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Longitudinal Surveys of Australian Youth

Research Report 45

Young People outside the Labour Force and Full-time Education: Activities and Profiles

Kylie Hillman

November 2005

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EXECUTIVE SUMMARY

This report focuses on a group of young people who are not involved in full-time education or the labour force, that is, they are not studying full-time, nor are they working or looking for work. The data used in this report are drawn from the Longitudinal Surveys of Australian Youth (LSAY), which studies the progress of cohorts of young Australians as they make the transitions from secondary school to work and further education and training, beginning in Year 9.

Two groups of young people who had experienced some time outside the labour force and full-time education were investigated in this report. The first and larger group consisted of those young people from the 1995 LSAY cohort who had not been involved in full-time education or the labour force for at least one month between January 1997 and December 2003. The second group consisted of those young men and women who were not involved in education and training or the labour force at the time of the annual surveys from 1999 to 2003. Major findings of the investigations are summarised below.

Who spends time outside the labour force and full-time education?

- Overall, close to two thirds, over 64 per cent, of the young people who participated in the LSAY interview in 1997 spent some time outside the labour force and full-time education over the years they were surveyed (up to the end of 2003). For the majority of young people, the period of time outside the labour force and full-time education was quite short, around one month.
- Young people who had not achieved highly at secondary school, did not have a Year 12 certificate, were female, or who had a health problem or disability were more likely to have reported extended periods of time outside the labour force and full-time education (longer than 12 months).
- Young people who had been in the lowest school achievement quarter or who did not have a Year 12 certificate were more likely to have experienced multiple periods of time outside the labour force and full-time education.
- Characteristics associated with not spending any time outside the labour force and full-time education included being in the highest school achievement quarter, coming from a family in which both parents had a degree or diploma, and not having left school prior to completing Year 12.
- Marital status and parental status were also associated with spending time outside the labour force and full-time education. Greater proportions of young people who were married or who were parents reported spending 13 or more consecutive months outside the labour force and full-time education. Fewer young people who were married than who were unmarried reported three periods of time outside the labour force and full-time education, while more young parents than young people without children reported two periods of time outside the labour force and education.

What are the activities and plans of young people outside the labour force and full-time education?

- Most young women who were outside the labour force and full-time education at the time of each annual survey reported that they were caring for children or involved in home duties.
- Young men who were not studying full-time or in the labour force were involved in some other form of study or training in the early years, but in the later years tended to be on holiday or travelling.

- Most young people saw their state as temporary and planned to enter full-time education or look for employment in the near future. These intentions appeared to differ according to the main activity of these young people. For instance, fewer young people who were caring for children or a household indicated that they were likely to enter study or look for work in the next twelve months.

What factors influence young people's return to the workforce or full-time education?

- For young women, being married increased the likelihood of return after the first period of time outside the labour force, while being a mother or having a disability or health problem decreased the likelihood of returning to the labour force or full-time education. The likelihood of return of young men from the first period of time outside the labour force and full-time education was not significantly associated with any of the analysed characteristics.
- For young men, the likelihood of return from the longest period outside the labour force and education was related solely to prior experience of time outside the labour force. The influence of having previously experienced time outside the labour force also interacted with time, such that the difference in the rate of re-entry between young men who had no prior experience outside the labour force or full-time education and those who did, increased over the observed period.
- For young women, the likelihood of return from the longest period was associated with marital, parental and disability status. In addition, young women from a metropolitan location were more likely to enter or re-enter the labour force or full-time education from their longest period away from these activities than young women from non-metropolitan locations. Those who had left secondary school before Year 12 were less likely to end their time outside the labour force and education during the observed period than those who had remained at secondary school. Having experienced a previous period of time outside the labour force and education also decreased the likelihood of return for young women. Marriage, motherhood and previous history of time spent outside the labour force and full-time education all interacted positively with time in their influence on the likelihood of returning to the labour force or full-time education for young women, so that any initial differences between the groups of young women increased over time.

Overall, for young people today, spending some time (at least one month) outside the labour force and full-time education is not an uncommon experience. Over 60 per cent of those who participated in the 1997 survey spent some time outside the labour force or full-time education over the following seven years. For the majority of these young people, their time spent outside the labour force was relatively short, between one and three months, after which they moved back into the labour market or full-time education with little apparent difficulty. Whether their time outside the labour force was spent travelling or in a period of transition between education and employment or different employment positions, most young people, when interviewed, saw their situation as temporary and planned on entering or re-entering the labour force or full-time education within the following year.

There are some groups of young people, however, for whom the experience of time outside the labour force and full-time education may be more disruptive. Young people who spend extended periods of time outside the labour force and full-time education may find it difficult to end this time by moving back to the labour force if their skills and qualifications have become out-dated in the meantime. Those young people who cycle in and out of the labour force may also be at risk, with prior experience of time outside the labour force and full-time education having an apparent scarring effect, decreasing their likelihood of returning to the labour force or full-time education.

Young People outside the Labour Force and Full-time Education: Activities and Profiles

1. INTRODUCTION

Young people who are not participating in either full-time education or the labour force are the focus of considerable policy concern. The report from the Prime Minister's taskforce on youth pathways emphasised the importance of school leavers getting a good start through either employment or further education and training (Eldridge, 2001). Teenagers and young adults who are outside either employment or education and training appear to have a relatively greater risk of economic and social marginalisation over the long-run. The policy concern with improving young people's transition to work and adult independence is reflected in the adoption by the Ministerial Council on Education, Employment, Training and Youth Affairs of measures of the proportions of 15-to-24 year-olds who are participating in education and/or work as part of the national key education performance indicators (MCEETYA, 2003).

This report focuses on a group of young people who are *not* in either full-time education or the labour force, namely those who are not employed and not seeking work. Although data from the Australian Bureau of Statistics (2004) indicate that this group is relatively small at any one time (about 4% of 15-to-24 year-olds in September 2003)¹, it is important to better understand their characteristics, activities and later destinations in order to identify and assist those most at risk in the transition process.

Annual cross-sectional data on persons who are not in the labour force published by the Australian Bureau of Statistics have improved the understanding of the size of this group of young people, as well as the activities in which they are currently engaged.² From 1986 to 2004, the proportion of young people aged 15-to-19 years who were not engaged in full-time education and who were not in the labour force at a particular point in time was between 3 and 4 per cent, hitting a peak of 4.2 per cent in 1993 and again in 2004. Figures for young people aged 20-to-24 years are higher than those for the younger age group (many young people aged 15-to-19 are involved in full-time education and thus excluded from these statistics)—ranging between 13.4 per cent in 1986 and 9 per cent in 2002. Recent figures put the proportion of young people between 20 and 24 years of age who are not in the labour force and not in full-time education at a little over 11 per cent.³ While cross-sectional studies can provide information on the proportions of young people outside the labour force and full-time education at one point in time, they do not allow the follow-up of young people or analysis of the rate of turn-over of this group. Questions pertaining to the rate of return to education or the labour force or the average length of time spent outside the labour force and full-time education require longitudinal data.

¹ See also the analyses in Long (2004).

² It should be noted that the definition of 'not in the labour force' used by the Australian Bureau of Statistics in its data collection *Persons not in the labour force* differs from the definition used in this report. According to the ABS definition, people who are not in the labour force may be divided into those who are marginally attached to the labour force, and who may thus satisfy some of the criteria required to be classified as unemployed, and those who are not marginally attached to the labour force. The marginally attached are those who want to work and are actively seeking employment, but were not available to begin work in the reference week and those who want to work and are not actively seeking work but would be available to start work within four weeks. People who are not in the labour force and not marginally attached are those who do not want to work or who want to work but are not actively seeking work and would not be available to start work within four weeks. People who are studying full-time may fall into either classification depending on whether they are seeking work or available to start. Details on the definition of not in the labour force and not in full-time education used in this report are presented in Chapter 2.

³ Figures are from the *Labour Force, Australia, Detailed Time Series* (Catalogue no. 6291.0.55.01), Table 03a (Australian Bureau of Statistics, 2005). Data are collected for each month from April 1986 to January 2005, with August being used as the reference month for figures reported here.

Indeed, there have been few longitudinal studies that have focused on young people who are outside the labour market, what they are doing and whether they enter (or re-enter) the labour force at some future point in time. One such study from the United Kingdom focused on young people not in the labour force, or not in employment, education or training (NEET, as they were called), used longitudinal data for a subset of the 1970 British Birth Cohort Study to model the relationship of NEET status to earlier education achievement and social circumstances (Bynner & Parsons, 2002). The results indicated that poor educational achievement was a major factor in entering NEET status, while additional factors included inner city living for males and a lack of parental interest in their education for females. The study also assessed the influence that spending time not in employment, education or training had on later outcomes at age 21. For males, the negative impact of time spent in NEET was generally restricted to poor labour market outcomes, in particular an increased likelihood of NEET status at age 21 as well. For females, however, the negative impact was felt more widely, with those who had spent time not in employment, education or training reporting earlier marriage or cohabitation, more feelings of dissatisfaction with life, and less sense of control over their lives than those who had not experienced any time not in employment, education or training. The authors concluded that there are young people who, by virtue of their background, are more likely to spend periods of time outside the labour force and education, which then disadvantages their prospects even further (Bynner & Parsons, 2002).

Australian research that followed young peoples' pathways in the transition from school to work reported that around four per cent had spent four or more years out of the first seven post-school years not in the labour force. Young people in this group were more likely to be female, to have left school without completing Year 12, to have a disability, and to come from a lower SES background (Lamb & McKenzie, 2001). Another Australian study by Gray, Heath and Hunter (2002), focused on those people with a marginal attachment to the labour force⁴, and compared their rates of transition to employment with those of the unemployed over three years. The authors concluded that educational attainment and the presence of dependent children were important influences on the probability of both groups finding employment, although the marginally-attached may experience greater difficulties in re-entering employment than those who were unemployed.

The current report

Young people who are outside the labour force, that is, not employed and not seeking work, and not involved in full-time education or training are of interest precisely because so little is known about them and their activities. The research literature on young people who are not working, seeking work, or in education is limited; they are frequently overlooked in research that focuses on influences on employment and education outcomes and the transition from school to further education, training and the labour force, because they are not involved in any of these activities.

Who are these young people who are not working, seeking employment or studying? Previous research has suggested that early school-leaving, parent's lower socio-economic background and having a health problem or disability may all be associated with spending time outside the labour force and full-time education (McClelland & Macdonald, 1999). Young women, in particular, are likely to be outside the labour force at some point in time due to their role as primary caregivers to dependent children.

If a young person is not working, not looking for work and not enrolled in education, what is he or she doing? Possible activities may include travelling; caring for dependent children or a

⁴ See footnote 2 for definition of marginal attachment to the labour force. There is an expectation that those with a marginal attachment are more likely to move back into the labour force over the short term than those without a marginal attachment.

household; illness; or they may simply have become disillusioned with the labour market and stopped seeking employment. One of the purposes of this report was to investigate this group of young people and report on their main activities at the time they were out of the labour force. The question also arises as to whether it is the same group of young people who are reported as being out of the labour force at each survey time point, or is it a changing group, with different people moving in and out of the labour force each year, perhaps in response to changes in family situation, local job markets or personal circumstances? The importance of being in full-time education or employment after leaving school has been suggested by findings that movement from marginal activities (such as part-time employment, unemployment or being out of the labour force) into full-time employment and /or full-time study becomes less likely over time, especially for those young people who do not complete their secondary education (McMillan & Marks, 2003).

The data used in this report were drawn from the Longitudinal Surveys of Australian Youth (LSAY). Longitudinal data from projects such as LSAY are especially valuable for tracking the education, training and labour market pathways undertaken by young people from year to year, and linking this information to background characteristics and previous experiences in the labour force and education.

The report has three broad aims:

- To investigate the socio-demographic and educational profiles of those young people who spend time outside the labour force and full-time education. Are there socio-demographic and other differences between those young people who spend short amounts of time outside the labour force and full-time study and those who spend longer periods not in the labour force and full-time study?
- To investigate the activities of this group of young people when they are outside the labour force and full-time study. What are their levels of participation in other activities, such as volunteering and community groups? Do they see their state as a temporary one and plan to return to education or employment in the foreseeable future?
- To investigate the stability over time of the group not in the labour force and full-time education. How long do these young people spend outside the labour force and full-time study? Do certain characteristics increase the length of time spent outside the labour force and full-time study or the likelihood of multiple spells of time outside the labour force and full-time study?

