

Connecting the dots

Exploring young Australians' pathways from education and training into work

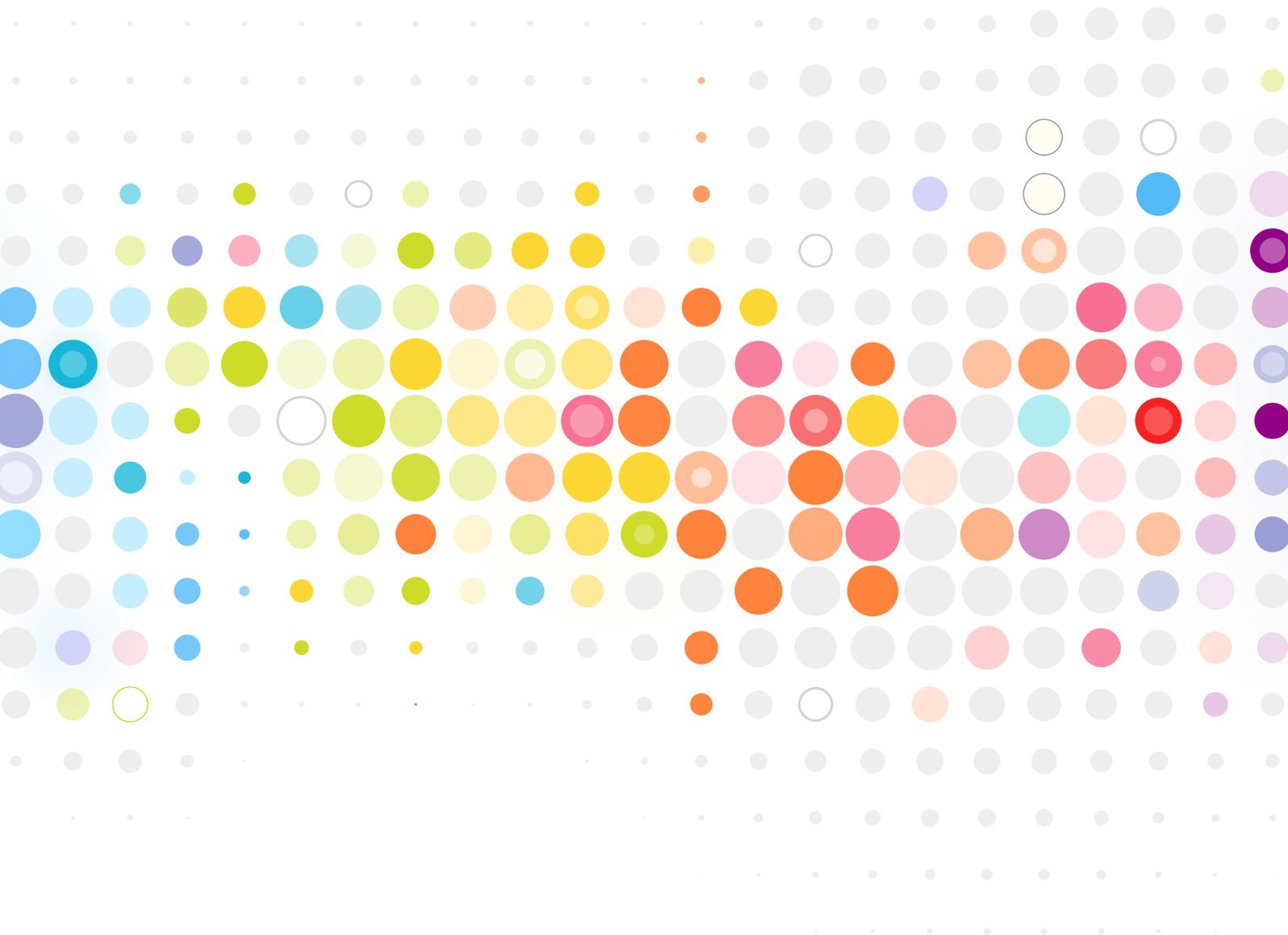
APRIL 2023



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About Australian Industry Group

The Australian Industry Group (Ai Group®) is a peak national employer organisation representing traditional, innovative and emerging industry sectors. We have been acting on behalf of businesses across Australia for 150 years.

Ai Group and partner organisations represent the interests of more than 60,000 businesses employing more than 1 million staff. Our membership includes businesses of all sizes, from large international companies operating in Australia and iconic Australian brands to family-run SMEs. Our members operate across a wide cross-section of the Australian economy and are linked to the broader economy through national and international supply chains.

Our purpose is to create a better Australia by empowering industry success. We offer our membership strong advocacy and an

effective voice at all levels of government underpinned by our respected position of policy leadership and political non-partisanship.

With more than 250 staff and networks of relationships that extend beyond borders (domestic and international) we have the resources and the expertise to meet the changing needs of our membership. We provide the practical information, advice and assistance you need to run your business. Our deep experience of industrial relations and workplace law positions Ai Group as Australia's leading industrial advocate.

We listen and we support our members in facing their challenges by remaining at the cutting edge of policy debate and legislative change. We provide solution-driven advice to address business opportunities and risks.



About Ai Group Centre for Education and Training

Ai Group's Centre for Education and Training drives bold new thinking on education and training in the context of work. It explores new ways to build skills and capabilities of companies to succeed now, and into the future.

Our proactive research, policy and advocacy agenda strives to ensure Australia's skill development outcomes are in line with current and emerging economic needs, at the same time linking the real needs of industry with the training, education and career aspirations of individuals.



Foreword

Young people have weathered some big shocks and interruptions over recent years. Many structures and assumptions that once seemed permanent now seem uncertain. Despite this, or perhaps because of it, I'm often struck by how resourceful and strategic many young people are in their approach to their lives, careers and investing in their own learning and development. They know they will have many jobs, projects and endeavours over a long, non-linear working life. They know they will need to keep learning and evolving just to keep up.

These young people don't need platitudes or comparisons with previous generations. They need our support, and they need us to deal in facts. That's what this report is all about.

We wanted to know more about the pathways young people follow from school through tertiary education and into the workforce. We wanted to get a sense of their trajectories, and the factors that may help or hinder them along the way.

The research presented here tells us much about our education and training system and its relationship with the first critical years of work. It gives us clues as to which parts of the system may be working well and could be scaled up, as well as those elements we may need to rethink.

A key finding is that opportunities to apply what you learn in a 'real world' setting, and a clear link between education and training and the work you aspire to do are as valuable now as they have ever been.

There is every reason to focus on the learning and early career pathways of young Australians right now. Many young people are no doubt feeling battered and bruised by shocks of the past few years. It's up to today's policy and business leaders to ensure our education and training ecosystem provides them with the support, advice, tools and pathways they need to identify, develop and maximise their potential.

Innes Willox
Chief Executive
Australian Industry Group

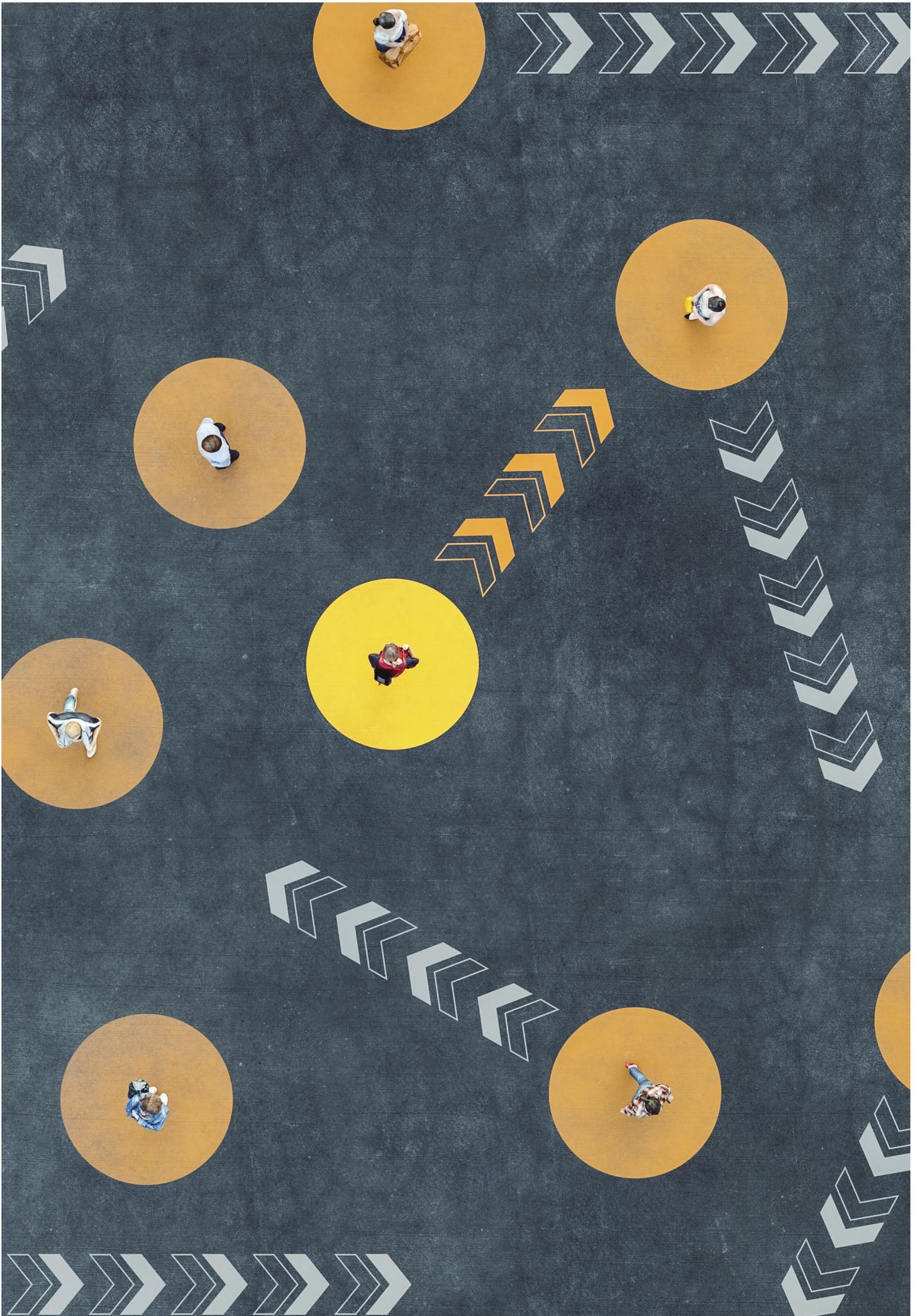


Contents

Foreword.....	7
List of figures and tables.....	9
Overview	11
About this research	18
Work at 25	19
Education and training outcomes at 25	22
The relationship between education and work at 25	24
Student background and learning pathways	26
Education pathway and industry at 25	30
Education level and job skill level at 25.....	34
Job satisfaction at 25.....	37
Pay at 25.....	42
Conclusion	43
References	45
Appendix 1.....	46

List of figures and tables

Figure 1: Labour force status at 25	19
Figure 2: Satisfaction with working hours, if employed part-time.....	20
Figure 3: Reason for being out of the labour force	20
Figure 4: Education and training outcomes at age 25.....	22
Figure 5: Education and training outcomes at 25 by gender	23
Figure 6: Labour force status by education and training pathway	24
Figure 7: Education and training outcomes at 25 by family socioeconomic status (SES).....	26
Figure 8: Education and training outcome at 25 by parents' highest level of education.....	27
Figure 9: Education and training outcome at 25 by immigrant and language status.....	28
Figure 10: Respondents with a qualification in Education and Training – industry sector at 25.....	30
Figure 11: Respondents with a qualification in Architecture and Building – industry sector at 25.....	31
Figure 12: Respondents with a qualification in Engineering – industry sector at 25	32
Figure 13: Respondents with a qualification in Information Technology – industry sector at 25	32
Table 1. ANZSCO skill classification system.....	34
Figure 14: Skill level alignment between education and work.....	35
Figure 15: 'Like job as a career' by field of study	37
Table 2: Job satisfaction by learning pathway – least and most satisfied on average.....	39
Figure 16: Job satisfaction by education level – kind of work and opportunities to use skills and experience.....	40
Figure 17: Job satisfaction by education level – pay and opportunities for training.....	41
Figure 18: Average weekly hours and average weekly wages by learning pathway	42



Overview

In 2023 it seems timely to take a deeper look at the pathways followed by young Australians from school to post-school learning and into the world of work.

We often hear ‘young people today don’t work as hard as we did’, are not as ‘job-ready’ as we were, or ‘take ages to decide on a career and get a ‘proper’ job’. At the same time, a lot has changed in recent years. Education and training are being revolutionised by technology and the ability to learn remotely. Work has changed, immensely, with what constitutes a ‘workplace’ changing dramatically in a short amount of time.

It is in this context that we decided to take a deeper look at the real trajectories and early career pathways of young people through data from the Longitudinal Survey of Australian Youth (LSAY). In 2009, a nationally representative sample of 14,251 age 15 school students was taken. These students were subsequently interviewed annually until the age of 25, in the year 2019.

This provides us with a rich and nuanced picture of the pathways of a range of young Australians over time. Through these insights, we’re able to reflect on current and potential policy settings.

There are some caveats to raise up front. Due to the long timeframe of the LSAY survey there has been attrition over the years. Not only do we have a reduced number of survey respondents at age 25, but there is also likely to be some unevenness in the self-selection of respondents as the survey progresses. For example, those respondents who are happy with their pathways and outcomes are perhaps more likely to continue engaging with the survey than those less so. This attrition, and the reduced number of respondents at age 25 needs to be borne in mind in any conclusions drawn from the data.

Nevertheless, 2,933 young people remained in the survey at age 25 in 2019. This gives us a window into the lives of almost 3,000 young Australians over a 10-year period.

A sample which is robust enough to provide valuable insights into the relationships between a young person’s background characteristics, learning pathways, employment, income and job satisfaction outcomes in contemporary Australia.



Bachelor's degrees are a popular choice

At 25 almost half (46%) of the respondents had completed a bachelor's degree or higher, with 36% reporting a bachelor's degree as their highest qualification. This is not so surprising given the rising prevalence and popularity of higher education pathways in Australia over recent decades.

There now are more bachelor's degrees among working age Australians than ever before.

In 1976 just 2.15% of the working age population (15-64 years) held a bachelor's degree – 3% of working age men and 1.3% of working age women. By 2022, 32% of people aged 15-74 held a bachelor's degree or above. These figures are even higher for younger Australians, and young women in particular. In 2022 half (50%) of women aged 25-44 held a bachelor's degree or above, and 39% of men. (ABS 2022).

This is the result of both a concerted policy effort to bring more young Australians into the higher education system, but also of skilled migration policies targeting migrants with higher education qualifications.

Bachelor's degrees are being pursued by students from a range of backgrounds

Among our sample, students who had completed a bachelor's degree came from across the socioeconomic spectrum and a wide range of parent educational backgrounds, with young people from a lower socioeconomic status (SES) background and children of migrants with a culturally and linguistically diverse (CALD) background well represented.

This speaks of the success of a range of policies implemented in recent decades to remove barriers and improve access to higher education – such as income-contingent loans, increased places (including through the 'demand driven' system) and targeting students from disadvantaged backgrounds. The latter two being recommendations of the 2008 'Bradley Review' of Higher Education (Bradley et al 2008).

Evidence shows current policy settings are facilitating access and educational opportunity to a wide range of students, enabling intergenerational social mobility.

Indeed, 'first generation' students have become a feature of the Australian higher education landscape. In 2022/23 the proportion of domestic students commencing a bachelor's degree who were 'first generation' was between 13% and 55% for all universities.¹ That figure was over 40% at eight universities (Good Universities Guide, 2022). The proportion of higher education students from low SES backgrounds has also risen, from 14.5% in 2001 to a high of 17.6% in 2019 (Commonwealth Department of Education 2022).

¹ The proportion of domestic students commencing a bachelor's degree whose parents' education is known and is not higher than a vocational qualification.

Postgraduate degrees and apprenticeships / traineeships had the strongest employment outcomes at age 25

In our sample, young people with apprentice or trainee qualifications had the highest level of employment at age 25, followed by those with higher education qualifications.

96% of young people who had completed apprentice/trainee qualifications were employed at age 25. Only 4% were unemployed or not in the labour force.

Those with postgraduate degrees also fared well at age 25, with 94% employed. Followed by those with a bachelor's degrees, 92% of whom were employed.

Those with apprentice/trainee qualifications also had the highest level of

full-time employment, with 92% employed full-time at age 25 if employed.

There could be a number of factors at play here, including current skill shortages in occupations which utilise apprentice/trainee pathways, and apprentice pathways likely being more male-dominated (with males more likely to work full-time). However, the strong outcomes may also be due to the more specialised, occupation-specific nature of postgraduate pathways, and apprentice/trainee pathways in particular.

This tells us that education and training that has a direct and clear link to an industry or occupation can deliver strong employment outcomes.

Outcomes for bachelor's degree holders are worth examining further.

Among our sample, those with bachelor's degrees as their highest qualification reported strong employment at age 25 (92%) but other outcomes for these young people lagged somewhat compared to those holding apprenticeship/traineeship qualifications and postgraduate degrees. This was particularly the case on job satisfaction, and on skill level 'match', with a total of 36% of bachelor's degree holders working in jobs below the skill level aligned with their qualification.

This raises some questions about the role and expected outcomes of a bachelor's degree in this era of mainstream or 'mass' higher education. Are bachelor's degrees on their own delivering the early career

outcomes that policymakers, parents, and students themselves are expecting? If expectations and outcomes are not aligned, it might be time to reflect.

Higher education students likely need to combine the deep knowledge of a degree with other types of learning and experience to forge a career. This suggests we need a more flexible education and training system that allows young people to acquire knowledge, skills and capabilities throughout their time 'learning' and to continue while they are 'earning and learning'.

There is no 'one size fits all' approach to this. It may mean more work-integrated

learning while studying, or combining a degree with a more vocational, skills-focused qualification. Regardless, we need to ensure policy and funding settings move beyond the idea that simply holding a degree is a 'ticket' to a high skilled job.

The reality is that young people need to acquire a mix of knowledge, skills and capabilities – in different ways, and at different times - to maximise their potential and productivity in the workforce.



Education and Training, Architecture and Building and Health had the strongest alignment between field of study and industry sector at 25.

By building a picture of the destinations common to certain education pathways, we can learn more about the nexus between the tertiary education system and the economy.

We wanted to explore the relationship between the field in which a young person studied or trained and the industry sector in which they were working at age 25. This is not looking at a young person's occupation at 25, but the industry sector in which they were working. For example, a person may have a qualification in Accounting and be working as an Accountant, but be employed in a mining company. Their industry sector would be 'Mining'.

The fields of study with the strongest 'alignment' with particular industry sectors at 25 were Education and Training, Architecture and Building and Health.

77% of respondents holding a qualification in the Education and Training field of study were working in the Education and Training industry sector at age 25. This is also a sector with high levels of structured work-integrated learning during education.

Those with qualifications in Engineering, Information Technology, Management and Commerce, Society and Culture, Environmental and related studies and Creative Arts followed a more diverse range of pathways, working in a wide range of industry sectors at age 25.

Postgraduate degrees and high school certificates led to the strongest 'match' between education level and job skill level at 25.

Respondents with a high school certificate as their highest level of education, and those with postgraduate degrees were most likely to be employed in jobs with equivalent ANZSCO (Australian and New Zealand Standard Classification of Occupations) skill levels at 25.

Respondents holding diplomas had the highest skill level 'misalignment', with half (50%) working in jobs at a ANZSCO skill level below that equivalent to their diploma qualification. Of these, nearly a third were working in jobs two skill levels lower than their qualification.

Bachelor's degree holders also had relatively high levels of 'misalignment' between education level and job skill level at 25. A total of 36% of those holding bachelor's degrees were working in a job below the ANZSCO skill level aligned with a bachelor's degree (Skill Level 1). 17% were working in a job three skill levels below, and 6% were working in a job four skill levels lower.

Job satisfaction at 25 was strongest in fields of study with higher levels of work-integrated learning.

When young people were asked if they 'like their job as a career' at age 25, the highest levels of satisfaction were reported among those with qualifications in Education and Architecture and Building. This was closely followed by Engineering and Health.

There may be many reasons for this, but there is also a pattern. Respondents in fields of study with stronger cultures and practices of work integrated learning - either through employment-based learning in the case of apprenticeships, or

clinical or industry placements in higher education tended to be more satisfied with their work at 25.

Education and Health in particular, tend to provide students with more structured, 'hands on' learning experiences directly relevant to their future work.

Management and Commerce and Creative Arts pathways resulted in less satisfaction at age 25, with only around a third of those holding qualifications in these fields reporting they 'like their job as a career'.

Those with postgraduate degrees and apprenticeships / traineeships led the pack on job satisfaction at 25.

When we looked at job satisfaction at 25 by education pathway there was a strong story. Those holding postgraduate degrees and apprenticeship/traineeship qualifications between them recorded the highest scores across all nine categories of job satisfaction.

Those with postgraduate degrees were the most satisfied in relation to 'kind of work', 'immediate boss or supervisor', 'people you work with', 'opportunities for training', 'recognition' and 'opportunities for promotion'.

Those holding apprenticeship/traineeship qualifications were the most satisfied when it came to 'opportunities to use skills and experience', 'remuneration', and

'tasks assigned'. This means that, among our sample, those who had completed an apprenticeship/traineeship were the most satisfied with their opportunities to apply the skills and experience gained through their learning pathway in their work at 25. They were also the most satisfied with the pay they were receiving as a result. This is a strong endorsement of the apprenticeship model, and the benefits of employment-based learning for young people.

As a general rule, higher levels of education led to higher levels of job satisfaction at age 25.

When it comes to agreement with the statement 'like my job as a career' there is another clear trend – higher levels of education led to greater levels of satisfaction with career pathways.

When we look more broadly across a range of measures of job satisfaction, such as 'the kind of work', pay, opportunities for promotion, recognition, people you work with, satisfaction with your boss or supervisor, satisfaction tended to rise with education levels, with those with less than a high school certificate generally the least satisfied, and those with higher education qualifications the most satisfied.

Those with apprenticeships/traineeships did well on pay at 25.

Among our sample, those with apprenticeship/traineeship qualifications at age 25 reported the highest average weekly wages, although they also worked the most hours. While earning 16% more than their postgraduate counterparts at 25,

they are also working 7 additional hours on average per week.

On pay, again, it was apprentice/trainee and postgraduate qualified workers reporting the strongest outcomes at 25.



About this research

The research underpinning this report was undertaken by Associate Professor Michael Coelli. This analysis of Longitudinal Survey of Australian Youth (LSAY) data provides a snapshot of young Australians at age 25, showing us how different groups of young people are faring as they take their first steps into the labour force.

The data is taken from LSAY 2009 cohort. For this cohort, a nationally representative sample of age 15 school students was taken in 2009, with 14,251 students forming the original sample. These students were subsequently interviewed annually until the age of 25, in the year 2019. The survey includes many questions about:

- ▶ the education and training of these individuals over these 11 years;
- ▶ their family background;
- ▶ achievement scores in maths, reading and science from standardised tests taken at age 15 as part of the OECD Programme for International Student Assessment (PISA);
- ▶ their transitions into work; and
- ▶ their employment and social outcomes.

Due to sample attrition over this 11-year period, 2,933 of the original 14,251 sample were interviewed in 2019 (at age 25). Most of the analysis is based on these individuals.

This sample attrition, if not random, may yield a sample in 2019 that is no longer representative of the population. To mitigate the potential effects of non-random sample attrition, all measures and estimates constructed using the age 25 sample employed individual weights. These weights were constructed to capture both non-random attrition and the over-sampling of indigenous and remote students originally undertaken at age 15.

Additional details about the LSAY data source are available here:
<https://www.lsay.edu.au/>

More detail on methodology can be found at Appendix 1.



