

Disability and Disadvantage: a Study of a Cohort of Australian Youth

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Abstract

This paper examines the association between disability and disadvantage among Australian youth. Past experiences (e.g., school achievement), and present circumstances (e.g., participation in education and employment) as well as aspirations and expectations (e.g., expected education and career) are investigated. The results show that young people growing up with a disability, especially a developmental/learning disability, have significantly worse outcomes in many aspects (past experiences in particular) than those without disability. Further, outcomes for young people with disability are poorer if disability is compounded by other sources of disadvantage such as poor maternal educational attainment. Evidence of intergenerational transmission of disadvantage is also revealed.

JEL Classification: E24; J13; J14

1. Introduction

People with disability are often a focal group of public policies due to the commonly observed association between disability and disadvantage, such as unemployment and low income (e.g., ABS, 2004; Bound and Waidmann, 2002; Bradbury, Norris and Abello, 2001; Horvath-Rose, Stapleton and O'Day, 2004; Jones, 2008). However, people with disability and their environment are quite heterogeneous; findings based on one group in one country do not necessarily hold for another group or a similar group in another country, and conclusions also vary with indicators or measures from different data. To inform effective and well targeted policy intervention, robust

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Acknowledgement: The data used for this research come from the Youth in Focus Project, which is jointly funded by the Australian Government Department of Education, Employment and Workplace Relations, the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs, Centrelink and the Australian Research Council (Linkage-Project LP0347164) and carried out by the Australian National University. However, the opinions, comments and/or analysis expressed in this document are those of the authors and do not necessarily represent the views of the ARC or the Minister for Families, Housing, Community Services and Indigenous Affairs. The author would like to thank two anonymous referees and the editor for constructive comments.

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evidence based on recent quality data would be most helpful; in the absence of ideal data and/or methodology, comparative or meta analysis can be informative.

This research uses a unique Australian dataset to investigate the association between disability and disadvantage among young people. The results supplement findings using other data sources and contribute to the evidence base for building a socially inclusive society, an important policy initiative of the Australian Government (2010).

Youth with disability were chosen as the focus of the research for several reasons. Firstly, youth with disability capture two focal groups identified in the Social Inclusion Agenda of the Australian Government (2010) – people with disability and children at a high risk of disadvantage. Secondly, youth are at a critical life stage, beginning on the pathway to independence and undergoing transitions from school to post-school life and from adolescence to early adulthood. Disability may impact on the transitions made at these critical points in life and consequently the life-long wellbeing of the person. Better understanding the outcomes, aspirations and expectations of youth with disability not only helps develop tailored services to improve their wellbeing, but also has implications for understanding social inclusion of the working-age population. It may also inform prevention and early intervention for younger children who are at risk of social exclusion. Thirdly, there are relatively few up-to-date Australian studies in this area.

The data source used for this research is from an Australian Research Council (ARC) Linkage Project – the Youth in Focus (YIF) Project.¹ The YIF data consist of both administrative and survey data, with rich information on a group of young people who were about 18 years old when the survey was first conducted in 2006. An outstanding feature of the YIF data is the linking of youths' information with that of their parents, and survey data with administrative records. This research mainly used the 2,430 matched pairs of youths and parents participating in the first wave of the YIF survey.

This paper provides a comprehensive picture of the life of Australian youth, including past experiences, and current situation as well as aspirations and expectations. Completed school level, school performance and overall childhood happiness were used as measures of past experiences. Measures of youths' current situation included economic participation (education and employment), social involvement (club membership and contact with friends) and receipt of income support. In addition, young people's educational aspiration, expected occupation and how confident they were in their control over the future were also explored.

The key measures were compared between youths with physical or developmental/learning disability and those without disability. The research also explored how disability was associated with, and interacted with, other sources of disadvantage – such as Indigenous status, intensive family income support receipt, and locational disadvantage – in affecting youth outcomes, aspirations and expectations. This study has implications for labour economics arising from the direct involvement of disabled youth in education and employment and the possible indirect feedback

¹ For more information of the YIF project, refer to <http://youthinfocus.anu.edu.au>. For details of the YIF data, including the survey design and sample stratification, refer to Breunig *et al.* (2009).

between identified social relationships and economic participation in the labour market.

