



LONGITUDINAL SURVEYS OF AUSTRALIAN YOUTH
RESEARCH REPORT 59

School completion: what we learn from different measures of family background

JACQUELINE HOMEL
ASTGHIK MAVISAKALYAN
HA TRONG NGUYEN
CHRIS RYAN

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Jacqueline Homel
Astghik Mavisakalyan
Ha Trong Nguyen
Chris Ryan

Social Policy Evaluation, Analysis and Research Centre
Australian National University

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Level 11, 33 King William Street, Adelaide, SA 5000

PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

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

About the research

School completion: what we learn from different measures of family background

Jacqueline Homel, Astghik Mavisakalyan, Ha Trong Nguyen and Chris Ryan,
Social Policy Evaluation, Analysis and Research Centre, Australian National University

This paper examines how disadvantage affects educational outcomes, in this instance, Year 12 completion. While previous studies have found a strong link between parental education or occupational status and Year 12 completion, this research was able to capture a broader set of cultural, material and resource aspects of disadvantage. It did this by undertaking a comparative analysis of two datasets – the Longitudinal Surveys of Australian Youth (LSAY), which collects the more familiar information about parental education and occupational status, and the Youth in Focus (YIF) survey, which provides an additional set of disadvantage measures, including family income and welfare receipt history, as well as information about the respondent's earlier educational experiences and risky behaviour.

Key messages

- Cultural factors, including poor school experiences, participation in risky activities such as smoking and alcohol consumption, and aspirations are the main predictors of Year 12 completion.
- Material factors, as measured through current family income, have only a small effect on Year 12 completion.
- The role of the commonly used indicators of disadvantage associated with school completion, including parental education and occupational status, is shown to be less significant than previously indicated.

This report shows the importance of getting behind simple measures of family background in understanding the relationship between disadvantage and educational outcomes.

Tom Karmel
Managing Director, NCVET

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Executive summary

This paper set out to study how disadvantage affects education outcomes, in this instance, Year 12 completion, a familiar yet important gauge of adolescent academic success in Australia. Using a number of indicators of the social and family circumstances of young people that reflect differing dimensions of disadvantage, the study undertakes a comparative analysis of two datasets with alternative measures of disadvantage – the Longitudinal Surveys of Australian Youth (LSAY) and the Youth in Focus (YIF) survey. The latter, which has rarely been employed to examine this issue, provides an additional set of disadvantage measures that may be relevant to school completion, including family income and welfare receipt history. This study therefore has the potential to provide a better understanding of the role of this extended set of disadvantage measures as they relate to school completion.

An important feature of this research is that the two datasets cover the same birth cohort of young people. Both the LSAY 2003 (Y03) cohort and the YIF survey include young people who were born between October 1987 and March 1988, and in both datasets subjects' completion of Year 12 was measured late in the 2006 calendar year. Both sets of data contain overlapping information on their respondents' background and experiences of schooling. However, each of the surveys also possesses strengths that the other lacks. In particular, LSAY Y03 contains measures of student achievement from the PISA survey that the YIF data do not, while the YIF data have more information on family background factors (current family income, welfare receipt history, family structure history) and aspects of the young people's earlier experiences of schooling and their engagement in risky or anti-social behaviour that LSAY Y03 does not.

The fact that both the LSAY Y03 and the YIF data include information on young people born at a common time makes a comparison possible; however, other aspects of the sampling design of the two surveys may potentially limit the nature of this comparison task. To ensure that our comparison yielded valid outcomes, we drew on an analysis of school completion among the same birth cohort from the Australian 2006 Census of Population and Housing (hereafter called 'the Census'). Encouragingly, the distributions of young people across labour market and education activities in the two datasets appear broadly representative of young people in general from the Census, once weights that accounted for their differing design features were added to the analysis. One marked exception to this statement is that Year 12 completion in LSAY is overestimated. In particular, Year 12 completion among Indigenous students in LSAY was much higher than that found in the broader population, while the YIF rates matched what is known about this area from other data.

The factors influencing school completion have been widely studied in previous research in different contexts, with the measures of disadvantage considered in Australian studies limited to the standard measures available in the relevant data. Since many studies have relied on LSAY or its predecessors, the measures used have typically involved parental education and occupation-based socioeconomic status.

Earlier Australian research has identified a strong link between measures of parental education or occupational status and Year 12 completion. This study has been able to include a broader set of measures to capture the multidimensional nature of disadvantage – its cultural and material aspects – and its influence on students' performance. Poor school experiences, participation in risky activities and aspirations were revealed as the main predictors of Year 12 completion, while, significantly in contrast to earlier research, the size and importance of the commonly used indicators

of disadvantage associated with school completion, notably, parental education and occupational status, were lower. Although family income had a positive impact on Year 12 completion, by comparison with these cultural factors, its effect was found to be quite small.

In general, in the LSAY data, disadvantage seems to be played out through its impact on school performance and on the educational aspirations of young people. These are likely to be different sides to the same coin of the main results found in the YIF data, where disadvantage partially exerted its influence through the poor experiences of early schooling among respondents, which lowered their Year 12 completion levels.

The exercise of considering alternative measures of disadvantage, drawing on both the LSAY and YIF data, has been informative in identifying a few core factors – poor school experiences, risky activities and aspirations – that matter for school completion and, importantly, for indicating the direction of further study into the complex linkages between disadvantage and school completion.

Introduction

The link between different dimensions of family and social circumstances and the probability of adolescents' success is documented in many studies (see, for example, Haveman & Wolfe 1995 for an early review) and serves as a basis for policy interventions aimed at improving the outcomes of the disadvantaged. Understanding exactly what it is about disadvantage that matters for adolescent outcomes is central to any social or educational policy developed to redress its effects. Yet, the complexity of defining and measuring disadvantage, used in conjunction with data with often only a limited coverage of its various dimensions, leads to challenges in the conduct of research and, specifically, in producing outcomes with the capacity to inform effective policy.

The key focus of the paper is to study how disadvantage affects educational outcomes, in this instance, Year 12 completion, a familiar yet important indicator of adolescent academic success in Australia. Using a number of indicators of the social and family circumstances of young people that reflect differing dimensions of disadvantage, the study undertakes a comparative analysis of two datasets with alternative measures of disadvantage. One dataset, the Longitudinal Surveys of Australian Youth (LSAY), has been used extensively to study this issue. The other, the Youth in Focus (YIF) survey, has been used very little for this purpose. Since the data from the latter provide an additional set of disadvantage measures that may be relevant to school completion, including family income and welfare receipt history, the study has the potential to provide a better understanding of the relative role of this extended set of disadvantage measures as they relate to school completion.

There are two by-products of our approach. One is an assessment of how the 'usual' variables used to capture disadvantage, such as parental education and occupation-based socioeconomic status measures, fare when supplementary variables are included in the analysis. The second is the provision of a better understanding of the strengths and limitations of the two datasets used in the analysis, since at least one has been used to study many other educational, labour market and social phenomena among young Australians.

An important feature of this study is that the two datasets cover the same birth cohort of young people. Specifically, both the LSAY 2003 (Y03) cohort and the YIF survey include young people who were born between October 1987 and March 1988. In both datasets, subjects' completion of Year 12 was measured late in the calendar year 2006.

The YIF survey data were drawn from people from families who received government payments of some form, so it might be expected that Year 12 completion rates are lower in the YIF data than in the LSAY data. Furthermore, Year 12 completion in the LSAY data may overestimate its extent in the Australian population because it is based on the PISA¹ survey of 15-year-old school students, which was just 93.4% of the population of 15-year-olds in Australia in 2003, the cohort being used (Thomson, Cresswell & De Bortoli 2004, table A2.3). Hence, any estimate of Year 12 completion from that sample ignores the 7% of young people who had left school at age 15. But our real interest is whether, despite these features that might make the data unrepresentative of the population in either direction, the relationships estimated over a common set of variables from the two datasets are the same. Since the YIF data are likely to represent a more disadvantaged group of young people than the LSAY cohort (see the more detailed description of the two datasets in a

¹ The Programme for International Student Assessment, auspiced by the Organisation for Economic Co-operation and Development (OECD).

later chapter), our comparisons provide some kind of basis for addressing how reliable analysis using LSAY data is in assessing the impact of disadvantage on the outcomes of young people. Our second interest lies in how much of the estimated relationships from a common set of variables across the two datasets change as we add variables that reflect the strengths of the alternative data sources.

The study documents the relationships between certain dimensions of disadvantage and Year 12 completion. It found that poor early school experiences and later engagement in the risky behaviours captured in the YIF data – including the consumption of alcohol, marijuana or smoking – and differences in student aspirations affect school completion significantly. Moreover, inclusion of the variables specific to each of the datasets affects the significance of some of the more commonly utilised indicators of disadvantage found to be associated with school completion, those such as low parental education and occupational status.

The study proceeds in several stages. First, a review of the literature relating to this area is presented, enabling the contributions of the current study to be further highlighted. Second, the two main data sources are discussed in terms of their comparability and representativeness for the Australian population; this is followed by a descriptive analysis of disadvantage measures as they relate to Year 12 completion. Finally, the results of the econometric analyses on the link between disadvantage and school completion from the two datasets are reported. The study concludes with a summary of the results and their policy implications.

Disadvantage and school completion: review of the literature

There are two important strands of literature of relevance to this study. The first is the vast literature on the proper measurement of disadvantage. The second is related to the determinants of educational attainment, notably here, the completion of the highest level of schooling. This section provides an overview of recent developments in these two strands of literature, highlighting the main contributions of the current study.

Approaches to defining disadvantage

Many of the early studies on disadvantage among groups in society adopted a uni-dimensional approach to its extent and consequences. In economics, its analysis has often focused on a lack of material resources, typically captured through some measure of income. This approach has been criticised for a number of reasons.

First, concerns have been raised over the loss of information resulting from analytical approaches that divide the population into groups of poor and non-poor individuals, through the use of poverty lines (Pi Alperin 2008). In the Australian context, the Henderson Poverty Line² has been criticised for a number of reasons, including how the line has been updated over time and the relevance of an income measure restricted to cash income (Saunders 1999). Within the uni-dimensional view of disadvantage, the extent of the suitability of the relative income measure to capture it has also been questioned. As pointed out by Headey (2006), household income is a poor proxy for consumption, the latter better reflecting a household's standard of living.

More generally, studies applying a uni-dimensional approach to disadvantage have been criticised for their failure to fully capture the concept. As Sen (2000) puts it, 'income may be the most prominent means for a good life without deprivation, but it is not the only influence on the lives we can lead'. According to Sen, the perspective on poverty as the lack of the capabilities to live a minimally decent life makes it 'inescapably multidimensional, since there are distinct capabilities and functionings that we have reason to value'. In addition, it has been suggested that any uni-dimensional approach to disadvantage, including those captured by income, do not examine the reasons behind poverty, thus limiting the space for policy interventions (Headey 2006). Multidimensional approaches, on the other hand, may be helpful in offering a framework to focus on the institutions and actors involved in the processes that cause deprivation (De Haan & Maxwell 1998).

These considerations have prompted a multidimensional approach to disadvantage being increasingly applied in more recent studies and includes an emphasis on the concept of 'social exclusion', which, according to Sen (2000), has the potential to provide insights into the phenomenon of disadvantage through its focus on relational processes. Others who do not share Sen's view on disadvantage and who continue to rely on income as the best indicator of poverty consider the concept of social exclusion separate from poverty. In particular, according to Duffy (2005), 'social exclusion is a

² One well-known measure of poverty in Australia is the Henderson Poverty Line. It estimates the amount of money which families of different sizes need to cover essential needs. The Henderson Poverty Line represented a very basic living standard when it was devised in 1975.

broader concept than poverty, encompassing not only low material means but the inability to participate effectively in economic, social, political and cultural life and in some characterisations alienation and distance from mainstream society' (cited in Levitas et al. 2007).

There are numerous views on the definition of the social exclusion concept itself. Lenoir (1974) is credited with the authorship of the term, which at that time was used for those who were administratively excluded by the state (Burchardt, Le Grand & Piachaud 1999). Many alternative approaches to defining social exclusion have emerged in the literature since then. According to Burchardt, Le Grand and Piachaud (1999), an individual is socially excluded if '(a) he or she is geographically resident in a society and (b) he or she does not participate in the normal activities of citizens in that society'. The domain of 'normal activities' has been elucidated to various extents in further studies. In particular, as Tsakloglou and Papadopoulos (2001) interpret it, social exclusion implies the 'inability of an individual to participate in the basic political, economic and social functionings of the society in which he or she lives'. Levitas et al. (2007) state that the process of social exclusion involves 'the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas'. In addition, they consider the concept of 'deep exclusion', which implies exclusion across more than one dimension of disadvantage and which leads to 'severe negative consequences for quality of life, well-being and future life chances'.

Beyond definitions, there is even less consensus on how the concept of social exclusion can be measured in empirical analysis, and studies to date have emphasised different dimensions contained within it. For example, Burchardt, Le Grand and Piachaud (1999) measured social inclusion according to participation in consumption, saving, production, political and social activities. Tsakloglou and Papadopoulos (2001), on the other hand, used indicators of income, living conditions, necessities of life and social relations to identify the socially excluded. Finally, Levitas et al. (2007) constructed a matrix of ten key domains of social exclusion, the Bristol Social Exclusion Matrix, or B-SEM, consisting of domains that reflected: resources (material/economic resources; access to public and private services; social resources); participation (economic; social; culture, education and skills; political and civic); and quality of life (health and wellbeing; living environment; crime, harm and criminalisation).

Scutella, Wilkins and Horn (2009) provide a comprehensive survey of a number of additional uses of the concept of social exclusion, which further emphasise the diversity of approaches to capturing it. They also provide an approach to its measurement in Australia, arranged around the domains of resources and participation. The Australian Social Inclusion Board (2010) takes a similar stance, by defining as socially included, people who have the resources, opportunities and capabilities they need to learn (participate in education and training); work (participate in employment, unpaid or voluntary work, including family and carer responsibilities); engage (connect with people, use local services and participate in local, cultural, civic and recreational activities); and have a voice (influence decisions that affect them). Another Australian study by Saunders and Naidoo (2009) focuses on deprivation as measured by the inability of individuals or households to afford or access items that the majority in the community deem 'essential'.

Since the consequences of different forms of disadvantage may vary at different points of the life cycle, some studies have focused on analysing it within different age groups. Specifically, studies on youth disadvantage have applied tailored approaches to capturing it. The United Kingdom Government's Opportunity for All section on children and the New Policy Institute's *Monitoring poverty and social exclusion* series both cover family economic circumstances, including indicators of low income and workless households, to capture household deprivation. In addition, studies that focus

on children's own outcomes point to their further deprivation as adults. Accordingly, these studies include measures of health and wellbeing; the education and safety environment, including indicators of teen pregnancy; non-attendance at school or low attainment; and engagement in risky or anti-social activities. The *Monitoring poverty and social exclusion* series, in particular, addresses some extreme forms of youth exclusion, including permanent exclusion from school, as well as suicides and young offenders' incarceration in institutions. Table 1 presents a list of social exclusion indicators.

Table 1 Themes and indicators in social exclusion studies of children/youth

| Theme | UK Government: Opportunities for all (based on Levitas et al. 2007) | New Policy Institute: Monitoring poverty and social exclusion (based on Levitas et al. 2007) | Millennium Survey of Poverty and Social Exclusion (Gordon et al. 2000) |
|---|--|--|---|
| Economic/ material circumstances | Low income (relative, absolute, persistent) Children in workless households Housing that falls below the set standard of decency Families in temporary accommodation | In low-income households Children in workless households Concentration of children eligible for free school meals Unemployment among young adults Low pay for young adults | Fresh fruit or vegetables at least once a day Three meals a day Meat, fish or vegetarian equivalent at least twice a day New, properly fitted shoes Warm, waterproof coat All required school uniform At least 7 pairs of new underpants At least 4 pairs of trousers At least 4 jumpers/ cardigans/sweatshirts Some new, not second-hand, clothes A bed and bedding for self Bedroom for every child of different sex over 10 years Carpet in bedroom Garden to play in |
| Health and wellbeing | Serious unintentional injury Infant mortality Teenage pregnancy Teenage conceptions Smoking prevalence (including for pregnant women and children aged 11–15) Obesity in children aged 2–10 | Low-birthweight babies Infant mortality Dental health Accidental deaths Underage conceptions | |
| Education and work | Attainment: 11- and 16-year-olds Schools below floor target 19 years old with at least an NVQ Level 2 qualification School attendance Improvement of outcomes for looked-after children | Low attainment at school: 11- and 16-year-olds Permanent exclusion from school Without a basic qualification (19-year-olds lacking NVQ Level 2) Impact of education on work School leavers | |

| | UK Government: Opportunities for all (based on Levitas et al. 2007) | New Policy Institute: Monitoring poverty and social exclusion (based on Levitas et al. 2007) | Millennium Survey of Poverty and Social Exclusion (Gordon et al. 2000) |
|---|---|--|--|
| Theme | Indicators | | |
| | 16 to 18-year-olds in learning Teenage parents in education, employment and training Children with appropriate level of development in Sure Start areas (communication, language and literacy and personal, social and emotional development) | | |
| Safety | Re-registrations on Child Protection Register | 18 to 20-year-olds with a criminal record Problem drug users treated Suicides In young offenders' institutions | |
| Participation and activities | | | Celebrations on special occasions Hobby or leisure activity School trip at least once a term Swimming at least once a month Holiday away from home at least one week a year Leisure equipment Friends round for tea/snack fortnightly |
| Developmental | | | Books of own Play group at least once a week (pre-school age children) Educational games Toys (e.g. dolls, teddies) Construction toys Bike: new/second-hand At least 50 p. a week for sweets Computer suitable for schoolwork Computer games |

Source: Levitas et al. (2007); Gordon et al. (2000).

A wider set of relevant disadvantage indicators are encompassed by the children's indicators in the 1999 Millennium Survey of Poverty and Social Exclusion, including age-related participation in social activities and additional indicators of material deprivation. For the latter dimension, Gordon et al. (2000) – to reflect the limitations of using household income to measure poverty among children – propose measuring poverty according to socially perceived necessities. This would allow the development of a poverty line specifically related to children, rather than to adults or households. These measures are also summarised in table 1.

A number of youth-specific measures are included in the Australian Government's list of indicators of social inclusion (Australian Social Inclusion Board 2010). Being broadly consistent with international approaches, these include, in particular, indicators of young people not fully engaged in education or work and Year 12 or equivalent attainment. The list also includes indicators to capture resources and

covers income, work, health, education, safety and support. While not in all cases specifically defined for youth, these measures are instrumental in shedding light on the initial environments where they grow up and which would affect their subsequent participation outcomes in society.

In summary, the literature suggests a number of approaches to defining disadvantage. Indicators used to measure disadvantage have in some cases been defined for different age groups, including young people. They have also been related to initial or endowed states of deprivation, such as living in families with limited access to economic resources, as well as to outcomes relevant to their own education, health, access to services and participation in different aspects of a desirable life. Data limitations appear to pose substantial challenges for researchers who wish to study the relative impact of different dimensions of disadvantage on those who experience them.

While faced with the same challenge, this study uses a broad set of disadvantage measures that encompass many of those proposed in the literature. The datasets used here (described in more detail in the next chapter) jointly capture measures that reflect the states of economic deprivation at formative times in the lives of young people, including family income, history of income support receipt, as well as parental employment and occupational status. In addition, the datasets contain measures of family dissolution and parental re-partnering behaviours. They also include information on respondents' own early outcomes that might potentially lead to deprivation as adults. For example, they incorporate a large number of measures of the school experiences of young people, including school performance and achievement, histories of repeating school years, truancy, mobility and suspension from school. The information on school outcomes is complemented by measures of school characteristics that capture the size and socioeconomic composition of the school population, student and teacher motivation levels, and assessments of the adequacy of school resources, among others. Finally, information on engagement in risky activities by young people, including consumption of alcohol, marijuana or smoking, is also available.

Overall, the spectrum of measures jointly offered by the two datasets should be very useful in capturing broadly the nature and characteristics of disadvantage among the youth in Australia and for considering its relationship not only with Year 12 completion but potentially with broader youth outcomes. Our outcome variable, Year 12 completion, is one that research has shown is important for adult outcomes in Australia, and may operate in conjunction with other factors as a contributor to multiple disadvantage for adults, although these adult outcomes are not studied here. Our focus is on the effect on an important education outcome, Year 12 completion, of disadvantage while growing up.

Disadvantage and school completion: proposed contribution to the existing literature

In a review of the literature on school completion in Australia, Lamb et al. (2004) identified the important determinants as including: social and demographic factors (gender, region, ethnicity, socioeconomic status, Indigenous status); curriculum and certification (breadth of offerings, VET in Schools, senior school certificate requirements, alternative programs, university entry requirements); school organisation (sector, selective entry schools, senior colleges, middle schools, TAFE–school relations, TAFE requirements); student performance (early school achievement and academic progress); teachers and pedagogy (teacher quality, teaching styles, assessment); personal factors (finances, physical and mental health, disability, psychological, pregnancy, drug use, transport, family obligations, family breakdown, homelessness); and economic and labour market phenomena (employment and unemployment, apprenticeships, industry, recession and growth, teenage labour

market opportunities). If anything, the most pronounced gap in completion is between Indigenous and non-Indigenous young people – a gap of the order of 40 percentage points (Long, Frigo & Batten 1998).

The set of determinants of school completion identified in the Australian literature is largely limited to information accessible through LSAY or its predecessors, which have served as the main source for studies on the topic, including the independent studies by Le and Miller (2003, 2004), Marks and McMillan (2001), Ryan and Watson (2004), Vella (1999), as well as a series of LSAY reports, including Curtis and McMillan (2008); Fullarton et al. (2003); Jones (2002); Khoo and Ainley (2005); Lamb, Dwyer and Wyn (2000); Le and Miller (2002); Long, Carpenter and Hayden (1999); Marks and Fleming (1999); Marks et al. (2000); McMillan and Marks (2003); and Vickers, Lamb and Hinkley (2003).

One key dimension of this literature has been the relative importance of different aspects of socioeconomic status for school completion. Marks et al. (2000) argued that factors at student, family, school or community levels affecting school outcomes can be broadly categorised into material (ability, parents' income, class sizes, physical environment of community) and cultural (own aspirations, parental attitudes to education, attitude of teachers, social capital). These researchers concluded that cultural factors, as measured by parents' education, had a stronger relationship with participation in Year 12 than wealth. In addition, they found that the importance of family education and occupation factors had declined for cohorts born more recently. In general, however, studies have commonly relied on the measures of socioeconomic position, such as occupational status and parents' education, to investigate school completion and have been unable to distinguish between cultural and resource explanations of the role of the family background.

The determinants of a broader set of indicators of educational attainment, including high school completion, have been widely studied overseas, as well as in Australia. Haveman and Wolfe (1995) provide an extensive review of the international literature on the linkages between individual, family and community characteristics and youth attainment, including education, demonstrating the consensus on the important predictive power of a wide range of disadvantage measures on youth educational and other outcomes.

Some of the common family characteristics whose effect on school attainment have been studied include family structure (Bogges 1998; Hill, Yeung & Duncan 2001; Krein & Beller 1988); size (Blake 1989; Downey 1995; Eloundou-Enyegue & Williams 2006); parents' educational and occupational characteristics (Davis-Kean 2005; Kalmijn 1994; Tansel 1997); and residential mobility (Astone & McLanahan 1994; Pribesh & Downey 1999; Scanlon & Devine 2001).

While family income appears to be an important determinant of education attainment across most studies, its source is also important. Earned income positively affects schooling, while the impact of welfare programs is often found to be negative (for example, Barón 2009; Haveman, Wolfe & Spaulding 1991; Ku 2001; Ku & Plotnick 2003).

Individual characteristics and behaviours that have been found to affect school attainment include alcohol consumption (Koch & McGeary 2005; Renna 2007; Yamada, Kendix & Yamada 1996); drug use (Bray et al. 2000; Chatterji 2006; McCaffrey et al. 2008); health (Alderman, Hoogeveen & Rossi 2009; Currie et al. 2008; Salm & Schunk 2008); religion and religiosity (Darnell & Sherkat 1997; Lehrer 2004, 2006); psychological factors such as self-esteem, locus of control, persistence (Barón 2009; Flouri 2006; Flowers, Milner & Moore 2003; Somers, Owens & Piliawsky 2007); and motivation for learning (Kaplan, Peck & Kaplan 1997).

After controlling for individual and family-level characteristics, school quality measures (Aaronson, Barrow & Sander 2007; Rivkin, Hoxby & Kain 2005; Rockoff 2004) and socioeconomic status (Crowder & South 2003; Harding 2003; Sykes & Kuyper 2009); safety (Bowen & Bowen 1999; Henrich et al. 2004; Schwartz & Gorman 2003); ethnic diversity (Betts 1997; Gould, Lavy & Paserman 2005; Rumberger & Willms 1992) and other features of neighbourhoods have also been shown to affect the education attainment of young people.

In summary, the determinants of school completion have been widely studied in previous studies in different contexts, including in Australia. The measures of disadvantage considered in Australian studies have been limited to the standard measures available in the relevant data. Since many studies have relied on LSAY or its predecessors, the measures of disadvantage used have typically involved parental education and occupation-based socioeconomic status measures, and in some cases neighbourhood-based measures. In this study, we are able to exploit data that contain more information on family background (current family income, income support history, family structure history) and aspects of the young people's earlier experiences of schooling and engagement in risky and/or antisocial behaviour. Since these are factors that international studies indicate are important for school attainment, it is of some interest to see whether the inferences that are drawn about the role of conventional socioeconomic status-related variables change as these other factors are incorporated in our analysis. This is not to say that no previous Australian studies have identified and studied the impact of other measures of disadvantage on school outcomes, but they have been sporadic. There have been studies on the role of substance use, on antisocial behaviour and on the influence of the school environment on school completion, but these tend to have been limited to smaller contexts (Ainley, Foreman & Sheret 1991 study of New South Wales; Lynskey et al. 2003 study of Melbourne; Pitman & Herschell 2002 study of Queensland). Barón (2009) studied the role of locus of control on school completion using the YIF data, finding, like earlier studies, that those with a more *internal* locus were more likely to complete Year 12, but that this effect was independent of any socioeconomic status effect.

Overall, this study offers an opportunity to obtain a better understanding of differences in school completion by undertaking a comparative analysis of the traditionally used LSAY data and that from the YIF survey, which has not been used extensively in studies of this nature. An analysis such as this will provide a robustness test for the previously established linkages between conventional socioeconomic-related disadvantage measures and school completion. Importantly, by allowing some role for an additional set of disadvantage indicators on school completion, we can see the extent to which their inclusion challenges or modifies our understanding of previously established links between traditional measures of disadvantage and school completion.

Data

This chapter describes the key features of the data used in this study, providing first of all details on the sources and features of the two main datasets used. Second, it contains an examination of the degree of comparability of the datasets, as well as some analysis of their representativeness of the Australian population of similarly aged young people. To this end, Year 12 completion rates and other features of the data at individual, family, school and locality levels are presented, as well as contrasted with relevant measures from the 2006 Australian Census of Population and Housing, where possible. Finally, this chapter takes a look at the way in which Year 12 completion varies with the selected characteristics of young people in the data as a means of foreshadowing our analysis of the potential role of different dimensions of disadvantage in determining Year 12 completion.

Sources

This study relies on two main sources to analyse how Year 12 completion is related to disadvantage: the Longitudinal Surveys of Australian Youth (LSAY) and the Youth in Focus (YIF) survey.

LSAY is a program of surveys that traces the experiences of young people as they move from secondary school into the workforce and tertiary education and training. Information on demographic background and other social activities and outcomes is also collected. Respondents are first surveyed in the middle years of secondary schooling and interviewed each following year for approximately ten years.

The Y03 LSAY survey used in this study commenced in 2003, in conjunction with the OECD's Programme for International Student Assessment (PISA). A nationally representative sample of 12 551 15-year-old Australian school students was selected to participate in PISA. Of these, 10 370 became the LSAY Y03 cohort. This study uses data from students who were still in the study in 2006. Consequently, the main sample for analysis is restricted to 7721 young people (table 2 provides details on the sample sizes employed). Subjects in the PISA survey were a 12-month birth cohort born between May 1987 and April 1988. This birth range encompasses the six-month range represented by the YIF sample cohort. Analysis of the Y03 data below reports results for both the 'full' Y03 cohort and the birth group that coincides exactly with that of the YIF sample.

Features of the original PISA survey design and subsequent sample loss through attrition need to be taken into account in the analysis of the LSAY Y03 data. The original survey design involved a sample stratified by state and by school sector, but also involved the oversampling of Indigenous students.³ Weights are therefore provided with the PISA data to weight the achieved sample back to the population of 15-year-old Australian school students. Later drop-out from the sample (from 12 551 to 10 370 in 2003 and attrition from the sample between 2003 and 2006) was greatest among those from more disadvantaged backgrounds and among low-achievement groups. Weights, somewhat similar to those developed in Rothman (2007), have been developed to deal with attrition from the Y03 data (as described in the accompanying support document available at <<http://www.ncver.edu.au/publications/2503.html>>). These weights are used in generating descriptive statistics and in the regression analysis conducted in this paper, such that the results are intended to reflect Year 12 completion patterns in the population.

³ The PISA procedures are described in Thomson, Cresswell and De Bortoli (2004) and Rothman (2007).

The YIF survey is managed by the Australian National University (see Breunig et al. 2009 for detailed description of the project). It focuses on understanding the wellbeing of young people and their progress towards achieving economic and social independence. The YIF data uniquely combine historical government administrative data on payments made to the young person and/or their family with survey data from both the young person and from one of their parents (typically, their mother). The dataset includes detailed information, not only on the current state and activities of the young person and the parent, but also on the circumstances under which the young person grew up.

As table 2 indicates, the sample is drawn from 4079 young people, who were interviewed between August and November of 2006. These people were born between October 1987 and March 1988 and had contact with the social security system in the period between 1991 and 2006 as recipients of government payments themselves, or because their parents received payments or child-related allowances and benefits. While the data should not be viewed as representative of young people whose families were at the very top of the income distribution and therefore ineligible for, in particular, Family Allowance, a comparison between the YIF sample and the Australian Census data suggests that the administrative data capture about 98% of the youths born in the period (Breunig et al. 2009). The analysis in this study is restricted to a sub-sample of those whose parent-participant in the interview was their biological mother. As a result, the sample includes a maximum of 1746 observations, which is less than a half of the matching Y03 sub-sample.⁴

The YIF data are based on a stratified sample of the population of young people whose families had received government payments, such that those with the longest histories of receipt of welfare payments were oversampled, and those who received family payments were undersampled. Once more, weights have been used to re-weight the achieved sample back to match the proportions in the actual population of recipients and these weights are used in all of the reported analysis in this study.

Both the LSAY Y03 and YIF data include information on Year 12 completion of young people born at a common time, as well as other overlapping information on their background and experiences of schooling. However, each of the surveys also possesses strengths that the other lacks. In particular, as table 3 indicates, LSAY Y03 contains measures of student achievement from the PISA survey that the YIF data do not, while the YIF data have more information on family background factors (current family income, welfare receipt history, family structure history) and aspects of the young people's earlier experiences of schooling and their engagement in risky and or anti-social behaviour that LSAY Y03 does not.

⁴ A sub-sample of Y03 including only the respondents who were born in the same period as the YIF cohort is analysed and reported in all the results.

Table 2 Sample sizes: Youth in Focus and LSAY Y03

| | LSAY Y03 | Youth in Focus |
|--|----------|----------------|
| LSAY | | |
| Full PISA sample in 2003 | 12 551 | - |
| LSAY in 2003 | 10 370 | - |
| LSAY respondents in 2006 | 7 721 | - |
| LSAY respondents in 2006 from same birth months as the Youth in Focus sample | 3 975 | - |
| Youth in Focus | | |
| Youth in Focus respondents in 2006 | - | 4 079 |
| Parent respondents in 2006 | - | 3 964 |
| Youth-parent pair respondents in 2006 | - | 2 430 |
| Restricted sample of youth-parent pair respondents in 2006 | | 1 746 |

Table 3 Information contained in LSAY and Youth in Focus data

| Unique to LSAY | Overlapping items | Unique to Youth in Focus |
|---|--|---|
| School achievement measures based on performance in tests | Gender | Family income |
| School characteristics | Parental employment | Experience of early schooling |
| Study programs/subjects undertaken | Parents' occupations | Government income support receipt history |
| Student study plans and occupational ambitions | Parental education | Family background |
| | Location and postcode | Parental marital histories |
| | Number of siblings | Engagement in risky activities |
| | Country of birth | Attitudes towards education |
| | Type of school attended | Parental involvement with schools |
| | Indigenous status | |
| | Self-assessed school performance relative to peers | |
| | State of residence | |
| | Current education participation | |
| | Completed education | |
| | Current employment status | |
| | Current living arrangements | |

Together, the datasets offer a broad set of information that captures different dimensions of disadvantage, including measures of initial socioeconomic circumstances when the respondent was younger, as well as of their own early educational and labour market and social outcomes. As a result, the datasets jointly capture many of the important dimensions of disadvantage identified in previous studies and reported in table 1, including, among others, family income and income support receipt, school achievement and engagement in risky activities.

Overall, the joint use of the datasets offers the potential for a better understanding of both Year 12 completion and the relative importance of different aspects of disadvantage, and of the strengths and limitations of each of the datasets for the analysis of other issues.

Descriptive patterns

This study is based on a comparative analysis of the two datasets to assess the effect on Year 12 completion of a broad set of measures that reflect disadvantage. While the fact that both the LSAY

Y03 and the YIF survey include information on young people born at a common time makes this comparison possible, other aspects of the sampling design of the two surveys may potentially limit the nature of this comparison task. Therefore, our first task is to examine whether the key measures used in this study are sufficiently similar in definition and/or magnitude to provide further grounds for comparison.

In addition, for this study to be of significance, the extent to which its findings can be potentially generalised to the population at large needs to be established. To this end, the representativeness of the measures from the two datasets for the general population is assessed through a comparison with the relevant measures from the 2006 Australian Census of Population and Housing. Special tables were constructed by the Australian Bureau of Statistics (ABS) for individuals born in the same birth months as both the LSAY and YIF cohorts to compare education, training and employment participation in the various data sources.⁵ In a few other cases, we rely on data for all 18-year-olds taken from the Census and compare these data with patterns in the YIF and LSAY data.

We begin with a simple comparison of (various definitions of) Year 12 completion rates across the various data sources. Next, the comparability and the representativeness of the datasets are discussed, based on the measures of respondents' engagement in different activities in 2006. Finally, the demographic characteristics of individuals in the three sets of data are compared, along with the way in which Year 12 completion varies with these selected characteristics.

Year 12 completion

The main measure of completion of Year 12 used in this paper is based on whether individuals report they had received a Year 12 certificate from their relevant state certifying authority. Subjects report this outcome in both the LSAY Y03 and the YIF survey data. Subjects may also report that they 'completed' Year 12, even if they did not receive a certificate, which we take as meaning they remained at school until the end of their Year 12 year. Finally, subjects may have been 'participants' in Year 12. In addition to completers, the term 'participants' includes people who either attended school in Year 12 at some time in the relevant calendar year and dropped out, or who were in Year 12 at the time of the survey in 2006, and hence had not completed Year 12 yet.⁶ The Y03 and YIF data allow all three measures to be calculated, while the Census data provide estimates of those who report they completed Year 12 or were current students. Since it is not clear that the first measure (that is, completed Year 12) is directly comparable with the 'receipt of a Year 12 certificate' in the other two datasets, we equate the ABS measure with the YIF and Y03 measures of reported completion. These various proportions are reported in table 4.

The proportions are reported for five different 'samples': the full Y03 cohort; the Y03 cohort that matches the YIF birth cohort; the YIF sample; and two cohorts taken from the Census data, one matching the Y03 cohort and the other the YIF cohort.

Measured Year 12 participation and completion rates are higher in the Y03 data than in the YIF data, which in turn appear slightly higher than those reported in the Census.

⁵ Tourists and individuals who had arrived within the previous 12 months in Australia were excluded from the Census analysis, as were individuals who did not report their month of birth, but provided their age at their last birthday. Not all individuals provide their birth date (and month) in the Census, providing instead their age at their last birthday. About 96% of individuals do provide their birth month. It seems unlikely that the missing information would vary systemically with school completion in a way that would bias the school completion estimates presented here.

⁶ The commonly used Year 12 'retention rate' in Australia is a measure of participation at the time of the annual, mid-year school Census rather than completion to the standards required to receive a Year 12 certificate.

Table 4 Year 12 completion by 2006: LSAY Y03, Youth in Focus, and 18-year-olds in 2006 Census

| | LSAY Y03 | | Youth in Focus | Census 2006 | |
|--------------------------------|------------------|---------------------------|----------------|----------------------|---------------------|
| | Full 2006 sample | Matching YIF birth cohort | | Matching LSAY cohort | Matching YIF cohort |
| Completion measure | | | | | |
| Received a Year 12 certificate | 72.2 | 70.5 | 63.6 | n/a | n/a |
| Attended Year 12 | 83.2 | 82.1 | 80.1 | 72.8 | 72.6 |
| Reported completion of Year 12 | 77.1 | 74.9 | 68.2 | 68.2 | 67.1 |

The first column of table 4 contains the estimates for the full Y03 sample. Around 72% of Y03 respondents had received a Year 12 certificate by 2006 and 77% reported they had ‘completed’ Year 12, while 83% had at least commenced Year 12. The proportions from the Y03 sample that match the YIF cohort were a few points smaller in all cases.

Reported completion and participation patterns in the YIF sample were smaller. Specifically, only 63.6% of respondents reported possession of Year 12 certificates in this case, while around 68% reported ‘completion’ of Year 12, which means that there is a difference of six to seven percentage points in the estimated Year 12 completion rate between the two datasets.

The last two columns of table 4 report Year 12 attendance and reported completion rates based on the matching birth cohorts in the 2006 Census. Some 67–68% of comparable youth had completed Year 12, much closer in magnitude to the estimates from the YIF data than that that given by LSAY. Specifically, the difference in reported Year 12 completion rates is 1.1 percentage points with YIF and 8.9 percentage points with LSAY.

Most of this difference (more than five percentage points) between reported completion in LSAY and the matching Census cohort appears to arise because some 7% of 15-year-olds had already left school by the time the PISA tests were conducted in 2003, leaving the Y03 completion rate around three percentage points higher than the Census figure. The numbers who ‘attended Year 12’ are higher in both Y03 and YIF than the Census. This is because the former surveys allow identification of those who at least commenced Year 12 as well as those who completed it or were studying towards it at the time of the survey, while the latter collects information only on the highest level of current or completed schooling, not on those who may have commenced Year 12 but not have completed it.

Activities of young people

Another way of gauging the comparability of the LSAY Y03 and YIF data is to look at the activities young people report themselves as engaging in when surveyed in 2006. The distributions of young males and females in the two datasets across a set of activities are presented in table 5. These activities include study at school, at university and in vocational education (VET) courses, in combination with and separate from labour force participation. In general, the distributions are similar between the Y03 cohort that matches the YIF cohort and the YIF survey data, although there are some differences. More people report studying full-time in VET courses in the YIF data; fewer people in YIF report doing apprenticeships or traineeships while working full-time; more people in YIF were looking for work and fewer people were employed full-time. The differences are far more pronounced between the activities males and females engage in (more females are at university; fewer are in apprenticeships or traineeships or working full-time) than between the two datasets. In general, the activities young people engage in seem broadly comparable across the Y03 and YIF data.

Apprenticeships and traineeships are not activities separately identified in the Census data. Hence, the set of activities reported in the Census data in the final two columns of table 5 are not directly comparable with those for the Y03 and YIF surveys. Nevertheless, some of the categories are directly comparable; for example, those at school or studying at university full-time or who are not working and not studying. The proportion at university in both the Y03 and YIF data is a little higher than in the comparable Census data, presumably reflecting higher rates of Year 12 completion in the two surveys. More people are reported as working full-time in the Census data, no doubt including some of those categorised as apprentices or trainees in the surveys. More people are not studying and not working in the Census data than in the two surveys, although the numbers in either category are much smaller than those either working or studying. In general, however, it appears that the Y03 and the YIF data provide similar pictures of the activities young Australians engage in, and that this picture is broadly representative of such activities in the population.

Table 5 Activities engaged in by cohort members: Youth in Focus, LSAY Y03 and 18-year-olds in 2006 Census

| | LSAY Y03 | LSAY Y03 | Youth in Focus | Census 2006 | |
|---|------------------|---------------------------|----------------|----------------------|---------------------|
| | Full 2006 sample | Matching YIF birth cohort | | Matching LSAY cohort | Matching YIF cohort |
| Current activity in 2006 | | | | | |
| <i>Males</i> | | | | | |
| At school | 6.7 | 8.2 | 9.6 | 8.6 | 10.2 |
| At university full-time | 22.8 | 21.3 | 21.7 | 21.1 | 20.4 |
| In VET study full-time | 7.4 | 7.3 | 11.5 | 10.1 | 10.5 |
| Apprenticeship/traineeship, full-time work | 19.5 | 19.9 | 14.9 | n/a | n/a |
| Apprenticeship/traineeship, not working full-time | 1.5 | 1.7 | 1.8 | n/a | n/a |
| Post-school study part-time, not working | 0.1 | 0.1 | 0.7 | 1.4 | 1.5 |
| Post-school study part-time, part-time work | 0.7 | 0.6 | 1.5 | 1.8 | 1.8 |
| Part-time work, no study | 13.2 | 12.5 | 11.3 | 9.4 | 9.4 |
| Full-time work, no study | 20.3 | 20.1 | 15.9 | 26.1 | 25.1 |
| Full-time work, part-time study | 0.7 | 0.6 | 3.4 | 9.2 | 8.8 |
| No study, not working and looking for work | 4.0 | 4.2 | 6.0 | 7.3 | 7.4 |
| No study, not working, not looking for work | 3.1 | 3.5 | 1.7 | 5.1 | 4.9 |
| <i>Females</i> | | | | | |
| At school | 5.7 | 6.4 | 8.2 | 7.6 | 9.0 |
| At university full-time | 32.5 | 31.9 | 32.6 | 29.9 | 29.3 |
| In VET study full-time | 7.7 | 7.5 | 12.7 | 11.3 | 11.6 |
| Apprenticeship/traineeship, full-time work | 6.0 | 5.9 | 3.4 | n/a | n/a |
| Apprenticeship/traineeship, not working full-time | 1.0 | 0.8 | 0.9 | n/a | n/a |
| Post-school study part-time, not working | 0.2 | 0.1 | 1.1 | 1.7 | 1.7 |
| Post-school study part-time, part-time work | 1.7 | 1.7 | 2.6 | 2.7 | 2.6 |
| Part-time work, no study | 18.9 | 19.7 | 13.9 | 13.2 | 13.2 |
| Full-time work, no study | 16.7 | 16.3 | 12.2 | 18.1 | 17.3 |
| Full-time work, part-time study | 1.5 | 1.2 | 2.7 | 3.5 | 3.5 |
| No study, not working and looking for work | 3.9 | 3.6 | 5.7 | 6.1 | 6.1 |
| No study, not working, not looking for work | 4.3 | 5.0 | 3.9 | 6.0 | 5.8 |

Demographic characteristics

Tables 6 and 7 report the distribution of the sample across the key demographic variables used in the study, depicting in most cases comparable patterns in the Y03 and YIF data, which are also broadly consistent with those evident in the Census, where relevant data are available. The variables include background demographic and family characteristics, including parental education and employment, individual birthplace and region of residence.

Exceptions include some of the family characteristics and are indicative of the YIF sample being a less advantaged group compared with the LSAY Y03 sample. Specifically, the proportion of parents with a university degree is almost twice as large in Y03 data by comparison with the YIF sample (table 6). More than 37% of respondents in Y03 have a mother (father) who holds a degree, while only around 20% in the YIF sample do. The family structures of the respondents in the two datasets also differ in important ways. In particular, as indicated in table 7, around a quarter of young people in YIF live with just one parent, while only around 16% of males and around 18% of females in Y03 do.

The respondents in the two datasets report comparable but not exactly similar school-related characteristics. Young people in Y03 report higher assessments of their school performance relative to their peers than do YIF respondents. The share of those with above-average self-assessed school performance is around 56% in Y03, which is more than ten percentage points higher than the reports of those in the YIF survey (table 7). Around 20% of respondents in both datasets attended Catholic schools in their last year, while the share of those from independent schools is four percentage points higher in the Y03 sample than in the YIF data (table 7).

Overall, respondents in the YIF sample appear more disadvantaged relative to those in Y03, due to the observed larger shares of those from single-parent families, with parents with comparably lower average education levels and with respondents having negative views about their own school performance. As the review of literature suggests, these factors are all likely to affect Year 12 completion (table 7).

Table 8 indicates how Year 12 completion rates, measured by reports that individuals received a Year 12 certificate from their jurisdiction, vary in the two datasets by these selected individual, family, school and locality characteristics. There are broad differences in completion patterns across demographic groups that are familiar from the existing literature. Females have higher Year 12 completion rates than do males. Year 12 completion rates are the highest among the respondents born in a non-English-speaking country, followed by those from overseas English-speaking countries; the lowest are among the Australian-born population. Residents of major cities have higher completion rates than those from other places in Australia. Differences in family characteristics also affect school completion patterns. Those whose parents work have slightly higher completion rates than those whose parents do not work; higher completion rates are associated with higher levels of parental education and with smaller sized families. Completion rates are higher among those who attended Catholic and independent schools. These patterns are broadly comparable across the various data sources.

Comparisons with Census data are possible for the two sets of data, and these appear in the final two columns of table 8. The measure of school completion used for the Census data is 'reported completion', so the magnitudes tend to be higher than for the Y03 and YIF columns, although the differences between groups are very similar, regardless of the measure used (for example 8–11 percentage points between genders, similar patterns by birthplace and broadly comparable jurisdictional patterns).

Table 6 Distribution of sample across key demographic variables in 2006: Youth in Focus, LSAY Y03 and 18-year-olds in 2006 Census

| | LSAY Y03 (full 2006 sample) | LSAY Y03 (matching YIF birth cohort) | Youth in Focus | Census 2006 |
|--|-----------------------------------|---|-------------------|-------------|
| Categorical variables | | | | |
| Male | 50.6 | 50.4 | 51.3 | 50.7 |
| Female | 49.4 | 49.6 | 48.7 | 49.3 |
| Lives in major city | 67.2 | 66.8 | 62.5 | n/a |
| Lives elsewhere in Australia | 32.8 | 33.2 | 37.5 | n/a |
| Indigenous Australian | 2.1 | 2.2 | 3.3 | 3.4 |
| Non-Indigenous Australian | 97.9 | 97.8 | 96.7 | 96.6 |
| Father works | 86.4 | 86.5 | 91.2 | n/a |
| Father does not work | 13.6 | 13.5 | 8.8 | n/a |
| Mother works | 68.6 | 69.1 | 69.5 | n/a |
| Mother does not work | 31.5 | 30.9 | 30.5 | n/a |
| Father has a degree | 39.2 | 39.2 | 18.8 | n/a |
| Father does not have a degree | 60.8 | 60.8 | 81.2 | n/a |
| Mother has a degree | 38.8 | 37.5 | 20.6 | n/a |
| Mother does not have a degree | 61.2 | 62.5 | 79.4 | n/a |
| No siblings | 6.7 | 7.1 | 4.8 | n/a |
| One sibling | 35.0 | 35.0 | 34.6 | n/a |
| Two siblings | 32.1 | 33.0 | 34.0 | n/a |
| Three siblings | 15.2 | 14.2 | 17.0 | n/a |
| Four or more siblings | 11.0 | 10.6 | 9.6 | n/a |
| Respondent born overseas in English-speaking country | 4.0 | 3.8 | 3.2 | 1.3 |
| Respondent born overseas in non-English-speaking country | 8.9 | 8.1 | 7.1 | 5.7 |
| Respondent born in Australia | 87.2 | 88.2 | 89.7 | 93.0 |
| Self-assessed school performance – well above average | 14.9 | 14.7 | 8.5 | n/a |
| Self-assessed school performance – better than average | 40.3 | 41.1 | 36.0 | n/a |
| Self-assessed school performance – average | 43.0 | 42.9 | 49.1 | n/a |
| Self-assessed school performance – below average | 1.6 | 1.2 | 6.3 | n/a |
| Attended Catholic school in last year at school | 21.7 | 20.9 | 20.4 | n/a |
| Independent school in last year at school | 16.5 | 17.2 | 13.1 | n/a |
| Government school in last year at school | 61.8 | 62.0 | 66.5 | n/a |
| NSW | 31.8 | 31.9 | 30.7 | 32.8 |
| Vic. | 24.3 | 24.0 | 26.5 | 25.6 |
| Qld | 19.2 | 20.4 | 19.8 | 20.0 |
| SA | 8.8 | 8.0 | 7.9 | 7.7 |
| WA | 11.0 | 10.7 | 10.1 | 8.8 |
| Tas. | 2.2 | 2.4 | 3.0 | 2.3 |
| NT | 0.7 | 0.7 | 0.3 | 0.9 |
| ACT | 1.9 | 1.9 | 1.7 | 1.9 |
| | | | Mean (SE) | |
| Head of household ANU 4 | 46.4 (0.6) | 46.0 (0.6) | 46.4 (0.5) | n/a |
| SEIFA 2001 – advantage-disadvantage index | 1002.3 (3.7) | 1002.0 (3.7) | 994.2 (1.3) | n/a |
| SEIFA 2001 – education and occupation index | 996.2 (3.6) | 996.4 (3.8) | 988.8 (1.3) | n/a |

Note: YIF: Parents' information on work, education is not available from Youth's questionnaire for current time (only available when the youth was aged 14).

Source: Estimated from the LSAY Y03 and YIF cohorts (based on weighted data).

Table 7 Other comparisons of situations of cohort members: Youth in Focus, LSAY Y03 and 18-year-olds in 2006 Census

| | LSAY Y03 (full 2006 sample) | LSAY Y03 (matching YIF birth cohort) | Youth in Focus | Census 2006 |
|--|-----------------------------------|--|-------------------|-------------|
| Situation | | | | |
| <i>Males</i> | | | | |
| Living with two parents | 67.5 | 68.9 | 57.9 | 80.2 |
| Living with one parent | 15.7 | 15.8 | 25.9 | |
| Not living with parents and not studying | 14.7 | 14.4 | 7.1 | 10.4 |
| Living with partner | 3.9 | 3.3 | 2.6 | n/a |
| Living with own children | 0.5 | 0.5 | 0.5 | 0.0 |
| Receiving Youth Allowance, not studying | 2.9 | 2.5 | n/a | n/a |
| Receiving other government payments | 3.4 | 2.4 | n/a | n/a |
| <i>Females</i> | | | | |
| Living with two parents | 63.4 | 62.7 | 53.6 | 74.2 |
| Living with one parent | 16.7 | 18.1 | 23.9 | |
| Not living with parents and not studying | 14.1 | 14.0 | 9.4 | 12.9 |
| Living with partner | 7.4 | 7.4 | 6.3 | n/a |
| Living with own children | 1.2 | 1.2 | 2.6 | 3.0 |
| Receiving Youth Allowance, not studying | 4.2 | 4.2 | n/a | n/a |
| Receiving other government payments | 3.9 | 4.1 | n/a | n/a |

There are differences in completion rates between the datasets that are, nevertheless, striking. The key one is across Indigenous and non-Indigenous groups, where the differences are much more pronounced in YIF than in the Y03 data. The completion rate in the non-Indigenous population is around 65%, in contrast to 36% among Indigenous young people in YIF. This gap between the groups is comparable with the Census-generated completion rates in the final two columns, and with that found in earlier studies (Long, Frigo & Batten 1998). In contrast, the completion gap in the Y03 sample is just ten percentage points, largely driven by much higher completion rates among the Indigenous group in the Y03 sample than in the other data. Clearly, the group of young Indigenous people who remained in the LSAY Y03 sample do not appear to be representative of the general population of Indigenous youth in terms of their educational attainment. Whether this is the result of oversampling of Indigenous students in PISA (Rothman 2007), an Indigenous bias in the LSAY sample attrition, or some other factor is unclear.

Another key difference between the groups lies in the role of self-assessed school performance. The gap in completion rates between those rating themselves as well above average by comparison with below average was about 40 percentage points in the Y03 data and over 50 points in the YIF data. As indicated earlier, there were also differences in the distributions across categories in the data, with relatively more people in LSAY rating themselves favourably compared with their peers than in the YIF data.

The observed patterns of Year 12 completion described here are broadly consistent with those reported in previous studies. For example, the observed pattern of completion rates among those respondents whose mothers did and did not have a degree is similar in Long, Carpenter and Hayden (1999, who analysed the Youth in Transition surveys) to that found in this study, as is the pattern of completion across government and non-government schools. Further, like this study, Long, Carpenter and Hayden (1999) document a difference in female and male Year 12 completion rates of eight percentage points; in this study it is around ten percentage points higher for females.

Fullarton et al. (2003) consider participation in Year 12 based on the Youth in Transition surveys and the 1995 and 1998 Year 9 LSAY cohorts. Their comparisons over time indicate that many of the observed differences between groups in Year 12 participation declined during the expansion of the 1980s but remained stable from 1992 onwards. Therefore, the reported participation rates by groups for the last year of their analysis, 2001, are similar in magnitude to the completion rates reported for 1994 in Long, Carpenter and Hayden (1999).

In summary, school completion, as well as the series of measures that reflect disadvantage in the Y03 and YIF data, appears comparable in most cases. They are also broadly consistent with measures calculated from Census data. The simple analysis of completion rates across selected individual, family, school and locality characteristics is generally indicative of similar relationships between disadvantage and Year 12 completion in the two datasets. The relationships identified are also consistent with those reported in previous studies.

Table 8 Year 12 completion by key demographic variables in 2006: Youth in Focus, LSAY Y03 and 18-year-olds in 2006 Census

| | LSAY Y03 | LSAY Y03 | Youth in Focus | Census 2006* | |
|--|------------------|---------------------------|----------------|----------------------|---------------------|
| | Full 2006 sample | Matching YIF birth cohort | | Matching LSAY cohort | Matching YIF cohort |
| Categorical variables | | | | | |
| Male | 68.1 | 65.8 | 58.1 | 63.1 | 61.8 |
| Female | 76.4 | 75.4 | 69.3 | 73.4 | 72.6 |
| Lives in major city | 75.9 | 73.9 | 67.6 | n/a | n/a |
| Lives elsewhere in Australia | 64.7 | 63.7 | 56.7 | n/a | n/a |
| Indigenous Australian | 62.9 | 60.8 | 36.2 | 37.0 | 36.4 |
| Non-Indigenous Australian | 72.4 | 70.7 | 64.6 | 69.3 | 68.1 |
| Father works | 72.9 | 71.0 | 66.8 | n/a | n/a |
| Father does not work | 67.8 | 67.5 | 52.5 | n/a | n/a |
| Mother works | 73.9 | 71.9 | 66.1 | n/a | n/a |
| Mother does not work | 68.6 | 67.4 | 60.4 | n/a | n/a |
| Father has a degree | 78.6 | 77.2 | 77.2 | n/a | n/a |
| Father does not have a degree | 68.1 | 66.3 | 63.6 | n/a | n/a |
| Mother has a degree | 77.1 | 76.0 | 74.5 | n/a | n/a |
| Mother does not have a degree | 69.1 | 67.3 | 63.9 | n/a | n/a |
| No siblings | 74.6 | 76.1 | 60.4 | n/a | n/a |
| One sibling | 73.8 | 73.8 | 70.3 | n/a | n/a |
| Two siblings | 72.6 | 69.0 | 64.9 | n/a | n/a |
| Three siblings | 73.0 | 71.4 | 64.4 | n/a | n/a |
| Four or more siblings | 64.5 | 59.4 | 55.0 | n/a | n/a |
| Respondent born overseas in English-speaking country | 73.7 | 72.9 | 66.1 | 70.9 | 68.7 |
| Respondent born overseas in non-English-speaking country | 77.5 | 75.1 | 68.7 | 75.0 | 71.6 |
| Respondent born in Australia | 71.7 | 70.1 | 63.1 | 67.4 | 66.6 |
| Self-assessed school performance – well above average | 83.1 | 79.8 | 83.2 | n/a | n/a |
| Self-assessed school performance – better than average | 78.5 | 76.4 | 75.5 | n/a | n/a |
| Self-assessed school performance – average | 64.2 | 62.8 | 55.9 | n/a | n/a |
| Self-assessed school performance – below average | 35.7 | 38.8 | 28.9 | n/a | n/a |
| Catholic school in last year at school | 77.8 | 75.4 | 74.9 | n/a | n/a |
| Independent school in last year at school | 81.5 | 78.2 | 70.7 | n/a | n/a |
| Government school in last year at school | 67.8 | 66.8 | 58.9 | n/a | n/a |
| NSW | 70.0 | 68.3 | 65.1 | 66.7 | 65.8 |
| Vic. | 68.3 | 65.9 | 62.1 | 68.2 | 66.5 |
| Qld | 83.7 | 82.8 | 75.1 | 74.1 | 73.1 |
| SA | 71.2 | 70.9 | 57.3 | 64.5 | 64.3 |
| WA | 73.5 | 71.8 | 53.5 | 69.6 | 68.7 |
| Tas. | 46.6 | 37.3 | 33.6 | 48.4 | 44.8 |
| NT | 62.7 | 62.1 | 53.2 | 44.0 | 43.8 |
| ACT | 72.9 | 70.2 | 69.9 | 77.4 | 76.0 |

Note: Census estimates are of 'Reported completion of Year 12', not received a Year 12 certificate. From table 4, estimates of this concept of completion are about 4 to 5 percentage points higher than 'Received a Year 12 Certificate' in LSAY and YIF.