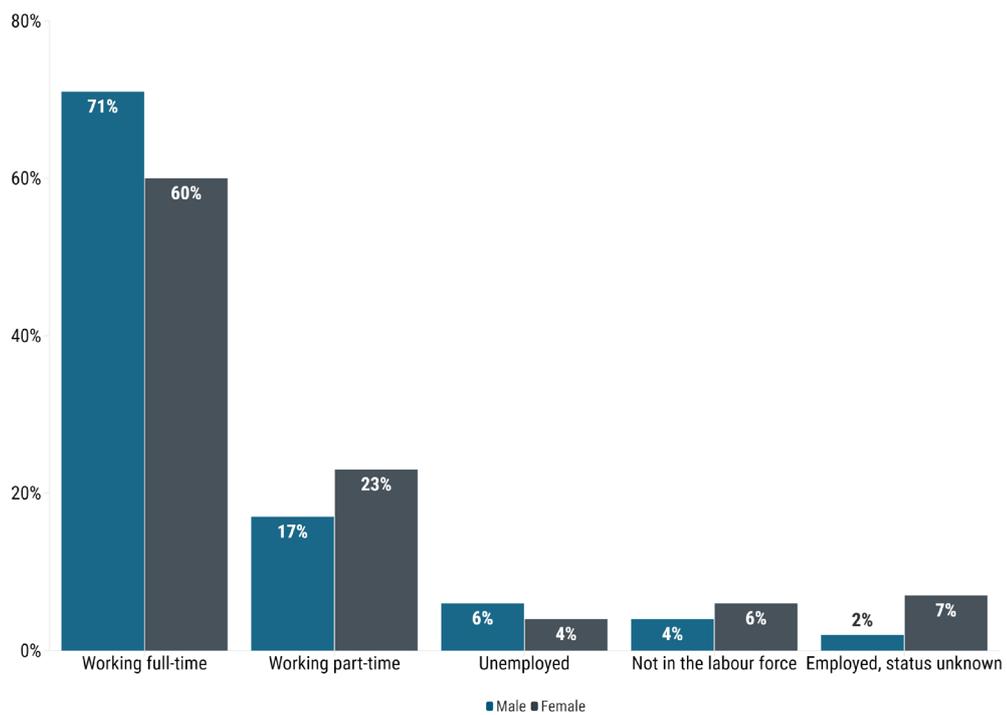
Work at 25

The majority (90%) of young people surveyed at age 25 were employed.

Young men were more likely to be working full-time, while women were more likely to be working part-time. 71% of men and 60% of women were working full-time. 23% of women were working part-time, compared to 17% of men.

Of those not working, young men were slightly more likely to report being 'unemployed'. Women not working were more likely to report 'not in the labour force'.

Figure 1: Labour force status at 25



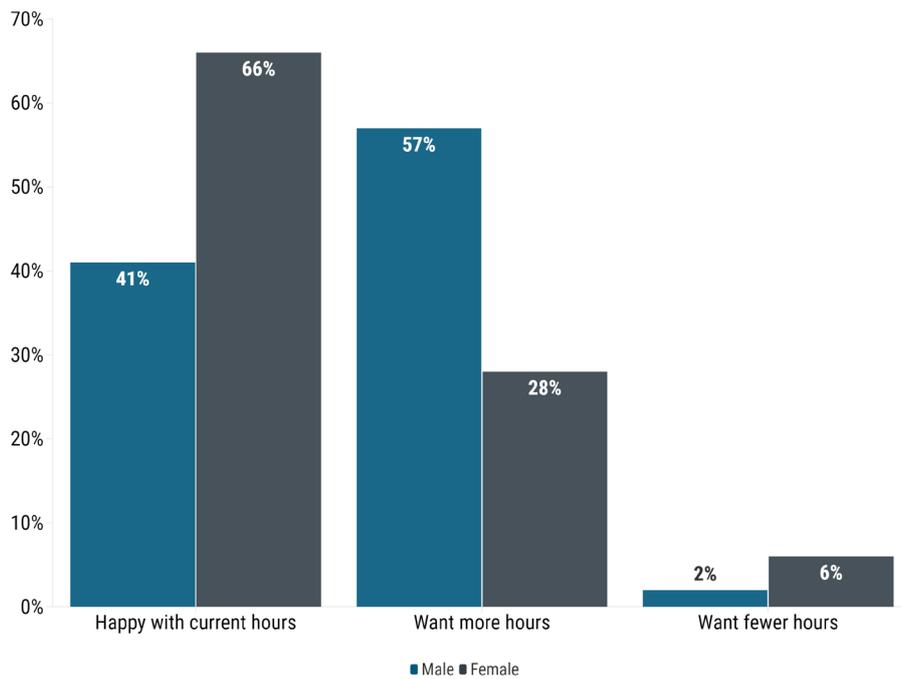
Satisfaction with working hours

Of those working part-time, women reported higher levels of satisfaction with their hours, with 66% happy with their current hours and only 28% seeking more hours of paid work.

Women were also more likely than men to want fewer working hours.

Overall, men working part-time were less satisfied with their hours, with less than half happy with their current hours (41%) and 57% wanting more hours of paid work.

Figure 2: Satisfaction with working hours, if employed part-time



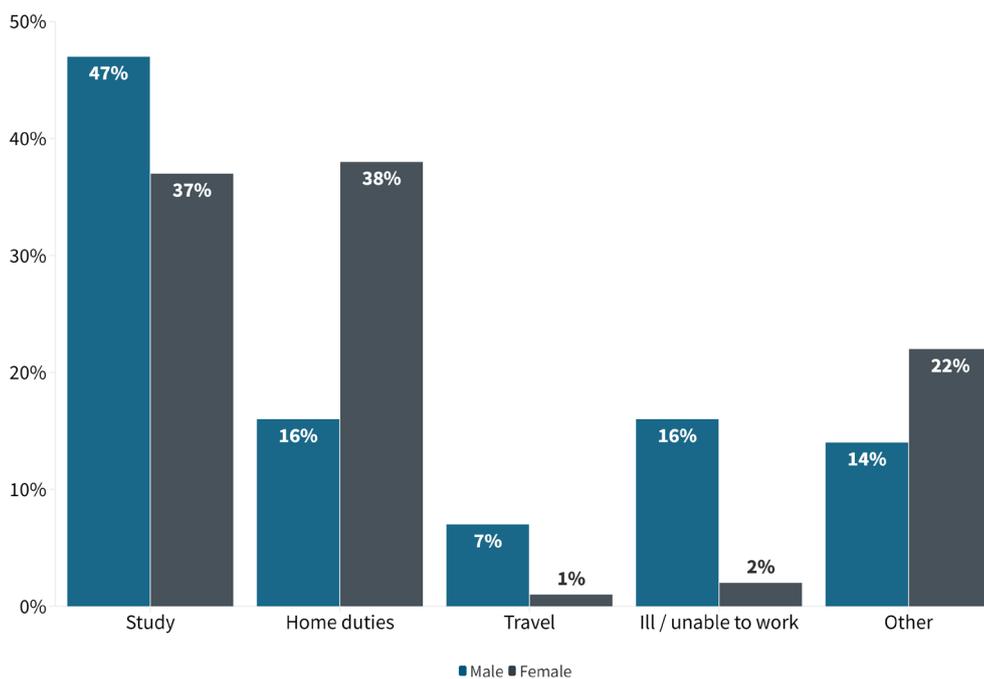
Main activity if currently out of the labour force

Among the women not in the labour force, the most common reason given was 'home duties' (38%). Women were more than twice as likely as men to report this as a reason for not being in paid work at 25. The most common reason cited by men was

study (47%). This reason was also given by 37% of women.

Men were also more likely to be out of the labour force due to being ill or unable to work (16%) or travel (7%).

Figure 3: Reason for being out of the labour force



What does this tell us?

The data here show the different pathways men and women take as they enter the workforce and progress through their careers.

Even at 25, more women are working part-time, and more are out of the labour force altogether, with home and family reasons the reason most often cited. This shows that established patterns of caregiving

and workforce participation among men and women are evident even in the earliest stages of young people's careers. We know that the effects of reduced workforce participation among women can be long-lasting, for career progression, lifetime incomes and superannuation.

To maximise the potential of our substantial (public and private) investment in education and training we need policies that support women's workforce participation and allow all parents to balance work and family responsibilities.



Education and training outcomes at 25

At 25 nearly half of the respondents (46%) had completed a bachelor's degree or postgraduate degree. 16% reported no post-secondary qualification.

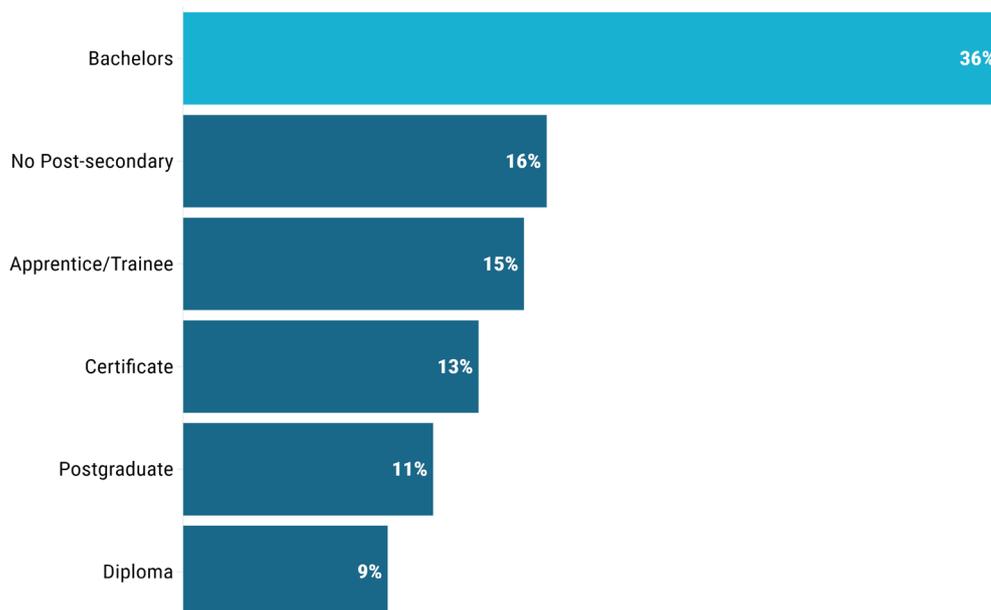
For the purposes of our analysis the respondents at age 25 were divided into six groups based on their highest level of education and/or training completed. Partially completed education and training was not considered.

One of these categories consisted of individuals reporting completion of an apprenticeship or traineeship. The individuals in this group also reported holding a certificate-level qualification. A small number reported completion of an apprenticeship or traineeship but also holding a diploma, Bachelor's degree, or postgraduate qualification. These individuals were included in the diploma, Bachelor's degree, or postgraduate group rather than the 'apprentice/trainee' group.

11% reported completing a postgraduate degree and 36% reported completing a bachelor's degree (the most common level of educational attainment among the respondents). 15% reported completing an apprenticeship/traineeship, 9% a diploma, 13% a certificate and 16% no post-secondary qualification.

In rough terms, around a half (46%) had a higher education pathway, around a third (38%) a vocational education and training (VET) pathway and a minority (16%) had no post-secondary education.