The reminder of this paper is structured as follows: section 2 sets the context by reviewing relevant literature; section 3 further details the data and methodology; section 4 reports the main results of the research; and section 5 summarises and discusses key findings.

2. Disability, Disadvantage and Social Exclusion

There is a large stock of literature linking disability to disadvantage and, potentially, social exclusion. This section briefly reviews relevant studies and sets the context for the research.

Disability is found to be associated with other sources of disadvantage, such as low income, unemployment and poor educational attainment, in a complex way. On the one hand, disability is more likely to occur among people with disadvantage (ABS, 2008; Bradbury, Norris and Abello, 2001; Burchardt, 2003; and Jenkins and Rigg, 2003). On the other, the onset of disability may entrench and deepen preexisting disadvantage (Burchardt, 2003; Burkhauser and Daly, 1998; and Jenkins and Rigg, 2003); for instance, loss of income from employment and increase in costs of living after the onset of disability may make the family more economically disadvantaged. It is also possible that disability is associated with other sources of disadvantage through unobserved factors (Bradbury, Norris and Abello, 2001; and Oguzoglu, 2007); for instance, disability, unemployment and low income may be all associated with residence in a disadvantaged location.

Notwithstanding the complex and two-way direction of causation, disability and its association with other sources of disadvantage puts people with disability at a higher risk of social exclusion. Note that social inclusion/exclusion, though increasingly widely used by academics, public servants and media for decades, has no universally accepted definition, and no consensus is achieved on how it can be best measured; for more detailed discussion on the evolution of the concept as well as the current debate of related issues, refer to Harris (2004), Hayes, Gray and Edwards (2008), Levitas (2006), and Saunders, Naidoo and Griffiths (2008). Nonetheless, one common concern of the various definitions is that some individuals or groups of individuals cannot fully participate in key aspects of social life – for instance, employment, education, access to services, and social involvement – enjoyed by the majority of fellow members of the society due to lack of resources, opportunities and/or capacity.

It is not the object of the paper to compare and choose among the different definitions and measures/indicators for social inclusion/exclusion. Instead, this paper explores the association between disability and several important aspects of the lives of young people, such as school attainment, economic and social participation, welfare reliance (indicating low income), and aspirations and expectations, which may help in understanding the social inclusion issue among young people with disability. In particular, the paper focuses on the compound effects of disability and disadvantage – double or multiple disadvantages – which tend to significantly increase the risk of social exclusion (Gething, 1997; and Yu, 2009).

In the literature regarding young people, an association between disadvantage and disability similar to the general population is found although with some age-

specific patterns. In terms of schooling and academic achievement, youth with disability lag considerably behind their peers in the general population (Blackorby *et al.*, 2007; Burchardt, 2005; Horvath-Rose, Stapleton and O'Day, 2004; and Wagner *et al.*, 2006). On finishing school, youth with disability are far less likely to participate in post-secondary education or employment, and are more likely to move out of the labour force (AIHW, 2008a; Newman *et al.*, 2009; and Stodden and Dowrick, 1999). On average they are also more likely to have low income (Horvath-Rose, Stapleton and O'Day, 2004), and are less likely to be independent (Hendey and Pascall, 2001; and Horvath-Rose, Stapleton and O'Day, 2004). Their aspirations are not necessarily lower than their peers without disability, but they are less likely to achieve them (Burchardt, 2005). They are found to be confronting various forms of barriers – physical, attitudinal, economic, social, cultural and emotional – and often were prevented or discouraged from participating in mainstream activities (Murray, 2002) and excluded from planning and decision making regarding their transitions to further education, employment and other aspects of adult life (Hussain, Atkin and Ahmad, 2002; Morris, 2002; and Murray, 2002).

Australian research on the subject, in particular, although more limited, has shown similar poor outcomes for youth with disability. A series of reports by the Australian Institute of Health and Welfare (e.g., AIHW, 2007; 2008b; 2008c; and 2008d), mainly based on Australian Bureau of Statistics (ABS) data, provide a general profile of youth with disability in Australia. The reports have revealed an increasing trend in the percentage of youth with disability, probably due to increased community awareness, detection and diagnosis of disabling conditions such as autism, and have highlighted the relatively poor outcomes they experience. Using the 2004 Household, Income and Labour Dynamics in Australia (HILDA) survey data, