Longitudinal Surveys of Australian Youth

Research Report 51

Completing University:

Characteristics and Outcomes of Completing and Non-completing Students

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Contents

ACRONYMS

ABS	Australian Bureau of Statistics
ACER	Australian Council for Educational Research
ASCO	Australian Standard Classification of Occupations
CATI	Computer-assisted Telephone Interviews
DEST	Department of Education, Science and Training
ENTER	Equivalent National Tertiary Education Rank
LSAY	Longitudinal Surveys of Australian Youth
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
OECD	Organisation for Economic Co-operation and Development
TER	Tertiary Entrance Rank
YIT	Youth in Transition Study

TABLES

FIGURES

EXECUTIVE SUMMARY

This report examines the factors that influence course completion by young Australians who commence university. It also documents the labour market outcomes of those who enrol at a university but who leave before obtaining a qualification.

University education involves substantial public and private resources. It is important, therefore, to better understand the factors associated with course completion, and whether even a partial experience of university study may be beneficial in opening up other pathways.

The report analyses data from the Longitudinal Surveys of Australian Youth (LSAY) program to address these questions. The data are from a sample of young people who were in Year 9 in 1995 and who commenced higher education between 1998 and 2001, that is within three years of completing Year 12. This report uses annual data collected on their education, training, and labour market activities up until 2004 when they were approximately 23 years of age. By mapping the pathways followed by the same group of young people over an extended period of time, longitudinal analyses can add to the understanding provided by other data sources on the university sector.

The main findings on completion of university degree courses are as follows.

Overall Course Completion

- Of the young people who enrolled in their first course at a university between 1998 and 2001, 66 per cent had completed that course by 2004, 16 per cent had withdrawn, 11 per cent had changed course and 8 per cent were continuing. From these figures, the expected completion rate for the first course is in the range from 71 to 74 per cent.
- Of those who switched to a second course, the proportion completing is lower. By 2004, 53 per cent had completed their second course, 23 per cent had withdrawn, 6 per cent had changed course and 18 per cent were continuing. The expected completion rate for a second course was calculated to be between 63 and 71 per cent.
- Of all those who enrolled at university, about 68 per cent had completed *any* university course by 2004, 17 per cent were continuing and 16 per cent had withdrawn from university study. From these estimates an expected completion rate of 81 per cent was calculated, assuming that continuing students complete at the same rate as those whose completion status had been established.
- The expected completion rates derived in this report are in line with those for earlier cohorts of young people from LSAY, but higher than those estimated from administrative data. However, the latter include mature students (who tend to have lower completion rates) and often do not take into account students transferring to other institutions to complete a university course.

Course Completion and Socio-Demographic Factors

- Female students were more likely to complete than males, with the gender difference about 6 percentage points for the first course and 4 percentage points for expected completion of any course.
- There were no clear regional differences in course completion according to students' home address while in school.

- Only 31 per cent of Indigenous students had completed their first course by 2004, and only 33 per cent had completed any course, although these results should be treated with caution due to the small number of Indigenous students in the sample.

- Expected course completion did not vary in a systematic manner with parents' occupational group, but there were some differences by parents' education. Students whose parents had not completed secondary school had the lowest expected completion rate for any course (72%), and those whose parents had a highest qualification of Year 12 had a higher completion rate (87%) than those whose parents held a degree or diploma (85%).

Overall, these results indicate that a student's regional and socioeconomic background has little influence on their likelihood of completing university. Once students from a lower socioeconomic background enter university, their background does not negatively affect their chances of completing the course.

Course Completion and Educational Factors

- The ENTER (Equivalent National Tertiary Education Rank) score gained in Year 12 was the strongest correlate of expected course completion identified. About 94 per cent of students with ENTER scores above 90 were expected to complete a course compared to 73 per cent of students with scores between 60 and 69. The importance of ENTER score was confirmed by the multivariate analyses: a difference of 20 points in ENTER score more than doubles the odds of course completion when controlling for other variables. This finding indicates that non-completion of university courses is much more likely among academically weaker students.

- Students who had attended Catholic secondary schools showed the highest levels of expected course completion (88% for any course). There was little difference in course completion between students who attended government (79%) and independent schools (81%). However, after taking into account ENTER scores there was little or no impact of school sector on expected completion rates.

- Expected course completion varied with field of university study with the high prestige courses such as law and medicine showing the highest levels of completion (around 97% for any course). Education also had a high completion rate. Course completion was particularly low in Information Technology (70%).

Labour Market Outcomes of Completers and Non-Completers

- Unemployment among university non-completers was very low (2% of the group in 2004). There are some indications that even a partial experience of university does assist in avoiding unemployment since unemployment was higher among the Year 12 completers who did not enrol in university (4%) and those who did not complete Year 12 (6%).

- In 2004 the weekly pay, occupational status and work-satisfaction of university non-completers was generally substantially less than that of university course completers and comparable with young people who had never enrolled in a university course. These differences could not be accounted for by labour market experience or achievement in literacy and numeracy.

This suggests that university non-completion has not had substantial negative effects on the transition to the labour market compared to other groups of young people with the important exception of university course completers.

Completing University:
Characteristics and Outcomes of Completing and Non-completing Students

1. INTRODUCTION

This report examines the factors that influence course completion by young Australians who commence at university. It also documents the post-university activities, especially labour market activities, of those who enrol at a university but do not obtain a qualification.

In 2005, there were approximately 957 000 students enrolled at Australian universities, of which 75 per cent were Australian citizens (DEST, 2006b). University education involves substantial private and public resources.[1] It is important, therefore, to better understand the factors associated with course completion and the consequences of non-completion.

Nevertheless, leaving university before the completion of a qualification may not necessarily be negative. Even a partial experience of university study may be beneficial in opening up other pathways and allowing people to clarify their career options. For example, young persons who do not complete their course may secure suitable full-time work or take a VET course which may also lead to full-time work. Consequently, in order to assess whether non-completion is associated with less desirable outcomes, it is necessary to monitor young people after they leave higher education. Although the superior labour market outcomes of university graduates compared to non-graduates are well documented (see Borland, 2002), the labour market outcomes of non-completers compared to both graduates and those who do not enter university have not been extensively examined in Australia.

Estimates of University Course Completion

Estimates of university course completion in Australia vary between 70 and 85 per cent (see discussion below). It is difficult to obtain precise estimates since students may change courses and institutions, change their enrolment from full-time to part-time, upgrade to an honours course, or suspend their enrolment only to resume university study at a later stage, or perhaps not at all. In addition, combined courses (such as Bachelor of Arts/Law) may create problems in defining when a course has actually been completed.[2]

Course completion tends to be higher among young people than mature age entrants (Urban *et al.*, 1999:9-10). The completion rates presented in this report refer to young people who enter university in the first three years after leaving school, and are therefore probably higher than for university students as a whole.

Carpenter et al. (1998) analysed data from the 1961 and 1965 Youth in Transition (birth) cohorts who entered higher education in late 1980s and early 1990s, and estimated that the graduation rates from higher education by age 23 for respondents who had entered higher education by age 19 was 77 per cent for both cohorts. By age 30 the graduation rate rose to 86 per cent for the cohort born in 1961. For graduation from degree programs, the estimates by Carpenter et al were a little lower; 69 and 72 per cent by age 23 for the 1961 and 1965 cohorts, respectively, and 85 per cent by age 30 for the older cohort.

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1 With few exceptions, students pay fees either as income contingent loans (HECS) or upfront fees. HECS fees typically range from $3998 per annum for teaching and nursing to $8333 for high cost courses such as Medicine. Full fees for some courses can be as high $40 000 per annum. In 2003, the Commonwealth Government spent $7.8 billion on Higher Education: $5.9 billion in Australian Government grants to institutions; $1.6 billion in HECS HELP payments and $0.3 billion in FEE HELP payments (DEST, 2006a).

2 The introduction of the Commonwealth Higher Education Student Support Number (CHESSN) in 2005 will to a large extent alleviate these measurement problems but cannot be used to examine course completion for at least 3 years.

Using administrative data from nearly 130 000 higher education students in 1992, Urban et al. (1999:1) estimated that 'around 80 per cent of university students complete an award'. However, of the undergraduate students who enrolled at an institution in 1992, only 60 per cent had completed an award *at that institution* (Urban et al., 1999:7). Taking into account students who returned to university with an incomplete award, they estimated that the final completion was close to 80 per cent. An update of this report, which included an extra two years of data, noted that the initial estimate included some double-counting, and released a revised estimated completion rate of around 70 per cent (rather than 80 per cent) for the 1992 and 1993 commencing cohorts (Martin *et al.*, 2001). This corresponds to the OECD's estimate of a 'survival' rate of 69 per cent for Australian type A tertiary (university) courses, which in turn was very close to the OECD country-level average of 70 per cent (OECD, 2004: 70, Table A3.2).[3]

Crude attrition rates calculated by DEST using administrative data estimated the overall year-to-year attrition rate for domestic commencing undergraduates aged 17-to-20 at 18 per cent, when attrition is measured by the proportion of students who neither graduate nor continue studying at the same university in the following year (DEST, 2004). Under this definition 'attrition' includes 'students who leave a course at one university and enrol the next year at another university' and 'students who leave university without completing their course but who return later to the same university', so will be an overestimate for attrition from the university sector as a whole.

The recent LSAY report *Course Change and Attrition from Higher Education* (McMillan, 2005) examined attrition within the first two to three years of university study among a cohort who completed Year 12 in around 1998. McMillan estimated that 14 per cent had left the higher education sector without completing a qualification and had not resumed or re-enrolled by late 2001. This estimate of attrition includes those who have changed institutions as continuing within higher education, and is one of the reasons that it is lower than the DEST estimate cited above. A similar conclusion was reached by Long et al. (2006) who also took into account course changes and whose study included mature age students. Their estimate of only 14 per cent attrition during first year was much lower than that from earlier studies based on administrative data.

