



LONGITUDINAL SURVEYS OF AUSTRALIAN YOUTH
RESEARCH REPORT 66

The factors affecting the educational and occupational aspirations of young Australians

SINAN GEMICI
ALICE BEDNARZ
TOM KARMEL
PATRICK LIM



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National Centre for
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Publisher's note

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Level 11, 33 King William Street, Adelaide SA 5000

PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

P +61 8 8230 8400 F +61 8 8212 3436 E ncver@ncver.edu.au W <<http://www.ncver.edu.au>>

About the research

The factors affecting the educational and occupational aspirations of young Australians

Sinan Gemici, Alice Bednarz, Tom Karmel and Patrick Lim, NCVER

Given the strong link between young people's goals and their longer-term education and labour market outcomes, this report sets out to determine which factors drive the educational and occupational aspirations of young people. The authors shed light on important influences that drive young people's aspirations to complete Year 12, their plans to commence university study in the first year after leaving school, and their occupational aspirations at age 15 years in relation to the kind of job they expect to have at age 30 years. Identifying the factors with the potential to be influenced by policy is among the study's key objectives.

Key messages

- The most influential factors for students' aspirations for completing Year 12 include their academic performance and immigration background and whether their parents expect them to go to university.
- Students whose parents want them to attend university are four times more likely to complete Year 12 and 11 times more likely to plan to attend university compared with those whose parents expect them to choose a non-university pathway.
- The higher education plans of peers also have a strong influence: students whose friends plan to attend university are nearly four times more likely to plan to attend university.
- Two of the strongest predictors of occupational aspirations are parental influences and academic performance. Students whose parents want them to attend university have expected occupational status scores that are approximately 12 points higher, on a 0 to 100 scale, than those students whose parents have no university expectations for them.
- The job aspirations of 15-year-olds are somewhat unrealistic. By age 25 years, the age until which data are available for analysis, a significant portion of young people fall short of what they set out to achieve in terms of occupation. However, this does not mean that they cannot achieve their desired occupations at a later stage in life.

Overall, this report illustrates just how important parents and peers are to young people's aspirations. Developing policies and interventions that successfully leverage the influence of parents may yield a substantial pay-off with respect to raising aspirations.

Rod Camm
Managing Director, NCVER

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Executive summary

Despite strong evidence linking young people's goals and ambitions to their longer-term education and work outcomes, the specific factors most strongly influencing aspirations are not well understood. Although prior research has identified a number of general factors that drive young people's educational and occupational aspirations, the important question from a policy perspective is which of these factors matter most and whether they can be influenced by policy.

This study uses data from the 2009 cohort of the Longitudinal Surveys of Australian Youth (LSAY) to examine the ways by which relevant background characteristics influence young people's:

- aspirations to complete Year 12
- aspirations to commence university study in the first year after leaving school
- occupational aspirations at age 15 years vis-à-vis the kind of job they expect to have at age 30 years.

A variety of predictor variables are considered, including demographic background characteristics, parental and peer influences, individual academic performance and young people's overall perceptions of school.

An initial analysis of the factors that impact on aspirations confirms the importance of what might be referred to as the 'list of usual suspects' in youth transitions research. These factors include gender, English-speaking background, socioeconomic status (SES) and academic achievement at age 25 years, as well as parental and peer influences. In terms of importance, the results show that academic achievement at age 15 years is the most important predictor of Year 12 completion, followed by parental influence. For intentions to go to university immediately upon leaving school, the most important influencers are the perceived expectations of parents and peers. For expected occupational status at age 30 years, the most important factor again is the influence of parents, along with academic achievement at age 15 years.

This study also explored the extent to which the initial occupational aspirations of 15-year-olds aligned with their actual occupational outcomes about a decade later. The results are not surprising, in that young people's aspirations are somewhat unrealistic, with the distribution of aspirations being quite skewed towards high-status jobs. By age 25 years, the age until which data are available for analysis, a significant portion of young people fall short of what they set out to achieve in terms of occupation. However, this does not mean that they cannot achieve their desired occupations at a later stage in life.

A key insight from this study is just how critical parental influences are in driving young people's educational and occupational aspirations. From a policy perspective, the results from this study reinforce the importance of parent-focused interventions. One example of a successful intervention is the Parents as Career Transition Supports (PACTS) program. This program provides parents and caregivers with free advice on educational pathways and on how to communicate with young people about their careers. An evaluation of the program showed that the proportion of parents who discussed post-school options with their children increased significantly after their participation in it. Expanding the provision of programs that actively engage parents in the career decision-making process may be an effective means for raising the educational and occupational aspirations of Australian youth.

Introduction

The current interest in young people's aspirations is based on strong evidence that links goals and ambitions to longer-term education and work outcomes (Beal & Crockett 2010; Homel & Ryan 2014; Khoo & Ainley 2005; Lee 2010; Ou & Reynolds 2008; Sikora & Saha 2011). Given the central role of aspirations in the transition from school to tertiary education and work, it is important to understand which particular factors influence the educational and occupational aspirations of teenagers. Studies from the United States have associated the formation of aspirations with socio-demographic factors, including gender, socioeconomic status and ethnic background (Lee & Rojewski 2009; Mello 2008, 2009). In the Australian context, aspirations have been linked to gender, Indigenous status, home language and location (Ainley et al. 2011). Moreover, external influences play a role in the formation of aspirations. Such influences include parental expectations for their children (Benner & Mistry 2007; Kirk et al. 2011) and the educational plans of their peers (Buchmann & Dalton 2002).¹

While prior research has identified a number of general factors that drive young people's educational and occupational aspirations, the important question from a policy perspective is which of these factors matter most and whether they can be influenced by policy. A related question is the extent to which the occupational aspirations of teenagers align with their actual longer-term job outcomes.

This report uses data from the Longitudinal Surveys of Australian Youth to address these questions by examining young people's plans to complete Year 12, their aspirations to commence university study in the first year after leaving school and their expected² occupation at age 30 years. Particular emphasis is given to the impact of socio-demographic background factors, academic performance, parental and peer influences, and young people's overall perception of the school experience.

Of the four sections comprising the remainder of this report, the first describes the data and sample. The following section examines the factors that matter most for each of the aspiration outcomes of interest (that is, plans to complete Year 12, aspirations to commence university study, expected occupation at age 30 years). The penultimate section compares the initial occupational aspirations of 15-year-olds with their actual occupational outcomes about a decade later; the last section presents the conclusion.

¹ For a more comprehensive review of recent literature on young people's educational and occupational aspirations readers are referred to the Nguyen and Blomberg briefing paper (2014).

² Although the terms 'expectations' and 'aspirations' are often used interchangeably, in formal terms they represent slightly different concepts. The term 'aspirations' captures a more idealised notion of what one would like to accomplish, whereas 'expectations' forms a more realistic assessment of one's possibilities for future achievements (Reynolds & Pemberton 2001). For simplicity, the terms 'expectations' and 'aspirations' are used synonymously throughout this report.

Data and sample

This study used data from the 2009 cohort of the Longitudinal Surveys of Australian Youth.³ LSAY tracks a nationally representative sample of 15-year-olds over a period of approximately ten years to capture young people's transition from school to tertiary education and work. The 2009 base year of LSAY is linked to the 2009 Programme for International Student Assessment (PISA; OECD 2010), which provides a rich set of individual background measures. A total of 14 251 students participated in the 2009 base year.

Outcome measures

The overarching purpose of this study is to shed light on the ways by which relevant background characteristics influence young people's:

- plans to complete Year 12
- aspirations to commence university study in the first year after leaving school
- occupational aspirations at age 15 years vis-à-vis the kind of job they expect to have at age 30.

In the LSAY–PISA survey, students are asked at the age of 15 years whether they plan to complete Year 12. The original answer choices comprise '(1) Yes, I plan to complete Year 12', '(2) No, I do not plan to complete Year 12' and '(3) I am not sure at this time'. Table 1 lists the frequency of responses for each answer category.

Table 1 Frequency distribution for plans to complete Year 12 (unweighted)

Category	n	%
Plans to complete Year 12	10 684	74.97
Does not plan to complete Year 12	659	4.62
Not sure at this time	1 129	7.92
Missing ¹	1 779	12.48
Total	14 251	100.00

Note: 1 Some of the variables in the LSAY 2009 base year dataset have missing data.⁴

For the purpose of this study, answer choices were dichotomised, whereby options 2 and 3 were grouped together. This was based on the rationale that lacking a clear intent to complete Year 12 is qualitatively different from planning to complete.

LSAY respondents are also asked about their plans for the year immediately after they leave school. Answer choices comprise a wide variety of options, such as going to university, vocational training options, travel and others. To create the second outcome measure for this study, answer options were reduced to either planning to go to university or not planning to go to university in the year

³ In addition to the 2009 LSAY cohort, the final section of this report also used the earlier 1998 LSAY cohort.

