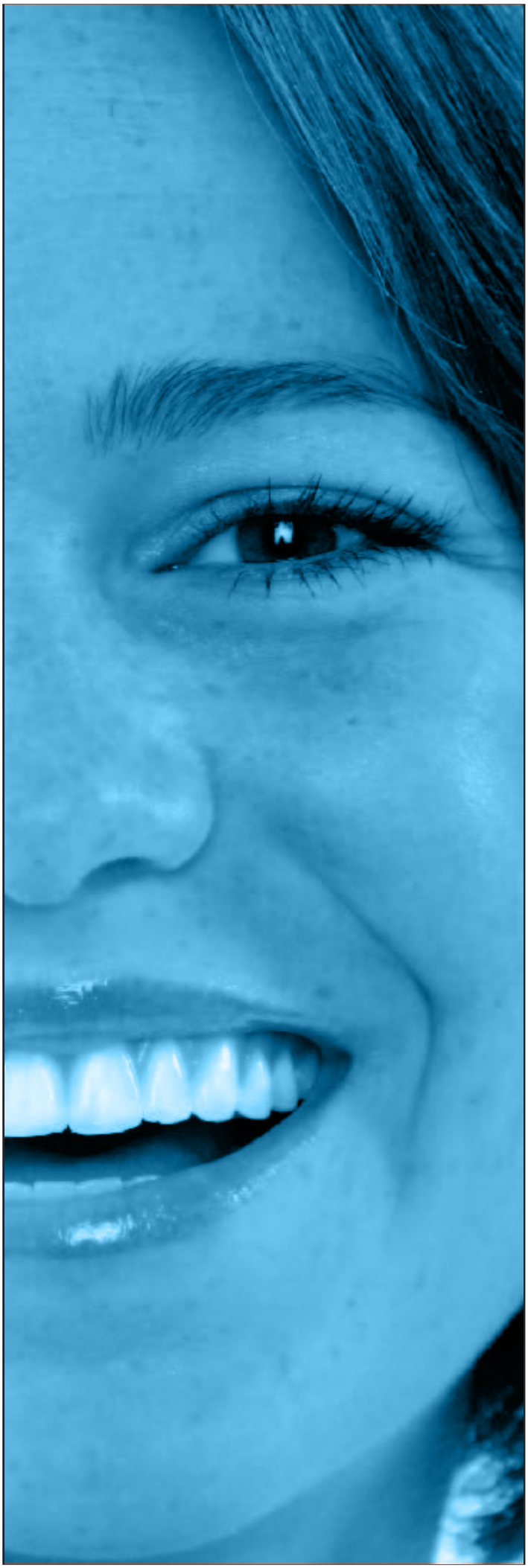

LONGITUDINAL SURVEYS OF AUSTRALIAN YOUTH

TECHNICAL REPORT 59

A stocktake of the Longitudinal Surveys of Australian Youth

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Longitudinal Surveys of Australian Youth

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NCVER

TECHNICAL PAPER

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ISBN 978 1 921809 14 9 print edition
978 1 921809 13 2 web edition
TD/TNC 102.06

Published by NCVER
ABN 87 007 967 311

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About the research

How does LSAY fare? A stocktake of the Longitudinal Surveys of Australian Youth

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Alfred Michael Dockery, Curtin University

The paper assesses the fitness for purpose of the existing Longitudinal Surveys of Australian Youth (LSAY) instruments as a source of information on the determinants of youth transitions in Australia. The paper is a comparative analysis of other longitudinal studies, a review of the current direction of youth policies and programs in Australia, and a review of the literature on the school-to-work transition.

This paper was written in 2009 and all material was accurate at the time of writing.

Key messages

- The paper concludes that the LSAY survey instruments have stood the test of time. They provide a reasonable and consistent array of information to assist our understanding of the school-to-work transition. But the emerging literature and the direction of other comparable surveys suggest that, to fully understand the school-to-work transition in a changing policy context, data collection needs to be extended in both directions. That is, data on earlier circumstances are required to better understand the effects of early childhood learning on school-to-work transitions and the post-school evaluation window needs to be lengthened beyond 25 years.
- LSAY would also benefit from the collection of a richer source of information on the socioeconomic background of young people to better understand the processes whereby this background influences youth outcomes. Capturing standardised information on the health and wellbeing of young people would provide measures of successful transitions beyond economic and educational outcomes.
- Matching the LSAY data with administrative datasets should be investigated as a way of improving data quality.
- Attrition bias is an issue for most longitudinal surveys, and LSAY is no exception. However, in LSAY this is particularly problematic because the young people we are most interested in are those most likely to drop out of the survey. Consideration should be given to a focused incentive for this group of young people.
- These suggested survey design and content changes come at a cost—whether it is an additional burden on the respondents or cost implications for the overall program. Hence, some trade-offs need to be made to implement them successfully, such as increasing questioning in a certain subject area (for example, health) at the expense of reduced questioning in another area (for example, school subject information).

Tom Karmel
Managing Director, NCVER

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Executive summary

The transition from school to work and adulthood remains an important policy and economic focus, as it has since the inception of the Longitudinal Surveys of Australian Youth (LSAY) program and its predecessors. This paper assesses the fitness for purpose of the existing LSAY survey design and questionnaires in generating data that enable us to best understand the determinants of successful youth transitions.

LSAY[1] is a research program that tracks young people from around age 15 to 25 years and captures information on how they move from school to post-school destinations. It uses large, nationally representative samples of young people and covers a wide range of education, employment and social aspects of the school-to-work transition.

In assessing the fitness for purpose of the existing LSAY instrument as a source of information on the determinants of youth transitions, we first conduct a comparative analysis of four other relevant longitudinal studies (Canada's Youth in Transition Survey; Australia's Youth in Focus; Longitudinal Study of Young People in England; and the United States National Longitudinal Survey of Youth) to explore their questionnaire content and survey design. Secondly, current youth policy settings at national and state and territory levels are summarised to assess the relevance of LSAY. Finally, we review the national and international research literature on youth transitions to assess the suitability of the LSAY data for youth transition research. The paper concludes with an evaluation of the fitness for purpose of LSAY and outlines key areas for future development.

The findings from this review portray LSAY as an informative source of information on the determinants of successful youth transitions in Australia. Against key longitudinal studies on youth transitions, LSAY measures up as a world-class survey which has largely kept pace with the changing landscape of youth policy in Australia. However, the review also identifies areas where LSAY lacks depth and coverage.

The following key areas for future development come with resource implications for the survey program. Hence, opportunities to explore the trade-offs that can be made to develop these areas should be investigated.

The first two areas for development relate to the survey design. The emerging literature and the direction of other comparable surveys suggest that, to fully understand the school-to-work transition in a changing policy context, data collection needs to be extended in both directions. That is, data on earlier circumstances are required to better understand the effects of early childhood learning on school-to-work transitions, and the post-school evaluation window needs to be lengthened beyond 25 years to reflect the recognition that an age of 25 years is too young to determine the success of transition. The third area for development relates to questionnaire content, while the fourth and fifth are concerned with improving data quality.

1 LSAY is managed and funded by the Australian Government Department of Education, Employment and Workplace Relations (DEEWR), with support from state and territory governments.

1. Capturing early childhood learning: Parent questionnaire

There is compelling evidence in this paper from the literature review, survey review and current policy direction that a matched parent or guardian survey administered at least once per cohort would greatly enhance LSAY, since it would capture a richer array of information on young people's early childhood and background. This would provide detailed and high-quality information on parental education, occupation, household income and the sources of income. The quality of such data, which are reported by the young people themselves, is a major limitation for previous waves of LSAY. A parent questionnaire could also collect data on important family attributes (for example, family structure and parental unemployment), which clearly play an important part in youth transitions.

2. Extend the survey beyond 25 years

The increasing trend for young people to take longer to complete their school-to-work transition means that the LSAY cohorts are terminated too early. Many young people at age 25 have only recently left or may still be enrolled full-time in higher education, which is a considerable limitation on the overall quality of the LSAY program. Wage rates at age 25, for example, are a poor measure of the return from education.

Extending the survey period for respondents beyond 25 years would enable more visible 'end-points' to become clearer and allow for better estimates from returns on education and training. Of course such an extension would increase the cost, and sample attrition would be further increased by lengthening the survey.

A possible trade-off is to consider surveying respondents less frequently (biennially) after the critical years of transition, for example, after 21 years.

3. Review the questionnaire content

LSAY is very strong in its measures of employment outcomes. This assists our understanding of how young people navigate the education pathways through to the labour market. The survey also identifies some events outside the education and employment domains that are known to be related to outcomes, such as marriage. However, the review of key studies and the literature highlighted the limited coverage on health, wellbeing and other individual factors that affect education and employment outcomes, or are important outcomes in their own right. These items are becoming significant in current policies for all groups, particularly young people.

The LSAY questionnaire has been modified from year to year to meet societal and policy changes. This needs to continue to ensure that LSAY remains relevant to current policy initiatives and keeps pace with the current behaviours of young people. The review recommends consideration of the following content changes:

- a review of the life satisfaction questions and limited health identifiers to ensure a more comprehensive exploration of young people's health and wellbeing
- the inclusion of:
  - measures of social capital to assist in understanding how socioeconomic background impacts on educational outcomes and transitions
  - measures of other personal characteristics such as deviant behaviour and personality traits associated with young people's decision-making and their impact on later outcomes
- the implementation of minor improvements to keep pace with technology changes, such as the role of information communications technology (ICT) in assisting young people to seek careers advice and employment.

Trade-offs may need to be made to increase or introduce questionnaire items in a certain area, such as health, at the expense of reduced questioning in another area (for example, school subject information).

Any changes or modifications to the survey instruments also require a planned approach that involves cognitive testing and analysis of previous questionnaires. A history of questionnaire changes should be kept to document why changes have occurred from year to year.[2]

The creation of an 'ideal topic map' would assist in developing the questionnaire content, allowing for easier adaptation for future cohorts and maintenance of consistency in the data collection between cohorts. It would also assist in the placement of questions relating to 'non-core' areas. The lag time for implementation also needs to be considered, and changes should be determined well in advance of the questionnaires being pilot-tested.

4. Integrate LSAY with administrative datasets

The connection between the Programme of International Student Assessment (PISA) and LSAY is one of the strongest features of the survey design and provides a robust measure of academic achievement at the age of 15 years. Of the key studies discussed in this review, only the Canadian Youth in Transition Survey (YITS) integrates with PISA. However, the other key studies benefit from sampling frames that can provide additional or supplementary information, which allows data quality to be improved where responses from individuals are missing for particular sections. Several of the measures obtained in LSAY are potentially obtainable from administrative datasets, such as tertiary entrance rank (TER) scores and information about the receipt of government payments. The matching of school administrative records and test scores has been achieved with other key longitudinal surveys. Technical studies should be undertaken to investigate the reduction in measurement error that would accrue through the capture of some information from other datasets, and privacy issues would need to be explored.

5. Attrition

Attrition bias is an issue in most longitudinal surveys, and LSAY is no exception. However, in LSAY this is particularly problematic because the young people we are most interested in are those most likely to drop out of the survey. Analytical methods can account for some of this bias, but a focused incentive for respondents could improve the quality of data for this group of young people.

Incentives are a way to keep attrition in check and are used in some other longitudinal surveys, but they add significant costs to the survey program. Further investigation should be undertaken to examine the trade-offs that could be made to offset the introduction of respondent incentives in the LSAY program. Creating a respondent's webpage on the LSAY website is a low-cost strategy to encourage respondent involvement and potentially increase retention.

2 An example of a well-documented survey history can be found in the History of Employer Survey by NCVER, accessed at: <http://www.ncver.edu.au/publications/1794.html>.

Introduction

At the age of 15 young Australians find themselves at the cusp of entry into independent adulthood. They are full-time at school and, other than in rare cases, living in the family home. Many choices confront them: What school subjects to undertake? How long to stay on at school? And after school, to TAFE or university or work? What are their career aspirations? Over the immediate years that follow, how they deal with those choices, and managing the life circumstances into which they were born and raised, along with their innate talents and qualities, will go a long way to determining their success and wellbeing as adults.

While most young people manage this transition smoothly, not all do. Trying to understand the relative importance of choices made, life circumstances, and individual attributes on later outcomes is of vital importance for young people, their parents and teachers, career advisers and policy-makers, all of whom are concerned with maximising the opportunity for young people to succeed.

To understand the importance of these different factors to the best of our ability requires solid social science data and research. The best kind of data comes from longitudinal surveys, which follow the trajectory of one or more cohorts of young people over time. Australia has had such a body of evidence available over the past couple of decades in the form of the Longitudinal Surveys of Australian Youth (LSAY) and its predecessors. Since 1995, some 49 000 Australians have taken part in the LSAY program, which collects information annually from young people aged 15 to 25 years, commencing with carefully designed tests of literacy and numeracy levels in the first year.[3]

The data collected in LSAY have been made publicly available to researchers and have spawned a substantial body of research. The Australian Council for Educational Research has published over 50 research reports and a great many shorter reports and technical papers, using LSAY as the source. These have contributed considerably to public understanding of the value to individuals of additional years of schooling, the importance of socioeconomic status in gaining access to opportunities such as higher education, and the kinds of programs that give the best chance in assisting those whose transition is not smooth.

There are good reasons for now standing back and taking stock of this endeavour. The choices confronting young people at the end of the first decade of the twenty-first century are more varied and complex than they were in the early 1990s, when the LSAY program was established. Several other countries have instituted their own longitudinal surveys of youth transitions against which LSAY can be compared. The research literature, partly riding on developments in econometric analysis, has identified the importance of factors not previously focused on in this area, for example, the effects of early childhood development in predicting outcomes

3 The Y95 and Y98 LSAY cohorts were Year 9 students, and as such slightly younger in age than the Y03 and Y06 cohorts, who were selected strictly on the basis of age. Since Y03 the first wave of the survey has been administered as part of the Programme for International Student Assessment (PISA).

later in life. The overall issue of how to successfully navigate the school-to-work transition remains unresolved in many respects and it is high on the agenda in Organisation for Economic Co-operation and Development (OECD) countries. As Quintini and Martin (2006) argue, although young people are fewer in number and better educated than the baby boomers who preceded them, they still disproportionately experience unemployment and casual and part-time employment.

The intent of this paper, therefore, is to assess the fitness for purpose of the existing LSAY survey design and instruments in generating data that enable us to best understand the determinants of successful youth transitions.

After a brief introduction to the current survey design and instruments, the paper proceeds by:

- comparing LSAY with other longitudinal youth-related surveys, especially international equivalents, to review the scope and manner in which they capture information on youth transitions
- describing the general direction of Australian policies and programs relating to education, training and the youth labour market, and arriving at an assessment of whether LSAY collects the right sort of information to inform current youth policies and programs
- reviewing Australian and international research literature on youth transitions, with a particular aim of identifying the key dependent and explanatory variables being used by researchers in their analyses, and whether these are presently incorporated in LSAY.

The final section consolidates the findings and suggests a way forward for LSAY to ensure it maintains its reputation as a world-class youth transition survey.

Background

The Longitudinal Surveys of Australian Youth (LSAY) are a mixture of longitudinal and age-event specific data (for example, Year 12 subject choice) and comprise a series of youth surveys that collect annual information on young people as they make the journey from school to work and further study. The program commenced in 1995 and was based on two other annual surveys: the Australian Youth Survey (AYS, 1989–97) and the Youth in Transition survey (YIT), which are summarised below.[4]

Table 1 Australian Youth Survey and Youth in Transition sample sizes and durations

Program	Number of cohorts surveyed	Years surveyed (annually 1989–94)	Additional 16-year-olds added	Continuing sample	Total sample size	Sample ages (years)
Australian Youth Survey (AYS)	6 Probability & school-based samples supplemented by annual additions of 16-yr-olds (school-based)	1989	-	-	5,350	16–19
		1990	1,501	4,746	6,247	16–19
		1991	1,146	5,801	6,947	16–19
		1992	1,198	6,435	7,633	16–19
		1993	1,088	6,933	8,021	16–23
		1994	1,116	7,234	8,350	16–24
		1995–96 no new samples added		Surveying ceased in 1997, sample 19 to 27-yr-olds		

Program	Number of cohorts surveyed	Sample – birth cohorts born	Years surveyed	Sample size	Average age when first surveyed	Age when last surveyed
Youth in Transition (YIT)	4 Age-based sample surveyed annually	1961	1978–94	6,246	17 years	33 years
		1965	1981–95	6,628	16 years	30 years
		1970	1985–94	5,472	15 years	24 years
		1975	1989–96	5,653	14 years	21 years

These longitudinal surveys provide a comprehensive framework to enhance understanding of the transitions young people make between education, training and work. Longitudinal studies measure 'repeat observations of the same variables from the same units at different points in time'. Measuring gross as well as net flows permits estimation of 'treatment' effects that are not fully realised in the short-term and the identification of causality, rather than correlations between factors and outcomes measured.

