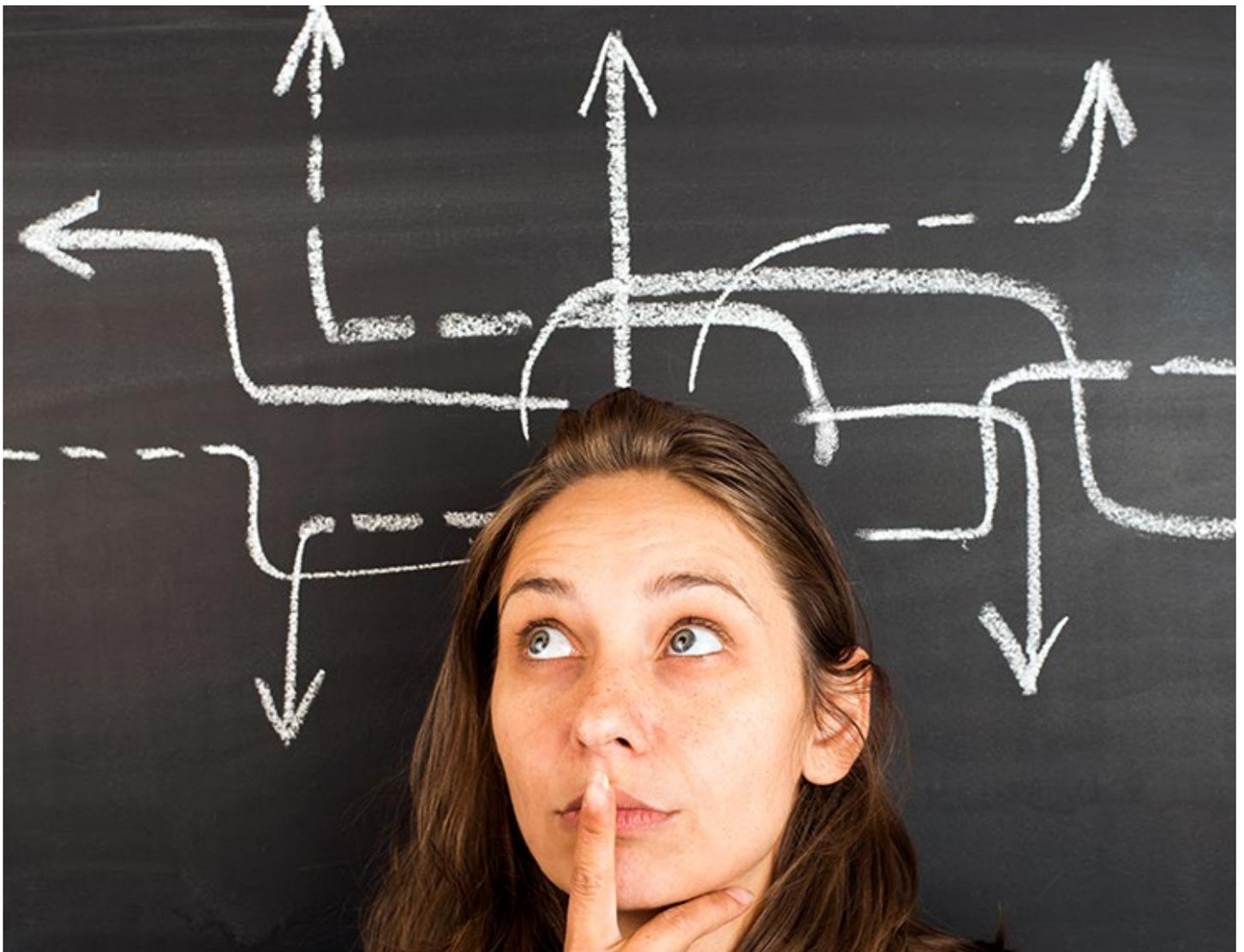


The impact of increasing university participation on the characteristics of apprentices

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About the research

The impact of increasing university participation on the characteristics of apprentices

Joanne Waugh, Cameron Forrest, Kate Dowling, NCVET

Apprenticeships remain an important source of skilled workers in Australia; however, commencements have not kept pace with the skills demand projected in the previous decade. During that same decade, undergraduate university enrolments grew considerably. In investigating whether young people who would previously have chosen an apprenticeship have instead entered university, this study uses data from the Longitudinal Surveys of Youth (LSAY) to compare the characteristics of apprenticeship-bound young people with those who are university-bound and to determine whether the characteristics have changed between 2007 and 2019.

For this study, the term ‘apprenticeship’ denotes an Australian Apprenticeship, that is an apprenticeship or traineeship and a learning pathway that combines paid on-the-job training with formal study with a registered training organisation (RTO) under a contract of training.

Key messages

- The profile of a young person who is likely to undertake an apprenticeship rather than enter university has remained largely unchanged since 2007. This analysis did not reveal any large-scale relative change in the characteristics of young people entering apprenticeships or university, although there may be effects not captured by this study.
- Those more likely to undertake an apprenticeship than enter university in 2019 were those with the following characteristics: male, Aboriginal and Torres Strait Islander, Australian-born, speak English at home, have attended a government school, or reside regionally and rurally.
- Conversely, individuals who scored higher on Programme for International Student Assessment (PISA) mathematics or reading achievement tests at the age of 15, as well as those from higher socioeconomic backgrounds at the same age, were more likely to pursue higher education.
- Migrants and first-generation Australians have become less likely than Australian-born young people to undertake an apprenticeship than attend university.
- More young people are selecting university study but there remains a significant pool of young people who may be attracted to apprenticeships through targeted career education and improved matching of career aspirations to study pathways.
- Employer demand for apprentices plays a large part in boosting apprenticeship numbers, meaning that strategies to sustain employer interest in offering apprenticeships are likely to complement career education efforts.

Simon Walker
Managing Director, NCVET

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Executive summary

Since 2012, until a recent surge during the latter stages of the COVID-19 pandemic, apprenticeship commencements have been in decline (NCVER 2023a). Not only were commencements declining, but the training rate in 2016 was well below the 2002 level, despite considerable employment growth in the period (Karmel 2017). This period of apprenticeship decline coincided with an increase in university enrolments, attributed to the introduction of the demand-driven system (DDS), which uncapped funding and expanded university access during the period 2012–17.

Some commentators have theorised that the policy designed to increase access to university has also played a role in reducing the pool of young people who would otherwise have taken up apprenticeships (see, for example, Noonan & Pilcher 2017; Gore, Ellis et al. 2017). Research by Karmel, Roberts and Lim (2014) set out to investigate this theory not long after the demand-driven system had been initiated. Their research, which focused on male trade apprentices, found that the growth in university participation arose from academically lower-performing young men from higher socioeconomic status (SES) backgrounds. They also found that apprenticeship-bound and university-bound young men were two distinct groups, in terms of demographic characteristics.

With concerns about shortages in apprentice-skilled occupations still current, this study revisits the work of Karmel and colleagues by using data from the Longitudinal Surveys of Australian Youth (LSAY) to compare the characteristics of 19-year-olds who chose either an apprenticeship or university pathway. For the purpose of this study, the term ‘apprenticeship’ refers to an Australian Apprenticeship, that is an apprenticeship or traineeship and a learning pathway that combines paid on-the-job training with formal study with a registered training organisation (RTO) under a contract of training. LSAY begins when participants are aged 15 years, with this study using data from the 2003 (Y03); 2006 (Y06); 2009 (Y09); and 2015 (Y15) commencing cohorts. The only LSAY cohort who made an initial post-school pathway choice during the period of the demand-driven system and expanded university places was the 2009 (Y09) commencing cohort, in 2013.

We focus on 19-year-olds for three reasons. Firstly, school leavers represent the new supply of future workers, so their post-school choices are an important indicator of future workforce skills: when we think about the supply of potential apprentices we tend to think of young people. Secondly, those aged under 20 years represent the largest share of domestic undergraduate university enrolments (Department of Education 2023). Thirdly, the LSAY collects data until the of age 25, but survey participants without university education tend to drop out at higher rates as the survey progresses, which makes analysis of the apprentice cohort difficult.

Karmel, Roberts and Lim’s (2014) investigation of the university impact on the pool of apprentices focused on male trade apprentices. In this study, we also include females and trainees because they comprise a significant and important segment of current activity and future skills demand. We also apply a different methodological approach to improve the interpretability of results. For these reasons, the results of this study are not directly comparable with those of Karmel, Roberts and Lim (2014).

Two separate analyses were conducted to answer the research questions. First, the characteristics of young people undertaking apprenticeships and those undertaking university in the Y15 cohort (the most recent LSAY cohort to turn 19 years) were compared. This provided a benchmark for comparing apprentice characteristics with earlier cohorts. The second analysis involved pooling all the LSAY cohorts to examine how characteristics identified in the first analysis may have changed over time.

Findings

In 2019, the young people more likely to undertake an apprenticeship than university by the age of 19 tended to have the following characteristics: male, Aboriginal and Torres Strait Islander, Australian-born, have attended a government school or had lower PISA¹ maths and English scores, were of lower SES or resided regionally and rurally. While this profile is unsurprising, what is interesting is the results of our study's second analysis, which reveals the characteristics that indicate a changed likelihood of undertaking an apprenticeship.

Since 2007, migrants and first-generation Australians have become less likely to undertake an apprenticeship than attend university. This might be explained by migrants' aspirations for themselves and their children, along with changing migration policy priorities across the period, an issue that will be explored further below. At the same time, those who speak a language other than English at home have become more likely to undertake an apprenticeship than attend university, which may be explained by an increasing population of Australians who speak a language other than English at home, regardless of recent migration status.

Has increased university participation changed apprentice characteristics?

