboriginal and Torres Strait Islander students, participation at over one half of the sector average is sufficient for full funding, for low-SES students participation at greater than one standard deviation below the sector average is sufficient.

Source: DESE (2021).

Despite these desirable design features, the recently introduced PBF scheme remains untested as a mechanism for improving teaching quality in higher education. Once it becomes operational, outcomes will require rigorous ongoing monitoring, and adjustments will need to be made for any perverse consequences that are identified (discussed below).

*Shifting the Dial* also outlined alternative incentive mechanisms to PBF, including making universities liable for part of students' HELP debt or withholding part of CGS funding until a student completes their degree (PC 2017b, p. 107). However, both measures would have a much greater time lag than current PBF arrangements, which blunts the incentives for performance improvements relative to the PBF scheme. HELP debts take 7–10 years to be paid off on average (DESE 2021b), while students frequently take 6–9 years to complete their degree (DESE nd), meaning universities could be out of pocket for investments in quality improvements for years until they pay off. 'Completion bonuses' also serve the same purpose as including attrition as a metric in PBF, which explains over 90% of the variation in completion rates between universities and is far more timely (Wellings, Black, Craven, Freshwater and Harding 2019).

## How could performance-based funding be improved?

Although the PBF scheme appears sensibly designed, the Commission has identified several features that would be worth considering as the approach to PBF is refined over time.

- Graduate employment outcomes may warrant further adjustment for relevant student characteristics and graduate employment rates (rather than only local employment rates); and, in time, may be better measured via linked administrative data rather than the Graduate Outcomes Survey (as noted above, this would present more accurate information on outcomes).
- Although lower attrition rates are generally desirable, this metric ignores the fact that, for some students, dropping out may be the right decision (section 4.3). Additionally, while this metric creates a valuable financial incentive for universities to offer academic and other types of support, it also creates a disincentive to fail students who do not meet the standards of their course. And adjustments are not made for some relevant factors. For example, low ATAR students have lower completion rates, and no adjustment is made for this when assessing attrition rates.
- Measuring equity group participation rates against sector averages means incentives are unevenly distributed. For example, a regional university would never be in danger of missing the target for regional students. As equity groups are not evenly distributed around Australia, a contextual adjustment should be made for this measure given the large effect of each university's context.
- The right incentive remains an open question, including whether 7.5% is the appropriate share of funding to influence performance, and if harsher penalties are warranted for ongoing poor performance (such as implications for registration status). The incentives also need to be applied transparently and consistently so that provider decisions are informed by clear expectations about rewards and penalties.
- The scheme could also include reputational incentives with ratings publicised for each provider, as used in the UK Teaching Excellence Framework (TEF). Elements of Australia's PBF scheme were informed by the TEF, including weighted metrics based on publicly available data, and the qualitative submission from providers (Commonwealth of Australia 2019). However, the TEF relies on public ratings for providers (the initial iteration awarded Gold, Silver or Bronze ratings), with financial incentives limited to a fee increase in line with CPI. The initial round of the TEF sent 'shockwaves' through the UK higher education sector, and was said to have tested assumptions of conventional hierarchies and ranking systems (Beech 2017, p. 11). Although, under the TEF, providers are benchmarked against other universities with very similar characteristics. This type of benchmarking would require closer consideration given the smaller Australian market, with fewer universities to allow for like-with-like comparisons.

While the Commission has identified several factors, other issues are likely to emerge in practice. Ultimately, any PBF needs to be applied cautiously and subject to ongoing monitoring — including whether and how the scheme influences provider behaviour and investment decisions — given historical experience and the difficulty of eliminating risks of gaming or outcomes being influenced by factors beyond the control of providers. With that said, the Commission sees merit in testing an approach that considers a broader range of available performance metrics (including equity group participation) in an effort to avoid shortcomings of earlier iterations of PBF.

## More direct observation of teaching quality in higher education

While valuable, existing measures of teaching performance in higher education are only proxies for teaching quality. Student survey results, such as QILT data, may not truly reflect quality teaching. For instance, students claim to have learned more when they are given cookies in class (Hessler et al. 2018). Student evaluations have also been found to be affected by personal bias — against instructors that are female, ethnic minorities, or not from an English-speaking background (Kreitzer and Sweet-Cushman 2022). Further,



while the quality of the teaching experience plays some role, it is difficult to establish a causal link between teaching quality and graduate employment outcomes or employer satisfaction, given that a student's employability is determined by a host of personal factors beyond an institution's control.

Given the limitations of proxy measures, more direct observation of teaching impact or quality would be a preferable way to measure quality and motivate ongoing improvement. A more systematic approach and quality framework could allow for greater feedback loops and facilitate shared learning. However, any attempt at direct observation needs to be approached with caution as its benefits may not exceed its administrative and cost burdens.

### **Measures of learning gain have proven elusive**

An ideal metric of higher education quality would capture the *causal* effect of attending on students' knowledge, skills, work-readiness and personal development; for example, via standardised or discipline-specific testing. Measuring this 'learning gain' could improve understanding of the relative value of different teaching practices. It could also be used to reward institutions according to the value they add to students' capabilities.

However, historical attempts to measure learning gain have generally stalled or been abandoned due to methodology challenges or high costs. The OECD ceased work on the Assessment of Higher Education Learning Outcomes project (colloquially referred to as 'higher education PISA') after governments withdrew support; the UK Office for Students has no further research into learning gain planned after reports highlighted methodological issues; and Australian Government plans to use the Collegiate Learning Assessment were dropped a decade ago (Coaldrake and Stedman 2016; Office for Students 2018). Coaldrake and Stedman (2016) observed:

Unfortunately in practice we do not have standardised definitions of what students are supposed to learn (and with constant changes in knowledge this is not a bug, it is a feature) and disentangling the various factors that influence student learning is a formidable task. As a consequence, we have to weigh very carefully the costs and benefits of seeking inevitably imperfect answers. (p. 99)

The academic who oversaw the UK's 'Learning gain pilot projects' commented more pithily that learning gain is 'Like dark matter, we know it's out there, we just could not pin it down' (Kandiko Howson 2022).

### **Direct observation or review would need to be carefully designed to limit costs**

While measuring learning gain is difficult, there may be other avenues for more direct observation of the quality of teaching and assessments that could promote ongoing improvement, such as:

- in-class observation
- peer review of teaching or assessment tasks given to students (such as exams)
- independent assessment of the knowledge gained by students.

When conducted against a pre-determined assessment framework, these can provide more objective indicators of teaching quality than proxy measures (such as student survey results).

However, such assessments are not conducted in a systematic way across the higher education sector, and are left to individual providers to manage internally. TEQSA takes a high-level view of providers, seeking to assure itself their internal institutional quality assurance arrangements are robust, effective and sustainable (TEQSA 2017b). The *Higher Education Standards Framework* requires providers to undertake a comprehensive review of course delivery at least every seven years, supported by more frequent monitoring



at a unit level. These review activities are expected to encompass external referencing against comparable courses (including student performance data) and incorporate student feedback.<sup>64</sup>

While this approach is appropriate for risk-based regulation, it largely leaves each provider to manage quality assurance independently (alongside relevant professional bodies and any accrediting organisations). In practice, although providers have public institutional review frameworks, the depth and impact of these internal reviews is not clear or likely to be consistent.

The evidence suggests that university teachers work largely in isolation (Norton, Sonnemann and Cherastidtham 2013). And, while peer review has become an important mechanism for improving teaching quality internationally, in Australia, it has generally been informal and small scale with limited publication of results (Johnston, Baik and Chester 2022). This contrasts with the commonplace culture and practice of peer review for research, including through the Excellence in Research for Australia evaluation framework.

This decentralised approach misses an opportunity to apply consistent frameworks to assessment across the sector and share lessons to lift teaching outcomes. Internal assessment processes are likely to lack feedback loops or direct consequences that would have a bearing on teaching performance.

At the extreme, a more centralised approach to external assessment could involve a single agency conducting comprehensive subject-level review — including in-class observation and analysis of assessments. This can be used to improve teaching quality by tying failure to corrective action (be it through public reporting, a financial penalty or the threat of de-accreditation). However, full subject-level review is costly and administratively burdensome, requiring experts in each field and a significant investment of time. A program in England during the 1990s proved a costly exercise (box 4.1).

#### **Box 4.1 – Case study – England’s comprehensive subject review**

The most comprehensive higher education subject review ran from 1993 to 2001 in England and Northern Ireland. The Quality Assurance Agency for Higher Education conducted subject-level reviews encompassing ‘sub-degrees’ to PhDs, and covered all departments at all higher education providers. Its two main goals were to ensure that teaching in the sector was of a satisfactory quality and to encourage further improvements to quality. It did so by tying review results to funding outcomes.

Subject reviews were conducted by teams of at least three subject specialists and a review chair. Subject specialists were largely academics, though in some cases industry professionals were also included. All specialists received training before site visits. These visits lasted 3–4 days, and included meetings with subject staff, students, graduates and employers. They also included observation of teaching and learning and reviewing samples of assessed student work.

Over its seven cycles, 2904 review reports were published. If a department received any inadequate grades, its subjects would be re-reviewed within a year. A further low grade at re-review could result in the partial or complete withdrawal of funding. There was only one instance of a failed re-review (QAA 2003). Over its lifetime ‘the overwhelming majority (99%) of subject review visits resulted in the provision being approved in the first instance’ (p. 4).

<sup>64</sup> TEQSA notes ‘external referencing’ can take the form of benchmarking, moderation or peer review.

#### **Box 4.1 – Case study – England’s comprehensive subject review**

Moreover, Cook et al. (2007) found ‘that with experience of assessment, an institution learned how to better satisfy the assessors and scores increased over time’ (p. 138). It is difficult to disentangle whether score inflation over time was a result of genuine improvement or of institutions learning to game the system.

The program was replaced with a lighter-touch system in the early 2000s, owing in part to its public cost and the overhead burden to institutions. The ‘institutional audit’ system disentangled review from funding under the assumption that the comprehensive review program had made institutions’ internal quality assurance procedures more robust and hence more appropriate for the government to rely on. The institutional audit system was itself replaced in 2011. Quality assurance processes in England underwent a number of changes with the regulatory power of the Quality Assurance Agency diminishing over time.

However, like Australia, the majority of countries opt for lighter-touch assessments of quality at the institution rather than course level. For example, in Scotland, a central agency appoints a team of staff and students to review a subset of institutions on a five-yearly basis. The review’s primary focus is whether the institution as a whole has effective arrangements for ‘enhancing the quality of the student learning experience and for securing the academic standards of its awards’ (QAA Scotland 2017, p. 14). The team determines this through meetings with staff and students. Individual review outcome reports are published along with thematic reports that collate findings from each review cycle about industry-wide trends and areas for development. Each institution must report a year later on how recommendations have been implemented.

In Australia, a more systematic approach to appraising and promoting teaching outcomes could help spur continuous improvement across the sector. The Australian Government would need to balance the benefits and costs of the approach by considering several factors.

- **The type and depth of assessment** that would be needed to effectively appraise teaching. For example, a centralised mechanism could involve observation, interviews, sampling of exam papers or external assessment of students.
- **The unit of assessment.** For example, review at a subject level is likely to be most useful — particularly given the trend of providers allowing students to stack subjects to build their own degrees. However, this is also more likely to be costly.
- **Administrative burdens** on already encumbered teaching staff. For example, through:
  - rolling or randomised targeting of specific institutions or subjects each year to limit the frequency with which a given faculty or school is reviewed (for example, to every 5–10 years)
  - limiting the depth of reviews by taking sub-samples of assessments or externally assessing smaller random samples of students.
- **The dangers of ‘tick and flick’ assessments.** For example, a process for peer review of exams or assessments could be based on the double-blind approach used for research review in order to eliminate bias (although full anonymity may be challenging for smaller fields of study).
- **Who undertakes assessments,** including the roles for academics, industry experts and students in supporting the assessment process.
- **The consequences where teaching quality is found to be poor.** For example, this could include public recommendations and re-review, or escalate to harsher penalties for providers (such as financial penalties or implications for accreditation).

While more fulsome external review could be co-ordinated by TEQSA, it may be preferable to establish a separate body solely responsible for promoting teaching excellence. This would separate responsibilities between ensuring minimum standards and the more aspirational goal of promoting excellence. Although, it would need to be balanced against the costs associated with establishing and maintaining a new body. There is currently no body in Australia charged with promoting teaching excellence or sharing lessons about improving teaching quality in the higher education sector. The former Office for Learning and Teaching, which was responsible for supporting and incentivising effective teaching and encouraging innovation, was defunded in the 2016-17 budget.

The Australian Institute for Teaching and School Leadership (AITSL) has proposed introducing such a body specifically for school teacher education in the form of a Board to oversee, develop and promulgate information about the quality and consistency of teacher training (AITSL 2022, p. 12). AITSL proposes the Board would be responsible, among other things, for overseeing the quality of teaching performance assessment and investigating program quality in specific targeted areas. This type of model could be valuable across all fields of study in higher education, beyond just school teacher education.

Beyond coordinating systematic independent assessment of teaching, such a body could also operate as a centre for excellence and share lessons where effective strategies were identified. This could include leading experimentation and shared learning about what works. For example, it could coordinate pilot initiatives or experiments with pedagogical practice across several providers and evaluate what works best in different contexts. Even more broadly, findings on how to support teaching excellence in the higher education sector could be shared with the VET sector where they could be relevant to improving teaching quality at RTOs.



#### Recommendation direction and information request 4.2

##### Supporting ongoing improvement in the quality of teaching in higher education

The Commission is considering a recommendation to support ongoing improvement in teaching quality for higher education providers, and is interested in views about:

- Could teaching quality across the higher education sector be improved with more comprehensive external review of outcomes?
  - What forms of review would provide the best information about teaching quality and learning outcomes?
  - How could the costs of systematic external review be mitigated?
  - What should be the consequences for an institution found to have poor teaching quality?
- Should a centre for teaching excellence be established to support external review of teaching quality, or could this function be linked to an existing body?
  - Are there other ways such a body could support higher quality teaching (for example, evaluating new approaches to online learning)?

## Barriers to specialising in teaching excellence in higher education

Until recently, Australian higher education providers could only use the word ‘university’ in their title if they conducted research in addition to teaching. In *Shifting the Dial*, the Commission observed there was no compelling policy rationale for this requirement (PC 2017b, p. 108).

In July 2021, the higher education Provider Category Standards (PCS) were amended in line with the recommendations of the Coaldrake review (*'What's in a Name?'*) (2019). The PCS now distinguish between two types of self-accrediting higher education providers.

- A **University** is required to undertake research in at least three broad fields of study that it teaches,<sup>65</sup> with a strengthened benchmark requirement that research be 'world standard' or of national standing in a field specific to Australia.<sup>66</sup>
- A **University College** category has been introduced, which is open to teaching-only institutions. 'University College' providers are explicitly precluded from abbreviating their title to 'University'.<sup>67</sup>

This is broadly comparable to categories in many other countries (box 4.2).

#### **Box 4.2 – International comparison – what do we mean by 'university'?**

- The updated rules in Australia are in line with many other jurisdictions (Brazil, Canada, Denmark, France, Germany, Japan, New Zealand) where universities are typically institutions that conduct both teaching and research and 'university colleges' or similar institutions can focus on teaching. That said, in some countries the categories reflect convention rather than explicit regulation (for example, the American Carnegie classification system involves private certification).
- The UK is one exception where universities are not required to conduct research and are distinguished from 'university colleges' by student enrolment practices. Despite this, in practice universities in the UK overwhelmingly choose to conduct research, as do some university colleges (such as University College London). South Korea is another exception with several teaching-only providers, such as a 'University of Education' solely dedicated to educating primary school teachers.

Source: Coaldrake (2019, App F).

While it is early days, providers in the 'University College' category are limited to a few specialised institutions. As at August 2022, there were four institutions that mainly teach in performing arts and theological studies.<sup>68</sup> All four were previously captured by the broader 'Higher Education Provider' category.<sup>69</sup>

Prior to the recent amendments to the PCS, Parker et al. (2018) argued the more extreme position that governments should take responsibility for limiting the use of the term 'university', and the PCS should be

<sup>65</sup> Or one or two broad fields in the case of a university with a specialised focus.

<sup>66</sup> *Higher Education Standards Framework (Threshold Standards) 2021* (B1.3(19)). The *Tertiary Education Quality and Standards Agency (Quality of Research) Determination 2021* provides information on the research quality indicators that TEQSA will have regard to in assessing the quality of research.

<sup>67</sup> The previous PCS included a transitional 'university college' category, giving a period of grace of five years before applicants were required to meet all the requirements of the university category (Coaldrake 2019, p. 41), while the new 'University College' has been established as a 'destination' category in its own right.

<sup>68</sup> The National Institute of Dramatic Arts (NIDA); the Australian Film, Television and Radio School (AFTRS); Moore Theological College; and Alphacrucis College.

<sup>69</sup> The former 'Higher Education Provider' category has been replaced with 'Institute of Higher Education' in the new PCS.

abolished entirely, with TEQSA responsible for ensuring providers meet high standards for registration, but not categorising them (more in line with ASQA's role in accrediting RTOs).

Indeed, diversity in the sector arguably remains inhibited by the implied superiority of higher rungs of the PCS, as well as the international expectation associated with the term 'university'. The historical context has meant being higher on the PCS scale can be conflated with quality. For an established university there is likely to be significant reputational risk associated with a move 'down' the scale to become a 'University College', which potentially limits specialisation. Several submissions to the Coaldrake review argued that the implied link between conducting research and 'quality teaching' needed to be decoupled. Those who advocated for teaching-only universities pointed to the creation of universities that would focus on providing high quality teaching, arguing that greater recognition and emphasis on teaching profiles within universities would boost Australia's international standing (Coaldrake 2019, p. 32).

However, it remains unclear whether PCS is the key barrier to specialisation or other factors play a greater role. The amended PCS also opens a door for more teaching-focused institutions to distinguish themselves in the market, which could promote variety in the sector. This bears monitoring in coming years, as it is too early to tell whether the most recent changes will encourage a greater variety of institutions and improve the options available for students.

The Commission is interested in views about whether more could be done to promote specialisation and support a greater focus on teaching excellence within the higher education sector.



#### Information request 4.1

##### Barriers to specialisation in teaching excellence in higher education

- What barriers remain for higher education institutions specialising in teaching excellence? Are providers limited by the higher education Provider Category Standards or are other factors (such as funding arrangements) more influential?
- Are there barriers to internal specialisation in teaching within universities (for example, teaching focused schools)? If so, is there any role for Government in addressing these barriers?

## Teaching for adaptive skill needs in VET

In an increasingly digital and service-based economy (PC 2022b), the VET system has a key role in skills acquisition (including lifelong learning; section 3.5) and will need to anticipate industry needs to maintain the relevance of teaching and learning outcomes for both trainees and employers in future.

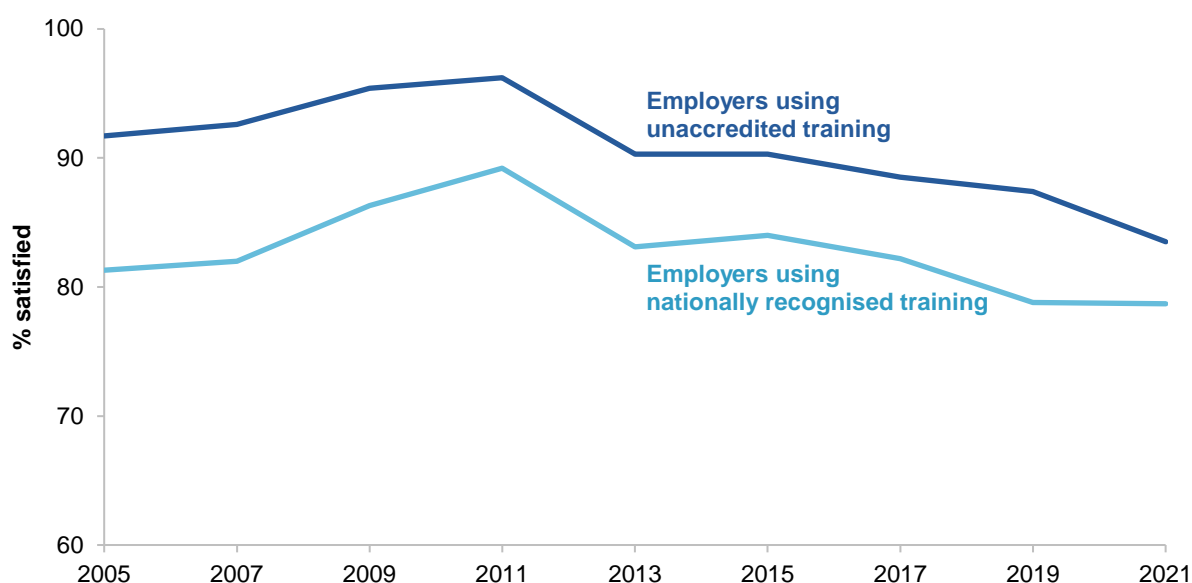
Employers' satisfaction with VET, while still relatively high, has trended down over the past decade, and has been consistently lower for nationally-recognised training compared to unaccredited training (figure 4.2). In 2021, the overall gap in satisfaction was just under 5 percentage points; however the difference is more stark for certain industries, with the largest gaps for 'information media and telecommunications' (25 points) and 'administrative and support services' (18 points) (NCVER 2021a). For digital skills acquisition, many employers prefer industry-provided short courses relative to formal learning options, such as those delivered by the VET sector (PC 2022a).

Among those employers dissatisfied with nationally-recognised training, the most common concerns were that it did not teach relevant skills (37%) or was of poor quality (36%), with some also reporting the content was outdated (14%). Further, the most common reason employers cited for favouring unaccredited training was that it was tailored to their needs (38%), with the share citing this reason almost doubling in recent years (from 22% in 2015) (NCVER 2021a).

In 2021, only half (51%) of all VET completers were either employed in the same occupation as their qualification, or in a different occupation where the training was still relevant (NCVER 2021c). Further, graduates in non-trade occupations are much more likely to be employed in a different occupation than their training course compared to those studying in trade occupations (NCVER 2022). It is worth noting, however, that around a quarter of students undertake VET training for non-employment reasons (NCVER 2021c). Nonetheless, this suggests there may be many VET graduates for whom training is providing a general basis for future work, while the structure of courses is specified to narrower job requirements.

This highlights a possible tension between the needs of employers and trainees. While employees might value attaining nationally-recognised qualifications in the interest of greater job mobility, this is less important to employers (Bowman and Callan 2021). Employers favour other factors including that training is job-specific, which may not support VET graduates' adaptability over time. A recent comparison of occupations that can be entered with either higher education or VET qualifications revealed that, while VET graduates have more practical skills and are more able to 'hit the ground running', higher education graduates tend to have more autonomy, supervisory responsibilities and more opportunities for career progression (Wibrow 2022).<sup>70</sup>

**Figure 4.2 – Employer satisfaction is consistently higher for unaccredited training**  
**Percentage satisfied among employers using VET**



Source: NCVER (2021a).

### **Competency-based training provides a solid foundation but may not keep up with all skill needs**

Nationally-recognised training is highly standardised to ensure national consistency in qualifications. Training packages allow industry representatives to agree on and define 'units of competency' that are necessary for

<sup>70</sup> Although this analysis controlled for factors influencing selection into VET and higher education pathways, potential unobserved factors mean that differences in employment outcomes cannot be attributed entirely to the tertiary education pathway. Fields examined included: childcare workers, surveyors, graphic designers and medical laboratory technicians.



an occupation.<sup>71</sup> RTOs then develop course material to meet the competencies embedded in training packages. Competency-based training — which has been the cornerstone of the formal VET system since the early 1990s — has several important benefits.

- By focusing on the **outcome** of training (what the student can do), rather than the **inputs** (such as time spent training or who delivers it) it supports a model of contestable and open training markets.
- It means **qualifications** are nationally **portable** and have currency with industry regardless of where they were issued; as well as facilitating credit transfer for students.
- It allows for an **industry-led** (rather than provider-led) training system, with industry representatives involved in defining and updating competencies being taught.
- The process of assessing students' competency, by observing the performance of tasks and awarding qualifications, also provides an important form of **quality assurance** for training outcomes.

The Joyce Review noted considerable support for the competency-based system, with many participants positive about the mix of flexibility and national consistency. This approach also allows teaching to reflect individual experience and knowledge, with the same unit of competency able to be taught quickly to a person with extensive industry experience or over a longer period for a beginner (Joyce 2019b, p. 43).

Despite its strengths, the system is backwards-looking by nature, with training designed to target competencies that industry needs now (or has needed). Moreover, competencies are prescriptive and limited to actions that can be applied and observed in an existing workplace setting. This can be highly effective for certain forms of training, such as regulated trades where job requirements are relatively stable and competency can be clearly observed and mapped to job requirements. But it can limit acquisition of broader knowledge that can be adapted and applied in a variety of settings.

Further, the prescriptive nature of training packages limits providers' ability to adjust program offerings to meet future demand for digital skills and capabilities (Seet et al. 2018). VET can also develop non-technical skills — such as teamwork, problem-solving, continuous learning and creativity — that are integral to the uptake and implementation of disruptive technologies in the workplace (Seet et al. 2018) and of growing importance to Australia's economy (chapter 1). But the existing approach may not always allow for adequate definition and observation of such skills for which 'competence' is a fuzzy concept. While competency-based training tries to bridge the gap between education and job requirements, descriptions of competence may fail to reflect the complexity of competence (and the underlying skills and knowledge) in work performance (Guthrie 2009).

This suggests industry specified training packages may be less suited to contexts where: employer needs change rapidly (such as digital skills); or, work demands are less tangible (including non-technical skills such as emotional intelligence, innovation or problem-solving). Units of competency can be, and have been, developed for these less tangible competencies.<sup>72</sup> However, it is unclear to what extent such skills can be objectively and consistently assessed; and, whether they support teaching that produces graduates who are both 'job ready' and capable of adapting to new settings over time. Therefore, complementary approaches may be more suitable for developing some skill types.

<sup>71</sup> Nationally-recognised qualifications comprise 'units of competency' (individual subjects such as 'responsible service of alcohol') which may be grouped into 'skillsets' (such as 'work zone traffic control' or 'food safety supervision'), both of which are included in 'training packages' (such as a Certificate or Diploma).

<sup>72</sup> Some examples of current units of competency that may be less easily defined and observed include: 'Develop self-awareness'; 'Apply critical thinking for complex problem solving'; 'Lead a process to determine and solve root cause for a complex problem'; 'Foster leadership and innovation'; 'Identify and implement business innovation'; 'Promote innovation in team environments' (Nationally-recognised training database - training.gov.au).



The competency-based approach can also unravel where updates to training packages do not keep pace with rapidly changing skill needs. On average, it takes a year to develop a training package and endorsement can take years more (Joyce 2019b). Submissions to the NASWD review noted widespread concerns about delays in updating qualifications, although some argued that expediated processes should not sacrifice consultation (PC 2020c). Ongoing concerns about the adaptability of VET courses are also widely recognised in the literature, especially in the context of a growing need for digital skills for which regular and quick updates are necessary for continued relevance (Wibrow, Circelli and Korbel 2020).

Misgivings about the currency of training packages can be ameliorated to some extent by improving the efficiency of processes for developing, revising and updating them. In this regard, the Commission has recommended shortening training package development by delegating more functions (PC 2020c). But speeding up the existing process can only go so far.

### **Would some types of training be better served by an alternative approach?**

There is an opportunity for the nationally-recognised training system to play a vital role in providing students with more general and adaptive skills. This could be achieved through a more flexible approach to defining what is taught in certain areas. Curricula that aim at broader knowledge could give more flexibility to providers to update teaching material and reduce the frequency with which training packages need to be updated. Further, they could better support teaching that anticipates and prepares VET students for future job changes. This would serve the needs of both employees and employers, as a complement to more job-specific training. It could also allow for more coherent study pathways across the broader tertiary sector.

While defining and implementing an alternative approach is challenging, some options have been put forward:

- The Digital Skills Organisation proposed shifting the focus from competencies to skills with the inclusion of a 'skills-based approach' as a complement to existing training packages. The Digital Skills Organisation defines the skills-based approach to learning digital skills as integrating 'the technical skills, occupational skills and tacit knowledge required for individuals to succeed in specific digital roles that can be applied in multiple business contexts.' (DSO 2021, p. 20)
- Wheelahan and Moodie (2011) advocated for a comprehensive shift from competencies to 'capabilities' which are geared to more broadly defined occupations within vocational streams and less tied to specific workplace tasks but, rather, facilitate the ability to make more complex judgements.<sup>73</sup>

Relatedly, the Commission has previously recommended that proficiency-based assessment<sup>74</sup> be extended across the sector to create incentives for students to differentiate themselves in the job market; provide information to employers to improve job matching; boost the status of VET relative to higher education; and assist future learning pathways for students (PC 2017b, p. 94). The Joyce review supported piloting this approach with willing industries with a view to extending more broadly (Joyce 2019b, pp. 48–49).

Notably, a more flexible approach to defining course content may be less amenable to the sort of contestability that competency-based training has facilitated to date. On average, private RTOs have just over 1000 students annually and offer few courses — they are highly specialised (NCVER 2022). This suggests that larger providers (such as TAFEs) could be better equipped to provide this type of more flexible training.

---

<sup>73</sup> NCVER is also presently investigating how competency-based training could be enriched by lessons both from VET reforms in comparable systems overseas and underway in Australia, with findings due to be reported in December 2022 (NCVER nd).

<sup>74</sup> Alternatively termed 'graded assessment'.

A more flexible approach would also likely necessitate greater autonomy for providers which can carry risks but also potential benefits. For example, in Singapore, quasi-Government VET institutions have greater autonomy to develop and assess courses (Varaprasad 2021), which has contributed to a higher status for VET:

In Singapore, the formerly dilapidated Institutes of Technical Education have been entirely overhauled, materially and in spirit. Now, they emphasise future skills training, with a technology edge ... This, in turn, has amped up the prestige of the sector, drawing in students who would have previously only considered a university education. (Peter Noonan cited in Siekmann and Fowler 2017, p. 33)

While potentially beneficial, greater trust placed in providers comes with risks that will need safeguards to ensure quality standards are maintained. One such mechanism was recommended in the Commission's NASWD review in the form of phased implementation of independent assessment to help allay concerns about uneven quality standards among VET graduates and give greater confidence to employers (PC 2020c, p. 249). Further, teaching and assessment is likely to be more complex under a broader approach, and would require investing in VET workforce capability. There could also be benefit in more direct observation of teaching by experts, as discussed for higher education above.

The Commission is interested in views about the merits of piloting some new approaches to VET that go beyond the current competency-based model, as well as what industry areas or qualification types are best suited to piloting an alternative approach.



#### Recommendation direction and information request 4.3

##### Allowing greater flexibility in VET course delivery

To allow VET teaching to better cater to changing needs of students and employers, the Commission is considering a recommendation to support greater flexibility in the way VET courses are delivered, and is interested in views about:

- What would be the risks and benefits of piloting alternative approaches to competency-based training?
- What types of skills would be best suited to a shift away from the competency-based framework (for example, digital skills or other professional skills)?
- Under an alternative approach, how should training be defined and updated over time?
- What safeguards would be needed to ensure the quality of training is maintained?

## 4.3 Supporting retention and completion

Completion of valuable training is the goal of education, not enrolment. Defining an 'optimal' level of completion is difficult because some level of attrition is inevitable, can be beneficial and can reflect factors beyond the control of providers:

Factors affecting an individual's completion are complex and can include the level of support from teachers and the institution, course content, course satisfaction, and the student's own expectations and personal circumstances. Institutions can influence some, but not all, of these factors to produce a more favourable outcome. On the other hand, some level of attrition must be expected and should be accepted. (Bradley et al. 2008, p. 19)

In 2019, the most frequently cited reasons for considering early departure from university were dominated by personal circumstances that largely lie outside the control of providers: ‘health or stress’ (46%); ‘need to do paid work’ (27%); ‘need a break’ (24%) (QILT 2021c). However, others cited reasons related to their teaching experience, such as ‘workload difficulties’ (25%); ‘expectations not met’ (22%); ‘academic support’ (19%).

VET non-completers overwhelmingly cite employment-related or personal reasons for leaving study (the most common reasons were: leaving job/changing career, being made redundant or poor relations with their manager or workmates), with only a small share (11%) citing training-related reasons (such as lack of interest/support or being unhappy with the training) (NCVER 2020).

The right pathway depends on each student’s individual circumstances. Giving students the best chance to follow through with their individual goals — whether this means completing their studies or having a go and dropping out swiftly — is a ripe area for improving the efficiency and productivity of the tertiary sector.

## Completion improves outcomes, but not for all

While non-completers can acquire skills and will often still get jobs, completers tend to get better outcomes. This applies to both universities (PC 2019, p. 47) and VET (NCVER 2021c).

For some students, not completing a qualification, or taking excessively long to do so, also incurs material costs including time, resources, accrued debt and wasted government funding. ‘Debt and regret’ appear to be commonplace among university non-completers:

- almost 40% would not begin their degree again knowing what they know after dropping out
- about one third believe they received no benefits from their course
- nearly two thirds believe they would have been better off if they had finished (Norton and Cherastidtham 2018).

For some, a partial qualification may be a better outcome than completion. A student may gain enough knowledge from their studies to secure their desired job and learn the rest on the job. In the VET sector in particular, some individuals enrol in qualifications with the intention to take particular subjects and obtain targeted skills, rather than a complete qualification (NCVER 2016).

A student dropping out does not necessarily imply that enrolling was the wrong decision, or they did not benefit at all. Most people who drop out of university report some benefit for their personal growth, skills or career (Cunninghame and Pitman 2020; Norton and Cherastidtham 2018). However, a key question is whether these benefits outweigh the costs (both to the student and the taxpayer), or whether an earlier exit from studies would have been better. Delayed exits mean that students are likely to forgo wages or can displace other options in their lives, such as an alternative tertiary pathway.

Given it is difficult to predict if a pathway is right for a student, the system needs to allow for experimentation but encourage quick exits when necessary. Efforts supporting completion need to be targeted to the students who have a real desire and chance of completing their studies.

## Risk of non-completion is unevenly spread

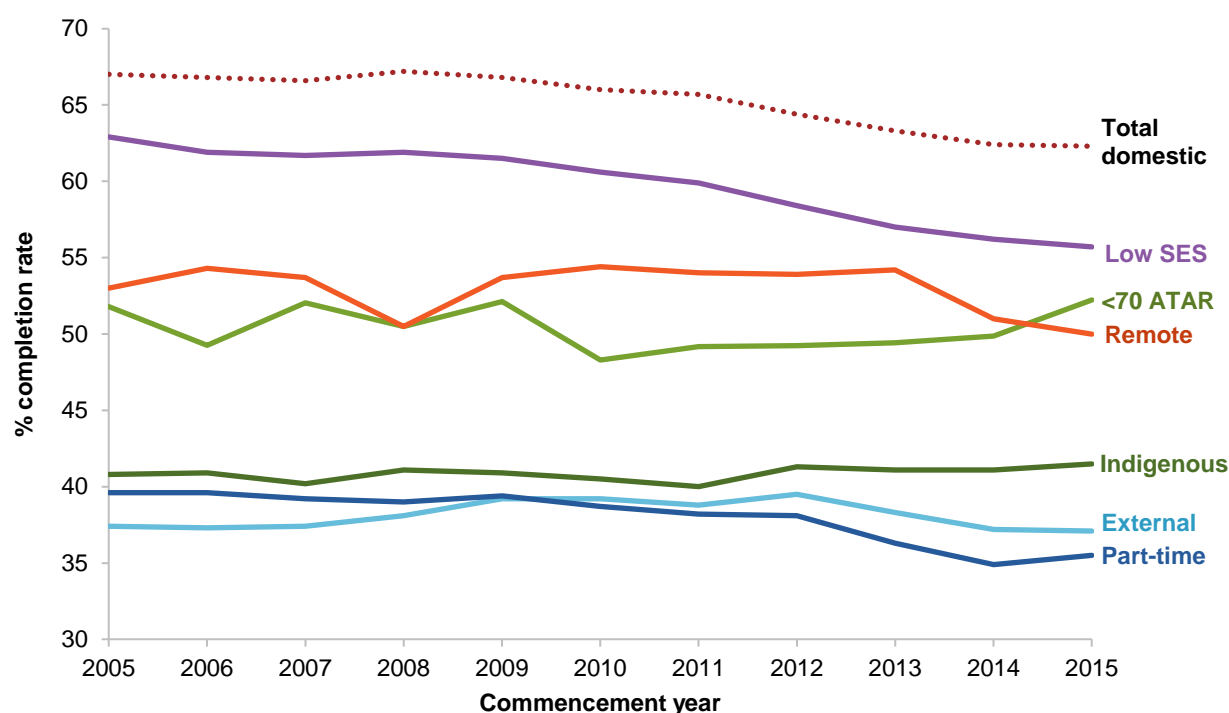
Some students and institutions are at greater risk. For universities, equity group students — those from low-SES backgrounds, from remote areas or of Aboriginal and Torres Strait Islander descent — have below-average completion rates within six years of starting a degree (figure 4.3). And the share not completing has increased in recent years, particularly for low-SES and remote students. This partly reflects

that the demand-driven university system intended to encourage greater enrolments even though providing more opportunity involved a higher risk of non-completion (PC 2019, p. 9).

Increasing completion among equity groups is, and continues to be, an important part of reducing disadvantage and inequality. Saying this, lower completion rates are also observed among part-time students, entrants with ATARs below 70 and those studying externally (that is, off campus or online).<sup>75</sup>

**Figure 4.3 – Degree completion rates are below average for several equity and non-equity student groups<sup>a</sup>**

**Completion rates for bachelor degrees within six years, by student groups**



a. Note, the completed course may not necessarily be the same course that the student initially enrolled in. For example, a student may have commenced a Science degree but completed an Arts degree; or commenced study at one institution, but completed at a different one. Low SES measured as the bottom 25% of Socio-Economic Indexes For Areas (SEIFA). SEIFA scores are produced by the ABS and rank areas in Australia according to relative socio-economic advantage and disadvantage.

Source: DESE (2022a).

Students in these groups represent a sizeable proportion of the student population. In 2020, external students and part-time students represented 33% and 34% of the commencing domestic student body, respectively. Low-SES students, the largest equity group with below-average completion rates, comprised 19% of commencing students in 2020 (DESE 2022b). Further, the share of external students has grown through the past 5 years, with more undergraduates opting to learn externally while internal student numbers continue to decline (DESE 2022g). Risks of non-completion are compounded where there are intersections between these groups.

<sup>75</sup> While part-time students would be expected to complete their courses more slowly, they are still significantly less likely to complete a degree even after 9 years (with an average 9-year completion rate of 49% compared to 78% for their full-time counterparts).

Attrition rates also vary by institution, with the choice of institution having the most influence over a student's chance of attrition, outweighing other student-level factors such as attendance type (part- or full-time), mode, and equity group status (HESP 2017). Other evidence found similar variations in dropout rates across providers (Cherastidtham and Norton 2018). Institutions with smaller student populations and low levels of senior academic staff also have higher first-year attrition rates (TEQSA 2017a).

By contrast, VET completion rates have been steadily increasing, and this trend has been reflected across equity groups. Completion rates for students with disabilities, from very remote locations and Aboriginal and Torres Strait Islander students have all increased over the past decade (PC 2020c). This may be attributed to better targeting of qualifications and skill sets or improved quality of delivery, such that a larger share of students complete only the components of a qualification they really need.

Completion rates also differ by provider type. Those training with an enterprise provider<sup>76</sup> are much more likely to complete their qualification than their peers, particularly students at TAFE (NCVER 2021b). However, this may be explained by differences in student mix. The average student attending an enterprise provider is older and of a higher socioeconomic status than those at TAFE (PC 2020c) — two characteristics that improve the likelihood of completing their VET qualification (McVicar and Tabasso 2016).

Understanding the determinants of non-completion is an important step to supporting optimal completion rates. The variations among different student cohorts and providers suggests that providers could learn from each other about the best ways to lift completion rates for students at greater risk of non-completion.

## Improving completion for equity groups continues to be important

Education policy for equity groups aims to address two challenges to educational attainment. The first is to promote enrolment in tertiary education, and the other is to increase the likelihood that an enrolled student completes their studies. The importance of tertiary education attainment for addressing structural inequities is recognised as a target in the *National Agreement on Closing the Gap*. This target aims to see 70% of Aboriginal and Torres Strait Islander people between the ages of 25-34 attain a Certificate III or above by 2031. While progress has been made to meet this gap, increasing from an attainment rate of 19% in 2001 to 42% in 2016, there is still some way to go to meet the target (PC 2022c).

The Higher Education Participation and Partnerships Program (HEPPP) provides funding to universities to implement strategies that improve access to undergraduate courses for identified equity groups, and to support retention and completion for these groups.<sup>77</sup> The program is intended to address the structural inequity facing these students. There is some evidence at an individual program level that HEPPP initiatives have improved outcomes (see for example NCSEHE 2017; Zacharias et al. 2016). However, it is very challenging to ascertain whether the HEPPP has successfully reduced non-completion rates, which remain stubbornly high for equity groups. An evaluation of the HEPPP cautiously concluded that there was evidence it contributed to improvements in student outcomes but the extent of the impact could not be quantified with available data (ACIL Allen Consulting 2017).

Part of the challenge in identifying the effectiveness of the HEPPP is its concurrent operation with the demand-driven funding system. Indeed, demand-driven funding was accompanied by additional HEPPP

---

<sup>76</sup> A company accredited to deliver qualifications to its own workers, whose primary business is not the delivery of training and development.

<sup>77</sup> Specifically, this includes students from regional and remote Australia, low-SES backgrounds, and those of Aboriginal and Torres Strait Islander descent.

funding to universities in proportion to the number of students they enrolled from equity groups, in part to meet the cost of additional support needed to allow some students to succeed. The Commission found:

Universities choose how to deploy these funds and in practice it supports a myriad of different programs. Their efficacy has not been evaluated at a program level. This study at a system level at least suggests two hypotheses: that the additional funding has been used ineffectively; or that it has proved insufficient to meet the needs of students from disadvantaged backgrounds. Possibly both hypotheses are true. (PC 2019, p. 69)

There have since been efforts to improve the evidence base for initiatives funded under the HEPPP. A new *Student Equity in Higher Education Evaluation Framework* is designed to share lessons across the sector about equity activities that work through three levels of evaluation:

- overall national program evaluation of the HEPPP and its outcomes
- quality improvement evaluations of HEPPP-funded projects
- evaluations of the effectiveness and impact of HEPPP-funded projects (Robinson et al. 2021).

This process has yet to commence but represents a positive move towards ensuring that HEPPP funding is targeted at initiatives that have the greatest impact on objective outcomes, such as student completion rates.