4 Both the YIT and AYS surveyed annually. However, the 1961 YIT birth cohort was not surveyed at 24 and 27 years of age (1985 and 1988) due to lack of resources.

LSAY cohorts

The current LSAY series began in 1995 with Australian Year 9 students (average age 14.7 years). Students completed a written two-hour test at school, followed by a mailed survey in the subsequent year. Telephone interviews were conducted annually for all subsequent years. In 1998 a new cohort commenced, following the same approach as the Y95 cohort. In 2003 PISA was used as the first LSAY Y03 cohort wave, with subsequent waves conducted by telephone interviews in the same manner as the Y95 and Y98 cohorts. A second PISA-based cohort joined LSAY in 2006 (Y06 cohort), and a third is planned for 2009 (Y09). PISA-based samples are based on a student's age (15 years) rather than on school year level and are therefore a little older than the previous LSAY samples. LSAY cohorts are referred to by their commencement year, namely Y95, Y98, Y03 and Y06. Table 2 summarises the LSAY cohorts and their survey cycles.

Table 2 LSAY cohorts sample sizes and durations

Cohort	Commencement sample size and sampling unit	Survey period	Average age when first surveyed	No. waves
Y95	13,615 (Year 9)	1995–2006	14.7 years	12
Y98	14,117 (Year 9)	1998–2009	14.7 years	12
Y03	10,370 (age 15)	2003–13	15 years	11
Y06	14,710 (age 15)	2006–17	15 years	11
Y09	(age 15)	2009–20	15 years	11

Source: NCVER (forthcoming).

Survey attrition is an issue in the reporting of longitudinal survey results and can lead to biased population estimates. Survey attrition occurs when not all respondents answer the survey in subsequent waves of interviewing and if there are different groups of people dropping out at differing rates. A great deal of work is involved to achieve maximal response rates but there is still drop-out between survey waves. In LSAY, survey attrition is addressed by trying to maximise the year-on-year response rate and through the application of attrition weights. However, it is those people who we are most interested in who tend to drop out of the survey, including those with lower academic ability, early school leavers and those from lower socioeconomic backgrounds.

Questionnaire scope

For all LSAY cohorts, a measure of literacy and numeracy achievement,[5] core demographics, study and vocational plans and attitudes to school are all collected in the initial written test. At this time a school principal questionnaire collects more detailed information on the level of resources in the school, the school environment and qualifications of staff, and teacher morale.

In subsequent telephone interviews with LSAY participants, the focus of the questionnaire is on the individual and their transition and collects information on education and employment outcomes, as well as institutional factors which help explain differences in youth transitions. These are structured across 9 sections:

5 PISA assesses young people's ability to apply their knowledge and skills to real-life problems and situations rather than how well they have learnt a specific curriculum. In this way PISA is able to assess students' capabilities in scientific, reading and mathematical literacy, and can provide greater depth of information in a topic area, for example, mathematics in Y03 cohort. Each PISA survey has a slightly different assessment focus, with PISA Y03 focusing on mathematics, Y06 on science, and Y09 is to focus on reading.

A. School
B. Transition from school
C. Post-school study
D. Work
E. Job history
F. Job search activity
G. Not in the labour force
H. Living arrangements, finance and health
J. General attitudes.

Typically, the annual telephone interviews take around 30 minutes per respondent, but this does vary because respondents are only asked questions relevant to them at that point in time.

The focus of the questionnaires alters as the cohort ages, from a school and study focus when they are younger, to more of an employment focus in later years. For instance, for the Y95 cohort, sections A and B were no longer included after wave 8 and sections C, E, F, and G occurred from wave 3. Section D was the only section to be included in every wave of the Y95 cohort (see figure 1).

Table 3 Top level topic map of Y95 cohort questionnaire

Demographics												
A. School												
B. Transition from school												
C. Post-school study												
D. Work												
E. Job history												
F. Job search activity												
G. Not in the labour force												
H. Living arrangements, finance & health												
J. General attitudes												
Wave	1	2	3	4	5	6	7	8	9	10	11	12
Average age	14.5	15.5	16.5	17.5	18.5	18.5	20.5	21.5	22.5	13.5	24.5	25.5

Each year, there may also be 'themes' added to the questionnaire, such as additional modules of questions on careers advice or maths and science. These themes are added at the discretion of the custodians of the data, the Department for Education, Employment and Workplace Relations (DEEWR).

In recent years these additional modules have flowed from PISA, for example, PISA 2003 focused on maths competencies, and PISA 2006 had a focus on sciences, and so some maths (Y03 cohort) or science (Y06 cohort) questions are retained in LSAY waves after PISA. Careers advice questions have also been a focus in some of the more recent cohorts. More detail on the LSAY questionnaires are contained in appendix A.

Survey methodology

Each year LSAY respondents are contacted by letter prior to their telephone interview. For the main group this contact is made in July; for those assigned to the pilot group (and remain in the pilot group throughout their involvement in LSAY), this is a little earlier (around May). This contact is followed by their LSAY telephone interviews, which have been conducted by computer-assisted telephone interviewing (CATI) since the Y95 cohort was first interviewed in this manner in 1997. Recalling information for participants has become simplified using this technique, with signpost dates and activities readily available and the timeframes standardised. CATI also allows for greater flexibility in the questionnaire, with the capacity to skip through non-relevant questions as well as forward feeding past information to aid recall. Interviewing is completed between July and January each year.

Further contact is made with the respondents at the end of each year, when calendars and newsletters are sent in early December as a 'thank you' for their contribution, to keep respondents up to date with the LSAY program and to allow them to update their contact details. The LSAY survey methodology has remained the same over time, but it now faces the challenges of increasing attrition rates because of a range of factors, including the increased use of mobile phone call screening, the introduction of the Do Not Call register,[6] and competition with other surveys targeting young people, such as school and post-school destination surveys and surveys of young people who have participated in specific youth transition programs.

The LSAY questionnaires tend to have minimal changes from year to year, a desirable feature of longitudinal surveys. That said, the survey has not been stagnant, with modifications to meet societal and policy change in the following areas:

- the range and names of subjects offered at school and the introduction of vocational education and training (VET) programs in senior secondary schools since 1996
- changes in the structure of VET
- changes to government assistance (for example, introduction of Youth Allowance in 1998)
- increases in compulsory school ages
- changes to classification structures such as ASCO, ANZSCO, ASCED, ANZSIC[7]
- financial management. LSAY has been capturing information on credit card usage and repayments (first asked in W8 2002, Y95 cohort)
- the increased use of the internet for study, work, leisure and job-seeking activities.

Questions have also been modified for comparability with overseas longitudinal surveys, such as questions on volunteering for consistency with the YITS from Canada (McMillan, Rodway & Rothman 2002). Increased interest in the community activities, leisure and health of young people has resulted in the addition of questions in some waves of the cohorts. Response options have also been expanded, refined or removed as needed. For example, the 'volunteer' category in the section on 'not in the labour force – main activity' was removed after wave 5 of the Y95 cohort due to low response rates.

6 Since the introduction of the *Do Not Call Register Act 2006*, individuals can register their land line or mobile telephone number for exemption from telemarketers, although some organisations such as charities and government bodies can still call. Market and social researchers are still permitted to call when conducting opinion polling and standard questionnaire-based research, although they must now abide by a strict industry standard on when they are allowed to call. The Do Not Call Register does not apply to LSAY respondents, but it has raised awareness of individuals' rights regarding survey participation. For more information see: <https://www.donotcall.gov.au>.

7 ASCO = Australian Standard Classification of Occupations; ANZSCO = Australian and New Zealand Standard Classification of Occupations; ASCED = Australian Standard Classification of Education; ANZSIC = Australian and New Zealand Standard Industrial Classification.

In the move from a school-year-based sample selection to age-based (to meet PISA requirements) the survey design became considerably more complex to allow for the varied circumstances of young people, especially while at school (for example, 15-year-olds may be enrolled in any of Years 9, 10 or 11). This has meant more questions are now devoted to clarifying respondent details each year.

An 'ideal topic map'

LSAY questionnaires have a solid structure, allowing cross-cohort analysis but there are some inconsistencies in the questionnaire content between waves and cohorts. For example, in the Y95 and Y98 questionnaires, questions on topics such as disability and health, happiness with life aspects and volunteering have been covered sporadically throughout the waves.

The development of an 'ideal topic map' would enhance the consistency of the LSAY questionnaires across the waves and between the cohorts. Such an 'ideal topic map' would group the LSAY questions into common themes called 'topic areas'.[8] For example, the structure may be:

- demographics
  - student (includes gender, country of both, Indigenous status, locality, financial status)
  - parent(s) (includes occupation, education, socioeconomic status, country of birth)
- education
  - school (includes school characteristics, subjects studied, perceptions of school and self, post-school plans, work experience)
  - school transition (includes year left school, reasons for leaving/returning to school)
  - post-school study (includes vocational education and training, higher education, apprenticeships/traineeships, qualifications obtained, institutions attended, completion/non-completion)
- employment
  - current (including wages, hours of work, job training, job satisfaction, stability)
  - job history and training (as for current, but for previous employment)
  - seeking employment (including job-seeking behaviour)
  - not in the labour force (including reasons why, main activity)
- social
  - health, living arrangements and finance (including marital status, social capital and living arrangements)
  - general attitudes (including satisfaction, leisure, volunteering and job aspirations).

These topic maps will also enhance data analysis and cross-cohort comparisons. An ideal starting point would be the development of the 'topic map' for the Y09 cohort to assist in the questionnaire development for the LSAY wave 2 interview in 2011.

8 This approach has already been taken in grouping together the data elements in the LSAY technical documentation. For more information see < http://www.lsay.edu.au/data/21070.html>.

LSAY questionnaire review

Longitudinal surveys are expensive to conduct and difficult to mount. It is only in recent decades that they have become more fully established, as funders and researchers have become persuaded of the additional value gained from repeat observations of the same individuals over time by comparison with drawing on repeat cross-sectional surveys.

Other longitudinal studies

The longest-standing longitudinal surveys are the British National Child Development Study and its successors, which are all birth cohort studies that track a group of individuals born in the same week in 1946, 1958 and 1970. A feature of these studies is that information is collected irregularly; for example, the 1958 birth cohort was re-surveyed at ages 7, 11, 16, 23 and 33, rather than annually as with LSAY from the Y95 cohort. These surveys are similar to the earlier LSAY surveys, the Australian Youth Survey and Youth in Transition survey (refer to table 1). Australia has its own birth cohort studies, the Longitudinal Survey of Australian Children (LSAC), which was established in 2004 and is tracing two birth cohorts over time.

Several countries have general population longitudinal surveys that serve a broad community of policy-maker and researcher interests. The most longstanding of these are the Panel Study of Income Dynamics (United States, commenced in 1968), the Socio-Economic Panel Study (Germany, commenced in 1984) and the British Household Panel Survey (United Kingdom, commenced in 1991). An Australian general population longitudinal survey, the Household Income and Labour Dynamics in Australia (HILDA) survey, was established in 2001 and is now in its eighth wave. Unlike the birth cohort studies, there is only a single cohort for these longitudinal surveys as they are designed to be fully representative of the general population at a point in time.[9] Also, unlike the birth cohort studies, but in common with LSAY, respondents are surveyed regularly, annually in most instances.

What characterises and distinguishes LSAY from these two other kinds of longitudinal surveys are three factors: LSAY is multi-cohort; data collection is annual; and, third, and most importantly, the population and content matter are much more narrowly defined to focus on young people and their transition from school to work. LSAY is not the only example of longitudinal surveys that broadly have these three features. There are several countries which have instituted survey programs with very similar aims and objectives and methods LSAY, including Canada, the United States and England. Less directly similar to LSAY but with some features in common is another Australian study. This is the Youth in Focus study, which follows a single cohort of young people over a number of years and explores their interaction with the welfare system.

9 This is achieved by the dynamic nature of the sampling, which follows the dissolution and formation of households, for example, as younger members of a participating household age, partner and have children, the new household is added to the sample.

Comparative analysis of longitudinal studies

In the remainder of this section we compare four key longitudinal studies that are broadly similar to LSAY and the discussion focuses on two issues:

- In what ways does the design of these surveys differ from LSAY, and what additional value is gained from these differences?
- In what ways is the content of these surveys different from LSAY, and are there areas where LSAY is comparatively weak or strong?

The key studies chosen are those in which educational pathways and early experiences of the labour market of young people are a focus. Table 4 lists the key studies:

Table 4 List of key longitudinal studies

Country	Name of study	Abbreviation
Australia	Longitudinal Survey of Australian Youth	LSAY
Australia	Youth in Focus	YIF
Canada	Youth in Transition Survey	YITS
United Kingdom	Longitudinal Study of Young People in England	LSYPE
United States	National Longitudinal Survey of Youth (1979 & 1997)	NLSY

Table 5 Summary of content and design of key studies

	LSAY	YIF	YITS	LSYPE	NLSY
Sample (age)	15–16 to 25 yrs	18 to 25 yrs	15 to 30 yrs	13–14 to 25 yrs	12–16 to 14–22 to 35–43 yrs
Waves/cycles	12	3	7	6	21 (NLSY79)
Frequency	Annual	Biennial	Biennial	Annual	Annual: NLSY97 NLSY79 (wave 1–15) Biennial: NLSY79 (wave 16–21)
Parental interview	No	Yes	Yes	Yes	Yes
Supplementary or linked data sources	PISA	Centrelink	PISA	Pupil Level Annual School Census National Pupil Database Census	School surveys Armed Services Vocational Aptitude Battery (CAT-ASVAB)
Health, wellbeing and deviant behaviour questions/scales	General life satisfaction	Overall and emotional health	Self-esteem		Measured on the Rosenberg self-esteem scale (a 10-item self-report measure)
		Drug and alcohol use	Drug and alcohol use	Drug and alcohol use	Drug and alcohol use
		Personal control beliefs (locus of control)	Personal control beliefs (mastery scale)		Personal control beliefs (mastery scale; locus of control; self-efficacy)
		Delinquency/ contact with authority	Absenteeism/ truancy	Absenteeism/ truancy	Delinquency/ contact with authority

Table 5 gives a summary (not an exhaustive list) of the content and design features of the key studies, compared with LSAY. The ways in which the designs of these studies differ from LSAY provide practical examples of how the current instrument can be improved—through observation of how much additional value is gained from these differences.

Integration of administrative or supplementary datasets

The LSAY cohorts are currently sampled from PISA. The integration with PISA is a particularly strong feature of LSAY, allowing international indicators of student achievement to be assessed for Australian students. The benefit of using PISA as the first wave of an LSAY cohort is that it captures an objective measure of all students' literacy and numeracy standing at the same age. This enables researchers to control for 'prior achievement' in their analyses which, with properly specified models, allows for the causal effect of particular paths chosen by students to be estimated. Longitudinal surveys without such measures are hampered by differences in the 'natural ability' of individuals, making it impossible to identify pure causal effects. For example, it is obviously critical to know whether the gains achieved by those who have completed higher education are due to the education per se or due to their ability to enter higher education in the first instance.

Of the key studies discussed here, only the Canadian Youth in Transition Survey integrates with PISA. However, the other key studies have the benefit of a sampling frame that can provide additional or supplementary information for subsequent analysis and allows data quality to be improved, where responses from individual students are missing for particular sections.

Youth in Focus (YIF), the Australian study sampled from the Centrelink database holds information on recipients of Australian Government payments. This provides accurate information on the types and duration of income support, as well as demographic variables. However, analysis is limited to the scope of a given administrative dataset. In this case analysis would exclude families from the very high income bracket.

Links to administrative records has been achieved in the British study, Longitudinal Study of Young People in England, which also has the benefit of sampling from the Pupil Level Annual School Census (PLASC). The administrative records provide grades and key tests scores from the National Pupil Database (NPD), as well as geo-demographic data from the 2001 census.

The US National Longitudinal Survey of Youth 97 has the advantage of additional data collections, conducted in conjunction with the surveys (youth and parent questionnaire). These include two school surveys conducted in 1996 (over 5500 schools) and 2000 (over 6800 schools), which collected information on the characteristics of the student body, programs available to students, career preparation, incidences of gang activity and drug and alcohol use, as well as average scores on college entrance exams (American College Test). These school administrator questionnaires are comparable with the PISA school administrator questionnaire, but the National Longitudinal Survey of Youth 97 also includes high school transcripts or academic records for participants who provided written permission to contact their schools.