Figure 4: Education and training outcomes at age 25



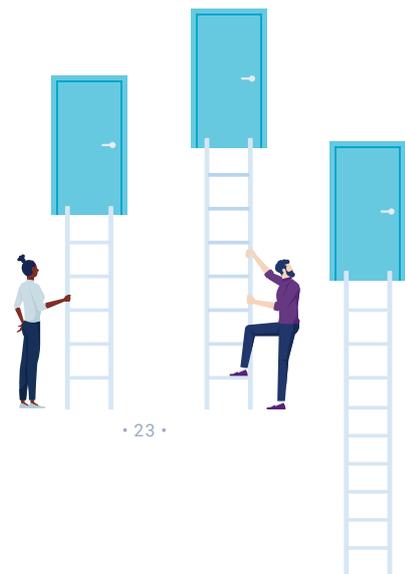
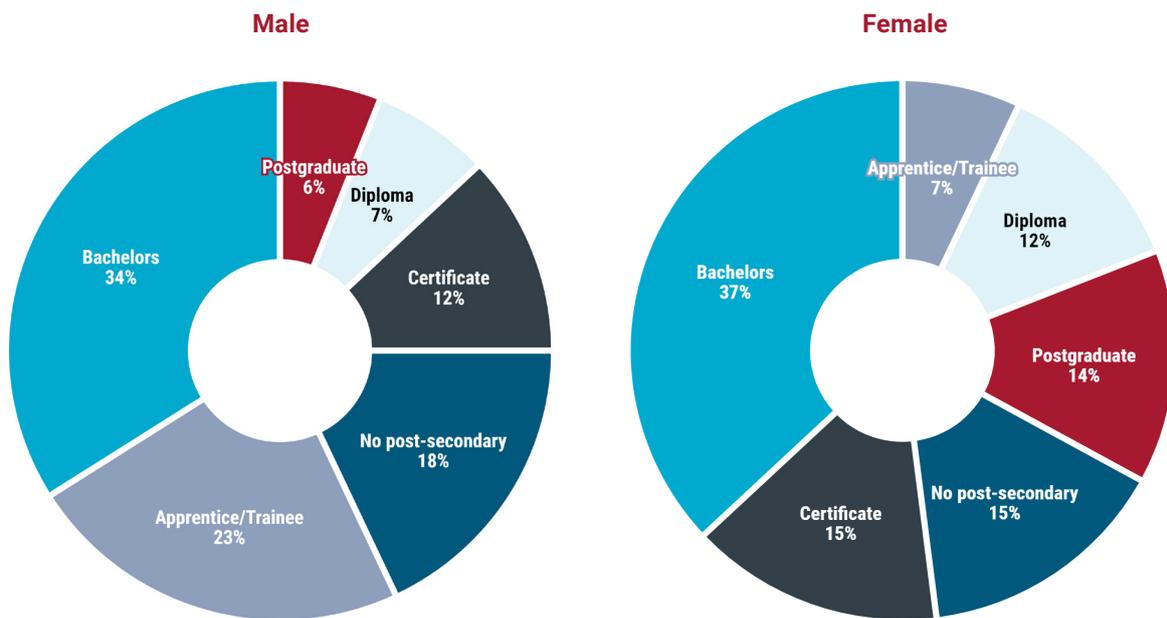
Education and training pathways and gender

Among the respondents there was approximate parity of young men and women with no post-secondary education, certificate level qualifications and bachelor's degrees – with females having slightly higher proportions of bachelor and certificate attainment.

Young women were overall more likely to follow a higher education pathway, and more than twice as likely to have attained a postgraduate degree by 25.

Young men were much more likely to have completed an apprenticeship/traineeship pathway - over three times more likely to have completed this type of qualification by age 25. This may reflect a range of barriers to women pursuing these pathways, including the full-time hours often required in employment-based training. There can also be a tendency for male-dominated apprenticeships to receive higher levels of funding and support, encouraging more enrolments and participation in these targeted programs.

Figure 5: Education and training outcomes at 25 by gender



The relationship between education and work at 25

Young people with apprenticeships/traineeships had the highest level of employment at age 25, followed by those with higher education qualifications.

Among those surveyed, young people who had completed apprentice/trainee qualifications had the highest proportion employed at 25 at 96%.

Those with postgraduate degrees also fared well, with 94% employed. Followed by those with bachelor's degree, 92% of whom were employed.

Employment outcomes were weakest for those reporting a certificate level qualification, with only 80% of these young people reporting being employed at age 25. This group also had the highest share of unemployment at 15%.

Those with no post-secondary qualification fared slightly better in terms of employment, but had the highest proportion of young people reporting 'not in the labour force' at 9%.

Figure 6: Labour force status by education and training pathway



What does this tell us?

The evidence shows that postgraduate and apprentice/trainee pathways are leading to almost full employment at 25.

Both these pathways are more specialised or focused, in terms of occupation-specific skills or discipline-specific knowledge. The apprentice/trainee pathway is built on applied learning in a 'real world' setting. Similarly, the postgraduate pathway likely involves some work-based learning or experience given the narrowing focus.

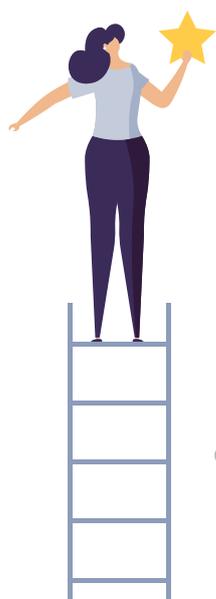
These results support the contention that learning pathways that better integrate theoretical learning with industry-based experience tend to lead to better employment and career outcomes (Foundation for Young Australians (2018), Hurley et al (2021)).

This is a strong endorsement of the continuing value of employment-based learning as offered through the apprenticeship/traineeship model. It also supports efforts made by Ai Group and others to explore new models of this type of learning, such as higher level or 'degree' apprenticeships and cadetships.

Also, given the strong employment outcomes for apprentice/trainee pathways it is surprising (and perhaps concerning) that in our sample only 23% of men and 7% of women completed this type of qualification.

Many of the occupations utilising these training pathways are in high demand. There is therefore a strong public policy imperative to grow the number of young Australians choosing these pathways. This would also reduce our reliance on skilled migration.

Young women in particular are not choosing the apprentice/trainee pathway. The reasons for this should be explored and addressed. This could be through better career advice in secondary school, or the removal of barriers to participation in these pathways for women from a range of backgrounds. Experience from Ai Group's recent work with companies on women in STEM apprenticeships backs this up. We have found that a much more proactive approach is needed to make girls aware of the apprenticeship/traineeship pathway much earlier, before pursuing a higher education pathway becomes the default.



Student background and learning pathways

Family socioeconomic status and learning pathways

The most socioeconomically advantaged young people were most likely to have completed a postgraduate degree, and least likely to have completed an apprenticeship/traineeship.

Those from the most disadvantaged backgrounds were most likely to have no post-secondary education.

When we look at the relationship between each young person's family socioeconomic status (SES) and education and training outcome at age 25, we see some clear patterns.

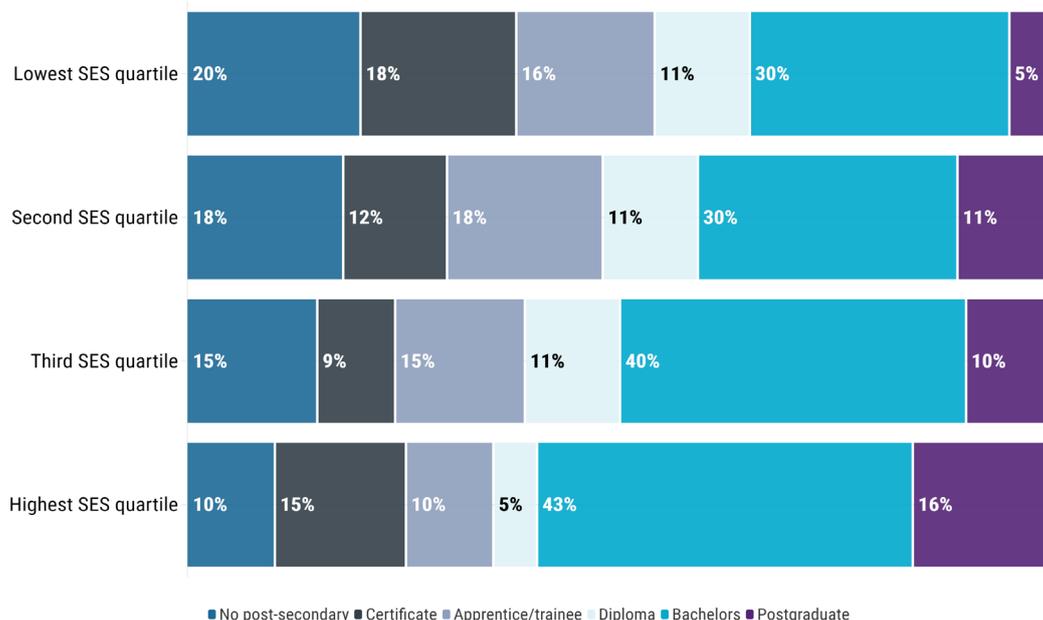
Among those surveyed, the most disadvantaged young people, those in the lowest SES quartile, were twice as likely as those in the highest SES quartile to have no post-secondary qualification. They were also the least likely to have completed a postgraduate degree.

By contrast, the most advantaged young people, those in the highest SES quartile, were the most likely to have completed a postgraduate degree by age 25, and the most likely to have completed a bachelor's degree.

The apprenticeship/traineeship pathway was stronger in the lowest, and second lowest quartiles. Those in the highest SES quartile were the least likely to follow the apprentice/trainee route.

Among those surveyed, the proportion of young people with bachelor's degrees was between 30-43% across all socioeconomic backgrounds (all four quartiles).

Figure 7: Education and training outcomes at 25 by family socioeconomic status (SES)



Parents' education level and learning pathways

A young person with a parent holding a bachelor's degree or higher was twice as likely to have attained a bachelor's degree by 25 than a peer with a parent with less than high school education.

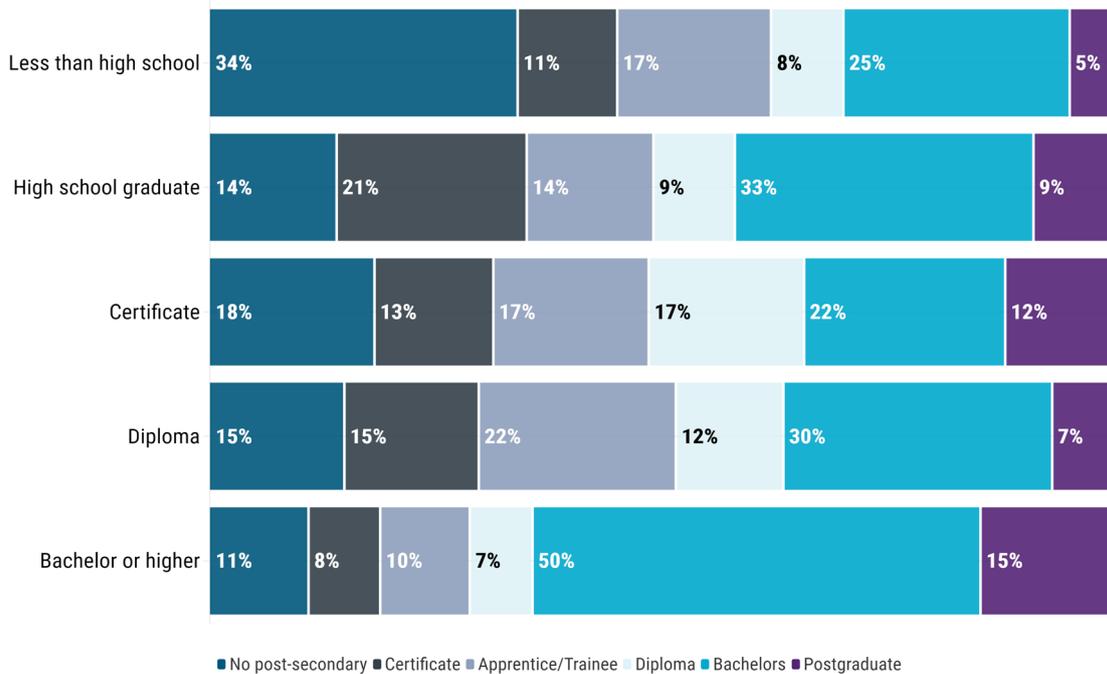
Among those surveyed, young people with parents with lower levels of education were more likely to have lower educational outcomes themselves at 25. Similarly,

young people whose parents had higher levels of education tended to also hold higher level qualifications by 25.

Bachelor's degrees and postgraduate degrees were most likely to be held by young people with parents who also held higher education qualifications.

However, there are some exceptions to this general trend. For example, one in four young people with parents with less than high school qualifications had attained a bachelor's degree by 25.