⁴ See descriptive statistics in section A of the accompanying support document. Missing data were addressed using multiple imputation (Rubin 1987). Specifically, SAS software was used to create and analyse 20 imputed datasets using multiple imputation. Details on multiple imputation and how to implement the method using SAS are provided in Gemici, Bednarz & Lim (2011).

immediately after leaving school.⁵ Table 2 provides the frequency distribution for university aspirations.

Table 2 Frequency distribution for aspiring to attend university (unweighted)

Category	n	%
Aspires to attend university	4 185	29.37
Does not aspire to attend university	4 518	31.70
Missing	5 548	38.93
Total	14 251	100.00

The final outcome measure, students' occupational aspirations, was constructed from a survey item asking about the kind of job that respondents expect to have at age 30 years. Answers were transposed to the Australian Socioeconomic Index 2006 scale (AUSEI06; McMillan, Jones & Beavis 2009), which is a continuous measure of occupational status, ranging from 0 (low status) to 100 (high status). Examples of AUSEI06 scores, along with their respective occupations, are provided in table 3, while descriptive statistics for the occupational aspirations outcome are given in table 4.

Table 3 Examples of AUSEI06 occupational status scores

Occupation	AUSEI06 scores
Medical practitioners	100
Other high-status health professionals	94
University lecturers	92
Legal professionals	91
...	...
Packers	6
Agricultural and related workers	5
Textile machine operators	3
Labourers not elsewhere classified	0

Table 4 Descriptive statistics for occupational aspirations (unweighted)

Category		
Continuous	Mean: 67.25	SD: 23.45
Missing	n = 4 866	34.14%

Predictors

This study accounted for a variety of predictor variables which can be grouped into four main categories: socio-demographic background characteristics; parental and peer influences; individual academic performance; and young people's overall perceptions of school.

Socio-demographic background

Socio-demographic background characteristics included in this study were gender, Indigenous status, socioeconomic status,⁶ location (metropolitan versus not metropolitan), family structure (traditional

⁵ One of the answer choices asks whether students are planning to take a gap year after leaving school. It would have been preferable to have an outcome covering those planning to go to university immediately *or within one year after leaving school* (to account for gap years); however, the LSAY questionnaire does not accommodate this. According to Lumsden & Stanwick (2012), 24% of Year 12 completers took gap years in 2009–10.

nuclear family versus other) and immigration status (Australian-born versus first-generation versus foreign-born).

Parental and peer influences

The impact of parental and peer influences was captured via parents' post-school plans for their child (attending university versus not attending university), as well as whether students' friends expected to attend university. The actual question asked in the LSAY 2009 survey regarding parents is as follows:

In the year immediately after you leave school ... What do your parents want you to do?

- | | |
|--|--|
| 1 Go to University | 9 Something else |
| 2 Get an apprenticeship | 10 Travel |
| 3 Get a traineeship | 11 Self-development in sports or performing arts |
| 4 Go to a TAFE or VET (vocational) college | 12 Defence force |
| 5 Do some other study or training | 97 N/A |
| 6 Look for work/get a job | 98 Invalid |
| 7 Gap year/time off | 99 Missing/no response |
| 8 Don't know | |

Similarly, the question regarding peers is as follows:

In the year immediately after you leave school ... What do most of your friends plan to do?

- | | |
|--|--|
| 1 Go to University | 9 Something else |
| 2 Get an apprenticeship | 10 Travel |
| 3 Get a traineeship | 11 Self-development in sports or performing arts |
| 4 Go to a TAFE or VET (vocational) college | 12 Defence force |
| 5 Do some other study or training | 97 N/A |
| 6 Look for work/get a job | 98 Invalid |
| 7 Gap year/time off | 99 Missing/no response |
| 8 Don't know | |

It is important to emphasise that in LSAY these predictors are measures of *students' perceptions* of their parents' expectations and their peers' educational destinations: they are not the reported expectations and destinations of the parents and peers themselves.⁷ For simplicity, students' perceptions of parental and peer expectations/destinations are referred to as 'parental and peer influences' throughout the report.

Academic performance

PISA assesses the literacy of 15-year-olds in three major domains: reading, mathematics and science. These literacy scores are often used as proxies for academic performance. In this study, a composite

⁶ SES was determined using the index of economic, social, and cultural status (ESCS), which is a standard variable available in the 2009 LSAY–PISA dataset. The ESCS index is a summary measure that jointly reflects parental occupation, parental education and a wide range of home possessions (see OECD 2012 for details).

⁷ The potential effect of this is that the correlation between students' own aspirations and the reported parental and peer influences may be inflated.

academic performance measure was created by averaging students' reading and mathematics literacy scores.⁸ Science scores were omitted to avoid multi-collinearity.

Perceptions of school

The LSAY–PISA 2009 dataset contains information on four aspects of schooling that relate to how students perceive their overall school experience:

- attitudes toward school
- relations to teachers
- the perceived disciplinary climate at their school
- the perceived quality of teachers at their school.

Information on each of these four aspects of schooling is available in two different formats: as raw responses to individual questionnaire items and as composite summary scores. Descriptive statistics for individual item responses and summary scores are provided in section A of the accompanying support document.

⁸ PISA calculates five plausible value scores per domain and student (see OECD 2012 for details). The academic performance measure used in this study was calculated from the first of the five plausible value scores.

Which are the strongest drivers of aspirations?

To gain a basic understanding of the factors in the LSAY 2009 dataset that drive young people's aspirations, regression models were fitted for each of the three outcomes under consideration. Logistic regression models were fitted for the two binary outcomes: planning to complete Year 12 (yes/no), and planning to attend university immediately after leaving school (yes/no). A standard ordinary least squares (OLS) regression model was fitted for the continuous outcome of expected occupational status at age 30 years (using AUSEI06; McMillan et al. 2009). The explanatory variables consisted of the predictors described in the previous section – socio-demographic background characteristics, academic performance, parental and peer influences, and four aspects of schooling that relate to students' overall perceptions of their school experience.

Plans to complete Year 12

The first outcome variable was whether students at age 15 years expected to complete Year 12 (yes/no). The pooled⁹ logistic regression results for this outcome are provided in table 5. Influential predictors include students' academic performance, their immigration background and their parents' higher education expectations. In particular, students whose parents want them to attend university are *four times* more likely to complete Year 12 than those whose parents would like them to choose a non-university pathway.

Note that the results for the predictor 'Indigenous status' are somewhat counterintuitive, as they associate being Indigenous with *stronger* Year 12 completion aspirations. One likely reason is selection bias, given that participants were interviewed at age 15 years. It is likely that the Indigenous students in the LSAY sample are systematically different from those Indigenous students who had *already dropped out of school* prior to age 15 years. In other words, the Indigenous students who were interviewed, having stayed in school to age 15 years, may be far more resilient and goal-oriented than Indigenous students who had left school before the age of 15 years. In support of this hypothesis, Homel et al. (2012) found that Year 12 completion among Indigenous students in the LSAY Y03 cohort was much higher than that found in the broader population.

To understand this counterintuitive result for Indigenous students more fully, Indigenous status was cross-tabulated against academic performance. The results show that Indigenous students in the lowest academic performance bands are *more likely* than their non-Indigenous counterparts to state that they plan to complete Year 12. A detailed discussion of this finding is provided in section B of the accompanying support document.

⁹ 'Pooling' is the process of combining the parameter estimates from each imputed dataset to obtain a final single set of parameter estimates. Further details on multiple imputation are provided in Gemici et al. (2011).

Table 5 Logistic regression results for planning to complete Year 12¹

Parameter	Level	β	Std error	Odds ² ratio	Pr > t
Gender	Male	-0.64***	0.08	0.53	<.001
	Female [R] ³				
Indigenous status	Indigenous	0.64*	0.27	1.89	0.020
	Non-Indigenous [R]				
Location	Regional/remote	-0.12	0.09	0.89	0.177
	Metropolitan [R]				
Family structure	Non-nuclear family	-0.14	0.10	0.87	0.173
	Nuclear family [R]				
Immigration background	First-generation students	0.29**	0.10	1.33	0.003
	Foreign-born students	0.70***	0.17	2.02	<.001
	Australian-born students [R]				
SES	Continuous (std)	0.19***	0.05	1.21	<.001
Attitudes to school	Continuous (std)	0.50***	0.05	1.65	<.001
Teacher quality	Continuous (std)	0.03	0.04	1.03	0.545
Teacher–student relations	Continuous (std)	0.21***	0.05	1.24	<.001
Disciplinary climate	Continuous (std)	0.06	0.04	1.07	0.116
Academic performance ⁴	Continuous	0.74***	0.05	2.10	<.001
Peers' higher ed. aspirations	University	0.05	0.13	1.05	0.709
	Not university [R]				
Parents' higher ed. aspirations	University	1.37***	0.11	3.93	<.001
	Not university [R]				
Constant		-1.97***	0.26		<.001
N	14 251				
Pseudo R-squared	0.24				

Notes: * <0.05 ** <0.01 *** <0.001.