Transitions beyond 25 years

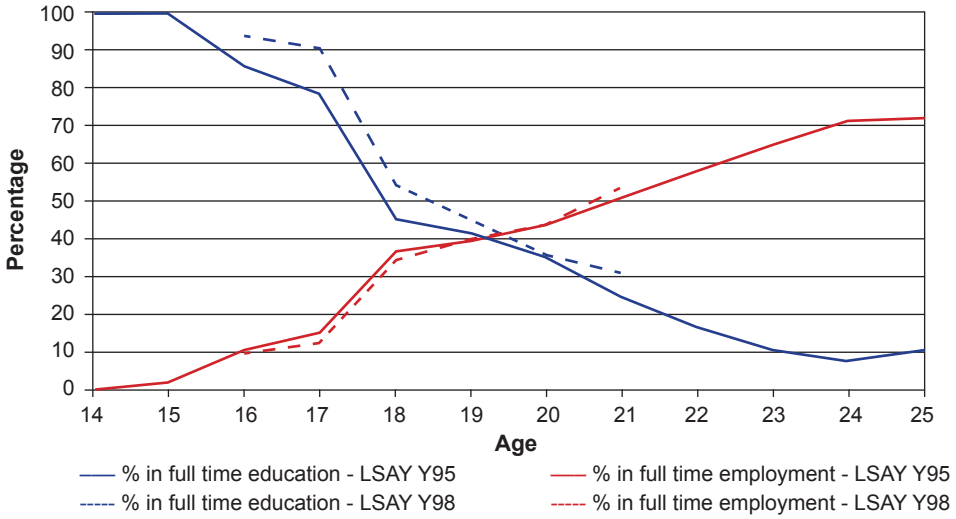
LSAY follows respondents until they reach 25 years of age and focuses on the critical years of transitions for young people before they reach adulthood, assuming that youth transitions generally reach an end-point when they are in their mid-20s. However, at age 25 many young people have only recently left or may still be enrolled in full-time higher education.

Youth transitions are lengthening as the transitions become more complex, less linear and with greater movements between school, work and study. The nature of employment for

young Australians is also changing. A decline in demand for low-skilled labour has meant that post-school qualifications and higher-level skills are a premium in a national and international competitive labour market. Coupled with the increase in part-time and casual employment, young people are often relying more on family support well beyond their teenage years (ABS 2005; Kamp & Horn 2008).

Figure 2 illustrates the length and incomplete nature of youth transitions for LSAY participants from the Y95 and Y98 cohorts into full-time education and employment. And this does not take into account the non-linear transitions of some young people, which can be longer and more complex.

Figure 1 Proportion of young people in full-time education and full-time employment by age



Source: Longitudinal Surveys of Australian Youth, 1995 cohort.

A survey instrument that collects information on young people's education, training and employment experiences beyond 25 years would provide valuable detail on extended transitional processes and would allow for better estimates of returns from education and training. However, attrition and financial costs are significant issues to overcome.

The Canadian Youth in Transition Survey is perhaps the most comparable study with LSAY and interviews participants until age 30 years. Respondents are interviewed biennially, a design feature that would assist in running costs of the study. A possible trade-off is consideration of a survey of respondents less frequently after the critical years of transition, for example, after 21 years. The National Longitudinal Survey of Youth 79 switched to a biennial schedule after the significant transitions were completed by the late 20s.

Attrition

Attrition bias is a common problem with longitudinal surveys, but is particularly problematic with LSAY because it is the young people who tend to drop out of the survey in whom we are most interested. For example, early school leavers, poorer academic achievers, and those from more disadvantaged backgrounds are often the focus of youth transition policy interventions, but are also most likely to drop out of the survey. If we do not address attrition of this 'at risk' group, the LSAY dataset will display an over-representation of high achievers, which does little to enhance our understanding of those most 'at risk' of making an unsuccessful school-to-work transition. The Youth in Transition Survey also suffers from this attrition bias, with a high correlation between the determinants of attrition and the factors determining the outcome of

interest, such as those with high truancy rates and from households that move frequently (Foley, Gallipoli & Green 2007).

The National Longitudinal Survey of Youth 79 consists of 21 waves in total and the completion rate after 20 waves of interviewing for this study is quite a high 77.5% (excluding unknown deaths) in 2002. However, the sample included a range of age groups (14 to 22-year-olds) rather than a single age cohort, limiting cross-sectional analysis based on age because of potentially small numbers of responses. The use of bounded event histories, respondent cooperation and incentive fees for respondents has been acknowledged as reasons for the successful sample retention for this survey (Olsen 2005).

Financial incentives are also offered to respondents in Youth in Focus to encourage completion of an additional questionnaire. Incentives are not currently offered in LSAY and introducing them could add significant costs to the survey program. Trade-offs can be made to offset the costs of incentives, such as savings in field costs to track down respondents, or targeted incentives for groups of responses (Olsen 2005).

A respondent webpage, which is a feature in both the National Longitudinal Survey of Youth and Longitudinal Study of Young People in England program websites, can also help to encourage respondent participation and involvement, and potentially increase retention in the survey program.

Comparative analysis of the content of longitudinal studies

The following discussion briefly looks at the areas where LSAY is strong on content, but focuses primarily on a comparison of the content of the various programs, where they differ from LSAY, and where LSAY is comparatively weak.

The main focus of LSAY and the key studies selected for comparison is on youth transitions. There are many youth surveys around (for example, Down the Track destination surveys), but we were careful to select those with this more narrow focus. All measure background and school and post-school study, as well as providing some detail on program participation (for example, VET in Schools) and employment outcomes for young people.

Where LSAY is relatively strong is in its measures of employment outcomes and school subject choice. All periods of unemployment are observed, and there is a good deal of information on the attributes of the main job of those in employment at the time of the survey, in addition to employment duration throughout the year. Information is also captured on earnings, and there are some measures of job quality through standard job classifications (ANSCO or ANZSCO).

The fundamental features of the education landscape and how young people navigate it are very well captured in LSAY. It offers, for example, the only existing source of national information on Year 12 school subject choice. However, a weakness of LSAY, as noted in the LSAY review by McMillan, Redway and Rothman (2002), is that there may be too much 'school level information' which is rarely analysed (for example, Year 11 subject choices). Care must be taken to balance the level of detail collected with relevance to current youth transition policy initiatives.

Attitudes, behaviour and health

LSAY is adequate in its measures of some other outcomes such as financial security, but is less than adequate in measuring outcomes such as health and self-esteem. There is growing interest among policy-makers in non-economic outcomes, and LSAY may need to adapt to this for it to remain at the forefront of youth transition research.

Previous research has shown that there is a relationship between education and measures of health and wellbeing, but that this relationship is not straightforward. Both physical and mental health can be barriers to school completion and participation in post-school study. Conversely, education and training can have non-economic benefits through direct and indirect effects on health and wellbeing (Stanwick, Ong & Karmel 2006). The LSAY dataset has a subjective measure of wellbeing but questions are quite general and do not include any measure of stress (only financial stress questions) or state of mental health. The LSAY instrument is also limited in the measurement of other individual factors such as personality traits and deviant or delinquent behaviour, which can also be associated with educational outcomes. These factors are difficult to measure, particularly through computer-assisted telephone interviewing, as participants may be less likely to respond honestly about relatively sensitive questions to an interviewer. The number of personality scales and definitions of wellbeing can also vary, depending on the area of interest. These measures are given less prominence in youth transition research but are becoming more important in current policies for all groups, particularly for young people.

The National Longitudinal Survey of Youth 79 cohort includes a number of scales to measure attitudes and personality traits, such as self-esteem (Rosenberg scale) and self-efficacy or personal self-control (Rotter's Internal-External Locus of Control scale). Measures of delinquency/deviant behaviour are also captured in the study, including drug and alcohol use, contact with authorities and truancy. In the National Longitudinal Survey of Youth 97 cohort, questions on sensitive topics such as criminal activity and sexual behaviour are administered using audio computer-assisted self-interview (ACASI) technology, enabling respondents to directly enter their responses into a computer without an interviewer knowing their answer, which improves response quality.

The addition of such scales and questions adds to the interview length, which may affect attrition (Olsen 2005). This challenge is addressed in the Youth in Focus study, with an additional self-completion questionnaire that features more personal questions beyond school and post-school outcomes to capture information on health, attitudes, their upbringing and the impact of life events. Locus of control questions, as well as drinking, smoking and use of drugs are also included. This questionnaire is a supplementary survey to the primary data collection and is administered online or through mail rather than through CATI, giving respondents more privacy to answer these questions. A monetary incentive of $15 is offered to encourage participants to complete this additional questionnaire.

Family background and early childhood development

LSAY measures parental occupation and educational attainment in the first waves of the study and these are used extensively as measures of socioeconomic background in LSAY research, along with private school attendance. Socioeconomic background is cited in much of the youth transition literature as a key factor that influences academic achievement and other outcomes, but the exact causal mechanisms through which this background affects youth transitions remain unclear.

A richer array of information on young people's background is captured in the other key studies, including family income, value of assets and amount of debt (National Longitudinal Survey of Youth); parental involvement and parenting style (Youth in Transition Survey); measures of social and cultural capital (Youth in Transition Survey); and family disruption (Youth in Transition Survey). Family background and the degree of family support may also influence post-school outcomes. The availability of measures of parental involvement and support in young people's career planning, in addition to measures of socioeconomic status, would provide a richer understanding of outcomes and of the role of socioeconomic background.

Parent questionnaire

Such detailed information on family background and support is able to be measured through a parent interview in the other key studies. Generally, these interviews are one-off and conducted at the beginning of the study in wave or cycle 1, usually with one parent (usually the mother). In addition, a parent questionnaire can capture information about early childhood development, an emerging policy area which recognises the importance of early childhood experiences on later adult outcomes. Early learning difficulties and childhood experiences are examples of measures in the Youth in Transition Survey and Youth in Focus studies which are largely absent from LSAY.

Currently, LSAY does not have a parent questionnaire and the data source for LSAY is collected from the individual student. One of the problems for subsequent analysis is missing data. Much of this stems from the lack of responses provided by the students themselves, particularly for information collected about their parents. In the Y95 cohort, up to 25% of information relating to parents' occupation is missing. The addition of a parental interview would help to improve data quality by providing more complete information on parental background as opposed to having to rely on student responses in wave 1 of the survey, when they are, on average, 15 years old. However, the inclusion of an additional parent survey does have significant cost implications.

Current directions of youth policies and programs in Australia

The previous section demonstrated the different ways in which other key longitudinal studies capture information on youth transitions. These differences in part reflect the particular policy directions of each study. LSAY is no exception to this, but the question is whether the current scope of the LSAY instrument remains relevant or is broad enough to capture emerging policy issues.

Background

Equipping young Australians with the skills to participate and be productive in the economy and society continues to be a key policy area for Commonwealth, state and territory governments.

To sustain Australia's economic prosperity, many policies relating to youth have focused on boosting participation in the labour market by improving education, skills and workforce development (Gillard 2008). This included:

- investment in early childhood development
  - access to early learning
- high-quality schooling
  - ICT and National Curriculum
  - Year 12 retention and attainment
  - improvement in literacy and numeracy
  - successful transition from school to work and further study
  - reduction in the gap between Indigenous and non-Indigenous Australians in Year 12 attainment and literacy and numeracy
- skills and workforce development
  - an increase in the proportion of the working-age population with certificate III qualifications or higher
  - an improvement in VET and higher education access and delivery.

Investing in early childhood development

The 2020 productivity paper (Australia 2020 Summit 2008) revealed that the earlier integration of childhood education and care results in greater readiness and commitment to schooling and greater likelihood of graduating and earning more. Australia is currently the lowest spender on early childhood education and care of three to six-year-olds. The 2008–09 Budget invested more into early childhood intervention, including the childcare workforce, than that of previous governments.

The 2008–09 Budget (Gillard 2008) focused on providing access to early learning for young Australians. The scope of the current LSAY instrument does not include early childhood development and no research reports or briefing papers have covered this topic area.

Our literature review points strongly to the importance of gathering retrospective information on early childhood development, including time spent in childcare and early childhood education. One way of capturing this information could be through a complementary parental interview, such as the one administered as part of the Canadian Youth in Transition Survey. This voluntary parent interview, administered in the first wave of the survey, gathers early childhood information such as learning difficulties as well as more detailed information about family structure and background

ICT and National Curriculum

The rapid advancements in information and communication technologies have changed the way in which information is used, shared and processed. Young people need to be highly skilled in the use of ICT for both study and employment (Ministerial Council on Education, Employment, Training and Youth Affairs 2008).

In response, the 'Digital Education Revolution' policy (2008) aimed to provide students, teachers and schools with ICT skills and computer resources to participate in an increasingly technological society. Support is also provided to enable schools to develop online curriculum.

A National Curriculum (Ministerial Council on Education, Employment, Training and Youth Affairs 2008) is also being developed and encouragement is being given for students to learn Asian languages in school. The National Curriculum, to be effective from 2011, will cover:

- English
- mathematics
- sciences (including physics, chemistry and biology)
- humanities and social sciences (including history, geography, economics, business, civics and citizenship)
- the arts (performing and visual)
- languages—(especially Asian languages)
- health and physical education
- ICT and design and technology.

Some subjects will be the primary learning focus in earlier years, others will become more specialised as students move towards their final senior secondary years. A focus on environmental sustainability will be integrated across the curriculum, and all students will have the opportunity to access Indigenous content where relevant.

The current LSAY survey instruments contain a great deal of detail on school subject choices, which needs to be collated across the jurisdictions on an annual basis. There is added complexity because the same subjects may have different names across the states and territories. The move to a national curriculum will require modification to the LSAY survey instruments, but should make the collection of these data much simpler.

Promoting higher rates of completion of Year 12 or its vocational equivalent

Since 1991, there has been an acknowledgment of the importance of 12 years of schooling (Finn 1991), culminating in a strong national commitment to providing all young Australians with access to 12 years of quality education (Applied Economics 2002). Reports by the Prime Minister's Taskforce on Youth Transitions (*Footprints to the future*) and from the Ministerial Council on Education, Employment, Training and Youth Affairs (*Stepping forward*) reaffirmed this commitment, but these bodies also recognise that support is needed for young people who decide to leave school and enter the labour force.

Non-completion of Year 12 or its equivalent has been linked an increased risk of unemployment; unstable or low-skilled employment; and broader impacts such as reliance on welfare benefits (Teese et al. 2006; Sweet 2000; Anglicare 2004). These adverse outcomes also extend to wider society, with greater burdens on health services, welfare agencies and higher crime rates correlating with non-completion of Year 12 or equivalent (Anglicare 2004).

Retention rates in Australia have remained steady for the last 15 years, while other OECD countries have managed to improve school completion rates (McGaw & Lamb 2007). The current Commonwealth Government also acknowledges that this is an area for improvement and aims to lift Year 12 or equivalent attainment rate to 90% by 2020, as well as reducing the gap between Indigenous and non-Indigenous students in Year 12 attainment (Gillard 2008). Table 6 shows young people who complete more years of schooling have better employment outcomes.

Table 6 Relationship between education and unemployment

Year of highest school completion	Unemployment Rate (%)	Participation Rate (%)
Year 12	4.9	78
Year 11	7.0	69
Year 10 or below	7.8	62

*Workforce participation includes those who are in any form of paid employment or available to work.

Source: ABS (2007, table 11).

Of note here is the significant debate as to what constitutes an equivalent Year 12 measure, and at what age this should be attained, and whether it is a vocational qualification at certificate II or certificate III level. The Ministerial Council on Education, Employment, Training and Youth Affairs (2005) measures the proportion of 20 to 24-year-olds who have completed Year 12 or equivalent or gained a certificate II or above, and at age 25–29, the proportion of 25 to 29-year-olds who have completed Year 12 or equivalent or gained a certificate III or above. The additional measure at a later age was introduced in 2004 to accommodate the lengthening youth transition.[10]

10 These measures were based on advice from the Australian Bureau of Statistics (ABS) and the Performance Measurements and Reporting Taskforce. Multiple age cohorts were proposed to minimise the sampling error from small sample sizes. These were endorsed by the Australian Education Systems Officials Committee (AESOC) on 20 February 2004, and are used in the National Report on Schooling from 2003 onwards.

Increasing 'school leaving' age and participation in training or work

A strategy that jurisdictions have adopted for extending school participation for young people is to increase the compulsory school leaving age of students. Table 7 shows the Australian Capital Territory and Northern Territory as the remaining jurisdictions with a compulsory school leaving age of 15 years, at the time of writing. In New South Wales, Queensland, Western Australia, South Australia, and Tasmania, the compulsory participation age is 17 years. This means that young people under 17 years must be in school, or participate in training or a job that will improve their career prospects (in South Australia and Western Australia) for at least another year if they decide to leave school. Victoria does not require students to participate in any school, training or work after the age of 16.