Correlates of Course Completion

Research has shown that completion rates tend to vary by a variety of factors, such as gender, age, ENTER score, institution and course, Indigenous status, language background and socioeconomic background.

Gender

Young women tend to show higher graduation rates than young men (Carpenter et al., 1998; Urban et al., 1999). Martin et al. (2001) estimated a completion rate of 67 per cent for women and 58 per cent for men.. Similarly, there were only small gender differences in graduation in the younger YIT cohort analysed by Carpenter et al. (1998). More detailed analyses by Urban et al. (1999:15) showed that course completion was higher among men who had Tertiary Entrance Rank (TER) scores in the two top deciles whereas completion was higher among women (than men) in lower TER (or ENTER) deciles.[4]

[3] The OECD defines the 'survival rate' as the number of graduates divided by the number of new entrants in the typical year of entrance.

[4] TER (Tertiary Entrance Rank) and ENTER (Equivalent National Tertiary Entrance Rank) are equivalent.

Socioeconomic Background

One of the main findings of Carpenter et al.'s (1998) study of graduation was that there was little evidence that completion was associated with socioeconomic background. They commented that policies that deal with equity in performance within the higher education sector have been largely effective and greater efforts should be made to increase equity among those who are eligible to enter university, most significantly by increasing school completion rates among disadvantaged young people. Similarly, Urban et al. (1999:2,24-25) conclude that socioeconomic background affects university completion rates only marginally, although they did find that students from more advantaged backgrounds were more likely to complete. On a related matter, there is no evidence that financial factors during university study are a major reason for non-completion (see McMillan, 2005; and Long, 2006).

Geographic Location

Students from urban areas tend to show higher completion rates than students from non-urban areas. However, differences in completion between students from urban and rural areas were not great: the completion rate for rural students was 63 per cent compared to 65 per cent for urban students (Martin et al., 2001). Regional differences were more marked among women, and it was students classified as from 'isolated' regions that exhibited the lowest completion rates (Urban et al., 1999:25-27). McMillan (2005:27) found that attrition was highest among students from large provincial cities but lowest among those from small provincial cities. Such findings reinforce the importance of recognising that non-metropolitan students are a heterogeneous group.

Language Background

Students from non-English speaking backgrounds have been found to be more likely to complete their university courses than other students. McMillan (2005:27) found that attrition was much lower among students whose language background was not English. However, Urban et al.'s (1999:22-23) data suggest that the differences by language background in course completion are only small.

School Sector

It is commonly believed that students who attended independent schools are more likely to drop out of university than students who attended government schools because they are less able to cope academically without the support provided by private schools. Dobson (2005) found that independent school students do not perform as well at university as government school students within the same ENTER score bands. However, the differences were fairly small, based on data from one university, and lower than expected performance was also found for students who attended selective government schools.[5] In contrast, McMillan (2005:27), who focused on attrition rather than on performance and analysed national data, found that course attrition was highest among government school students at 16 per cent followed by independent school students at 14 per cent. Students who attended a Catholic school showed the lowest levels of attrition at 11 per cent. However, multivariate analyses indicated that school sector did not have a significant influence on attrition after controlling for a range of other socio-demographic, educational and labour market factors (McMillan, 2005:27).

[5] Selective government schools select their students on the basis of academic performance. Usually their students are very high achievers and the university entrance performance of selective schools is comparable or better than that of independent schools.

Indigenous Status

Indigenous university students have substantially lower completion rates or higher attrition rates than non-Indigenous students. Urban et al. (1999:21) found that 62 per cent of Indigenous students did not complete their course compared to about 30 per cent of the non-Indigenous group. Martin et al. (2001) estimated that only 40 per cent of Indigenous students completed their course compared to 63 per cent of non-Indigenous students. Non-completion appeared especially prevalent among male Indigenous students.

Tertiary Entrance Rank/ ENTER Scores

Higher tertiary entrance scores are associated with higher levels of course completion. Urban et al. (1999:15) found a strong, positive relationship with nearly 80 per cent of students with tertiary entrance scores in the highest decile completing their course compared to 55 per cent in the lowest decile. Similarly, McMillan (2005:27) found that course attrition was especially low (5 per cent) among students with ENTER scores above 90, compared with 23 per cent among those with ENTER scores below 70.

Course, Year of Course and Institution

Attrition rates during the first year of higher education are around double that of the second year. Attrition is generally much higher for post-graduate than for undergraduate courses. Completion is higher among full-time than part-time students (Urban et al., 1999:32). There is also considerable variation between institutions. Crude attrition tends to be lower in the older, more prestigious universities and higher in the newer universities, although there are exceptions and some of this apparent difference is related to students moving universities rather than not completing study (DEST, 2004).

Field of Study

Urban et al. (1999:18) found that completion rates varied substantially by field of study. Business, Science and Arts courses showed the lowest completion rates with between 35 and 40 per cent of students enrolled in these courses not completing. Completion was also low among engineering students. Completion rates were highest in veterinary science, health (including medicine), education and law. However, when taking into account compositional differences between courses (most importantly students' ENTER score), Urban et al. (1999:19) concluded that field of study has significant effects on completion in only two fields of study, health and nursing. McMillan (2005:28) found that attrition was lowest in courses that required high entry scores, such as medicine, dentistry, veterinary science, law, and other health courses: architecture and building courses exhibited the highest attrition rate. Long et al. (2006) found that students enrolled in engineering, information technology and creative arts courses were more likely to withdraw from university.

Labour Market Outcomes

The relatively strong labour market outcomes of university graduates are well documented. The Graduate Destination Survey is a large national survey of graduates. It is an important instrument for monitoring graduate outcomes. It collects detailed information from recent graduates on what type of work, further study or other activity they are engaged in (Guthrie, 1994, 2003). Generally, graduates have quite favourable outcomes, high proportions obtain work, starting salaries are relatively high and few experience long-term unemployment. Previous work by Lamb (2001) and Lamb and McKenzie (2001) shows that graduates have substantially better labour market outcomes than non-graduates.

As noted earlier, leaving university before completing a qualification may not necessarily be negative. However, to date there has been little analysis in Australia of the labour market outcomes of non-completers compared to both graduates and school completers who have not enrolled in university. Preliminary work by McMillan (2005:17) found that only 3 per cent of those who left university before completing their course were unemployed compared to 7 per cent of those who had completed Year 12 but not entered higher education. The present study extends this analysis by following the cohort for an additional three years and considering a wider range of different labour market outcomes.

Contribution of this Study

Most studies of university course completion in Australia draw on administrative data collected by universities. Although such data offer the considerable advantages of large numbers of students and extensive detail on individual institutions and courses, they also have some drawbacks. First, it is not possible to identify those students who eventually complete a course at another university. A second problem with administrative data is that it typically has only limited information on students' social and educational backgrounds, so it is not possible to examine the factors associated with attrition and completion in any great detail. Finally, administrative data do not allow examination of the outcomes of university education, including those who leave before completing their course.

Longitudinal data can help to complement and extend the insights provided by administrative data. In particular, longitudinal data from the LSAY project have several advantages for studying course completion: they allow monitoring of students who change courses or institutions; they contain many possible correlates of university completion, for example, socioeconomic background, Year 9 literacy and numeracy test scores, and Year 12 ENTER scores; and they include extensive labour market data. No other Australian data set is comparable to LSAY in the depth and breath of information on young people.

The LSAY data also have some limitations. They focus just on young people and therefore do not cover the full range of people who enter university. Although LSAY is based on relatively large samples, the numbers are insufficient for detailed analysis by individual universities or courses. Like all longitudinal data, LSAY is subject to sample attrition, and there is evidence that those who are least successful are less likely to be retained in the sample (see Chapter 2).

This study monitors only the *initial* labour market outcomes of graduates and non-completers. The maximum period concerned would be five years, covering those who enrolled in higher education in 1999 and left before the beginning of their second year in 2000. For other groups, there may be only one or two years of post-study labour market data available.

The data analysed in this report are from the Y95 LSAY cohort, that is, the cohort of students who were in Year 9 in 1995. Most of this cohort completed Year 12 in 1998, and a large proportion entered higher education in either 1999 or 2000. Data from all waves until 2004 are used in the analyses. The average age of the cohort in 2004 was 23 years, so that most of the sample in 2004 will have a valid completion status, excluding those in longer courses.

This study builds on and extends McMillan's (2005) *Course Change and Attrition* report. That report analysed retention and participation within the first two to three years of university study, up until the end of 2001. This report extends the time frame by a further three years, and focuses on course completion, as distinct from 'non-attrition' in the first few years.

The most recent Australian study using longitudinal data on course completion was based on cohorts born in 1961 and 1965 (Carpenter, Hayden & Long, 1998). These groups mostly completed their university education between 1985 and 1990, and there have been major changes in Australian higher education since that time.

In addition, the present study examines the labour market consequences of non-completion, a topic which has been little addressed in the Australian context.

Research Questions

The following research questions are examined in the report.

1. Of the students who commence a higher education course in the immediate post-school years, how many go on to complete a qualification?

2. Do higher education completion rates vary according to social and educational background factors?

3. What are the major influences on university completion?

There is a second set of research questions relating to post-course activities.

4. What are the main post-course education and labour market activities of university completers and non-completers?

5. What are the labour market outcomes of university completers and non-completers?

6. How do the outcomes of university non-completers compare with those who completed Year 12 but did not attend university?

Organisation of the Report

The following chapter describes the LSAY data, and the measures and analytical techniques used in the report. The research findings are then organised into three chapters. The first of these, Chapter 3, focuses on completion and non-completion of university courses (research questions 1-3), Chapter 4 focuses on their post-study activities, especially labour market outcomes (questions 4-6), and Chapter 5 discusses the results. The Appendix includes definitions and some detailed data.