- 1 To facilitate the interpretation of regression results, the continuous predictors *SES*, *attitudes to school*, *teacher quality*, *teacher–student relations* and *disciplinary climate* were standardised to a mean of 0 and a standard deviation of 1.
- 2 For dichotomous outcome variables such as plans for Year 12 completion or university enrolment, β -coefficients from logistic regression cannot be interpreted directly and are therefore commonly converted to odds ratios.¹⁰
- 3 In the logistic regression analysis, each categorical predictor has one of its levels denoted as the 'reference category', or 'base case'. For example, gender has two levels: 'female' and 'male'. In this study, 'female' is taken as the reference category, and the effect of varying gender from female to male is then estimated. The reference categories for the other predictors are denoted by [R].
- 4 The coefficient gives the increase in the logit for a 100-unit increase in a student's academic performance score.

¹⁰ For instance, in the case of plans to complete Year 12, the odds ratio for foreign-born students represents the probability that foreign-born students plan to complete Year 12 relative to the odds of Australian-born students, who are the reference category. If the probabilities are equal for both foreign-born and Australian-born students, the odds ratio will be 1. If the probability of planning to complete Year 12 is greater for foreign-born students, the odds ratio will be greater than 1. Likewise, if the probability is greater for Australian-born students, the odds ratio will be less than 1. For continuous predictors such as SES, the odds ratio is interpreted as the change in the probability of being enrolled at university as a result of a one-unit change in the predictor's respective unit of measurement. For the standardised SES variable, this means a change of one standard deviation.

So far, the logistic regression analysis has identified a set of predictor variables that influence students' plans to complete Year 12. The interesting policy question now is: which of these predictors matter most, and for which groups of students? One approach to exploring this question is via the Chi-square Automatic Interaction Detection (CHAID) method. Based on influential predictors, CHAID places respondents into maximally different groups to best predict the outcome of interest. The CHAID method creates a tree diagram which allocates influential predictors by order of relative importance.¹¹

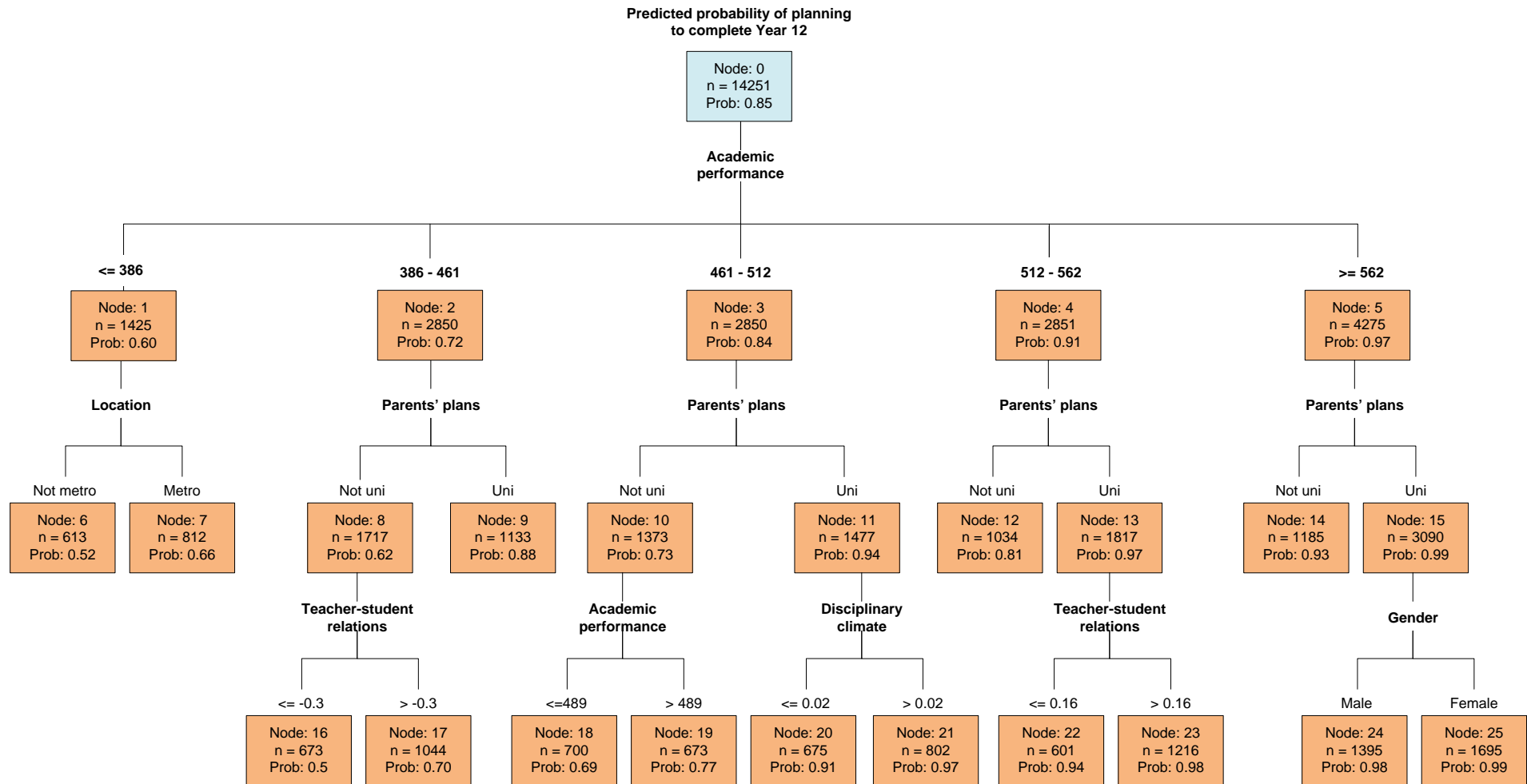
Figure 1 depicts the tree diagram for students' plans to complete Year 12. The top node represents the outcome variable, Year 12 plans, and contains information on the frequency distribution of those who plan to complete versus those who do not. The lower-level nodes display influential predictors of Year 12 plans in descending order of magnitude. For the purpose of visual clarity, the tree diagram is limited to three levels beneath the outcome variable. Thus, only six predictors (academic performance, location, parents' plans, teacher–student relations, disciplinary climate and gender) of the ten *statistically significant* predictors identified in the previous logistic regression analysis appear in the diagram. This does not mean that the four remaining statistically significant predictors (Indigenous status, immigration background, socioeconomic status and attitudes toward school) are not meaningful; it just means that their *relative* impact on Year 12 plans is weaker and thus occurs at lower levels within the diagram.

The tree diagram shows that academic performance has the strongest impact on students' Year 12 plans. Students in node 1 (lowest academic performance) have a probability of 0.60 of intending to complete Year 12, compared with a probability of 0.97 for those in the highest academic performance group (node 5).¹² For students in the highest performance group, parental expectations about their children attending university is the next most important predictor, followed by student gender. Academically weaker students whose parents do not expect them to attend university and who have poor relationships with their teachers (node 16) have only *half* the probability of planning to complete Year 12 when compared with academic high achievers whose parents expect them to attend university and who are female (node 25).

¹¹ For technical details on CHAID, readers are referred to Biggs, De Ville & Suen (1991) or Magidson (1993).

¹² As can be seen in figure 1, academic performance appears a second time on the bottom level of the tree diagram. To clarify, this means that for those students who fall into the medium academic performance group and whose parents' plans are for them to not go to university, academic performance becomes the third most important variable for whatever variable would appear on the fourth level of the tree (not depicted).

Figure 1 Tree diagram for Year 12 plans



Plans to attend university

The second outcome variable of interest is students' plans to enrol at university immediately after leaving school (yes/no). The pooled logistic regression results for the probability of planning to attend university are provided in table 6.

Table 6 Logistic regression results for planning to attend university¹

Parameter	Level	β	Std error	Odds ratio	Pr > t
Gender	Male	-0.13	0.07	0.88	0.067
	Female [R]				
Indigenous status	Indigenous ²	0.39	0.28	1.48	0.164
	Non-Indigenous [R]				
Location	Regional/remote	-0.14	0.08	0.87	0.082
	Metropolitan [R]				
Family structure	Non-nuclear family	-0.04	0.09	0.96	0.635
	Nuclear family [R]				
Immigration background	First-generation students	0.15	0.08	1.16	0.073
	Foreign-born students	0.47***	0.12	1.61	<.001
	Australian-born students [R]				
SES	Continuous (std)	0.07	0.04	1.07	0.055
Attitudes to school	Continuous (std)	0.18***	0.04	1.20	<.001
Teacher quality	Continuous (std)	0.04	0.04	1.04	0.330
Teacher–student relations	Continuous (std)	0.14***	0.04	1.15	0.001
Disciplinary climate	Continuous (std)	-0.06	0.04	0.94	0.140
Academic performance ³	Continuous	0.17**	0.06	1.18	0.004
Peers' higher ed. aspirations	University	1.32***	0.07	3.76	<.001
	Not university [R]				
Parents' higher ed. aspirations	University	2.43***	0.08	11.40	<.001
	Not university [R]				
Constant		-3.12***	0.30		<.001
N	14 251				
Pseudo R-squared	0.43				

Notes: * <0.05 ** <0.01 *** <0.001.

1 To facilitate the interpretation of regression results, the continuous predictors *SES*, *attitudes to school*, *teacher quality*, *teacher–student relations* and *disciplinary climate* were standardised to a mean of 0 and a standard deviation of 1.

2 While not significant, the coefficient for Indigenous status has an unusual sign. Please see the earlier discussion for 'Year 12 plans' for further explanation.

3 The coefficient gives the increase in the logit for a 100-unit increase in a student's academic performance score.

As with Year 12 completion, parental expectations have the strongest influence on plans to attend university. This time the influence is even stronger. Students whose parents expect them to go to university are around *11 times* more likely to report that they plan to attend university when compared with students whose parents expect them to do something other than university. Peer plans also have a strong influence: students whose friends plan to attend university are nearly *four times* more likely to plan to attend university than their counterparts whose friends do not plan to attend university.

Again, CHAID tree diagrams are used to determine which of the identified statistically significant predictor variables matter most (figure 2). The principal drivers of young people’s plans to attend university in the first year after leaving school are parental expectations and peers’ plans. The next most influential set of predictors consists of academic performance, gender, attitudes toward school and teacher–student relations. Students whose parents do not expect them to go to university, whose friends do not expect to attend university and who are academic low achievers have a probability of only 0.04 of planning to attend university in the year immediately after leaving school (node 7). This compares with a probability of 0.9 for those whose parents and friends expect university attendance and who report very positive relations with their teachers (node 17).

Occupational aspirations

The final outcome variable considered is the occupational status of the job students expect to have at age 30 years (table 7). Recall that this outcome is measured using the AUSEI06 scale (McMillan et al. 2009), which is a continuous measure of occupational status, ranging from 0 (low status) to 100 (high status).

Table 7 OLS regression results for occupational aspirations¹

Parameter	Level	β	Std error	Pr > t
Gender	Male	-5.75***	0.44	<.001
	Female [R]			
Indigenous status	Indigenous ²	0.77***	1.03	0.457
	Non-Indigenous [R]			
Location	Regional/remote	-0.95***	0.52	0.068
	Metropolitan [R]			
Family structure	Non-nuclear family	-1.02***	0.55	0.066
	Nuclear family [R]			
Immigration background	First-generation students	2.08***	0.52	<.001
	Foreign-born students	6.19***	0.74	<.001
	Australian-born students [R]			
SES	Continuous (std)	2.02***	0.26	<.001
Attitudes to school	Continuous (std)	1.55***	0.26	<.001
Teacher quality	Continuous (std)	-0.03***	0.27	0.904
Teacher–student relations	Continuous (std)	0.91***	0.30	0.003
Disciplinary climate	Continuous (std)	0.54***	0.25	0.030
Academic performance ³	Continuous	7.29***	0.35	<.001
Peers’ higher ed. aspirations	University	1.51***	0.59	0.013
	Not university [R]			
Parents’ higher ed. aspirations	University	12.01***	0.59	<.001
	Not university [R]			
Constant		22.97***	1.82	<.001
N	14 251			
R-squared	0.32			

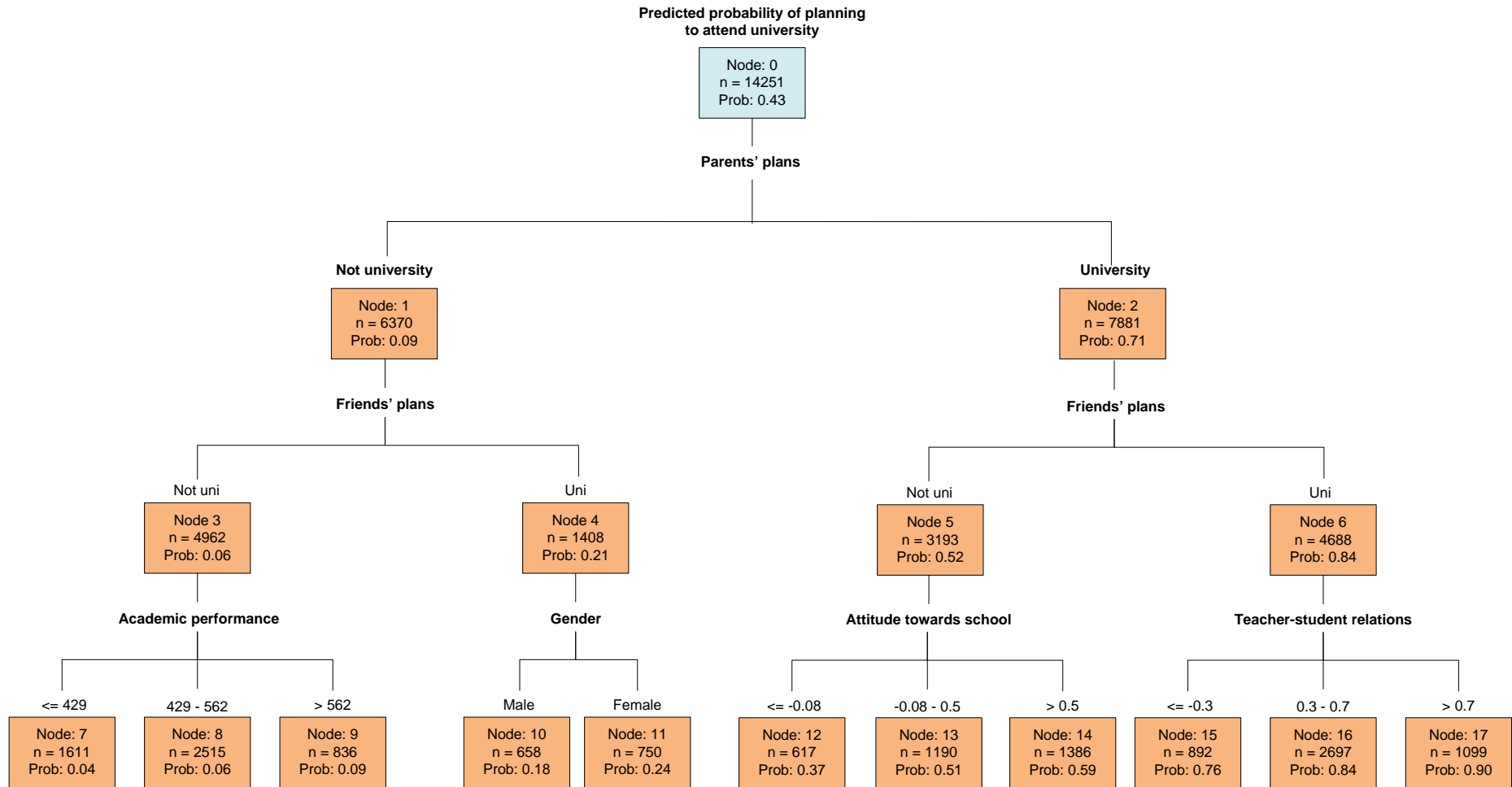
Notes: * <0.05 ** <0.01 *** <0.001.

1 To facilitate the interpretation of regression results, the continuous predictors *SES*, *attitudes to school*, *teacher quality*, *teacher–student relations* and *disciplinary climate* were standardised to a mean of 0 and a standard deviation of 1.

2 While not significant, the coefficient for Indigenous status has an unusual sign. Please see the earlier discussion for ‘Year 12 plans’ for further explanation.

3 The coefficient gives the increase in occupational status for a 100-unit increase in the academic performance score.

Figure 2 Tree diagram for university plans



Two of the strongest predictors are parental plans and academic performance. Students whose parents want them to attend university have expected occupational status scores that are approximately *12 points higher* than those of students whose parents want them to do something other than university. Also, for every 100-unit increase in a student's academic performance score, the status of their expected job at age 30 years increases by around seven points.

Gender and immigration background also have some influence. For males, the status of their expected job at age 30 years is around six points *lower* than for females. Moreover, the expected job status of foreign-born students is around six points higher than that of Australian-born students (students born in Australia with both parents born in Australia).

Figure 3 provides a breakdown of the most important predictor variables. Whether parents expect their children to attend university is also the most influential factor with respect to young people's occupational aspirations. A difference of almost 40 occupational-status points exists between the groups with the lowest (node 14) and highest (node 23) occupational aspirations. Examples of high-status jobs include specialist medical practitioners (status score of 100) and legal professionals (status score of 96), while low-status jobs include truck drivers (status score of 14) and farm hands (status score of 0) – see table 12.

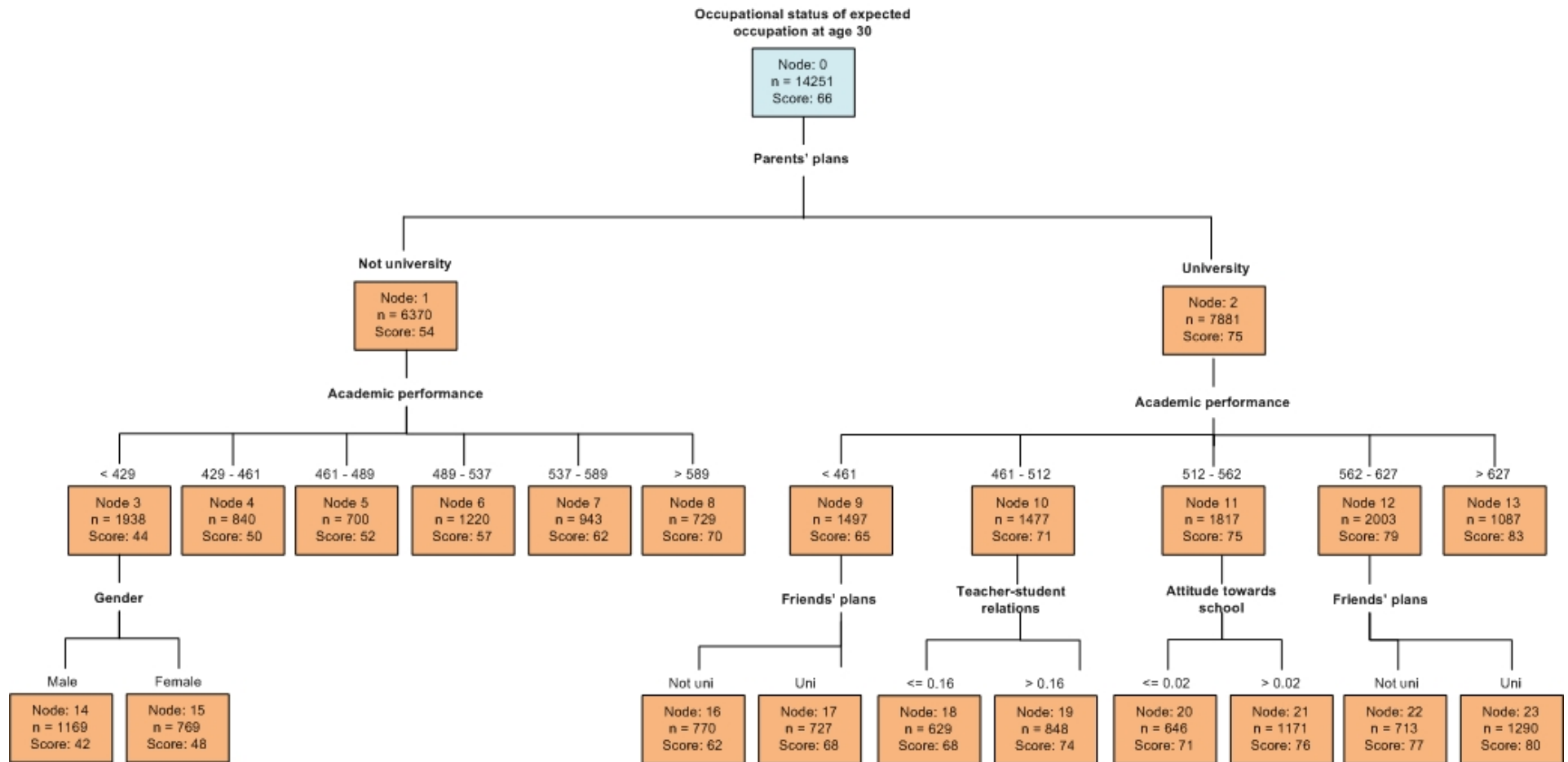
Summary of findings

The key message from the analysis so far is just how important parents and peers are to young people's aspirations. This message is further underscored by a path analysis, which shows that parental and peer influences almost entirely mediate the effects of gender, Indigenous status, socioeconomic status, location, family structure and immigration status. (See section C of the accompanying support document for details on this supplementary analysis.)

Any policy intervention that successfully leverages the influence of parents and peers may thus provide a substantial pay-off in terms of raising aspirations. One example of a successful intervention is the Parents as Career Transition Supports (PACTS) program (Youth Connect 2013). The program provides parents and care givers with free advice on educational pathways and on how to communicate with young people about their careers. An evaluation of the program showed that the proportion of parents who discussed post-school options with their children increased significantly after participating in it (Bedson & Perkins 2006).¹³ Expanding the provision of programs that actively engage parents in the career decision-making process may be an effective means for raising the educational and occupational aspirations of Australian youth.

¹³ PACTS has been in operation since 2003. In May 2013, as part of the National Career Development Strategy, the Commonwealth Government announced funding of \$1.15 million to expand the PACTS program in order to deliver workshops to over 28 000 parents across Australia (National Employment Services Association 2013).

Figure 3 Tree diagram for occupational aspirations



Aspirations or delusions?

Thus far this study has investigated which factors are most important in influencing young people's aspirations. A related question is: how close do young people come to *meeting* their aspirations? This section compares the initial occupational aspirations of 15-year-olds with their actual occupational outcomes about a decade later.

Since the LSAY survey follows students over a ten-year period, the occupation a student aspired to at age 15 years can be compared with the actual occupation they held at age 25 years. Although a comparison of the job at age 30 or 35 years with their aspirational occupation would be ideal, since many transitions into highly skilled jobs (for example, surgeons or other medical specialist, university professor etc.) typically occur past the age of 25 years, such extended data are not available in LSAY.

As participants in the 2009 LSAY cohort were only in their fourth survey wave (modal age of 19) at the time of writing, the 1998 LSAY cohort was used instead. The participants in the 1998 cohort were interviewed year on year from ages 14.5 to 25.5 (for simplicity, 14 to 25), over the period from 1998 to 2009. At age 15 years (wave 2), participants were asked about their future job:

What job do you plan to work in when you have finished your studies? (after leaving school, or after finishing your further study or training).¹⁴

At age 25 years, these same participants gave information about their current job at the time.

What types of jobs do young people aspire to?

Before looking at the extent to which young people achieve their aspirations, it is worthwhile considering the types of jobs they aspire to at age 15 years. Tables 8 and 9 list the most popular job aspirations for the 1998 LSAY cohort for males and females, respectively.

These lists are dominated by high-status jobs such as lawyers, computing professionals, psychologists, accountants and teachers, in addition to several trade occupations. There is clearly some divide between the genders, with males being more likely to aspire to jobs in information technology, architecture and the trades, and females being more likely to aspire to jobs in teaching and nursing. These gender differences are important to keep in mind when interpreting the results later on.

¹⁴ LSAY 1998 cohort, 1999 survey, available at <<http://www.lsay.edu.au/publications/2057.html>>. Note that the wording of this question in the LSAY 1998 cohort differs slightly from that asked of the 2009 cohort (used in the previous models), which asked: 'What kind of job do you expect to have when you are about 30 years old?'

Table 8 Most popular job aspirations, LSAY 1998 cohort, age 15 years, males

Occupation (ASCO 4-digit)	n	% of sample who aspired to this occupation
Computing support technicians	76	7.2
Motor mechanics	47	4.4
Police officers	41	3.9
Computing professionals	40	3.7
Architects and landscape architects	37	3.5
Other building and engineering professionals	37	3.5
Legal professionals	37	3.5
Accountants	35	3.3
Carpentry and joinery tradespersons	33	3.1
Electrical and electronics engineers	30	2.8
Veterinarians	23	2.2
Electricians	23	2.2
Designers and illustrators	22	2.1
Senior non-commissioned defence force officers	22	2.1

Note: This table only includes those students who were present in both the 1999 and 2009 surveys. Total sample size = 1062.
ASCO = Australian Standard Classification of Occupations.

Source: LSAY 1998 cohort, 1999 survey, weighted estimates.