The results of this study reveal that the change in the characteristics of young people who are likely to undertake an apprenticeship over a university pathway has not been substantial. One analysis of the additional students attracted to university by the demand-driven system indicated that they tended to be from lower-SES backgrounds and were lower academic achievers than past university entrants (Productivity Commission 2019). However, our study reveals no change to the likelihood of such young people choosing an apprenticeship, indicating that increased university access for lower socioeconomic youth appears not to have impacted on the pool of potential apprentices.

Young migrants and first-generation Australians have become less likely to undertake an apprenticeship than university, which may be a reflection of changing migration policy, whereby skilled migration is prioritised (Boucher & Davidson 2019). A larger share of skilled migrants than Australian-born citizens have completed a bachelor or higher qualification and we know that higher-educated parents tend to hold higher educational aspirations for their children than lower-education parents (Hornel & Ryan 2014). It is the children of those skilled migrants with high aspirations who have been captured by LSAY.

Overseas-born Australians made up approximately 13% of apprenticeship commencements in 2004 but represented a disproportionately larger share of commencements in Machinery operators and drivers (32.7%); Labourers (26.6%); and Community and personal service workers (25.2%) occupations (NCVER 2023a). The share of overseas-born commencements in those occupations have all fallen since 2004, even though Community and personal service workers and Labourers occupations are still predicted to have strong demand (National Skills Commission 2021). While migrants are not a large component of the pool of potential apprentices, sector-specific initiatives may be considered where attracting culturally diverse apprentices is viewed as valuable.

We must also recognise that many of the characteristics of young people did not change in this analysis and what this might signify. Young people have not become more or less likely to undertake an apprenticeship than attend university based on their gender, Indigenous status, geographic location, maths achievement or whether they attend public or private school. Given that a variety of policies and

¹ The Program for International Student Assessment (PISA) is an international assessment that measures 15-year-old students' reading, mathematics and science literacy every three years.

programs aimed at boosting commencements from some of these groups have been introduced, it may initially seem disheartening to learn that they have not become more likely to enter an apprenticeship.

That said, it is important to note that this analysis compared the characteristics of young people undertaking apprenticeships with those undertaking university studies at the age of 19. Any overall increase or decrease in participation from the cohorts included in the study would not be detected, only any relative change between university and apprenticeships.

Additionally, as discussed in more detail below, we know that some groups, such as women, more often commence apprenticeships later in life (age 25 years and over) and those choices are not reflected in this study of 19-year-olds (Holdsworth & Turner 2022; NCVET 2023a; Pope 2021; Productivity Commission 2020). Similarly, there may be cohorts not included in this study who have transferred their preferences towards or away from undertaking apprenticeships.

Concluding remarks

Research on the career choices of young people indicates that encouraging people with aspirations to attend university to consider apprenticeships is unlikely to be a productive strategy (Choy et al. 2021). Moreover, the significant proportion of the young people who do not go to university represent a pool of potential apprentices. Adolescents still tend to hold limited and ill-informed career aspirations for themselves, meaning there is scope for career education to influence the decision to take up an apprenticeship (Baxter 2017; De Bortoli 2021).

The career aspirations of young people are just one part of the picture: employer demand for apprentices is an influential factor in apprentice commencement numbers. The employer appetite to employ apprentices can wax and wane, according to policy, funding and broader economic conditions (Karmel 2017). The recent sharp rise in apprenticeship commencements in response to the Commonwealth's Boosting Apprenticeship Commencements initiative (BAC)² suggests that a pool of potential apprentices is available when employer demand increases; however, it must be noted that the pandemic created unique economic and labour market conditions, which may have amplified the attractiveness of apprenticeships. Investigating the balance of funding, conditions and supports that contribute to sustaining employer motivation to employ apprentices must form part of any strategy to attract young people to apprenticeships.

Should we be worried that increased access to university is reducing the availability of young people to take up apprentices? This study suggests not, although there are limitations to what this analysis could reveal. There are other groups of young people who may be making different choices who weren't captured by the LSAY variables. If the number of young people willing to undertake an apprenticeship has shrunk, other avenues that might explain that phenomenon could be explored, including investigating alternative paths to both apprenticeship and university, such as entering the workforce or not undertaking either work or study.

The overall population of young people is large enough to fill the available places in both further education pathways, implying perhaps that the question of whether young people remain attracted to apprenticeships reverts to the broader issue of appeal and opportunity. An apprenticeship must present an attractive pathway to young people, alongside their other options. Equally, for young people to take up apprenticeships there must be employers offering them and willing to support them. The question of how to ensure this is best answered in a paper more extensive than this.

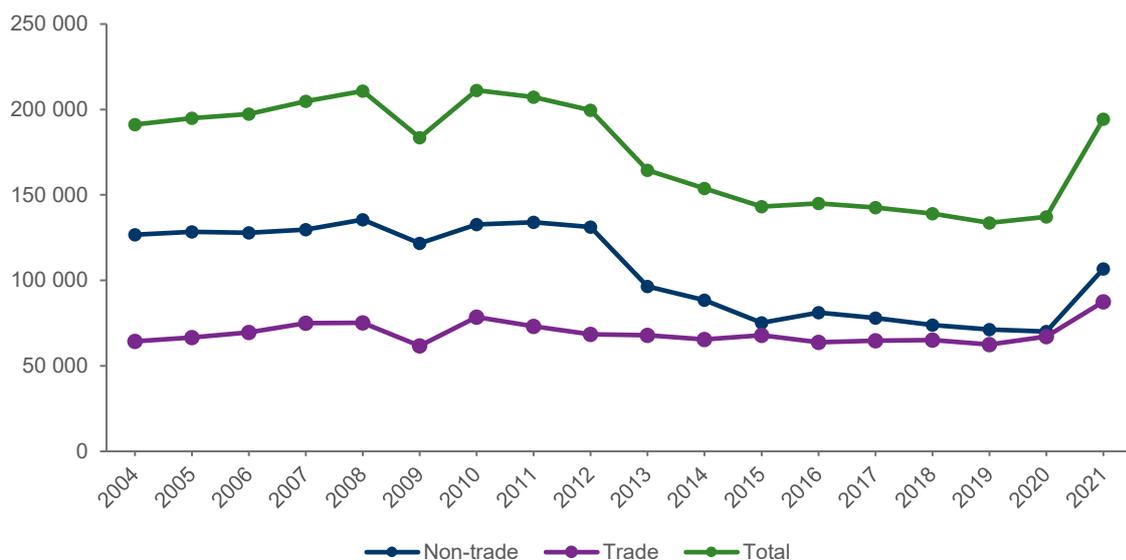
2 BAC was a time-limited measure during the economic recovery from the impacts of COVID-19. A 50% wage subsidy was paid to employers of new apprentices for the first year of the apprenticeship between 1 January 2022 and 30 June 2023.

Introduction

Based on evidence that further education leads to improved individual, social, health and economic outcomes, successive Australian governments have focused on increasing the proportion of Australians who attain education beyond secondary school. Both the higher education and vocational education sectors play vital roles in delivering in-demand skills and consequently, over the last two decades, each has been subject to policy interventions designed to increase participation and improve equity in access.

Despite these efforts, skills shortages in apprentice-skilled occupations have persisted (Stanwick, Ackehurst & Frazer 2021). Total apprentice numbers had been in steady decline between 2012 and 2021, after which various government initiatives designed to mitigate the adverse economic impact of the COVID-19 pandemic saw commencements rise (Department of Employment and Workplace Relations 2023; Productivity Commission 2020; Stanwick, Ackehurst & Frazer 2021). This period of decline coincided with a surge in university enrolments, with some commentators theorising that increased access to university had reduced the pool of young people who take up apprenticeships (Gore, Ellis et al. 2017, Noonan & Pilcher 2017).

Figure 1 Apprentice commencements by trade status, 2004–21



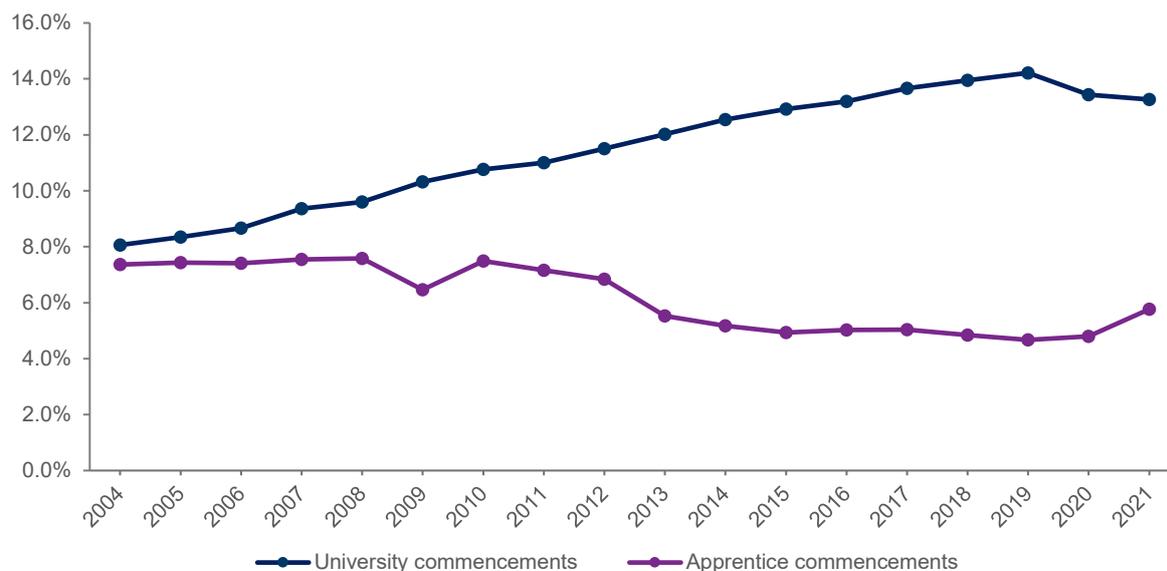
Note: Excludes existing and other workers.