The following chapter, Chapter 2, provides information on the data, measures, and the methods of analysis that were employed to investigate these questions. The results are presented in Chapters 3 through 5, and a discussion of the findings is presented in Chapter 6.

2. DATA, DEFINITIONS AND METHODS

Data for this report are based upon a sample of students who were in Year 9 in 1995 and who form part of the LSAY program. Most sample members completed Year 12 in 1998 and, at the time of data collection in 2003, had been out of school for at least five years. Their average age at that time was 22 years. This report focuses on young people from the original sample who spent at least one month outside education and the labour force between January 1997 and December 2003. Further information on the LSAY data is contained in Appendix 1.

Definition of ‘not in the labour force or full-time education’

Respondents who indicated that they were not involved in full-time study, were not working and not looking for work are the focus of this report. From the 1997 survey onwards, respondents answered questions regarding their study activity, employment activity and job search (unemployment activity). Month-by-month study activity can be constructed using start and stop dates for periods of study, while monthly employment and unemployment activity was collected directly from participants. For example, the 1997 survey asks ‘Since the start of 1997, during which months have you worked?’. Respondents’ status can thus be calculated for each month from January 1997 through to December 2003, or the last time point in which respondents were participating in annual surveys.

It should be noted that the length of the traditional Christmas break and its link with the start of the academic year results in a window of time from November through to March in some cases, in which young people may be identified as being outside the labour force and full-time education, even though they may be enrolled to begin or continue study at the start of the next academic year. To avoid the potential confusion of classifying such young people as being outside the labour force and full-time study for these shorter periods, the definition of ‘outside the labour force and full-time education’ has been restricted so that any young person who was studying full-time in November or December of one year cannot be considered to be outside the labour force and full-time education (regardless of employment or job search activity) until March of the following year. If during March they are still not studying, working or looking for work, then for the purposes of this report they are identified as being outside the labour force and full-time education from that point onward.

The samples

Using these data and identification criteria for a maximum of 84 months, a target sample of 6883 young people who were coded as outside the labour force and full-time education for at least one month between January 1997 and December 2003 was identified from the 10 675 young people who participated in the 1997 survey. This longitudinal sample of young people not in the labour force or full-time education is used in the report to examine relationships between background characteristics and the length of various periods of time (such as the first period and the longest period) spent outside the labour force and full-time education. This sample can also be divided into seven groups of young people who were outside the labour force and full-time education during each of the seven years covered by the report.

In addition to this sample, a smaller sub-sample of those young people who were not in the labour force or full-time education *at the time of the annual surveys* conducted from 1999 through to 2003 can also be identified. This sub-sample is used to address research questions regarding the main activities of those young people outside the labour force and full-time education and their plans for future employment and education, as they responded to a specific set of questions designed for young people not in the labour force or education. Other young people who may have been coded as outside the labour force and education for other months in the interview year, but not the month in which the interview took place, were not asked these specific questions. The

characteristics of the sub-sample of young people who were outside the labour force and full-time education at the time of each annual survey from 1999 to 2003 are presented in Appendix 3, Table A 1.

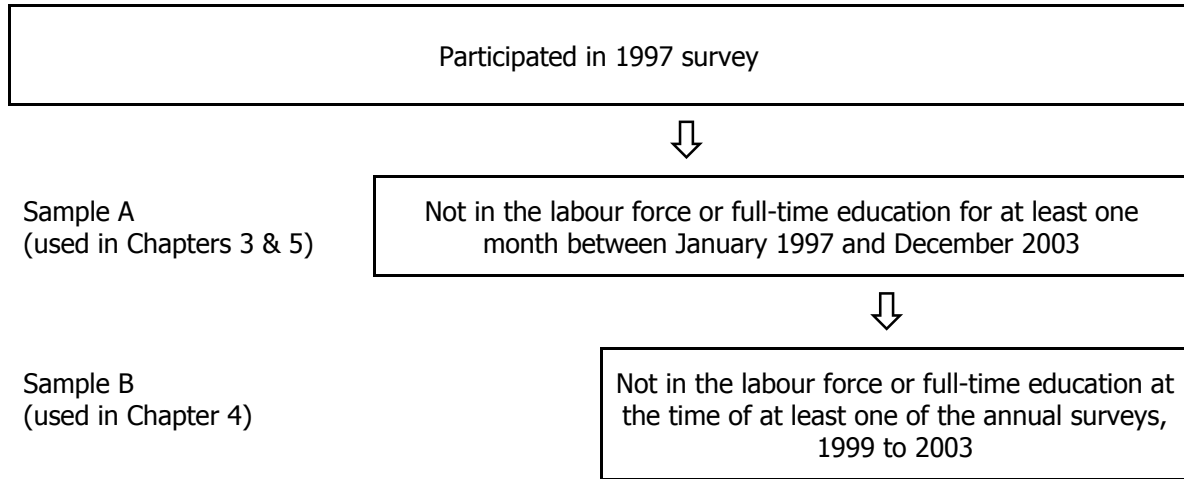


Figure 1 Samples of young people not in the labour force or full-time education

Variables

Various socio-demographic and other characteristics, identified by past research as factors that may be related to the likelihood of spending time outside the labour force and full-time education, are used in this report. These are presented in Appendix 1.

Methodology

Several different analytic methodologies were used in estimating relationships in this report. Cross-tabulations and frequencies are used to summarise the socio-demographic characteristics of young people who spend time outside the labour force and full-time education, the main activities of those outside the labour force and full-time education at the time of the annual surveys, and the participation of these groups of young people in a range of leisure activities.

The statistical significance of associations between various socio-demographic characteristics and variables pertaining to periods of time outside the labour force and full-time education, such as the length of the first period experienced (grouped) and the number of periods experienced, is tested using the Chi-squared test of independence. This technique can be used to answer research questions such as, ‘Do more males than females report multiple spells outside the labour force and full-time education?’ A more detailed description of the Chi-squared test of independence is included in Appendix 2.

Cox regression (a particular method of survival analysis) is used to examine the influence of various background characteristics on the likelihood of a young person moving back into the labour force and/or full-time education after their first period of time outside the labour force and full-time study. These techniques are also used to examine the influence of such characteristics on returning to the labour force or full-time education from the longest period of time spent outside the labour force and full-time study. The significance of variable estimates in a Cox regression is tested using chi-squared statistics. The associated significance (*p*-value) of the variables is noted in tables throughout this report. A more detailed description of Cox regression techniques is included in Appendix 2.

3. PATTERNS OF TIME OUTSIDE THE LABOUR FORCE AND FULL-TIME EDUCATION

This chapter presents analyses related to the patterns of time spent outside the labour force and full-time education, and the socio-demographic profiles of those young people who spend various periods of time outside the labour force and full-time education.

Time outside the labour force and full-time education—changes over time

Table 1 presents the proportion of the sample of young people who were in full-time education, full-time employment and not in the labour force or full-time education over the course of the seven years of surveys. At the early points in time, when the young people were around 16 and 17 years of age, the vast majority of them were still involved in full-time education, most at secondary schools. The proportions who were employed full-time during these years were relatively small, as were the proportions who were not involved in the labour force or full-time education.

The following year, 1999, when young people were around 18 years of age, there was a substantial decrease in the size of the group of young people who were involved in full-time education. This decrease corresponds with the end of secondary school for many of the young people, and the transition to further education and training, the labour force or some other activity. This year also saw an increase in the proportion who were employed full-time, as well as in the proportion who were not in the labour force or full-time education. The next couple of years, 2000 and 2001, saw some smaller increases in the proportions of young people involved in different activities but were a period of relative stability in comparison to 1999.

In 2002, there was a substantial increase in the numbers of young people reporting time spent outside the labour force and full-time education at any point over the 12 months. Given that those young people who remained at secondary school to complete Year 12 would have done so at the end of 1998, this increase in the numbers outside the labour force is likely to have coincided with the end of three-year programs of post-secondary study, such as undergraduate degrees, and a number of young people taking some time off before searching for work.

By 2003, the majority of young people were now in full-time employment, with around one in five remaining in full-time education. The proportion of young people who were not in the labour force or full-time education at some point during this year had decreased to 20 per cent.

Table 1 Proportion of sample in full-time education, full-time employment, and not in the labour force or full-time education, 1997-2003

Survey year	Modal age (years)	Proportion in full-time education at time of survey*	Proportion in full-time employment at time of survey*	Proportion not in labour force or full-time education at some point during survey year
1997	16	91	4	6
1998	17	86	11	10
1999	18	47	39	22
2000	19	53	45	25
2001	20	45	50	18
2002	21	28	58	61
2003	22	20	65	20

Notes: Data for columns marked with an asterisk (*) are derived from the annual cohort reports and correspond to status at the time of the interview. The categories of full-time education and full-time employment are not mutually exclusive. Rows will not add to 100%.

Overall, these results indicate that after the year in which most young people leave secondary school (1998), around one in five of them experience a period of time outside the labour force and full-time education each year. Substantial increases in the proportion of young people experiencing time outside the labour force and full-time education tended to coincide with times when students finish their studies—1999 being the year after Year 12, and 2002 being the year three years after the beginning of any post-secondary education and training.

Socio-demographic profiles of young people outside the labour force and full-time education

Table 2 presents the background characteristics of young people who spent time outside the labour force and full-time education during the years 1997 to 2003. A corresponding table of the full LSAY survey samples for each year is located in Appendix 3, Table A 2.

When considering the gender of those young people who spent time outside the labour force and full-time education between 1997 and 2003, a noticeable change occurs between the years 2000 and 2001. Prior to 2001, young men had made up the greater proportion of young people outside the labour force and full-time education but from 2001 onwards, when the sample members were around 20 years of age, young women made up the majority.

Over the years from 1997 to 2002, the proportion of young people who were in the lowest quarter of school achievement who spent time outside the labour force and full-time education was relatively high. If there was no association between early school achievement and spending time outside the labour force and full-time education, then one would expect young people who were outside the labour force and full-time education to be evenly distributed across the four categories. One possible explanation for the relatively large proportion of young people with lower achievement scores who spend time outside the labour force and full-time education, particularly in the early years (1997 and 1998) is their greater rate of early school-leaving. Other research has indicated that those who are not achieving well at school are at higher risk of leaving secondary school without completing their education (McMillan & Marks, 2003).

Further examination of the data in Table 2, in particular the rows containing information on whether sample members had left secondary school prior to Year 12 and whether they held a Year 12 qualification, lends further support to this explanation. Until 1998, young people who were outside the labour force and full-time education were most commonly early school leavers who did not have a Year 12 qualification. However, this difference between those who left school early and those who remained to complete Year 12 appears to be limited to these early years, when the majority of young people were still in the final years of secondary school (and thus not at risk of spending time outside the labour force and education).