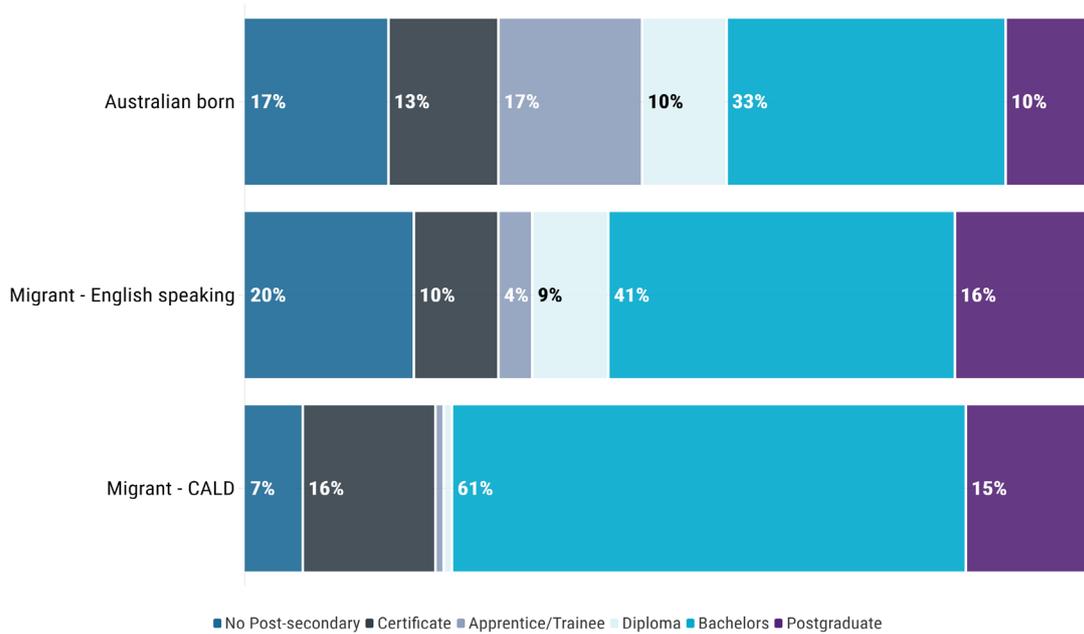
Figure 8: Education and training outcome at 25 by parents' highest level of education



Immigrant and language status and learning pathways

Young people born outside Australia with a non-English speaking background were much more likely to have obtained a bachelor's degree by age 25.

Figure 9: Education and training outcome at 25 by immigrant and language status



Young people born outside Australia in a country with a 'culturally and linguistically diverse' (CALD) status were by far the most likely to have a bachelor's degree or postgraduate degree as their highest level of education at age 25 (77%). This compares to 57% for migrants from an English-speaking background and 43% for Australian-born respondents.

Australian-born respondents were the most likely to have an apprenticeship/traineeship qualification (17%), followed by migrants from an English-speaking background (4%). Migrants with a CALD background were the least likely to have completed an apprenticeship/traineeship (0.5%) or a diploma (1%).



What does this tell us?

These findings tell a positive story of access and opportunity to the higher education system in Australia. Among our sample, migrants, particularly those from non-English speaking backgrounds, and the children of parents with lower levels of education are well represented among the those who had attained degrees by 25.

This is encouraging and reflects the range of policy interventions introduced over recent decades to remove barriers and increase access to higher education for all students, particularly those from disadvantaged backgrounds. This can level the playing field of educational opportunity, potentially changing trajectories of intergenerational disadvantage.

However, we should be concerned that the apprentice/trainee pathway is not being chosen or 'accessed' by an equally diverse cohort.

Our findings show that migrants from CALD backgrounds, in particular, are very unlikely to follow this path. This may reflect the fact that choosing the apprentice/trainee pathway requires knowledge of the industry, occupation and the concept of employer-based training.

It also requires making a connection to a business willing to take on apprentices, which migrants from CALD backgrounds may find difficult. It may also be a result of migrant families preferring the better-known higher education pathway, given its perceived higher prestige and more straightforward, nationally consistent funding arrangements.

This signals more work could be done to facilitate transitions from school to the apprentice/trainee pathway for students from a range of backgrounds.



Education pathway and industry at 25

Looking at the relationship between a young person’s field of study and the industry sector in which they were working at 25, some fields – Education and Training, Architecture and Building and Health – had clear ‘alignment’ with particular industry sectors.

Engineering, Information Technology, Management and Commerce, Society and Culture, Environmental and related studies and Creative Arts led to work in a more diverse range of industry sectors.

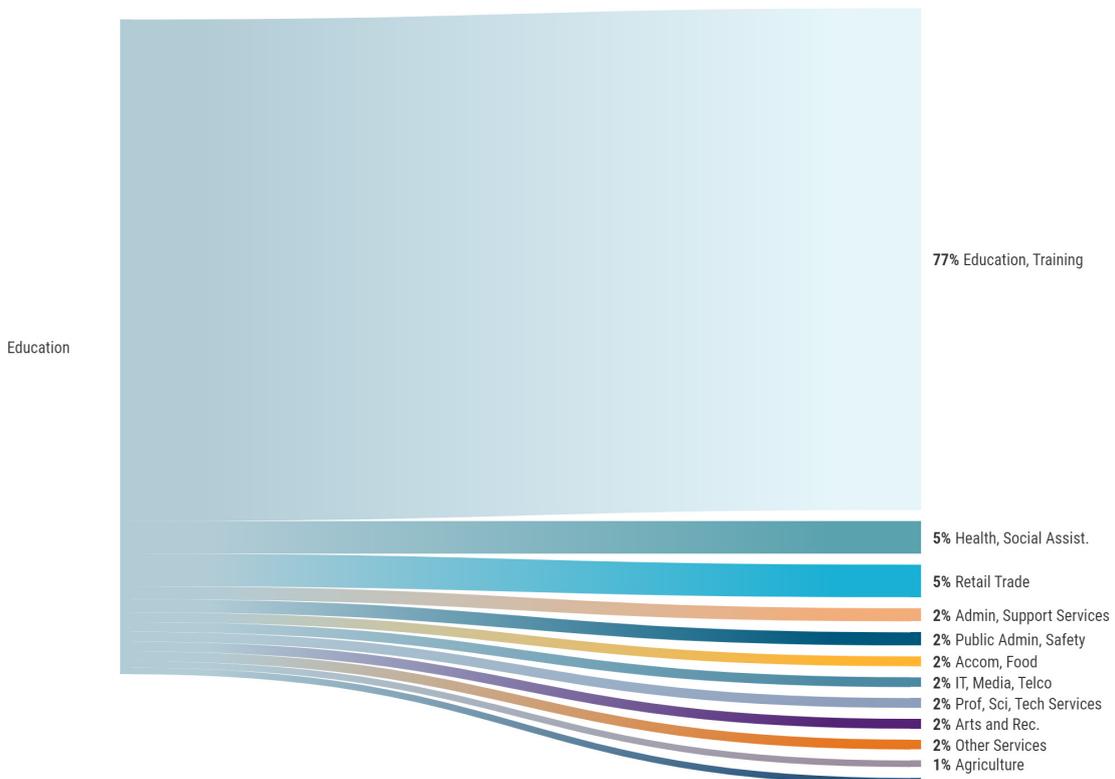
We wanted to know more about the pathways young people take as they navigate the workforce in their early twenties. We did this by looking at the field of study in which the respondent obtained

their qualification, for example ‘Health’ or ‘Management and Commerce’, and the industry sector in which they were working at age 25, for example ‘Education and Training’ or ‘Manufacturing’.

The fields of study with the strongest ‘alignment’ with certain industry sectors at 25 were Education and Training, Architecture and Building and Health.

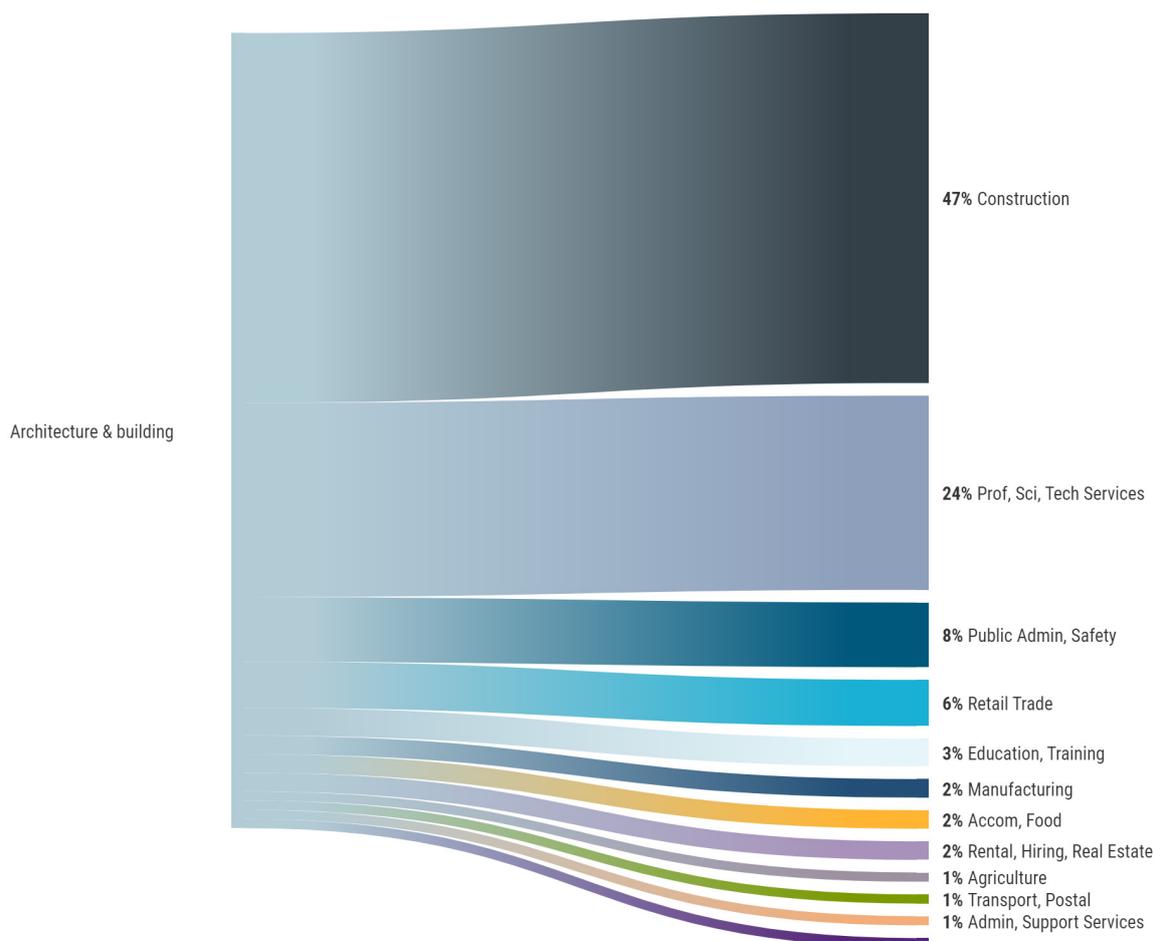
77% of respondents holding a qualification in the Education and Training field of study were working in the Education and Training industry sector at age 25. This is also an industry sector with high levels of structured work-integrated learning as part of learning pathways.

Figure 10: Respondents with a qualification in Education and Training - industry sector at 25



Among those holding qualifications in Architecture and Building at 25, just under half (47%) were working in Construction and a further 24% working in Professional, Scientific and Technical Services.

**Figure 11: Respondents with a qualification in Architecture and Building
- industry sector at 25**



However, qualifications in other fields of study led young people to work in a more diverse spread of industry sectors at age 25.

For example, respondents with a qualification in Engineering were spread across 17 industry sectors, with 30% in Professional, Scientific and Technical Services, 16% in Construction and 11% in Manufacturing.

This is also the case with those holding a qualification in Information Technology. These young people were working across a wide range of industry sectors, most notably Professional, Scientific and Technical Services (42%).