Source: NCVET (2023a).

With the introduction of the demand-driven system, access to university was expanded between 2012 and 2017. This initiative, which was driven by recommendations of the Bradley review, uncapped student-based funding to universities. The intention was to increase access for non-traditional university students, such as those from lower socioeconomic backgrounds, as well as rural and remote, and Aboriginal and Torres Strait Islander students (Department of Education, Employment and Workplace Relations 2008).

Our first step is to examine higher education participation by the age of 19, this age group being the focus of our later analysis. Figure 2 shows that since 2004 the number of domestic undergraduate commencements aged 19 years and under has consistently risen (until the COVID-19 pandemic), while Australian Apprenticeship commencements for the same age group stagnated and fell until the recent rise during the COVID-19 pandemic. This occurred in the context of the Australian 19-year-old population slowly rising.

Figure 2 Estimated participation rate of 15- to 19-year-olds in apprenticeships and university, 2004–21*



Notes: 1. The estimated participation rate is the number of students with a usual residential address in an Australian state or territory, other Australian territories or dependencies and where the state/territory is Not known. Usual residential address refers to where the student usually resides rather than a temporary address to which a student relocates for training, work, or other purposes.
2. Apprentice data exclude existing and other workers. Based on students aged 19 and under.
3. University data are undergraduate enrolments in bachelor degree, associate degree and other undergraduate programs, aged 19 and under.

* At time of writing 2022 data were not available.

Source: 1. Population data: ABS (2023), Estimated resident population.

2. Apprentice data: NCVET (2023a).

3. University data: Department of Education, Skills and Employment – Higher Education Statistics Data Cube (uCube) 2023.

Concerns over young people being encouraged to undertake a university degree rather than an apprenticeship arise from a number of sources.

First, apprentice-skilled careers are predicted to remain in demand into the future, meaning that having a healthy supply of apprenticeship candidates is important (National Skills Commission 2021).

Second, some research has shown that young people who may have otherwise entered an apprenticeship are instead entering university and are performing less well than they might in an apprenticeship (Norton 2023); or that their admission has meant that the standard for some undergraduate programs has been lowered (Singhal 2018). These views were informed by evidence of lower completion rates associated with the lower academic achieving students and those from a lower-SES background who were attracted by increased university access (Productivity Commission 2019).

Finally, concerns over poorer achievement for students enticed to university who may otherwise have undertaken an apprenticeship is reflected in discussions of the causes of the decreased commencements and low completion rate of apprentices (approximately half do not complete; NCVET 2023b). For example, one explanation posited that the decline in apprenticeships was ‘potentially a decline in the quality of the apprenticeship applicant pool’, due to growth in higher education places and parental aspirations, among other factors (Noonan & Pilcher 2017, p.12). Employers have traditionally been largely satisfied with their apprentices, but that satisfaction has declined from a high of 83.3% in 2009 to 74.2% in 2021 (NCVET 2021), a period that aligns with increasing university attendance.

As noted earlier, NCVET conducted a study in 2014 to explore the possibility that young people who had previously been likely to do an apprenticeship were instead enrolling in university. Although that study focused on male trades apprentices, who represent only a portion of total apprenticeship activity today, it did identify the increased likelihood of lower academically performing young men from higher socioeconomic backgrounds attending university (Karmel, Roberts & Lim 2014). The more significant

finding from that analysis was that university-bound and apprenticeship-bound young men tended to be two distinct cohorts. Those with a propensity to attend university and who had higher academic achievement were less likely to undertake apprenticeships. Additionally, during the investigation period, 1995 to 2006, both university and apprenticeship commencements were rising (Karmel, Roberts & Lim 2014).

In the decade since that analysis, both the university and apprenticeship sectors have undergone much policy and contextual change. This study resumes where Karmel, Roberts and Lim (2014) left off and re-examines the sociodemographic characteristics that make young people more likely to undertake an apprenticeship than attend university. We have extended their work by including females and traineeships in our study.

The questions that guide our study are:

1. What are the characteristics of young people choosing apprenticeships compared with those who choose university?
2. Has increasing university participation changed the characteristics of apprentices and trainees? How and why has the observed change occurred?

Student choices relating to post-school pathway are complex and likely to be influenced by far more than the factors this study's analysis can hope to capture. In addition, there are broader social, policy and economic influences on the availability and accessibility of pathways, influences that extend beyond the scope of this study's analysis. Those factors will be explored further in the next section.

Background

Apprenticeship context

It is important to note that apprenticeships differ from university attendance in a very important way: they require an employer willing to offer a place to the potential apprentice. The place itself is very specific, in that it must align to the particular occupation of interest and it must also be available when and where a young person needs it. Any discussion of apprenticeship activity therefore necessitates a consideration of not only student choice but also of influences on the employer side, which can be myriad and complex (Nelms et al. 2017).

Trade apprenticeships, for example, are sensitive to broader economic conditions (Atkinson & Stanwick 2016), while traineeships tend to be more responsive to funding conditions. Stanwick, Ackehurst and Frazer (2021) provide an excellent overview of the many issues inhabiting the apprenticeship space, which can act to confound attempts to determine the cause of any one phenomenon observed in data.

This study is focused on the period 2007–19, a period during which many apprenticeship policies and programs were implemented to boost access and participation; for example, the introduction of Trade Support Loans in 2014; Indigenous Youth Careers Pathway Program in 2012; and Trades Women Australia from 2013. States and territories have complemented Commonwealth and industry body measures with their own initiatives, such as NSW's The Way Ahead for Aboriginal People, which functioned from 2007 to 2021. With so many public and private initiatives operating in the system, identifying a singular cause for apprenticeship activity change is always fraught, particularly for certain cohorts, whose educational choices may also be influenced by other social measures.

On occasions, government funding has impacted on apprenticeship activity in a quite straightforward manner. The latest evidence of this is the increase in apprenticeship commencements that flowed from the Commonwealth's Boosting Apprenticeship Commencements wage subsidy, implemented in 2020 to encourage the employment of apprentices during the COVID-19 pandemic economic downturn

(Department of Employment and Workplace Relations 2023). Under the initiative, employers and group training organisations were eligible for a subsidy of 50% of the wages paid to a new or recommencing apprentice or trainee for a 12-month period. In response, apprentice commencements rose from 169 830 in 2020 to 240 690 in 2022, a 29.4% increase (NCVER 2023a).

With the discontinuation of the BAC subsidy, time will tell whether this rise can be sustained. What this sharp rise does indicate, however, is that there seems to be a sufficient pool of potential apprentices to satisfy increased employer demand. Although we lack a good measure of apprenticeship vacancy, the Australian Bureau's (ABS) Survey of Employment and Work do collect some information on those who have applied for but not undertake an apprenticeship.

The ABS survey reveals that, in each year since 2013, approximately half of apprentice applicants were unsuccessful in gaining a contract of training. In 2022, 15.7% of apprentice applicants reported being unsuccessful due to a lack of positions, although this figure has been as high as 26.0%, in 2018 (ABS 2022). Although these data suggest that a supply of people who would be open to undertaking an apprenticeship exists, they may not necessarily be an appropriate fit to the industries and regions in which employers need them. A further caveat relating to this survey is that it was not applied to the same under 19-year-old cohort as this study.

The university context

The 2008 Bradley review triggered a significant reform of higher education funding (Atkinson & Stanwick 2016). A target suggested in the Bradley review was an increase in the number of 25- to 34-year-olds with at least a bachelor-level qualification to 40% by 2020 (from a starting point of 29%) (Department of Education, Employment and Workplace Relations 2008, p.xiv). The Australian Government's response for achieving this was to change the way in which funding was provided to universities.

Prior to 2010, the public funding provided to universities was capped and student places were restricted. Data showed that undergraduate enrolments had been trending down, despite unmet demand for places from students who were not accepted into university (Kemp & Norton 2014). The number of young people who could attend university was limited to the places available, a system that also served to restrict access for those from under-represented groups (Universities Australia 2023).

Following a trial period, commencing in 2010, the demand-driven system (DDS) was extended to all universities, in 2012. That policy continued until December 2017, when funding was frozen and remains so (Universities Australia 2023). One assessment of the effects of the DDS found that it had succeeded in increasing the share of young people at university by the age of 22 years from 53% in 2010 to 60% in 2016 (Productivity Commission 2019). That study also found that it was low-SES and 'first in family' students who comprised most of the additional students.

Universities Australia reported that the DDS had increased participation for:

- low-SES students by 66%
- Aboriginal and Torres Strait Islander students by 105%
- students with disability by 123%
- students from regional and remote areas by 50% (Universities Australia 2023).

An analysis from the Productivity Commission also revealed that the 'additional students' (those whose attendance can be ascribed to the DDS) typically had lower literacy and numeracy levels and a lower Australian Tertiary Admission Rank (ATAR) (most <70) compared with other students (Productivity Commission 2019).

The DDS was not, however, the only influence on university participation and completion during the inquiry period. Universities have also pursued general growth and, like vocational education and training

(VET) sector and apprentice initiatives, have sought to improve the participation of vulnerable and disadvantaged cohorts.

One such initiative was the establishment of the National Centre for Student Equity in Higher Education (NCSEHE), which was set up in 2013 to connect research, policy and practice to ‘improve higher education participation and success for marginalised and disadvantaged people’ (National Centre for Student Equity in Higher Education 2023). This body has undertaken extensive research with the aim of informing university practice with regard to promoting the retention and achievement of equity groups such as low-SES, Aboriginal and Torres Strait Islander and regional and remote students.

The evolving career aspirations of young people and prevailing social expectations must also be factored into interpretations of apprenticeship and university selection. We know also that university maintains a perceived higher status than vocational education. Vocational pathways continue to be viewed as less prestigious and valuable, and schools continue to celebrate high ATAR achievement, while VET achievement is overlooked (Billett, Choy & Hodge 2020; Gore, Ellis et al. 2017, Shergold et al. 2020).

A pattern generally observed is that apprentices tend to come from lower-SES levels and are lower academic achievers than university students (Norton & Cherastidtham 2019). Indeed, Karmel, Roberts and Lim (2014) found that academic achievement served as the best predictor of the post-school study pathway. Perhaps it is not reasonable to assume that the increase in university enrolments coming from lower-SES backgrounds and with lower school achievement has contributed to the reduction in the pool of potential apprentices.

This study aims to provide some insight into whether the demographic changes to university students have impacted on the types of young people likely to undertake apprenticeships.



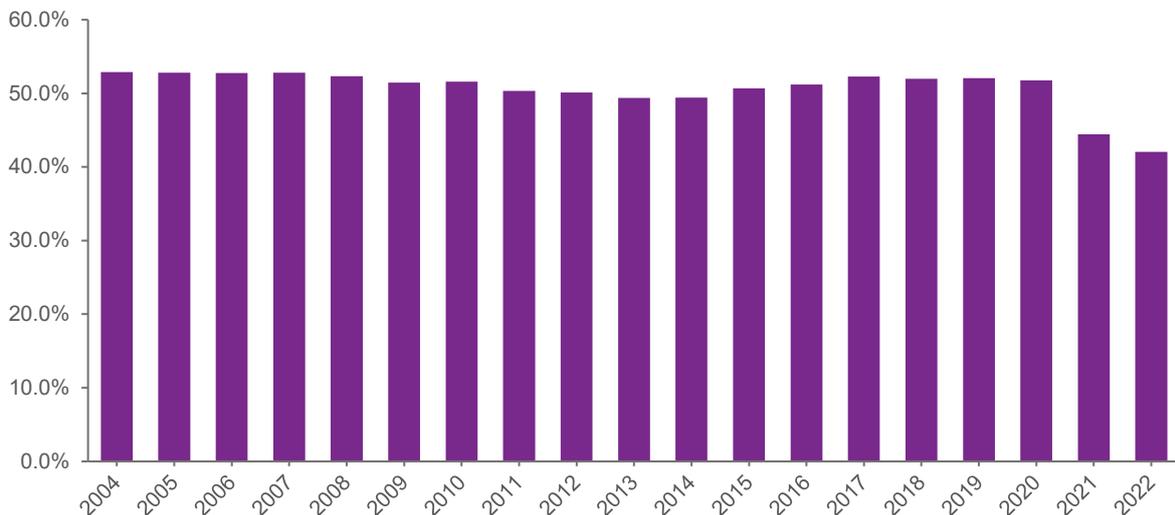
Methodology

Similar to the approach taken by Karmel, Roberts and Lim (2014), this study uses data from the Longitudinal Surveys of Australian Youth (LSAY).

Tracking young Australians over 10 years, from their mid-teens to mid-twenties as they move through school to further study, work and beyond, this study does not survey vocational education or university students specifically, but it does ask participants to report whether they have participated in either category at the time of collection. Additional demographic information is collected from participants, information that allows the survey to examine the characteristics of young people who have selected university and apprenticeships, and to investigate how those characteristics change over time.

LSAY provides the best view of young people’s academic achievement and eventual educational destination. However, using the LSAY dataset does restrict our analysis to young people, who have consistently made up approximately half of total apprentice commencements since 2004 (figure 3).

Figure 3 Proportion of apprentice commencements aged 19 years and under, 2004–22 (%)



Note: Excludes existing and other workers, and not knowns.
Source: NCVER (2023a).

It is possible to get a sense of what is happening to apprentice demographics by examining the under 19-year-old commencements in the National Apprentice and Trainee Collection; however, categories such as school achievement and migration status are not collected, meaning that the insight is more limited than in the LSAY data. Table 1 and Table 2 demonstrate that the demographics of trade and non-trade³ apprentices aged 19 years and under changed little between 2004 and 2021.

³ Trade occupations are classified as all occupations listed under the Australian and New Zealand Standard Classification of Occupations (ANZSCO) major group ‘3-Technicians and trades workers’. Non-trade occupations are classified as all other major occupations groups 1–2 and 4–8.

Table 1 Proportion of apprentice/trainee commencements aged 19 years and under in trade occupations by various demographics, 2004–21 (%)

Year	Males	Females	Language other than English spoken at home	Live in regional and remote areas	Indigenous	Completed Year 12	SEIFA (two lowest quintiles)	SEIFA (two highest quintiles)
2004	86.4	13.6	5.1	39.1	2.3	39.6	11.9	9.9
2005	86.5	13.5	4.8	39.8	2.5	40.0	13.7	11.3
2006	86.5	13.5	4.4	40.5	2.8	39.5	14.1	11.6
2007	86.0	14.0	4.4	40.2	2.8	38.6	14.9	12.6
2008	86.3	13.7	4.3	40.6	3.3	37.7	20.0	16.7
2009	84.6	15.4	4.5	41.4	3.2	38.8	25.3	20.6
2010	86.4	13.6	4.3	40.8	3.8	38.8	32.9	26.9
2011	86.4	13.6	4.7	39.1	3.8	41.0	41.2	35.0
2012	85.3	14.7	4.6	40.4	4.1	42.4	41.1	34.6
2013	84.8	15.2	4.7	39.8	4.4	44.8	41.0	35.3
2014	86.1	13.9	4.9	39.0	4.4	47.1	40.6	35.8
2015	87.3	12.7	5.1	37.7	4.4	48.3	40.4	36.0
2016	87.7	12.3	5.4	37.7	4.6	50.2	40.0	35.8
2017	88.3	11.7	5.4	39.2	5.0	50.2	40.9	35.8
2018	88.6	11.4	5.5	39.4	5.0	50.3	40.4	35.5
2019	88.1	11.9	5.5	41.8	5.4	49.2	39.8	36.1
2020	88.1	11.9	4.9	43.0	5.2	48.2	39.1	36.1
2021	87.8	12.2	4.9	42.3	5.6	44.7	39.0	36.4

Note: Excludes existing workers. High proportion of missing values for SEIFA 2004 to 2010.

Source: NCVET (2023a).

Among trade commencements, the proportion of males has held steady, while in non-trades the share of males has dropped slightly since 2004. For both trade and non-trade commencements, the share of Aboriginal and Torres Strait Islander peoples has grown, while the proportions of the highest and lowest socioeconomic groups have barely changed over time for both trades and non-trades.

Meanwhile, for those who speak a language other than English at home, live in regional and remote areas, and have completed Year 12, we see that a changed share in trade commencements has been balanced by a similar but opposite change in non-trade commencements. This indicates that differences in how the demographics have changed in trade and non-trade commencements may balance each other out when we conduct the LSAY analysis.

Table 2 Proportion of apprentice/trainee commencements aged 19 and under in non-trade occupations by various demographics, 2004 to 2021 (%)

Year	Males	Females	Language other than English spoken at home	Live in regional and remote areas	Indigenous	Completed Year 12	SEIFA (two lowest quintiles)	SEIFA (two highest quintiles)
2004	40.5	59.5	6.0	41.8	5.2	49.6	9.6	7.9
2005	39.5	60.5	6.1	40.7	5.0	49.8	14.6	10.8
2006	39.1	60.9	6.4	40.9	5.5	48.7	15.2	11.0
2007	38.1	61.9	7.1	40.2	6.0	48.1	15.1	11.2
2008	37.5	62.5	7.1	39.9	6.1	46.4	19.6	14.5
2009	37.7	62.3	6.9	40.6	6.1	47.2	22.7	17.9
2010	37.2	62.8	7.4	38.0	5.9	47.1	34.5	28.0
2011	36.9	63.1	8.1	35.7	6.9	47.8	42.2	35.7
2012	36.6	63.4	8.1	34.6	7.0	47.9	41.7	36.5
2013	36.9	63.1	7.3	37.9	7.7	48.3	44.0	33.7
2014	37.9	62.1	7.2	38.6	8.5	49.6	44.7	33.1
2015	38.6	61.4	7.0	38.0	8.4	49.9	43.8	33.4
2016	38.7	61.3	7.5	37.4	8.5	51.0	43.2	33.9
2017	39.3	60.7	7.2	38.3	9.4	49.1	43.4	33.1
2018	39.1	60.9	7.4	38.0	9.9	48.8	43.8	33.1
2019	38.5	61.5	7.1	38.4	10.5	48.3	43.1	33.0
2020	36.7	63.3	6.8	39.9	9.7	47.7	42.3	33.8
2021	36.2	63.8	7.2	38.6	9.5	45.0	42.2	34.7

Note: Excludes existing workers. High proportion of missing values for SEIFA 2004 to 2010. SEIFA stands for socio-economic indexes for areas.

Source: NCVET (2023a).

To compare the characteristics of apprenticeship- with university-bound youth over the last 20-year period, this study used data from the 2003 (Y03); 2006 (Y06); 2009 (Y09); and 2015 (Y15) commencing cohorts. Note that there was no LSAY cohort in 2012, which leaves a larger, six-year, gap between the final two cohorts.

The research question was informed by concerns that the pool of potential apprentices has been negatively impacted by greater availability of university access to young people. For that reason, we chose to look at which category of further education young people had chosen to undertake by the age of 19 years. Furthermore, the response rates of young people who do not undertake a university pathway tend to drop off in the latter years of LSAY data collection.

The ever-decreasing size of the apprenticeship-bound cohort, which is already smaller than that of the university-bound cohort, would make meaningful comparison across the selected variables difficult. This study compared the characteristics of 19-year-olds whose first post-school pathway was either an apprenticeship or university in the years: 2007, 2010, 2013 and 2019.

Two separate analyses were conducted to answer the research questions. First, the characteristics of young people in the Y15 cohort (the most recent LSAY cohort to turn 19 years) who chose apprenticeships were compared with those who chose university. This provided a benchmark for comparing apprentice

characteristics with earlier cohorts. The second analysis combined the earlier LSAY cohorts with the Y15 cohort to examine how characteristics identified in the first analysis may have changed over time.

The data from the LSAY Y09 (2013) cohort is the only group whose members made their post-school pathway choices during the DDS. The analysis models we constructed to examine the effects of time were all linear. That is, ‘significance’ is determined by whether there’s a trend across all cohorts, from 2007 to 2019; it does not test for any unique activity in the Y09 data relative to the other cohorts.

Analysis 1: the characteristics of apprentices in 2019

The variables used for comparison are presented in table 3. Note that some items are only collected in the first year and so are described as ‘at age 15’. To investigate the characteristics of young people undertaking apprenticeships compared with those choosing university, a new set of variables was derived using the LSAY Y15 dataset to identify the first pathway taken by respondents by the age of 19 years.

Respondents were classified as having first chosen to pursue an apprenticeship, or having first chosen to pursue higher education, or neither. Following classification, a logistic regression model was constructed using only those respondents who chose either an apprenticeship or higher education, with the specific distinction used as the binary outcome variable.

Table 3 Variables used for comparing likelihood of going to university rather than commencing an apprenticeship

Variable	Levels
Sex	Male, Female
Indigenous status	Yes, No
Immigration status	Australian-born, First generation, Foreign-born
Language spoken at home	English, Other
School sector at age 15 years	Catholic, Government, Independent
Geographic location of school at age 15	Provincial, Remote, Metropolitan
Mathematics achievements	Continuous^
Reading achievement	Continuous^
Socioeconomic status (SES) at age 15	Continuous^

Note: ^ normalised and mean-centred.

Of the 19-year-olds in the LSAY Y15 cohort, 316 young people first selected an apprenticeship, with 1956 young people who first selected higher education. Table 4 presents demographic breakdowns for the respondents. These do not provide an indication of where significant differences lie but are presented to give insight into ‘typical’ apprentices and trainees, versus higher education students. For example, the table demonstrates that apprentices/trainees are skewed to favour males, while higher education students were a more even split of the sexes.

For interpretability, continuous measures (that is, mathematics achievement, reading achievement and socioeconomic status) have been grouped into quartiles.

Table 4 Descriptive statistics for apprentices/trainees and higher education students at age 19 years (2019) with associated confidence intervals, LSAY Y15 cohort

Variable	Level	Apprentices / Trainees (N = 316)			Higher education students (N = 1956)		
		%	95% CI Lower	95% CI Upper	%	95% CI Lower	95% CI Upper
Sex	Female	32.9	24.5	41.3	55.3	52.1	58.4
	Male	67.1	58.7	75.5	44.7	41.6	47.9
Indigenous status	Indigenous	9.9	3.8	16.0	2.0	1.4	2.6
	Non-Indigenous	90.1	84.0	96.2	98.0	97.4	98.6
Immigration status	Australian-born	71.4	63.5	79.2	50.5	47.3	53.6
	First generation	22.6	15.8	29.3	33.9	30.9	36.9
	Foreign-born	6.1	1.2	10.9	15.6	13.2	17.9
Language spoken at home	English	95.1	91.6	98.6	86.8	84.6	89.1
	Other	4.9	1.4	8.4	13.2	10.9	15.4
School sector	Catholic	23.6	16.6	30.6	27.5	24.7	30.3
	Government	66.3	58.3	74.2	46.7	43.6	49.9
	Independent	10.1	6.0	14.3	25.7	23.2	28.3
Geographic location	Provincial	37.9	28.8	47.0	18.8	16.2	21.5
	Remote	2.5	1.1	3.9	0.8	0.4	1.2
	Metropolitan	59.6	50.4	68.7	80.4	77.7	83.1
Mathematics achievement	Highest quartile	11.9	7.6	16.2	44.6	41.6	47.6
	Third quartile	24.7	17.6	31.8	29.4	26.6	32.3
	Second quartile	28.9	20.4	37.4	17.8	14.9	20.6
	Lowest quartile	34.5	25.1	43.9	8.2	5.6	10.8
Reading achievement	Highest quartile	11.8	5.7	17.8	44.0	41.1	47.0
	Third quartile	24.4	17.4	31.5	28.2	25.4	31.0
	Second quartile	26.1	18.6	33.6	18.5	15.7	21.4
	Lowest quartile	37.7	28.3	47.2	9.2	6.4	12.0
Socioeconomic status	Highest quartile	12.2	7.3	17.1	39.9	37.0	42.9
	Third quartile	23.4	16.9	29.9	27.7	25.0	30.4
	Second quartile	40.2	30.5	50.0	19.3	16.7	22.0
	Lowest quartile	23.8	16.5	31.1	12.2	9.7	14.7
	Unknown	0.4	0.0	1.1	0.8	0.0	1.7

Analysis 2: the changing characteristics of apprentices

Increasing university participation cannot be construed as a predictor variable alongside other LSAY data. That said, having multiple LSAY cohorts as a basis for comparison provides insight into how the characteristics of apprentices and trainees have changed with increasing university participation. This does not allow the effect of increasing university participation on the characteristics of apprentices and trainees to be quantified; however, if the relationship between demographic characteristics and the likelihood of becoming an apprentice or trainee has changed over time, it can be inferred that increasing university participation has had some effect.

To examine how the characteristics of apprentices and trainees have changed over time, data from the LSAY cohorts that commenced in 2003 (Y03); 2006 (Y06); and 2009 (Y09) were combined with Y15 data. A logistic regression model was then constructed to replicate that created from the Y15 data alone, which produced a dichotomous outcome variable based on whether respondents first pursued an apprenticeship versus higher education, predicted from a combination of demographic factors.

For this model, the additional variable of time was added, with dummy values reflecting the distance between the cohorts. For Y03, the value of the time variable was 1; for Y06, the value was 2; for Y09, the value was 3; and for Y15, the value was 5 (because the gap between the Y15 cohort and the Y09 cohort was twice as long as the gaps between the other cohorts).

Four separate models were created, with output from the final model reported in the 'Results' section. Standard model fit criteria (that is, AIC, -2 Log L) were used to assess improvements from previous models as additional predictors were added.

The first model contained no time effect and was used as a basis of comparison to ensure that the addition of time variables improved the model's ability to fit the data. The second model introduced a time (that is, cohort) effect. The third model introduced interaction terms between the time variable and the demographic variables; significant interactions between time and other predictors indicate that the ability of these variables to predict the likelihood of becoming an apprentice or trainee, as opposed to a higher education student, has changed over the period represented by the LSAY cohorts.

As some of these interactions were non-significant, the final model included only the significant effects from the third model. At each stage, model fit criteria indicated improvements in the overall fit of the model to the data from the previous model.

Limitations

A far smaller number of LSAY participants participated in apprenticeships by comparison with attending university by the age of 19 years, an issue that limited the feasibility of looking at some characteristics (for example, disability) due to very small numbers.

Although other items were also collected, they are self-reported in a way that makes the interpretation of results unreliable. For example, the LSAY data do not facilitate reliable identification of school-based apprenticeship activity as survey respondents would need to correctly report in a free-text response that the VET activity they undertook was linked to a contract of training. The unreliability of these data is unfortunate because it may have allowed the analysis to examine the correlation between school-based apprenticeship participation and the likelihood of commencing university by the age of 19 years.

Furthermore, separating trade from non-trade apprenticeship activity in the LSAY data is fraught, due to not only the open-response self-report mechanism used to collect the data but also the further division of the already smaller cohort of apprentices in the data. We know that trade and non-trade activity tends

to respond differently in the same conditions (Stanwick, Ackehurst & Frazer 2021) and that student characteristics vary between the two contract of training types (Gore et al. 2017), so grouping them together has potentially limited what can be gleaned from the analysis.

The results of this analysis enable us to report the likelihood of a young person with certain characteristics choosing an apprenticeship over university. But these results did not allow us to determine definitively the cause of those changes, nor to claim that those changes mean any additional university enrolments have originated from or returned to the pool of potential apprentices. The analysis shows trends, and those trends must be interpreted within the complex and ever-changing context in which young people make their decisions to pursue either an apprenticeship or a university pathway. Those complexities were explored in the 'Background' section of this report.

Finally, although this analysis used LSAY data and was restricted to examining educational choice by the age of 19 years, the majority of apprenticeship commencements occur after that age, meaning that the analysis does not provide a complete picture of the characteristics of all apprentices.



Results

Analysis 1: the characteristics of apprentices in 2019

The results of the first analysis are presented in table 5. While all predictors were significantly associated with the outcome variable, one categorical comparison (attending a Catholic versus an Independent school) was not significant.

Table 5 Logistic regression for predicting apprenticeship versus higher education, LSAY Y15 cohort (2019)

Variable	Level	Sig	Odds ratio	95% CI lower bound	95% CI upper bound
Sex	Male	< .0001	3.763	2.828	5.007
	Female	(Reference category)			
Indigenous status	Indigenous	.0003	2.933	1.639	5.247
	Non-Indigenous	(Reference category)			
Immigration status	Australian-born	< .0001	6.243	3.558	10.956
	First generation	< .0001	3.600	2.036	6.365
	Foreign-born	(Reference category)			
Language spoken at home	English	.0078	2.134	1.221	3.728
	Other	(Reference category)			
School sector	Catholic	.1956			
	Government	.0011	1.933	1.302	2.869
	Independent	(Reference category)			
Geographic location	Provincial	.0169	1.429	1.066	1.916
	Remote	.0482	2.760	1.008	7.558
	Metropolitan	(Reference category)			
Mathematics achievement	(Continuous)	< .0001	0.468	0.375	0.585
Reading achievement	(Continuous)	< .0001	0.580	0.467	0.722
Socioeconomic status	(Continuous)	< .0001	0.570	0.486	0.669

Notes: 1. Outcome is the likelihood of first choosing to pursue an apprenticeship over higher education.
2. Odds ratios not reported where effect is non-significant ($p > .05$).

Significance tests are sensitive to sample size, such that larger sample sizes are likely to result in significant differences even where differences are relatively small. Odds ratios (OR) have therefore been included to provide a measure of the relative size of each effect.

ORs above one (1) indicate a greater likelihood of choosing to undertake an apprenticeship or traineeship rather than higher education, relative to a reference category, while ORs below one indicate a lesser likelihood. For example, an odds ratio of 3.763 indicates that, in the LSAY Y15 cohort, males were 3.763 times more likely than females to pursue an apprenticeship than higher education.

The 95% confidence intervals (CI) provide a measure of the reliability of an odds ratio when generalising results from the LSAY sample to the population from which they have been derived; if 100 confidence intervals were produced from samples, 95 would contain the 'true' value from the population.

The way to interpret table 5 is therefore as follows: in the LSAY Y15 cohort, Aboriginal and Torres Strait Islander respondents were 2.933 times more likely than non-Indigenous respondents to pursue an apprenticeship than higher education; the confidence intervals indicate with 95% confidence that Aboriginal and Torres Strait Islander 19-year-olds in 2019 were between 1.639 times and 5.247 times more likely to pursue an apprenticeship than higher education.

The confidence intervals are wide for some categories, and this can be explained by the small number of participants who fell into those categories. When we generalise findings from a very small group to report findings about a very large group, the confidence interval will be wider. While there is some room for interpretation about the size of the effects reported, we can be confident about the direction of the effects.

According to the results of the first analysis, as of 2019, the demographics indicating the likelihood of an individual pursuing an apprenticeship rather than higher education were that they were: male; Aboriginal and Torres Strait Islander; Australian-born or first generation (as opposed to foreign-born); speak English at home (as opposed to a language other than English); are from government schools (as opposed to Independent schools), or from rural or remote (rather than metropolitan) areas.

Conversely, individuals who scored higher on PISA mathematics or reading achievement tests at the age of 15 years, as well as those from higher socioeconomic backgrounds at that age, were less likely to pursue apprenticeships (that is, more likely to pursue higher education).

Analysis 2: the changing characteristics of apprentices

Table 6 and Table 7 give the output from the final model; that is, the model that included only the significant effects once cohort interactions were added. Table 6 displays the results of significance tests for overall and category effects, while table 7 displays odds ratios for cross-cohort comparisons.

To summarise, the effects of all predictors from the Y15-only model remained significant when data from the three other cohorts were added, indicating some consistency in their ability to distinguish, over time, between apprentices/trainees and higher education students.

However, there were significant interactions between time and immigration status; language spoken at home; the particular school sector at the age of 15 years; prior reading achievement; and socioeconomic status. The interactions between time and gender, Indigenous status, geographic location at the age of 15 years, and mathematics achievement were not significant.

The lack of change observed in many of the characteristics included in this study does not mean that increased university participation has exercised zero effect; however, it does mean that there are no discernible differences in those categories when comparing apprentices and university students in 2019 with those in the earlier cohorts. It is possible that, for some cohorts, any change in likelihood to undertake an apprenticeship has been mirrored in likelihood to attend university.

Table 6 Significance tests for logistic regression predicting apprenticeship versus higher education, age 19 years, LSAY Y03–Y15 cohorts

Variable	Level	Sig.
Sex (ref. = Female)	Male	< .0001*
Indigenous status (ref. = Non-Indigenous)	Indigenous	< .0001*
Immigration status (ref. = Foreign-born)	Australian-born	< .0001*
	First generation	< .0001*
Language spoken at home (ref. = Other)	English	.0093*
School sector (ref. = Independent)	Catholic	.1789
	Government	.0004*
Geographic location (ref. = Metropolitan)	Provincial	< .0001*
	Remote	.092
Mathematics achievement	(Continuous)	< .0001*
Reading achievement	(Continuous)	< .0001*
Socioeconomic status	(Continuous)	< .0001*
Cohort (ref. = Y15)	Y03	.5682
	Y06	.0812
	Y09	.6545
Immigration status*Time (ref. = Foreign, Y15)	Aus, Y03	.0056*
	Aus, Y06	.0006*
	Aus, Y09	.0058*
	First gen, Y03	.0032*
	First gen, Y06	.0043*
	First gen, Y09	.0084*
Language spoken at home*Time (ref. = Other,	English, Y03	.0228*
	English, Y06	.0076*
	English, Y09	.004*
School sector*Time (ref. = Independent, Y15)	Catholic, Y03	.0007*
	Catholic, Y06	.1808
	Catholic, Y09	.8361
	Government, Y03	.6687
	Government, Y06	.9843
	Government, Y09	.4643
Reading achievement*Time (ref. = Y15)	Y03	.1947
	Y06	.1677
	Y09	.0011*
Socioeconomic status*Time (ref. = Y15)	Y03	.2606
	Y06	.2733
	Y09	.3888

Notes: 1. Outcome is likelihood of first choosing to pursue an apprenticeship over higher education.
2. Significant results were those where p-value <0.05, indicated by *.

Table 7 Odds ratio estimates for logistic regression predicting apprenticeship versus higher education, age 19 years, LSAY Y03–Y15 cohorts

Effect	Cohort	OR Estimate	95% CI Lower	95% CI Upper
Male vs female	-	3.498 [#]	3.154	3.881
Indigenous vs Non-Indigenous	-	1.836 [#]	1.367	2.467
Australian born vs Foreign-born	Y03	2.667*	1.880	3.783
	Y06	2.079*	1.424	3.037
	Y09	2.588*	1.745	3.840
	Y15	6.837	3.874	12.064
First-generation vs Foreign-born	Y03	1.318*	0.875	1.985
	Y06	1.395*	0.952	2.043
	Y09	1.485*	0.993	2.219
	Y15	3.830	2.148	6.830
English vs LOTE	Y03	4.743*	3.098	7.263
	Y06	5.422*	3.571	8.234
	Y09	6.244*	3.828	10.186
	Y15	2.098	1.200	3.669
Catholic vs independent	Y03	3.126*	2.429	4.023
	Y06	0.940	0.699	1.263
	Y09	1.266	0.937	1.710
	Y15	1.337	0.875	2.042
Government vs independent	Y03	1.814	1.367	2.408
	Y06	2.025	1.553	2.640
	Y09	1.688	1.286	2.216
	Y15	2.015	1.366	2.974
Provincial vs metropolitan	-	1.468 [#]	1.321	1.631
Remote vs metropolitan	-	1.412	0.945	2.111
Mathematics achievement (mean-centred)	-	0.479 [#]	0.438	0.524
Reading achievement (mean-centred)	Y03	0.505	0.446	0.570
	Y06	0.498	0.435	0.571
	Y09	0.402*	0.345	0.469
	Y15	0.575	0.483	0.684
Socioeconomic status (mean-centred)	Y03	0.601	0.536	0.673
	Y06	0.469	0.412	0.535
	Y09	0.588	0.510	0.677
	Y15	0.531	0.443	0.637

Notes: 1. Outcome is likelihood of first choosing to pursue an apprenticeship versus higher education.

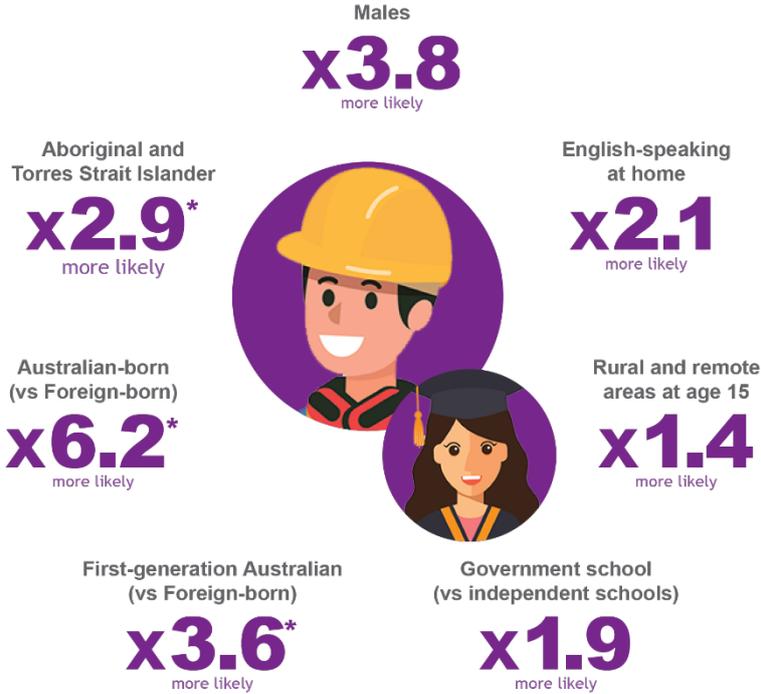
2. Cross-cohort comparisons given only where significant interactions exist with time/cohort.

* Significantly different from Y15 cohort ($p < .05$).

[#] Significant effect across cohorts ($p < .05$).

Summary of results

Students with the following characteristics were more likely to have commenced an apprenticeship than university by age 19:



Note: * Large 95% confidence interval.
Source: Longitudinal Surveys of Australian Youth.