Table 2 Proportion of young people outside the labour force and full-time education, 1997 to 2003, by socio-demographic characteristics

Background characteristics	1997	1998	1999	2000	2001	2002	2003
	Age 16	Age 17	Age 18	Age 19	Age 20	Age 21	Age 22
	%	%	%	%	%	%	%
Gender							
Male	3.3	4.9	11.2	12.9	8.0	29.3	8.5
Female	3.1	4.6	10.8	12.3	10.1	31.5	11.1
School achievement quarters							
Lowest	3.3	4.2	8.2	8.9	6.4	18.5	5.1
Second	1.8	2.7	5.8	7.2	4.6	16.2	5.1
Third	0.7	1.4	4.5	5.2	3.9	14.3	4.2
Highest	0.6	1.3	3.5	3.9	3.2	11.6	5.2
Parents' education							
Neither parent held degree or diploma	4.9	6.9	15.8	17.7	12.9	43.9	13.2
One parent held degree or diploma	0.4	0.9	2.5	3.2	2.4	8.4	3.3
Both parents held degree or diploma	0.1	0.5	1.3	1.6	0.9	3.5	1.9
Parents' occupation (ASCO)							
Professionals and paraprofessional	0.7	1.5	3.3	3.6	3.2	10.4	4.6
Managers and administrators	0.8	1.3	3.5	4.3	2.6	10.7	3.1
Clerical and personal service	0.9	1.3	3.4	3.9	2.7	8.9	3.1
Tradespersons	1.1	1.5	3.9	4.4	2.9	12.3	3.3
Plant and machine operators	0.3	0.4	0.8	0.9	0.7	2.10	0.7
Labourers and related workers	0.9	1.3	2.8	2.9	2.2	7.32	2.3
Home location (1995)							
Metropolitan	3.3	5.5	13.6	15.1	11.3	39.3	12.4
Provincial	2.7	3.7	7.6	9.1	6.1	19.6	6.6
Remote	0.4	0.4	0.9	1.1	0.8	1.9	0.6
Language spoken at home							
Language other than English	0.5	0.9	2.2	2.5	2.3	6.2	2.8
English	5.4	8.1	18.8	21.7	14.9	52.3	16.1
Left school prior to Year 12							
Yes	6.0	7.0	6.8	7.5	4.7	12.7	3.5
No	0.3	1.4	14.1	15.8	12.1	44.5	14.9
Year 12 certificate							
Yes	0.1	8.1	13.2	15.4	12.1	44.0	14.8
No	6.2	1.5	8.9	9.8	6.0	16.7	4.8
Marital status							
Married	0.0	0.1	0.3	0.6	0.9	3.4	2.6
Not married	6.3	9.5	21.8	24.7	17.1	57.4	17.1
Parental status							
Parent	0.1	0.3	1.1	1.8	2.4	4.6	4.0
Not parent	6.3	9.3	21.0	23.5	15.7	56.2	15.6
Disability status							
Has health problem or disability	0.3	0.7	0.9	1.3	0.7	2.2	0.8
No health problems or disability	4.3	8.9	21.1	24.0	17.4	58.6	18.8
<i>Total not in labour force or full-time education</i>	<i>653</i>	<i>994</i>	<i>2028</i>	<i>2063</i>	<i>1266</i>	<i>3741</i>	<i>1049</i>
<i>Total in annual survey</i>	<i>10307</i>	<i>9738</i>	<i>8783</i>	<i>7889</i>	<i>6876</i>	<i>6095</i>	<i>5352</i>

Note: information for some respondents may be missing for these variables. Percentages of valid responses are provided for these variables. Proportions are of respondents to the annual surveys and are weighted to account for attrition and the original sample structure.

Length of first period of time outside the labour force and full-time education

The length of time spent outside the labour force and education varied greatly over the sample. More than one-third of the young people who had participated in the survey in 1997 had not spent any time outside the labour force and full-time education over the years they were surveyed. Close to two-thirds of this group of young men and women experienced some time outside the labour force and full-time education; the majority were not studying, working or looking for work for only one month over the period analysed. The average period of time spent outside the labour force was a little over three months, although the distribution ranged up to 74 (continuous) months—more than six years of not being involved in full-time education or employment.

Associations between socio-demographic characteristics and the length of the first period of time outside the labour force and full-time education

Table 3 presents the profiles of those young people who spent some time outside the labour force and full-time education between 1997 and 2003, grouped by the length of their first period outside the labour force and full-time education, along with the profile of those young people who participated in the 1997 interview but did not experience any time outside the labour force and full-time education over those years.

A number of socio-demographic characteristics appeared to be associated with the length of the first period of time spent outside the labour force and full-time education, as indicated in Table 3, including early school achievement, the educational background of young people's parents, and whether the young person had dependent children. The statistical significance of these associations was tested using chi-square techniques (see Appendix 2 for a detailed discussion of chi-square analyses). The results indicated significant overall associations between all of the background characteristics investigated and the length of the first period of time outside the labour force and education (see Appendix 3, Table A 3). Table A 4 in Appendix 3 presents the figures in Table 3 as calculated column percentages, that is, proportions within the categories of length of first period.

Greater proportions of those young people who were female, who had scored in the lowest quarter in the school achievement tests, who did not hold a Year 12 certificate, who were married, who had children, or who reported having a long-term health problem or disability, reported periods of time outside the labour force and full-time education of 13 months or more.

There were also associations between various socio-demographic characteristics and *not* spending any time outside the labour force and full-time education. Those young people who had scored in the highest quarter on school achievement tests in 1995 were less likely to report any time outside the labour force, compared with young people in the other school achievement quarters. A greater proportion of young people from families in which both parents held a degree or diploma experienced no time outside the labour force and education— 50 per cent, compared with 44 per cent of those with one parent who had a degree or diploma, and 33 per cent of those with neither parent having a degree or diploma (see Table 3). Slightly less than 30 per cent of young people with a parent in the trades avoided any time outside the labour force and full-time education, compared with 43 per cent of young people with a parent in a professional occupation. As expected, young people who left secondary school before Year 12 were more likely to spend some time outside the labour force than those who did not leave school early—only 14 per cent of the early school leavers avoided any time outside the labour force and full-time education, compared with 33 per cent of those who completed Year 12.

A greater proportion of young people who reported using a language other than English at home, compared to those who spoke English, experienced periods of time outside the labour force and education of four to six months (close to 13% and 8%, respectively).

Table 3 Length of first period outside the labour force and full-time education by selected background characteristics of young people—row percentages

Background characteristics	Number	No period	1-3 months	4-6 months	7-12 months	13+ months
		%	%	%	%	%
Gender						
Male	5410	35.4	47.7	9.3	6.5	1.1
Female	5263	35.7	47.8	7.6	6.0	3.0
School achievement quarters						
Lowest	3206	27.4	51.7	9.8	7.7	3.3
Second	2768	33.0	51.4	8.7	4.9	1.9
Third	2427	39.7	46.2	7.2	5.5	1.4
Highest	2247	45.7	39.0	7.4	6.8	1.1
Parents' education						
Neither parent held degree or diploma	7304	32.8	50.2	8.4	6.4	2.2
One parent held degree or diploma	1591	43.7	43.2	7.7	4.0	1.3
Both parents held degree or diploma	887	50.4	35.7	7.0	5.9	1.0
Parents' occupation (ASCO)						
Professionals and paraprofessional	1988	42.8	42.6	8.0	5.4	1.3
Managers and administrators	2031	40.7	46.2	6.5	5.0	1.6
Clerical and personal service	1566	36.9	45.4	8.4	7.6	1.7
Tradespersons	1834	29.9	53.8	8.7	5.6	2.0
Plant and machine operators	358	32.4	52.8	6.1	6.7	2.0
Labourers and related workers	1209	30.3	52.3	9.0	6.2	2.2
Home location (1995)						
Metropolitan	7013	37.3	46.7	8.3	6.2	1.6
Provincial	3306	32.2	49.8	8.5	6.7	2.8
Remote	356	32.6	49.4	10.1	4.2	3.7
Language spoken at home						
Language other than English	1251	41.8	37.0	12.5	6.8	1.9
English	8981	34.8	49.4	7.7	6.1	1.9
Left school before Year 12						
Yes	2202	13.9	62.3	9.9	9.7	1.7
No	6809	32.9	50.3	9.1	6.0	1.7
Year 12 certificate						
Yes	6823	33.8	49.6	9.0	6.0	1.6
No	3852	38.5	44.5	7.3	6.9	2.8
Marital status						
Married	232	36.6	49.1	2.2	3.4	8.6
Not married	10443	35.5	47.7	8.6	6.3	1.9
Parental status						
Parent	134	9.7	35.8	15.7	16.4	22.4
Not parent	10541	35.9	47.9	8.3	6.1	1.8
Disability status*						
Has health problem or disability	353	27.2	46.2	11.0	7.9	7.6
No health problems or disability	9695	33.5	49.4	8.8	6.4	1.9
<i>Overall proportions</i>	<i>100</i>	<i>35.5</i>	<i>47.7</i>	<i>8.4</i>	<i>6.3</i>	<i>2.0</i>

*Note: information for some respondents may be missing for these variables. Percentages of valid responses are provided for these variables.

Multiple periods outside the labour force and full-time education

Using the activity data for all months between January 1997 and December 2003, it was possible to identify multiple periods of time spent outside the labour force and full-time education. Of

those young people who participated in the 1997 survey 36 per cent did not experience any time outside the labour force and full-time education, 33 per cent reported a single period, and 31 per cent reported more than one period, including 5 per cent who reported four or more periods of time outside the labour force and full-time education.

Associations between socio-demographic characteristics and the number of periods of time outside the labour force and full-time education

The socio-demographic profile of young people who spent some time outside the labour force and full-time education between 1997 and 2003, grouped by the number of periods they reported being outside the labour force and full-time education, is presented in Table 4. The statistical significance of the apparent associations between socio-demographic characteristics, such as early school achievement and parental occupation, and the number of periods of time outside the labour force and full-time education was tested using chi-square techniques (for results, see Appendix 3, Table A 5).

As found previously for the length of the first period of time outside the labour force and full-time education, young people who were in the highest quarter on school achievement in 1995 were less likely to spend any time outside the labour force and full-time education; 46 per cent of the highest quarter reported no time outside the labour force and full-time education, compared with 40 per cent of those in the third highest quarter, 33 per cent of those in the second quarter and 27 per cent of those in the lowest quarter (see Table 4). A higher proportion of young people from a professional background reported no time outside the labour force, compared with young people from a trades background (43% and 30%, respectively). A smaller proportion of those without a Year 12 certificate, compared with those with a certificate, reported a single period outside the labour force (26% and 37%, respectively).

There were also associations between various characteristics and multiple periods of time outside the labour force and full-time education. A greater proportion of those in the lowest quarter of school achievement reported three periods of time outside the labour force (12%, compared with 8%, 6% and 5% of the second, third and highest quarters, respectively). A greater proportion of young people without a Year 12 certificate reported four or more periods outside the labour force and full-time education (8% compared with 4% of those with a certificate). Fewer young people with a parent in a managerial position than young people with a parent in manual or related work experienced four or more periods of time outside the labour force and full-time education (3% and 8%, respectively).

The statistical associations between marital status and the number of periods outside the labour force seem to suggest that being married (in the year the young person first spent time outside the labour force and full-time education) may reduce the chances of moving in and out of the labour force and full-time education, with smaller proportions of those who were married than those who were not married reporting three periods outside the labour force and full-time education (4% and 8%, respectively).

Thirty-six per cent of those without children, compared with ten per cent of parents, had spent no time between 1997 and 2003 outside the labour force and full-time education. More parents than non-parents, however, experienced two periods outside the labour force (32% and 18%, respectively). A greater proportion of young people with a health problem or disability than those without these problems also experienced two periods outside the labour force (25% and 18%, respectively).

There was no statistically significant association between gender and the number of periods of time spent outside the labour force and full-time education during the seven-year time span analysed.

Table 4 Number of periods outside the labour force and full-time education by selected backgrounds characteristics of young people—row percentages

Background characteristics	No periods	One period	Two periods	Three periods	Four or more periods
	%	%	%	%	%
Gender					
Male	35.4	33.6	17.5	8.2	5.4
Female	35.7	32.6	17.9	8.4	5.5
School achievement quarters					
Lowest	27.4	34.5	19.0	12.0	7.0
Second	33.0	34.5	18.1	7.6	6.8
Third	39.7	32.5	17.6	6.5	3.7
Highest	45.7	30.0	15.4	5.6	3.4
Parents' education					
Neither parent held degree or diploma	32.8	34.0	18.7	8.9	5.6
One parent held degree or diploma	43.8	30.9	14.8	5.8	4.7
Both parents held degree or diploma	50.3	29.5	12.7	4.5	2.9
Parents' occupation (ASCO)					
Professionals and paraprofessional	42.8	30.4	15.1	6.5	5.2
Managers and administrators	40.7	34.4	16.1	6.2	2.6
Clerical and personal service	36.9	30.3	18.9	8.2	5.7
Tradespersons	29.9	35.7	20.7	8.6	5.1
Plant and machine operators	32.3	34.5	15.0	11.1	7.0
Labourers and related workers	30.2	35.4	17.6	9.1	7.7
Home location (1995)					
Metropolitan	37.3	32.2	17.5	8.1	4.9
Provincial	32.2	34.8	18.0	8.6	6.4
Remote	32.6	34.0	18.8	7.9	6.7
Language spoken at home					
Language other than English	41.8	26.9	18.1	7.8	5.4
English	34.8	33.9	17.7	8.3	5.3
Left school before Year 12					
Yes	13.9	36.1	23.8	14.6	11.6
No	32.9	37.4	18.2	7.2	4.3
Year 12 certificate					
Yes	33.8	37.3	17.9	7.1	3.9
No	38.5	25.7	17.4	10.3	8.1
Marital status					
Married	36.8	37.7	19.5	3.9	2.2
Not married	35.5	33.0	17.7	8.4	5.5
Parental status					
Parent	9.8	40.6	31.6	12.0	6.0
Not parent	35.9	33.0	17.5	8.2	5.4
Disability status*					
Has health problem or disability	27.3	30.4	24.7	9.1	8.5
No health problems or disability	33.5	34.0	18.2	8.7	5.7
<i>Overall proportions</i>	<i>35.5</i>	<i>33.1</i>	<i>17.7</i>	<i>8.3</i>	<i>5.4</i>

*Note: information for some respondents may be missing for these variables. Percentages of valid responses are provided for these variables.

Summary

This chapter reported the socio-demographic profiles of those young people who spent time outside the labour and full-time education between 1997 and 2003. During this period, the cohort moved from mid-adolescence into early adulthood, from around 16 to 22 years of age. The gender composition of the group of young people who spent time outside the labour force altered slightly over the years, with young women forming the majority after 2000 (around age 19 years).

There were indications that young people who spent time outside the labour force and full-time education shared a number of background characteristics. Chi-squared tests for independence indicated that there were a number of characteristics, such as a relatively low level of early school achievement, not holding a Year 12 certificate, being female or having a health problem or disability, that were associated with spending extended periods of time (more than one year) outside the labour force and full-time education. Being in the lowest school achievement quarter and not holding a Year 12 certificate were also associated with experiencing multiple periods of time outside the labour force and full-time education.

Marital status and parental status were also associated with spending time outside the labour force and full-time education. Greater proportions of young people who were married or who were parents reported spending 13 or more consecutive months outside the labour force and full-time education. In terms of multiple periods of time outside the labour force and education, however, a smaller proportion of young people who were married than who were unmarried reported three periods of time outside the labour force and full-time education, while a greater proportion of young parents than young people without children reported two periods of time outside the labour force and education.

4. MAIN ACTIVITIES OF YOUNG PEOPLE OUTSIDE THE LABOUR FORCE AND FULL-TIME EDUCATION

If a young person is not working, not looking for work and not enrolled in full-time education, what is he or she doing? According to the data collected by the Australian Bureau of Statistics on persons not in the labour force, the majority of young men aged 15-to-24 who are not in the labour force, and excluding those attending an educational institution⁵, are unable to work due to illness, injury or disability, or are travelling or on holiday. The majority of young women in this age group who are not in the labour force and not attending an educational institution are involved in home duties or childcare (ABS, 2004).

Young people who were outside the labour force and full-time education at the time of the annual surveys in 1999 through to 2003 responded to a specific set of questions pertaining to their main activity and their plans for entering or re-entering the labour force or full-time education in the future. The proportions of young men and women who were participating in various activities are presented in Table 5.

Table 5 Main activities of young people outside the labour force and full-time education at the time of the annual surveys, 1999 to 2003

	1999		2000		2001		2002		2003	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	%	%	%	%	%	%	%	%	%	%
Main activity										
Study or training	18.9	4.8	31.3	9.1	47.4	15.1	14.4	2.5	14.5	5.1
Home duties or childcare	2.8	59.8	13.2	67.9	10.5	65.0	8.9	69.1	20.4	79.8
Travel or holiday	11.9	9.2	14.5	9.1	15.5	9.0	40.6	12.1	34.2	6.0
Ill or unable to work	16.1	7.8	14.5	7.9	12.8	7.6	8.6	4.9	13.8	3.5
Volunteer or unpaid work*	2.9	0.0								
Other	47.4	18.1	26.5	6.1	13.8	3.3	27.5	11.3	17.1	5.5
<i>Total number</i>	<i>81</i>	<i>137</i>	<i>89**</i>	<i>167**</i>	<i>78</i>	<i>193</i>	<i>80</i>	<i>187</i>	<i>78</i>	<i>185</i>

* This response was included as an option in the 1999 survey only.

**A number of respondents provided two responses. Proportions of single responses only included in table.

In each year, the majority of females who were outside the labour force and full-time education at the time they were interviewed indicated that their main activity was either home duties or caring for children, with the proportion of females reporting this activity increasing as the sample aged. The main activities reported by young men varied considerably across the interview years. In 2000 and 2001, most of the young men reported that they were undertaking some study or training, presumably of a kind that would not lead to recognised qualifications.⁶ In 2002 and 2003, however, at least one-third of young men outside the labour force and full-time education reported that they were travelling or on holiday. This activity was not commonly reported by the young women who were outside the labour force and full-time education.

⁵ The ABS definition of 'not in the labour force' includes a substantial proportion of young people who are enrolled in study—over 80% of young people aged 15 to 19 years who are included in the Persons not in the labour force dataset are attending an educational institution.

⁶ Young people who were studying towards recognised qualifications were classified as being students for the purposes of the computer-assisted telephone interview programming and were thus not presented with the section of the survey that contained questions pertaining to activities while outside the labour force and education.

Plans for entering or re-entering the labour force or education

Table 6 presents the proportions of young people outside the labour force and full-time education who indicated that they were likely or unlikely to seek employment or enter education in the 12 months following their interview, grouped by their main activity at the time.

In the 2002 and 2003 surveys, questions pertaining to the intentions of returning to work or education were phrased with a longer frame of reference of five years. Young people who indicated that their return to either the labour force or full-time education within the next five years was 'very likely' or 'somewhat likely' were then asked to provide an estimate of when they would enter or re-enter the labour force or full-time study. Responses to these further questions are contained in Appendix 3, Table A 7.

Table 6 Intentions to return to labour force and full-time education, by main activity, 1999-2003

		Main activity while outside the labour force and full-time education				
		Study or training	Home duties or childcare	Travel or holiday	Ill or unable to work	Other
1999		%	%	%	%	%
Likely to enter full-time study in next year?	Yes	73	59	75	80	60
	No	27	41	25	20	40
Likely to seek employment in next year?	Yes	56	60	90	92	73
	No	44	40	10	8	27
<i>Total (n)</i>		<i>22</i>	<i>84</i>	<i>22</i>	<i>24</i>	<i>63</i>
2000						
Likely to enter full-time study in next year?	Yes	49	39	42	17	54
	No	51	61	58	83	46
Likely to seek employment in next year?	Yes	65	53	91	625	94
	No	35	47	9	75	26
<i>Total (n)</i>		<i>41</i>	<i>122</i>	<i>27</i>	<i>26</i>	<i>32</i>
2001						
Likely to enter full-time study in next year?	Yes	77	25	56	38	28
	No	23	75	44	62	72
Likely to seek employment in next year?	Yes	76	49	77	85	84
	No	24	51	23	15	16
<i>Total (n)</i>		<i>66</i>	<i>133</i>	<i>29</i>	<i>25</i>	<i>17</i>
2002						
Likely to enter full-time study in next 5 years?	Yes	50	63	53	88	71
	No	50	37	47	12	29
Likely to seek employment in next 5 years?	Yes	100	83	96	100	84
	No	0	17	4	0	16
<i>Total (n)</i>		<i>16</i>	<i>136</i>	<i>55</i>	<i>16</i>	<i>43</i>
2003						
Likely to enter full-time study in next 5 years?	Yes	72	62	68	58	49
	No	28	38	32	42	51
Likely to seek employment in next 5 years?	Yes	76	83	96	100	93
	No	24	17	4	0	7
<i>Total (n)</i>		<i>21</i>	<i>162</i>	<i>36</i>	<i>17</i>	<i>23</i>

Note: Cells may not sum to totals due to rounding

The results in Table 6 suggest that young people's opinions on their chances of entering full-time education or seeking employment after a period of time outside the labour force and education may be related to the activity in which they are involved. In 1999, the majority of young people who were travelling or on holiday intended to enter education within 12 months, but in later years this group was more likely to indicate that they intended to seek employment. Not surprisingly, smaller proportions of young people who indicated that their primary activity was childcare or home duties, the majority of whom were women (see Table 6), and those who reported being ill or unable to work, planned on entering study or seeking employment in the near future.

Leisure activities

Other research using the LSAY data has also indicated that young people's level of involvement in organised activities, such as employment and/or education, may be related to their emotional wellbeing (Hillman and McMillan, *in press*). Jahoda (1981, 1982) identified regular shared contact and experiences with people outside the nuclear family as one of the latent consequences of purposeful activity, such as employment or study, that are necessary for healthy psychological functioning but which may be lacking for those young people who are not involved in such activities. Participation in leisure activities, such as regular sport or community activities, may go some way to providing opportunities for social interaction to young people who are not involved in paid employment or study.

Table 7 summarises the leisure activities reported by those outside the labour force and full-time education at the time of the annual surveys from 1999 to 2003. As the numbers in each category are relatively small, the results are indicative only. The most commonly reported regular leisure activity was sport or exercise, with more than two thirds of young people outside the labour force and full-time education each year participating in these activities at least once a week. Participation in other activities, such as visiting libraries or participating in community activities, such as cadets or scouts, choirs or musical groups that are organised at a local level, was much lower. Around 30 to 60 per cent of young men reported using the Internet weekly, while a slightly smaller proportion of young women participated in this activity with the same regularity. These levels of participation in leisure activities are quite similar to those of the total LSAY samples each year (see Hillman, 2003). This suggests that, in these terms at least, young people outside the labour force and full-time education have broadly similar incidence of leisure and community interactions as other young people of the same age.

Table 7 Participation in leisure activities among young people outside the labour force and full-time education at the time of the annual surveys, 1999 to 2003

	Males					Females				
	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
Activity	%	%	%	%	%	%	%	%	%	%
Visiting local library										
At least once a week	15	16	12	7	7	9	16	9	9	11
At least one a month	23	10	16	21	20	18	10	21	22	18
At least once every 3 months	9	11	7	10	8	8	5	9	5	9
At least once a year/Less than once a year	10	14	15	14	23	18	17	19	12	13
Never	44	48	49	48	43	48	51	43	53	49
Use internet										
At least once a week	32	51	58	75	59	22	25	36	47	39
At least one a month	24	21	6	5	15	8	16	15	12	11
At least once every 3 months	4	4	3	8	1	6	6	4	6	6
At least once a year/Less than once a year	5	2	3	3	3	9	2	7	2	4
Never	35	23	31	8	22	55	51	39	33	41
Play sport/exercise										
At least once a week	72	77	80	85	81	68	70	77	76	73
At least one a month	1	6	6	8	6	11	6	5	7	5
At least once every 3 months	9	1	4	2	3	3	4	3	2	1
At least once a year/Less than once a year	4	0	2	0	0	1	1	2	1	1
Never	14	15	8	5	11	17	20	13	15	20
Community activities										
At least once a week	12	9	14	12	8	8	14	12	11	16
At least one a month	2	1	9	3	5	2	5	8	11	5
At least once every 3 months	0	0	0	1	2	2	1	2	1	3
At least once a year/Less than once a year	12	7	7	9	7	4	3	6	2	2
Never	74	83	70	76	77	85	77	73	75	75
<i>Total number</i>	<i>81</i>	<i>89</i>	<i>78</i>	<i>83</i>	<i>78</i>	<i>137</i>	<i>167</i>	<i>193</i>	<i>189</i>	<i>185</i>

Note: Cells may not sum to totals due to rounding

Summary

This chapter reported on the main activities of the groups of young people who were not in the labour force or full-time education at the time of the annual surveys, and their participation in a number of leisure and community activities. In each year, the majority of females who were outside the labour force and full-time education at the time they were interviewed indicated that their main activity was either home duties or caring for children. For young men the most commonly reported activity in the early years was study or training, while in 2002 and 2003 the most commonly reported activity of young men outside the labour force and education was travelling or being on holiday. Overall, the majority of young people saw their state as a temporary condition and planned on entering or re-entering full-time education or the labour force in the near future. However, fewer of those who were caring for children or a household indicated that they were likely to study or look for work within the next year. The most commonly reported regular leisure activity was sport or exercise, with a majority of young people outside the labour force participating in these activities at least once a week. Participation in other activities, such as visiting libraries, using the Internet or participating in community activities, was similar to that reported by young people in the 1995 cohort in general.

5. ENTERING OR RE-ENTERING THE LABOUR FORCE OR FULL-TIME EDUCATION

This chapter addresses the question of whether various background characteristics affect the amount of time spent outside the labour force and full-time education and the likelihood that a young person will enter or re-enter the labour force or full-time education. The first set of analyses examined the likelihood of young men and women entering or re-entering the labour force or full-time education after their first recorded period outside the labour force and full-time education. The second set of analyses examined the likelihood of return from the longest recorded period of time outside the labour force and full-time education.