Figure 12: Respondents with a qualification in Engineering – industry sector at 25

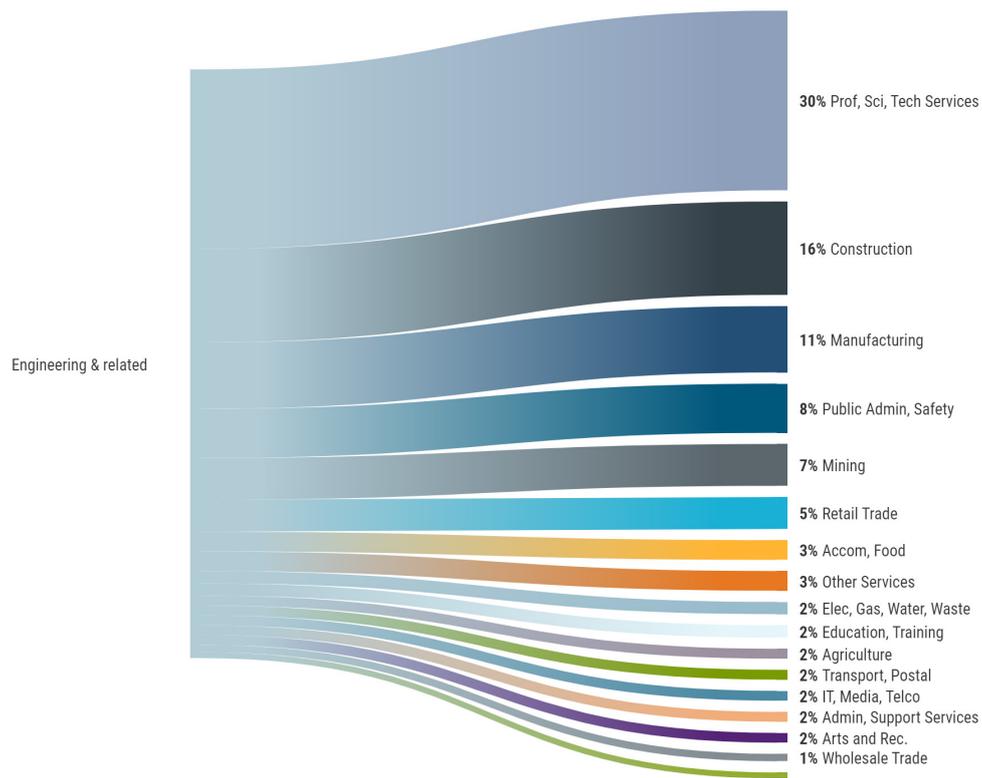
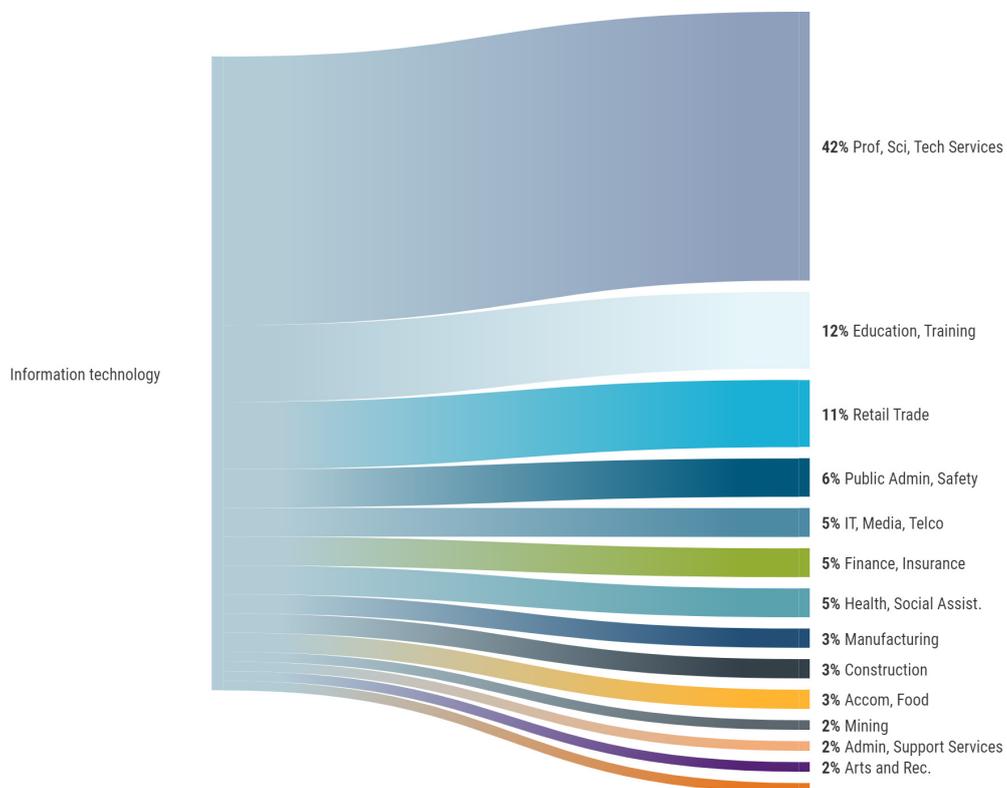


Figure 13: Respondents with a qualification in Information Technology – industry sector at 25



What does this tell us?

Our economy is transforming at a rapid rate, driven by advances in technology and a range of unpredictable global economic forces. For many, there is no longer a direct relationship between study and a particular industry pathway. Instead, there is an expectation that many will apply their knowledge, skills and experience across a range of industry sectors over the course of their working lives.

Our findings bear this out in relation to Engineering and Information Technology in particular. The young people with qualifications in these fields were spread across a wide range of industry sectors at 25. This is not unexpected, given both fields of study develop skills and knowledge that are 'in demand', and can be applied across a range of settings.

The diversity of pathways seen here only further reinforces the importance of transferable 'core' skills (such as problem solving, teamwork, digital skills and

creativity). If our education and training system is to successfully prepare young people for multi-faceted, non-linear careers, it needs to develop these skills as part of every course at every level.

These skills can no longer be considered 'add ons' or 'nice to haves'. They must be a core component of education and training right across the higher education and vocational education sectors.



Education level and job skill level at 25

Young people with a high school certificate and those with postgraduate qualifications had the strongest ‘alignment’ between their education and the skill level of their job at 25.

We looked at how strong the alignment or ‘match’ was between the skill level of the young person’s job at 25 and their education. For each respondent we compared the skill level of education attained against the ANZSCO (Australian and New Zealand Standard Classification of Occupations) skill level rating for their reported occupation at age 25.

Table 1. ANZSCO skill classification system

ANZSCO Skill Level	Corresponding qualification
Skill Level 1	Bachelor’s degree or higher
Skill Level 2	Associates Degree, Advanced Diploma or Diploma
Skill Level 3	Certificate IV, Certificate III (including 2 years training)
Skill Level 4	Certificate II or III
Skill Level 5	Compulsory secondary education or Certificate I

For example, a young person who has completed a bachelor’s degree in Accounting or related field (Skill Level 1 qualification) and reports ‘Accountant’ (ANZSCO Skill Level 1 occupation) as their job at 25, would have a skill level ‘match’.

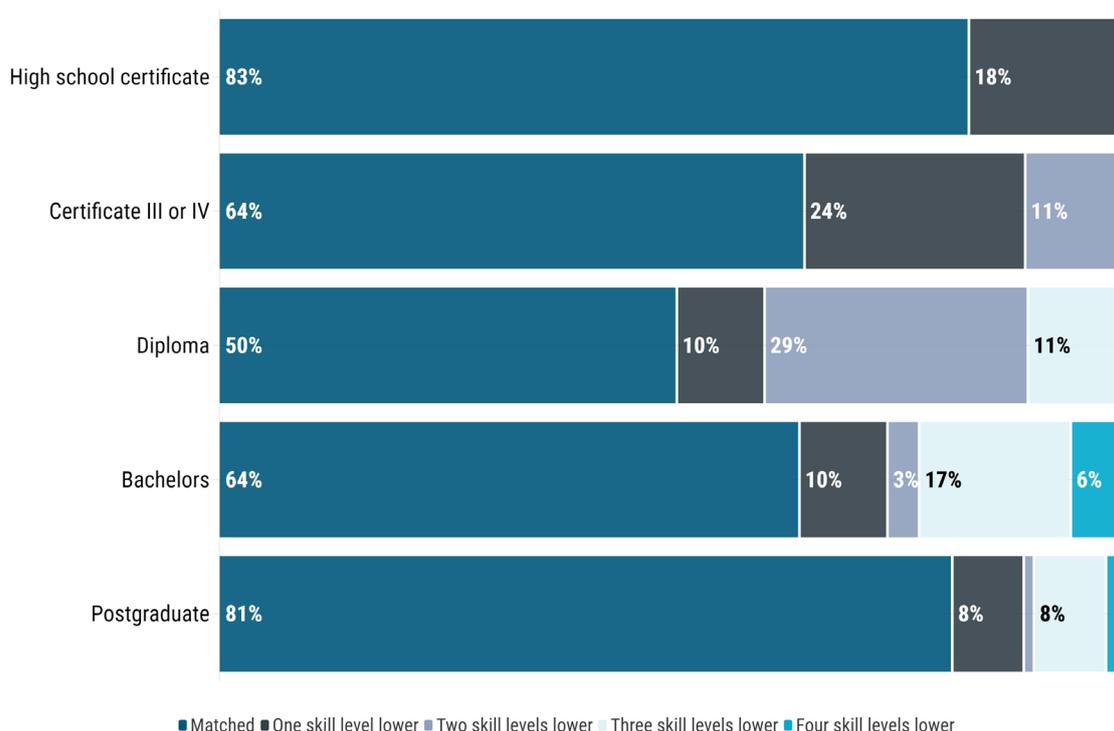
By contrast, a young person who had completed a bachelor’s degree in Accounting or a related field, but who reports working as a ‘bookkeeper’ (ANZSCO Skill Level 4 occupation) is working three skill levels below their level of education and training.

Note that there is no specific skill classification for individuals who graduated from high school but did not complete a post-secondary qualification at certificate level III or above. For the purposes of this analysis, high school graduation was deemed to provide the

skills required for an occupation at Skill Level 4. Note also that if an individual was working in an occupation with a skill level above that consistent with their highest level of education, they were deemed to be ‘matched’. Finally, individuals who have not completed high school or completed a certificate level II or higher can only be ‘matched’ here. There are no occupation skill levels below 5.

Using this measure, the skill level matches were strongest at either end of the education spectrum, with respondents with a high school certificate and those with postgraduate qualifications having the strongest alignment between their education and the skill level of their job at 25.

Figure 14: Skill level alignment between education and work



Perhaps unsurprisingly, those reporting a high school certificate as their highest level of education had strong ‘matches’ between their education and the skill level of their employment at 25 (83%). This reflects the fact that these young people had the least scope for skill mismatch, given they were considered ‘matched’ if they were working at Skill Level 4 or above.

At the other end of the spectrum there was also a strong ‘match’. 81% of those who had completed a postgraduate degree were working in ‘matched’ Skill Level 1 occupations.

Respondents with diplomas had the greatest level of skill ‘mismatch’, with half (50%) working in jobs at a skill level below their diploma qualification. Of these, nearly

a third were working in jobs that were two skill levels lower than their qualification.

Those with certificate III/IVs fared somewhat better, with these qualifications resulting in 64% of respondents working in jobs that matched their skill level. However, nearly a quarter (24%) were working one skill lower.

Respondents with bachelor’s degrees also had relatively high levels of skill ‘mismatch’, with a total of 36% working in jobs below the skill level aligned with their qualification. 17% of these respondents reported working in a job three skill levels below that aligned with a bachelor’s degree, and 6% were working in a job four skill levels lower.

What does this tell us?

These findings raise a range of questions about how to create better alignment between the education and training pathways young people pursue and the work they go on to do.

Some 'mismatch' between education level and skill level of work at 25 can be expected. For most, 25 is the early stages of a career, with many having only recently completed study or training. For these young people, it could be expected that new roles in higher occupation skill levels and closer 'matches' with their education level are on the horizon.

However, again, we see a similar pattern with strong outcomes at either end of the education spectrum and more mixed results in relation to certificate, diploma and bachelor's levels.

It is in the interests of young people and industry to have strong alignment between the knowledge, skills and capabilities developed through education and training and those applied in work.

Addressing the degree of 'mismatch' at age 25 points to a number of policy interventions: better career advice, better information – for both policymakers and young people - on industries and occupations in demand, better targeting of funding for tertiary places, and more work-integrated learning, to ensure more integration between learning and application.