Table 7 Compulsory school participation ages

State	Compulsory participation age	School leaving age and participation requirements
Qld & Tas.	17	In Tasmania and Queensland young people who complete Year 10 or turn 16 (the school leaving age) must participate in further education or training: • for a further two years; or • until they have gained certificate III or IV vocational qualification; or • until they turn 17, whichever comes first.
SA	17	Students required to be in school, training or full-time work until the age of 17.
Vic.	16	Victoria does not require participation in education or training beyond the school leaving age of 16.
WA	17	Young people to the age of 17 must be in school, in training, or in a job 'which will improve job prospects'.
NSW	17	Young people under the age of 17 must be in school or enrolled in either a TAFE course, undertake an apprenticeship or work more than 25 hours a week.
ACT & NT	15	The school leaving age remains 15.

Flexible learning with VET options

States and territories have broadened the definition of 'compulsory schooling' to meet the needs of all students who may not benefit from a curriculum tailored for those on the university pathway. The delivery of equivalent vocational pathways in non-school settings can assist some young people to remain connected to learning or work. One of the most popular strategies adopted by states is school VET. There are a number of models of school VET available in Australia and the most common are VET in Schools programs. These programs are undertaken as part of a student's senior secondary certificate and provide credit towards a nationally

recognised VET qualification. Under these arrangements, students can also undertake school-based New Apprenticeships or VET courses or VET subjects.

VET in Schools has been adopted by all jurisdictions and many are continuing to support and further develop the delivery of VET in Schools, including developing stronger links between schools and VET providers to better align with industry skill needs. There are many different models of delivery of VET in Schools, for example, schools can deliver VET in Schools directly as registered training organisations (RTOs), as is the case for most schools in Queensland and New South Wales. However, in Western Australia, VET in Schools is offered mainly by training providers. Partnerships are also common across jurisdictions, where schools work with providers such as TAFE institutes to deliver training programs. In addition, many states offer stand-alone VET subjects and courses along with curriculum-based VET in Schools programs. The Tasmanian Polytechnic and the Tasmanian Academy and the industry centres of excellence in Queensland provide significantly different models for the school-to-work transition. These variations in VET in Schools delivery can potentially affect student outcomes, but the differences are difficult to categorise and measure. Therefore it is important to focus on the nature of interaction, rather than the specific agency or program itself.

Targeting those 'at risk' of not completing Year 12

The youth transition arena is rich in literature concerning 'at risk' youth. In the last 30 years, transition research has consistently found that young people who do not complete Year 12 are 'at risk' of not making a successful transition from school to work. The Dusseldorp Skills Forum (DSF) has been reporting on 'at risk' youth as part of their annual report *How young people are faring* since the 1990s. Currently, the Foundation for Young Australians (FYA) releases this annual publication and continues to report on 'at risk' youth. Research has identified that there is no single determinant of school non-completion; however, a range of factors can be influential. The focus of a number of initiatives has been the development of programs that target groups of young people identified as being most at risk of not completing Year 12. For example, some initiatives work to identify 'at risk' youth before they leave school by conducting individual assessment plans for those at risk of not completing school and making a successful transition to post-school education. Previous LSAY research has identified that 'at risk' youth tend to be from lower socioeconomic backgrounds, live in rural areas and attend government schools. Within Australia, poorer results in literacy and numeracy and those with lower achievement scores are also more likely to be early school leavers, as are those from Indigenous backgrounds.

It is important to point out that, although the numbers of young people categorised as being 'at risk' may seem alarming, with as many as a quarter aged 20–24 years classified as 'disengaged', Anlezark (forthcoming) suggests that it may be time to reconsider the definition of 'disengaged youth' beyond labour market and education attainment because of the increasing trend for young people to combine work and study, to choose part-time only employment, or to take time out of the labour market, for example, through a 'gap year'. Focusing on the young people who remain 'at risk' for extended periods of time may be a more useful way of identifying young people who are most likely to benefit from targeted interventions.

Low literacy and numeracy

Low literacy and numeracy is a factor strongly linked to low-skilled employment, unstable employment, as well as non-completion of Year 12. Australia still has a long way to go to raise literacy and numeracy. Over the last two decades there has been no overall change in the scores on achievement tests relating to numeracy and literacy conducted in LSAY (Penman 2004). And, while Australian students are currently outperforming their international peers at primary

and secondary PISA test levels, there are significant differences in outcomes across schools, socioeconomic status, and culture, suggesting that the education system may not be meeting the needs of more disadvantaged students (Gillard 2008; McGaw & Lamb 2007). Governments at all levels have recognised the importance of improving literacy and numeracy levels, with several initiatives targeting this area.

Reducing the gap between Indigenous and non-Indigenous students

Commonwealth and state and territory governments are committed to providing Indigenous young people with better opportunities and support to improve educational and employment outcomes. The gap between Indigenous and non-Indigenous young people remains wide in literacy and numeracy achievement, Year 12 retention and attainment, and post-school participation. The Council of Australian Governments (COAG) targets to reduce this gap include supporting individual learning plans for Indigenous students, as well as constructing new boarding facilities in the Northern Territory. Other state and national policies and programs directed at Indigenous young people include the employment of Indigenous Australians in schools with high enrolments of Indigenous students to deliver appropriate Aboriginal and Torres Strait Islander education for all students (under different titles in different jurisdictions).

Encouraging non-completers to complete Year 12

Early school leavers are more likely to be unemployed than students who leave school after completing Year 12 (Dusseldorp Skills Forum 2002b). Although the majority (69%) of early school leavers go on to participate in further education or find employment, close to a third are not participating in the labour force or in education and training immediately after leaving school.

Many young people may be participating in full-time work but this may come at the expense of their gaining the post-school skills required in an increasingly high-skill demand Australian workforce (Birrell & Rapson 2006). State-level programs that focus on offering 'disengaged' youth with an opportunity to re-enter the education system provide young people with support and guidance to complete Year 12. These include providing the disengaged with a direct line of sight to sustainable employment and community-based learning programs for young people of compulsory school age.

Increasing the proportion of young working adults with non-school qualifications

University

To encourage more domestic students to participate in higher education, the 2008–09 Commonwealth Budget committed $249 million to phasing out domestic full-fee paying places and replacing them with Commonwealth-supported places in the next four years. The aim of this is to provide better access to disadvantaged students and ensure that higher education is accessible through merit rather than 'ability to pay'. Additional scholarships have also been funded to assist disadvantaged students, and the federal government has set a target of 20% of higher education enrolments at the undergraduate level for students from low socioeconomic backgrounds.

To tackle the areas of identified skill shortages that require degree qualifications, extra places for early childhood education, nursing and dentistry have been funded from the 2008–09 Budget. Higher Education Loan Program (HELP) reductions have also been funded in the areas of

maths and science to encourage students to enrol in these areas. This commitment builds on state-level policies aimed at encouraging school students to participate in maths and science, for example, science programs for students in Years 11 and 12 at the Australian National University in the Australian Capital Territory, and the Flinders University science and maths bonus point scheme in South Australia.

Vocational education and training

The Skilling Australia for the Future plan funded 630 000 additional training places as part of the federal 2008–09 Budget, including 85 000 apprenticeship places over five years to target industries that have been identified as suffering from skill shortages (mining and construction, health and community services). Having trade training centres in schools is also a strategy designed to address national skills shortages by improving the access and quality of the trade training programs in schools (Gillard 2008).

The Bradley Review into Higher Education (Bradley et al. 2008) in Australia recommends structural reforms and significant additional investment in Australia's tertiary sector to increase the proportion of the population with higher education qualifications. Particular attention is recommended to those from disadvantaged backgrounds and for the provision of higher education in regional areas. Higher-quality provision of higher education is another target area recommended by the review to ensure Australia has well-qualified people to continue to compete internationally in a rapidly changing global economy. These recommendations are yet to be implemented but will no doubt contribute to future national higher education policies.

Transitions from school to further education and work

Making the successful transition from school to further education or work is more challenging for some young people and they require more support to take advantage of employment and training opportunities. For early school leavers who enter the labour market, the first years are crucial (Dusseldorp Skills Forum 2002b; Marks 2006), and current programs recognise the need to support youth employment as well as post-school education. These include increasing educational and employment planning and counselling services, active labour market programs, and mentoring.

Career advice and choices

Careers advice is an important service to assist young people to negotiate their way through the various education and training options available. There has been growing support for career developmental services in Australia since 2002 with Australia's participation in the OECD's Review of International Career Information Guidance. Subsequent initiatives at a national level have included services that provide information and advice to young people about their options and careers.

In addition, there is a burgeoning growth of online careers advice for young people in Australia, including My Future—a joint initiative of Australian, state and territory governments which provides a career information and exploration service—and Jobs Australia.

Financial support

Financial assistance is available to young people on a means-tested basis for full-time study. In 1998, the federal government consolidated income support for young people under the age of 21 years to cover those who are unemployed and full-time students (Youth Allowance). Income support is also available for those aged 25 years and over and is designed to assist

'mature students' who do not have adequate levels of income while studying for a qualification (AUSTUDY). A separate program is available for Indigenous students (ABSTUDY).

Apart from income support, access to the Higher Education Loan Program is provided through the federal government for domestic students enrolled in higher education through the funding of Commonwealth-supported places. The HELP program includes FEE-HELP for fee-paying students to pay their tuition fees, HECS-HELP for Commonwealth-supported students to pay their Higher Education Contribution Scheme (HECS) amount and VET FEE-HELP for students to pay their vocational education training tuition fees.

Financial assistance for unemployed young people includes: Youth Allowance (under 21 years); Work-for-the-Dole; and NewStart. Future reform to Australia's welfare and income support system may occur as a result of recent recommendations from the Bradley Review (Bradley et al. 2008) for support that better targets students from low socioeconomic backgrounds. The review found that current levels of income support are inadequate to support these students to participate successfully in higher education.

Beyond education and employment

Beyond the education and employment policies for youth are other areas of equal concern; these are health, wellbeing and the importance of giving youth a 'voice' in determining policy directions and initiatives.

One example of providing a 'voice' for youth is the introduction in 2008 of a Minister for Youth, an Office for Youth, and the Australian Youth Forum (AYF). The purpose of the forum is to ensure that young people and the youth sector have a framework for putting forward their ideas and concerns to government. The forum is identifying and then developing a work plan focused on key youth issues and replaces the previous government's National Youth Roundtable, which was effective from 1999 to 2008.

Health and wellbeing

Since 1999, the Australian Institute for Health and Welfare (AIHW) has been monitoring and reporting the state of young people's (aged 12–24 years) health and wellbeing, which are areas of emerging policy concern for all levels of government. Here the key policy themes are prevention, early intervention and support in the areas of health, education, welfare, work and safety (Australian Institute for Health and Welfare 2007). Most young people in Australia are faring well but there are areas of concern, particularly for Indigenous young people and those from low socioeconomic backgrounds. The high rates of mental illness are also of a concern, as is the rate of young people overweight or obese (Australian Institute for Health and Welfare 2007).

A literature review of school-to-work transitions

This section reviews Australian and international research literature on the issues relating to young people's transition from secondary school and into the world of work, and examines the contemporary developments in theory and empirical research on the determinants of outcomes in the school-to-work transition. A particular objective of the review is to provide guidance for the development of survey instruments for future cohorts of the Longitudinal Surveys of Australian Youth to ensure that data collected are well suited to the analysis of the school-to-work transition in Australia. Consequently, less attention is paid to papers that are based on LSAY data than would otherwise be the case.

Scope of the review

Interest in youth transitions ultimately lies in the belief that the efficacy with which such transitions occur within the economy has significant implications for social welfare. Those implications include considerations of equity and of economic efficiency. As with training and education, there are both private and social costs and pay-offs associated with youth transitions, with the distribution of the private returns closely linked to equity outcomes, and economic efficiency closely linked to social returns. To assess the efficacy of youth transitions, it is important to have a clear picture of which outcomes are desirable and which are not.

Implicitly, the main outcome of youth transitions is for school leavers to attain the state of employment, as opposed to unemployment or non-participation in the labour force. However, if we are to accept that the appropriate objective function is to maximise welfare, a richer set of considerations should be taken into account. This will encompass questions of the quality of employment. Some commonly identified dimensions of job quality include earnings, skill levels, job security, training and promotion opportunities, flexibility, self-assessed job satisfaction and 'vocational congruence'. The quality of jobs in which young people are employed has been a major concern in several countries (Ryan & Büchtemann 1996) as well as in Australia. From a number of perspectives, however, youth transition is seen as a critical developmental stage in life, during which 'young people move from their principal activity being full-time schooling or its equivalent to that in which their principal activity is work' (Ainley, Malley & Lamb 1997, cited in Smyth, Zappala & Considine 2002) and is closely associated with the transition from childhood to adulthood (Boese & Scutella 2006, p.1). To cite Dawes (1998, p.1):

> While the tradition from school to places of employment (or unemployment) is critical in terms of gaining economic independence for young people it is also viewed by society as the time when young people make the rites-of-passage from childhood to adult status. Integral to this successful transition is the process of constructing an identity through interactions with new peers in different spheres of life revolving around employment and leisure activities.

This broader sense suggests that wellbeing across work and non-work domains of young people's lives and outcome measures relating to transitions to adulthood, such as leaving the

parental home and family formation, need to be considered in assessing the success or otherwise of youth transitions. 'Youth transitions' is therefore an intricate and multi-disciplinary topic, and there are many possible ways to categorise the literature. For the purposes of this review, the distinction between three broad areas of investigation seems useful:

1. the impact of individual characteristics on youth transitions; this encompasses the 'personal' attributes of the individual as well as their wider circumstances, such as family socioeconomic background and neighbourhood variables
2. the institutional and labour market settings in which youth transitions occurs
3. the effectiveness of targeted programs to assist individuals in youth transitions.

These three areas are related in a dynamic way. Programs should be targeted at those persons with individual characteristics associated with disadvantage in youth transitions. In turn, programs which prove to be successful should ultimately be broadened to become part of the institutional settings through adoption into educational practice and policy, and into employment legislation.

This review focuses on the first of these, the impact of individual characteristics, given that it is research and policy questions in this area that a survey such as the LSAY is most suited for addressing. The evaluation of institutional settings is likely to require comparative cross-national data or the exploitation of multiple cohorts of the LSAY between which there have been significant policy changes. Analysis based on multiple cohorts will be particularly effective where policy and institutional changes create 'quasi-experimental' conditions in which only a subset of youth are affected by the change. Issues surrounding changing labour market conditions are also most amenable to analysis using multiple cohorts. Due to the broad representativeness of its sample, LSAY is not well suited to the analysis of specific programs, even if participation in the program is measured in the data. The evaluation of such programs generally requires tailored data collection for samples of participants and non-participants. Again opportunities arising through the exploitation of quasi-experimental conditions would prove the exception here.

The Australian and international context

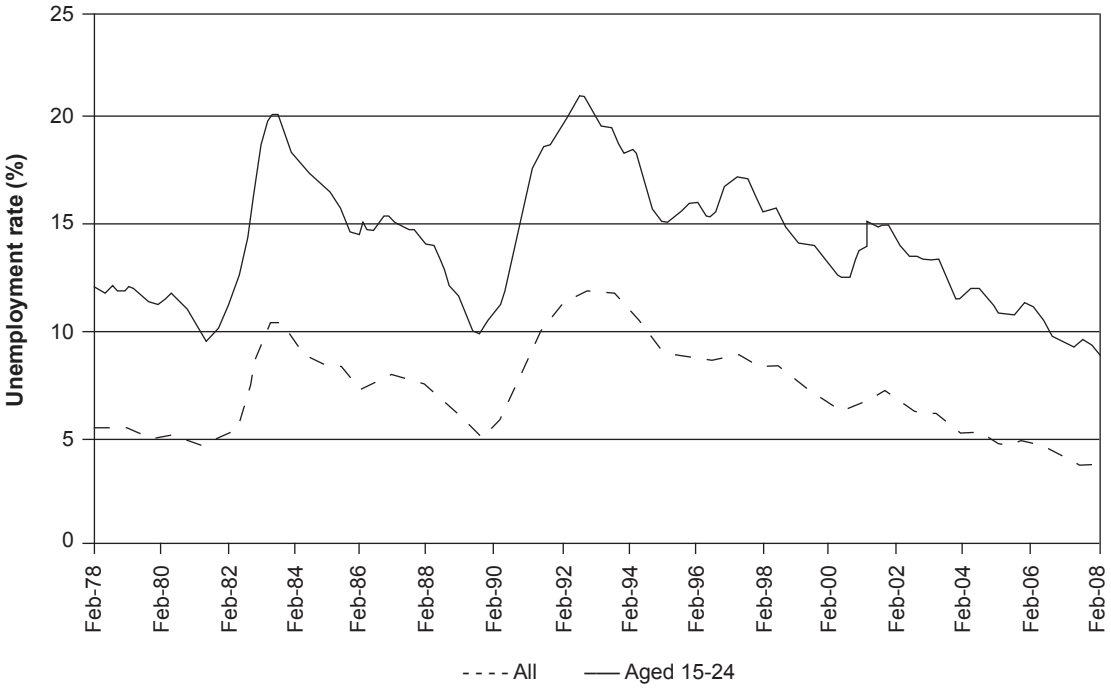
Much of the concern surrounding youth transitions in developed countries, including Australia, has been motivated by the youth unemployment rates that accompanied the generally high general unemployment rates of the 1980s and 1990s (see Ryan & Büchtemann 1996; Ryan 2001, pp.36–7). Figure 2 shows the unemployment rate for 15 to 24-year-old Australians among full-time labour force participants—those either working full-time or unemployed and looking for full-time work, as youth unemployment rates are conventionally measured. For young Australian males this surpassed 20 per cent in the mid-1980s and again in the early 1990s. The series for young females follow a similar although more compressed pattern. Movements in the youth unemployment rates closely track movements in the corresponding series for all working-age persons and hence general labour market conditions.