## What more could be done to support completion?

### Supporting retention beyond equity groups

There is merit in extending measures that support retention beyond equity groups to others with elevated risk of non-completion, such as students studying part-time or online, and those with a lower ATAR or first in family to attend. While the existing focus of HEPPP on access to higher education by equity groups should remain, there are grounds for it to more broadly consider promoting completion for other students at higher risk of non-completion.

Further, as the share of the population accessing tertiary education grows, effective supports will become increasingly important for a wider range of students, more of whom are less prepared, or studying part-time or online, and therefore require greater academic or other types of support to succeed.

### Supporting shared learning through a better evidence base

While there are strong grounds to pinpoint the underlying factors that lead some broad student groups to have higher non-completion rates, a holistic support strategy should consider all students. The evidence suggests that within any given higher education provider, factors like equity group membership, ATAR, and part-time status, explain only a very small share of the variation in attrition rates (HESP 2017, p. 47). While group affiliation might still inform the types of support measures appropriate (for example, culturally safe interventions for Aboriginal and Torres Strait Islander students), a broader strategy should include measures to screen, identify those specifically at risk and provide support:

- informing student choice with targeted career advice
- effectively screening enrolments
- preparing and transitioning students
- encouraging struggling students to seek support as early as possible
- identifying factors that increase the risk of non-completion (for example, with advanced data analytics)
- offering psychological or financial support for students identified as having a greater risk of dropping out for personal reasons.



A combination of many approaches is likely to be needed across the sector given the unique characteristics and needs of individual students and providers. That does not rule out some specific interventions to better support tertiary students (box 4.3).

Also a key factor in tertiary non-completions is a lack of literacy and numeracy skills that are the foundation of post-school study (Lamb et al. 2018). Many academic support programs are aimed at addressing deficits in these areas and have proven successful at doing so (Bennett et al. 2015). Reforms directed at the quality of schooling may also improve tertiary student success (chapter 2).

### **Box 4.3 – Specific measures to improve support for students**

The Commission has made several recommendations in recent reviews aimed at improving supports for tertiary students which remain relevant.

#### **Better mental health supports for tertiary students**

The *Mental Health inquiry* recommended strengthening accountability of tertiary providers with expanded mental health support, including:

- expanding online mental health support and collecting de-identified data to inform service improvement
- ensuring international students are adequately covered for mental health treatment and counselling services meet language and cultural diversity needs
- requiring all tertiary providers to have a mental health and wellbeing strategy as part of registration
- the development by the Australian Government of guidance for non-university higher education providers and VET providers on how they can best meet student mental health needs
- monitoring and disseminating information on best practice interventions by TEQSA and ASQA.

#### **Better supports for apprentices and other VET students**

The review of the *Skills and Workforce Development Agreement* identified several gaps in support for apprenticeships and recommended:

- screening apprentices to improve completion rates, and identify needs for support services, and if found to be cost effective, extending this to all VET students
- improving apprenticeship support services through more co-operative contracting arrangements, and expanding services to areas of unmet need.

Source: PC (2020b, p. 254); PC (2020c, pp. 346, 354).

TEQSA (2020) has developed a Good Practice Note to share institutional retention strategies and lift performance in this area.<sup>78</sup> However, while it identified 29 ‘good practice’ examples, TEQSA has had to rely on a thin evidence base and acknowledges that ‘... many providers have difficulty demonstrating whether particular initiatives have worked’ (p. 5). Some programs simply cite a correlation between having the program in place and generally high retention rates at an institution level, which is very weak evidence of

<sup>78</sup> Institution retention strategies and TEQSA guidance on good practice both stem from recommendations in the Higher Education Standards Panel review on *Improving Completion, Retention and Success in Higher Education* (HESP 2017).



effectiveness. Others present survey evidence that students reported feeling positive about the experience or reported improved satisfaction, but do not demonstrate any effect on retention.

This reflects common flaws in the evaluation of retention programs — frequently lacking a robust strategy for identifying program effects, not measuring objective outcomes (making comparisons with other programs difficult), or not being publicly available. Further, there is rarely consideration of the costs of different programs, complicating judgements over which programs would be most cost-effective for a given institution.

Overall, the guidance does not provide compelling information about which programs (or types of programs) have benefits for student outcomes (and/or cost savings) that outweigh the implementation costs. Nor does it shed much light on the types of students and circumstances where example programs might be most beneficial. While the objective is to share lessons, this gives providers little information about whether a program is worth adopting.

While program evaluation across the sector is piecemeal, there are examples where identified outcomes aid the spread of innovative approaches. The National Centre for Student Equity in Higher Education (NCSEHE) recently funded an internal evaluation of the Victoria University Block Model, which found significant reductions in failure rates (Jackson, Tangalakis and Solomonides 2022). This has led other universities, including Southern Cross and Murdoch, to introduce their own versions of the block model.

It is important to support this process through dissemination of good practice where there is sufficiently reliable evidence on cost-effective support measures. While there are good examples (box 4.4), the Australian tertiary sector should further improve the evidence base and information sharing about effective programs, and the contexts in which they work best.

In the lead up to the *Student Equity in Higher Education Evaluation Framework*, reviews recommended a central clearinghouse to support dissemination of evidence-based information about effective equity initiatives (Bennett et al. 2015, p. 9). This could be broadened to encompass retention strategies that target all students (both equity and non-equity) at higher risk of non-completion. Moreover, strategies could potentially be more broadly shared across the higher education and VET sectors.

Beyond a better evidence base, improved outcomes will require providers to invest in effective interventions, designed using good evidence and each provider's unique context.

#### **Box 4.4 – Good practice evaluations are needed for an optimal retention program**

Evaluation of support programs involve many practical and methodological challenges, including a clear framework for determining whether a program causes an outcome, ethics clearance and adequate data. Where a survey is used as a component of an evaluation, another wide range of considerations are at play: identification of unbiased sample frames; recruitment of respondents, stratification and weighting strategies; questionnaire design and piloting; interview training; and non-response follow-up approaches. Often, evaluations only assess how responding students view a program, which provides minimal guidance to universities.

A well-designed program can profoundly impact student outcomes. For example, an evaluation of the US-based OneGoal program (a university preparatory program for low-income high school students) found that participants have an almost 50% higher chance of going to university than their peers and a 40% higher chance of graduating (Hallberg et al. 2022, p. 27). This program also demonstrates the benefit of scaling such effects, having grown from a local pilot program to a national organisation serving 17 250 students by 2021 (OneGoal 2021, p. 5).

Building randomisation into programs can identify how they can best operate. For example, a retention program at Charles Sturt University introduced a pre-census date assessment, with students failing to submit being contacted to be offered support if they wished to stay, or to be assisted to withdraw before the census date if they did not.

When the program was trialled, students were randomly selected to different potential designs. Students not submitting the early assignment in one subject were either contacted by the subject coordinator or an outreach team. Students were far more likely to modify their enrolment if contacted by the outreach team, despite almost all of those who remained enrolled failing to submit any further assessments. This suggests that specialised professional staff may be better placed to contact disengaged students.

Further, different methods of contacting students were tested. A phone call alone had a 20% success rate, but the most effective method was a phone call, followed up with a text and an email if no contact was made. This increased the call success rate to 55%, but discovering this required a willingness to trial and evaluate different options.

From this, and other well-designed program evaluations some common themes emerge, such as the importance of personalised contact through a combination of text messages and phone calls rather than emails alone, and the potential benefits of using early assessment to identify disengaged students.

However, each university operates in a unique context, and findings from one setting will not always be universal. This underscores the importance of each institution testing different approaches to understand how retention programs can best achieve their goals — and of having a mechanism to share lessons.

Source: Linden (2022).

## Not pushing retention at all costs

Finally, some students may benefit from support to exit more quickly if a course does not suit them.

It can be difficult for potential students to determine if a particular qualification is right for them without firsthand experience. Some may discover that they lack the requisite academic preparation or interest in the subject matter. Others may face personal or financial issues that leave them unable to complete their course. Yet, many of these students stay enrolled in courses beyond the point at which it is apparent they will not succeed, incurring debt, imposing costs on the government, and limiting their ability to shift directions or return to study later on. This is more pressing in the university context than the VET sector because university courses are longer and loans are more prevalent (although greater use of ICLs in VET may change this (chapter 3)).

Indeed, at one university a mark of zero was recorded for nearly 4% of units of study — consistent with little or no engagement by the relevant students. About one in ten commencing students recorded a mark of zero in at least one subject (Stephenson, Cakitaki and Luckman 2021). Many more students are still enrolled in units of study they do not wish to take at the date at which students incur fees for their course (the census date), and even if they go on to pass the subject, they may have benefited more from pursuing an alternative. Current arrangements require students, including those disengaged from their studies, to understand a complex system and make an active choice. These outcomes reflect a system that fails to provide for an orderly and low-cost exit from higher education.

The same imperative to assess what works for retention should apply to beneficial non-completions. The Commission has outlined below some examples of strategies that may support exit where students are not engaged in a qualification pathway or may be deterred from exiting due to the limited value of a partial qualification. However, this is not exhaustive and there will be other mechanisms that reduce the costs of experimenting with a tertiary pathway. As with supports for retention, there would be benefit in trialling different options more broadly to inform what works.

### A different approach to census dates could facilitate earlier exits

Changes to university census date policies (Norton and Cherastidtham 2018) may help students to withdraw or nominate alternative subjects:

- The census date could be given a more meaningful name. Currently, most students either do not know when the census date is or are unaware that if they are enrolled at the census date, they accrue the debt for that semester. More than one in ten students had missed the census date for a subject they wanted to drop. The census date could be renamed for clarity, for example to 'payment date'.
- A possibly complementary option is to send students text message reminders before the census date. Email reminders, as is the standard practice, may be missed or forgotten, particularly for students who are no longer engaged. Text messages are likely to reach more students and prompt more to act.
- A more extreme option is to replace the opt-out system with an opt-in system — that is, require students to actively state that they wish to remain enrolled in their course to do so. This adds some administrative burden to students, and to universities in reminding students of this, but it would be successful for all disengaged students, whereas some may still be left out by the earlier options.

Universities could also be required to ensure that students are engaged in their studies prior to their census date, for example through a small assessment early in the course. Students who do not submit this assessment would be contacted to ensure that they still wished to continue. If so, appropriate supports would be offered. If not, or if the student does not respond to repeated contact, they would be withdrawn. A similar approach — although more focused on offering support rather than allowing for a costless exit — is already taken by many universities and seems to be effective (Linden 2022; Parks, King and King 2021).

Recent regulations that took effect in 2022 attempted to ensure only ‘genuine’ students received government funding and to protect students from study for which they are not suited (DESE 2022d). Students who, after undertaking eight units of study, have failed most of them will lose CSP eligibility for that course.<sup>79</sup> However, this will not protect disengaged students from debt incurred before undertaking eight units of study.

An alternative strategy to encourage engagement (or to prompt an early exit) could be to unenroll a significantly underperforming student and require them to reenrol to continue, potentially working with their institution to develop a plan for improving their performance. This would prompt students to consider if they have a reasonable likelihood of success, ensure they receive appropriate supports if they decide to continue, and protect entirely disengaged students from further costs.

All these options are likely to encourage a rapid and less costly exit for students who will not succeed in their studies. They are also unlikely to worsen completion rates, as they will only cause students who would not have completed their studies to exit sooner, rather than cause a higher number of exits in the long term. They would be beneficial in ensuring that a focus on supporting completions does not lead to students with no real chance of succeeding in their studies being encouraged to stay enrolled at any cost. Additionally, this may free up places for students that are more likely to complete their studies.

### **Nested qualifications could promote smoother exits**

Beyond strategies that may help students exit at the very early stages of a semester, there could be benefit in more widespread use of approaches that validate partial completion and thereby lessen the personal cost of withdrawing. For VET students, the Commission’s NASWD review highlighted the need for better information about credit pathways, and reducing barriers to credit pathways which would reduce the risks associated with partial completion (PC 2020c, pp. 211, 430).

For students who complete part of a degree, but for whatever reason are no longer willing or able to continue their studies, it can be challenging to have their learning recognised. Without a formal qualification, students may have difficulty demonstrating the knowledge and skills they gained to employers. This is particularly problematic for disadvantaged students who are more likely to face financial or health issues that make it more challenging for them to complete their studies.

This could be addressed through ‘nested’ qualifications that allow students exiting a degree part way to still receive a qualification (TEQSA 2019). For example, students at Charles Darwin University withdrawing from a bachelor’s degree may receive an associate degree if they completed the equivalent of two years of study, or a diploma for one year. However, these qualifications remain relatively rare at the undergraduate level.<sup>80</sup> Student equity researchers and the Higher Education Standards Panel have recommended the expansion of these qualifications (Harvey and Szalkowicz 2016; HESP 2017; Nelson et al. 2017).

This could assist students who are only able to complete part of their studies by providing information to employers on their capabilities and facilitating a potential return to study. It would also lower the cost of experimenting with higher education for those unsure if it would suit them.

The Commission is interested in views about how optimal completion could be better supported; either by supporting students to complete or by reducing barriers to exit where this represents a better outcome.

---

<sup>79</sup> Students are still able to receive a CSP if they change course.

<sup>80</sup> Although many universities offer diplomas or associate degrees, these may not be available for students withdrawing from a bachelor’s degree as a form of ‘alternative exit’.

**Recommendation direction and information request 4.4****Supporting completion where it improves outcomes**

The Commission is considering recommendations for its final report to support retention where it improves outcomes, while also facilitating exit where it is preferable, and is interested in views about:

- What are the best approaches to supporting student retention, how should these be adapted for different students, and how could the lessons from these approaches be shared across the tertiary sector?
- Should the Higher Education Participation and Partnerships Program extend to support retention beyond equity groups to capture a broader range of students with elevated risk of non-completion (such as part-time, online or low ATAR students)?
- What approaches have been demonstrated to reduce barriers or costs to trying a tertiary pathway and dropping out?