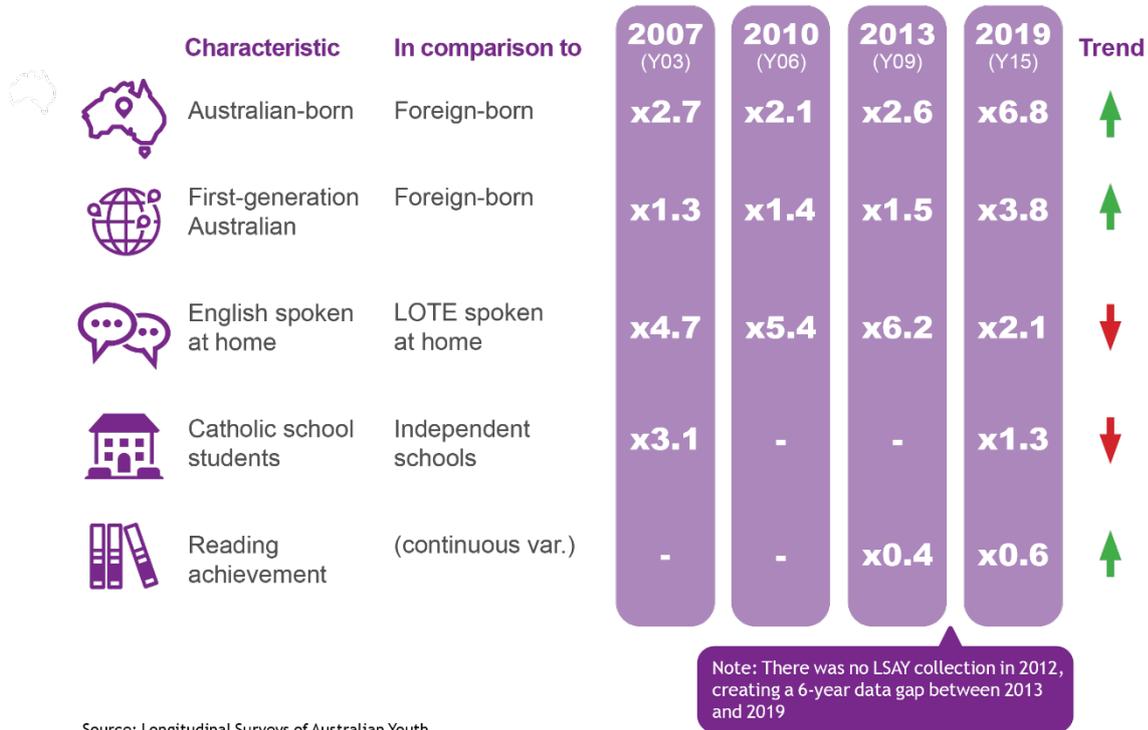
In 2019, students with the following characteristics were less likely to have commenced an apprenticeship than university by age 19:

- Higher PISA (Programme for International Student Assessment) maths achievement
- High PISA reading achievement
- Higher socio-economic status (SES) at age 15

Source: Longitudinal Surveys of Australian Youth.



Student characteristics associated with a changed likelihood of commencing an apprenticeship instead of university by age 19.



Source: Longitudinal Surveys of Australian Youth.

Student characteristics not associated with any change likelihood of commencing an apprenticeship instead of university by age 19:

-  gender
-  Indigenous status
-  geographic location at age 15
-  mathematics achievement at age 15
-  government vs independent school sector

Source: Longitudinal Surveys of Australian Youth.





Implications

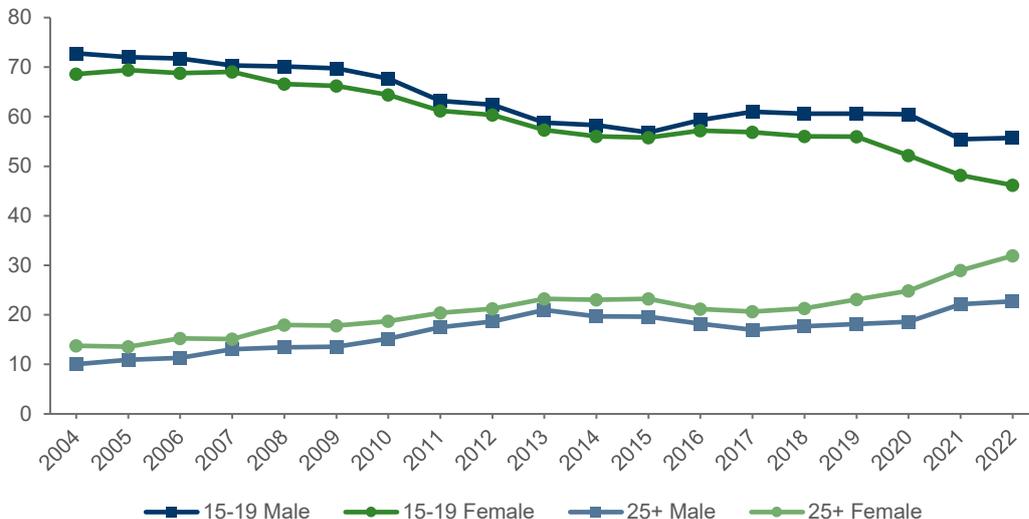
Our results reveal that the characteristics of young people likely to undertake an apprenticeship rather than university did not change significantly between 2007 and 2019. But that lack of movement itself bears consideration. Young people have not become more or less likely to commence an apprenticeship over university based on their gender, Indigenous status, geographic location, maths achievement or whether they attend public or private school. Some of these unchanged characteristics have been the deliberate focus of industry and government programs and policy (see ‘Background’), indicating that the lack of change in likelihood to take up an apprenticeship may at face value form sobering feedback.

However, it is important to note that, for some cohorts, the likelihood of undertaking either an apprenticeship or university may have risen or declined equally in both sectors, an effect that would not be detected in this analysis, which was designed to reveal relative change. For example, while the share of apprentices who are Aboriginal and Torres Strait Islander has increased over time for both trade and non-trade apprenticeships (see tables 1 and 2), the likelihood of Aboriginal and Torres Strait Islander people undertaking apprenticeships as opposed to going to university has not changed significantly, likely due to an approximately equivalent increase in Aboriginal and Torres Strait Islander university enrolments over the period.

Finally, although this analysis was limited to young people at school-leaving age, it is worth remembering that 15- to 19-year-olds form just half of apprentice commencements (NCVER 2023a). It may be that females, Aboriginal and Torres Strait Islander people, higher maths achievers, and rural and remote residents have become more likely to enter apprenticeships than university over time, but have done so after the age of 19 years, perhaps even after first attempting university.

Figure 4 shows that both male and female 15- to 19-year-old trade commencements have declined over time, while commencements by those over 25-year-olds have risen. This ageing of apprentice starters has been more pronounced for females than males, especially since 2015. The rise in the proportion of apprenticeship commencers aged over 25 has generally been attributed to the Fair Work Commission’s decision in 2013 to increase apprentice pay rates for adults and existing workers (Productivity Commission 2020). But for some groups, such as women and migrants, apprenticeships represent a non-traditional pathway, so it is likely that social reasons also explain why they commence later in life.

Figure 4 Proportion of youth and older trade commencements by gender, 2004–22 (%)



Note: Excludes existing workers and not knowns.
Source: NCVER (2023a).

In 2014, Kemp and Norton commented on the persistent female domination of university enrolments: ‘The gender difference at university is, in part, because young men more than women prefer vocational education options. The evidence is that generally these are good choices for them’ (p.35). That evidence was also found by Karmel and Liu (2011), who looked at how choices made after school had impacted on outcomes by the age of 25, concluding that, for males, an apprenticeship was an optimal choice, while for females it was university, even if they were academic low performers. Although those analyses focused on the earning potential and employment status of those who had completed apprenticeships or university, we know that it is not only financial factors that inform the gendered selection of occupations and education pathways (Simon & Clarke 2016).

The descriptive statistics from the apprentice and trainee collection highlighted a small increase in the share of women commencing non-trade occupations between 2004 and 2021, but no change for trade occupations. It is worth remembering that combining trade and non-trade apprenticeships in the LSAY data may be obscuring a changed likelihood of undertaking an apprenticeship by gender in the non-trade occupations.

The decreased likelihood of Catholic school students undertaking an apprenticeship over university by comparison with Independent school students was only observed between 2007 and 2019 and not the intervening years. School sector is not collected in the apprentice and trainee data, so it is not possible to investigate trends in commencement figures across time to examine any effect in apprenticeship activity. Similarly, the slight, increased likelihood observed between 2013 and 2019 for students with higher English PISA achievement scores of commencing an apprenticeship rather than attending university is difficult to interpret. It is hard to say what the implications of these two anomalous results may be.

Migrants and apprenticeships

The finding that migrants and first-generation Australians have become increasingly less likely to enter an apprenticeship than university makes sense in the context of research findings about the career and education aspirations of migrants. In the case of our LSAY analysis, we are probably discussing the children of the primary migration applicant since people under the age of 15 years could not have entered Australia alone.

Chesters (2015) reported that first- and second-generation non-English-speaking immigrants held higher aspirations for entering higher-level occupations than other Australians. That finding was supported by another study, which found that more migrant students aspired to more university-educated occupations than Australian students, even after controlling for academic achievement at the age of 15 (Gemici et al. 2014).