This rudimentary analysis suggests that the employment position of young people has not deteriorated relative to older workers to any significant extent over this period. Despite this, a picture is commonly painted of youth as being 'in crisis', notably in the annual *How young people are faring* reports by the Dusseldorp Skills Forum (see also McClelland, MacDonald & MacDonald 1998). Even with the marked improvement in the labour market in recent years, the Dusseldorp Skills Forum continues to focus on those in marginal activities and stresses the decline in the number of persons aged 15 to 24 in full-time work. This is interpreted as a decline in 'opportunity', ignoring the obvious fact that the number is a result of both demand and supply.

> The present situation in which part-time and intermittent work is the everyday reality for a significant proportion of the population, the greater the risk that a culture of its own will emerge and become more difficult to change. (Dusseldorp Skills Forum 2006)

Recent Dusseldorp Skills Forum reports also stress Australia's low rates of school completion by OECD standards, with the 2007 report invoking the idea of a US-style 'silent epidemic of school dropouts'.

Figure 2 Youth and aggregate full-time unemployment rates Australia, February 1978 – March 2008



LSAY data have been used extensively in documenting youth transitions in Australia and providing an evidence-based assessment of such arguments. Marks (2005) provides a much needed sense of perspective on this debate in Australia. Using data from the 1995 Year 9 cohort of LSAY, he argues that only a small minority of youth have problematic transitions. LSAY data have enabled extensive documentation of youth transitions in Australia, with studies based on LSAY, including Lamb (1997), Lamb and McKenzie (2001), Hillman (2005), Marks (2006), Marks et al. (2000), Marks, Hillman and Beavis (2003) and McMillan and Marks (2003).

It is not only in Australia that youth transitions has been characterised as problematic, but among the OECD countries generally (Bertschy, Cattaneo & Wolter 2008; Gangl 2002; Ryan 2001; Ryan & Büchtemann 1996). This may have arisen because youth, and particularly early school leavers, suffered disproportionately in the labour market downturns. It now seems an accepted wisdom that youth transitions have fundamentally changed and become more difficult and complex for recent cohorts of young people. Some major factors that have been identified as influencing the nature of youth transitions include:

- *Lengthening of youth transitions,* characterised by more years of education and residing within the parental home to a higher age (see Cobb-Clark 2008; Dawes 1998; Smyth, Zappala & Considine 2002). Wiesner et al. report research suggesting such transitional periods have been extended in the United States such that the transition into long-term adult roles is delayed until the second half of the 20s for many youths (2003, p.311).
- *Educational expansion and occupational upgrading*: these will have offsetting effects on the link between educational attainment and occupational status. Educational expansion relates to a general increase in educational attainment of successive youth cohorts. This effect alone

would mean people of a given level of qualification competing for lower-quality jobs than previously. Occupational upgrading means a higher proportion of jobs in the economy now being 'high-status' jobs, such as professional jobs. This effect on its own would mean people of a given level of education achieving higher occupational status than previously (Gangl 2002).

- *Skill-biased technological change*, and a growing return to experience that have worked against new labour market entrants—or a 'double skills bias' (Ryan 2001).
- *Disappearance of the jobs* youth typically used to secure, and the growth of 'inferior' (less secure, part-time and casual) work (Smyth, Zappala & Considine 2002, p.3).

These more recent developments may have extensively impacted on youth transitions in the labour market, but figure 1 suggests that the Australian labour market has by and large responded adequately to accommodate them. It should perhaps also be noted that such concerns over youth transitions have been raised previously in history. According to Looker and Dwyer (1998), there was widespread concern in the 1950s and 1960s about the transition from school to work for working-class males and a failure of the school system to adequately prepare young people for the world of work. In Australia, this included a focus from the mid-1960s on youth unemployment and 'discouraged' school leavers (p.7).

Relevant theoretical frameworks and empirical approaches

In assessing youth transitions, the economics literature primarily appeals to the neoclassical model of the labour market, constructed around the assumptions of profit-maximising firms, utility-maximising individuals and rational decision-making. Within this framework firms continue to increase employment as long as the value of the marginal productivity of an additional worker hired exceeds the wage rate that must be paid. Moving beyond the simplifying assumption of homogenous workers, individuals' employment probability relative to others depends upon their relative productivity and employment costs. The role of schooling and education has been developed within the general neoclassical framework through human capital theory, which sees individuals making optimal decisions regarding the trade-off between further 'investment' in education and training, which increases productivity and hence future income, and the costs of that investment, encompassing direct costs and foregone earnings.

Unemployment is largely seen as a consequence of market imperfections or regulations, such as minimum wages. Search theory, built around the seminal work of Stigler (1961, 1962), explores the consequences of imperfect information and positive job-search costs to the incidence and duration of unemployment. A critical parameter in the search model is the reservation wage, which is the lowest wage for which a person is willing to work.[11] The individual derives his or her reservation wage as an optimal acceptance rule derived as the level of the wage offer at which the benefits of further search, including the probability of being offered a higher wage, exactly equate to the costs of further search. The level and availability of benefits in non-employment has an important impact, as benefits reduce the opportunity cost of search. Changes in the level of employment for any group are caused by either supply-side factors related to the willingness of those individuals to supply labour at a given wage level, demand-side factors related to the willingness of firms to employ those individuals at a given wage, or to the efficiency of the labour market's 'matching function'.

Institutionalist approaches on the other hand believe that these free market influences are secondary to those created by a country's institutional arrangements and policies. In particular,

11 It is worth noting here that the Canadian Youth in Transition Survey includes questions on reservation wage.

the idea of dual or segmented labour markets sees the labour market as operating more as a queuing process in which persons queue for high-wage, 'better' jobs in the primary sector and are selected by employers in that sector on the basis of certain characteristics. In this view, productivity is largely determined by the job rather than the worker, and much of the value of educational attainment is as a 'signal' of desirable traits for matching workers to jobs. A related theory is that of internal labour markets, in which firms in the primary sector are seen to allocate workers to secure career and training paths from a limited number of designated entry points. This is in contrast to all employees' jobs being open to competition from workers willing to work for a lower wage, as in the pure neoclassical model.

The economics literature concentrates upon employment status and earnings as the key outcome measures of success in youth transitions. Repeated spells and longer durations spent in unemployment are seen as wasteful and negative outcomes. There is some debate over whether joblessness or inactivity more generally would be more useful measures than unemployment when applied to the youth labour market (Ryan 2001, p.37). Earlier US studies have arrived at conflicting conclusions on whether the distinction between the labour market states of 'unemployed' and 'not in the labour force' is a meaningful one for youth (Clark & Summers 1982; Flinn & Heckman 1983; Gönül 1992). Under the institutional approach, dimensions of job quality are also important and time spent in unemployment or in inferior, unstable jobs in the 'secondary' sector are negative outcomes in youth transitions. Search theory predicts a structural level of unemployment and one that will be higher for new entrants. Moreover, this unemployment is not necessarily wasteful, in the sense that it is part of the process of allocating workers to jobs. Similarly, high rates of turnover in the jobs that school leavers enter can be seen as negative outcomes, reflecting poor job–worker matches or low employment security associated with secondary sector jobs, or as a productive process leading ultimately to better matches.

The early economic approaches, pioneered by Gary Becker, emphasised the inheritance of genetic abilities and parents' capacity and preferences to make additional investments by way of expenditure in such areas as health and education (Becker & Tomes 1986), and also the quantity and quality of time parents devote to their children (Leibowitz 1974; see Haveman & Wolfe 1995 for an extensive review of the earlier US literature). A richer formulation is provided by the evolving literature on the concept of social capital, associated with pioneering work by Coleman (1988) and Putnam (1993). In contrast to the focus of mainstream economics, an extensive literature in the health sciences has established factors relating to very early (even pre-natal) childhood and adolescence as key predictors of health and economic outcomes throughout the life cycle. Brooks-Gunn et al. (1995) integrate perspectives from a variety of disciplines in a family and community 'resource framework' which adapts concepts from human capital theory and social capital (Kendall & Li 2005). A critical contribution of this framework with respect to youth transitions is that it explicitly identifies channels through which socioeconomic background influences health and developmental outcomes. The model identifies four important categories of family resources: income, time, parents' human capital and parents' psychological capital. For Brooks-Gunn et al. a central issue is how parental decisions about the allocation of resources within the family are made, which continues the theme of Gary Becker's seminal work. The role of family in the healthy development and social functioning of young people continues to be important into adolescence. Labour market outcomes such as earnings and employment status are relevant variables within this framework. However, it also suggests a broader range of outcomes encompassing physical and mental health, social functioning, as well as educational attainment or the accumulation of human capital during youth transitions as outcome variables in their own right.

Finally, theories of role identity and organisational socialisation see young people as striving to achieve a good 'person-environment fit' (Ng & Feldman 2007, p.116). In this case, individuals' expectations, and their aspirations and psychological needs are associated with perceptions of

the 'self', and these are important determinants of choices and success in youth transitions. This approach is explicitly more concerned with the achievement of psychological wellbeing, such as self-fulfilment, as the relevant outcomes rather than objective economic measures. Arguing for a richer conceptualisation of youth transitions than just a set of potential pathways, Vaughan and Roberts (2007) see the selection of pathways as 'identity investments'. Moreover, how smoothly youth transitions are made is believed to have ongoing consequences for later outcomes through the resulting impact on individuals' sense of self-efficacy about their decision-making ability and their confidence in new work environments and taking on new responsibilities (Ng & Feldman 2007, p.114–15). This literature focuses very much on outcomes relating to the jobs young people enter, and thus aspects of organisational policies and practices affecting new entrants become a further set of potential determinants. Ng and Feldman suggest relevant measures of success for youth transitions within this framework as being 'a state in which individuals are employed after leaving school, perform at levels acceptable to their employers, and have positive attitudes towards their work environments and job requirements' (2007, p.116).

Individual factors and the school-to-work transition

Associations between certain individual characteristics and circumstances and labour market success for young people and adults have been extensively documented in Australia and elsewhere. While these relationships may also have implications for economic efficiency, the principal concern they raise relates to equity, particularly when the characteristics or circumstances are those that are predetermined for the young person—such as in the United States where the disadvantage faced by young, black males from lower socioeconomic backgrounds is pronounced and deeply entrenched—rather than those brought on by choice or behaviour,.

Educational attainment, socioeconomic background, prior unemployment, English language proficiency and disability status are all well known to impact upon labour market participation, employment and earnings. Many individual factors will impact similarly upon labour market outcomes for adults as they do for youth, but this is not the case for all variables. The international literature, for example, is inconclusive about whether time in unemployment has the same scarring effect for youth as it does for adults. The particular significance of impacts during youth transitions lies in the question of whether or not it is during this phase that the seeds of disadvantage observed in adulthood are sown. If so, it suggests that this is also the preferred stage for policy intervention—even earlier identification and treatment of risk factors may be warranted. The developmental literature stresses that the transition into the labour force from education is one of the critical development stages in life, and the success or otherwise can have lasting economic and psychological impacts (see, for example Wiesner et. al. 2003, p.306; Noonan, Hall & Blustein 2007, p.543; Blustein et al. 2002, p.312).

Academic achievement and socioeconomic background are without doubt the most important determinants of relative success among individuals. The complexity lies in the fact that the two are inextricably linked. The socioeconomic status of a young person's family has a major effect on their school achievement, while in addition genetic traits are likely to have a common independent influence on the socioeconomic status achieved by the family and youths' academic performance. Given their importance and the interrelationships between them, socioeconomic background and academic achievement are first discussed together, followed by a discussion of other individual characteristics. To review contributions that have attempted to identify the causal mechanisms between family background and outcomes in youth transitions, this discussion also covers the effect of a number of other factors on youth transitions.

Socioeconomic background and academic achievement

Measures of academic achievement include test scores or grades at various ages; completion of school as opposed to leaving school early; and the number of years of school or education accumulated. Results for numeracy and literacy tests appear to be particularly telling measures. It is well established that early school leavers represent an 'at risk' group, while years of schooling completed correlates with successful outcomes (Harris 1996; McClelland, MacDonald & MacDonald 1998; Access Economics 2002; Ryan 2003; Rumberger & Lamb 2003; Maani & Kalb 2007). Most studies of the effect of academic achievement continue to concentrate on progression to higher education, the avoidance of unemployment and the achievement of full-time employment and earnings as the principal indicators of success, although Lamb (1997), Lamb, Dwyer and Wyn (2000),Vella and Karmel (1999), Dockery, Koshy and Stromback (2005) and Pinquart, Juang and Silbereisen (2003) also find associations between educational attainment and the quality of jobs secured. When measured as the level or number of years of education accumulated, academic achievement will entail both a 'signalling effect' of the students' pre-existing talents and abilities, as well as any causal effect of additional years of school on productivity. While Dockery (2005b) questioned whether a causal relationship between additional years of schooling and earnings/employment necessarily existed for youth with poorer academic performance in school, the weight of evidence supports a positive, independent effect. This is most convincingly demonstrated through data using samples of twins (Miller, Mulvey & Martin 1995) and based on quasi-experimental variations in the years of schooling accumulated brought about by legislative changes (Ryan 2003).

Socioeconomic background is also a strong predictor of post-school outcomes, including occupational status. Measures used to capture this effect have included family or household income, parental education, parental occupational status, neighbourhood variables (see, for example, Bryce et al. 2007; Maani & Kalb 2007; Wiesner et al. 2003; Pinquart, Juang & Silbereisen 2003; Gorard & Smith 2007). However, the availability and quality of such measures is often limited and this is particularly true of the existing LSAY surveys. Studies based on the LSAY data have used parents' education and occupation and attendance at private schools to capture socioeconomic background, plus questions on whether or not certain goods were present in the home as a proxy of family wealth. Significant effects of such variables on school-to-work outcomes have been found in numerous studies of the LSAY data on employment status and earnings, as well as on happiness (Dockery 2005a) and university entrance scores (Cardak & Ryan 2006).

In turn, socioeconomic background is a strong predictor of school achievement and educational attainment. Education selection is notoriously intensive by ability, motivation and social class (Ryan 2001, p.73; Bluestein et al. 2002; Gorard & Smith 2007), and this similarly applies to Australian youth (Marginson 1998). In all countries included in PISA, a positive association can be observed between achievement and parental occupational status, although in Australia there is evidence that the influence of socioeconomic background may be declining over time (Marks, McMillan & Ainley 2004). The effect of socioeconomic background on youth transitions outcomes can therefore be seen to operate through a combination of direct and indirect effects. First, there is the effect on schooling achievement and the level of educational attainment, which in turn influences labour market outcomes. Second, there is the direct effect of individual characteristics on employment outcomes for any given level of educational attainment. A recent study by Maani and Kalb (2007) controls for the endogeneity between family resources, as measured by income, and academic performance, by joint estimation of models for academic performance and for the probability of leaving school early. The panel data utilised allowed the authors to also control for natural ability through standardised IQ tests at age 8. A key finding is that early childhood economic resources, as well as resources in adolescence, have an important influence on early school leaving, although the effect of the former is smaller. This is consistent with several other studies cited that factors shaping school retention are at work well before

children reach high school. The findings are generally consistent with single-equation estimations, meaning that the endogeneity between academic performance and socioeconomic background was not a major empirical concern in this instance. The availability of early measures of IQ is not critical to conclusions regarding the effects of the main parameters of interest.

So while it is clear that family socioeconomic background is extremely important, the question remains over the exact causal mechanisms through which this background influences academic achievement and other outcomes. As noted above, Haveman and Wolfe (1995) provide an earlier overview of theoretical models of the intergenerational transmission of socioeconomic economic status to youth outcomes from perspectives in economics and other disciplines. In sociology, the role model perspective continues to feature prominently in guiding the choice of variables and interpretation of empirical findings. Family or individual resources are seen in the economics literature as a key variable in the decision to pursue further education, and financial stress and the need to work while studying have been shown to be linked to the probability of dropping out of university (see Gorard & Smith 2007, p.146). In contrast, recent empirical evidence has suggested that financial constraints are not as important a contributor to inequality in education as the human capital model suggests (Page, Garboua & Montmarquette 2007, pp.748–9). For the United Kingdom, Gorard and Smith (2007, pp.147–8) note that participation in higher education was not more equitable when it was free to students and living costs were covered by grants. Based on an analysis of data from the 1995 and 1998 LSAY cohorts, Cardak and Ryan (2006) find that, once university entrants scores are controlled for, the presence of credit constraints does not influence the likelihood that young Australians go on to university. Rather, the influence of socioeconomic status on the likelihood that a person will enter university is manifest through the impact of family background on grades achieved at school. While Cardak and Ryan suggest their results may be attributable to Australia's Higher Education Contribution Scheme (HECS, an income-contingent loan scheme), their findings are consistent with Carneiro and Heckman's (2002) for youth in the United States.