Multivariate analysis

This section presents the results of the econometric analysis of the impact of disadvantage and other factors on school completion. The school completion dependent variable takes the value 1 if the respondent had a Year 12 certificate by 2006 and 0 otherwise. A broad range of demographic, family background, school and locality characteristics that may determine a young person's completion of school are jointly taken into account in estimating the impact of disadvantage. The results of probit models that take account of the discrete nature of the dependent variable are reported here. To aid interpretation of the results, the 'marginal effects' of the explanatory variables on school completion are calculated and reported. These measure the percentage-point change in the probability of Year 12 completion in response to a one-unit change in any explanatory variable, while holding other explanatory variables constant.

The results based on YIF and Y03 data are presented separately. First, the contribution of factors which are common to YIF and Y03 to Year 12 completion is analysed. Second, the factors reflecting disadvantage that are unique to each of the datasets are added to the analysis and their role in explaining school completion, as well as their impact on the magnitude of factors already included in the model, are discussed. This allows for discussion of the relative importance of alternative measures of disadvantage in the two datasets in explaining Year 12 completion, as measured by possession of a Year 12 certificate.

The role of factors common to the two datasets

The marginal effects of the explanatory variables on Year 12 completion, which measure the percentage-point change in the probability of Year 12 completion associated with a one-unit increase in each of the explanatory variables, are presented in tables 9 to 11. The results for the YIF data appear in table 9, for the Y03 sample that matches the YIF cohort in table 10, and for the full LSAY cohort in table 11. The first numerical column of tables 9–11 displays the regression results that include the list of controls common to the two datasets (model 1). For the purposes of comparison of the results across Y03 and YIF, the discussion of the former is based on table 10, which reports the results for the sub-sample of respondents who were born in the same months as the YIF cohort.

The factors with a statistically significant impact on school completion in both datasets include gender, number of siblings, household structure, school type, the occupational status of respondents' parents and the self-assessed school performance of individuals. The magnitudes and the signs of the coefficients across the two datasets are similar in most cases and in line with the results of previous studies.

The results confirm lower school completion by males in both datasets, of the order of nine to ten percentage points. Growing up in a household with a larger number of siblings is negatively associated with school completion. The probability of Year 12 completion decreases by one to two percentage points for each additional sibling. Respondents from two-parent household have higher probabilities of school completion than do respondents from single-parent households. This difference is ten percentage points in the YIF and 11 percentage points in the Y03 results. The probability of school completion increases for respondents with parents employed in higher-status occupations. From the bottom to the top of the status scale, the magnitudes are of the order of a 12-percentage-point increase in the probability in the YIF data and 15 percentage points in Y03.

Respondents from Catholic or independent schools are more likely to complete Year 12 than those in government schools. As the YIF results indicate, the differences between government and Catholic and independent schools are of the order of nine and eight percentage points, respectively. Based on Y03 results, the differences are four and three percentage points, respectively. These are somewhat smaller effects than the apparent differences reported in table 7 and smaller than estimates reported in previous studies. For example, Williams and Carpenter (1990) report 14- and 58-percentage point difference between government and Catholic and independent schools respectively for a cohort born in 1961. After adjustment for between-sector differences in student attributes, the differences were five and 31 percentage points respectively. Long, Carpenter and Hayden (1999) report the same observed differences between government and Catholic and independent schools for the 1961 cohort. Differences between the sectors, while smaller for later cohorts, remained sizeable; for example, nine and 22 percentage points for a cohort born in 1975. However, adjusting the completion rates for student background attributes reduces the observed differences between government and Catholic and independent schools to the order of three and eight percentage points respectively. As a result of further adjustment for differences in post-school expectations, Long, Carpenter and Hayden (1999) reported differences of one and six percentage points respectively.

In addition, respondents who report performance of average or below at school have a much lower probability of school completion than those with a performance that is well above average. The difference in completion between those with well-above-average self-assessed school performance status and those with better-than-average status is 13 percentage points (four percentage points in Y03). Further differences between well-above-average and average and below-average status are associated with decreases of 29 and 68 percentage points (14 and 37 percentage points) respectively. Like the earlier results, the differences in these reports between self-assessed categories have a much greater impact on Year 12 completion in the YIF data than is the case for Y03.

Finally, in both datasets, respondents residing in Queensland exhibit higher and those in Tasmania lower propensities to complete school than do residents in New South Wales.

Additional factors of statistical significance for school completion in YIF include Indigenous status, respondent's father's post-secondary qualification and being born overseas (in the full Y03 sample maternal post-secondary qualification and non-English speaking birthplace were positively associated with school completion). According to the YIF results, Indigenous status is associated with a 23-percentage point lower propensity to complete Year 12, while it made no difference for completion in the Y03 results, consistent with the patterns in the data discussed in the previous chapter. In addition, Year 12 completion probability of respondents whose fathers possess a post-secondary degree is five percentage points higher than that of those whose fathers have a lower educational qualification. In the full Y03 sample the respondent's mother possessing a degree is what matters for school completion, leading to an increase of four percentage points in the probability of Year 12 completion. Being born in an overseas English-speaking country is associated with a decrease in the probability of Year 12 completion by 15 percentage points. On the other hand, being born in a non-English speaking country is associated with an increase in the probability of Year 12 completion by ten percentage points (eight percentage points in the full Y03 sample). Finally in the Y03 results, living in a major city is associated with a five percentage points higher probability of school completion than living elsewhere.

Overall, the explanatory power and nature of the characteristics shared across two datasets vis-a-vis school completion is highly comparable in most cases, with the exceptions discussed. The most notable of these exceptions is the Indigenous gap apparent in the YIF, but not the LSAY, data. The contributions of factors unique to each of the datasets are analysed next.

Contribution of additional factors specific to the datasets

Youth in Focus results

This section considers the contribution of the additional variables that reflect aspects of disadvantage and which are unique to each of the datasets. The groups of factors unique to YIF and linked to school completion include family income, income support history, parental marital histories, parental involvement with the schools of their child, details of schooling experiences and young people's engagement in risky activities. Models 2–7 incorporate the contribution of those groups of factors sequentially into the analysis of school completion and are reported in table 9. The set of variables presented and the order in which they are included in the regression equation sequentially reflect their 'proximity' to the concept of disadvantage. Low levels of family income will correspond to access to low levels of material resources in families to support the academic (and other forms of) child development. Extended histories of reliance on income support will also point to histories of limited access to material resources and possibly exposure to other dimensions of disadvantage. Other factors towards the end of the list of variables will tend to be the reflection of disadvantage as it affects education, such as school suspensions, high numbers of schools attended and later involvement in risky or anti-social behaviour by young people. These are likely to be the consequences of young people's earlier experience of disadvantage.

The impact of family income on school completion is positive and significant as column 2 of table 9 demonstrates, but quite small. The probability of Year 12 completion increases by 0.05 percentage points with additional family income of one thousand dollars. Model 3 adds three measures of income support history into the analysis. The coefficients on two of these measures are negative, in line with previous studies that found a negative impact of welfare programs on school attainment (for example, Barón 2009; Haveman, Wolfe & Spaulding 1991; Ku 2001; Ku & Plotnick 2003). However, they are not significantly different from zero and their inclusion results in only small falls in the size of the coefficients on family income and parental occupational status.⁷

The estimated coefficient on the number of marriages and relationships of the responding parent, while negative in sign, is again not statistically insignificant (model 4, table 9). Similarly, while there is an indication that the experiences of having parents often read to respondents at night when younger and help them with homework are negatively associated with school completion, these relationships are not statistically significant (model 5, table 9).

Model 6 adds student experiences to the analysis. There is a strong negative association between repeating a school year and secondary school suspension histories and the probability of Year 12 completion. Those who have repeated a school grade have a 30-percentage point lower probability of school completion than those who did not. Those who were ever suspended from school were 19 percentage points less likely to have completed school.

Finally, risky behaviours⁸, including experiences of smoking and alcohol consumption, have a statistically significant negative effect on school completion (model 7). Experience of smoking reduces the probability of Year 12 completion by eight percentage points, while drinking alcohol does

⁷ These results can be reconciled with those in Barón (2009), who found a negative impact from welfare receipt history on school completion using the same data, but did not include family income or parental occupational status in the estimated equations.

⁸ 'Risky behaviours' collected by the YIF are those identified as having potential long-term consequences for adolescent wellbeing.

so by seven percentage points. In this specification, the coefficient on the history of school suspension is smaller in magnitude, but still highly significant. These coefficients should not be interpreted as representing the causal effects of these activities on Year 12 completion, but rather the associations between the variables. However, they are the associations that remain when other aspects of family background, including family structures, income, welfare receipt history and parental education and socioeconomic status are taken into account.

The process of adding additional variables to the Year 12 completion equation suggests that disadvantage among the YIF sample is largely evinced through their experiences of schooling and participation in risky activities. Once these phenomena are taken into account, background factors reflecting traditional socioeconomic measures play a less significant role in explaining who completes Year 12 or not. The family income effect remains significant, but small in magnitude; occupation-based socioeconomic status measures play a less important role and are only marginally significant, while parental education effects are smaller and not significant. Also of note from a disadvantage perspective, the gap in Year 12 completion between the Indigenous and non-Indigenous groups falls only just a little as more aspects of disadvantage are added – it remains a more than a 20-percentage-point difference in completion rates.

LSAY Y03 results

Y03 uniquely includes measures of school achievement, aspirations, school climate⁹, characteristics and resources, which previous studies indicate may be linked with Year 12 completion. Models 2–6 incorporate the contribution of those groups of factors into the analysis of school completion and are reported in table 10 (11 for the full sample).

Reading and mathematical literacy in absolute terms are strongly and positively associated with Year 12 completion (model 2). The probability of Year 12 completion increases by seven percentage points with an additional 100 scores on each of reading and mathematical literacy tests.¹⁰ In addition, as a result of the inclusion of these controls, the coefficients on Catholic and independent schools fall and lose their significance, suggesting that the role of the school type for completion might be operating through student achievement, although whether this is a consequence of the differences in the quality of education or the quality of the student intake cannot be distinguished here. The number of siblings in the family is also insignificant in this specification. The parameter on the gender effect also falls, indicating that part of this gap in completion between males and females reflects an earlier school achievement gap. The inclusion of the reading and mathematical literacy scores also lowers the completion gaps between individuals who report different levels of self-assessed school performance relative to their peers.

Aspirations at age 15 also have a statistically significant effect on Year 12 completion (model 3). Plans to participate in Year 12 and to go to university increase the probability of school completion by 24 and eight percentage points respectively. On the other hand, experience of repeating a school grade reduces the probability of completing school by 22 percentage points. This result is consistent with the findings in model 6 for the YIF data, both in sign and in magnitude. Parental socioeconomic occupational status is no longer significant once variables capturing the aspirations of respondents are included. The coefficients on reading and mathematical numeracy are smaller in magnitude in this

⁹ 'School climate' includes: student body attitudes to school, teacher's attitudes to school, teacher problem behaviours, and student body problem behaviours (see the support document for more information).

¹⁰ This estimate for each effect also incorporates the impact of the quadratic term included in the regression equation.

specification, while they preserve their significance throughout. The self-assessed performance effects also fall more, once aspirations are taken into account, with only the below-average group having significantly lower levels of school completion. In addition, the inclusion of aspirations lowers the completion gap between males and females, so that part of this gap reflects an aspirational gap between boys and girls.

Model 4 adds measures of school climate to the analysis. Higher student body problem behaviour, as perceived by principals, is negatively associated with school completion. The probability of Year 12 completion decreases by four percentage points with an increase in student body problem behaviour. Interestingly, more positive teacher attitudes, as perceived by principals, appear to be negatively associated with school completion. However, it is likely that the impact of teachers' attitudes on school completion is channelled through their impact on student outcomes, including, among others, aspirations, performance, problem behaviour, and so on. For example, inclusion of an interaction of measures of teachers' attitudes to school and student body problem behaviour leads to a significant positive coefficient on the interaction, with the coefficient on student body problem behaviour¹¹ preserving its sign and significance. This suggests that the negative effect of student problem behaviour on Year 12 completion is weaker where better teachers are in place.¹²

Finally, school characteristics and resources have hardly any explanatory power over Year 12 completion, with the exception of the extent of adequacy of school physical facilities, which is marginally positively associated with completion.

In all models, the Indigenous effect on Year 12 completion remained insignificant in the LSAY data. This included specifications where the researchers allowed interactions between being Indigenous and the impact of student aspirations, for example, testing the idea that Indigenous students may not have been able to translate their aspirations as effectively as other students. There was no evidence from the data that this was the case.

The process by which the researchers add additional variables to the equation explaining Year 12 completion using the Y03 data does not add factors that are direct indicators of disadvantage; rather, it adds factors that might be considered as indirectly reflecting the experience of disadvantage. The inclusion of these factors, such as earlier achievement and student aspirations, removes the significance of many of the conventional measures of disadvantage, such as socioeconomic status based on parental education or occupation.

¹¹ 'Student body problem behaviours' refers to principals' reports of the extent to which behaviours truancy, use of substances, and bullying hindered the learning of students in their school. See the support document for further information.

¹² Results are available upon request.