2. DATA AND METHODS

Data

This report analyses data from annual surveys conducted between 1995 and 2004 of the Year 9 1995 cohort. This cohort is one of several that comprise the LSAY project (for details see Marks & Rothman, 2003). The initial sample comprised 13 613 students from approximately 300 government, Catholic and independent schools (for details on the sampling procedure and other technical details, see Long, 1996).

The students were surveyed in their schools in 1995, where they completed a questionnaire about themselves and their families, and undertook reading comprehension and numeracy tests. Further data on educational, training and labour market activities have been collected from the sample members on an annual basis: by mail questionnaire in wave 2, and by computer-assisted telephone interviews (CATI) in subsequent waves conducted around October/November each year. The 2001 interview collected extensive retrospective data on post-secondary education and training. The last year of data analysed for this report was from the 2004 telephone interview (wave 10).

For the majority of the 1995 Year 9 cohort, 1999 was the first year after leaving secondary school. Of those who entered higher education, the majority commenced study in the first semester of 1999. Therefore, students could not be expected to complete their course before the end of 2001 at the earliest. By including data up until 2004, most students who began a three (or four) year bachelor degree course prior to 2000 will have had enough time to complete a degree

The major limitation of the LSAY data for this study is sample size, which prohibits comparison of completion/non-completion between states, institutions or specific courses. Such analyses are best performed with large-scale administrative data. However, completion/non-completion by general field of study is examined in this report.

Sample Attrition

An important issue with longitudinal surveys is sample attrition. Table 1 presents the number of respondents in the Y95 cohort's surveys conducted between 2001 and 2004. In 2004 only 34 per cent of the original sample was still participating in the survey.

Table 1 Sample size 2001-2004 for the Year 9 class of 1995 cohort

Year	*Number (Unweighted)*	*Per cent of original sample*
2001	6876	50.5
2002	6095	44.8
2003	5353	39.3
2004	4660	34.2

There are two major issues with sample attrition. First, it reduces sample size so that there is less scope, that is statistical power, to examine particular sub-groups who comprise relatively small proportions of the population, for example Indigenous Australians. Second, attrition may cause the sample to become unrepresentative of the original cohort because less successful respondents are more likely to leave the study (MaCurdy *et al.*, 1998; Marks & Long, 1996). Attrition would be of less concern if it were completely random.

Attrition in the Y95 sample is higher among those with low achievement in Year 9 literacy and numeracy, Indigenous youths, males and those with low socioeconomic backgrounds (Marks & Long, 1996; Rothman, Forthcoming). The higher levels of attrition among disadvantaged groups raise questions about the representativeness and thus usefulness of these data. However, the annual

LSAY survey data are weighted to ensure that the current sample remains broadly representative of the original cohort of Year 9 students (Rothman, forthcoming). The weights are calculated according to gender and four levels of combined scores on the achievement tests administered in Year 9. The LSAY samples can still retain strong statistical properties, even down to 25 per cent of the original sample, because the samples were large when cohort members were first contacted and because the weighting procedures minimise potential bias.

It is generally concluded that the effects of attrition on the substantive conclusions of a longitudinal study tend to be minimal. Using respondents who left and re-entered a longitudinal study as a test for the effects of attrition, Falaris and Peters (1998) concluded that attrition had little or no impact on the parameter estimates obtained from regression analyses. Rothman (Forthcoming) reviews other studies from the United States which also find only small biases. For the LSAY cohorts, he concludes that weighting will, in general, account for attrition bias, although estimates for groups with particularly high levels of attrition, such as Indigenous Australians, need to be treated with caution.

Measures of Completion

Most students enrol in one university course and after several years complete that course. However, a sizable proportion attempt two or more courses. Table 2 presents the distribution of the number of higher education courses (at bachelor degree level or above) attempted by this sample. About 45 per cent of the 1995 Year 9 cohort had enrolled in one or more university courses by 2004 (when their average age was 23 years). Approximately 32 per cent of the cohort had enrolled in just one course, 11 per cent in two courses, and 1 per cent in three or more courses.

Table 2 Number of higher education courses commenced 1998-2004 by the Year 9 class of 1995 cohort

	Number (Unweighted)	*Per Cent (Weighted)*
None	3399	55.6
One	2459	32.0
Two	870	10.5
Three	136	1.1
Four	11	0.1
Five	1	0.0

Note: Estimates from waves 2001-2004.

The estimate of 45 per cent of LSAY cohort members having enrolled in higher education is comparable to estimates from other sources. Australian Bureau of Statistics (ABS) data from a supplementary survey to the May 1999 Labour Force Survey and the 2001 Survey of Education and Work estimated that 29 to 33 per cent of recent school leavers, or 42 to 48 per cent of recent school leavers who had completed Year 12, were in higher education in the year after leaving school (ABS, 1999, 2002). The estimates from LSAY are similar: 33 per cent of the 1995 Year 9 cohort (or 41 per cent of Year 12 completers in the sample) commenced higher education in the first semester of 1999. The 2005 edition of *Education at a Glance* estimates that about 60 per cent of young persons in Australia will enter tertiary education type A (that is, university) programs at some time during their lives, and that around 40 per cent of young people will have graduated by the typical age of graduation (20-22 years old) (OECD, 2005:14, 242). This estimate is based on current entry rates at different ages. The LSAY estimate of 45 per cent by age 23 is consistent with these other sources.

The great majority of respondents participating in higher education have pursued only one course. Very few respondents attempted a third or fourth course, and new courses begun after 2001 often include honours program courses, depending on whether they were identified by respondents as 'new' courses.

Of those who commenced a university course up to 2001, 1 per cent first enrolled in 1998, 87 per cent first enrolled in 1999, 9 per cent in 2000 and 3 per cent in 2001. For the second course, 0.3 per cent first enrolled in 1998, 25 per cent in 1999, 44 per cent in 2000, and 30 per cent in 2001.

Three measures of university course completion are examined in this report:

- Completion of a first university course at bachelor degree level or above (commenced between 1998 and 2001).
- Completion of a second university course at bachelor degree level or above (commenced between 1998 and 2001).
- Completion of any university course at bachelor degree level or above (commenced between 1998 and 2001)

Students' completion status for first or second course commenced was determined by responses to annual questionnaire items that were classified by the following four-category typology:

- Continuing
- Completed
- Withdrawn
- Changed (to another university course)

In estimating completion of *any* course, three categories were constructed:

- Completers. Had completed a university course (in the year of survey or previously) begun between 1998 and 2001
- Non-completers. Had not completed a university course and was not a continuing student (see below) but had commenced a university course between 1998 and 2001
- Continuing. Studying either full- or part-time in a university course, not necessarily in a course they began between 1998 and 2001 and had not completed a university course.

Measures of the Correlates of Completion and Non-Completion

The report examines the relationships between completion and a range of socio-demographic and educational factors. The socio-demographic factors examined include gender, region, Indigenous status, ethnicity and socioeconomic background. Three and five category measures were used to indicate region. Two measures of ethnicity were used: father's country of birth; and language spoken mostly at home. There were also two measures of socioeconomic background, parental occupation and parental education. The educational factors include school sector, achievement in Year 9 literacy and numeracy, tertiary entrance performance at Year 12 (ENTER or TER score), and field of study at university. For achievement and tertiary entrance, categorical measures were used for the bivariate analyses and continuous measures for multivariate analyses. The details are provided in the Appendix.

Post-University Activities and Labour Market Outcomes

Post-university major activity and labour market outcomes were constructed from the 2004 data. The main activity at the time of the annual survey was classified into five categories:

- Full-time study
- Full-time work

- Part-time work
- Unemployment or looking for work
- Other (including only part-time study)

Full-time study was based on the respondent's own evaluation of their full- or part-time study status; full-time work was defined as working more than 30 hours per week; and unemployment was defined as actively looking for work during the last four weeks. Main activity was defined hierarchically in the above order. For example, a student studying full-time but working part-time was allocated to the full-time study group. Those looking for work but in full-time work were categorised as in full-time work. This procedure meant that the 'other' category comprises respondents who were not in full-time study or work, part-time work or looking for work. The measure of main activity is similar to those used in earlier LSAY reports (Marks, 2006; McMillan & Marks, 2003).

This measure of main activity allows comparison of the proportions of university completers and non-completers in full-time work and unemployment. Other labour market outcomes examined in the report are weekly earnings, occupational status and work satisfaction. Weekly earnings were gross weekly earnings calculated from questions on gross pay and the period the pay covered. Part-time workers and the self-employed were included in these measures. Occupational status was based on a combination of the average education and income of incumbents in the job based on analysis of ABS Census data. The ANU3 scale was used which ranges from a score of zero, the lowest, to 100, the highest (F. L. Jones, 1989; F. L. Jones & McMillan, 2001). The 1989 article includes a list of ASCO occupation codes and the corresponding ANU3 score. For example, the ANU3 scores for magistrates, school principals, nurses and legal secretaries are 96, 82, 50 and 33, respectively.

The measure of work satisfaction was based on responses to questions on how satisfied on a four-point scale the respondent was about the kind of work they did, their immediate boss or supervisor, other people they work with, the pay, opportunities for training, the tasks they are assigned, recognition, and opportunities for promotion. The responses were summed, adjusted for missing data, and rescaled so that the resulting measure ranges from 0 to 100.

Analytic Techniques

Cross-tabulations were used to assess the relationships between completion and a range of socio-demographic and educational characteristics. Ordinary Least Squares multiple regression is used to analyse labour market outcomes. Logistic regression is used to estimate the independent effects of these factors on course completion status.

Multiple regression is used to isolate the net effect of a factor taking into account the effects of other factors. Therefore, multiple regressions can be used to address 'why' questions. For example, if analyses showed that university non-completers had poorer labour market outcomes than those who never went to university, one possible explanation is that non-completers have had less time in the labour market. Adding a measure of labour market experience to regression analyses enables this explanation to be evaluated.

Multivariate logistic regression is used in cases where the dependent (or outcome) variable is dichotomous. Logistic regression coefficients are presented in several tables in this report. The sign of the logistic coefficient indicates if the factor is associated with an increased or decreased level of completion. The use of multivariate logistic regression is detailed in Marks (2006).

In this report, the logistic regression coefficients are presented in tables. However, when the results are discussed in the text, the logistic regression coefficients are discussed as odds ratios, which are more readily interpretable. (The odds ratios are the exponents of the logistic coefficients or logits.)

Odds ratios are used to provide an indication of the net influence of a variable by providing, for example, the ratio of the odds of a female student completing university to the odds of a male student completing, other factors equal. Odds ratios are always positive. An odds ratio equal to 1 signifies no effect of the variable concerned on course completion. Odds ratios above 1 indicate an increased likelihood of completion and odds ratios below 1 indicate a decreased likelihood. The further an odds ratio is from 1, the stronger the effect of the variable.

3. COMPLETION OF UNIVERSITY DEGREE COURSES

The focus of this chapter is on course completion. It provides estimates of completion for first and second courses begun before 2001, course flows, and the proportion of those who enrolled at university who completed any course. It also examines the correlates of course completion.

Completion of First and Second Courses

Table 3 presents the estimates for completion status for both the first and second course commenced between 1998 and 2001. By 2002, only about a third of students had completed their first course, rising to around half in 2003, and nearly two-thirds by 2004. Correspondingly the percentage of those who commenced in university continuing their first course declined from 74 per cent in 2001 to only 8 per cent in 2004. The percentage that had withdrawn from their first course was around 16 per cent in 2004, and 11 per cent had changed course.

By 2004, 66 per cent had completed their first course. If the 8 per cent of students who were still continuing in the first course in 2004 completed at this rate (66%), the eventual completion rate for the first course would be about 71 per cent. Alternatively, if all continuing students completed their course then the estimated completion rate for first courses would be 74 per cent, and if none completed, a very unlikely scenario, the completion rate would remain at 66 per cent. It is reasonable to conclude that the eventual completion rate for first courses among this cohort is likely to be somewhere between 71 and 74 per cent.

Table 3 Completion status for first and second courses commenced between 1998 and 2001 (%)

	First course	*Second course*
Status in 2001		
Completed	8	2
Continuing	74	84
Withdrawn	9	10
Changed	9	4
	100	100
By 2002		
Completed	34	15
Continuing	44	66
Withdrawn	11	14
Changed	11	5
	100	100
By 2003		
Completed	52	42
Continuing	23	34
Withdrawn	14	19
Changed	11	6
	100	100
By 2004		
Completed	66	53
Continuing	8	18
Withdrawn	16	23
Changed	11	6
	100	100

Note: Column percentages may not sum to 100 due to rounding.

For those who commenced a second course prior to 2001, the estimates for completion are lower, about 53 per cent by 2004. The lower completion rate may be attributed to a later starting time: 18 per cent were continuing in 2004. However, it is noticeable that withdrawals were more frequent from the second course: 23 per cent by 2004, compared to 16 per cent for those in their first course.

By 2004, course completion of second courses was at 53 per cent. If the 18 per cent of those who were continuing their second course completed at this rate, the eventual completion rate for second courses would be about 63 per cent. If all the continuing students eventually completed the completion rate would be about 71 per cent. Using the same logic as outlined above, the estimated completion rate of second courses is therefore between 63 and 71 per cent.

Figure 1 presents a tree diagram showing the student flows for those cohort members who commenced their first university course by 2001. It shows the subsequent activities for continuing students each year. Of the students continuing in 2001, 63 per cent were continuing in 2002, 35 per cent had completed and less than 2 per cent had withdrawn or changed course. For later years, the percentage completed increases and the percentage continuing declines. Most withdrawals and course changes had occurred by 2001. Few students withdrew or changed course after 2001.

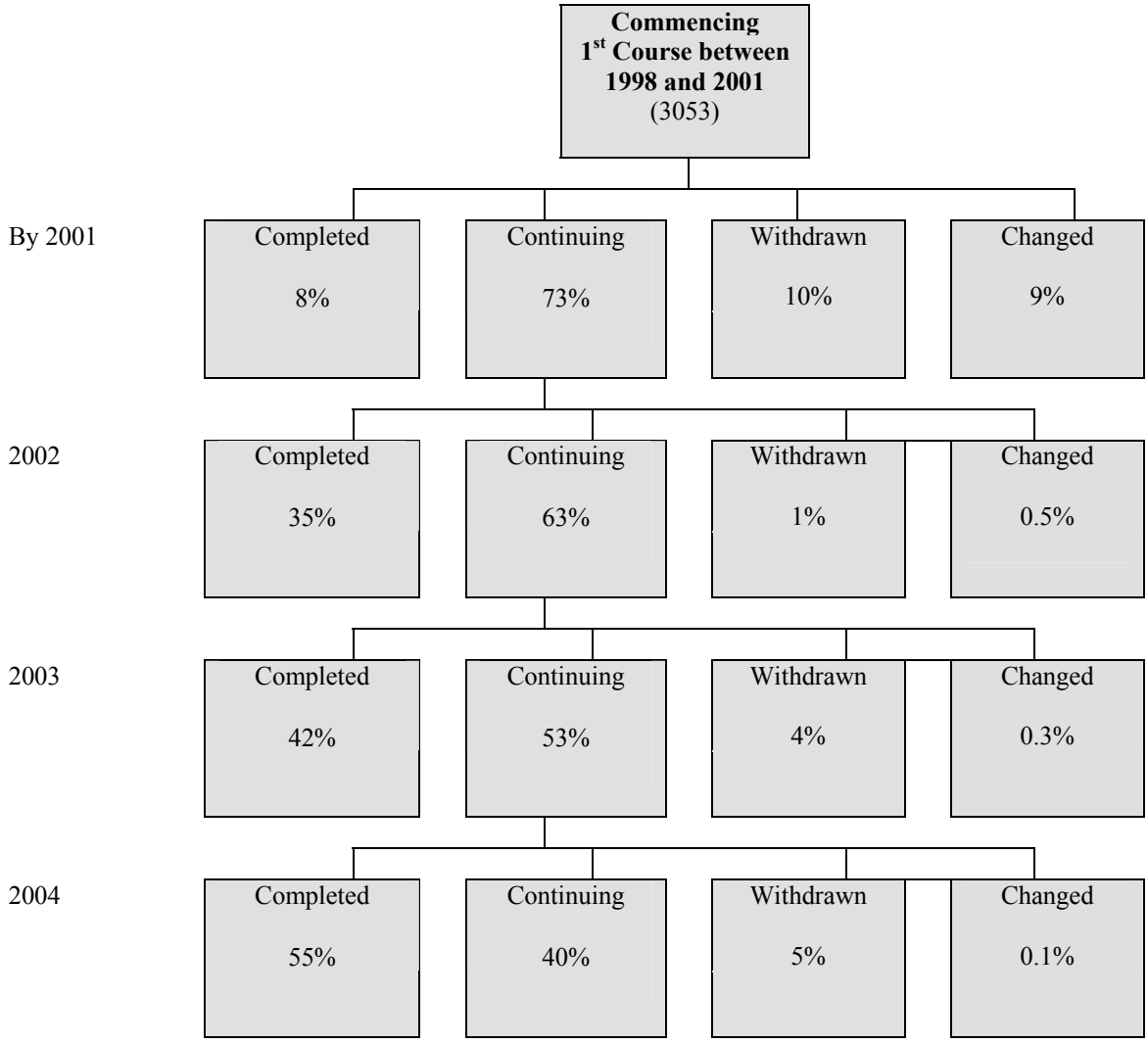

Figure 1 Student flows within the higher education sector of those who enrolled in their first course commenced between 1998 and 2001

Note: The percentages are based on non-missing data for the period up to 2004. The percentages differ from those shown in Table 3 because the denominator represents students who were continuing in the year before.

Characteristics of First Course Completers and Non-completers

This section presents the results of analyses of the social characteristics of the four groups: completed; continuing; withdrawn; or changed course. Student course status was assessed up to and including 2004. The analyses are based on the distribution of those who commenced their first university course, as shown previously in Table 3.

Demographic and Social Factors

Table 4 indicates that young women were more likely to have completed their first course than young men (68% compared to 62%), but that a higher percentage of young men were continuing students. By 2004 slightly more males than females had withdrawn and the percentage that had changed course was around 11 per cent for both genders. (Note that the raw frequencies for the percentages in Table 4 are presented in Table A 1).

Table 4 Course completion status in 2004 for first course (commenced between 1998 and 2001), by demographic and social factors (%)

		Completed	*Continuing*	*Withdrawn*	*Changed*	*Total*
Gender	*Male*	62	11	16	11	100
	Female	68	6	15	11	100
Region	*Metropolitan*	66	8	14	12	100
	Regional	66	7	17	10	100
	Rural	64	9	17	11	100
Region (Jones measure)	*Mainland capital city*	65	8	15	12	100
	Regional - major urban	68	8	15	9	100
	Large provincial city	62	5	23	10	100
	Small provincial city	66	12	11	12	100
	Other provincial	66	8	15	11	100
	Remote	74	8	12	7	100
Indigenous status	*Indigenous*	31	5	49	16	100
	Non-Indigenous	66	8	15	11	100
Language background	*Language other than English*	68	11	11	11	100
	English	65	8	16	11	100
Father's birthplace	*Australia*	65	8	16	11	100
	Other English speaking country	66	6	17	12	100
	Non-English-speaking country	67	9	13	11	100
Parental occupation	*Managerial*	66	8	14	12	100
	Professional	67	7	13	13	100
	Para-professional	64	9	19	8	100
	Clerical sales	64	10	18	9	100
	Skilled manual	63	8	17	13	100
	Semi-skilled/unskilled manual	65	8	16	10	100
Parental education	*Degree/diploma*	66	8	13	13	100
	Trade/vocational	66	8	16	10	100
	Completed school	69	7	13	11	100
	Not completed school	62	9	21	9	100
ALL		66	8	16	11	100

Region was measured by the address of the school the student was attending in Year 9. There was no clear relationship between region and completion status. According to the trichotomous measure distinguishing students from metropolitan, regional and rural areas, course completion was slightly lower among students from rural areas. The more detailed Jones measure of location (see R. G. Jones, 2002), suggests that apart from students from large provincial cities, course completion was higher in the non-metropolitan groups. Course withdrawal was highest among those from large provincial cities.

Although the sample size of Indigenous students is small, Table 4 indicates that only 31 per cent had completed their first course by 2004 compared to 66 per cent of non-Indigenous students. Indigenous students had a very high rate of withdrawal from university (nearly 50 per cent).

Students from language backgrounds other than English were more likely to be continuing students or course completers and less likely to have withdrawn than students from English-speaking backgrounds. This pattern was also found for the second measure of ethnicity based on father's birthplace. Those whose father was born in a non-English speaking country were less likely to have withdrawn from their course (13%) than those who father was born in Australia (16%).

Course completion status did not vary appreciably by parental occupation, although course withdrawal tended to be lowest among students from professional backgrounds. In terms of the measure based on parental education, course withdrawal was highest and course completion lowest among those whose parents had not completed school.

Educational Factors

There were differences in course completion status by type of school attended (Table 5). Completion was lowest among those who attended an independent school (61%) and highest among those who attended a Catholic school (69%). Course withdrawal was highest among those who had been to a government or independent school. Students from independent schools were more likely (15%) to have changed course than those who attended government or Catholic schools (both 10%).

There was no clear relationship between achievement in Year 9 literacy and numeracy and course completion status. Withdrawal was slightly higher (18%) among those from the lowest achievement quartile. Completion by 2004 was lowest in the top quartile but a higher percentage of this group (10 per cent) were continuing students, which may indicate that they were enrolled in longer courses.

A much stronger relationship with course completion status was found with Year 12 ENTER scores. Of students with ENTER scores below 80, around 20 per cent had withdrawn by 2004. Of those with ENTER scores between 80 and 89 about 12 per cent had withdrawn, and of those with ENTER scores above 90, only 7 per cent had withdrawn. The high ENTER group also showed a high incidence of course completion and continuation.

Table 5 shows that course completion status varied widely with university field of study. Course withdrawal was very high in Information Technology courses at 23 per cent, followed by Architecture and Building (20%), Society and Culture (19%) and the Creative Arts (18%). Withdrawal was lowest in the high status courses of Medicine, Dentistry, Veterinary Science and Law (8%). These courses also had the highest proportions of continuing students in 2004 (12%), which is likely to reflect the length of such studies. Education recorded the highest level of course completions (79%) by 2004.

Table 5 Course completion status in 2004 for first course (commenced between 1998 and 2001), by educational factors (%)

		Continuing	*Completed*	*Withdrawn*	*Changed*	*Total*
School Sector	*Government*	8	66	16	10	100
	Catholic	9	69	12	10	100
	Independent	8	61	16	15	100
Achievement in Year 9 literacy & Numeracy	*Lowest quartile*	9	66	18	8	100
	Second lowest quartile	7	67	15	11	100
	Third quartile	6	67	15	13	100
	Highest quartile	10	64	15	11	100
ENTER score band	*30-39*	x	x	x	x	100
	40-49-	x	x	x	x	100
	50-59	7	58	22	14	100
	60-69	7	64	21	8	100
	70-79	6	64	20	9	100
	80-89	7	65	12	16	100
	90-99	11	72	7	11	100
University field of study	*Natural & Physical Sciences*	6	64	14	16	100
	Information Technology	15	50	23	11	100
	Engineering & Related Technologies	17	58	13	12	100
	Architecture & Building	9	59	20	13	100
	Agriculture, Environmental & Related Studies	4	72	14	9	100
	Health	9	75	10	7	100
	Education	7	79	8	6	100
	Management & Commerce	9	68	15	9	100
	Society & Culture	5	62	19	14	100
	Creative Arts	3	70	18	9	100
	Medicine, Dentistry, Vet Science, Law	12	64	8	16	100
	Other	4	49	28	20	100
ALL		8	66	16	11	100

Note: x indicates too few cases for a reliable estimate.

Completion of Any Course

Table 6 shows the proportions who had completed any university course at bachelor or higher level, were still continuing with such a university course or had withdrawn from university study. They first enrolled at a university between 1998 and 2001. For most students completion status relates to their first and only course commenced in the period 1998 to 2001 (either straight after completing Year 12 or after a gap year) and this is reflected in the fact that the pattern of completion is similar to that shown in Table 4 for first course commenced. For some students however the course which the students continued could be the second or even third course commenced.[6]

[6] Of those who completed any course by 2004, for 78 per cent it was their first course, for 20 per cent it was their second course and for 2 per cent it was their third or later course.

Table 6 Completion status by year for a*ny university course* commenced between 1998 and 2001

	Percentage of completers
Status in 2001	
Completed	8.0
Not-Completed	7.3
Continuing	84.7
Total in 2001	100.0
By 2002	
Completed	32.5
Not-Completed	9.4
Continuing	58.1
Total by 2002	100.0
By 2003	
Completed	52.4
Not-Completed	12.8
Continuing	34.8
Total by 2003	100.0
By 2004	
Completed	67.6
Not-Completed	15.5
Continuing	16.9
Total by 2004	100.0
Expected Completion Status	
Completed	81.3
Not-Completed	18.7
Total by 2004, excluding continuing students	100.0

By late 2004 around two-thirds of commencing university students had completed a university course. For the vast majority of students 2004 was the sixth year after completing Year 12. Of the remaining one-third who had not completed a course, half were still continuing and the other half had withdrawn. Not unexpectedly, the proportion of continuing students is much higher for any course than for first or second course.

Most of those still continuing in 2004 would be expected to complete their university course in the subsequent years. The last panel in Table 6 shows the estimated completion rate into the longer term by assuming that those continuing in 2004 (15 per cent of commencing students) will have the same completion to withdrawal ratio as the non-continuing group up to that time (that is 67.6 to 15.5). As a result the completion rate in the longer term is estimated at around 81 per cent. The same estimate of 81 per cent was also obtained using the 2002 and 2003 samples and weights indicating that the estimate is not sensitive to sample attrition. Based on this estimate, about 80 per cent of commencing students complete a university course and 20 per cent do not complete.

This expected completion rate is broadly consistent with estimates based on the earlier youth cohorts and reported by Carpenter et al. (1998). They are, however, about 10 percentage points higher than the estimate of 70 per cent based on administrative data (Martin et al., 2001). One factor that may account for the discrepancy is the difference in the age profiles of the cohorts. The LSAY cohort comprises school leavers who commenced a course within three years of leaving school. In contrast, the higher education administrative data base includes mature age students (that is, students older than school leavers), who tend to have lower completion rates.

Based on the assumptions just described, Tables 7 and 8 show the results for expected completion of *any* course by social and educational factors. (The raw frequencies are presented in Table A 2.) The gender differences in course completion status for first course, where course completion among young women was 6 percentage points higher than among young men (see Table 4), were

not replicated in the analysis of completion of any course. As Table 7 shows, the gender difference in expected completion of any course by 2004 was about four percentage points.

Table 7 Expected completion and non-completion of any university course by 2004 (commenced between 1998 and 2001), by demographic and social factors (row percentages)

		Completion (Expected)	*Non-completion (Expected)*
Gender	*Male*	79.2	20.8
	Female	82.8	17.2
Region	*Metropolitan*	82.5	17.5
	Regional	80.6	19.4
	Rural	78.0	22.0
Region	*Mainland capital city*	81.1	18.9
(Jones measure)	*Regional - major urban*	82.7	17.3
	Large provincial city	75.4	24.6
	Small provincial city	85.3	14.7
	Other provincial	82.0	18.0
	Remote	84.1	15.9
Indigenous	*Indigenous*	30.0	70.0
status	*Non-Indigenous*	81.8	18.2
Language	*Language other than English*	81.8	18.2
background	*English*	81.0	19.0
Father's	*Australia*	81.4	18.6
birthplace	*Other English-speaking country*	81.9	18.1
	Non English-speaking country	80.8	19.2
Parental	*Managerial*	83.4	16.6
occupation	*Professional*	86.2	13.8
	Para-professional	82.6	17.4
	Clerical sales	80.9	19.1
	Skilled manual	69.7	30.3
	Semi-skilled/unskilled manual	80.3	19.7
Parental	*Degree/diploma*	84.8	15.2
education	*Trade/vocational*	78.6	21.4
	Completed school	87.0	13.0
	Not completed school	72.1	27.9
Total		81.3	18.7

Course completion was only slightly higher among students from metropolitan areas than students from regional or rural areas. The patterns for course completed by location, classified according to the Jones typology (see above) were less clear, with students from large provincial cities showing the lowest completion rates.

The small group of Indigenous students (25) who commenced a university course before 2001 showed very low expected completion rates (around 30 per cent).

There was little or no difference in expected completion rates by immigrant status. On both the language and birthplace measures the expected completion rates were very similar across the immigrant status groups.

As was the case for completion of first course, there were only small differences in the expected completion rates for any course according to parental occupational background. A stronger relationship was found for parental education, with students whose parents had not completed school showing a substantially lower expected completion rate (72% compared to 81% overall). However, the expected completion rates for students with parents who had a university education were lower (85%) than students whose parents' highest educational level was only Year 12 completion (87%).

Table 8 Expected completion and non-completion of any university course (commenced between 1998 and 2001), by educational factors (row percentages)

		Completion (Expected)	*Non-Completion (Expected)*
School sector	*Government*	78.5	21.5
	Catholic	87.7	12.3
	Independent	81.4	18.6
Achievement in Year 9 literacy & numeracy	*Lowest Quartile*	76.1	23.9
	Second Quartile	79.9	20.1
	Third Quartile	81.3	18.7
	Highest Quartile	83.5	16.5
ENTER score band	*30-39*	x	x
	40-49	x	x
	50-59	66.4	33.6
	60-69	73.4	26.6
	70-79	80.2	19.8
	80-89	86.4	13.6
	90-99	93.7	6.3
University field of study	*Natural & Physical Sciences*	87.5	12.5
	Information Technology	70.2	29.8
	Engineering & Related Technologies	83.2	16.8
	Architecture & Building	71.9	28.1
	Agriculture, Environmental & Related Studies	84.9	15.1
	Health	85.3	14.7
	Education	87.8	12.2
	Management & Commerce	83.1	16.9
	Society & Culture	75.4	24.6
	Creative Arts	80.2	19.8
	Medicine, Dentistry, Vet Science, Law	96.7	3.3
	Other	76.0	24.0
Total		81.3	18.7

Note: x indicates too few cases for a reliable estimate.

Table 8 shows that students who had attended Catholic schools had a much higher expected completion rate (88%) than students who attended a government school (79%) or independent school (81%). There were differences in expected completion by Year 9 achievement quartiles. For the top quartile the expected completion was 84 per cent, compared to 76 per cent for the (much smaller) bottom quartile group.

The strong relationship between ENTER score band and completion status for first course (Table 5) was also found for expected completion of any course. Of those who achieved an ENTER score of over 90, the expected completion rate was 94 per cent compared to 73 per cent for ENTER scores between 60 and 70, and only 66 per cent for ENTER scores between 50 and 59. The numbers of commencing university students with ENTER scores below 50 are too small for reliable estimates of their completion status.

Similarly the pattern of expected completion by university field of study generally replicated the results for completion of first course. For Medicine, Dentistry, Veterinary Science or Law the expected completion rates were well over 90 per cent, compared to 70 per cent for Information Technology.

Influences on Expected Completion of Any Course: Multivariate Analyses

The independent effects of the socio-demographic and educational factors on expected completion of any university course were examined by analysing a series of logistic regression models. The variables included in the model are gender, region, occupational background, school sector, ENTER score and type of course. A series of sequential regression equations was analysed. The first model comprised only social background factors; the second model added school sector; the third added ENTER score; and the fourth added type of course. The logistic regression coefficients obtained from these analyses are presented in Table 9.

Table 9 shows that young women were significantly more likely to complete than young men, but initially the effect was not large. When controlling for ENTER score, the gender difference increased so that the odds of young women completing were 1.5 times those of young men [exp(0.42) = 1.52]. This indicates that men were more likely not to complete after taking into account ENTER score and field of study (Model 4).

According to these analyses there were not strong differences in expected completion by region. Similarly, the effects for occupational background were generally not statistically significant. Initially, students with trade backgrounds were less likely to complete, but this difference can be attributed to generally lower ENTER scores for this group. There was a tendency for students from professional backgrounds to be more likely to complete when controlling for ENTER score, but this effect but was no longer statistically significant when taking into account field of study.

Model 2 shows that the odds of expected completion for students who attended a Catholic school were about 1.8 times that of government school students [exp(0.58) = 1.79]. However, once ENTER scores were controlled for, the difference between Catholic and government school students became statistically insignificant (Model 3). Similarly, students who attended an independent school were no more or less likely to complete a course than government school students when taking into account occupational background and the other factors in Model 1. Overall, after controlling for background characteristics and ENTER scores, school sector had no impact on expected completion rates.

The most important influence on expected completion was ENTER score. With its addition, the explanatory power (R-square) of the model increased from 4 to 11 per cent. According to these estimates, ENTER scores 10 units higher increased the odds of course completion 1.5 times, scores 20 units higher 2.4 times, and scores 30 units higher 3.6 times (Model 3). This strong effect could not be accounted for by university field of study, which is correlated with ENTER score. The coefficient for ENTER score was not substantially reduced when controlling for field of study (Model 4).

Table 9 Influences on expected completion of any university course commenced between 1998 and 2001

Variable	*Values*	*Model 1 (social & demographic variables)*	*Model 2 (Model 1 + school sector)*	*Model 3 (Model 2 + ENTER score)*	*Model 4 (Model 3 + university field of study)*
Intercept	Intercept	1.28***	1.15***	1.21***	1.46***
Gender *(reference = Male)*	Female	0.28**	0.25	0.45***	0.42**
Region *(reference = Capital city)*	Major Urban region	0.16	0.18	0.37	0.31
	Large Provincial City	-0.39	-0.43	-0.08	-0.12
	Small Provincial City	0.37	0.28	0.17	0.14
	Other Provincial	0.06	0.17	0.17	0.10
	Remote	0.14	0.19	0.35	0.15
Occupational Background *(reference = Manual)*	Managerial	0.18	0.15	0.16	0.17
	Professional	0.38	0.39	0.49*	0.43
	Para-professional	0.17	0.14	0.26	0.27
	Clerical/sales	-0.01	-0.02	0.11	0.06
	Trades	-0.58**	-0.55**	0.10	0.06
School sector *(reference = Government)*	Catholic		0.58***	0.33	0.34
	Independent		0.01	-0.31	-0.31
ENTER Score	(Centred at 80, divided by 10)			0.43***	0.42***
University field of Study *(reference = Management & Commerce)*	Natural & Physical Sciences				0.07
	Information Technology				-0.59
	Engineering & Related Technologies				-0.44
	Architecture & Building				-0.21
	Agriculture, Environmental & Related Studies				0.17
	Health				-0.08
	Education				0.25
	Society & Culture				-0.53*
	Creative Arts				-0.25
	Medicine, Dentistry, Veterinary Science, Law				1.14
	Other				-0.56
	R-square	0.03	0.04	0.11	0.13

Note: Within 4 to 6 years. Logistic Regression Coefficients. Statistical significance: ***P<0.001, **0.001<P<0.01, *0.01<P<0.05

Model 4 includes the field of study of the initial university course. The effects were analysed relative to the Management and Commerce field of study. There were few substantial effects of field of study on expected completion after controlling for the other variables. The odds of students initially enrolled in Society and Culture courses completing any course were about 0.6 times the odds for students enrolled in Management and Commerce courses. In other words, those enrolled in Society and Culture courses were 1.7 times as likely not to complete a course. The estimate for Information Technology was of a similar magnitude but was not statistically significant.

4. LABOUR MARKET OUTCOMES OF UNIVERSITY DEGREE COMPLETERS AND NON-COMPLETERS

This chapter examines the labour market consequences of university non-completion. The activities and labour market outcomes of university non-completers are contrasted with those of four other groups of young people: university completers; continuing university students; Year 12 completers who did not enrol at a university; and school non-completers.

University completers were defined as those students who by 2004 had completed any course that they first enrolled in before 2002. Non-completers comprised those students who had not completed any course they enrolled in before 2002 and were not continuing students in 2004. The comparisons include main activity in 2004, weekly earnings, occupational status and work satisfaction.

Main Activity in 2004

Table 10 presents the main activity in 2004 for the five comparison groups from the Year 9 class of 1995 cohort.

Table 10 Main activity in 2004 by university and school completion status

Group	*N*	*Full-time study*	*Full-time work*	*Part-time work*	*Un-employed*	*Other*	*Total*
University completers	1532	12	69	12	3	4	100
University non-completers	299	18	63	11	2	6	100
Continuing university	281	91	7	1	0.2	2	100
Year 12 completers who did not enrol in university	1748	9	71	11	4	6	100
Year 12 non-completers	783	6	63	12	6	13	100

Note: Continuing university students include deferred, as well as part-time and full-time students. The data are weighted to compensate for sample attrition.

Table 10 does not provide strong evidence that university non-completers are 'worse' off at this stage of their lives. Unemployment is low in all four groups of those who completed Year 12. About 2 per cent of those who did not complete their university course were unemployed in 2004, which was about one-third of the rate (6%) of those who did not complete Year 12. Except for continuing university students, similar proportions of the four remaining groups were in part-time work (around 11-12%). The proportion of university non-completers in full-time work was about five percentage points less than that for university completers, but the difference was more than made up by the higher proportion in full-time study (18% compared to 12% for university completers). These figures are consistent with McMillan (2005) who found that a significant proportion of non-completers were in VET courses.

The proportion of university non-completers fully engaged, that is in full-time work or study (80%) was similar to that of Year 12 completers (81%) who never went to university and much higher than that for Year 12 non-completes (69%).

Labour Market Outcomes

Table 11 summarises the weekly pay, occupational status and work satisfaction for the five groups in 2004. University completers earned on average $987 per week, considerably more than university non-completers. The low mean pay of continuing students reflects that most were working part-time and often in occupations unrelated to their university course. The average weekly pay of the two groups that did not go to university was lower than that of university completers but higher than that of university non-completers. There were larger differences in

occupational status, with the mean occupation status of university completers nearly 20 points higher than that of the other groups. It appears that university non-completers were in similar status jobs as continuing university students and Year 12 completers. Unsurprisingly, the Year 12 non-completer group showed the lowest mean level of occupational status. In contrast to occupational status, there was little difference in work satisfaction between the five groups. Continuing university students showed the lowest level of work satisfaction, probably because many were employed in jobs they did not consider to be related to their careers.