In light of the lack of empirical support for the 'credit constraint' mechanism, the emergence of social capital theory has offered the most significant development in economics to challenge the human capital approach pioneered by Becker. Coleman's important paper of 1988 argued that social capital, both within the family and the wider community, is important in creating human capital in the rising generation (s109). Family background incorporates financial capital, human capital and social capital. The first of these can be proxied by wealth and parents' education levels, while the latter relates to the quality of relationships between the parents and the child and time spent fostering their development: 'Social capital within the family that gives the child access to the adult's human capital depends both upon the physical presence of adults in the family and on the attention given by adults to the child' (Coleman 1988, s111). Coleman's analysis of a sample of high school students shows that family social capital available to the child, captured through the presence of parents, number of siblings and the mother's expectations regarding the child attending college, accounts for a dramatic difference in the probability that the student dropped out of high school, even after controlling for an extensive range of other factors. Assuming that the number of times the family moves reduces community social capital and that private religion-based high schools are associated with stronger community social capital, Coleman's analysis also shows the availability of social capital outside the family to also be an important predictor of drop-out rates. In a study of child welfare across the States of the US, Putnam (1993) finds a composite index of social capital to be 'second only to poverty in the breadth and depth of its effects on children's lives' (cited in Productivity Commission 2003, p.38).

In addition to students' own socioeconomic background, average school or class socioeconomic status also has an impact, consistent with a social capital interpretation (Rothman & McMillan 2003; Ryan 2004). According to the report of the Committee to Review the Adelaide

Declaration on National Goals for Schooling in the Twenty-first Century (2007, p.13): 'In Australia, 70% of the variation between schools can be accounted for in terms of differences between schools in the social background of their students—40% individual social background and 30% the average social background of students in the schools'.

The age at which variables with strong predictive power can be first measured gives some indication of causal channels. There is evidence that inequality in education outcomes is, to a considerable degree, predetermined from an early age. The studies by Carneiro and Heckman (2002) and Cardak and Ryan (2006) both argue that the effects of socioeconomic status is manifest through high school grades rather than forces acting contemporaneously with the transitions from school to work or school to higher education. As noted above, Maani and Kalb (2007) present evidence that resources available in early childhood, measured as the average income decile of the family from ages 1 to 5, have a significant impact on grades achieved at age 15 (the impact is about two-thirds as large as the impact of family income from the ages 11 to 14). Gorard and Smith (2007) report an earlier study for the United Kingdom (Gorard & Rees 2002) in which the variables set early in a child's life (age [or cohort effect], gender and family background) predicted later 'learning trajectories' with 75 per cent accuracy, while the addition of variables relating to initial schooling increased predictive accuracy to 90 per cent. Moreover, socioeconomic status impacts not only on educational and employment outcomes, but also upon other measures of wellbeing, such as physical and psychological health. Australian empirical studies have found significant correlations of household income, parental education and family structure (original, blended or sole-parent) with child health (Spurrier et al. 2003) and between socioeconomic status and the incidence of teenage pregnancy (Kendal & Li 2005).

The resource framework developed by Brooks-Gunn et al., in which Coleman's work was influential, suggests four mediating channels through which family background impacts upon youth outcomes: income, time, parents' human capital and parents' psychological capital (Brooks-Gunn et al. 1995; Kendall & Li 2005). As Carneiro and Heckman argue, the competing (although not mutually exclusive) hypothesis to the credit constraint argument for the link between family income and educational achievement is that:

> Families with high income in the adolescent years are more likely to have high income throughout the child's life at home. Better family resources in a child's formative years are associated with higher quality of education and better environments that foster cognitive and noncognitive skills. (2002, p.705)

Few studies appear to have directly measured the effect of the amount or quality of time parents spend with children on outcomes in youth transitions, although a related literature considers the impact of parental work patterns on child development. Parents working non-standard hours, such as shift workers, have been associated with poor child outcomes with respect to cognitive abilities, emotional and behavioural problems, and self-esteem in girls (Han 2002; Heyman 2000; Bogen & Joshi 2001; Barton, Aldridge & Smith 1998; Strazdins et al. 2004). Only one study has been identified which looked at the impact of parents working non-standard hours on adolescents (Australians aged 15 to 20), and a negative impact was identified only in the case of adolescents from sole-parent families (Dockery, Li & Kendall 2006). The results suggest that for two-parent families the availability of non-standard hours of work may provide added flexibility to actually increase the time and resources parents devote to their adolescent children.

The level of support, encouragement and guidance provided by parents is clearly one important channel through which family background can be expected to influence young people's outcomes. According to Bryce et al. (2007, p.6), previous literature has found that parental involvement in children's career development does not vary with socioeconomic status. However, the quality of support and guidance provided by parents of higher socioeconomic status may be better, even if the 'quantity' does not vary. Moreover, Bluestein et al.'s (2002) detailed analyses of the 'narratives' of 20 young Americans from both high and low

socioeconomic status backgrounds tells a different story. With socioeconomic status determined purely on the basis of parental occupation, the authors find evidence that youth from higher socioeconomic status backgrounds reported receiving more parental support and guidance in career planning. They acknowledged that, while some youth from the lower socioeconomic status group also reported supportive relationships with their parents, they tended not to play an instrumental role in their career decisions. Youth from higher socioeconomic backgrounds were also less likely to experience relational disruptions. The availability of direct measures of parental involvement and support in young people's career planning, in addition to measures of socioeconomic status, would provide a richer understanding of outcomes and of the role of socioeconomic background.

Family background and the degree of parental support may also influence youth transitions through the formation of young people's aspirations and their sense of self-efficacy (Bryce et al. 2007). Blustein et al.'s (2002) study found that children of higher socioeconomic parents have higher aspirations, perhaps because their parents invest more time in facilitating career exploration activities. Using LSAY data, Khoo and Ainley (2005) report a strong correlation between intentions to complete high school reported in Year 9 (age 14) and eventual completion, while attitudes to school are related to stated intentions. While Khoo and Ainley find intentions to have a stronger impact than parents' socioeconomic status, their multivariate models include a number of dimensions of family background, including parental occupation (their measure of socioeconomic status), parental education and Year 9 achievement scores in numeracy and literacy which, as we have seen, are correlated with socioeconomic status.

Self-efficacy relates to 'people's judgement of their capabilities to organise and execute courses of action required to attain designated types of performance' (Bandura 1986, cited in Pinquart, Juang & Silbereisen 2003, p.331). Self-efficacy is thought to influence outcomes because people with strong self-efficacy are more likely to adopt positive, problem-solving approaches to challenges rather than avoidance behaviour and to be more persistent when confronted with obstacles and 'disconfirming experiences'. Pinquart, Juang and Silbereisen (2003) cite previous literature which has found that youth with a strong sense of self-efficacy prepare better for careers, are more likely to find a job after graduating from school, and to report better subjective career outcomes, such as job satisfaction. Their own study tests whether academic self-efficacy of non-college-bound German youth in middle school years would predict career success in early 20s, measured by unemployment status and job satisfaction. Data on job aspirations, career-related motivation, vocational congruence and stress when applying for an apprenticeship were measured in the intervening years (at age 19) as potential mediating factors between self-efficacy and career outcomes. Using structural equation modelling, self-efficacy is found to be associated with a lower risk of unemployment and with higher job satisfaction. The impact of self-efficacy on job satisfaction appears to be mediated by vocational congruence, job aspirations and career-related motivation. The effect of self-efficacy on unemployment was found to operate partly through low self-efficacy contributing to lower career-related motivation and greater application stress.

Finally, the role-identity approach also suggests that aspirations and 'significant others' are important. In youth transitions, the two most salient roles are student and worker. Young people's ability to develop a vocational identity and identify with the work role is seen as a decisive factor in determining success in youth transitions (Ng & Feldman 2007). The important role of family background is then apparent, since 'Individuals develop their initial understanding of what work entails during childhood and adolescence' (Ng & Feldman 2007, p.117). This echoes a growing concern in Australia with the number of young people growing up in households in which there is no working adult as a role model. This trend is associated with both the increase in the number of sole-parent families and a polarisation of joblessness among couple households (Dawkins, Gregg & Scutella 2005). While coming from a sole-parent family has been shown in many studies to have negative effects on children's outcomes, empirical

findings have also suggested that living in a two-parent family in which neither parent works can be equally detrimental (Dockery 2005a; Dockery, Li & Kendall 2006).

Other individual factors

The raw predictive power of socioeconomic background and school achievement on youth outcomes, and the continuing uncertainty of the transmission mechanisms between them, has led to a focus in the previous section on these factors as the key to understanding the nature of outcomes in transitions for Australian youth. In this section several other variables identified as having significant impacts and not already canvassed above are discussed. These include the measurement of the presence of a computer in the home, antisocial behaviour by the individual and within their peer group, and employment during school.

The effects of several of other variables appear to be well established in the literature and only brief comment is offered here, although this is in no way intended to suggest their diminished importance as policy and equity issues. Coming from a non-English speaking background has in fact been found to improve youth educational attainment, which has been attributable to migrants entering under the skilled migration program having stronger preferences for education for their children (see Marks et al. 2000, p.25; Miller & Neo 2003, p.339; Smyth, Zappala & Considine 2002, p.5). Rather, immigrant effects in Australian studies are more powerfully modelled through English language proficiency. Youth of Indigenous descent have markedly inferior levels of educational attainment and labour market outcomes. Youth from sole-parent families are also significantly disadvantaged in the transition from school to work, although analysis of wider wellbeing measures (happiness and mental health) have shown that youth from two-parent families in which neither parents work are similarly disadvantaged (Dockery 2005a; Dockery, Li & Kendall 2006). Getting a job early and avoiding unemployment is important, as a poor start to a young person's working life can have long-lasting impacts (Marks 2005, p.366; Bradley & Nguyen 2003).

Home computer access and use

A number of studies have investigated the effect of having home computers on educational outcomes. While it is acknowledged that access to home computers may have both negative and positive effects, the consensus appears to be that the net effect is a positive one on educational outcomes, including school retention. Beltran, Das and Fairlie (2008) provide a review of this emerging literature and compelling evidence of a positive causal effect of home computers for American youth. Their estimates imply that teenagers with access to a home computer are around 7 per cent more likely to complete high school than those who do not have access. As discussed above, improved educational outcomes can in turn be expected to translate to improved post-school outcomes. In an analysis of data from the British Household Panel Survey, Schmitt and Wadsworth (2006) identify a positive effect of having a home computer at ages 15 and 17 upon subsequent educational attainment in the principal British school examinations taken at ages 16 (GCSEs) and 18 (A-levels). Both studies use two-stage models and conduct quite convincing specification tests designed specifically to demonstrate that the effect is independent of socioeconomic background and other unobservable effects. Beltran, Das and Fairlie (2008) use a 'falsification' test based on whether or not the home has cable TV, while Schmitt and Wadsworth use the presence of other assets (dishwasher, dryer and car) as proxies for wealth and other household-level effects. Beltran, Das and Fairlie (2008) follow Schmitt and Wadsworth (2006) in using 'future' computer ownership, which cannot have a causal relationship with the outcome variables, as a further test. These papers suggest that, in addition to computer ownership, data on the extent of use and what computers are used for would provide valuable additional information for distinguishing between potentially positive and negative effects of home computers. The use of spreadsheets, for example, is unlikely to be associated with activities which distract youth from productive activities.

Negative peers and 'deviant' behaviour

While problems of substance abuse and antisocial behaviour among the younger generation are regularly reported in the popular press, variables capturing these behaviours do not seem to feature prominently in longitudinal and other large-sample survey research. This is likely to be due to problems surrounding the collection of such information, and the quality of such information when it is self-reported, and hence such variables are more likely to be considered in case studies or smaller-scale surveys with more in-depth interviewing. The available evidence suggests the implications of such associations and behaviours on youth transitions are indeed potentially large. Wiesner et al. (2003) present an analysis of the Oregon Youth survey, in which a sample of 206 males from age 9 and their parents were interviewed annually, with the sample drawn from high-crime neighbourhoods. The authors conclude: 'When the effects of all predictors were controlled for each other, just three variables emerged as the most influential predictors of career pathways, namely, academic achievement, juvenile arrests, and mental health problems' (2003, p.323).

Family background can again be expected to play a role in the incidence of association with negative peers and substance abuse, and hence complicate the identification of direct causal effects. Wiesner et al. cite earlier studies that have shown that poor parenting behaviours increase the likelihood of children participating in antisocial behaviour or substance abuse, that this increases the likelihood of poor educational outcomes and in turn has negative effects on employment outcomes and competence in the workplace (2003, p.307). Affiliation with peers who engage in antisocial behaviours has a similarly negative impact on career trajectories, often mediated by school failure (Wiesner et al. 2003, p.307). The longitudinal Christchurch Health and Development Study used by Maani and Kalb (2007) includes data on youths' self-assessment at age 15 of the use of tobacco, alcohol and illicit drugs and other illegal behaviour by their friends. This variable, developed on a zero to ten scale, has a sizeable and statistically significant impact on both the likelihood of dropping out of school directly and on grades achieved, after controlling for socioeconomic background and IQ measured at age 8.

In terms of alcohol use during high school, Chatterji (2005) indentifies a strong negative association between alcohol use and educational attainment for US high school students; however, this seems largely attributable to other unobservable factors. Given the likely association of unobservables on alcohol consumption, the results suggest there is no appreciable causal effect of alcohol use and educational attainment. Duarte, Escario and Molina (2005) find a direct link between marijuana use and school failure for Spanish students, but not a link in the other direction. The presence of smokers at home and living in a sole-parent family are also found to be good predictors of both marijuana use and school failure.

Working during education

There is conflicting evidence in the literature on the impact of young people working during school. Studies cited by Ryan and Büchtemann (1996, p.335) suggest working even moderately high hours does not damage educational attainment while in high school—perhaps even enhances educational attainment—and has positive effects on later employability and earnings. Ng and Feldman (2007) argue that vocational identity may be enhanced by working part-time or undertaking vacation work during education. Earlier studies suggest any detrimental effects on school performance are limited to low-quality work (Barling, Rogers & Kelloway 1995). By contrast, Steinberg and Dornbusch (1991) find detrimental effects of long work hours during school on a range of outcomes, including school performance and drug and alcohol use, with no positive effects on self-reliance, work orientation or self-esteem.

Institutional and labour market settings

The institutional and labour market settings in which youth transition occurs are essentially 'fixed' in the sense that they are common to all individuals at each point in time, and thus are not generally amenable to analysis through longitudinal studies of a single youth cohort. The evaluation of such policies is more often undertaken using cross-country studies. Surveys such as LSAY may, however, contribute if substantive changes occur in these settings between different cohorts in the study, and for comparative studies when similar longitudinal data are available for other countries.

Reviews of findings relating to the efficacy of different institutional arrangements in generating successful youth transitions can be found in Ryan and Büchtemann (1996); Bertschy, Cattaneo and Wolter (2008); Marks, McMillan and Ainley (2004); Hannan, Raffe and Smyth (1996); and Ryan (2001). Hannan, Raffe and Smyth identify the main outcome measures for cross-country studies of youth transitions as employment, or the probability of unemployment, and occupational attainment, while few studies looked at more subjective measures, or other transition outcomes such as leaving the parental home, parenthood or migration. These international comparisons suggest three important dimensions of the institutional settings are:

- the school system
- youth wages and other employment legislation (or what Ryan and Büchtemann [1996, p.316] term 'payroll costs')
- the strength of links between schools and employers, notably the prevalence of the apprenticeship system.

Numerous studies have analysed outcomes relating to the characteristics of the school system and individuals' schooling experiences, and recent reviews of the impact of 'school-level' variables can be found in Ryan (2004) and Marks, McMillan and Ainley (2004). Variables considered include years of compulsory schooling, school size, class size or teacher–student ratios, teacher quality and teacher pay schemes and school sector (public versus private, religious). In the social capital literature it has been argued that small schools in the US outperform large schools because of greater encouragement for students to engage in extra-curricular activities, while superior performance for Catholic schools has also been taken as evidence of stronger 'networks'. These indicators of social capital are also found to reduce school dropout rates (Productivity Commission 2003, p.37).

An ongoing debate in the literature has related to whether observed 'school effects' are causal or just a function of sorting, in which 'better' students or those from more favourable backgrounds attend the 'better' schools. In Australia, inter-school effects on Year 12 participation or tertiary entrance are reported to be quite minor after controlling for state and territory and a limited set of variables on student characteristics (Marks, McMillan & Ainley 2004). The ability to track students who changed schools and to compare grades achieved in different schools allows Levine and Painter (2008) to claim that a significant proportion of inter-school differences in academic achievement in the US can be causally attributed to schools.

In other recent contributions, Ryan (2004) exploits a 'natural experiment' created by a policy change in South Australia to find that an additional year of early childhood education improves literacy and numeracy outcomes in middle school. Maani and Kalb (2007) find no effect of class size on grades or the likelihood of dropping out of school in New Zealand, and the previous literature is ambiguous about the importance of class size (Marks, McMillan & Ainley 2004). The report of the Committee to Review the Adelaide Declaration on National Goals for Schooling in the Twenty-first Century claims that the quality of teaching is the largest in-school determinant of variation in student achievement (2007, p.18). Although the evidence for this claim is not made clear, Marks, McMillan and Ainley (2004) cite studies confirming that the most powerful

factors operate at the classroom level. Based on results from the PISA tests, it appears overall that Australians students perform relatively well by OECD standards (Marks, McMillan & Ainley 2004).

Despite the clear theoretical predictions, the economics literature remains divided on the impact of youth wages and other employment costs, stemming largely from studies in the US which unexpectedly found increases in youth employment following increases in youth minimum wages. Youth wages will have opposing impacts upon youth employment: a reduction in relative youth wages is expected to increase labour demand, but reduce supply. Institutional wage scales linked to age have been offered as one source of higher youth employment rates in Germany (Ryan & Büchtemann 1996, pp.326–32).

Finally, strong links between schools and employers have been identified as contributing to the low youth unemployment rates achieved by Germany and Japan. Germany's very strong apprenticeship system in particular has been held up as a model that has resulted in very successful youth transitions. In Japan, schools bear the responsibility for placing its leavers, while in Japan and Germany students are ranked by achievement for purposes of matching to employers, giving strong incentives for effort in school (Ryan 2001, pp.58–9). Other factors that have been argued to contribute to the success of Germany's dual system include greater focus on 'intermediate skills', a longer and more gradual transition from school to work, and clearer entry-level qualification requirements (Hannan, Raffe & Smyth 1996). However, these systems are also criticised for suppressing job search and 'banging square pegs into round holes', and higher employment rates may result in career rigidity and lower vocational congruence (Ryan 2001, p.60; Hannan, Raffe & Smyth 1996, p.10).

The effectiveness of targeted programs to assist individuals in youth transitions

As increasingly rigorous evaluation standards are becoming expected in the assessment of programs, including controls for selection, it is doubtful that a population-based survey such as LSAY can contribute much to the evaluation of specific school-to-work programs. The exceptions are cases of very broad-based programs, such as VET in Schools, and where opportunities for quasi-experimental methods arise. So while there is a large amount of literature relating to the effectiveness of such programs and policies for students, which predominantly focuses on youth with special needs, this literature is canvassed only briefly here.

A useful recent review of youth programs from around the world can be found in Betcherman et al. (2007), while previous reviews focusing mainly on Europe and the US experiences are located in Neumark (2001), Ryan (2001) and Ryan and Büchtemann (1996). Betcherman et al. found that training was the main form of intervention used to assist young people and that programs are typically targeted at the low-income, poorly educated or otherwise disadvantaged youth. In general, the body of evidence from evaluations has found programs to be largely ineffective. Betcherman et al. (2007) found that the evaluation evidence is quite weak, with a minority of studies attempting to identify net impacts as opposed to gross outcomes for participants and a smaller minority employing control groups. Both Betcherman et al. and Ryan and Büchtemann note that the more sophisticated the evaluation methodology, generally the lower the likelihood of identifying a positive impact of the program. Most evaluations concentrate only on identifying whether or not the program has a positive impact on the participants, and fewer go further to actually estimate cost-effectiveness. According to Ryan (2001, p.72), some British programs have even been found to reduce the post-program incomes of young participants. He concludes his review of the evidence on youth programs saying: 'It amounts to a less than illustrious record of public intervention, to which the ability of German and Japanese institutions to help young people to move from school to work compares favourably'.

Developments in empirical approaches

Significant developments have occurred in relation to the methodology for assessing outcomes in youth transitions. From the preceding review of the literature, three main approaches can be distinguished:

- in-depth case studies or extensive interviews and surveys with a limited sample, conducted primarily by sociologists or psychologists
- large-sample surveys, sometimes matched to existing administrative records or other secondary data sources, providing data amenable to descriptive and multivariate analyses
- analysis of aggregate data, such as cross-country comparisons and/or time series analysis. Often such data might be based on large-scale surveys, such as national labour force surveys, but these have limited variables and are not analysed using the individuals' unit records.

For the first and second of these approaches, the stand-out development has been the growing availability and use of longitudinal data, to the point that longitudinal analysis techniques have become almost a minimum standard for publication in quality scholastic publications. This has enabled analysts to pay greater attention to issues of unobservable, fixed individual effects and selection processes when assessing educational and vocational pathways and in the evaluation of programs. According to Ryan (2001), all developed countries except Japan now use longitudinal data to describe pathways, but only the US extensively uses social experiments. In the case of education and other activities with majority participation (such as apprenticeship in Germany), the ability to randomly assign populations into different groups is inherently difficult and therefore research is likely to continue to rely upon on multivariate econometric analysis (Ryan 2001, p.45). The success of much of the analysis reported above and also of longitudinal data projects in a number of studies has relied on matching to administrative records and other datasets (Kristen 2005, p.63).

By and large this greater sophistication of analysis has not negated the findings with respect to the main variables of interest, particularly socioeconomic background and educational achievement while in school. For studies which primarily follow the neoclassical paradigm of the labour market, there appears to have been few significant developments in the variables identified as being important determinants, nor in the main outcome variables. An exception is with regard to growing doubt over the importance of credit constraints (that is, the cost of education) in determining differences in outcomes between individuals. Employment, earnings and occupational status continue to dominate as the main measures of success in youth transitions, despite calls from many quarters for a more holistic view of the transition as a defining phase in individuals' lives rather than purely an economic progression.

More significant developments have occurred with respect to attempts to explain the causal links between these variables and education and labour market outcomes. Within the economics literature this has been prompted by the emergence of social capital theory, which has gone hand in hand with a growth in the number of childhood developmental studies which have included labour market outcomes as outcome variables. The ability to control for the pervasive effects of socioeconomic background is critical to the identification of other parameters of interest, and even basic longitudinal methods such as fixed-effects models are proving unsatisfactory. The estimation of joint equations, through two-stage least squares, instrumental variables, bivariate probit models and extensive tests of the sensitivity of results to specification is becoming increasingly common. Even here, Carneiro and Heckman (2002) cast doubt on the validity of some of the instruments chosen in the previous literature to identify such estimations. One or more measures of 'ability' is critical in this approach (Carneiro & Heckman 2002; Kristen et al. 2005), while other potentially important unobservables include motivation, personality, character and appearance (Ryan 2001). Because such evaluations are sensitive to the

assumptions made, 'Evaluation research should therefore be eclectic and modest, using multiple sources of evidence and varied evaluation methods, and not expecting definitive conclusions' (Ryan 2001, p.45).

Implications

This literature review confirms that analyses of youth transitions generally involves identification of one or several outcome variables and attempts to identify factors or variables which have a causal relationship with the outcome variable(s). The challenge for surveys such as LSAY, which seek to provide a basis for analysis of causal relationships in youth transitions, is to provide high-quality data on outcome variables; data on the main causal variables of interest to analysts; and, unless quasi-experimental data somehow become available, data to enable controls for other causal and possibly confounding factors. The preceding review offers some important implications for what should be measured and when it should be measured in a longitudinal survey of youth outcomes. The following constitute significant developments or points:

- A fundamental social change in recent decades has been the lengthening of youth transitions and of the transition to independent adulthood, as seen in the accumulation of greater years of education and the tendency for young adults to reside in the parental home for longer.
- A full appreciation of the role of family or socioeconomic background in determining outcomes in youth transitions is yet to be achieved. There is much to be learned (and monitored) in terms of both the quantitative estimates of the impact of socioeconomic background and the causal mechanisms through which it operates. In turn, this will have implications for how it is best measured. Important theoretical frameworks for analysing the impact of socioeconomic status include the emergence of social capital theory in economics and the resource framework of Brooks-Gunn et al. (1995).
- Recognition of the marked level of predetermination that early childhood experiences and circumstances have on outcomes in later life. Research has stressed the importance of infant and early childhood experiences as being integral to understanding later life outcomes, including even medical data such as birth weight (Kristen et al. 2005, pp.78–9; Gorard & Smith 2007).
- Experience with international longitudinal datasets and the associated literature clearly establishes the vital importance of standardised test scores as a tool for analysing youth transitions, most importantly in numeracy and literacy.

Lessons learned and possible future directions

There is a good deal of complementarity between the comparison with other surveys, the policy context, and lessons from the research literature. We draw on the findings from these previous sections to list 14 'lessons learned', from which we develop five options to consider for enhancing LSAY.

The fourteen lessons are:

1. LSAY is very strong in its measures of employment outcomes. All periods of unemployment are observed, and there is a good deal of information on the attributes of the main job of those in employment at the time of the survey, in addition to employment duration throughout the year. Information is also captured on earnings, and there are some measures of job quality through standard job classification (ANSCO or ANZSCO).

2. LSAY is adequate in its measures of some other outcomes such as financial security, but is less than adequate in measuring outcomes such as health and self-esteem. There is growing interest among policy-makers in non-economic outcomes, and LSAY may need to adapt to this for it to remain relevant.

3. The fundamental features of the education landscape and how young people navigate it are very well captured in LSAY. It offers, for example, the only existing source of national information on Year 12 school subject choice. However, as noted in the LSAY review by McMillan, Redway and Rothman (2002), there may be too much 'school level information' that is rarely analysed (for example, Year 11 subject choices). Care must be taken to balance the level of detail collected with relevance to current youth transition policy initiatives.

4. The survey instruments have been adaptive to a changing policy environment but we see some pitfalls in how they have adapted. There is, perhaps inevitably, a lag effect, reflecting most likely the cycle of policy development and the belated recognition of a need to monitor a new initiative and then the time needed to adapt the survey instrument and collect the data. Of more concern is a tendency to be too specific in monitoring the effect of a particular policy intervention, rather than trying to understand how the attributes of an intervention may be working. An example here is asking questions about structured workplace learning rather than trying to understand how experience of work while at school—through part-time employment or work experience or volunteering or structured workplace learning—affects later outcomes.

5. LSAY identifies some events outside the education and employment domains that are known to be related to outcomes, such as marriage, but may need to collect information on other possible events known to increase the likelihood of poor outcomes. This includes issues such as school truancy, juvenile delinquency, and alcohol and drug dependency.

6. LSAY captures useful information on the circumstances and background of young people. Parental background is collected in the first wave, but there is much missing information,

and it is not captured again, even though parental occupations may change throughout the survey duration. School background, captured in the school-level data is particularly valuable, and has been used in previous LSAY research (see, for example, Lamb & Vickers 2006).

7. It is evident that other comparable surveys capture a richer array of information on young people's background. Areas such as early childhood development and family dissolution have been shown in the research literature to be strongly associated with outcomes and are largely absent from LSAY.

8. The design of LSAY makes it very well suited to cross-cohort analysis in order to identify the importance of period effects in determining outcomes. To date, the first three cohorts have exited school in a time of a buoyant labour market. This is unlikely to be the case for the Y06 cohort, who turns 18 in 2009. In time, cross-cohort comparisons between the Y06 cohort and earlier cohorts will prove to be a rich source of analysis about how young people's chances of a successful outcome are conditioned by the economic circumstances of the time.

9. The connection between PISA and LSAY is of vital importance in providing a robust measure of academic achievement at the age of 15. In most analyses of outcomes the exclusion of this information would result in biased measures of causal effects. The inclusion of this information in the LSAY datasets is one of its strongest features.

10. LSAY contains a good array of information on individuals' immutable characteristics.

11. Sample attrition in LSAY is high. By the time a cohort has completed its survey cycle the proportion of respondents who remain is less than a third of the starting sample. Moreover, the attrition is clearly not random. It is biased towards those with poorer outcomes and those of lower academic achievement at age 15. The econometric literature suggests that sample attrition does not bias estimates of causal effects so we should not be unduly concerned about the extent of attrition. However, policy-makers are particularly interested in knowing what can be done to improve outcomes for those who have early experience of poor outcomes, and they are somewhat hampered at present by small sample sizes.

12. Several of the measures obtained in LSAY are potentially obtainable from administrative sources. A good example is a student's tertiary entrance requirement score. There may be merit in undertaking some technical studies to investigate the reduction in measurement error that would accrue through capturing some information by matching with administrative sources.

13. Cohorts are terminated too early to allow for an adequate assessment of outcomes. At age 25 many young people have only recently left or may still be enrolled full-time in higher education. This is a considerable limitation on the overall quality of the LSAY program, in our view, the most significant.

14. At the core of any longitudinal survey is the need to maintain consistency in questionnaire content across the waves to enhance the power of repeated measures from the same individuals. The LSAY questionnaires have a solid structure, but there are some inconsistencies in the treatment of predominantly non-core questions, such as those on disability, health, happiness with aspects of life, and volunteering. Questions vary from wave to wave, and there is inconsistency in which wave the questions are asked.

Areas for future development

LSAY is a leading source of information, assisting understanding of the determinants of successful youth transitions in Australia. Against key longitudinal studies on youth transitions, LSAY measures up as a world-class survey which has largely kept pace with the changing landscape of youth policy in Australia. However, the review also identified areas where LSAY lacks depth and coverage. Five areas are suggested here, with the aim of improving the utility of the survey data as an evidence base for applied policy research, particularly in light of the key developments in the school-to-work transition identified in the literature review. In doing so, we recognise that at the core of any longitudinal survey is the need to maintain adequate consistency in questionnaire content over time to enable change to be measured. These ideas also come with resource implications, and trade-offs are required to implement them successfully.

1. Capturing early childhood learning: parental survey

There is compelling evidence in this paper from the literature review, survey review and current policy direction that a matched parent or guardian survey administered at least once per cohort would greatly enhance LSAY by capturing a richer array of information on young people's early childhood and background. This could provide detailed and high-quality information on parental education, occupation, household income and the sources of income. The quality of such data, which are reported by the youths themselves, is a major limitation for previous waves of LSAY. However, a parent questionnaire adds considerable cost to the survey, and may need to be implemented with trade-off such as biennial surveys for some of the latter waves.

A parent questionnaire could also collect retrospective information. Research based on the Household, Income and Labour Dynamics in Australia survey has shown summary measures of labour force history, based on total time since leaving full-time education spent in employment, unemployment and out of the labour force, to be extremely powerful summary variables and predictors. Retrospective information considered important in the early child development literature, such as birth weight, time spent in childcare and early childhood education could also be collected through a matched parent questionnaire. It should be noted, however, that others argue that adolescent variables adequately capture the cumulative effects of earlier variables to predict pathways (Wiesner et al. 2003).

The literature review highlights that many of the variables considered important in the developmental literature, the resource framework model, social capital theory and the role-identity approach relate to parents and parental behaviour and to traits which may be best assessed by parents rather than by the young people themselves. This includes the quantity and quality of time parents spend with children, the nature of that relationship, potential role model effects and career counselling about the importance of school and work. Peer associations are a further potentially important factor in understanding youth outcomes. Parental perceptions of their child's association with deviant peers and risky behaviours could act as a check to any data collected directly from the young person.

Other important issues that could be collected in a parent interview include family structure, such as the impact of coming from a sole-parent family or a jobless household. From a policy perspective, the continued focus by many in Australia on early school leavers as the main risk group, or dropping out of school as the main risk factor, may be simplistic and unhelpful. Early school leavers are predominately a group with characteristics destined to generate a troublesome school-to-work transition, notably low socioeconomic status, poor numeracy and literacy, interaction with deviant peers and, quite likely, substance abuse, although Looker and Dwyer (1998) and Smyth et al. (2002) stress the need to distinguish between early leavers on the basis of the reason for leaving school early. The evidence is that such outcomes are largely determined

from early on in life. When considering the seeming ineffectiveness of school-to-work programs to assist disadvantaged youth, there is a clear need for policy discussions and interventions to be more attuned to the earlier seeds of disadvantage in order to address inequality in outcomes. Much of this information can only be captured in a parent questionnaire.

2. Extend the survey to beyond age 25 years

Extending the survey of LSAY respondents to beyond 25 years of age would enable more visible 'end-points' to become clearer and allow for better estimates of returns from education and training. For the Youth in Transition 1961 cohort, by the age of 33 years, the majority of respondents were well established in their careers. Data on young people's education, training and employment experiences in their late 20s would provide valuable detail on the transitional processes.