Table 9 Regression results, Youth in Focus, Year 12 completion

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Gender (1 = male) | -0.10 [0.02]*** | -0.10 [0.02]*** | -0.10 [0.02]*** | -0.10 [0.02]*** | -0.09 [0.02]*** | -0.07 [0.02]*** | -0.08 [0.02]*** |
| Lives in major city | 0.00 [0.03] | 0.01 [0.03] | 0.01 [0.03] | 0.01 [0.03] | 0.02 [0.03] | 0.03 [0.03] | 0.03 [0.03] |
| Indigenous Australian | -0.23 [0.08]*** | -0.22 [0.08]*** | -0.22 [0.08]*** | -0.22 [0.08]*** | -0.23 [0.10]** | -0.22 [0.10]** | -0.21 [0.10]** |
| Father or head of household employed, age 14 | -0.02 [0.03] | -0.05 [0.03] | -0.05 [0.03] | -0.05 [0.03] | -0.04 [0.03] | -0.04 [0.03] | -0.05 [0.03] |
| Parental education | | | | | | | |
| Father has bachelor degree or higher | 0.05 [0.03]* | 0.05 [0.03] | 0.05 [0.03] | 0.05 [0.03] | 0.02 [0.03] | 0.02 [0.03] | 0.01 [0.03] |
| Mother has bachelor degree or higher | 0.02 [0.03] | 0.01 [0.04] | 0.01 [0.04] | 0.01 [0.04] | 0.05 [0.03] | 0.05 [0.03] | 0.05 [0.03] |
| Number of siblings | -0.02 [0.01]** | -0.02 [0.01]* | -0.02 [0.01]* | -0.02 [0.01]* | -0.02 [0.01]*** | -0.02 [0.01]** | -0.02 [0.01]*** |
| Respondent's country of birth | | | | | | | |
| Overseas, English speaking country | -0.15 [0.09]* | -0.14 [0.09] | -0.14 [0.09] | -0.14 [0.09] | -0.11 [0.10] | -0.09 [0.09] | -0.11 [0.10] |
| Overseas, non-English speaking country | 0.17 [0.03]*** | 0.18 [0.02]*** | 0.18 [0.02]*** | 0.18 [0.02]*** | 0.13 [0.03]*** | 0.12 [0.04]*** | 0.11 [0.04]*** |
| Two-parent household, age 14 | 0.10 [0.03]*** | 0.08 [0.03]*** | 0.07 [0.03]** | 0.06 [0.03]* | 0.07 [0.04]* | 0.06 [0.04] | 0.04 [0.04] |
| School sector, last year at school | | | | | | | |
| Catholic school | 0.09 [0.02]*** | 0.08 [0.02]*** | 0.08 [0.03]*** | 0.08 [0.03]*** | 0.05 [0.03]** | 0.05 [0.03]* | 0.05 [0.03]* |
| Independent school | 0.08 [0.03]*** | 0.08 [0.03]*** | 0.08 [0.03]*** | 0.08 [0.03]*** | 0.06 [0.03]** | 0.05 [0.03] | 0.05 [0.03] |
| Residential state, last year at school | | | | | | | |
| Vic. | 0.02 [0.03] | 0.02 [0.03] | 0.02 [0.03] | 0.02 [0.03] | 0.03 [0.03] | 0.04 [0.03] | 0.04 [0.03] |
| Qld | 0.11 [0.03]*** | 0.11 [0.02]*** | 0.11 [0.02]*** | 0.11 [0.02]*** | 0.10 [0.02]*** | 0.11 [0.02]*** | 0.11 [0.02]*** |
| SA | -0.07 [0.05] | -0.08 [0.05] | -0.08 [0.05] | -0.08 [0.05] | -0.09 [0.05]* | -0.09 [0.05]* | -0.09 [0.05]* |
| WA or NT | -0.20 [0.05]*** | -0.21 [0.05]*** | -0.21 [0.05]*** | -0.21 [0.05]*** | -0.16 [0.06]*** | -0.16 [0.06]*** | -0.18 [0.06]*** |
| Tas. | -0.18 [0.09]** | -0.19 [0.09]** | -0.19 [0.09]** | -0.19 [0.09]** | -0.22 [0.10]** | -0.25 [0.10]** | -0.21 [0.11]** |
| ACT | 0.07 [0.07] | 0.07 [0.07] | 0.07 [0.07] | 0.07 [0.07] | 0.09 [0.06]* | 0.11 [0.05]** | 0.09 [0.06] |
| SEIFA scales (multiplied by 1000) | | | | | | | |
| Advantage-disadvantage | 0.57 [0.55] | 0.49 [0.55] | 0.43 [0.56] | 0.43 [0.56] | 0.11 [0.58] | -0.12 [0.58] | -0.07 [0.58] |
| Education and occupation | -0.3 [0.53] | -0.27 [0.53] | -0.23 [0.53] | -0.23 [0.53] | 0.05 [0.56] | 0.32 [0.56] | 0.34 [0.56] |
| SES – responding parent ANU4 (multiplied by 100) | 0.12 [0.06]** | 0.10 [0.06]* | 0.10 [0.06]* | 0.10 [0.06]* | 0.09 [0.06] | 0.09 [0.06] | 0.10 [0.06]* |
| Self-assessed school performance, last year at school | | | | | | | |
| Better than average | -0.13 [0.06]** | -0.13 [0.06]** | -0.13 [0.06]** | -0.13 [0.06]** | -0.12 [0.05]** | -0.10 [0.05]* | -0.09 [0.05]* |
| Average | -0.29 [0.05]*** | -0.29 [0.05]*** | -0.29 [0.05]*** | -0.29 [0.05]*** | -0.26 [0.05]*** | -0.23 [0.05]*** | -0.19 [0.05]*** |
| Below average | -0.68 [0.05]*** | -0.68 [0.05]*** | -0.68 [0.05]*** | -0.68 [0.05]*** | -0.68 [0.07]*** | -0.61 [0.08]*** | -0.59 [0.08]*** |

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|--|---------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
| Family income | | | | | | | |
| Family income – parental income (AU\$1000) | | 0.0005 [0.0002]** | 0.0005 [0.0002]** | 0.0005 [0.0002]** | 0.00056 [0.0002]** | 0.0005 [0.0002]** | 0.0006 [0.0002]** |
| Family income is zero or not able to be estimated | | -0.07 [0.05] | -0.06 [0.05] | -0.06 [0.05] | -0.02 [0.05] | -0.03 [0.05] | -0.02 [0.05] |
| Family income support | | | | | | | |
| Intensive income support | | | -0.04 [0.04] | -0.04 [0.04] | -0.02 [0.04] | 0.00 [0.04] | -0.01 [0.04] |
| Late moderate income support | | | 0.01 [0.03] | 0.02 [0.03] | 0.02 [0.03] | 0.03 [0.03] | 0.02 [0.03] |
| Early moderate income support | | | -0.01 [0.03] | -0.01 [0.03] | -0.02 [0.03] | 0.00 [0.03] | 0.00 [0.03] |
| Number of marriages/relationships, principal responding parent | | | | -0.01 [0.02] | 0.00 [0.02] | 0.01 [0.02] | 0.02 [0.02] |
| Parent factors | | | | | | | |
| Parents often read to respondent at night when younger | | | | | -0.01 [0.02] | -0.01 [0.02] | -0.03 [0.02] |
| Parents often helped respondent with schoolwork | | | | | -0.03 [0.02] | -0.02 [0.02] | -0.02 [0.02] |
| Respondent's student experiences | | | | | | | |
| Ever repeated a school grade | | | | | | -0.30 [0.06]*** | -0.32 [0.07]*** |
| Number of primary and secondary schools attended | | | | | | 0.00 [0.00] | 0.00 [0.00] |
| Ever suspended from secondary school | | | | | | -0.19 [0.04]*** | -0.13 [0.04]*** |
| Risk behaviours | | | | | | | |
| Ever smoked | | | | | | | -0.08 [0.03]** |
| Ever drunk alcohol | | | | | | | -0.07 [0.03]** |
| Ever tried marijuana | | | | | | | -0.03 [0.03] |
| N | 1634 | 1634 | 1634 | 1634 | 1274 | 1274 | 1264 |

Notes: * p<.10 ** p<.05 *** p<.01.

Standard errors in brackets.

Marginal effects are calculated at the mean; for dummy variables, the marginal effect is for discrete change from 0 to 1.

Source: YIF cohort.

Table 10 Regression results Year 12 completion, LSAY Y03 2006 cohort born between October 1987 and March 1988

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Gender (1 = male) | -0.10 (0.02)*** | -0.07 (0.02)*** | -0.03 (0.01)** | -0.03 (0.01)* | -0.03 (0.02)* | -0.03 (0.02)** |
| Lives in major city | 0.05 (0.02)*** | 0.07 (0.02)*** | 0.05 (0.01)*** | 0.05 (0.01)*** | 0.06 (0.01)*** | 0.05 (0.01)*** |
| Indigenous Australian | -0.04 (0.04) | 0.03 (0.04) | 0.02 (0.04) | 0.02 (0.04) | 0.01 (0.04) | 0.01 (0.04) |
| Father or head of household employed, age 15 | -0.01 (0.03) | -0.04 (0.03) | -0.05 (0.03)* | -0.05 (0.03) | -0.05 (0.03) | -0.06 (0.03)* |
| Parental education | | | | | | |
| Father has bachelor degree or higher | 0.03 (0.02) | 0.02 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.02 (0.02) |
| Mother has bachelor degree or higher | 0.03 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) |
| Number of siblings | -0.01 (0.01)** | -0.01 (0.01) | -0.01 (0.01) | -0.01 (0.01) | -0.01 (0.01) | -0.01 (0.01) |
| Respondent's country of birth | | | | | | |
| Overseas, English speaking country | -0.06 (0.04) | -0.04 (0.04) | -0.01 (0.04) | -0.01 (0.04) | -0.01 (0.04) | -0.01 (0.04) |
| Overseas, non-English speaking country | 0.05 (0.03) | 0.06 (0.03)* | 0.01 (0.03) | 0.01 (0.03) | 0.01 (0.03) | 0.00 (0.02) |
| Two-parent household, age 15 | 0.11 (0.02)*** | 0.08 (0.02)*** | 0.06 (0.02)*** | 0.06 (0.02)*** | 0.06 (0.02)*** | 0.06 (0.02)*** |
| School sector, last year at school | | | | | | |
| Catholic school | 0.04 (0.02)** | 0.02 (0.02) | 0.00 (0.01) | 0.00 (0.02) | -0.01 (0.02) | -0.01 (0.02) |
| Independent school | 0.03 (0.02)* | -0.01 (0.02) | -0.02 (0.02) | -0.02 (0.02) | -0.02 (0.02) | -0.02 (0.02) |
| Residential state, age 15 | | | | | | |
| Vic. | 0.02 (0.03) | 0.04 (0.03)* | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) |
| Qld | 0.17 (0.03)*** | 0.17 (0.03)*** | 0.16 (0.02)*** | 0.17 (0.02)*** | 0.17 (0.03)*** | 0.17 (0.03)*** |
| SA | 0.01 (0.03) | 0.01 (0.03) | -0.02 (0.03) | -0.03 (0.03) | -0.03 (0.03) | -0.03 (0.03) |
| WA | 0.00 (0.03) | -0.03 (0.02) | -0.02 (0.02) | -0.02 (0.02) | -0.02 (0.02) | -0.02 (0.02) |
| Tas. | -0.12 (0.03)*** | -0.09 (0.03)*** | -0.09 (0.03)*** | -0.09 (0.02)*** | -0.09 (0.02)*** | -0.10 (0.03)*** |
| ACT | -0.02 (0.04) | -0.02 (0.04) | -0.01 (0.03) | 0.00 (0.03) | 0.00 (0.03) | -0.01 (0.03) |
| NT | -0.02 (0.05) | 0.01 (0.05) | -0.02 (0.04) | -0.01 (0.04) | -0.01 (0.04) | -0.02 (0.04) |
| SEIFA scales (multiplied by 1000) | | | | | | |
| Advantage-disadvantage | 0.40 (0.40) | 0.23 (0.34) | 0.15 (0.31) | 0.05 (0.33) | -0.08 (0.33) | -0.04 (0.31) |
| Education and occupation | 0.09 (0.37) | 0.00 (0.32) | 0.01 (0.31) | 0.09 (0.32) | 0.14 (0.32) | 0.12 (0.31) |
| SES – responding parent ANU4 (multiplied by 100) | 0.15 (0.04)*** | 0.06 (0.04)* | 0.02 (0.04) | 0.03 (0.03) | 0.01 (0.03) | 0.01 (0.03) |
| Self-assessed school performance, age 15 | | | | | | |
| Better than average | -0.04 (0.03) | -0.01 (0.03) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) |
| Average | -0.14 (0.03)*** | -0.07 (0.03)*** | -0.03 (0.02) | -0.03 (0.02) | -0.03 (0.02) | -0.03 (0.02) |
| Below average | -0.37 (0.05)*** | -0.26 (0.04)*** | -0.13 (0.04)*** | -0.13 (0.05)*** | -0.13 (0.05)*** | -0.12 (0.05)*** |
| Achievement, age 15 (all scores multiplied by 1000) | | | | | | |
| Reading literacy | | 0.85 (0.20)*** | 0.43 (0.20)** | 0.43 (0.19)** | 0.42 (0.20)** | 0.43 (0.20)** |
| (reading literacy if above average) | | -0.25 (0.45) | 0.02 (0.42) | -0.01 (0.41) | -0.04 (0.39) | -0.05 (0.39) |

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|--|---------|----------------|-----------------|-----------------|-----------------|-----------------|
| Mathematical literacy | | 0.69 (0.23)*** | 0.43 (0.22)* | 0.42 (0.22)* | 0.42 (0.22)* | 0.43 (0.22)* |
| (mathematical literacy if above average) | | 0.04 (0.37) | -0.04 (0.36) | -0.07 (0.36) | -0.05 (0.36) | -0.06 (0.37) |
| Aspirations, age 15 | | | | | | |
| Expected job at age 30 (ANU4) (multiplied by 1000) | | | 0.48 (0.38) | 0.52 (0.38) | 0.51 (0.39) | 0.45 (0.40) |
| Plans to participate in Year 12 | | | 0.24 (0.03)*** | 0.24 (0.02)*** | 0.23 (0.03)*** | 0.23 (0.03)*** |
| Plans to go to university | | | 0.08 (0.02)*** | 0.08 (0.02)*** | 0.08 (0.02)*** | 0.08 (0.02)*** |
| Ever repeated a school grade | | | -0.22 (0.02)*** | -0.22 (0.02)*** | -0.21 (0.02)*** | -0.22 (0.03)*** |
| School climate, age 15 | | | | | | |
| Student body attitudes to school | | | | 0.00 (0.01) | 0.01 (0.01) | 0.01 (0.01) |
| Teachers' attitudes to school | | | | -0.02 (0.01)*** | -0.03 (0.01)*** | -0.03 (0.01)*** |
| Teacher problem behaviour ¹ | | | | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) |
| Student body problem behaviour ¹ | | | | -0.04 (0.02)** | -0.04 (0.02)* | -0.04 (0.02)* |
| School characteristics, age 15 | | | | | | |
| School average SES (ANU4) | | | | | 0.00 (0.00) | 0.00 (0.00) |
| School size | | | | | 0.00 (0.00) | 0.00 (0.00) |
| Proportion of girls to boys | | | | | -0.03 (0.04) | -0.03 (0.04) |
| Grade structure | | | | | | |
| K-12 school | | | | | 0.06 (0.07) | 0.05 (0.08) |
| Senior college | | | | | 0.04 (0.13) | 0.06 (0.14) |
| School selectivity | | | | | | |
| Considers selection based on student location | | | | | 0.01 (0.02) | 0.01 (0.02) |
| Considers selection based on student achievement | | | | | -0.01 (0.01) | -0.01 (0.02) |
| Extent of maths streaming within school | | | | | 0.00 (0.01) | 0.00 (0.01) |
| Estimated number of student assessments per year | | | | | 0.00 (0.01) | -0.01 (0.01) |
| School resources, age 15 | | | | | | |
| Student-teacher ratio | | | | | | 0.00 (0.00) |
| Adequacy of school physical facilities | | | | | | 0.02 (0.01)* |
| Adequacy of school educational resources | | | | | | -0.01 (0.01) |
| Extent of teacher shortage | | | | | | 0.01 (0.01) |
| N | 3617 | 3617 | 3583 | 3575 | 3507 | 3481 |

Notes: * p<.10 ** p<.05 *** p<.01.