Table 11 Labour market outcomes in 2004 by university and school completion status

Group	*N (for Pay)*	*Pay ($)*	*Occupational Status*	*Work Satisfaction*
University completers	1330	987	48.2	76.3
University non-completers	259	757	31.7	72.6
Continuing university	213	578	32.5	70.7
Year 12 completers who did not enrol in university	1479	844	30.4	75.7
Year 12 non-completers	585	830	26.0	75.8

Note: Continuing university students includes deferred, as well as part-time and full-time students. The data are weighted to compensate for sample attrition.

Table 12 presents the results of the analysis of variables that had an influence on weekly pay. Gender, labour market experience and Year 9 achievement score all had a bearing on earnings and may have affected the estimates for the university non-completion group. The first column of coefficients shows the effects on earnings by completion status. Model 2 adds gender to the analysis, Model 3 adds labour force experience, Model 4 adds Year 9 achievement score, and Model 5 substitutes hours worked per week for achievement score (which in Model 4 was found to have non-significant effects). Particularly important is labour force experience, which may account for the weaker labour market outcomes of university non-completers compared to Year 12 completers and non-completers. By controlling for achievement, it is possible to test whether differences in earnings between completion status groups can be attributed to ability. The inclusion of hours worked should only affect the coefficients for the continuing group and was not included in the earlier models.

The first column of coefficients in Table 12 shows that university completers earned about $160 more per week than those who had not completed Year 12 (the control group). The addition of gender marginally increased the effect for university completion. When controlling for months since leaving higher education, the difference increased to around $320, since university completers have had much less work experience. Controlling for achievement made little difference, and controlling for hours reduces the effect to around $250 per week.

University non-completers earned about $73 less than Year 12 non-completers but this raw dollar estimate was not statistically significant. Controlling for labour market experience reversed the sign for the coefficient, but the coefficient remained not statistically significant. Therefore, it can be concluded that there was little difference in earnings between university non-completers and school non-completers (and the other groups excepting university course completers) at this early stage of their careers.

The low R square for these models indicates that the factors in the model do not account for the variation in the distribution of earnings. However, it is unlikely that a more comprehensive model would substantially change the estimates for completion status.

Table 12 Regression models of effects of weekly pay in 2004 by university and school completion status

Variable	*Values/Detail*	*Model 1 (completion status)*	*Model 2 (Model 1 + gender)*	*Model 3 (Model 2 + labour force experience)*	*Model 4 (Model 3 + Year 9 achievement)*	*Model 5 (Model 3 + Hours worked per week)*
Raw Earnings						
	Intercept	830.6***	818.5***	591.3***	601.7***	608.8***
University &	University completers	156.7**	161.2**	318.5***	293.4***	254.5***
school	University non-completers	-73.4	-70.9	38.2	17.1	40.7
completion	Continuing university	-251.6***	-206.1**	-198.3**	-223.9**	-8.6
status	Year 12 completers	14.2	18.2	74.5	66.8	64.8
Gender	Male		19.4	10.1	8.6	-58.3
Labour force experience	Months since leaving full-time education			3.0**	3.0**	1.3**
Year 9 achievement	Centred at mean				8.6	-
Hours worked	Per week					18.4***
R-square		0.01	0.01	0.02	0.02	0.07

Note: Only those non-missing on earnings at time of interview in 2004. N=3866 Analyses are weighted. †. Statistical significance: ***P<0.001, **0.001<P<0.01, *0.01<P<0.05

The only other significant effect was the much lower earnings of continuing university students (by about $250 per week) than Year 12 non-completers. This is due to the smaller number of hours usually worked by full-time students since the coefficients are substantially smaller and not significant when controlling for hours worked (last column of Table 12).

Table 13 presents the results of a similar analysis of occupation status. Hours worked was not included since, unlike earnings, occupation is not sensitive to the number of hours worked. It shows that by 2004 university non-completers had tended to obtain jobs with a slightly higher occupational status than Year 12 non-completers, but they held similar status jobs to those of continuing university students and Year 12 completers. In contrast, the jobs held by university completers have a much higher occupational status. On average the occupational status (on a 0 to 100 point scale) of jobs held by university completers was 48, for university non-completers 32, continuing students 33, school completers 30 and school non-completers 26. The first column of Table 13 presents these averages as regression coefficients contrasting with the school non-completer group. All the differences in occupational status relative to the Year 12 non-completer group were statistically significant.

Table 13 Regression models of effects on occupational status in 2004 by university and school completion status

Variable	*Values*	*Model 1 (completion status)*	*Model 2 (Model 1 + gender)*	*Model 3 (Model 2 + labour force experience)*	*Model 4 (Model 3 + Yr 9 achievement)*
	Intercept	26.0***	27.8***	29.3***	30.2***
University & school completion status	University completers	22.4***	21.8***	20.7***	18.6***
	University non-completers	5.7***	5.4***	4.6**	2.8
	Continuing university (part-time work)	6.6***	6.2***	5.8***	3.7*
	Year 12 completers	4.4***	4.2***	3.8***	3.1***
Gender	Male		-2.9***	-2.8***	-2.9***
Labour force experience	Months since leaving full-time education			-0.0	-0.0
Year 9 achievement	Centred at mean				0.7***
R-square		0.22	0.23	0.23	0.24

Note: Only those non-missing on occupation at time of interview in 2004. N=4064 Analyses are weighted.
Statistical significance: ***P<0.001, **0.001<P<0.01, *0.01<P<0.05

Further analyses adding control variables did not change the general conclusion that the job status of university non-completers was comparable to that of continuing university students with part-time jobs and Year 12 completers who did not enrol in university. Adding gender showed that young men tended to have lower occupational status jobs than young women (Model 2). When controlling for gender, labour market experience and Year 9 achievement score, there was no significant difference in the average occupational status of university non-completers and Year 12 non-completers (Model 4). These analyses imply that the slightly higher occupational status of jobs held by university non-completers compared to Year 12 non-completers can be attributed to their generally higher levels of achievement in Year 9 literacy and numeracy.

Table 14 presents the results from the analyses of work satisfaction. Generally, work satisfaction was high among all groups, with the mean score around 76 (on a scale of 100). The work satisfaction of university completers was significantly lower than that of Year 12 completers who did not enrol in university. However, the difference was only 3.2 units, small considering that the measure has a range of 100 and a standard deviation of 16.

Table 14 Regression models of effects on work satisfaction in 2004 by university and school completion status

Variable	*Values*	*Model 1 (completion status)*	*Model 2 (Model 1 + gender)*	*Model 3 (Model 2 + labour force experience)*	*Model 4 (Model 3 + year 9 achievement)*
	Intercept	76.0***	76.5***	72.3***	72.1***
University & school completion status	University completers	0.4	0.2	3.2*	3.6*
	University non-completers	-3.2*	-3.3*	-1.3	-1.0
	Continuing university (part-time work)	-4.9**	-5.3**	-4.3*	-3.9
	Year 12 completers	-0.2	-0.2	-0.9	1.1
Gender	Male		-1.1	-1.3*	-1.2
Labour force experience	Months since leaving full-time education			0.06**	0.05**
Year 9 achievement	Centred at mean				-0.1
R-square		0.01	0.01	0.01	0.01

Note: Only those non-missing on occupation at time of interview in 2004. N=4064 Analyses are weighted.
Statistical significance: ***P<0.001, **0.001<P<0.01, *0.01<P<0.05

The low R square values indicate that very little of the variation in work satisfaction is captured by the variables in the models.

5. DISCUSSION

The purpose of this report was to examine completion and non-completion of university courses and the consequences of non-completion. It estimated course completion rates for first and second courses, the completion rate for any course and the socio-demographic and educational correlates of course completion. The report compared the major activity, weekly income, occupational status and work satisfaction of university non-completers relative to other groups of young people.

Drawing on data that mapped the experiences of the Year 9 class of 1995 up until the end of 2004, the analyses estimated that the percentage of commencing university students who complete their first course is between 71 and 74 per cent, and their second course between 65 and 71 per cent. About 80 per cent of commencing students could be expected to complete any course. These estimates are comparable with estimates of course completion by young people from other sources. This estimate is higher than the recent estimate of 70 per cent by DEST (Martin, Maclauchan & Karmel, 2001) for all commencing students but this is partly because the present study considered school leavers only. Other estimates include mature age students, whose completion rates are lower. It is also lower than the estimate of around 85 per cent for school leavers by Carpenter et al. (1998) based on earlier longitudinal survey data. A longer timeframe will yield higher observed completion rates.

Course completion tended to be slightly higher among women than men, but the gender gap was smaller when considering completion of any course. There were no clear metropolitan/non-metropolitan differences in course completion since there was much variation in course completion among students from non-metropolitan areas. On the language background measure, completion was slightly higher among those from non-English-speaking backgrounds. Confirming previous work, socioeconomic background does not have a strong bearing on course completion. It seems that if students from a low socioeconomic background get to university, their background does not negatively affect their chances of completing the course. Of the social background factors, only Indigenous status had a strong (negative) association with course completion: only about one-third of commencing Indigenous students had completed any university course by 2004, and over 50 per cent had withdrawn. However, this estimate is based on a small sample and so should be treated with caution.

These data indicated that students who had attended an independent school were no less likely to complete their course than students who attended a government school. Although there is evidence that students who attended independent schools have lower grades at university (Dobson, 2005) for the same ENTER score, this was not translated into an increased likelihood of non-completion. Students who had attended Catholic schools showed the highest completion rates. When the analysis controlled for ENTER scores, however, school sector had no impact on completion.

Perhaps not surprisingly, the strongest influence on university course completion was found to be students' Year 12 ENTER score. Completion rates are very high among those with high ENTER scores and much lower among students with ENTER scores below 70. The strong influence of ENTER score is presumably due to higher ability students being more able to cope with the academic demands of university study. Students with lower ENTER scores, on the other hand, are more likely to struggle. However, it needs to be pointed out that about three-quarters of students with ENTER scores below 70 had completed their course by 2004, so a low ENTER score does not necessarily mean non-completion. An important implication of this finding is that further expansion of university participation could increase course non-completion if expansion meant more students with lower ENTER scores.