# References

- 3P Learning 2014, *How Does Athletics Reward Great Performance?*, <https://www.3plearning.com/blog/mathletics-reward-great-performance/> (accessed 15 June 2022).
- ABS 2020, *Experimental school education multifactor productivity estimates*, Cat. no. 8104.0.
- 2021a, *Births, Australia, 2020*, <https://www.abs.gov.au/statistics/people/population/births-australia/latest-release> (accessed 20 September 2022).
- 2021b, *Estimates of Industry Multifactor Productivity*, <https://www.abs.gov.au/statistics/industry/industry-overview/estimates-industry-multifactor-productivity/latest-release> (accessed 17 June 2022).
- 2022a, *Work-Related Training and Adult Learning, Australia, 2020-21*.
- 2022b, *Government Finance Statistics, Education, Australia, 2020-21*.
- 2022c, *International Trade: Supplementary Information, Financial Year, 2020-21*.
- 2022d, *Labour Force, Australia, Detailed*, Cat. no. 6291.0.55.001.
- 2022e, *Schools, Australia 2021*, Cat. no. 4221.0.
- ACARA (Australian Curriculum, Assessment and Reporting Authority) 2022a, *National Report on Schooling in Australia 2020*.
- 2022b, *Review of the Australian Curriculum*, <https://www.acara.edu.au/curriculum/curriculum-review> (accessed 23 August 2022).
- 2022c, *Submission to the Review of the National School Reform Agreement*.
- ACIL Allen Consulting 2015, *Evaluation of Skills for All: Review of the First Phase of Implementation, Final Report to the South Australian Department of State Development*.
- 2017, *Evaluation of the Higher Education Participation Partnership Program*, Melbourne.
- AERO 2021, *Evidence-based teaching strategies – how often are Australian teachers using them?*, <https://www.edresearch.edu.au/articles/evidence-based-teaching-strategies-how-often-are-australian-teachers-using-them> (accessed 25 July 2022).
- 2022, *Australian Education Research Organisation - About us*, <https://www.edresearch.edu.au/about-us> (accessed 7 September 2022).
- AEWG (Accelerated Education Working Group) 2021, *Catch-up Programmes: 10 Principles for Helping Learners Catch Up and Return to Learning*.
- AIHW (Australian Institute of Health and Welfare) 2022, *Housing Assistance in Australia*.
- AITSL (Australian Institute for Teaching and School Leadership) 2020, *Shifting the balance: Increasing the focus on teaching and learning by reducing the burden of compliance and administration*.
- 2021, *Australian Teacher Workforce Data: National Teacher Workforce Characteristics Report*.
- 2022, *Submission to the Productivity Commission Review into the National Schools Reform Agreement*, Sub. 27.
- Akçayır, G. and Akçayır, M. 2018, 'The flipped classroom: a review of its advantages and challenges', *Computers & Education*, vol. 126, pp. 334–345.
- Almendingen, K., Morseth, M.S., Gjølstad, E., Brevik, A. and Torris, C. 2021, 'Student's experiences with online teaching following COVID-19 lockdown: A mixed methods explorative study', *PLOS ONE*, vol. 16, no. 8.
- Alpert, W., Couch, K. and Harmon, O. 2016, 'A Randomized Assessment of Online Learning', *American Economic Review*, vol. 106, no. 5, pp. 378–382.
- Ambinder, E. 2005, 'A history of the shift towards full computerization of medicine', *Journal of Oncology Practice*, no. 2, pp. 54–56.
- Angel Solutions 2022, *Analysis of Ofsted Inspection Outcomes by School Type*, Commissioned by the Local Government Association.
- ASQA (Australian Skills Quality Authority) 2021, *ASQA's Strategic Review of Online Learning*, Insight paper No.3.
- ATO (Australian Taxation Office) 2022, *Small Business Technology Investment Boost and Small Business Skills and Training Boost*, <https://www.ato.gov.au/General/New-legislation/In-detail/Direct-taxes/Income-tax-for-businesses/Small-Business-Technology-Investment-Boost-and-Small-Business-Skills-and-Training-Boost/> (accessed 9 September 2022).
- Barteit, S., Lanfermann, L., Bärnighausen, T., Neuhann, F. and Beiersmann, C. 2021, 'Augmented, mixed, and virtual reality-based head-mounted devices for medical education: systematic review', *JMIR Serious Games*, vol. 9, no. 3.
- Becker, G.S. 1962, 'Investment in Human Capital: A Theoretical Analysis', *Journal of Political Economy*, vol. 70, no. 5, pp. 9–49.
- Beech, D. 2017, *Going for Gold: Lessons from the TEF provider submissions*, HEPI report 99, Higher Education Policy Institute.
- Bennett, A., Naylor, R., Mellor, K., Brett, M., Gore, J., Harvey, A., James, R., Munn, B., Smith, M. and Whitty, G. 2015, *The Critical Interventions Framework Part 2: Equity Initiatives in Australian Higher Education: A Review of Evidence of Impact*, University of Newcastle.
- Bentsen, K.H., Munch, J.R. and Schaur, G. 2019, 'Education spillovers within the workplace', *Economics Letters*, vol. 175, pp. 57–59.
- Bhuller, M., Mogstad, M. and Salvanes, K.G. 2017, 'Life-Cycle Earnings, Education Premiums, and Internal Rates of Return', *Journal of Labor Economics*, vol. 35, no. 4, pp. 993–1030.
- Birrell, B., Hawthorne, L. and Richardson, S. 2006, *Evaluation of the General Skills Migration Categories*, Department of Immigration and Multicultural Affairs.
- Boeskens, L. and Nusche, D. 2021, *Not enough hours in the day: policies that shape teachers' use of time*, OECD Education Working paper 245.



- Bowen, W., Chingos, M., Lack, K. and Nygen, T. 2013, 'Interactive learning online at public universities: evidence from a six-campus randomized trial', *Journal of Policy Analysis and Management*, vol. 33, no. 1, pp. 94–111.
- Bowman, K. and Callan, V.J. 2021, *Engaging More Employers in Nationally Recognised Training to Develop their Workforce*, National Centre for Vocational Education Research, Adelaide.
- Bradley, D., Noonan, P., Nugent, H. and Scales, B. 2008, *Review of Australian Higher Education*, Department of Education, Employment and Workplace Relations (DEEWR), Canberra.
- Braithwaite, V. 2018, *All eyes on quality: Review of the National Vocational Education and Training Regulator Act 2011 Report*, Report to the Assistant Minister for Vocational Education and Skills, Australian Government, Canberra.
- Brett Stephenson, Beni Cakitaki, and Michael Luckman 2021, 'Ghost student' Failure Among Equity Cohorts: Towards Understanding Non-Participating Enrolments, National Centre for Student Equity in Higher Education (NCSEHE), Perth, <https://www.ncsehe.edu.au/publications/ghost-student-failure-equity-cohorts-non-participating-enrolments/> (accessed 17 August 2022).
- Brown, J. 2017, *In Their Words: Student Choice in Training Markets - Victorian Examples*, Research Report, National Centre for Vocational Education Research, Adelaide.
- Bruns, B., Filmer, D. and Patrinos, H.A. 2011, *Making Schools Work: New Evidence on Accountability Reforms*, 24 February, World Bank, Washington, DC, <https://openknowledge.worldbank.org/handle/10986/2270> (accessed 23 September 2022).
- Canty, D., Barth, J., Yang, Y., Peters, N., Palmer, A., Royle, A. and Royle, C. 2019, 'Comparison of learning outcomes for teaching focused cardiac ultrasound to physicians: a supervised human model course versus an eLearning guided self-directed simulator course', *Journal of Critical Care*, vol. 49, pp. 38–44.
- Centre for Population Projections 2021, *Latest Projections*, <https://population.gov.au/data-and-forecasts/projections/#national> (accessed 8 August 2022).
- Chapman and Khemka 2022, 'Understanding recent HECS–HELP price misunderstandings', *Journal of Public Administration*, vol. 81, pp. 53–69.
- Chen, F., Leng, Y., Ge, J., Wang, D., Li, C., Chen, B. and Sun, Z. 2020, 'Effectiveness of Virtual Reality in Nursing Education: Meta-Analysis', *Journal of Medical Internet Research*, vol. 22, no. 9, p. e18290.
- Chen, G. 2022, *Longer school days coming for thoughts of students next year*, Public School Review, <https://www.publicschoolreview.com/blog/longer-school-days-coming-for-thousands-of-students-next-year> (accessed 21 September 2022).
- Cherastiditham, I. and Norton, A. 2018, *University Attrition: What Helps and What Hinders University Completion?*, 2018–08, Grattan Institute.
- Cirin, R. 2014, *Do academies make use of their autonomy?*, Department of Education (UK).
- Clare, J. 2022, *Education Ministers to focus on teacher shortage*, Media release, 22 July.
- Coaldrake and Stedman 2016, *Raising the Stakes: Gambling with the future of universities*, <https://www.uqp.com.au/books/raising-the-stakes-gambling-with-the-future-of-universities> (accessed 20 July 2022).
- Coaldrake, P. 2019, *What's in a Name? Review of the Higher Education Provider Category Standards - Final Report*, Department of Education, Canberra.
- Coelli, M., Tabasso, D. and Zakirova, R. 2012, *Studying beyond age 25: Who does it and what do they gain?*, NCVER, Adelaide.
- Cole, S., Paulson, A. and Shastry, G.K. 2014, 'Smart Money? The Effect of Education on Financial Outcomes', *Review of Financial Studies*, vol. 27, no. 7, pp. 2022–2051.
- Committee on Higher Education Funding 1988, *Report of the Committee on Higher Education Funding [Wran report]*, Published for the Department of Employment, Education and Training.
- Commonwealth of Australia 2019, *Performance-Based Funding for the Commonwealth Grant Scheme*, Report for the Minister for Education, June.
- 2020, *Budget 2020-21*, Budget Paper, 1, Budget Strategy and Outlook, Canberra.
- 2022, *Budget 2022-23*, Budget Paper, 1, Budget Strategy and Outlook, Canberra.
- Commonwealth Ombudsman 2020, *Quarterly Update 14: 1 October–31 December 2020*.
- Cook, R., Butcher, I. and Raeside, R. 2007, 'Recounting the scores: an analysis of the QAA subject review grades 1995–2001', *Quality in Higher Education*, vol. 12, no. 2, pp. 135–144.
- CooperGibson Research 2021, *Education Technology (EdTech) Survey 2020-21*, Commissioned by the Department for Education (UK).
- Cornell-Farrow, S. 2019, *Improving measures of school education output and productivity in Queensland*, Staff Research Paper, Queensland Productivity Commission.
- Criscuolo, C., Gal, P., Leidecker, T. and Nicoletti, G. 2021, *The human side of productivity: Uncovering the role of skills and diversity for firm productivity*, OECD Productivity Working Papers, No. 29, OECD Publishing, Paris.
- Cunninghame, I. and Pitman, T. 2020, 'Framing the benefits of higher education participation from the perspective of non-completers', *Higher Education Research & Development*, vol. 39, no. 5, pp. 926–939.
- CYDA (Children and Young People with Disability Australia) 2022, *What are the benefits of inclusive education?*, Fact Sheet.
- David Hetherington and Jarrod Rust 2013, *Training Days: Models of Vocational Training Provision: Lessons from the Victorian Experience*, per capita, [https://percapita.org.au/our\\_work/training-days-models-of-vocational-training-provision-lessons-from-the-victorian-experience/](https://percapita.org.au/our_work/training-days-models-of-vocational-training-provision-lessons-from-the-victorian-experience/) (accessed 25 August 2022).
- Dawkins, P.J. and Dixon, J.M. 2015, *Alternative Approaches to Fee Flexibility: Towards a Third Way in Higher Education Reform in Australia*, Centre of Policy Studies, Victoria University, Melbourne, Victoria.
- Deloitte Access Economics 2019, *Transparency in Higher Education Expenditure*, Australian Government Department of Education, November.
- Deloitte (Deloitte Access Economics) 2016, *Estimating the Public and Private Benefits of Higher Education*, Department of Education and Training, Canberra.
- Deming, D.J. 2022, 'Four Facts about Human Capital', *Journal of Economic Perspectives*, vol. 36, no. 3, pp. 75–102.