Influences on entering or re-entering from first period outside the labour force and full-time education

The results presented in Chapter 3 indicated that some socio-demographic characteristics were associated with the length of time spent outside the labour force and full-time education for the first period experienced. Cox regression survival analyses were performed to assess the influence of these background characteristics and marital and parental status on the likelihood that a young person who is outside the labour force and full-time education will leave this state and enter or re-enter the labour force or education within the observed time frame. These potential influences on entering or re-entering the labour force and full-time education were all included in the analyses as indicator or dummy variables (an explanation of indicator variables in Cox regression is included in Appendix 2). Analyses were conducted separately for young men and women, and included the following variables: Low achievement quarter; High achievement quarter⁷; Parent with higher education qualifications; Parent in a trade occupation; non-metropolitan location background; Left school prior to Year 12; Disability or health problem; Married; and Had children.

There was no reliable effect of the set of covariates on time spent outside the labour force for young men ($\chi^2_{(9)} = 4.479$, $p = .877$), suggesting that other influences not included in the current model have an effect on the amount of time young men spend outside the labour force (further details on the analyses for young men are included in Appendix 3, Table A 8).

The analysis for young women indicated that the covariates were significantly associated with the likelihood of returning to the labour force or education from the first period of time spent outside the labour force and full-time study ($\chi^2_{(10)} = 85.881$, $p = .000$). The regression coefficients, degrees of freedom, p values and hazard ratios for each of the covariates in the analysis are presented in Appendix 3, Table A 9. Hazard ratios indicate the influence of a factor, for example being married (marital status), on the likelihood (or hazard) of a person entering or re-entering the labour force or full-time education relative to a reference group, for example those who are unmarried.

Disability, marital status, parental status and the interaction of marital status and time all affected the likelihood that a young woman would end her first period of time spent outside the labour force and full-time education. Young women with a disability or health problem that limited the amount or type of work that they could do were less likely than those without such an impairment to enter or re-enter the labour force or full-time education, with slightly more than two-thirds the likelihood (hazard ratio = 0.679). Young women who became mothers during the same year in which they first moved outside the labour force and full-time education were less likely to return in the observed time period than young women who did not have children; the likelihood of moving back in to the labour force or education for mothers was less than 50 per cent of that of

⁷ The highest and lowest achievement quarters were both included as predictor variables in the Cox regressions as they both show significant associations with the length of time outside the labour force and full-time education, although in opposite directions.

non-mothers. In other words, young women without children were twice as likely as young mothers to return to the labour force or full-time education from their first period of not being involved in these activities.

This finding is perhaps not surprising, given the additional responsibilities that the young women with children face. Marriage, however, was associated with an increased likelihood of entering or re-entering the labour force or full-time education, and the influence of marriage changed over time. Initially, when young women first reported being outside the labour force and full-time education, those who were married were almost 59 per cent more likely to move back into the labour force or full-time education than were young unmarried women (hazard ratio = 1.587), all other variables being equal. The significant interaction between marriage and time was a positive interaction, so that as time went on, the difference between these two groups of young women increased.⁸

Influences on entering or re-entering from longest period outside the labour force or full-time education

For many young people in the sample, the first period they spent outside the labour force and education was relatively short, of one-to-three months (see Table 3), and may be associated with a period of transition between education and employment or between employment positions, or with travel or holidays. Thus, the factors that influence the rate at which young people exit from these initial and often brief periods may conceivably differ from those that influence the rate of transition from longer periods of time outside the labour force and full-time education that may occur at a later point.

Cox regression analyses were performed to assess the influence of various background characteristics and marital and parental status on the length of the longest period of time spent outside the labour force and full-time education by young people. For those who experienced a single period of time outside the labour force, the longest period will necessarily correspond with their first period. For those who experienced multiple periods of the same length, their first period of time of that length was analysed. Analyses were again conducted separately for young men and women. In addition to the covariates measured in the previous analysis, a variable indicating whether the sample member had experienced a period outside the labour force prior to the current (longest) period was also included.

The analysis indicated that the covariates were significantly associated with the length of the longest period of time spent outside the labour force for young men ($\chi^2_{(11)} = 152.377, p = .000$). Table A 10 in Appendix 3 presents the regression coefficients, degrees of freedom, *p* values and hazard ratios for each of the covariates in the analysis.

For young men, prior experience of time outside the labour force and the interaction of this covariate with time were the only covariates to significantly affect the likelihood of returning to the labour force or full-time education from the longest period of time outside the labour force and full-time education for males. Initially, young men who had already experienced some time outside the labour force prior to their longest period were less likely to enter or re-enter the labour force or education than young men who had no prior experience of time outside the labour force and education (hazard ratio = 0.270). However, this difference between young men with and without previous experience of time outside the labour force and full-time education did not remain constant over time. The influence of having previously experienced time outside the labour force interacted with time, such that the difference in the rate of (re)entry between young men who had no prior experience of time outside the labour force and those who did, increased over the observed period. Over time, the groups diverged and young men without a prior

⁸ See Panel B, Appendix 2 for a pictorial representation of a positive interaction between a covariate and time.

experience of time outside the labour force and full-time education were more likely to enter or re-enter the labour force or full-time education than young men with a history of time spent outside the labour force and education.

For young women, the covariates were also significantly associated with the length of the longest period of time spent outside the labour force ($\chi^2_{(13)} = 412.510, p = .000$). Table A 11 in Appendix 3 presents regression coefficients, degrees of freedom, p values and hazard ratios for each of the covariates in the analysis, including the interactions between covariates with time.

For young women, there were five covariates and three interactions of covariates with time (marital status, motherhood and prior experience of time outside the labour force and full-time education) that significantly influenced entry or re-entry to the labour force or education after the longest period of time outside the labour force. Young women from a metropolitan location (as measured in 1995) were more likely to enter or re-enter the labour force or education from their longest period away from these activities than young women from non-metropolitan locations. The likelihood of returning to the labour force or full-time education was around 15% greater for a young woman from a metropolitan location background than for a young woman from a non-metropolitan location (hazard ratio = 1.15). Those who had left secondary school before Year 12 were less likely to end their time outside the labour force and education than those who had remained at secondary school; the likelihood of (re)entry for early school-leavers was around 74 per cent of that of young women who remained at school (hazard ratio = 0.737). Young women who reported health problems or disabilities that reduced their capacity to work were also less likely to move back into the labour force or full-time education. The likelihood of returning to the labour force or full-time education for a young woman with a disability or on-going health problem was close to 30 per cent less than that of a young woman without a disability (hazard ratio = 0.695).

Parenthood was a significant influence on the likelihood of entering or re-entering the labour force or education for young women, with the likelihood of mothers returning initially being only 14 per cent of that of non-mothers. In other words, the likelihood of young women without dependent children returning to the labour force or full-time education was more than seven times that of young mothers at the beginning of the observed period. As in the analysis of the first period of time outside the labour force, the influence of motherhood on the likelihood of moving into the labour force or full-time education from the longest period of time not spent in these activities varied over time. The initial difference in the likelihood of returning for these two groups of young women increased significantly over the observed period.

Young women who had prior experience of time outside the labour force and education were also less likely to enter or re-enter than those without such experience. The initial likelihood of returning to the labour force or full-time education for young women who had no experience of time outside the labour force and full-time education prior to their longest period was more than three times the likelihood of young women with a history of time spent outside the labour force and full-time education. Again, this difference in the rate of re-entry between young women who had no prior experience of time outside the labour force and those who did, increased over time, as it did for young men.

Although young married and unmarried women did not differ in their likelihood of entering or re-entering the labour force or full-time education initially, that is, at the beginning of the observed period (hazard ratio = 1.481, *not significant*), the influence of marital status increased over time, leading to a significant interaction effect in which young unmarried women eventually were more likely to enter or re-enter the labour force or full-time education than young married women.

Summary

This chapter presented the results of analyses that tested whether certain background characteristics influence the likelihood that a young person would move into or return to the labour force or full-time education after a period of time outside these activities. The likelihood of return of young men was not significantly associated with any of the analysed characteristics. For young women, being married increased the likelihood of return after the first period of time outside the labour force and full-time education, while being a mother or having a disability or health problem decreased the likelihood of returning to the labour force or full-time education.

For young men, the likelihood of return from the longest period outside the labour force and education was related solely to prior experience of time outside the labour force. The influence of having previously experienced time outside the labour force also interacted with time, such that the difference in the rate of re-entry between young men who had no prior experience outside the labour force or full-time education and those who did, increased over the observed period.

When analysing return from the longest period of time spent outside the labour force and full-time education, the likelihood of return for young women was associated with marital, parental and disability status. In addition, young women from a metropolitan location were more likely to enter or re-enter the labour force or full-time education from their longest period away from these activities than young women from non-metropolitan locations. Those who had left secondary school before Year 12 were less likely to end their time outside the labour force and education during the observed period than those who had remained at secondary school. Having experienced a previous period of time outside the labour force and education also decreased the likelihood of return for young women. Marriage, motherhood and previous history of time spent outside the labour force and full-time education all interacted positively with time in their influence on the likelihood of returning to the labour force or full-time education for young women, so that any initial differences in the likelihood of return for the groups of young women increased over time.

6. DISCUSSION AND CONCLUSIONS

The current report used data from Longitudinal Surveys of Australian Youth to focus on the activities and profiles of young people who had spent some time outside the labour force and full-time education between January 1997 and December 2003. The broad aims were three-fold:

- To investigate the socio-demographic profiles of those young people who spend time outside the labour force and full-time education;
- To investigate the activities of this group of young people when they are outside the labour force and full-time education and their longer-term employment and education plans; and
- To investigate the association between young people's background characteristics and their likelihood of returning to the labour force or education.

The analyses were prompted by the concern that relatively little is known about young people outside the labour force, that is, who are not employed, not seeking work, and not involved in full-time education.

It would appear that for young people today, spending some time (at least one month) outside the labour force and full-time education is a common experience. Around 60 per cent of those who participated in the 1997 survey spent some time outside the labour force or full-time education over the following seven years. For the majority of these young people, their time spent outside the labour force was relatively short, of between one and three months' duration, after which they moved back into the labour market or full-time education with little apparent difficulty. Whether their time outside the labour force was spent travelling or in a period of transition between education and employment or different employment positions, most young people, when interviewed, saw their situation as temporary and planned on entering or re-entering the labour force or full-time education within the following year.

There were, however, some young people whose time outside the labour force or full-time education was protracted or who experienced multiple such periods and who may be considered to be at risk of adverse outcomes over the longer-term. These results support the conclusion from longitudinal research in the United Kingdom that there are some young people who, because of their educational and social background, are more likely to spend lengthy periods of time outside the labour force and full-time education after they leave school, which then disadvantages their prospects even further (Bynner & Parsons, 2002).

Young people who spend extended periods of time outside the labour force and full-time education may be missing out on employment experience, the development of work skills and familiarity with new technologies, all of which appear to decrease their chances of finding employment in the future. The group experiencing longer periods of time outside the labour force and full-time education is more likely to include young women (especially after age 19), those who had achieved at a relatively low standard at school, those without a Year 12 qualification, young people who were married, young people with dependent children, and those with a disability or long-term health problem. Young people who find that they are not achieving well at secondary school and leave without a qualification may find themselves in a labour market with few openings for young people without formal qualifications. As time passes, their chances of entering the labour force or full-time education appear to decline even further (McMillan & Marks, 2003).

The analyses reported here found that over time, young women who were married or who had children were less likely to return to the labour force or full-time education in the observed period

than young unmarried women or young women without children. This may represent an active choice, in which these young women may prefer to spend their time in domestic duties or caring for their families rather than seeking employment or participating in further education and training. It should not be inferred that those young people, predominantly young women, who are outside the labour force or full-time education because they are caring for young children are engaged in a marginal activity, or that they will never re-enter the labour force or full-time education.

If these young women have little or no qualifications or work experience, however, their prospects of finding employment in the future are likely to be limited, and the longer a young mother spends outside the labour force and full-time education, the more difficult her return may become, as suggested by the increasing difference in the likelihood of return for young women with and without children in the analyses reported here. It may be that, as time goes by, any barriers that these young women face to rejoining the labour force or participating further in education increase. While she has been outside the labour force, technology and the job market may have changed further and any work skills that she managed to accumulate before leaving the labour force may no longer be relevant. Qualifications she gained before leaving the labour market and education may no longer be up-to-date. At the same time, the size of her family may be increasing. A further point to consider when discussing this group of young people is the suggestion by other research that the negative impact of time spent not in employment, education or training may go beyond future disadvantage in the labour market for young women, to affect feelings of satisfaction with and control over their lives (Bynner & Parsons, 20002).