The second major purpose of this report was to assess the labour market outcomes of university non-completers. The proportion of university non-completers (80%) fully engaged – that is in full-time work or study – was similar to that of Year 12 completers (81%) who never went to university and much higher than that for Year 12 non-completes (69%).

For weekly earnings and occupational status, university non-completers' outcomes were much worse than university completers' and broadly comparable with those who completed Year 12 and did not enrol in university. Only on the criterion of unemployment does the university non-completer group show better outcomes than the other groups, including university completers, but unemployment is very low for all groups except those who did not complete school. It is possible that the pay and occupational status of the university non-completer group will improve as they spend more time in the labour force, but initially they have much poorer labour market outcomes than university completers.

The results confirm the more positive labour market outcomes of university completers, especially in regard to their higher earnings, which are evident even at this relatively early stage in young people's working lives.

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APPENDIX: MEASURES AND FREQUENCIES

Social and Demographic Variables

Gender: In 1995, students were asked to indicate whether they were male or female. In cases where this information was not provided, the students' names were used to infer their gender. This information was confirmed in subsequent telephone interviews.

Region: The location measures are based on the student's place of residence when first sampled in Year 9. Two classifications were used in this report. The first distinguished between metropolitan, regional and remote based on the number of people in the locality. The second measure was more fine-grained and used information on the access to services and other features of locations (Jones, 2002). It classified the postcode of a student's home address in 1995 into one of six categories: mainland state capital (for example, Adelaide); major urban region (for example, Newcastle, the Gold Coast); large provincial city (for example, Wagga Wagga, Toowoomba); small provincial city (for example, Mansfield); other provincial; and remote.

Indigenous status: was based on students' self-identification of Aboriginal or Torres Strait Islander status in the Year 9 survey.

Language background: In 1995, students were asked to identify the main language spoken at home. For the purposes of this report, a distinction was drawn between households where the main language spoken was English, and households where English was not the main language spoken.

Father's country of birth: This is a measure of ethnicity using information on the country of birth of the respondent's father. Three categories of countries were used: Australia; other English-speaking; and non-English speaking.

Parental occupation: The parental occupational measure comprises six categories: manager; professional; para-professional; clerical/sales/personal service workers; skilled manual; and semi/unskilled manual. The most recent parental occupational data were collected in 1997, when the majority of students were in Year 11; similar data were collected in 1995. The measure was based upon the male parent's occupation in 1997. If this information was missing, the female parent's occupation in 1997 was used. If information on both parents' occupations in 1997 was missing, the information supplied in 1995 was used.

Parental education: In 1995, respondents were asked to report the highest level of education completed by each of their parents. Information on the parent with the highest qualification forms the basis of a parental education measure comprising five categories: degree/diploma; trade/technical qualification; completed secondary school; some/no secondary school; and don't know/missing.

Education Variables

School sector: This measure refers to the school attended in Year 12 (1998), and comprises three categories—government schools, Catholic non-government schools, and non-Catholic non-government schools—identified respectively as government, Catholic and independent. The measure is based upon information from the sampling frame (school sector in Year 9), updated where applicable from responses to annual interview questions on whether the student had changed schools and the sector of their new school.

Year 9 achievement in literacy and numeracy: measures were based on students' performance in ACER-administered tests of literacy and numeracy conducted when the students were in Year 9. Each test comprised 20 short answer or multiple answer tests. The tests included many items used in previous national studies of literacy and numeracy. The measure of achievement was developed from student's test scores and grouped into quartiles.

ENTER score: A student's Equivalent National Tertiary Entrance Rank (or ENTER score) was calculated from information reported in their 1999 telephone interview. Valid scores could range from 0 to 99.95, although a substantial number of sample members could not remember or refused to provide a score. A detailed discussion of the measurement, reliability and validity of ENTER scores in LSAY is provided by Marks, McMillan and Hillman (2001:64-77).

University field of study: Information provided in the 2001 telephone interview on courses commenced since leaving school was classified according to the Australian Standard Classification of Education's broad fields of education (ABS, 2001). The classification comprises 12 broad fields: natural and physical sciences; information technology; engineering and related technologies; architecture and building; agriculture, environmental and related studies; health; education; management and commerce; society and culture; creative arts; food, hospitality and personal services; mixed field programs. These broad fields, and an 'other' category comprising uncodeable and missing data, were used to determine whether students moved to different fields when they changed courses within the higher education sector or moved between the higher education and VET sectors (Chapter 3).

Information on the fields of education of the first and most recent higher education courses was also analysed in Chapter 4 and Chapter 5. In these chapters, medicine, dentistry, veterinary science and law were removed from their respective broad fields of education and treated as a separate category. The following broad fields were combined with the 'other' category due to small student numbers: food, hospitality and personal services; and mixed field programs.

Main Activity

Main activity was assessed by the respondent's major activity at the time of interview, usually conducted between September and November. Main activity was categorised into five groups: full-time study, full-time work, part-time work (with and without part-time study), looking for work (unemployed) and 'other'. Full-time study includes study at a TAFE or private institution. (Degree participants were excluded). Apprentices are classified as full-time workers. Full-time work is defined as working 30 or more hours per week, and part-time work less than 30 hours. Unemployed is defined by looking for work in the four weeks prior to the interview and not engaged in full-time study or either full- or part-time work. 'Other' is defined residually comprising those not allocated to any of the other four categories. The main activities of this group include 'ill unable to work', 'travel and holidays' and 'home duties'. Respondents were allocated hierarchically according to this ordering of activities. For example, those working full-time and studying part-time were categorised as working full-time. Similarly, respondents working part-time but looking for work were defined as working part-time.

Table A 1 Frequencies for course completion status for first university course by socio-demographic and educational factors

		Continuing	*Completed*	*Withdrawn*	*Changed*	*Total*
Gender	*Male*	108	639	167	112	1026
	Female	101	1030	222	172	1525
Region	*Metropolitan*	133	1046	219	192	1590
	Regional	42	367	101	50	560
	Rural and remote	34	256	69	42	401
Region (Jones measure)	*Mainland capital city*	127	965	214	185	1491
	Regional - major urban	23	206	43	28	300
	Large provincial city	9	95	36	17	157
	Small provincial city	10	56	10	9	85
	Other provincial	34	299	73	40	446
	Remote	6	48	13	5	72
Indigenous status	*Indigenous*	2	7	13	3	25
	Non-Indigenous	197	1581	358	266	2402
Language background	*Language other than English*	29	201	30	34	294
	English	175	1428	355	239	2197
Father's birthplace	*Australia*	135	1076	262	174	1647
	Other English-speaking country	17	167	46	33	263
	Non-English speaking country	51	383	72	64	570
Parental occupation	*Managerial*	56	463	100	76	695
	Professional	57	457	86	90	690
	Para-professional	16	112	37	17	182
	Clerical/sales	30	198	55	30	313
	Skilled manual	21	191	55	37	304
	Unskilled/semi-skilled manual	28	233	54	34	349
Parental education	*Degree/diploma*	95	719	145	130	1089
	Trade/vocational	25	232	61	39	357
	School completion	28	247	57	40	372
	Not completed school	25	198	63	31	317
School sector	*Government*	100	849	211	130	1290
	Catholic	51	418	83	67	619
	Independent	58	402	95	87	642
Achievement in Year 9 literacy & numeracy	*Lowest quartile*	10	88	20	10	128
	Second quartile	27	256	68	46	397
	Third quartile	48	486	108	86	728
	Highest quartile	124	835	193	142	1294
ENTER score band	*30-39*	2	10	5	2	19
	40-49	2	19	9	1	31
	50-59	8	53	23	13	97
	60-69	13	140	54	24	231
	70-79	30	313	92	44	479
	80-89	46	438	82	96	662
	90-99	80	528	53	84	745
Total		209	1669	389	284	2551

Table A 2 Frequencies for course completion status for any university course by socio-demographic and educational factors

		Continuing	*Completed*	*Total*
Gender	*Male*	196	701	897
	Female	256	1134	1390
Region	*Metropolitan*	268	1156	1424
	Regional	103	401	504
	Rural and remote	81	278	359
Region (Jones measure)	*Mainland capital city*	267	1065	1332
	Regional - major urban	42	229	271
	Large provincial city	40	104	144
	Small provincial city	11	61	72
	Other provincial	78	325	403
	Remote	14	51	65
Indigenous status	*Indigenous*	16	7	23
	Non-Indigenous	413	1741	2154
Language background	*Language other than English*	39	221	260
	English	403	1572	1975
Father's birthplace	*Australia*	290	1185	1475
	Other English-speaking country	53	186	239
	Non-English speaking country	93	417	510
Parental occupation	*Managerial*	119	506	625
	Professional	104	513	617
	Para-professional	37	127	164
	Clerical/sales	60	215	275
	Skilled manual	68	209	277
	Unskilled/semi-skilled manual	62	250	312
Parental education	*Degree/diploma*	173	801	974
	Trade/vocational	67	254	321
	School completion	56	274	330
	Not completed school	73	215	288
School sector	*Government*	245	923	1168
	Catholic	85	466	551
	Independent	122	446	568
Achievement in Year 9 literacy & numeracy	*Lowest quartile*	20	96	116
	Second quartile	85	278	363
	Third quartile	129	535	664
	Highest quartile	218	922	1140
ENTER score band	*30-39*	6	11	17
	40-49	9	19	28
	50-59	33	54	87
	60-69	58	153	211
	70-79	97	342	439
	80-89	110	492	602
	90-99	64	583	647
Total		452	1835	2287