Table 9 Most popular job aspirations, LSAY 1998 cohort, age 15 years, females

Occupation (ASCO 4-digit)	n	% of sample who aspired to this occupation
Designers and illustrators	55	5.0
Psychologists	52	4.7
Legal professionals	47	4.3
Registered nurses	44	4.0
Primary school teachers	42	3.8
Children's care workers	40	3.6
Pre-primary school teachers	35	3.1
School teachers – not further defined	34	3.1
Secondary school teachers	31	2.8
Journalists and related professionals	30	2.7
Actors, dancers and related professionals	30	2.7
Veterinarians	29	2.6
Accountants	27	2.5
Generalist medical practitioners	26	2.3

Note: This table only includes those students who were present in both the 1999 and 2009 surveys. Total sample size = 1108.

Source: LSAY 1998 cohort, 1999 survey, weighted estimates.

The most common *actual* jobs held by males and females from the LSAY 1998 cohort, at age 25 years, are listed in tables 10 and 11.

Table 10 Most common jobs held at age 25 years, LSAY 1998 cohort, males

Occupation (ANZSCO 4-digit)	n	% of sample working in this occupation at age 25 years
Sales assistants (general)	37	3.5
Electricians	27	2.5
ICT support technicians	27	2.5
Retail managers	24	2.3
Plumbers	22	2.1
Carpenters and joiners	22	2.0
Police officers	20	1.9
Software and applications programmers	17	1.6
Accountants	16	1.5
Cafe and restaurant managers	14	1.4
Motor mechanics	13	1.3
Welfare support workers	13	1.2
Contract, program and project administrator	12	1.1
Secondary school teachers	12	1.1
Structural steel and welding trades workers	12	1.1
Civil engineering professionals	12	1.1

Note: This table only includes those students who were present in both the 1999 and 2009 surveys. Total sample size = 1062.
ANZSCO = Australian and New Zealand Standard Classification of Occupations.

Source: LSAY 1998 cohort, 1999 survey, weighted estimates.

Table 11 Most common jobs held at age 25 years, LSAY 1998 cohort, females

Occupation (ANZSCO 4-digit)	n	% of sample working in this occupation at age 25 years
Primary school teachers	68	6.1
Sales assistants (general)	50	4.5
Registered nurses	50	4.5
Child carers	46	4.1
Secondary school teachers	43	3.9
Retail managers	39	3.5
Accountants	31	2.8
General clerks	22	2.0
Office managers	21	1.9
Contract, program and project administrator	17	1.5
Receptionists	17	1.5
Call or contact centre workers	17	1.5
Nursing support and personal care workers	17	1.5
Advertising and marketing professionals	16	1.4
Accounting clerks	15	1.4
Human resource professionals	14	1.3

Note: This table only includes those students who were present in both the 1999 and 2009 surveys. Total sample size = 1108.

Source: LSAY 1998 cohort, 1999 survey, weighted estimates.

When comparing actual occupational outcomes at age 25 years (tables 10 and 11) with those jobs young people aspired to at age 15 years (tables 8 and 9), several differences become apparent. For example, sales assistants are one of the top occupations at age 25 years for both genders, but not one of the jobs commonly aspired to at age 15 years. However, it must be remembered that at age 25 years participants may not yet have completed their studies and may be working in retail to support themselves while completing their tertiary education. This and other limitations in the data are discussed in more detail later.

Do young people achieve their aspirations?

The examples above give a flavour of the jobs that young people aspired to, and the jobs that they actually acquired at age 25 years. However, in order to compare aspirations with achievements coherently, it is necessary to examine the changes to the distribution of jobs (from aspirations to actual). This is accomplished by using the occupational status scores developed at the Australian National University. These scales, the Australian Socioeconomic Index 2006 (McMillan et al. 2009) and the ANU4 scale,¹⁵ recode occupational codes into a continuous scale reflecting occupational status. In particular, the status scores reflect qualifications and income, which are taken to be the principal drivers of occupational status.¹⁶ A selection of jobs and their corresponding ANU4 scores is given in table 12.

As a first pass, the overall distributions of the jobs aspired to at age 15 years were explored against the jobs actually held at age 25 years. To do this, the AUSEI06 and ANU4 scales were divided into deciles, where decile 1 represents jobs with the lowest occupational status (status scores of less than ten), and decile 10 represents jobs with the highest occupational status (status scores of 90 or above).

Figures 4 and 5 plot the distribution of jobs aspired to at age 15 years versus the distribution, in deciles, of jobs held about a decade later, for males and females, respectively. Comparing the black bars across figures 4 and 5 shows that females generally aim for higher-status jobs than males: at age 15 years, 19% of females aspired to jobs in the highest decile, compared with 10% of males. However, this discrepancy is largely a function of the types of jobs to which males and females aspired. Jobs that appeal predominantly to males tend to have lower occupational status scores than jobs that appeal predominantly to females. For example, females are more likely to aspire to teaching, which has a status score in the 80s, whereas males are more likely to aspire to the trades, which have status scores in the 30s and 40s.

Comparing the grey bars across figures 4 and 5 shows that females are more likely to hold higher-status jobs than males at age 25 years. As seen in figure 5, 31% of females hold jobs in the top two deciles at age 25 years, compared with only 19% of males (figure 4). This is despite the fact that males are only slightly less likely than females to *aspire* to jobs in the top two deciles (36% versus 42%). Again, this trend is related to the types of jobs males and females tend to work in. Males are more likely to work in trade occupations, which are ranked quite low on the AUSEI06 scale. Females, on the other hand, are more likely to work as teachers, which are ranked in the 80s on the AUSEI06 scale.

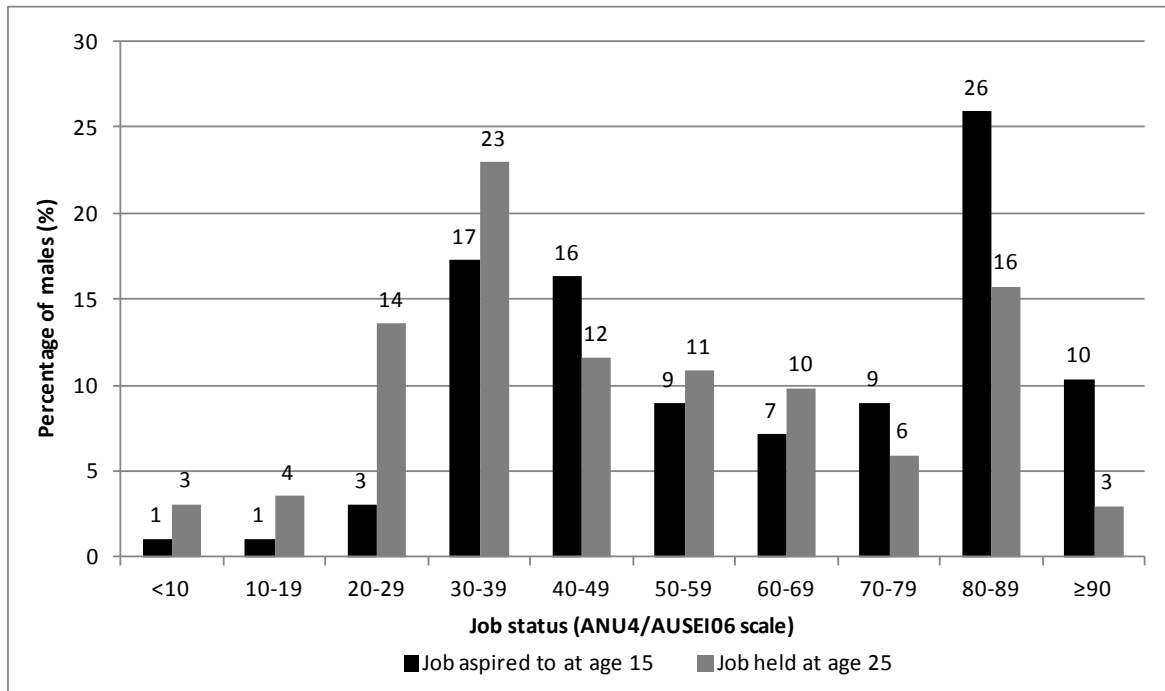
¹⁵ Note that the ANU4 scale is an older version of the AUSEI06 scale. The correlation between them is very high (0.98), so both scales are treated here as essentially identical (see McMillan et al. 2009).

¹⁶ The job an LSAY participant aspired to at age 15 years, coded using ASCO 2nd edition at the 4-digit level, was recoded to a continuous measure of job status using the ANU4 scale (IPUMS-International Australia 2013; Jones & McMillan 2001). Similarly, a participant's job at age 25 years, coded using ANZSCO 2nd edition at the 4-digit level, was recoded to a continuous measure of job status using the AUSEI06 scale (McMillan et al. 2009).