The new Jobs and Skills Australia has the remit to deliver timely data on evolving skills needs for the benefit of students, prospective students, the education and training system, industry and government. There is an expectation that this evidence base could lead to more informed policy and funding architecture, and, in time, better alignment between the education and training on offer and the evolving skill needs across the economy.



Job satisfaction at 25

Field of study and job satisfaction

Fields of study with higher levels of structured work-integrated and work-based learning had higher levels of job satisfaction at age 25.

The survey asked respondents whether they 'like their job as a career' and about their level of satisfaction with their work (on a scale from 0 to 10) across 9 further dimensions:

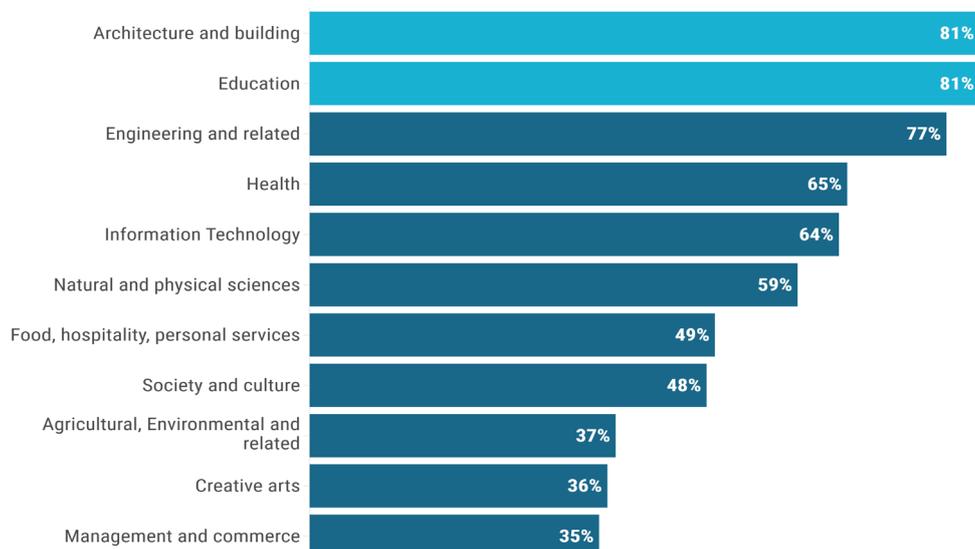
- ▶ The kind of work they do
- ▶ Opportunities for training
- ▶ The pay they get
- ▶ The tasks they are assigned
- ▶ Satisfied with their boss or supervisor
- ▶ Recognition for tasks well done
- ▶ Other people they work with
- ▶ Opportunities for promotion
- ▶ Opportunities to use skills and experience

We looked at the average satisfaction 'score' reported for each dimension across different fields of study.

'Like their job as a career'

Those holding qualifications in Education and Architecture and Building were most likely to report that they 'liked their job as a career'. This was closely followed by Engineering and related fields (77%), then Health (65%).

Figure 15: 'Like job as a career' by field of study



Management and Commerce and Creative Arts qualifications produced less satisfactory career pathways, with only around a third of those holding these qualifications reporting they 'like their job as a career'.

Satisfaction across all dimensions

Those holding a qualification in Architecture and Building reported the highest average satisfaction in five of the nine dimensions.

Engineering and related fields closely followed, with these students being the most satisfied in the four other dimensions.

Architecture and Building qualification holders were most likely to be satisfied with 'the kind of work they do' and 'the people they work with'. They were also, on average, the most satisfied with 'opportunities to use their skills and experience in their work'.

Engineering and related fields qualification holders were also, on average, the most satisfied with the 'pay they get' and 'opportunities for promotion'. They were also the most 'satisfied with their supervisor' and 'recognition for their work'.

Those with Agricultural, Environmental and related qualifications were, on average, least satisfied in five of the nine dimensions. Those with qualifications in this field reported the lowest satisfaction with 'the work they do' and the 'opportunities to use their skills and experience'. They were also the least likely to be satisfied with their 'opportunities for training' and 'recognition for tasks well done'.

Learning pathway and job satisfaction

Postgraduate and apprentice/trainee pathways led to the greatest job satisfaction at 25.

We then looked at these same dimensions of job satisfaction in relation to the respondent's learning pathway. Again, postgraduate and apprentice/trainee pathways delivered the highest outcomes across the board, with these two learning pathways claiming the highest average scores across all nine dimensions.

Perhaps unsurprisingly, those with no post-secondary education were among the least satisfied with their work at 25, with certificate and diploma holders also reporting low scores.



Table 2: Job satisfaction by learning pathway – least and most satisfied on average

Satisfaction dimension	Least satisfied	Most satisfied
The kind of work	No-post secondary	Postgraduate
Opportunities to use skills and experience	No-post secondary	Apprenticeship/traineeship
Immediate boss or supervisor	Diploma	Postgraduate
Other people you work with	Certificate	Postgraduate
Remuneration	Certificate	Apprenticeship/traineeship
Opportunities for training	No-post secondary	Postgraduate
The tasks assigned	Certificate	Apprenticeship/traineeship
Recognition	Diploma	Postgraduate
Opportunities for promotion	No-post secondary	Postgraduate

Level of education and job satisfaction

Higher levels of educational attainment correspond to greater levels of job satisfaction at 25.

We then looked at job satisfaction in relation to the respondent’s education level, isolating the effect of education level from the effect of completion of an apprenticeship or traineeship.

We used high school certificate as the baseline (zero) and the results presented here show the variation above (positive) and below (negative) that baseline for different levels of education. Note that these results adjust for the influence of a range of other factors on job satisfaction:

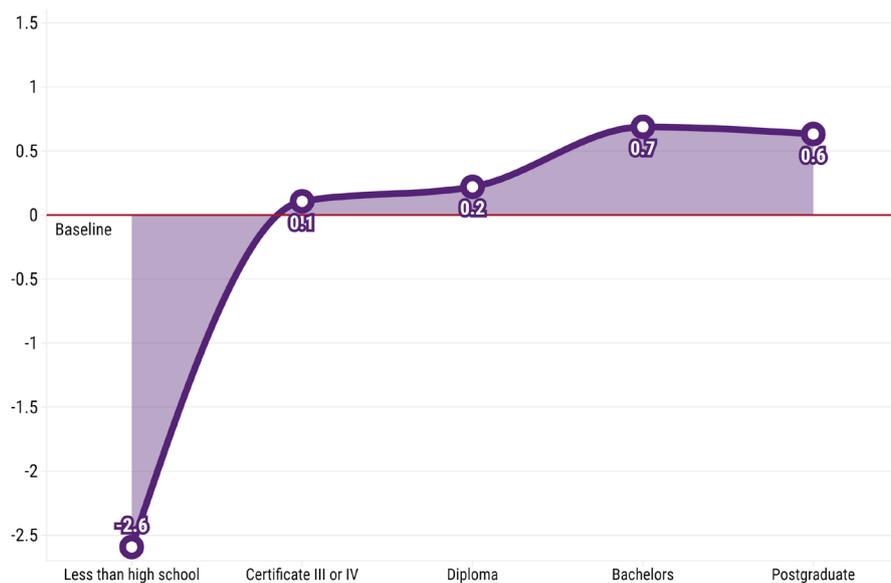
gender, ATSI status, immigrant status, completion on apprenticeship or traineeship and skill level match.

The big picture story is clear - higher levels of educational attainment by 25 correspond to greater levels of job satisfaction.

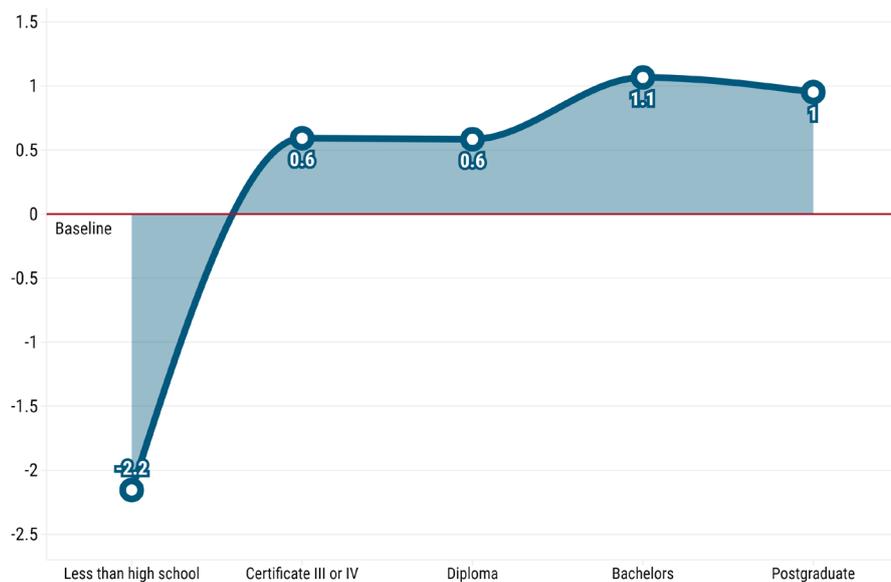
In relation to the 'kind of work', and 'opportunities to use skills and experience' higher levels of education resulted in higher levels of satisfaction. Those with bachelor's and postgraduate degrees were clearly the most satisfied. Those with 'less than high school' education were the least satisfied.

**Figure 16: Job satisfaction by education level –
kind of work and opportunities to use skills and experience**

Satisfied with the kind of work



Opportunities to use skills and experience



It was a similar story with 'pay' and 'opportunities for training', with those holding higher education qualifications more satisfied.

Figure 17: Job satisfaction by education level – pay and opportunities for training



What does this tell us?

This illustrates how higher levels of education can drive greater satisfaction with work. Likewise, the much lower levels of job satisfaction reported by those with less than high school education shows the significant gains in wellbeing that can be made by improving baseline education levels in the workforce.

Pay at 25

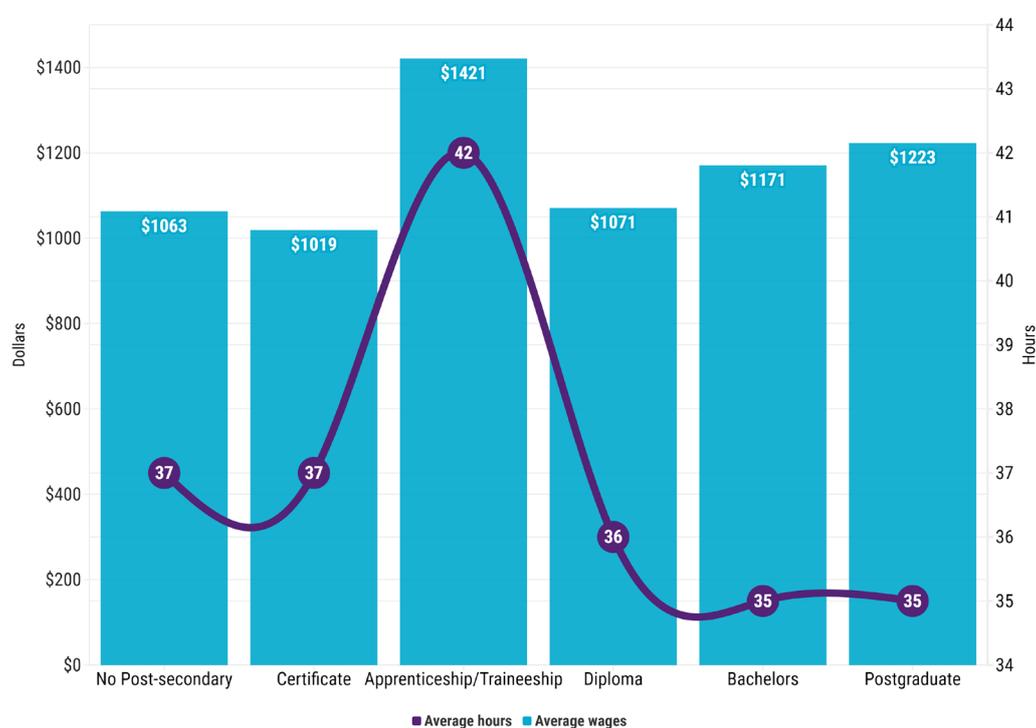
Apprentice/trainee qualified workers had the highest average weekly wages at 25.