- DESE (Department of Education Skills and Employment) 2019a, *Benefits of educational attainment*, <https://www.dese.gov.au/integrated-data-research/benefits-educational-attainment> (accessed 9 August 2022).
- 2019b, *ComparED: Making informed decisions about future study options*, <https://www.dese.gov.au/higher-education/announcements/compared-making-informed-decisions-about-future-study-options> (accessed 20 July 2022).
- 2019c, *Historical list of skill shortages in Australia*, (Excel spreadsheet), Commonwealth of Australia, Canberra.
- 2020a, *Financial Performance 2020*.
- 2020b, *Job-ready Graduates Discussion Paper*.
- 2021a, *2020 Higher Education Providers Finance Tables*, <https://www.dese.gov.au/higher-education-publications/resources/2020-higher-education-providers-finance-tables> (accessed 26 August 2022).
- 2021b, *HELP Debt and Repayments Report*, <https://app.powerbi.com/view?r=eyJrJoiMjUxYjg5ZjgtODM5Ny00MjFjLTg2NTEtOWIzZjRkZjFmYmU2IiwidCI6ImRkMGNmZDE1LTQ1NTgtNGIxMi04YmFkLWVhMjY5ODRmYzQxNyJ9> (accessed 26 August 2022).
- 2021c, *Technical Note for Job-ready Graduates Package*, <https://www.dese.gov.au/job-ready/resources/technical-note-job-ready-graduates-package> (accessed 2 August 2022).
- 2022a, *Completion Rates - Cohort Analyses*, <https://www.dese.gov.au/higher-education-statistics/student-data/completion-rates-cohort-analyses> (accessed 28 July 2022).
- 2022b, *Higher education commencing student enrolment tables 2020*, 14 February.
- 2022c, *Higher Education Statistics - 2021 Staff Appendix 1 – Actual staff FTE*, <https://www.dese.gov.au/higher-education-statistics/resources/2021-staff-appendix-1-actual-staff-fte> (accessed 22 March 2022).
- 2022d, *Improving higher education for students*, <https://www.dese.gov.au/job-ready/improving-higher-education-students> (accessed 17 August 2022).
- 2022e, *JobTrainer Fund*, <https://www.dese.gov.au/skills-reform/jobtrainer-fund> (accessed 6 April 2022).
- 2022f, *Selected Higher Education Statistics – 2020 Student data*, <https://www.dese.gov.au/higher-education-statistics/student-data/selected-higher-education-statistics-2020-student-data-0> (accessed 6 April 2022).
- 2022g, *Student Enrolment Pivot Table*.
- nd, *Completion Rates of Higher Education Students - Cohort Analysis, 2005-2020*, <https://www.dese.gov.au/higher-education-statistics/resources/completion-rates-higher-education-students-cohort-analysis-20052020> (accessed 24 May 2022).
- Deunk, M.I., Smale-Jacobse, A.E., de Boer, H., Doolaard, S. and Bosker, R.J. 2018, 'Effective differentiation Practices: A systematic review and meta-analysis of studies on the cognitive effects of differentiation practices in primary education', *Educational Research Review*, vol. 24, pp. 31–54.
- DEWR (Department of Employment and Workplace Relations) 2022, *Skills Checkpoint for Older Workers Program*, <https://www.dewr.gov.au/skills-checkpoint-older-workers-program> (accessed 9 September 2022).
- DFAT (Department of Foreign Affairs and Trade) 2020, *Trade and Investment at a Glance 2020*.
- DfE and UCAS (Department for Education (UK) and The Universities and Colleges Admissions Service) 2021, *Research to Support the Independent TEF Review: Surveys of HE Applicants*.
- Dockery, A.M. and Miller, P.W. 2012, *Over-Education, Under-Education and Credentialism in the Australian Labour Market*, NCVER.
- Dodd, R.H., Dadaczynski, K., Okan, O., McCaffery, K.J. and Pickles, K. 2021, 'Psychological wellbeing and academic experience of university students in Australia during COVID-19', *International Journal of Environmental Research and Public Health*, vol. 18, no. 3, p. 866.
- DoE (Department of Education) 2022, *Education Ministers Meeting Communiqué*, 12 August.
- Dostie, B. 2010, *Estimating the Returns to Firm-Sponsored On-the-Job and Classroom Training*, 1 October, Social Science Research Network, Rochester, NY.
- DSO (Digital Skills Organisation) 2021, *Towards a new model for the development of digital skills*, Discussion Paper.
- Duffy, C. and Stewart, J. 2022, 'Investigation reveals tracking by EdTech of millions of Australian school students during COVID lockdowns', *The ABC*.
- Dumford, A.D. and Miller, A.L. 2018, 'Online learning in higher education: exploring advantages and disadvantages for engagement', *Journal of Computing in Higher Education*, vol. 30, no. 3, pp. 452–465.
- Edtech Impact 2022, *Formative Assessment Tools And Software Buyers' Guide*, <https://edtechimpact.com/news/formative-assessment-tools-and-software-buyers-guide> (accessed 15 June 2022).
- Education Council 2020, *Looking to the future: report of the review of senior secondary pathways into work, further education and training*, Department of Education, Skills and Employment.
- Elshami, W., Taha, M.H., Abuzaid, M., Saravanan, C., Al Kawas, S. and Abdalla, M.E. 2021, 'Satisfaction with online learning in the new normal: perspective of students and faculty at medical and health sciences colleges', *Medical Education Online*, vol. 26, no. 1, p. e1920090.
- Epple, D., Romano, R. and Zimmer, R. 2015, *Charter Schools: A Survey of Research on Their Characteristics and Effectiveness*, Working Paper 21256, National Bureau of Economic Research.
- Ernst, E., Merola, R. and Samaan, D. 2019, 'Economics of Artificial Intelligence: Implications for the Future of Work', *IZA Journal of Labour Policy*, vol. 9, no. 1, pp. 1–35.
- eSafety Commissioner 2022, *Toolkit for Schools*, <https://www.esafety.gov.au/educators/toolkit-schools> (accessed 8 August 2022).
- Evidence for Learning 2019a, *Making best use of teaching assistants*, Guidance Report.
- 2019b, *Putting evidence to work: a school's guide to implementation*, Guidance Report.
- Ey, C. 2021, *The Vocational Education and Training Sector: A Quick Guide*, Parliament of Australia, [https://www.aph.gov.au/About\\_Parliament/Parliamentary\\_Departments/Parliamentary\\_Library/pubs/rp/rp2021/Quick\\_Guides/VocationalTraining](https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp2021/Quick_Guides/VocationalTraining) (accessed 26 August 2022).
- Eyles, A., Hupkau, C. and Machin, S. 2016, 'School reforms and pupil performance', *Labour Economics*, vol. 41, pp. 9–19.

- and Machin, S. 2019, 'The Introduction of Academy Schools to England's Education', *Journal of the European Economic Association*, vol. 17, no. 4, pp. 1107–1146.
- Ferguson, D.H. 2021a, 'A guide to Australian Government funding for higher education learning and teaching', p. 25.
- Ferguson, H. 2020, *National Skills Commissioner Bill 2020*, [https://www.aph.gov.au/Parliamentary\\_Business/Bills\\_Legislation/bd/bd1920a/20bd100](https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd1920a/20bd100) (accessed 25 August 2022).
- 2021b, *Updated Higher Education Loan Program (HELP) debt statistics—2020–21*, FlagPost, Parliamentary Library.
- Figlio, D., Rush, M. and Yin, L. 2013, 'Is it live or is it internet? Experimental estimates of the effects of online instruction on student learning', *Journal of Labor Economics*, vol. 31, no. 4, pp. 763–784.
- Fitzgerald, R. 2022, 'Manyallaluk School's quest for elusive pokipain and rare finch receives Landcare nomination', *ABC News*.
- Floyd, E., Tomar, S. and Lee, D. 2022, *Making the Grade (But Not Disclosing It): How Withholding Grades Affects Student Behavior and Employment*, 30 April, Social Science Research Network, Rochester, NY.
- Fogarty, W. 2012, 'Country as classroom', *People on country: Vital landscapes, Indigenous futures*, Federation Press.
- and Schwab, R. 2013, *Indigenous education: Experiential learning and learning through country*, Centre for Aboriginal Economic Policy Research (CAEPR), Canberra.
- de Fontenay, C., Lampe, B., Nugent, J. and Jomini, P. 2020, *Climbing the Jobs Ladder Slower: Young People in a Weak Labour Market*, Productivity Commission Staff Working Paper, Canberra.
- Fournier, J. and Johansson, A. 2016, *The Effect of the Size and the Mix of Public Spending on Growth and Inequality*, OECD Economics Department Working Papers 1344, 15 December.
- Gavin, M. and Stacey, M. 2022, 'Enacting autonomy reform in schools: The re-shaping of roles and relationships under Local Schools, Local Decisions', *Journal of Educational Change*, pp. 1–23.
- Gill, B.P. 2016, *The Effect of Charter Schools on Students in Traditional Public Schools: A Review of the Evidence*, 2 November, Education Next.
- Gonski, D., Arcus, T., Boston, K., Gould, V., Johnson, W., O'Brien, L., Perry, L.-A. and Roberts, M. 2018, *Through Growth to Achievement: The Report of The Review to Achieve Educational Excellence in Australian Schools*, Commonwealth of Australia.
- Goss, P. and Sonnemann, J. 2020, *Top teachers sharing expertise to improve teaching*, Grattan Institute.
- Guthrie, H. 2009, *Competence and Competency-Based Training: What the Literature Says*, National Centre for Vocational Education Research.
- Hai, R. and Heckman, J.J. 2022, *The Causal Effects of Youth Cigarette Addiction and Education*, Working Paper, National Bureau of Economic Research.
- Hallberg, K., Eaglin, C., Hiram, R. and Ruizsparza, A. 2022, *Supporting Students in Achieving their Postsecondary Goals: A Quasi-Experimental Program Evaluation of OneGoal*, April, University of Chicago Inclusive Economy Lab.
- Halsey, J. 2018, *Independent Review into Regional, Rural and Remote Education*, Final Report, Department of Education, Skills and Employment.
- Hampf, F. 2020, *Education, skills & labor-market success: microeconomic analyses using large-scale skills assessments*, ifo Beiträge zur Wirtschaftsforschung, 89 (2020), Ifo-Institut, München.
- Hare, J. 2021, 'Jobtrainer Mops up Unmet Demand for Training, Puts People into Jobs', *Australian Financial Review*, 1 August.
- Harvey, A. and Szalkowicz, G. 2016, 'Developing multiple exit pathways within undergraduate courses', *International Studies in Widening Participation*, vol. 3, pp. 52–67.
- Harvey, Cakitaki and Brett 2018, *Principles for equity in higher education performance funding*, NCSEHE, <https://www.ncsehe.edu.au/publications/principles-for-equity-in-higher-education-performance-funding/> (accessed 20 July 2022).
- HATI International 2017, *Technology in healthcare - a long and continuing history*, <https://hatiintl.com/blog/technology-in-healthcare-a-long-and-continuing-history> (accessed 7 August 2022).
- Hattie, J. 2003, 'Teachers Make a Difference, What is the research evidence?', presented at Paper presented at the Building Teacher Quality: What does the research tell us ACER Research Conference, Melbourne.
- Hatton, A. and Drake, R. 2019, *An analysis of the performance of sponsored academies*, Department of Education (UK).
- Havari, E. and Savegnago, M. 2014, *The Causal Effect of Parents' Schooling on Children's Schooling in Europe. A New IV Approach.*, CEIS Working Paper No. 315, 1 January.
- Havranek, T., Irsova, Z. and Zeynalova, O. 2018, 'Tuition fees and university enrolment: a meta-regression analysis', *Oxford Bulletin of Economics and Statistics*, vol. 80, no. 6, pp. 1145–1184.
- Hawthorne, L. 2010, 'How Valuable is "Two-Step Migration"? Labor Market Outcomes for International Student Migrants to Australia', *Asian and Pacific migration Journal*.
- Heckman, J.J. and Kautz, T. 2012, 'Hard evidence on soft skills', *Labour Economics*, vol. 19, no. 4, pp. 451–464.
- Heilporn, G., Lakhal, S. and Bélisle, M. 2021, 'An examination of teachers' strategies to foster student engagement in blended learning in higher education', *International Journal of Educational Technology in Higher Education*, vol. 18, no. 1, p. 25.
- Hemelt, S.W., Stange, K.M., Furquim, F., Simon, A. and Sawyer, J.E. 2018, *Why is Math Cheaper than English? Understanding Cost Differences in Higher Education*, Working Paper, National Bureau of Economic Research.
- HESP (Higher Education Standards Panel) 2017, *Improving Retention, Completion and Success in Higher Education*, Final Report.
- Hessler, M., Pöpping, D.M., Hollstein, H., Ohlenburg, H., Arnemann, P.H., Massoth, C., Seidel, L.M., Zarbock, A. and Wenk, M. 2018, 'Availability of cookies during an academic course session affects evaluation of teaching', *Medical Education*, vol. 52, no. 10, pp. 1064–1072.
- Hjalmarsson, R., Holmlund, H. and Lindquist, M.J. 2014, 'The Effect of Education on Criminal Convictions and Incarceration: Causal Evidence from Micro-data', *Economic Journal*, vol. 125, no. 587, pp. 1290–1326.
- Hobbs, L., Plessis, A.D., Oates, G., Caldis, S., McKnight, L., Vale, C., O'Connor, M., Rochette, E., Watt, H. and Weldon, P.R. 2022, *Australian National Summit on Teaching Out-of-*



- field Synthesis and Recommendations for Policy, Practice and Research: Part A Report*, Deakin University, Victoria.
- and Porsch, R. 2021, 'Teaching out-of-field: challenges for teacher education', *European Journal of Teaching Education*, vol. 44, no. 5, pp. 601–610.
- Horn, M.B. 2022, 'Behind Khan Academy And Arizona State University's Khan World School Launch', *Forbes*, <https://www.forbes.com/sites/michaelhorn/2022/05/31/behind-khan-academy-and-arizona-state-universitys-khan-world-school-launch/> (accessed 26 July 2022).
- Houghton, K.A., Bagranoff, N. and Jubb, C. 2021, 'The funding of higher education: an empirical examination of the cost of education in business schools', *Abacus*, vol. 57, no. 4, pp. 780–809.
- Huang, Z., Phillips, G.M., Yang, J. and Zhang, Y. 2020, *Education and Innovation: The Long Shadow of the Cultural Revolution*, Working Paper, National Bureau of Economic Research.
- Hubble, S. and Bolton, P. 2018, 'Higher education tuition fees in England', p. 35.
- Hunter, J., Sonnemann, J. and Joiner, R. 2022, *Making time for great teaching: How better government policy can help*, Grattan Institute.
- Huntington-Klein, N. 2021, 'Human capital versus signaling is empirically unresolvable', *Empirical Economics*, vol. 60, no. 5, pp. 2499–2531.
- Hutchings, M. and Francis, B. 2018, *Chain effects 2018: the impact of academy chains on low-income pupils*.
- Jackson, J., Tangelakis, K. and Solomonides, I. 2022, *Equity Through Complexity: Inside the 'Black Box' of the Block Model*, National Centre for Student Equity in Higher Education.
- Jensen, B., Hunter, J., Sonnemann, J. and Cooper, S. 2014, *Making time for great teaching: How better government policy can help*, Grattan Institute.
- , Sonnemann, J., Roberts-Hull, K. and Hunter, A. 2016, *Beyond PD: Teacher Professional Learning in High-Performing Systems*, National Center on Education and the Economy, Washington, D.C.
- Jervis-Bardy 2020, 'Revealed: Budget Blowout Behind VET Cuts', *The Canberra Times*, 27 January.
- Jha, N. and Polidano, C. 2016, *Vocational Education and Training: A Pathway to the Straight and Narrow*, SSRN Scholarly Paper, Rochester, NY.
- Johnston, A.L., Baik, C. and Chester, A. 2022, 'Peer review of teaching in Australian higher education: a systematic review', *Higher Education Research & Development*, vol. 41, no. 2, pp. 390–404.
- Joyce, S. 2019a, *Strengthening Skills: Expert Review of Australia's Vocational Education and Training System*, 2 April, Department of Prime Minister and Cabinet.
- 2019b, *Vocational Education and Training Review*, <https://www.pmc.gov.au/domestic-policy/vet-review> (accessed 27 April 2022).
- Kamhöfer, D.A., Schmitz, H. and Westphal, M. 2015, *Heterogeneity in Marginal Non-Monetary Returns to Higher Education*, RWI, Germany.
- Kämpfen, F. 2021, 'The causal effects of education on welfare participation in the US', *Education Economics*, vol. 29, no. 6, pp. 580–596.
- Kandiko Howson, C. 2022, *Is Educational Gain the 'Dark Matter' of Student Outcomes?*, 14 February, <https://wonkhe.com/blogs/is-educational-gain-the-dark-matter-of-student-outcomes/> (accessed 12 August 2022).
- Kassenboehmer, S.C., Leung, F. and Schurer, S. 2018, 'University education and non-cognitive skill development', *Oxford Economic Papers*, vol. 70, no. 2, pp. 538–562.
- Khoo, P. and Ost, B. 2018, 'The effect of graduating with honors on earnings', *Labour Economics*, vol. 55, pp. 149–162.
- Kim, L. and Ashbury, K. 2021, 'Would a longer school day help children catch up after the pandemic?', *The Conversation*.
- Kirkeboen, L.J., Leuven, E. and Mogstad, M. 2016, 'Field of Study, Earnings, and Self-Selection\*', *Quarterly Journal of Economics*, vol. 131, no. 3, pp. 1057–1111.
- Kivistö, J. and Kohtamäki, V. 2015, 'Impacts of performance-based funding on higher education institutions: A literature review', 1 September.
- Kong, D., Zhang, B. and Zhang, J. 2022, 'Higher education and corporate innovation', *Journal of Corporate Finance*, vol. 72, p. 102165.
- Konings, J. and Vanormelingen, S. 2015, 'The Impact of Training on Productivity and Wages: Firm-Level Evidence', MIT Press, *The Review of Economics and Statistics*, vol. 97, no. 2, pp. 485–497.
- KPMG 2019, *Evaluation of the VET Student Loans Program*, Final Report, December.
- Kreitzer, R.J. and Sweet-Cushman, J. 2022, 'Evaluating Student Evaluations of Teaching: a Review of Measurement and Equity Bias in SETs and Recommendations for Ethical Reform', *Journal of Academic Ethics*, vol. 20, no. 1, pp. 73–84.
- Lamb, S., Maire, Q., Walstab, A., Newman, G., Doecke, E., Davies, M., 2018, *Improving Participation and Success in VET for Disadvantaged Learners: Research Report*, NCVER.
- Lane, R., Parrila, R., Bower, M., Bull, R., Cavanagh, M., Forbes, A., Jones, T., Leaper, D., Khosronejad, M., Pellicano, L., Powell, S., Ryan, M. and Skrebneva, I. 2019, *Learning Progressions and Online Formative Assessment National Initiative*, AITSL.
- Leal, H., Lai, S. and Rosewall, T. 2019, 'Firm-level Insights into Skills Shortages and Wages Growth', *Reserve Bank of Australia Bulletin*, March, pp. 1–18.
- Leigh, A. 2008, 'Returns to education in Australia', *Economic Papers*, vol. 27, no. 3, pp. 233–249.
- Leung, F., McVicar, D., Polidano, C. and Zhang, R. 2014, *Early Impacts of the Victorian Training Guarantee on Vet Enrolments and Graduate Outcomes*, National Center for Vocational Education and Research, Adelaide.
- Li, A.Y. 2021, 'Four Decades of Performance Funding and Counting', in Perna, L.W. (ed), *Higher Education: Handbook of Theory and Research: Volume 36*, Higher Education: Handbook of Theory and Research, Springer International Publishing, Cham, pp. 485–548, [https://doi.org/10.1007/978-3-030-44007-7\\_8](https://doi.org/10.1007/978-3-030-44007-7_8) (accessed 13 July 2022).
- Li, K.C. and Wong, B.T.-M. 2021, 'Features and trends of personalised learning: a review of journal publications from 2001 to 2018', Routledge, *Interactive Learning Environments*, vol. 29, no. 2, pp. 182–195.
- Linden, K. 2022, 'Improving student retention by providing targeted support to university students who do not submit an early assessment item', *Student Success*, vol. 13, no. 1, pp. 67–73.