Table 12 Selected occupations according to the ANU4 occupational scale

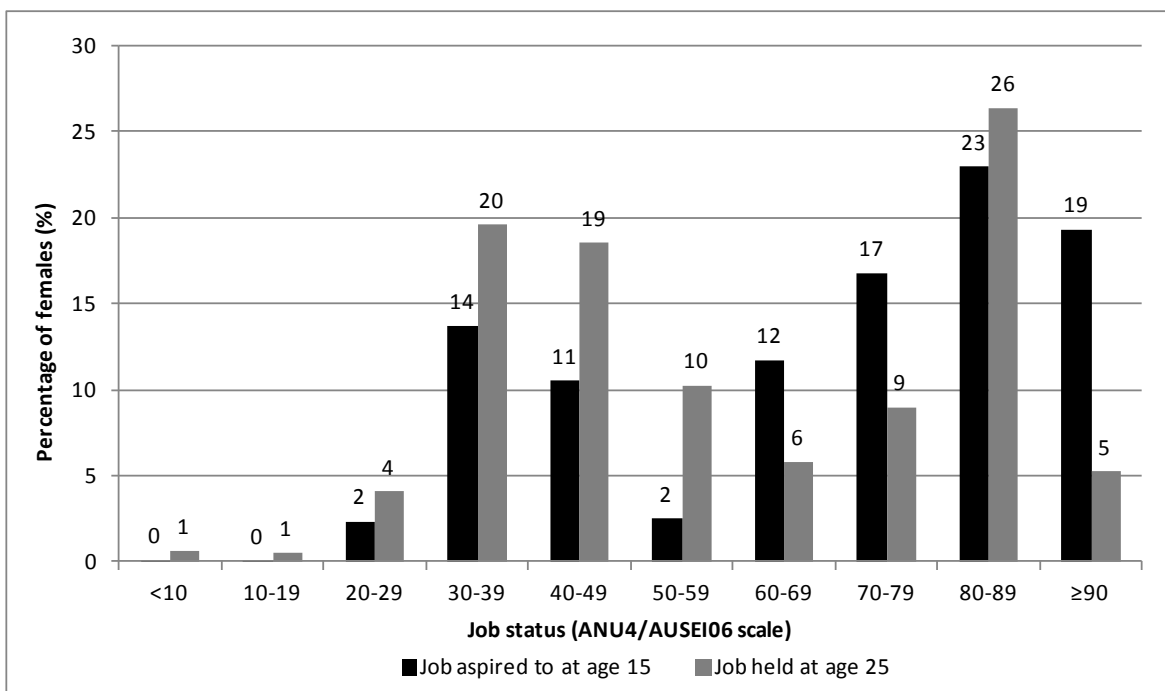
Occupation (ASCO 4-digit)	Occupational status (ANU4 scale)
2312 Specialist medical practitioners	100.0
2521 Legal professionals	96.0
2421 University lecturers and tutors	95.7
2385 Physiotherapists	94.5
2413 Secondary school teachers	89.7
2115 Medical scientists	86.2
2412 Primary school teachers	84.5
2125 Electrical and electronics engineers	83.8
2211 Accountants	81.4
2293 Mathematicians, statisticians and actuaries	79.4
2323 Registered nurses	75.3
2522 Economists	74.8
1111 Legislators and government appointed officials	73.4
1231 Sales and marketing managers	63.2
2537 Musicians and related professionals	63.0
2221 Marketing and advertising professionals	62.0
3294 Computing support technicians	54.6
3911 Police officers	48.5
5996 Travel attendants	47.8
1312 Livestock farmers	46.3
4311 Electricians	42.8
6141 Accounting clerks	41.5
3323 Hotel and motel managers	40.5
4431 Plumbers	40.4
6323 Waiters	36.4
4414 Bricklayers	35.9
8299 Other elementary sales workers	33.7
4931 Hairdressers	32.8
4922 Cabinetmakers	31.5
6131 Receptionists	30.1
4622 Greenkeepers	28.3
8211 Sales assistants	27.4
6314 Personal care and nursing assistants	25.9
4512 Bakers and pastrycooks	24.1
7993 Storepersons	19.0
9922 Nursery and garden labourers	17.1
7311 Truck drivers	14.0
9221 Hand packers	9.6
7112 Forklift drivers	7.2
9921 Farm hands	0

Figure 4 Distribution of jobs aspired to versus distribution of jobs held ten years later, males



Source: LSAY 1998 cohort, 1999 and 2009 surveys, weighted estimates.

Figure 5 Distribution of jobs aspired to versus distribution of jobs held ten years later, females



Source: LSAY 1998 cohort, 1999 and 2009 surveys, weighted estimates.

Who ends up in which jobs?

One problem with the analysis presented so far is that it does not provide information on *who* ended up in which jobs. For instance, were those students who ended up in the highest-status jobs actually *aiming* for those jobs? To address this, the final part of this analysis tracks individual groups of students. This time the sample is divided into quartiles rather than deciles, because the transitional matrices become too complex to follow. Consider dividing the occupational status scales (ANU4 and

AUSEI06) into quartiles, where quartile one represents the lowest-status occupations, with scores below 25, and quartile four represents the highest-status occupations, with scores above 75.

Tables 13 and 14 show the results for males and females, respectively. These tables answer the question: Where did students who aspired to jobs in a particular quartile end up at age 25 years? If all students achieved exactly what they aimed for in terms of job status, there would be values of 100 down the diagonal and zeros elsewhere. This is clearly not the case.

Table 13 Occupational outcomes at age 25 years classified by occupational aspirations at age 15 years, males

Status of job aspired to at age 15 years (ANU4)	Status of job held at age 25 years (%)				Total (%)
	Q1	Q2	Q3	Q4	
Quartile 1 (lowest-status)	20	74	5	2	100
Quartile 2	22	55	17	6	100
Quartile 3	5	40	31	24	100
Quartile 4 (highest-status)	7	30	24	39	100
All quartiles	13	42	22	23	100

Note: Rows may not add to exactly 100% due to rounding. Total sample size, males = 1062.
Source: LSAY 1998 cohort, 1999 and 2009 surveys, weighted estimates.

Table 14 Occupational outcomes at age 25 years classified by occupational aspirations at age 15 years, females

Status of job aspired to at age 15 years (%)	Status of job held at age 25 (%)				Total (%)
	Q1	Q2	Q3	Q4	
Quartile 1 (lowest-status)	0	77	0	24	100
Quartile 2	6	57	19	19	100
Quartile 3	1	44	21	34	100
Quartile 4 (highest-status)	1	31	17	52	100
All quartiles	2	41	18	39	100

Note: Rows may not add to exactly 100% due to rounding. Total sample size, females = 1108.
Source: LSAY 1998 cohort, 1999 and 2009 surveys, weighted estimates.

The information provided in tables 13 and 14 shows that there is only a moderate relationship between aspirations at age 15 years and actual job at age 25 years. For example, only 39% of males and 52% of females who aspired to top-quartile jobs achieved such a job at age 25 years. On the other hand, considerable numbers of individuals achieved a job with a higher status than the one to which they had originally aspired (for example, 34% of females had aspired to a quartile 3 job actually achieved a quartile 4 job).

Comparing the genders, a considerably greater proportion of women who aspired to quartile 4 jobs achieved such a job. That is, 52% of women who aimed for a quartile 4 job had achieved their aims by age 25 years, compared with 39% of males.

Overall, the analysis suggests only a loose relationship between original aspirations at age 15 years and the actual job obtained at age 25 years.

Limitations

A few remarks about the limitations of these types of comparisons – between the job aspired to and the job achieved – are in order. First, people change: it could be that, sometime beyond age 15 years, a student *altered* their occupational aspirations and did in fact achieve their new goal. Second,

the occupational aspirations reported by students at age 15 years may not have been given much thought, and hence not be a reliable benchmark against which to compare their actual occupations down the track. Indeed, a UK study by White (2007) found that about a third of students at age 15 years had not devoted much thought to their occupational plans. Third, it could be that age 25 years is too young for drawing a meaningful conclusion on whether the 'dream job' was achieved. The student may in fact achieve their dream job (in terms of status), but at a later age. Post-school transitions are taking longer than in the past, and an increasing number of young people may not have attained their highest-status job by age 25 years.

It is also worth pointing out that, by wave 12 of the 1998 LSAY survey (that is, in the year 2009), the response rate (with respect to the sample size of wave 1) had dropped to 25%. It is possible that those students who dropped out are significantly different (in terms of whether they achieved their occupational aspirations) from those who remained in the survey. Although appropriate analysis weights were used to counteract the effects of attrition to some extent, weighting the responses of those who remain in the sample may not be equivalent to the situation had those who had dropped out still been present.