Among our sample, those with apprenticeship/traineeship qualifications reported the highest average weekly

wages at 25, although they also worked the most hours. While earning 16% more than their postgraduate counterparts at 25, they also reported working 7 additional hours on average per week.

Again, it was apprenticeship/traineeship and postgraduate qualified workers reporting the strongest outcomes at 25.

Figure 18: Average weekly hours and average weekly wages by learning pathway



What does this tell us?

These findings, again, are a strong endorsement of the apprentice/trainee pathway and the many benefits that can follow, including higher pay.

However, we should exercise some caution in drawing conclusions comparing pay at age 25. Other evidence suggests higher-qualified workers are likely to have stronger wage growth over their careers. When we look at experienced, full-time workers, the recent census showed that

among workers aged 50-54, 30% of those with a bachelor's degree or above reported an income roughly between \$100-\$150k. Whereas, only 16% of workers of that age with Certificate III and IV qualifications reported this income (ABS 2022b).

Conclusion

How well young people move from school, through tertiary education and training and into the workforce matters. Not only to the young people themselves, or to the businesses that may employ them - but to us all.

Through our significant public investment in education and training, we are all, quite literally, invested in their success.

The survey data here tells us much about young people's pathways from school, through education and training and into work in their early twenties.

It reinforces the story we are already seeing in census and other data - that the policy interventions made over recent decades to increase access and participation to higher education, including for young people from disadvantaged or diverse backgrounds, have made their mark. More young Australians are gaining higher education degrees. While this is a great achievement, it is only one piece of a complex puzzle – and not an end in itself.

When we take the time to look at the pathways of the young Australians presented here, we see a more nuanced picture of our education and training system and its relationship to work.

Perhaps the most striking finding is the consistently strong outcomes – across a wide range of measures – of those holding both postgraduate degrees and apprenticeship/traineeship qualifications. This pattern, repeated throughout this research, reinforces the value of more specialised, focused or work-integrated learning pathways.

For the apprenticeship/traineeship pathway, this means employment-based learning, and direct and extensive

experience of the industry sector in which you intend to build your career. In short, you have a good idea what's coming, and the transition from learning to work is less of a leap. In the case of postgraduates, this may mean a narrower focus in subject matter, or a more career-oriented approach to study, with more life experience and an eye on the future.

The outcomes for bachelor's degrees warrant further attention, as they are perhaps not as strong as we might expect on some measures at 25. This signals a need to reflect on the role and purpose of a bachelor's degree in the context of much higher rates of higher education participation and attainment. We want, and need, young people pursuing this pathway to be well placed to enter the workforce, and to have opportunities to continue to develop and grow their potential as they progress their careers.

This leaves us with several signposts for policy reform, to ensure our education and training system continues to evolve to meet the needs of learners – young and old.

We need **one cohesive tertiary system**, with a **revised Australian Qualifications Framework (AQF)** that unlocks the hierarchical approach that currently dominates our thinking. This would allow for learning pathways that combine knowledge, skills and application in ways that are relevant and meaningful in building careers over a lifetime.

We need to **place greater value on pathways that utilise employment-based learning, such as the apprenticeship/traineeship model**. This means appropriate funding and incentives to ensure adequate pipelines and making more young people aware of the many benefits of this pathway. We also need to think about ways to utilise it in other industry sectors, or to combine this form of employment-based training with higher levels of knowledge in a higher education setting.

We need policies that support and incentivise **greater collaboration between industry and the tertiary education system** – across both the higher education and vocational education and training sectors.

This means more industry involvement in qualification and curriculum design and the creation and implementation of frameworks that support employment-based training, work-integrated learning and industry experience. This has multiple benefits - more learners developing the knowledge, skills and attributes that industry values, and industry thinking more deeply about skills and workforce needs over the medium term.

We need **more work-integrated learning** across all types of tertiary education, but particularly in higher education, with a focus on bachelor's students. This is not a new idea, with an existing body of evidence and expert analysis pointing to this as a way to improve the transition to work for more Australian students (Bean and Dawkins 2021). There is much room for improvement on this score in Australian universities.

We also need **more information and data on skills, careers and the evolving labour market** and the relationship with education and training pathways. This information is valuable to students, in the form of career advice, to policymakers in reforming the

system, and to education and training providers and industry, as they work together towards an intelligent and efficient education and training system that meets, perhaps even anticipates, our needs.

Given the varied careers young people will inevitably follow we need to focus, more than ever, on **cross-cutting or general capabilities** like teamwork, problem solving, communication and digital literacy. These skills are critical to navigating multiple industry sectors and workplaces over a career and need to be fostered by our education and training system from school onwards.

We also need to think critically about the **teaching, learning, assessment and quality assurance** that forms the backbone of our education and training system. Learners, industry and the community need to have a level of transparency and confidence in what is being taught, and what students know, or can do as a result. Existing assessment mechanisms are not keeping pace with advances in technology and the growing need for capabilities over knowledge. If we fall behind on this, we risk squandering our investment.

The time is ripe to focus on these reforms now, for the benefit of young Australians, and us all, as we meet the many challenges in our midst - lifting productivity, transitioning to a clean economy, raising digital capabilities and meeting ever-evolving skills needs.

Young people will be our greatest asset in meeting these challenges. Today's leaders in industry, policy and education need to create the tertiary education system they need to succeed.

References

Australian Bureau of Statistics. (2022a) *Education and Work, Australia*.

Australian Bureau of Statistics (2022b) *2021 Census, Population and Housing*.

Bean, M. and Dawkins, P. (2021) *Review of University - industry collaboration in teaching and learning*, Commonwealth Department of Education, Skills and Employment.

Bradley, D., Noonan, P., Nugent, H. and Scales, B. (2008) *Review of Australian Higher Education: Final Report*, Commonwealth Department of Education, Employment and Workplace Relations.

Commonwealth Department of Education, Skills and Employment (2022) *Selected Higher Education Student Statistics – 2020 Student Data*.

Good Education Group (2022) *The Good Universities Guide – Australian university rating and rankings 2022/2023*, custom dataset prepared by the Department of Education.

Foundation for Young Australians (2015) *The New Work Order: Ensuring young Australians have skills for the jobs of the future, not the past*.

Hurley, P., Coelli, P., Ta, B., Knight, L. and Hildebrandt, M. (2021) *Industry experiences and their role in education to work transitions* Research Report for the University-Industry Collaboration in Teaching and Learning Review, Department of Education, Skills and Employment.



Appendix 1

More on methodology

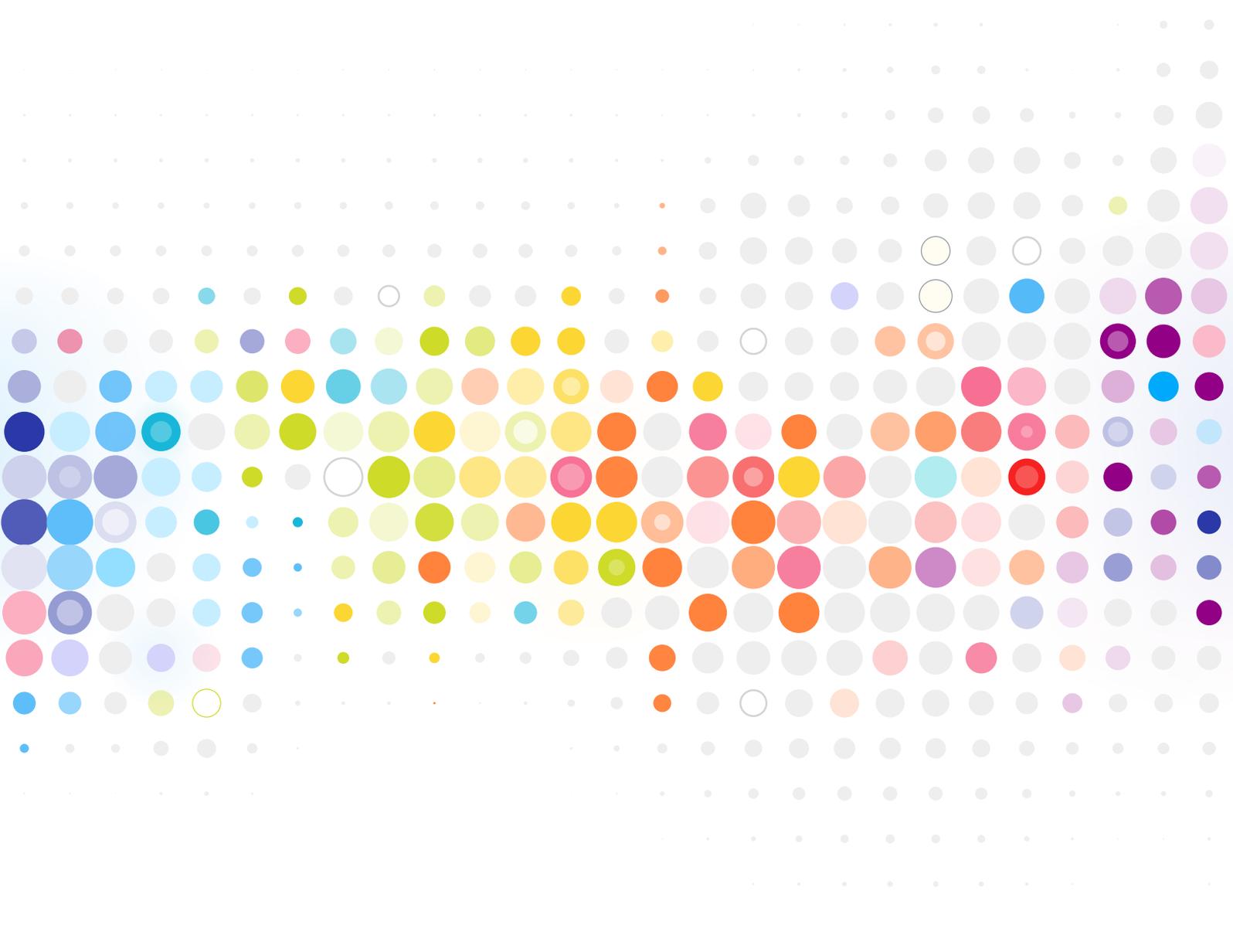
- ▶ The weights employed in the regression analysis were constructed as follows.
- ▶ Construct an indicator for being observed at age 25.
- ▶ Estimate Logit models for being observed at age 25 with the following variables included as covariates.
 - » Indicators for gender and indigenous status.
 - » Indicators for each state, provincial location and remote location.
 - » Indicators for Catholic and Independent schools.
 - » Separate indicators for immigrant status of the student and both parents, with immigrant status indicated separately for English-speaking countries and non-English speaking countries.
 - » Indicators for the highest education qualification of parents (as recorded in LSAY).
 - » Age at migration in years where applicable, set to zero for Australian-born.
 - » Age in months.
 - » Year level when tested.
 - » PISA test score measures from mathematics, reading and science tests taken at age 15.
- ▶ For a small number of students, information was missing on age at immigration. For such observations, the missing information was replaced by zeroes for the variable itself and an indicator for missing this information was added to the Logit model.
- ▶ After Logit estimation, the Logit predictions from the model were calculated.
- ▶ The weights were then constructed by dividing the LSAY weights accounting for the initial oversampling of indigenous and remote students (LSAY variable WT19GEN) by the Logit predictions.

The parental socioeconomic status (SES) quartiles were constructed as follows:

For each individual, the occupational prestige score AUSEI06 for the occupation held by each parent (or of one parent if only one parent's occupation was recorded) when the individual was aged 15 was recorded.

If occupations for both parents were reported, the highest prestige score was used. If only one parental occupation was recorded, it was used. If no parental occupations were recorded, an occupational prestige score based on the highest parental education level reported was used. This inferred prestige score was simply the average prestige score for parents with the same highest education level where both education and occupation were reported. In two cases where neither parental occupation nor education were recorded, occupational prestige was inferred from the average occupational prestige among parents of students enrolled in the same school the individual attended at age 15.

Re AUSEI06 see: McMillan, Julie, Adrian Beavis and Frank L. Jones (2009) "The AUSEI06: A new socioeconomic index for Australia" *Journal of Sociology*, 45(2): 123-149.



For further information or assistance please contact

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