- Lomax-Smith, J., Watson, L. and Webster, B. 2011, *Higher Education Base Funding Review: Final Report*, Department of Education, Employment and Workplace Relations, Canberra.
- Machin, S. and Sandi, M. 2020, 'Autonomous Schools and Strategic Pupil Exclusion', *Economic Journal*, vol. 130, no. 625, pp. 125–159.
- Major, L., Francis, G. and Tsapali, M. 2021, 'The effectiveness of technology-supported personalised learning in low-and middle-income countries: A meta-analysis', *British Journal of Education Technology*, vol. 52, pp. 1935–1964.
- Manny, A. 2020, *Socio-economic status and the ATAR*.
- Masters, E. 2021, 'New curriculum revolutionising education on traditional Aboriginal lands', *ABC News*, 3 July.
- Masters, G. 2022, *Building a World Class Learning System*, CSE Leading Education Series, Centre for Strategic Education, Victoria.
- Mavromaras, K., McGuinness, S., O'Leary, N., Sloane, P. and Wei, Z. 2013, 'Job Mismatches and Labour Market Outcomes: Panel Evidence on University Graduates', *Economic Record*, vol. 89, no. 286, pp. 382–395.
- McGarth-Champ, S., Stacey, M., Wilson, R. and Fitzgerald, S. 2018, *Understanding work in schools: the foundation for teaching and learning*, Report to the NSW Teachers Federation.
- McVicar, D. and Polidano, C. 2018, 'Course Choice and Achievement Effects of a System-Wide Vocational Education and Training Voucher Scheme for Young People', *Educational Evaluation and Policy Analysis*, vol. 40, no. 4, pp. 507–530.
- McVicar, D. and Tabasso, D. 2016, *The Impact of Disadvantage on VET Completion and Employment Gaps*, NCVET.
- Means, B. and Neisler, J. 2021, 'Teaching and learning in the time of COVID: the student perspective', *Online Learning*, vol. 25, no. 1, pp. 8–27.
- Mok, K.H., Xiong, W. and Bin Aedy Rahman, H.N. 2021, 'COVID-19 pandemic's disruption on university teaching and learning and competence cultivation: student evaluation of online learning experiences in Hong Kong', *International Journal of Chinese Education*, vol. 10, no. 1, pp. 1–20.
- Napthine, D. 2019, *National Regional, Rural and Remote Tertiary Education Strategy*, Final Report, 19 August, Department of Education, Skills and Employment.
- National Statistics (UK) 2022, *Schools, pupils and their characteristics, Academic Year 2021/22*.
- Nawarddeken Academy 2020, *Nawarddeken Academy Annual Report 2020*.
- NCEE (National Center on Education and the Economy) 2018, *How Much Time Do Students Spend in School in Top-Performing School Systems and the U.S.?*
- NCSEHE (National Centre for Student Equity in Higher Education) 2017, *Higher Education Participation and Partnerships Program: Seven Years On*.
- NCVER (National Centre for Vocational Education Research) 2016, *VET Program Completion Rates: An Evaluation of the Current Method*.
- 2020, *Apprentice and Trainee Experience and Destinations 2019*.
- 2021a, *Employers' Use and Views of the VET System 2021*.
- 2021b, *VET Qualification Completion Rates 2019*.
- 2021c, *VET Student Outcomes 2021*.
- 2022, VOCSTATS, <https://www.ncver.edu.au/research-and-statistics/vocstats> (accessed 17 May 2022).
- nd, *Complementary approaches to competency-based training*, <https://www.ncver.edu.au/research-and-statistics/current-research/in-house-research/complementary-approaches-to-competency-based-training> (accessed 6 September 2022).
- Nelson, K., Picton, C., McMillan, J., Edwards, D., Devlin, M. and Martin, K. 2017, *Understanding the Completion Patterns of Equity Students in Regional Universities*, National Centre for Student Equity in Higher Education (NCSEHE), Perth.
- NESA (NSW Education Standards Authority) 2020, *Nurturing Wonder and Igniting Passion: Designs for a new school curriculum*, NSW Education Standards Authority.
- Nilsson, A. 2010, 'Vocational education and training – an engine for economic growth and a vehicle for social inclusion?', *International Journal of Training and Development*, vol. 14, no. 4, pp. 251–272.
- Norton 2012, *Graduate Winners: Assessing the public and private benefits of higher education - Grattan Institute*, Grattan Institute, <https://grattan.edu.au/report/graduate-winners-assessing-the-public-and-private-benefits-of-higher-education/> (accessed 26 August 2022).
- Norton, A. 2017, *Is a public-private 'balance' a useful higher education funding idea?*, 27 July, <https://andrewnorton.net.au/2017/07/27/is-a-public-private-balance-a-useful-higher-education-funding-idea/> (accessed 25 August 2022).
- 2021, *The first Job-ready Graduates university applications data*, 25 October, <https://andrewnorton.net.au/2021/10/25/the-first-job-ready-graduates-university-applications-data/> (accessed 26 August 2022).
- and Cherastidtham, I. 2015, *The cash nexus: how teaching funds research in Australian universities*, Grattan Institute, Carlton Vic.
- and — 2018, *Dropping Out: the Benefits and Costs of Trying University*, Grattan Institute.
- and Kemp, D. 2014, *Report of the Review of the Demand Driven Funding System*, <https://www.dese.gov.au/reviews-and-consultations/report-review-demand-driven-funding-system> (accessed 25 August 2022).
- , Sonnemann, J. and Cherastidtham, I. 2013, *Taking University Teaching Seriously*, Grattan Institute.
- NSC (National Skills Commission) 2021a, *State of Australia's Skills 2021: now and into the future*, <https://www.nationalskillscommission.gov.au/reports/state-of-australia-skills-2021> (accessed 17 June 2022).
- 2021b, *VET average price benchmarks: findings from the national VET average price benchmark database*, National Skills Commission, Canberra.
- 2022, *Employment Projections*, <https://labourmarketinsights.gov.au/our-research/employment-projections/> (accessed 23 May 2022).
- NSF (National Science Foundation) 2020, *Higher Education Research and Development Survey (HERD)*, <https://www.nsf.gov/statistics/srvyherd/#rSR&rWP&tabs-1> (accessed 3 August 2022).
- NSW Department of Education 2021, *Quality Time: Action Plan to simplify administrative practices*.

- 2022a, *NSW schools to trial extended school hours*, <https://education.nsw.gov.au/news/latest-news/nsw-schools-to-trial-extended-school-hours--> (accessed 21 September 2022).
- 2022b, *Supplying IT goods and services*, [education.nsw.gov.au/about-us/supplying-to-us/supplying-it-goods-and-services](https://education.nsw.gov.au/about-us/supplying-to-us/supplying-it-goods-and-services) (accessed 16 September 2022).
- OECD (Organisation for Economic Co-operation and Development) 2001, *Measuring Productivity: Measurement of aggregate and industry-level productivity growth*.
- 2010, *Improving Health and Social Cohesion through Education*, <https://www.oecd.org/education/ceri/improvinghealthandsocialcohesionthrougheducation.htm> (accessed 5 September 2022).
- 2012, *Education Today 2013: The OECD Perspective*, Organisation for Economic Co-operation and Development, Paris.
- 2014, *Unlocking the Potential of Teacher Feedback*, 1 September, OECD Publishing, Paris.
- 2017, *Building Skills for All in Australia: Policy Insights from the Survey of Adult Skills*, OECD Publishing, Paris.
- 2018, *World Class: How to Build a 21st-Century School System*, OECD Publishing, Paris.
- 2021a, *Education at a Glance 2021: OECD Indicators*, OECD Publishing, Paris.
- 2021b, *Preparing for the Future of Work Across Australia*, OECD Reviews on Local Job Creation, OECD Publishing, Paris.
- 2021c, *Pushing the frontiers with AI, blockchain, and robots*, OECD Publishing, Paris.
- 2022, *Mending the Education Divide: Getting Strong Teachers to the Schools that need them most*, OECD Publishing, Paris.
- nd, *Educational attainment and labour-force status*, [https://www.oecd-ilibrary.org/education/data/education-at-a-glance/educational-attainment-and-labour-force-status\\_889e8641-en](https://www.oecd-ilibrary.org/education/data/education-at-a-glance/educational-attainment-and-labour-force-status_889e8641-en) (accessed 17 June 2022).
- Office for Students 2018, *Learning gain - Office for Students*, Office for Students, <https://www.officeforstudents.org.uk/advice-and-guidance/teaching/learning-gain/> (accessed 27 July 2022).
- OneGoal 2021, *Fiscal Year 2021*, Annual Report.
- Oreopoulos, P., Page, M.E. and Stevens, A.H. 2006, 'The Intergenerational Effects of Compulsory Schooling', *Journal of Labor Economics*, vol. 24, no. 4, pp. 729–760.
- Ortagus, Kelchen, Rosinger & Voorhees 2020, *Performance-Based Funding in American Higher Education: A Systematic Synthesis of the Intended and Unintended Consequences - Justin C. Ortagus, Robert Kelchen, Kelly Rosinger, Nicholas Voorhees, 2020*, <https://journals.sagepub.com/doi/10.3102/0162373720953128> (accessed 13 July 2022).
- Österman, M. 2021, 'Can We Trust Education for Fostering Trust? Quasi-experimental Evidence on the Effect of Education and Tracking on Social Trust', *Social Indicators Research*, vol. 154, no. 1, pp. 211–233.
- Parker, S., Dempster, A. and Warburton, M. 2018, *Reimagining Tertiary Education: From Binary System to Ecosystem*, KPMG.
- Parker, S.C. and van Praag, C.M. 2006, 'Schooling, Capital Constraints, and Entrepreneurial Performance', *Journal of Business & Economic Statistics*, vol. 24, no. 4, pp. 416–431.
- Parks, A., King, T. and King, S. 2021, 'One foot in the door: Exploring institutional responses to no and low engagement', p. 10.
- Paul, J. and Jefferson, F. 2019, 'A comparative analysis of student performance in an online vs. face-to-face environmental science course from 2009 to 2016', *Frontiers in Computer Science*, vol. 1, Art. 7, pp. 1–9.
- Paul, L., Loudon, B., Elliott, M. and Scott, D. 2021, *Next Steps: Report of the Quality Initial Teacher Education Review*.
- PBMC Health 2018, *The important role medical imaging plays in diagnosis and treatment*, <https://www.pbmchealth.org/news-events/blog/important-role-medical-imaging-plays-diagnosis-and-treatment> (accessed 11 August 2022).
- PC 2012, *Schools Workforce*, Research report, Canberra.
- 2016, *National Education Evidence Base*, Report no. 80, Canberra.
- 2017a, *Introducing Competition and Informed User Choice into Human Services: Reforms to Human Services*, Report no. 85, Canberra.
- 2017b, *Shifting the Dial: 5 Year Productivity Review*, Report no. 84, Canberra.
- 2017c, *Transitioning Regional Economies*, Study Report, Canberra.
- 2017d, *University Education*, Shifting the Dial: 5 year Productivity Review, Supporting Paper no. 7.
- 2018, *Competition in the Australian Financial System, Draft Report*, Draft Report, Canberra.
- 2019, *The Demand Driven University System: A Mixed Report Card*, Commission Research Paper, Canberra.
- 2020a, *Indigenous Evaluation Strategy*, Canberra.
- 2020b, *Mental Health*, Report no. 95, Canberra.
- 2020c, *National Agreement for Skills and Workforce Development Review*, Study Report, Canberra.
- 2020d, *Why Did Young People's Incomes Decline?*, Commission Research Paper, Canberra.
- 2021a, *National Agreement for Skills and Workforce Development Review*, Study Report, Canberra.
- 2021b, *Things you can't drop on your feet: An overview of Australia's services sector productivity*, PC Productivity Insights, Canberra, April.
- 2022a, *5-year Productivity Inquiry: Australia's data and digital dividend*, Interim Report, Canberra.
- 2022b, *5-year Productivity Inquiry: The Key to Prosperity*, Interim Report, Canberra, July.
- 2022c, *Closing the Gap Annual Data Compilation Report*, July.
- 2022d, *Review of the National School Reform Agreement*, Interim Report, Canberra.
- 2022e, *The Review of the National Schools Reform Agreement*, Interim Report, Canberra.
- Pittman, C.N. and Heiselt, A.K. 2014, 'Increasing accessibility: using universal design principles to address disability impairments in the online learning environment', *Online Journal of Distance Learning Administration*, vol. 17, no. 3, pp. 1–11.
- Polidano, C. and Ryan, C. 2016, 'Long-Term Outcomes from Australian Vocational Education', *SSRN Electronic Journal*, <https://www.ssrn.com/abstract=2870762> (accessed 21 July 2022).