Standard errors in brackets.

Marginal effects are calculated at the mean; for dummy variables, the marginal effect is for discrete change from 0 to 1.

¹ Student/teacher problem behaviours: higher scores indicate *less* problem behaviours (*almost certainly*).

Source: LSAY Y03 cohort.

Table 11 Regression results Year 12 completion, full LSAY Y03 2006 cohort

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|--|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|
| Gender (1 = male) | -0.09 (0.01)*** | -0.070 (0.01)*** | -0.03 (0.01)*** | -0.03 (0.01)*** | -0.03 (0.01)** | -0.02 (0.01)** |
| Lives in major city | 0.06 (0.01)*** | 0.069 (0.01)*** | 0.06 (0.01)*** | 0.06 (0.01)*** | 0.07 (0.01)*** | 0.07 (0.01)*** |
| Indigenous Australian | -0.021 (0.03) | 0.033 (0.03) | 0.03 (0.03) | 0.03 (0.03) | 0.03 (0.03) | 0.03 (0.03) |
| Father or head of household employed, age 15 | -0.02 (0.03) | -0.04 (0.03) | -0.03 (0.02) | -0.04 (0.02) | -0.04 (0.02) | -0.04 (0.02)* |
| Parental education | | | | | | |
| Father has bachelor degree or higher | 0.01 (0.02) | 0.01 (0.02) | 0.00 (0.01) | 0.00 (0.01) | 0.00 (0.01) | 0.00 (0.01) |
| Mother has bachelor degree or higher | 0.04 (0.01)*** | 0.02 (0.01) | 0.02 (0.01)* | 0.02 (0.01)* | 0.02 (0.01) | 0.02 (0.01) |
| Number of siblings | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) |
| Respondent's country of birth | | | | | | |
| Overseas, English speaking country | -0.05 (0.03) | -0.04 (0.03) | -0.02 (0.03) | -0.02 (0.02) | -0.02 (0.03) | -0.02 (0.02) |
| Overseas, non-English speaking country | 0.08 (0.02)*** | 0.09 (0.02)*** | 0.04 (0.02) | 0.03 (0.02)* | 0.03 (0.02)* | 0.02 (0.02) |
| Two-parent household, age 15 | 0.11 (0.01)*** | 0.09 (0.01)*** | 0.07 (0.01)*** | 0.07 (0.01)*** | 0.07 (0.01)*** | 0.07 (0.01)*** |
| School sector, last year at school | | | | | | |
| Catholic school | 0.07 (0.01)*** | 0.05 (0.01)*** | 0.03 (0.01)** | 0.02 (0.01) | 0.02 (0.01) | 0.02 (0.01) |
| Independent school | 0.07 (0.02)*** | 0.03 (0.02) | 0.02 (0.02) | 0.02 (0.01) | 0.02 (0.02) | 0.02 (0.02) |
| Residential state, age 15 | | | | | | |
| Vic. | 0.01 (0.02) | 0.04 (0.02)* | 0.01 (0.02) | 0.01 (0.02) | 0.01 (0.02) | 0.02 (0.02) |
| Qld | 0.15 (0.02)*** | 0.15 (0.02)*** | 0.13 (0.02)*** | 0.13 (0.02)*** | 0.13 (0.02)*** | 0.14 (0.02)*** |
| SA | -0.01 (0.03) | -0.02 (0.02) | -0.02 (0.02) | -0.04 (0.02) | -0.03 (0.02) | -0.03 (0.02) |
| WA | 0.00 (0.02) | -0.03 (0.02) | -0.03 (0.02) | -0.03 (0.02)* | -0.03 (0.02) | -0.03 (0.02) |
| Tas. | -0.07 (0.02)*** | -0.05 (0.02) | -0.06 (0.02)*** | -0.06 (0.02)*** | -0.06 (0.02)*** | -0.05 (0.02)*** |
| ACT | -0.03 (0.03) | -0.03 (0.03) | -0.04 (0.02)* | -0.03 (0.02) | -0.03 (0.02) | -0.04 (0.02) |
| NT | -0.02 (0.03) | 0.00 (0.03) | -0.02 (0.03) | -0.01 (0.03) | 0.00 (0.03) | -0.01 (0.03) |
| SEIFA scales (multiplied by 1000) | | | | | | |
| Advantage-disadvantage | 0.09 (0.31) | 0.09 (0.29) | -0.02 (0.26) | -0.09 (0.28) | -0.16 (0.27) | -0.13 (0.28) |
| Education and occupation | 0.31 (0.29) | 0.13 (0.27) | 0.11 (0.24) | 0.15 (0.25) | 0.19 (0.24) | 0.17 (0.25) |
| SES – responding parent ANU4 (multiplied by 100) | 0.11 (0.03)*** | 0.04 (0.03) | 0.02 (0.03) | 0.03 (0.03) | 0.03 (0.02) | 0.03 (0.02) |
| Self-assessed school performance, age 15 | | | | | | |
| Better than average | -0.05 (0.02)*** | -0.03 (0.02)* | -0.02 (0.02) | -0.02 (0.02) | -0.02 (0.02) | -0.02 (0.02) |
| Average | -0.16 (0.02)*** | -0.10 (0.02)*** | -0.06 (0.02)*** | -0.06 (0.02)*** | -0.06 (0.02)*** | -0.06 (0.02)*** |
| Below average | -0.42 (0.04)*** | -0.32 (0.04)*** | -0.20 (0.04)*** | -0.20 (0.04)*** | -0.20 (0.04)*** | -0.21 (0.04)*** |
| Achievement, age 15 (all scores multiplied by 1000) | | | | | | |
| Reading literacy | | 0.53 (0.15)*** | 0.24 (0.15)* | 0.24 (0.14)* | 0.23 (0.15) | 0.24 (0.15) |
| (reading literacy if above average) | | 0.09 (0.27) | 0.11 (0.27) | 0.08 (0.27) | 0.11 (0.27) | 0.11 (0.27) |

| | | | | | |
|--|----------------|-----------------|-----------------|-----------------|-----------------|
| Mathematical literacy | 0.77 (0.16)*** | 0.56 (0.15)*** | 0.54 (0.15)*** | 0.55 (0.15)*** | 0.54 (0.15)*** |
| (mathematical literacy if above average) | -0.20 (0.26) | -0.29 (0.24) | -0.32 (0.24) | -0.32 (0.24) | -0.31 (0.25) |
| Aspirations, age 15 | | | | | |
| Expected job at age 30 (ANU4) (multiplied by 1000) | | 0.53 (0.25)** | 0.54 (0.26)** | 0.52 (0.26)** | 0.50 (0.27)* |
| Plans to participate in Year 12 | | 0.25 (0.02)*** | 0.26 (0.02)*** | 0.25 (0.02)*** | 0.25 (0.02)*** |
| Plans to go to university | | 0.08 (0.01)*** | 0.08 (0.01)*** | 0.08 (0.01)*** | 0.08 (0.01)*** |
| Ever repeated a school grade | | -0.14 (0.02)*** | -0.14 (0.02)*** | -0.14 (0.02)*** | -0.14 (0.02)*** |
| School climate, age 15 | | | | | |
| Student body attitudes to school | | | 0.01 (0.01) | 0.01 (0.01) | 0.01 (0.01) |
| Teachers' attitudes to school | | | -0.02 (0.01)*** | -0.02 (0.01)*** | -0.02 (0.01)*** |
| Teacher problem behaviour ¹ | | | 0.03 (0.02) | 0.02 (0.02) | 0.02 (0.02) |
| Student body problem behaviour ¹ | | | -0.05 (0.02)*** | -0.05 (0.02)*** | -0.05 (0.02)*** |
| School characteristics, age 15 | | | | | |
| School average SES (ANU4) | | | | 0.00 (0.00) | 0.00 (0.00) |
| School size | | | | 0.00 (0.00) | 0.00 (0.00) |
| Proportion of girls to boys | | | | 0.01 (0.03) | 0.01 (0.03) |
| Grade structure | | | | | |
| K–12 school | | | | 0.02 (0.05) | 0.03 (0.05) |
| Senior college | | | | 0.02 (0.08) | 0.03 (0.09) |
| School selectivity | | | | | |
| Considers selection based on student location | | | | 0.00 (0.01) | 0.00 (0.01) |
| Considers selection based on student achievement | | | | -0.02 (0.01)* | -0.02 (0.01)* |
| Extent of maths streaming within school | | | | 0.01 (0.01) | 0.01 (0.01) |
| Estimated number of student assessments per year | | | | 0.00 (0.01) | -0.01 (0.01) |
| School resources, age 15 | | | | | |
| Student–teacher ratio | | | | | 0.00 (0.00) |
| Adequacy of school physical facilities | | | | | 0.01 (0.01) |
| Adequacy of school educational resources | | | | | 0.00 (0.01) |
| Extent of teacher shortage | | | | | 0.01 (0.01) |
| N | 7103 | 7103 | 7042 | 7028 | 6894 |
| | | | | | 6842 |

Notes: * p<.10 ** p<.05 *** p<.01.

Standard errors in brackets.

Marginal effects are calculated at the mean; for dummy variables, the marginal effect is for discrete change from 0 to 1.

1 Student/teacher problem behaviours: higher scores indicate *less* problem behaviours (*almost certainly*).

Source: LSAY Y03 cohort.

Summary and conclusions

Using two nationally representative and highly comparable datasets of young people in Australia, this paper quantifies the impact of different dimensions of socioeconomic disadvantage on Year 12 completion. The key finding is that cultural factors have a strong relationship with completion, but that the effect of material factors, as measured through current family income, had only a small effect on Year 12 completion. While previous studies had suggested this by demonstrating a strong link between measures of parental education or occupational status and school completion, this study went further by including a broader set of measures to capture the multidimensionality of cultural and material or resource aspects of disadvantage. Not only did this reveal the role of students' poor school experiences, risky activities and aspirations as the main predictors of Year 12 completion, it also lowered the measured magnitude and affected the significance of the commonly utilised indicators of disadvantage associated with school completion, including parental education and occupational status. These variables are likely to reflect aspects of disadvantage, since they must be closely correlated with the experience of schooling that people from such backgrounds have. Also, it seems that it is the negative experiences of schooling that are most closely associated with the relatively worse outcomes that those from disadvantaged backgrounds eventually record, not their parental education and occupational statuses per se.

Specifically, in the LSAY data, disadvantage seems to be manifested through its impact on school performance and on the educational aspirations of young people. These are, in all probability, different sides to the same coin found in the YIF data, where disadvantage partially displayed its effects through the adverse experiences of early schooling among respondents.

The identified effects of early school experiences and aspirations were significant. In particular, according to the results, those who had repeated a school grade had a lower probability of school completion of around 30 percentage points in the YIF sample and 22 percentage points in the LSAY Y03 sample. As captured in the YIF sample, the experiences of smoking and drinking alcohol reduced the probability of Year 12 completion by eight and seven percentage points respectively. Based on the analysis of the LSAY Y03 sample, aspirations, as reflected in plans to participate in Year 12 and to go to university, were found to increase the probability of school completion by 24 and eight percentage points respectively. While a companion study (HomeI & Ryan forthcoming) finds that specifications like those estimated here probably result in overstated estimates of the impact of aspirations on outcomes, the true effects remain large in magnitude.

In this study, the exercise of considering alternative measures of disadvantage has been informative in identifying a few core factors – poor school experiences, risky activities and aspirations – that matter for school completion and, importantly, for indicating the direction of further study into the complex linkages between disadvantage and school completion. In particular, the core factors identified in relation to Year 12 completion may operate directly as well as alter the impact of other dimensions of disadvantage. For example, the effects of self-assessed performance and reading and mathematical numeracy scores fell once aspirations were taken into account in the list of variables predicting Year 12 completion.