Conclusion

An initial analysis of the factors that impact on aspirations confirmed the importance of those that might be expected in youth transitions research. These factors include gender, English-speaking background, socioeconomic status, academic achievement at age 25 years, and parental and peer influences. In terms of importance, the results show that academic achievement at age 15 years was the most important predictor of Year 12 completion, followed by parental influence. For intentions to go to university immediately following school, the most important influences were parents and peers. For expected occupational status, the most important factor again was the influence of parents, along with academic achievement at age 15 years.

This study also explored the extent to which the initial occupational aspirations of 15-year-olds aligned with their actual occupational outcomes about a decade later. The results are not surprising, in that young people's aspirations are somewhat unrealistic, with the distribution of aspirations being quite skewed towards high-status jobs. It seems likely that the better performance of young women reflects the greater proportion going to university compared with young men (that is, the occupational status of the trades is quite low, while the occupational status of jobs requiring degrees is high). It should be noted here that, despite the use of appropriate weights, sample attrition may have skewed the results toward the better jobs to some extent (that is, the more successful young people are less likely to drop out from the survey). Finally, the analysis determines only a loose relationship between the original aspirations at age 15 years and the actual job obtained at age 25 years.

A key insight from this study is just how critical parental influences are in driving young people's educational and occupational aspirations. This finding complements prior research which identified parents as the primary information resource for discussing career and post-school transition options (Russel & Wardman 1998; Whiteley 2004).

From a policy perspective, the results from this study reinforce the importance of parent-focused interventions. Expanding the provision of programs that actively engage parents in the career decision-making process may be an effective means for raising the educational and occupational aspirations of Australian youth.

References

- Ainley, J, Buckley, S, Beavis, A, Rothman, S & Tovey, A 2011, *Analysis of Year 12 or certificate II attainment of Indigenous young people – stage 1*, a report prepared for the Council of Australian Governments Reform Council, viewed 15 October 2013, <http://www.coagreformcouncil.gov.au/sites/default/files/files/excellence/good-practice/NIRA_09-10_good_practice.pdf>.
- Beal, SJ & Crockett, LJ 2010, 'Adolescents' occupational and educational aspirations and expectations: links to high school activities and adult educational attainment', *Developmental Psychology*, vol.46, no.1, pp.258–65.
- Bedson, L & Perkins, D 2006, *A positive influence: equipping parents to support young people's career transitions – evaluation of the PACTS program*, Brotherhood of St Laurence, Victoria, viewed 27 November 2013, <http://www.bsl.org.au/pdfs/positive_influence_PACTS_report.pdf>.
- Benner, AD & Mistry, RS 2007, 'Congruence of mother and teacher educational expectations and low-income youth's academic competence', *Journal of Educational Psychology*, vol.99, no.1, pp.140–53.
- Biggs, D, De Ville, B & Suen, E 1991, 'A method of choosing multiway partitions for classification and decision trees', *Journal of Applied Statistics*, vol.18, pp.49–62.
- Buchmann, C & Dalton, B 2002, 'Interpersonal influences and educational aspirations in 12 countries: the importance of institutional context', *Sociology of Education*, vol.75, pp.99–122.
- Gemici, S, Bednarz, A & Lim, P 2011, *Getting tough on missing data: a boot camp for social science researchers*, NCVER, Adelaide, viewed 15 October 2013, <<http://www.ncver.edu.au/publications/2421.html>>.
- Homel, J, Mavisakalyan, A, Nguyen, HT & Ryan, C 2012, *School completion: what we learn from different measures of family background*, NCVER, Adelaide.
- Homel, J & Ryan, C 2014, *Educational outcomes: the impact of aspirations and the role of student background characteristics*, Social Policy Evaluation Analysis Research Centre, Australian National University, Canberra.
- IPUMS-International Australia 2013, 'ANU4 status scale', viewed 22 February 2013, <http://ipumsi.anu.edu.au/SiteTools/Status_Scales/scale4.php>.
- Jones, FL & McMillan, J 2001, 'Scoring occupational categories for social research: a review of current practice, with Australian examples', *Work, Employment & Society*, vol.15, no.3, pp.539–63.
- Khoo, ST & Ainley, J 2005, *Attitudes, intentions and participation*, Australian Council for Educational Research, viewed 15 October 2013, <<http://www.ncver.edu.au/publications/1847.html>>.
- Kirk, CM, Lewis-Moss, RK, Nilsen, C & Colvin, DQ 2011, 'The role of parent expectations on adolescent educational aspirations', *Educational Studies*, vol.37, no.1, pp.89–99.
- Lee, JS 2010, *Returns from education: an occupational status approach*, NCVER, Adelaide.
- Lee, I & Rojewski, J 2009, 'Development of occupational aspiration prestige: a piecewise latent growth model of selected influences', *Journal of Vocational Behavior*, vol.75, no.1, pp.82–90.
- Lumsden, M & Stanwick, J 2012, *Who takes a gap year and why?* LSAY briefing paper 28, NCVER, Adelaide.
- Magidson, J 1993, 'The CHAID approach to segmentation modeling: Chi-squared automatic interaction detection', in *Handbook of marketing research*, ed. R Bagozzi, Blackwell, London, pp.118–59.
- McMillan, J 2010, 'Occupation-based conceptualisations of socioeconomic status', PowerPoint presentation, Socioeconomic Status and Higher Education Students Symposium, Monday 12 April 2010, UTS, Sydney, viewed 4 March 2013, <<http://www.equity101.info/content/Occupation-based-conceptualisations-socioeconomic-status>>.
- McMillan, J, Jones, L & Beavis, A 2009, 'A new scale for measuring socioeconomic status in educational research: development and validation of the Australian Socioeconomic Index 2006 (AUSEI06)', paper presented at the 2009 AARE International Education Research Conference, Canberra.
- Mello, ZR 2008, 'Gender variation in developmental trajectories of educational and occupational expectations and attainment from adolescence to adulthood', *Developmental Psychology*, vol.44, no.4, pp.1069–80.
- 2009, 'Racial/ethnic group and socioeconomic status variation in educational and occupational expectations from adolescence to adulthood', *Journal of Applied Developmental Psychology*, vol.30, pp.494–504.
- National Employment Services Association (NESA) 2013, '\$6.1 million to kick-start careers, media release', viewed 28 November 2013, <[https://www.nesa.com.au/media/52007/130523_garrett_mr_\\$6.1%20million%20to%20kick-start%20careers.pdf](https://www.nesa.com.au/media/52007/130523_garrett_mr_$6.1%20million%20to%20kick-start%20careers.pdf)>.

- Nguyen, N & Blomberg, D 2014, *The role of aspirations in the education and occupation choices of young people*, NCVER, Adelaide.
- OECD (Organisation for Economic Co-operation and Development) 2010, *PISA 2009 results: what students know and can do – student performance in reading, mathematics and science (volume I)*, viewed 15 October 2013, <<http://dx.doi.org/10.1787/9789264091450-en>>.
- 2012, *PISA 2009 technical report*, PISA, OECD Publishing, viewed 15 October 2013, <<http://dx.doi.org/10.1787/9789264167872-en>>.
- Ou, S & Reynolds, AJ 2008, 'Predictors of educational attainment in the Chicago longitudinal study', *School Psychology Quarterly*, vol.23, no.2, pp.199–229.
- Reynolds, J & Pemberton, J 2001, 'Rising college expectations among youth in the United States: a comparison of the 1979 and 1997 NLSY', *Journal of Human Resources*, vol.36, no.4, pp.703–26.
- Rubin, DB 1987, *Multiple imputation for nonresponse in surveys*, Wiley & Sons, New York.
- Russell, M & Wardman, M 1998, *The value of information types and sources for Year 11 decision making*, Department for Education and Employment, Sudbury, Suffolk.
- Sikora, J & Saha, LJ 2011, *Lost talent? The occupational ambitions and attainments of young Australians*, NCVER, Adelaide, viewed 27 March 2013, <<http://www.ncver.edu.au/publications/2313.html>>.
- White, P 2007, *Education and career choice: a new model of decision making*, Palgrave, New York.
- Whiteley, S 2001, 'Youth at risk: why don't they just enrol in a tertiary course or get a job?', *Youth Studies Australia*, vol.20, no.2, pp.23–8.
- Youth Connect 2013, *Parents as Career Transition Support (PACTS) Program*, viewed 27 November 2013, <<http://www.youthconnect.com.au/career-transition-programs/pacts/>>.



Australian Government
Department of Education



National Centre for Vocational Education Research Ltd
Level 11, 33 King William Street, Adelaide, South Australia
PO Box 8288, Station Arcade, SA 5000 Australia
Telephone +61 8 8230 8400 Facsimile +61 8 8212 3436
Web www.ncver.edu.au Email ncver@ncver.edu.au