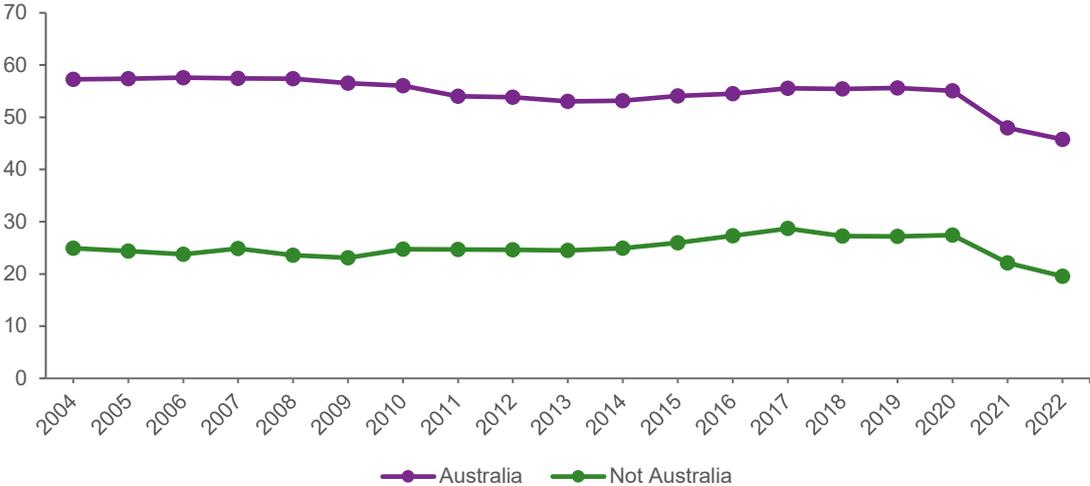
The most important factor in education aspirations was identified as parental education (Homel & Ryan 2014), indicating that Australia’s evolving skilled migration policy may be one contributor to the increased propensity for migrants to undertake university over apprenticeships. Australian migration policy has developed over the last decades from one that prioritised family reunification to one that prioritises skilled migration (Boucher & Davidson 2019). Due to changing policy and skill needs, South Asian language-speaking migrants now comprise the largest migrant group in Australia, and their higher education participation is double that of young people who speak English at home (Norton 2022).

A question more relevant to the changed apprentice characteristics is whether these changes are a cause for concern. For example, are there occupations that have relied heavily upon youth migrant apprenticeships? How might these occupations fare if migrants and first-generation young people continue to select university over apprenticeships?

The apprentice and trainee collection contains no flag for migration status, but we can examine country of birth to gain a proxy measure of apprentices' backgrounds. Overseas-born apprentices made up 14.1% of all commencements in 2022, up from 12.9% in 2004 (NCVER 2023a). However, as for women, overseas-born apprentices have always been later starters than Australian-born apprentices, with 65.0% of overseas-born apprentices commencing after the age of 25 in 2022, compared with 32.3% of Australian-born.⁴

In Figure 5 we can see that the proportion of commencements by people born outside Australia aged 19 and under was very slightly increasing before declining during COVID-19. However, this pattern mirrored that seen in young people born in Australia, indicating that the age of apprenticeship commencement has risen for both Australian and non-Australian-born youth.

Figure 5 Proportion of all apprenticeship commencements aged 19 years and under by country of birth, 2004 to 2022 (%)



Note: Excludes existing workers.
Source: NCVER (2023a).

Examining the occupations in which overseas-born students undertook their apprenticeships may reveal where a decline in that cohort could affect the future workforce. In the period 2004–22, overseas-born commencements as a proportion of total commencements have declined for Community and personal service workers, Sales workers, Machinery operators and drivers, and Labourers.

Table 8 Proportion of overseas-born apprenticeship commencements in occupation groups,¹ 2004–22 (%)

	2004	2022	Proportion of occupations with strong future demand ² (%)
Managers	12.9	15.6	47
Professionals	17.3	18.1	43
Technicians and trades workers	16.7	17.9	27
Community and personal service workers	25.2	19.6	44
Clerical and administrative workers	16.7	17.3	15
Sales workers	13.7	11.9	20
Machinery operators and drivers	32.7	15.9	13
Labourers	26.6	21.6	50

Note: 1. Excludes existing workers.
2. According to the National Skills Commission Skills (2021).
Source: NCVER (2023a)

⁴ Percentages may not total to 100 due to 'not knows' (NCVER 2023a)

Both the Community and personal service workers and Labourers occupation groups are predicted to have strong demand for workers in up to half of occupations, which means that a migrant and first-generation trend away from undertaking apprenticeships in these occupations may potentially impact the future workforce. However, when assessing future workforce supply and demand, numerous economic and employer-based factors need to be taken into account, so any effect of reduced enrolments from migrants remains a matter of speculation until a closer investigation is carried out.

This study also found that young people who speak English at home have become less likely to undertake an apprenticeship than university, which seems at odds with the finding that migrants and first-generation Australians, many of whom do not speak English as a first language, have become less likely to undertake apprenticeships. However, that phenomenon may be explained by an increasing population of Australians who speak a language other than English at home, regardless of their recent migration status. That is, a greater share of second- and third-generation Australians may be using their first language at home. The 2021 census showed that 72.0% of Australians spoke English at home, compared with 76.8% in 2011 and 83.0% in 2006 (ABS 2006; ABS 2016; ABS 2023).

The university impact on young people's propensity to undertake an apprenticeship

If approximately 60% of young people are now entering university by the age of 22, that leaves 40% to form a pool of potential apprentices (Productivity Commission 2019). In 2021, 5.8% of the estimated 15- to 19-year-old population commenced apprenticeships; the actual number being 86 399. The number of domestic undergraduate commencements for those aged under 19 years in 2021 was 198 700, 13.3% of the 15- to 19-year-old population. Given the largely consistent profile of young people choosing to undertake an apprenticeship since 2007, concern about university access impacting apprentice availability may be unwarranted.

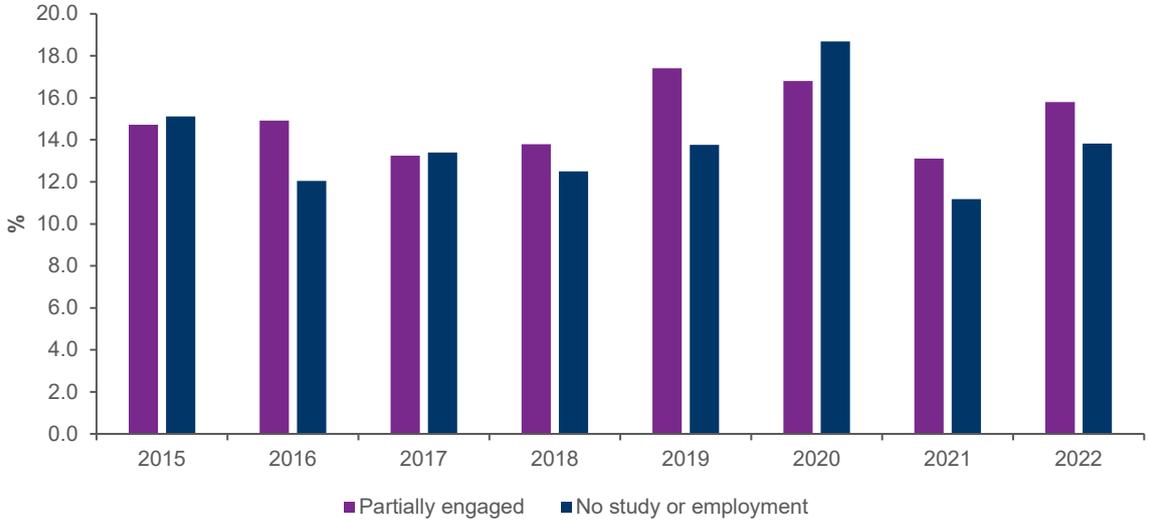
Norton and Cherastidtham (2019) examined the academic and employment risks for students who entered either VET or university after school and came to a similar conclusion: 'there has been no large-scale and misguided transfer of enrolments from vocational to higher education' (p.53). The answer to this question reminds us that, ultimately, we want individuals to be sufficiently informed and selecting the pathway that best suits their interests and maximises their potential and that, ideally, the sum of those individual decisions delivers the skilled workforce that Australia needs. This aim highlights the importance of targeted and well-informed career education.

The young people who aspire to attend university are unlikely to be persuaded into an apprenticeship (Gore, Ellis et al. 2017; Gore, Holmes et al. 2015). Similarly, young people who aspire to an apprenticeship hold very specific ambitions for an occupation and are unlikely to be persuaded into university (Choy et al. 2021). In this context, rather than attempting to convince young people to undertake an apprenticeship rather than university, it may be more productive to focus on attracting those young people who have no clear aspiration to attend university or those with poor access to information about post-school pathways to consider apprenticeships.

In 2022, about 175 500 young people aged 15–19 years were not fully engaged in work or study, or in school-level study (ABS 2022). Figure 6 shows that youth not engaged in education, employment or training (NEET) increased during the COVID-19 pandemic, the same time at which apprenticeship commencements spiked. This study has searched specifically for signs of movement between apprenticeships and university but not between apprenticeships and the other pathways in which young people engage. The population of partially engaged and NEET youth, as well as students enrolling in VET

study not under a contract of training, represents another potential pool of apprentices – although we are not suggesting that every individual in those groups would be suited to an apprenticeship.

Figure 6 Proportion of young people aged 15–19 years partially or not engaged in work or study, 2015–22 (%)



Note: Excludes those enrolled in school-level study.
 Source: ABS (2023).

Many 14- to 15-year-olds have little idea of the job they want to pursue: of the approximately 60% who do hold career aspirations, those plans have been found to be mismatched with future skills demand (Baxter 2017; Gore, Ellis et al. 2017). We also know that adolescents tend to hold limited aspirations for themselves, capable only of aspiring to the careers and educational pathways with which they are closely associated (De Bortoli 2021). Attraction to apprenticeships is negatively affected by persistent views that university attendance is a superior career pathway compared to VET, views cemented early in a child’s life. The gendered expectations that continue to drive selection of occupation may also affect apprenticeship take-up (Gore, Ellis et al. 2017).

The persistent misconceptions about apprenticeships and a lack of awareness amongst young people about their future prospects point to the need to alert young people to the opportunities presented by apprenticeships, a strategy that could be achieved through both career guidance and education that explained the breadth and extent of the jobs associated with particular apprenticeships. Activities designed to attract and recruit young people to apprenticeships have been recommended by past reviews of the apprenticeship system and are being addressed through various policy mechanisms and initiatives across multiple jurisdictions. These include strategies to encourage employers and group training organisations to promote the existing opportunities. Based on the findings of this study, continuing to pursue that agenda would be the best use of resources.



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