References

- Aaronson, D, Barrow, L & Sander, W 2007, 'Teachers and student achievement in the Chicago public high schools', *Journal of Labor Economics*, vol.25, no.1, pp.95–135.
- Ainley, J, Foreman, J & Sheret, M 1991, 'High school factors that influence students to remain in school', *Journal of Education Research*, vol.85, no.2, pp.69–80.
- Alderman, H, Hoogeveen, H & Rossi, M 2009, 'Preschool nutrition and subsequent schooling attainment: longitudinal evidence from Tanzania', *Economic Development and Cultural Change*, vol.57, no.2, pp.239–60.
- Astone, NM & McLanahan, SS 1994, 'Family structure, residential mobility, and school dropout: a research note', *Demography*, vol.31, no.4, pp.575–84.
- Australian Social Inclusion Board 2010, *Social inclusion in Australia: how Australia is faring*, Canberra.
- Barón, JD 2009, 'Exploring the factors associated with youths' educational outcomes: the role of locus of control and parental socio-economic background', Centre for Economic Policy Research, Discussion paper, 598, Australian National University, Canberra.
- Betts, JR 1997, 'Educational crowding out: do immigrants affect the educational attainment of American Minorities?', Discussion paper, University of California, San Diego, CA, pp.98–04.
- Blake, J 1989, 'Number of siblings and educational attainment', *Science*, vol.245, no.4913, pp.32–6.
- Bogges, S 1998, 'Family structure, economic status, and educational attainment', *Journal of Population Economics*, vol.11, no.2, pp.205–22.
- Bowen, NK & Bowen, GL 1999, 'Effects of crime and violence in neighborhoods and schools on the school behavior and performance of adolescents', *Journal of Adolescent Research*, vol.14, no.3, pp.319–42.
- Bray, JW, Zarkin, GA, Ringwalt, C & Qi, J 2000, 'The relationship between marijuana initiation and dropping out of high school', *Health Economics*, vol.9, no.1, pp.9–18.
- Breunig, R, Cobb-Clark, DA, Gørgens, T, Ryan, C & Sartbayeva, A 2009, *User's guide to the Youth in Focus data version 2.0*, Youth in Focus Project discussion paper series, 8, Australian National University, Canberra.
- Burchardt, T, Le Grand, J & Piachaud, D 1999, 'Social exclusion in Britain 1991–1995', *Social Policy & Administration*, vol.33, no.3, pp.227–44.
- Chatterji, P 2006, 'Illicit drug use and educational attainment', *Health Economics*, vol.15, no.5, pp.489–511.
- Crowder, K & South, SJ 2003, 'Neighborhood distress and school dropout: the variable significance of community context', *Social Science Research*, vol.32, no.4, pp.659–98.
- Currie, J, Stabile, M, Manivong, P & Roos, LL 2008, *Child health and young adult outcomes*, NBER working paper series, National Bureau of Economic Research, Cambridge, MA.
- Curtis, DD & McMillan, J 2008, *School non-completers: profiles and initial destinations*, LSAY research report, ACER, Melbourne.
- Darnell, A & Sherkat, DE 1997, 'The impact of protestant fundamentalism on educational attainment', *American Sociological Review*, vol.62, no.2, pp.306–15.
- Davis-Kean, PE 2005, 'The influence of parent education and family income on child achievement: the indirect role of parental expectations and the home environment', *Journal of Family Psychology*, vol.19, no.2, pp.294–304.
- De Haan, A & Maxwell, S 1998, 'Poverty and social exclusion in North and South', *IDS Bulletin*, vol.29, no.1.
- Downey, DB 1995, 'When bigger is not better: family size, parental resources, and children's educational performance', *American Sociological Review*, vol.60, no.5, pp.746–61.
- Duffy, K 2005, *Social exclusion and human dignity in Europe*, Council of Europe, Brussels.
- Eloundou-Enyegue, PM & Williams, LB 2006, 'Family size and schooling in Sub-Saharan African settings: a reexamination', *Demography*, vol.43, no.1, pp.25–52.
- Flouri, E 2006, 'Parental interest in children's education, children's self-esteem and locus of control, and later educational attainment: twenty-six year follow-up of the 1970 British birth cohort', *British Journal of Educational Psychology*, vol.76, pp.41–55.
- Flowers, LA, Milner, HR & Moore III, JL 2003, 'Effects of locus of control on African American high school seniors' educational aspirations: implications for preservice and inservice high school teachers and counselors', *High School Journal*, vol.87, no.1, pp.39–50.
- Fullarton, S, Walker, M, Ainley, J & Hillman, K 2003, *Patterns of participation in Year 12*, LSAY research report, ACER, Melbourne.
- Gordon, D, Levitas, R, Pantazis, C, Patsios, D, Payne, S, Townsend, P, Adelman, L, Ashworth, K, Middleton, S, Bradshaw, J & Williams, J 2000, *Poverty and social exclusion in Britain*, Joseph Rowntree Foundation, York.

- Gould, ED, Lavy, V & Paserman, MD 2005, *Does immigration affect the long-term educational outcomes of natives? Quasi-experimental evidence*, IZA discussion paper, Bonn.
- Harding, DJ 2003, 'Counterfactual models of neighborhood effects: the effect of neighborhood poverty on dropping out and teenage pregnancy', *American Journal of Sociology*, vol.109, no.3, pp.676–719.
- Haveman, R & Wolfe, B 1995, 'The determinants of children's attainments: a review of methods and findings', *Journal of Economic Literature*, vol.33, no.4, pp.1829–78.
- Haveman, R, Wolfe, B & Spaulding, J 1991, 'Childhood events and circumstances influencing high school completion', *Demography*, vol.28, no.1, pp.133–57.
- Headey, B 2006, *A framework for assessing poverty, disadvantage and low capabilities in Australia*, Melbourne Institute, University of Melbourne.
- Henrich, CC, Schwab-Stone, M, Fanti, K, Jones, SM & Ruchkin, V 2004, 'The association of community violence exposure with middle-school achievement: a prospective study', *Journal of Applied Developmental Psychology*, vol.25, no.3, pp. 327–48.
- Hill, MS, Yeung, W-JJ & Duncan, GJ 2001, 'Childhood family structure and young adults behaviors', *Journal of Population Economics*, vol.14, no.2, pp.271–99.
- Homel, J & Ryan, C forthcoming, *Aspirations and outcomes: size of the effect and the role of other factors*, LSAY research report, NCVER, Adelaide.
- Jones, RG 2002, *Education participation and outcomes by geographic location*, LSAY research report, ACER, Melbourne.
- Kalmijn, M 1994, 'Mother's occupational status and children's schooling', *American Sociological Review*, vol.59, no.2, pp.257–75.
- Kaplan, DS, Peck, MB & Kaplan, HB 1997, 'Decomposing the academic failure-dropout relationship: a longitudinal analysis', *Journal of Educational Research*, vol.90, no.6, pp.331–43.
- Khoo, ST & Ainley, J 2005, *Attitudes, intentions and participation*, LSAY research report, ACER, Melbourne.
- Koch, SF & McGeary, KA 2005, 'The effect of youth alcohol initiation on high school completion', *Economic Inquiry*, vol.43, pp.750–65.
- Krein, SF & Beller, AH 1988, 'Educational attainment of children from single-parent families: differences by exposure, gender and race', *Demography*, vol.25, no.2, pp.221–34.
- Ku, I 2001, 'The effect of welfare on children's education', *The Social Service Review*, vol.75, no.2, pp.245–70.
- Ku, I & Plotnick, R 2003, 'Do children from welfare families obtain less education?' *Demography*, vol.40, no.1, pp.151–70.
- Lamb, S, Dwyer, P & Wyn, J 2000, *Non-completion of school in Australia: the changing patterns of participation and outcomes*, LSAY research report, ACER, Melbourne.
- Lamb, S, Walstab, A, Teese, R, Vickers, M & Rumberger, R 2004, *Staying on at school: improving student retention in Australia*, Centre for Post-compulsory Education and Lifelong Learning, University of Melbourne.
- Le, AT & Miller, PW 2002, *Educational attainment in Australia: a cohort analysis*, LSAY research report, ACER, Melbourne.
- 2003, 'Choice of school in Australia: determinants and consequences', *Australian Economic Review*, vol.36, no.1, pp.55–78.
- 2004, 'High school graduation in Australia: do schools matter?', *Scottish Journal of Political Economy*, vol.51, no.2, pp.194–208.
- Lehrer, E 2004, 'Religiosity as a determinant of educational attainment: the case of conservative protestant women in the United States', *Review of Economics of the Household*, vol.2, no.2, pp.203–19.
- 2006, 'Religion and high-school graduation: a comparative analysis of patterns for white and black young women', *Review of Economics of the Household*, vol.4, no.3, pp.277–93.
- Lenoir, R 1974, *Les Exclus: Un Français sur Dix*, Editions du Seuil, Paris.
- Levitas, R, Pantazis, C, Fahmy, E, Gordon, D, Lloyd, E & Patsios, D 2007, *the multi-dimensional analysis of social exclusion*, Social Exclusion Task Force, London.
- Long, M, Carpenter, P & Hayden, M 1999, *Participation in education and training*, LSAY research report, ACER, Melbourne.
- Long, M, Frigo, T & Batten, M 1998, *The school to work transition of Indigenous Australians: review of the literature and statistical analysis*, Department of Education, Training and Youth Affairs, Canberra.
- Lynskey, MT, Coffey, C, Degenhardt, L, Carlin, JB & Patton, G 2003, 'A longitudinal study of the effects of adolescent cannabis use on high school completion', *Addiction*, vol.98, no.5, pp.685–92.
- Marks, GN & Fleming, N 1999, *Early school leaving in Australia: findings from the 1995 Year 9 LSAY cohort*, LSAY research report, ACER, Melbourne.

- Marks, GN, Fleming, N, Long, M & McMillan, J 2000, *Patterns of participation in Year 12 and higher education in Australia: trends and issues*, LSAY research report, ACER, Melbourne.
- Marks, GN & McMillan, J 2001, 'Early school leavers: who are they, why do they leave, and what are the consequences?', *ACER research conference: Understanding youth pathways: what does the research tell us?*, Melbourne.
- Marks, GN, McMillan, J, Jones, FL & Ainley, J 2000, *The measurement of socioeconomic status for the reporting of nationally comparable outcomes of schooling*, ACER and Australian National University, Canberra.
- McCaffrey, DF, Pacula, RL, Han, B & Ellickson, P 2008, *Marijuana use and high school dropout: the influence of unobservables*, NBER working paper series, National Bureau of Economic Research, Cambridge, MA.
- McMillan, J & Marks, GN 2003, *School leavers in Australia: profiles and pathways*, LSAY research report, ACER, Melbourne.
- Pi Alperin, MN 2008, *A comparison of multidimensional deprivation characteristics between natives and immigrants in Luxembourg*, IRISS working paper series, International Networks for Studies in Technology, Environment, Alternatives and Development, Luxembourg.
- Pitman, J & Herschell, P 2002, *The senior certificate: a new deal*, Queensland Department of Education, Brisbane.
- Pribesh, S & Downey, DB 1999, 'Why are residential and school moves associated with poor school performance?', *Demography*, vol.36, no.4, pp.521–34.
- Renna, F 2007, 'The economic cost of teen drinking: late graduation and lowered earnings', *Health Economics*, vol.16, no.4, pp.407–19.
- Rivkin, SG, Hanushek, EA & Kain, JF 2005, 'Teachers, schools, and academic achievement', *Econometrica*, vol.73, no.2, pp.417–58.
- Rockoff, JE 2004, 'The impact of individual teachers on student achievement: evidence from panel data', *The American Economic Review*, vol.94, no.2, pp.247–52.
- Rothman, S 2007, *Sampling and weighting of the 2003 LSAY cohort*, LSAY technical report, ACER, Melbourne.
- Rumberger, RW & Willms, JD 1992, 'The impact of racial and ethnic segregation on the achievement gap in California high schools', *Educational Evaluation and Policy Analysis*, vol.14, no.4, pp.377–96.
- Ryan, C & Watson, L 2004, 'Year 12 completion and retention in Australia in the 1990s', *Australian Journal of Labour Economics*, vol.7, no.4, pp.481–500.
- Salm, M & Schunk, D 2008, *The role of childhood health for the intergenerational transmission of human capital: evidence from administrative data*, IZA discussion paper, Bonn.
- Saunders, P 1999, 'Budget standards and the poverty line', *Australian Economic Review*, vol.32, no.1, pp.43–61.
- Saunders, P & Naidoo, Y 2009, 'Poverty, deprivation and consistent poverty', *Economic Record*, vol.85, no.271, pp.417–32.
- Scanlon, E & Devine, K 2001, 'Residential mobility and youth well-being: research, policy, and practice issues', *Journal of Sociology and Social Welfare*, vol.28, no.1, pp.119–38.
- Schwartz, D & Gorman, AH 2003, 'Community violence exposure and children's academic functioning', *Journal of Educational Psychology*, vol.95, no.1, pp.163–73.
- Scutella, R, Wilkins, R & Horn, M 2009, *Measuring poverty and social exclusion in Australia: a proposed multidimensional framework for identifying socio-economic disadvantage*, Melbourne Institute working paper series, University of Melbourne.
- Sen, A 2000, *Social exclusion: concept, application, and scrutiny*, Social development papers, Office of Environment and Social Development, Asian Development Bank, Manila.
- Somers, CL, Owens, D & Piliawsky, M 2007, 'Individual and social factors related to urban African American adolescents' school performance', *High School Journal*, vol.91, no.3, pp.1–11.
- Sykes, B & Kuyper, H 2009, 'Neighbourhood effects on youth educational achievement in the Netherlands: can effects be identified and do they vary by student background characteristics?', *Environment and Planning*, vol.41, no.10, pp.2417–436.
- Tansel, A 1997, 'Schooling attainment, parental education, and gender in CÔte d'Ivoire and Ghana', *Economic Development and Cultural Change*, vol.45, no.4, pp.825–56.
- Thomson, S, Cresswell, J & De Bortoli, L 2004, *Facing the future: a focus on mathematical literacy among Australian 15-year-old students in PISA 2003*, ACER, Melbourne.
- Tsakoglou, P & Papadopoulos, F 2001, *Identifying population groups at high risk of social exclusion: evidence from the ECHP*, IZA discussion paper, Bonn.
- Vella, F 1999, 'Do Catholic schools make a difference? Evidence from Australia', *Journal of Human Resources*, vol.34, no.1, pp.208–24.
- Vickers, M, Lamb, S & Hinkley, J 2003, *Student workers in high school and beyond: the effects of part-time employment on participation in education, training and work*, LSAY research report, ACER, Melbourne.

- Williams, T & Carpenter, P 1990, 'Private schooling and public achievement', *Australian Journal of Education*, vol.34, no.1, pp.3–24.
- Yamada, T, Kendix, M & Yamada, T 1996, 'The impact of alcohol consumption and marijuana use on high school graduation', *Health Economics*, vol.5, no.1, pp.77–92.

Support document details

Additional information relating to this research is available in *School completion: data appendix – support document*. It can be accessed from NCVER's website <<http://www.ncver.edu.au/publications/2503.html.html>>. It contains details of the data used in this report.



Australian Government
**Department of Education, Employment
and Workplace Relations**



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