However, lengthening the survey could affect attrition rates and cause concerns about 'tracking' individuals. Sample attrition in LSAY is high and the attrition is biased towards those with poorer outcomes and those of lower academic achievement at age 15. A possible cost trade-off to extending the survey beyond 25 years is to give consideration to surveying people less frequently (for example, every two years) once the critical years of the transition (following the post-compulsory schooling age) are passed (for example, from age 21). This is done in the US study, the National Longitudinal Survey of Youth of 1979 and 1997, which also addresses sample attrition through the use of bounded event histories, persistent respondent cooperation and incentive fees for respondents. The review recommends extending the survey duration of each wave out to age 30, which gives enough time to measure lengthened transitions, but also puts less strain on program resources to counter attrition.

3. Review the questionnaire content

The LSAY questionnaire has been modified from year to year to meet societal and policy changes. This needs to continue to ensure that LSAY remains relevant to current policy initiatives, but also keeps pace with the current behaviours of young people. The review of key studies and literature highlighted the limited coverage on health, wellbeing and other individual factors that affect education and employment outcomes. While these factors are given less prominence in youth transition research, they are becoming important in current policies for all groups, particularly young people.

A review of the life satisfaction questions and limited health identifiers in LSAY should strongly be considered to ensure a more comprehensive exploration of young people's health and wellbeing. The addition of explanatory variables such as personality traits and social capital are more problematic to implement because of the difficulty of measuring these factors. Despite this, a great deal of consideration should be given to the addition of established personality scales and measures of deviant behaviour. A separate self-completion questionnaire, such as the one administered in the Youth in Focus study, could be a strategy to address non-response or attrition issues that may arise with the addition of such scales and measures. Trade-offs can also be made to increase questioning in a certain subject area at the expense of reduced questioning in another area, such as a reduction in the collection of 'school level information'.

There should be another attempt to measure social capital in the LSAY questionnaire. This could be developed from the Y98 social capital questions (in wave 3) but also draw from practical examples from key studies, as well as from developments identified in youth transition literature. Minor improvements to the questionnaire can be made to keep pace with technology changes and the changes in the way young people seek careers advice and employment.

A planned approach to questionnaire development

Any changes or modifications to the survey instruments require a planned approach. Data from previous questionnaires should be analysed for non-response and 'other' categories to ensure questions are capturing relevant and intended information. Cognitive testing should be done when changes are made in the questionnaires. A history of questionnaire changes should be kept, to document why changes have occurred from year to year.[12] With increasing new policy initiatives it must remain relevant but not necessarily measure individual program effectiveness. In addition, reliability analysis of the effectiveness and efficiency of questionnaire items should be conducted as part of any review of existing questions or to assist in developing new measures.

Develop an 'ideal topic map'

To assist in developing the questionnaire content, the creation of an 'ideal topic map' with guiding principles would allow for easier adaptation of questionnaire content for future cohorts and maintain consistency in the data collection between cohorts. While the survey instruments have been adaptive to a changing policy environment, there are some pitfalls in how they have adapted. LSAY questionnaires have a solid structure, allowing cross-cohort analysis, but there are some inconsistencies in the questionnaire content between waves and cohorts. For example, in the Y98 and Y95 questionnaires, questions on topics such as disability and health, happiness with life aspects and volunteering have been covered sporadically throughout the waves.

This would also highlight the need for improvements in timing and administration of 'non-core' areas (for example, question on 'how the country is run'). The detail on the question structure for these questions should be determined well in advance of the questionnaires being pilot-tested, and would assist in the fieldwork set-up (CATI programming).

4. Integrate LSAY with administrative datasets

Other key studies benefit from sampling frames that can provide additional or supplementary information which allows data quality to be improved, where responses from individuals are missing for particular sections. Several of these measures obtained in LSAY are potentially available from administrative datasets, such as tertiary entrance rank (TER) scores or the receipt of government payments. Even program participation such as school VET could be potentially obtained from school administrative records. The varying models of school VET provisions can mean that some students may not be aware they are participating in these programs, affecting the measures of program participation. Cross-referencing with external data sources could assist here.

Linkage to administrative records has been achieved in the British study, the Longitudinal Study of Young People in England, and the US study, the National Longitudinal Survey of Youth, supplements the main data collection from students and parents with 'special' data collections, including two school surveys, high school transcripts or academic records. Technical studies should be conducted to investigate the reduction in measurement error that would accrue by capturing some information through matching datasets. Privacy issues associated with linkages to administrative records would need to be explored.

12 An example of a well-documented survey history can be found in the History of Employer Survey by NCVER, accessed at: <http://www.ncver.edu.au/publications/1794.html >.

5. Attrition

Attrition bias is an issue for most longitudinal surveys, and LSAY is no exception. However, in LSAY this is particularly problematic because the young people we are interested in are those who are more likely to drop out of the survey. Analytical methods can account for some of this bias, but a focused incentive for respondents could improve the quality of data for this group of young people.

Respondent cooperation and incentive fees have been acknowledged as some of main reasons for the successful sample retention for the National Longitudinal Survey of Youth 79. Incentive payments are a way to keep attrition in check and are also used in the Youth in Focus (for self-completion questionnaire) but add significant costs to the survey program. Further investigation should be undertaken to examine the possible trade-offs that could be made to offset the introduction of respondent incentives in the LSAY program. Creating a respondent's webpage on the LSAY website, a feature in both the National Longitudinal Survey of Youth and Longitudinal Study of Young People in England program websites, is a low-cost strategy to encourage respondent involvement and potentially increase retention.

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Appendix A

Australian surveys*

	LSAY (Y95 - Y06)	Youth In Focus (2006)	'Life Patterns'	HILDA	Smith Family LFL	'Next Steps' (QLD)	Student Dest & Sat (NSW)	Neg. Life Course'
DEMOGRAPHICS								
D.O.B.	✓	✓		✓	✓	✓	✓	✓
Gender	✓	✓	✓	✓	✓	✓		✓
Residential location (state/postcode)	✓	✓		✓	✓	✓	✓	✓
E-mail / internet access	✓	✓		✓		✓		
Government Payments/ Income/ grants	✓	✓	✓	✓	✓	✓		✓
Parents Occupation & furthest study/training	✓	✓	✓	✓				✓
SCHOOL								
(About the School)								
Sector	✓	✓	✓	✓		✓	✓	
Location (address/state)	✓					✓	✓	
(About the Student at School)								
Year Level	✓	✓	✓	✓	✓	✓	✓	
Year/ month Left	✓	✓	✓	✓				✓
Workplace Learning	✓			✓			✓	
Schools Based New Apprenticeships (SBNA)	✓			✓		✓	✓	
Vocational Education Training (VET)	✓			✓		✓	✓	
Careers Advice	✓		✓		✓		✓	
Reasons for Leaving	✓	✓						
Reasons for Returning								
TER score	✓	✓						
Subjects	✓	✓		✓	✓		✓	
Certificates	✓	✓	✓			✓	✓	
(Attitudes while at School)								
Aspirations (Y12/Post-School)	✓	✓	✓	✓	✓	✓	✓	✓
Gap Years				✓		✓		✓
POST-SCHOOL STUDY								
(About the Study (Higher Ed./ VET))								
Institution	✓		✓			✓		
Course/Subject	✓	✓	✓	✓		✓	✓	✓
Preferences	✓		✓		✓	✓	✓	
Payment for study	✓	✓		✓		✓		
(About the Student in Study (Higher Ed./VET))								
Impressions of Study	✓	✓	✓	✓	✓	✓	✓	
Attitudinal	✓	✓	✓	✓	✓	✓	✓	
Qualifications Attained	✓	✓	✓	✓	✓	✓	✓	✓
Work while Studying	✓		✓	✓		✓		✓
Reasons for change	✓		✓					
Likelihood of returning to F/T study in next 5 years	✓	✓	✓	✓	✓	✓		
APPRENTICESHIP								
Certificate Level	✓	✓		✓		✓	✓	✓
Training on/off the job	✓			✓			✓	✓
Course / Industry	✓	✓	✓	✓	✓	✓	✓	✓
Occupation	✓		✓		✓	✓	✓	
(About the Apprentice)								
Reasons for completion/ non-completions	✓						✓	

	LSAY (Y95 - Y06)	Youth In Focus (2006)	Life Patterns	HILDA	Smith Family LFL	'Next Steps' (QLD)	Student Dest & Sat (NSW)	'Neg. Life Course'
EMPLOYMENT								
(About the job)								
Hours Worked	✓	✓	✓	✓		✓	✓	✓
Occupation(s)	✓	✓	✓	✓	✓	✓	✓	✓
Pay	✓	✓		✓				✓
How got Job(s)	✓			✓			✓	✓
Job Training	✓			✓			✓	
(About the Worker)								
Work Intentions	✓		✓	✓	✓	✓	✓	✓
Career job	✓	✓	✓	✓	✓		✓	
Reasons for changing jobs	✓		✓	✓				
Satisfaction with Employment	✓			✓			✓	✓
Preferences for F/T P/T	✓		✓	✓		✓		✓
(Job Searching)								
Activities / methods	✓	✓	✓	✓		✓	✓	
Preferences (job/hrs)	✓	✓	✓	✓	✓	✓		✓
Length of time	✓	✓	✓	✓		✓	✓	✓
SOCIAL PARTICIPATION								
(Living Arrangements)								
Household structure	✓	✓	✓	✓		✓		✓
Marital Status/child(ren)	✓	✓	✓	✓				✓
Partners occupation/furthest study/training	✓	✓	✓					✓
Relationship with parents		✓	✓			✓	✓	
date moved away from parents (reason)		✓	✓	✓				✓
(Finances)								
Financial management	✓	✓	✓	✓		✓		
Loan(s) / Debt repayments	✓	✓		✓				
(General Attitudes)								
Activities / interests / skills	✓	✓	✓	✓	✓	✓	✓	✓
Influences	✓	✓	✓		✓		✓	
Volunteering	✓			✓				✓
Homework time	✓			✓	✓			
Leisure	✓	✓	✓	✓	✓			
Services & resources (access & suitability)			✓	✓	✓	✓	✓	✓
Chance / opportunity links			✓		✓		✓	
(Social Psychological Factors)								
Disobedience / bullying		✓						
Drugs / alcohol / smoking		✓						
Crime & safety		✓		✓				
Physical / mental health		✓	✓	✓				✓
Emotional stress - life aspects	✓	✓	✓	✓	✓	✓	✓	
Self image		✓	✓	✓	✓	✓	✓	✓
Issues affecting pathways (esp. 1st yr Tertiary)	✓			✓	✓	✓	✓	✓

* Youth In Focus; Household, Income & Labour Dynamics in Aust. (HILDA) 'Learning for Life' (The Smith Family); 'Next Steps' (QLD); Student Destination & Satisfaction survey (NSW); 'Life Patterns Project' (Melbourne University); 'Negotiating the Life Course' (NLC).

Appendix B

Overseas surveys*

	LSAY (Y95 - Y06)	YITS (Canada)	NLSCY (Canada)	NLSY97 (USA)	British Cohort Study	LSYP (England)	Youth Cohort St (E&W)	German (SOEP)
DEMOGRAPHICS								
D.O.B.	✓	✓		✓	✓	✓		✓
Gender	✓		✓	✓	✓	✓	✓	✓
Residential location (state/postcode)	✓	✓		✓	✓	✓	✓	✓
E-mail / internet access	✓	✓	✓	✓	✓	✓	✓	✓
Government Payments/ Income/ grants	✓	✓		✓	✓	✓	✓	✓
Parents Occupation & furthest study/training	✓	✓		✓		✓		✓
SCHOOL								
(About the School)								
Sector	✓	✓		✓	✓	✓	✓	✓
Location (address/state)	✓	✓		✓	✓	✓	✓	✓
(About the Student at School)								
Year Level	✓	✓		✓	✓	✓	✓	✓
Year/ month Left	✓	✓		✓	✓	✓	✓	✓
Workplace Learning	✓	✓		✓	✓		✓	
Schools Based New Apprenticeships (SBNA)	✓			✓	✓			
Vocational Education Training (VET)	✓	✓		✓	✓		✓	✓
Careers Advice	✓	✓		✓	✓	✓	✓	
Reasons for Leaving	✓	✓		✓				
Reasons for Returning		✓						
TER score	✓	✓		✓	✓		✓	✓
Subjects	✓	✓	✓	✓	✓	✓	✓	✓
Certificates	✓	✓		✓	✓		✓	✓
(Attitudes while at School)								
Aspirations (Y12/Post-School)	✓	✓		✓	✓	✓	✓	✓
Gap Years		✓		✓	✓		✓	
POST-SCHOOL STUDY								
(About the Study (Higher Ed./ VET))								
Institution	✓	✓		✓	✓	✓	✓	
Course/Subject	✓	✓		✓	✓	✓	✓	✓
Preferences	✓	✓		✓			✓	
Payment for study	✓	✓		✓			✓	
(About the Student in Study (Higher Ed./VET))								
Impressions of Study	✓		✓	✓	✓	✓	✓	✓
Attitudinal	✓	✓	✓	✓	✓	✓	✓	
Qualifications Attained	✓	✓		✓	✓		✓	✓
Work while Studying	✓	✓	✓				✓	✓
Reasons for change	✓	✓			✓		✓	
Liklihood of returning to F/T study in next 5 years	✓	✓			✓	✓	✓	✓
APPRENTICESHIP								
Certificate Level	✓	✓		✓	✓		✓	✓
Training on/off the job	✓	✓		✓	✓		✓	✓
Course / Industry	✓	✓		✓	✓	✓	✓	✓
Occupation	✓	✓		✓	✓		✓	✓
(About the Apprentice)								
Reasons for completion/ non-completions	✓	✓						✓

	LSAY (Y95 - Y06)	YITS (Canada)	NLSCY (Canada)	NLSY97 (USA)	British Cohort Study	LSYP (England)	Youth Cohort St (E&W)	German (SOEP)
EMPLOYMENT								
(About the job)								
Hours Worked	✓	✓	✓	✓	✓	✓	✓	✓
Occupation(s)	✓	✓		✓	✓		✓	✓
Pay	✓	✓		✓	✓	✓	✓	✓
How got Job(s)	✓	✓		✓				✓
Job Training	✓	✓		✓	✓		✓	✓
(About the Worker)								
Work Intentions	✓	✓		✓	✓	✓	✓	✓
Career job	✓	✓		✓		✓	✓	✓
Reasons for changing jobs	✓	✓		✓	✓			✓
Satisfaction with Employment	✓	✓		✓	✓			✓
Preferences for F/T P/T	✓				✓			✓
(Job Searching)								
Activities / methods	✓	✓		✓				✓
Preferences (job/hrs)	✓	✓		✓			✓	✓
Length of time	✓	✓		✓			✓	✓
SOCIAL PARTICIPATION								
(Living Arrangements)								
Household structure	✓	✓		✓	✓	✓	✓	✓
Marital Status/child(ren)	✓	✓		✓	✓		✓	✓
Partners occupation/furthest study/training	✓	✓		✓	✓			
Relationship with parents		✓	✓	✓	✓	✓	✓	✓
Date moved away from parents (reason)		✓		✓	✓	✓		✓
(Finances)								
Financial management	✓	✓		✓	✓	✓	✓	✓
Loan(s) / Debt repayments	✓	✓		✓				✓
(General Attitudes)								
Activities / interests / skills	✓	✓	✓	✓	✓	✓	✓	✓
Influences	✓	✓	✓	✓	✓	✓		✓
Volunteering	✓	✓	✓	✓	✓	✓		✓
Homework time	✓	✓	✓	✓		✓		✓
Leisure	✓	✓	✓	✓	✓	✓		✓
Services & resources (access & suitability)		✓	✓	✓	✓	✓	✓	✓
Chance / opportunity links		✓						✓
(Social Psychological Factors)								
Disobedience/ Bullying		✓	✓		✓	✓		
Drugs / alcohol / smoking		✓	✓	✓	✓	✓		
Crime & safety		✓	✓	✓	✓	✓		
Physical / mental health		✓	✓	✓	✓	✓	✓	✓
Emotional stress - life aspects	✓	✓	✓	✓			✓	✓
Self image		✓	✓	✓	✓	✓		✓
Issues/ factors affecting pathways	✓	✓	✓	✓	✓	✓	✓	✓
Basic literacy skills					✓		✓	✓

* The Youth in Transition Survey (Canada); The National Longitudinal Survey of Children and Youth (NLSCY, Canada); The National Longitudinal Survey of Youth (NLSY97, US) British Cohort Study, Longitudinal Survey of Youth People in England (LSYPE); The Youth Cohort Study of England and Wales; The German Socio-economic Panel study (SOEP).

Australian Government

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