- , van de Ven, J. and Voitchovsky, S. 2017a, *Making 'good' choices: the impact of entitlement models of upskilling later in life*, Research Report, National Centre for Vocational Education Research, Adelaide.
- , —— and —— 2017b, *The Power of Self-Interest: Effects of Education and Training Entitlements in Later-Life*, Working Paper no. 12/17, Melbourne Institute Working Paper Series, National Centre for Vocational Education Research, Adelaide.
- Prada, M.F., Rucci, G. and Urzúa, S. 2019, *Training, Soft Skills and Productivity: Evidence from a Field Experiment in Retail*, May, Inter-American Development Bank.
- Probert, B. 2013, *Teaching-focused academic appointments in Australian universities: recognition, specialisation, or stratification?*, Discussion Paper 1, January.
- Prytz, A. 2020, 'Uni students with disabilities say remote learning must improve', *The Age*, 16 August.
- PwC (PricewaterhouseCoopers) 2020, *COVID-19 reveals need for more strategic approach to technology in education*, <https://www.pwc.com.au/government/government-matters/technology-in-education-strategic-approach-COVID-19.html> (accessed 7 March 2022).
- QAA (Quality Assurance Agency for Higher Education) 2003, *Learning from Subject Review: 1993-2001*, Quality Assurance Agency for Higher Education, Gloucester.
- QAA Scotland (Quality Assurance Agency for Higher Education (Scotland)) 2017, *Enhancement-Led Institutional Review Handbook*, April.
- QILT 2020, *Transparency in Higher Education Expenditure*, <https://www.qilt.edu.au/general/article/2020/11/04/third-news> (accessed 5 August 2022).
- 2021a, *Graduate incomes data*, QILT, <https://www.qilt.edu.au/general/article/2021/11/04/graduate-incomes-data> (accessed 26 August 2022).
- 2021b, *Graduate Outcomes Survey: National Report*, <https://www.qilt.edu.au/surveys/graduate-outcomes-survey-gos/> (accessed 25 May 2022).
- 2021c, *Student Experience Survey*, <https://www.qilt.edu.au/surveys/student-experience-survey-ses/> (accessed 24 May 2022).
- Quiggin, J. 2016, *Education: Excerpt from Economics in Two Lessons*, <https://johnquiggin.com/2016/12/29/education-excerpt-from-economics-in-two-lessons/> (accessed 8 August 2022).
- Riddell, W.C. and Song, X. 2017, 'The Role of Education in Technology Use and Adoption: Evidence from the Canadian Workplace and Employee Survey', *ILR Review*, vol. 70, no. 5, pp. 1219–1253.
- Ritchie, S.J. and Tucker-Drob, E.M. 2018, 'How Much Does Education Improve Intelligence? A Meta-Analysis', *Psychological Science*, vol. 29, no. 8, pp. 1358–1369.
- Robinson, M., Tomaszewski, W., Kubler, M., Johnstone, M., Clague, D., Zajac, T., Povey, J. and Salom, C. 2021, *The Student Equity in Higher Education Evaluation Framework*, Final Report, Institute for Social Science Research, The University of Queensland.
- Schultheiss, T., Pfister, C. and Backes-Gellner, U. 2018, *Rising tide effect or crowding out—does tertiary education expansion lift the tasks of workers without tertiary degree?*, Swiss Leading House 'Economics of Education' Working Paper 154, Zurich, Switzerland.
- SCRGSP (Steering Committee for the Review of Government Service Provision) 2022, *Report on Government Services 2022 - Part B Child Care Education and Training*, Productivity Commission, Canberra.
- Seet, P., Jones, J., Spoehr, J. and Hordacre, A. 2018, *The Fourth Industrial Revolution: the Implications of Technological Disruption for Australian VET*, National Centre for Vocational Education Research (NCVER).
- Services Australia 2022, *Student Start-Up Loan*.
- Shah, C., Richardson, P. and Watt, H. 2020, *Teaching 'out of field' in STEM subjects in Australia: Evidence from PISA 2015*, Discussion Paper, No. 511, Global Labor Organization.
- Siekmann, G. and Fowler, C. 2017, *Identifying Work Skills: International Approaches*, National Centre for Vocational Education Research (NCVER).
- Signor, L. and Moore, C. 2014, 'Open access in higher education—strategies for engaging diverse student cohorts', *Open Praxis*, vol. 6, no. 3, pp. 305–313.
- Smith, P.C. and Hamilton, B.K. 2015, 'The effects of virtual reality simulation as a teaching strategy for skills preparation in nursing students', *Clinical Simulation In Nursing*, vol. 11, no. 1, pp. 52–58.
- Smyth 2020, *20 years in the life of a small tertiary education system, Strategy, Policy, Analysis | Tertiary Education*, 18 August, <https://rogersmyth.com/20-years-in-the-life-of-a-small-tertiary-education-system/> (accessed 25 August 2022).
- Southgate, E., Blackmore, K., Pieschl, S., Grimes, S., McGuire, J. and Smithers, K. 2018, *Artificial intelligence and emerging technologies (virtual, augmented and mixed reality) in schools: A research report*, Commissioned by the Australian Government Department of Education, University of Newcastle, Newcastle.
- Spence, M. 1973, 'Job Market Signaling', *Quarterly Journal of Economics*, vol. 87, no. 3, p. 355.
- Stone, C. 2017, *Opportunity Through Online Learning: Improving Student Access, Participation and Success in Higher Education*, National Centre for Student Equity in Higher Education (NCSEHE).
- 2019, 'Online learning in Australian higher education: opportunities, challenges and transformations', *Student Success*, vol. 10, no. 2, pp. 1–11.
- and O'Shea, S. 2019, 'Older, online and first: recommendations for retention and success', *Australasian Journal of Educational Technology*, vol. 35, no. 1, pp. 57–69.
- Strahle, G. 2016, *Longer school hours could help children's education in music*, <https://musicaustralia.org.au/2016/08/longer-school-hours-could-help-childrens-education-in-music/> (accessed 23 March 2022).
- Stroud, G. 2022, 'I can't stay. It's not enough': why are teachers leaving Australian schools?', *The Guardian*.
- Students, O. for 2018, *TRAC data - Office for Students*, Office for Students, <https://www.officeforstudents.org.uk/data-and-analysis/trac-data/> (accessed 3 August 2022).
- Suhoonen, T. and Karhunen, H. 2019, 'The intergenerational effects of parental higher education: Evidence from changes in university accessibility', *Journal of Public Economics*, vol. 176, pp. 195–217.
- Tasmanian eSchool 2022, *History*, <https://www.tasmanianeschool.education.tas.edu.au/our-school/history/> (accessed 26 July 2022).



- Tehan 2020, *Higher Education Support Amendment (Job-Ready Graduates and Supporting Regional and Remote Students) Bill 2020: Second Reading*.
- TEQSA (Tertiary Education Quality and Standards) 2017a, *Characteristics of Australian Higher Education Providers and their Relation to First-Year Student Attrition*.
- 2017b, *Guidance Note: Academic Quality Assurance*, 10 November.
- 2019, *Guidance Note: Nested Courses of Study*, Text, Tertiary Education Quality and Standards Agency.
- 2020, *Good Practice Note: Improving Retention and Completion of Students in Australian Higher Education*.
- 2022a, *2021 Compliance Report Case Study: Wages Underpayment*, <https://www.teqsa.gov.au/latest-news/publications/2021-compliance-report-case-study-wages-underpayment> (accessed 10 August 2022).
- 2022b, *Compliance Report 2021*, Tertiary Education Quality and Standards Agency, Melbourne.
- 2022c, *National Register*, <https://www.teqsa.gov.au/national-register> (accessed 26 August 2022).
- Terada, Y. 2020, 'A Powerful Model for Understanding Good Tech Integration', *Edutopia*.
- The Smith Family 2017, *Without access to computers and the internet, disadvantaged students are getting left behind*, <https://www.thesmithfamily.com.au/stories/family-news/digital-divide> (accessed 2 August 2022).
- The University of Melbourne 2022, *Fees and Payments*.
- The University of New England 2022, *2022 Undergraduate Domestic Full Fees*.
- Thomson, S. 2020, *What PISA tells us about our preparedness for remote learning*, [https://research.acer.edu.au/columnists\\_sue\\_thomson/7/](https://research.acer.edu.au/columnists_sue_thomson/7/) (accessed 15 July 2022).
- and Hillman, K. 2019, *The Teaching and Learning International Survey 2018*, Australian Council for Educational Research.
- Toft Hansen, A., Hvidman, U. and Sievertsen, H.H. 2021, *Grades and Employer Learning*, IZA Discussion Paper No. 14200.
- Treasury and Department of Home Affairs 2018, *Shaping a nation: Population growth and immigration over time*.
- UK Academies Commission 2013, *Unleashing greatness: Getting the best from an academised system*, Report of the Academies Commission, Pearson/RSA.
- UK Department of Education 2021, *Review of time in school and 16 to 19 settings*, <https://www.gov.uk/government/publications/review-of-time-in-school-and-16-to-19-settings> (accessed 21 September 2022).
- 2022, *Minimum expectation on length of the school week*, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1063520/Minimum\\_expectation\\_for\\_length\\_of\\_school\\_week\\_-\\_information\\_note.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063520/Minimum_expectation_for_length_of_school_week_-_information_note.pdf) (accessed 21 September 2022).
- UK Government 2022, *The power of music to change lives: A National Plan for Music Education*.
- Universities Australia 2020, *2020 Higher Education Facts and Figures*.
- Varaprasad, N. 2021, 'Vocational Education and Training in Singapore', in Symaco, L.P. and Hayden, M. (eds), *International Handbook on Education in South East Asia*, Springer Singapore, Singapore, pp. 1–25.
- Victorian Department of Education 2020, *School operations: Privacy and Information Sharing*, <https://www2.education.vic.gov.au/pal/privacy-information-sharing/guidance/privacy-impact-assessments> (accessed 3 August 2022).
- Vivian, S. 2022, 'An education revolution is taking hold in remote Arnhem Land', *ABC News*, 24 June.
- Vlies, R. van der 2020, *Digital strategies in education across OECD countries: Exploring education policies on digital technologies*, OECD.
- VSV (Virtual School Victoria) 2022, *About Us*, <https://www.vsv.vic.edu.au/our-school/about/> (accessed 26 July 2022).
- Walach, E. 2022, *Radiology redefined: How Technology is transforming medical imaging*, <https://www.radiologytoday.net/archive/WebEx0518.shtml> (accessed 11 August 2022).
- Warburton, M. 2021, *The rhetoric and reality of Job-ready Graduates*, <https://melbourne-cshe.unimelb.edu.au/fellow-voices/the-rhetoric-and-reality-of-job-ready-graduates> (accessed 1 August 2022).
- Weale, S. 2021, 'Schools minister refuses to rule out longer school days in England', *The Guardian*.
- Weldon, P. 2016, *Out-of-field Teaching in Australian Secondary Schools*, Policy Insights, Australian Council for Educational Research.
- Wellings, Black, Craven, Freshwater and Harding 2019, *Performance-Based Funding for the Commonwealth Grant Scheme*, Final Report, <https://www.dese.gov.au/higher-education-reviews-and-consultations/resources/final-report-performance-based-funding-commonwealth-grant-scheme> (accessed 27 July 2022).
- Wheelahan, L. and Moodie, G. 2011, *Rethinking Skills in Vocational Education and Training: From Competencies to Capabilities*, NSW Department of Education & Communities.
- White, D. 2022, 'Eight NSW schools to trial extended operating hours', *Sydney Morning Herald*, 10 May.
- White, I. and Rittie, T. 2022, *Upskilling and reskilling: the impact of the COVID-19 pandemic on employers and their training choices*, 3 February, NCVER.
- Wibrow, B. 2022, *VET and Higher Education Pathways – Do Outcomes Differ for the Same Occupation?*, Research Report, National Centre for Vocational Education Research (NCVER).
- , Circelli, M. and Korbel, P. 2020, *VET's Response to Industry 4.0 and the Digital Economy: What Works*, National Centre for Vocational Education Research (NCVER).
- Wilson, R. 2021, *A school system tailored to individual ability rather than age sounds good, but there's no evidence it works*, *The Conversation*.
- Worth, J. 2016, *Analysis of Academy School Performance in 2015 (LGA Research Report)*, National Foundation for Educational Research, Slough.
- Xu, D. and Xu, Y. 2019, *The Promises and Limits of Online Higher Education*, American Enterprise Institute.
- Zacharias, N., Cherednichenko, B., Ryan, J., George, K. and Gasparini, L. 2016, *Moving Beyond 'Acts of Faith': Effective Scholarships for Equity Students*, Final report submitted to the National Centre for Student Equity in Higher Education.
- Zhao, Y. and Watterston 2021, 'The changes we need: Education post COVID-19', *Journal of Educational Change*, vol. 22, pp. 3–12.