The second major group of young people who may be at risk are those who move in and out of the labour force and full-time education, spending multiple periods of time not involved in employment, education or training. Young people with a long-term health problem or disability, those with relatively low levels of early school achievement, or without a Year 12 certificate, and those with children more commonly experienced multiple periods of time outside the labour force and full-time education. An employment history that includes many periods of time not in work may be viewed less than positively by potential employers, and is likely to be associated with a loss of skills and general employability. The analyses reported here found that young men and women who had prior experience of time spent outside the labour force or full-time education were less likely than their counterparts to move back into employment or education. These differences between the groups also increased over time, suggesting that prior experience of time outside the labour force and full-time education may have a scarring effect for some young people.

As was emphasised in the 2001 taskforce report on youth transitions (Eldridge, 2001) a comprehensive and coherent strategy is needed to ensure all young people are able to make an effective transition from school to work, further education and active citizenship. The analyses in this report particularly underline the importance of ensuring that all young people complete Year 12 at secondary school or its vocational equivalent, including the acquisition of strong foundations in literacy and numeracy. Given the substantial research which shows the importance of getting a good start in the labour market, it is imperative that when young people leave school, whether that time be after completing Year 12 or earlier, they leave with the skills, knowledge and attitudes they need to ensure that they can access and retain employment or participate in further education and training.

It is increasingly recognised that any educational initiatives need to be complemented by career and transition services for young people that ensure those at risk of not making a successful transition are quickly identified and assisted. Key to their future success will be the provision of flexible training programs that allow them to return to complete qualifications or to undertake training in other, marketable skills that will increase their job prospects. Maintaining and improving qualifications and job skills will also be particularly important for young women who

are outside the labour force and caring for children or other family members, particularly those with limited education or employment experience. Along with the provision of such programs, attention should also be paid to reducing any barriers to participation in the labour force or full-time education for these young people. Apart from the costs for fees and materials, a central concern of parents who wish to return to the labour force or education will be the availability and accessibility of high-quality, low-cost childcare.

The results reported here also lend support to the initiatives by government agencies to collect and report better information on young people's pathways from school to employment and further education. Not all of those young people who experience time outside the labour force and education are necessarily at risk of adverse outcomes. Indeed, many go on to find stable employment or further their education after a relatively short period of 'inactivity'. Even within the relatively small group of young people who experience extended periods of time outside the labour force and full-time education, it is clear that individual circumstances vary greatly. There are, however, some young people for whom time outside the labour force and education may be a negative experience that has significant implications for their future employment opportunities and general transition towards adult independence. The challenge for future research and policy development lies in identifying early on those young people for whom spending time outside the labour force and full-time education is a negative experience that may lead to further disadvantage over time.

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APPENDIX 1: DATA AND VARIABLES

The LSAY data

Data for this report are based upon a cohort of students who were in Year 9 in 1995 and who form part of the LSAY program. The sampling design for LSAY's 1995 Year 9 cohort was a two-stage cluster sample, with schools selected with a probability proportional to size in each State and Territory, and whole classes of students randomly selected within each participating school. The initial sample included 13 613 students from approximately 300 government, Catholic and independent schools (see Long, 1996 for details).

The students were first surveyed in their school in 1995, where they completed a questionnaire about themselves and their families. 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 in subsequent waves. Questions pertaining to month-by-month participation in employment and job search have been included in the telephone interviews since 1997, while a separate section for those young people who were not engaged in full-time education, employment or job search at the time of their interview has been included in the interviews since 1999.

The analyses, apart from Cox regressions, have been weighted to correct for the original sample design and attrition over subsequent years (Marks & Long, 2000). Attrition from the sample has tended to be highest among young people with relatively low levels of early school achievement and those who left school before completing Year 12. New weights are calculated annually to compensate for differential attrition among sample members.

Variables used in the analyses

The following variables were used in analyses presented in this report.

Gender: Gender was derived from the respondents' self-reports in wave 1.

Language background: The dichotomous measure of language background was derived from respondents' reports of the main language spoken at home in wave 1. Respondents were classified as either English-speaking background or language background other than English (LBOTE).

Year 9 Achievement: The measure of Year 9 achievement is based on the respondents' performance on the literacy and numeracy tests that were part of the first wave of the survey. Combined scores on the literacy and numeracy tests of the entire wave 1 cohort were divided into quarters.

Parents' education level: This measure was derived from respondents' reports of the qualifications held by their parents in wave 1. Those respondents who indicated that both their mother and father held a university degree or diploma were coded as 2, those who indicated that either their mother or their father held such a qualification were coded as 1 and those who indicated that neither of their parents held a university degree or diploma were coded as 0.

Parents' occupation: This was derived from respondents' reports of the occupations of their father (or male guardian) and mother (or female guardian) collected in wave 1. If a parent was not employed at the time of the interview, respondents were asked to describe that parent's last job. Respondents were asked to provide information on both parents, even if their mother or father was not living with them. The information was coded to the four-digit level of the Australian Standard Classification of Occupations (ASCO). The measure, *parental occupational group*, is a

categorical measure, based on the father's occupation, and then the mother's when the father's occupation was missing. The responses were classified into six groups: professionals and para-professionals; managers and administrators; clerical/sales/personal service; tradespersons; plant and machine operators and labourers and related manual workers.

School non-completion: The measure of secondary school completion was derived from respondents' reports of their completion status in each of the years surveyed. Those respondents who indicated that they had left secondary school at any time prior to Year 12 (or 13 for some students) were coded as 1 and those who completed Year 12 were coded as 0.

Year 12 certificate: The measure of holding a Year 12 certificate was derived from respondents' reports of their completion status in each of the years surveyed. Those respondents who indicated that they had completed Year 12 with the appropriate school-leaving certificate for their state at any point in the years covered were coded as 1 and those who did not obtain a certificate were coded as 0.

Marital status: Questions pertaining to the respondents' marital status and date of marriage were included in the surveys from 1999 onwards. Dichotomous measures for marriage were created for each year from 1997 (using the date of marriage information) through to 2003. Those respondents who indicated that they had married at some point during the year were coded as 1, and those who were not married were coded as 0. Two additional variables for marital status were also created. The first of these variables takes the marital status of the respondent for the year in which they experienced their first period of time outside the labour force and education, and the second corresponds to marital status for the year in which they began their longest period of time outside the labour force and education.

Parental status: Questions regarding other people who reside with the respondents, including their own children, were included in the annual surveys from 1997 onwards. Dichotomous measures for parental status were created for each year from 1997 to 2003. Those respondents who indicated that they were living with children of their own were coded as 1; those who were not living with children of their own (or their partner's) were coded as 0. Again, two additional parental status variables were created, the first taking the parental status of the respondent for the year in which they experienced either their first period of time outside the labour force and education, and the second corresponding to parental status for the year in which they began their longest period of time outside the labour force and education.

Health and/or disability status: In wave 4 (1999), respondents indicated whether they had any long-term health problems or disabilities that limited the type or amount of work that they could do. Respondents with a health problem or disability that limited their capacity to work were coded as 1; respondents without such limitations were coded as 0.

APPENDIX 2: METHODOLOGY

Chi-squared (χ^2) analysis

The χ^2 test of independence is a non-parametric test of statistical significance used to examine the relationship between two discrete (that is, non-continuous or categorical) variables. In this report, χ^2 analyses are conducted to examine the relationships between various socio-demographic characteristics and the length of the first period of time outside the labour force and full-time education (divided into five categories: no time outside the labour force and full-time education, one to three months, four to six months, seven to 12 months and more than 13 months outside the labour force and full-time education) and the number of periods of time outside the labour force and full-time education (again five categories: no period, one period, two periods, three periods, and four or more periods).

In χ^2 analysis, the null hypothesis generates expected frequencies for the combination of categories of the two variables against which the observed frequencies are tested. In other words, the number of females expected to experience two periods of time outside the labour force and full-time education if there is no relationship between gender and number of periods is compared to the actual number of females who experience two periods of time outside the labour force and full-time education. If the observed frequencies are similar to the expected frequencies, the value of χ^2 is small and the null hypothesis of 'no association' or 'independence' is retained; if the expected and observed frequencies are sufficiently different, then the value of χ^2 is large and the null hypothesis is rejected. The χ^2 value may indicate an overall association between two variables but does not indicate causation.

The value of χ^2 is calculated using the following equation:

$$\chi^2 \equiv \frac{\sum_{ij} (fo - Fe)^2}{Fe}$$

in which fo represents the observed frequencies in each cell and Fe represents the expected frequencies. Summation is over all the cells in the two-way table. In this way, the difference between the observed and expected frequencies of each cell contributes to the overall value of χ^2 . Because of this, the χ^2 value may be influenced overly by one or two cells in which the difference between the observed and expected frequencies of a particular combination of categories is so great that it contributes the majority of the value to the overall χ^2 . For example, in this report the difference between the expected and observed frequencies of young people with two parents with a degree or diploma who spent no time outside the labour force was so great that the overall χ^2 for the analysis of an association between parental education and time outside the labour force and full-time education was significant. The other cells contributed very little to the χ^2 value, indicating that the significant result was driven largely by the greater than expected proportion of young people with highly educated parents who experienced no time outside the labour force and full-time education.

Cox Regression analysis

Cox regression is a form of *survival* or *hazard* analysis that estimates the effects of categorical and quantitative variables on the likelihood that an event will occur. It allows the prediction of a discrete outcome from a set of variables, under the assumption that the hazard of such an event occurring may not remain consistent over the survey period. Cox regression is often employed in medical studies to evaluate the effects of various interventions on the survival rate of patients

(hence the somewhat awkward terms ‘survival’ and ‘hazard’). In this report, the term ‘likelihood’ is used in preference to ‘hazard’.

Cox regression combines the proportional hazards model with the partial likelihood method of estimation. The model is summarised by the following equation:

$$h_i(t) = \lambda_0(t) \exp \{ \beta_1 x_{i1} + \dots + \beta_k x_{ik} \}.$$

Calculating the hazard (h) of an event occurring for an individual (i) at a given time (t) is the product of two factors:

A baseline hazard function $\lambda_0(t)$ that is left unspecified, except that it cannot be negative; and a linear function of a set of (k) fixed covariates ($x_1 \dots x_k$), which is then exponentiated.

The baseline function can be thought of as the hazard function for any individual who has values of zero on all predictor variables ($x_1 \dots x_k$), which in the analyses reported here would be an individual who was not in the lower achievement quarter nor in the highest achievement quarter⁹, did not have a parent with higher education qualifications, did not have a parent in a trade occupation, was from a non-metropolitan location background, had not left school prior to Year 12, did not have a disability or health problem, was unmarried and did not have any of children. The focus of Cox’s method, however, is evaluation of the effects of predictors on the hazard function, that is, where certain characteristics, such as having left school prior to Year 12 or being a parent, increase or decrease the hazard on an event occurring, *not* on estimating the hazard function itself. Thus, the results of Cox regression allow only comparative statements about hazard—that one group has a hazard that is three times that of another group—not absolute statements about how high or low that hazard may be.

Hazard Ratios

The coefficient estimates, similar to beta weights in normal regression analyses, indicate both the direction of the relationship between the variable and the length of time elapsed before an event takes place (either increasing or decreasing the slope of the survival curve). This can then be used to calculate the hazard ratio, which is simply e^β .

For indicator or dummy variables in which values are 1 and 0, the hazard ratio can be interpreted as the ratio of the estimated hazard for those with a value of 1 to the estimated hazard of those with a value of zero, controlling for other covariates in the analysis. As an example, in an analysis of returning to the labour force, a hazard ratio of 0.65 for a variable ‘Parent’, in which those who had had children in the previous year were coded as 1 and all others coded as 0, indicates that the hazard (or likelihood) of returning to work for those who recently had children is 65 per cent of that for those respondents who did not have children. In simple terms, having had children reduced the likelihood of re-entering the labour force. All variables included in the Cox regression analyses in this report are indicator variables.

Adjustment to criterion alpha levels for multiple comparisons

The inclusion of multiple covariates in the Cox regression models presented in this report requires that a Bonferroni type adjustment is made for inflated Type I error. Multiple covariates require multiple comparisons or tests, which reduce the reliability of significance tests if adjustments are not made. The criterion alpha (the probability value that must be met) is set for

⁹ The highest and lowest achievement quarters were both included as predictor variables in the Cox regressions as they both shown significant associations with the length of time outside the labour force and full-time education, although in opposite directions.

each covariate so that an alpha for the set of covariates does not exceed some critical value, usually 0.05.

$$\alpha = 1 - (1 - \alpha_1)(1 - \alpha_2) \dots (1 - \alpha_p)$$

The Type 1 error rate (being the likelihood that one would reject the null hypothesis when it is in fact true), or alpha (α) is based on the error rate for testing the first covariate (α_1), the second covariate (α_2), and all the other covariates to the p^{th} , or last, covariate (α_p).

The models presented here include a relatively large number of covariates. When interactions between covariates and time are included, some of the models include up to thirteen covariates, requiring that each covariate must meet a stringent alpha level, for example of 0.001, in order that the Type 1 error rate overall remains below 0.05.

Non-proportional hazards and interactions with time

Although the Cox regression method usually assumes that the (unobserved) population hazard functions are proportional, this assumption can be relaxed in order to investigate models in which the hazard functions are not proportional, in which the effect of variables on the hazard function may vary over time. For example, it may be of interest to investigate whether young people who have previously spent time outside the labour force and full-time education are less likely to return to the labour force or education over time than those without a previous history of time outside the labour force and full-time education.

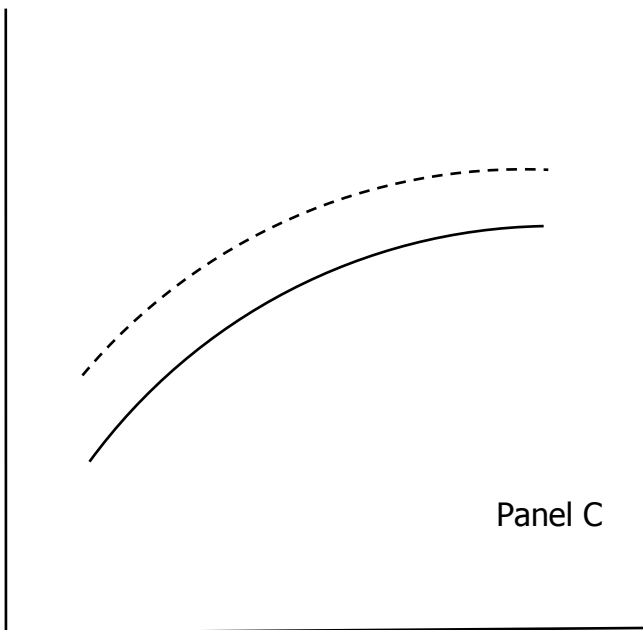
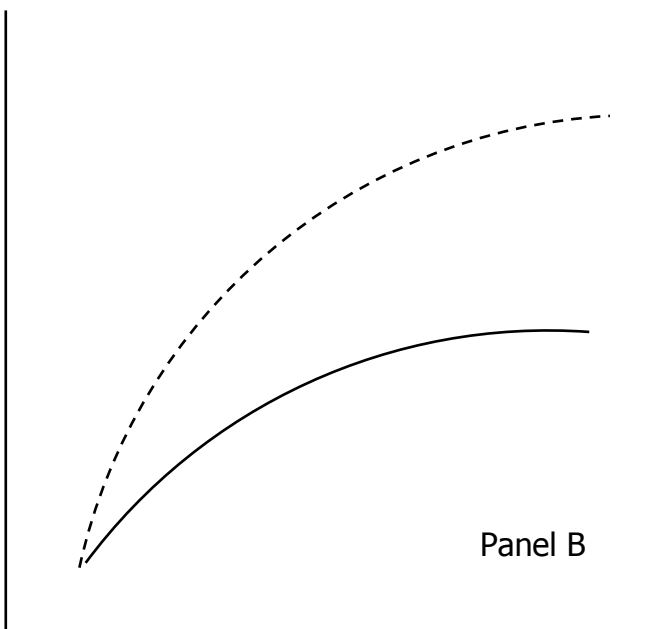
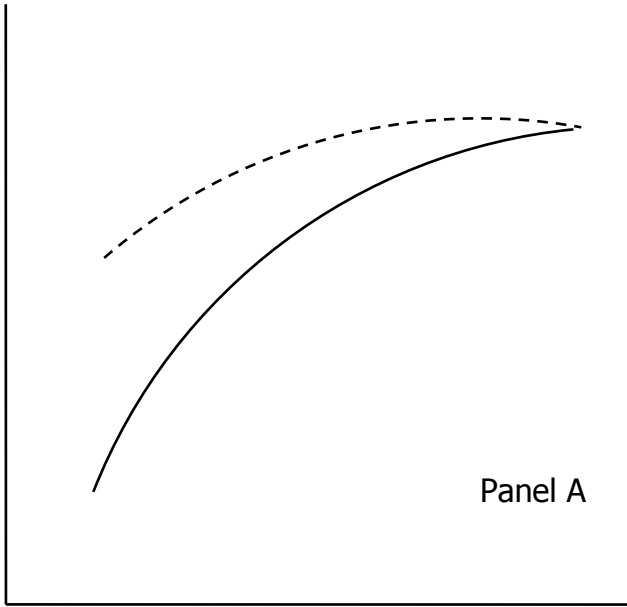
Interactions between variables and time may be positive, in which the difference between groups increases over time, or negative, in which the difference starts out larger but decreases over time. There may be no significant difference between groups at the beginning of time, but a significant difference at the end, or vice versa. Interactions with time may also be non-linear (piece-wise, that is, effecting some periods and not others) or logarithmic. Interactions included in the models are simple linear interactions, that is, the product of time and the covariate. Specification of *how* the variables interact with time, that is, whether the interaction is best described as linear, linear with the logarithm of time or piecewise, is beyond the scope of this report.

Examples of hypothetical interactions displayed as log cumulative hazard functions are provided below.

Panel A is an example of an interaction between a covariate and time in which the difference between the groups (with Group A represented by a dotted line and Group B as a solid line) is larger at the start of time and diminishes towards the end of time. Such an interaction may be seen in a study in which treatment has an effect in the first few weeks of a program but has a decreasing impact over the following weeks until at the end of the program there is no longer a difference between the treatment and control groups.

Panel B is an example of an interaction between a covariate and time in which there is little or no difference between the groups at the start of time, but the difference between the groups increases over time until there is a large difference at the end of time. Such an interaction may be seen in a study in which the likelihood of relapse for recovering alcoholics with and without family support is investigated. Initially, at the start of the study, there may be little difference in the hazard of relapse for both groups, but over time, differences in the hazards for both groups may become apparent, until at the end of the study, those without family support face a much higher estimated likelihood of relapse than those alcoholics who have the support of their families.

Panel C is an example of no interaction between a covariate and time- the difference between the two groups (whether it is significant or not) remains proportional over time.



APPENDIX 3: SUPPLEMENTARY TABLES

Table A 1 Profiles of young people outside the labour force and full-time education at the time of interview, 1999 to 2003

Background characteristics	1999	2000	2001	2002	2003
	%	%	%	%	%
Gender					
Male	37.4	34.7	28.9	30.1	29.6
Female	62.6	65.3	71.1	69.9	70.4
School achievement quarters					
Lowest	45.4	41.6	36.1	33.9	33.8
Second	21.6	24.7	24.8	23.7	30.7
Third	17.4	18.8	21.2	19.9	22.9
Highest	15.6	14.8	17.9	22.5	12.6
Parents' education					
Neither parent held degree or diploma	80.3	82.0	76.5	81.9	82.1
One parent held degree or diploma	13.1	10.5	14.8	11.8	14.9
Both parents held degree or diploma	6.6	7.5	8.8	6.3	3.1
Parents' occupation (ASCO)					
Professionals and paraprofessional	16.7	19.4	25.9	23.7	17.2
Managers and administrators	14.1	15.9	16.0	14.6	18.0
Clerical and personal service	19.5	19.7	18.6	20.7	17.8
Tradespersons	24.5	19.9	19.7	20.3	22.1
Plant and machine operators	7.8	7.6	7.0	6.0	6.4
Labourers and related workers	17.3	17.5	12.7	14.7	18.6
Home location (1995)					
Metropolitan	58.7	51.1	53.2	54.2	51.6
Provincial	37.1	43.5	41.5	40.9	42.2
Remote	4.2	5.4	5.3	4.9	6.1
Language spoken at home					
Language other than English	7.7	9.2	12.3	13.3	10.3
English	92.3	90.8	87.7	86.7	89.7
Left school before Year 12					
Yes	49.1	45.4	38.1	30.8	39.1
No	50.9	54.6	61.9	69.2	60.9
Year 12 certificate					
Yes	41.0	43.0	56.1	62.0	53.1
No	59.0	57.0	43.9	38.0	46.9
Marital status					
Married	6.9	7.7	12.8	19.5	26.5
Not married	93.1	92.3	87.2	80.5	73.5
Parental status					
Parent	30.4	37.3	36.2	43.9	53.5
Not parent	69.6	62.7	63.8	56.1	46.5
Disability status					
Has health problem or disability	14.0	9.5	6.5	6.1	5.6
No health problems or disability	86.0	90.5	93.5	93.9	94.4
<i>Total number</i>	<i>218</i>	<i>256</i>	<i>271</i>	<i>267</i>	<i>263</i>

Table A 2 Profiles of young people in the annual surveys, 1997 to 2003

Background characteristics	1997	1998	1999	2000	2001	2002	2003
	%	%	%	%	%	%	%
Gender							
Male	48.9	49.4	48.9	48.9	48.8	48.9	48.8
Female	51.1	50.6	51.1	51.1	51.2	51.1	51.2
School achievement quarters							
Lowest	24.8	25.7	24.9	24.9	24.9	24.9	24.9
Second	25.1	25.3	25.3	25.3	25.3	25.3	25.3
Third	24.7	24.3	24.6	24.6	24.6	24.6	24.6
Highest	25.4	24.6	25.3	25.3	25.3	25.3	25.3
Parents' education							
Neither parent held degree or diploma	72.7	73.1	72.6	72.1	72.4	72.5	72.1
One parent held degree or diploma	17.3	17.1	17.5	17.8	17.9	17.8	17.9
Both parents held degree or diploma	10.1	9.8	9.9	10.1	9.7	9.7	10.0
Parents' occupation (ASCO)							
Professionals and paraprofessional	23.7	23.4	23.5	23.8	24.0	24.1	24.5
Managers and administrators	23.6	23.0	22.7	22.6	22.0	22.1	22.0
Clerical and personal service	17.0	17.2	17.2	17.1	17.1	16.7	16.7
Tradespersons	19.1	19.6	20.0	20.2	20.5	20.6	20.3
Plant and machine operators	3.7	3.8	3.8	3.6	3.5	3.5	3.5
Labourers and related workers	12.8	13.1	12.8	12.6	12.9	12.9	13.0
Home location (1995)							
Metropolitan	64.7	66.1	66.1	66.1	66.1	66.0	66.1
Provincial	31.9	30.6	30.7	30.8	30.8	30.8	30.9
Rural and remote	3.5	3.2	3.2	3.1	3.2	3.1	3.0
Language spoken at home							
Language other than English	10.7	11.3	11.1	11.5	11.5	11.6	11.6
English	89.3	88.7	88.9	88.5	88.5	88.4	88.4
Left school before Year 12							
Yes	22.8	21.5	18.9	18.0	16.7	15.9	15.1
No	77.2	78.5	81.1	82.0	83.3	84.1	84.9
Year 12 certificate							
Yes	65.2	68.6	76.5	77.7	79.0	80.0	80.8
No	34.8	31.4	23.5	22.3	21.0	20.0	19.2
Marital status							
Married	0.0	0.1	0.5	1.2	2.2	4.2	7.1
Not married	100.0	99.9	99.5	98.8	97.8	95.8	92.9
Parental status							
Parent	0.1	0.3	1.2	2.1	3.4	4.8	7.0
Not parent	99.9	99.7	98.8	97.9	96.6	95.2	93.0
Disability status							
Has health problem or disability	3.6	3.5	3.3	3.3	3.0	3.2	3.2
No health problems or disability	96.4	96.5	96.7	96.7	97.0	96.8	96.8
<i>Total</i>	<i>10307</i>	<i>9773</i>	<i>8783</i>	<i>7889</i>	<i>6876</i>	<i>6095</i>	<i>5352</i>

Table A 3 Associations between socio-demographic characteristics and length of the first period outside the labour force and full-time education

Characteristic	χ^2	Degrees of freedom	Significance <i>p</i>
Gender	55.64	4	0.000
School achievement (1995)	274.15	12	0.000
Parents' education	165.03	8	0.000
Parents' occupation	130.01	20	0.000
Year 12 certificate	57.15	4	0.000
Left school before Year 12	335.79	4	0.000
Home location (1995)	50.13	8	0.000
Home language	80.67	4	0.000
Health problem or disability	59.37	4	0.000
Marital status*	65.29	4	0.000
Parental status*	336.82	4	0.000

* For those young people who had not experienced any time outside the labour force or full-time education, these variables take the value for the last year in which they were interviewed.

Table A 4 Length of first period outside the labour force and full-time education by selected background characteristics of young people—column percentages

Background characteristics	No period	1-3 months	4-6 months	7-12 months	13+ months
	%	%	%	%	%
Gender					
Male	50.5	50.7	55.7	52.7	27.7
Female	49.5	49.3	44.3	47.3	72.3
School achievement quarters					
Lowest	23.3	32.6	35.0	37.0	49.1
Second	24.1	28.0	27.0	20.3	23.8
Third	25.5	22.1	19.5	19.8	15.7
Highest	27.1	17.2	18.5	22.9	11.4
Parents' education					
Neither parent held degree or diploma	67.7	78.5	76.8	79.9	84.8
One parent held degree or diploma	19.6	14.7	15.4	11.0	10.7
Both parents held degree or diploma	12.6	6.8	7.8	9.0	4.5
Parents' occupation (ASCO)					
Professionals and paraprofessional	25.9	19.7	22.3	20.4	16.2
Managers and administrators	25.2	21.8	18.5	19.1	20.8
Clerical and personal service	17.6	16.5	18.3	22.4	17.2
Tradespersons	16.7	22.9	22.4	19.4	23.6
Plant and machine operators	3.5	4.4	3.1	4.5	4.3
Labourers and related workers	11.1	14.7	15.3	14.2	17.8
Home location (1995)					
Metropolitan	68.9	64.3	64.7	64.7	50.4
Provincial	28.0	32.3	31.3	33.0	43.6
Remote	3.1	3.5	4.0	2.3	6.0
Language spoken at home					
Language other than English	14.3	9.4	18.3	13.3	12.2
English	85.7	90.6	81.7	86.7	87.8
Left school before Year 12					
Yes	12.0	28.6	26.1	34.1	44.3
No	88.0	71.4	73.9	65.9	55.7
Year 12 certificate					
Yes	60.9	66.4	68.6	60.6	50.6
No	39.1	33.6	31.4	39.4	49.4
Marital status					
Married	2.2	2.2	0.6	1.1	9.2
Not married	97.8	97.8	99.4	98.9	90.8
Parental status					
Parent	0.3	0.9	2.3	3.3	13.7
Not parent	99.7	99.1	97.7	96.7	86.3
Disability status*					
Has health problem or disability	2.9	3.3	4.4	4.3	12.5
No health problems or disability	97.1	96.7	95.6	95.7	87.5
<i>Overall proportion</i>	<i>35.5</i>	<i>47.7</i>	<i>8.4</i>	<i>6.3</i>	<i>2.0</i>
<i>Total number</i>	<i>3792</i>	<i>5097</i>	<i>899</i>	<i>670</i>	<i>216</i>

*Note: information for some respondents may be missing for these variables. Percentages of valid responses are provided for these variables.

Table A 5 Associations between socio-demographic characteristics and the number of periods outside the labour force and full-time education

Characteristic	χ^2	Degrees of freedom	Significance <i>p</i>
School achievement (1995)	301.29	12	0.000
Left school before Year 12	488.22	4	0.000
Year 12 certificate	225.14	4	0.000
Parents' education	171.31	8	0.000
Parents' occupation	170.19	20	0.000
Home location (1995)	33.78	8	0.000
Home language	32.50	4	0.000
Health problem or disability	18.03	4	0.001
Marital status*	12.07	4	0.017
Parental status*	44.50	4	0.000

* For those young people who had not experienced any time outside the labour force or full-time education, these variables take the value for the last year in which they were interviewed.

Table A 6 Number of periods outside the labour force and full-time education by selected backgrounds characteristics of young people—column percentages

Background characteristics	No periods	One period	Two periods	Three periods	Four or more periods
	%	%	%	%	%
Gender					
Male	50.5	51.4	50.2	50.0	50.1
Female	49.5	48.6	49.8	50.0	49.9
School achievement quarters					
Lowest	23.3	31.4	32.4	43.9	38.8
Second	24.1	27.1	26.6	24.0	32.3
Third	25.5	22.4	22.7	17.9	15.7
Highest	27.1	19.1	18.3	14.2	13.2
Parents' education					
Neither parent held degree or diploma	67.7	76.7	79.6	83.1	80.3
One parent held degree or diploma	19.6	15.2	13.8	11.8	14.5
Both parents held degree or diploma	12.6	8.1	6.6	5.1	5.2
Parents' occupation (ASCO)					
Professionals and paraprofessional	25.9	20.3	19.1	18.9	22.6
Managers and administrators	25.2	23.4	20.9	18.2	11.5
Clerical and personal service	17.6	15.9	18.8	18.5	19.7
Tradespersons	16.7	21.9	24.2	22.8	20.4
Plant and machine operators	3.5	4.2	3.4	5.8	5.4
Labourers and related workers	11.1	14.4	13.5	15.9	20.3
Home location (1995)					
Metropolitan	68.9	64.0	65.0	64.4	59.4
Provincial	28.0	32.6	31.5	32.3	36.6
Remote	3.1	3.4	3.6	3.2	4.1
Language spoken at home					
Language other than English	14.3	9.9	12.5	11.5	12.6
English	85.7	90.1	87.5	88.5	87.4
Left school before Year 12					
Yes	12.0	23.8	29.6	39.7	46.8
No	88.0	76.2	70.4	60.3	53.2
Year 12 certificate					
Yes	60.9	72.0	64.6	55.1	46.0
No	39.1	38.0	35.4	44.9	54.0
Marital status					
Married	2.2	2.5	2.4	1.0	0.9
Not married	97.8	97.5	97.6	99.0	99.1
Parental status					
Parent	0.3	1.5	2.2	1.8	1.4
Not parent	99.7	98.5	97.8	98.2	98.6
Disability status*					
Has health problem or disability	2.9	3.1	4.7	3.7	5.2
No health problems or disability	97.1	96.9	95.3	96.3	94.8
<i>Overall proportions</i>	<i>35.5</i>	<i>33.1</i>	<i>17.7</i>	<i>8.3</i>	<i>5.4</i>
<i>Total number</i>	<i>3792</i>	<i>3532</i>	<i>1889</i>	<i>882</i>	<i>579</i>

*Note: information for some respondents may be missing for these variables. Percentages of valid responses are provided for these variables.

Table A 7 Intentions to return to labour force and full-time education, by main activity, 2002 and 2003

	Main activity while outside the labour force and full-time education				
	Study or training	Home duties or childcare	Travel or holiday	Ill or unable to work	Other
2002					
When are you likely to enter full-time study?					
1 year	100	37	53	50	61
2 years	0	37	35	9	20
3-4 years	0	24	12	35	8
5 years or more	0	3	0	6	11
When are you likely to seek employment?					
1 year	63	42	84	50	78
2 years	7	27	3	47	15
3-4 years	27	26	13	0	6
5 years or more	3	5	0	5	0
2003					
When are you likely to enter full-time study?					
1 year	56	33	59	75	88
2 years	13	38	24	0	9
3-4 years	31	20	9	25	0
5 years or more	0	9	8	0	0
When are you likely to seek employment?					
1 year	68	36	87	84	77
2 years	25	33	10	10	20
3-4 years	7	24	3	6	3
5 years or more	0	7	0	0	0

Table A 8 Cox regression results: Influences of background, marriage and parenthood variables on end of first period outside labour force and education, males

Covariates	<i>B</i>	Std error of <i>B</i>	df	<i>p</i> -value (significance)	Odds/Hazard Ratio
Lowest achievement quarter	-0.101	0.063	1	0.111	0.904
Highest achievement quarter	-0.009	0.055	1	0.873	0.991
At least one parent with higher education qualification	-0.034	0.055	1	0.533	0.966
A parent in trade occupation	0.028	0.058	1	0.630	1.028
Metropolitan location	0.025	0.049	1	0.609	1.025
Left school before Year 12	0.055	0.056	1	0.324	1.057
Disability or health problem	-0.079	0.131	1	0.549	0.924
Married	0.120	0.245	1	0.625	1.127
Parent	-0.063	0.297	1	0.833	0.939

Notes: No covariates were significant at adjusted alpha levels (Bonferroni, alpha = 0.005).

The middle two achievement quarters are used as a reference group for the High and Low achievement quarters.

Table A 9 Cox regression results: Influences of background, marriage and parenthood variables on return from the first period outside labour force and full-time education, females

Covariates	<i>B</i>	Std error of <i>B</i>	df	<i>p</i> -value (significance)	Hazard Ratio
Lowest school achievement quarter	-0.126	0.061	1	0.038	0.882
Highest school achievement quarter	-0.025	0.054	1	0.641	0.975
At least one parent with higher education qualification	0.007	0.053	1	0.901	1.007
A parent in trade occupation	0.089	0.056	1	0.109	1.094
Metropolitan location	0.109	0.046	1	0.018	1.115
Left school before Year 12	-0.124	0.061	1	0.041	0.883
Disability or health problem	-0.387	0.121	1	0.001	0.679
Married	0.462	0.141	1	0.001	1.587
Parent	-0.782	0.153	1	0.000	0.457
Interactions between covariates and time					
Married and time	-.596	0.149	1	0.000	0.551

Notes: Covariates significant at adjusted alpha levels (Bonferroni, alpha = 0.005) indicated in bold.

The middle two achievement quarters are used as a reference group for the High and Low achievement quarters.

Table A 10 Cox regression results: Influences of background, marriage, parenthood and prior experience variables on return from longest period outside labour force and education, males

Covariates	<i>B</i>	Std error of <i>B</i>	df	<i>p</i> -value (significance)	Hazard Ratio
Lowest school achievement quarter	-0.098	0.066	1	0.136	0.906
Highest school achievement quarter	-0.012	0.057	1	0.839	0.989
At least one parent with higher education qualification	-0.033	0.057	1	0.566	0.968
A parent in trade occupation	0.004	0.061	1	0.946	1.004
Metropolitan location	0.032	0.051	1	0.529	1.033
Left school before Year 12	-0.022	0.059	1	0.712	0.978
Disability or health problem	-0.091	0.121	1	0.506	0.913
Married	0.295	0.242	1	0.223	1.343
Parent	-0.070	0.273	1	0.799	0.933
Prior time outside labour force and education	-1.310	0.133	1	0.000	0.270
Interactions between covariates and time					
Prior experience and time	0.564	0.083	1	0.000	1.757

Notes: Covariates significant at adjusted alpha levels (Bonferroni, alpha = 0.001) indicated in bold.

The middle two achievement quarters are used as a reference group for the High and Low achievement quarters.

Table A 11 Cox regression results: Influences of background, marriage, parenthood and prior experience variables on return from longest period outside labour force and education, females

Covariates	<i>B</i>	Std error of <i>B</i>	df	<i>p</i> -value (significance)	Hazard Ratio
Lowest school achievement quarter	-0.156	0.065	1	0.016	0.855
Highest school achievement quarter	0.020	0.056	1	0.713	1.021
At least one parent with higher education qualification	0.055	0.055	1	0.321	1.056
A parent in trade occupation	0.104	0.059	1	0.076	1.110
Metropolitan location	0.139	0.09	1	0.004	1.150
Left school before Year 12	-0.305	0.067	1	0.000	0.737
Disability or health problem	-0.363	0.128	1	0.004	0.695
Married	0.393	0.171	1	0.021	1.481
Parent	-1.974	0.358	1	0.000	0.139
Prior time outside labour force and education	-1.221	0.116	1	0.000	0.295
Interactions between covariates and time					
Married and time	-0.412	0.120	1	0.001	0.662
Parent and time	0.522	0.158	1	0.001	1.686
Prior experience and time	0.456	0.068	1	0.000	1.578

Notes: Covariates significant at adjusted alpha levels (Bonferroni, alpha = 0.001) indicated in bold.

The middle two achievement quarters are used as a reference group for the High and Low achievement quarters.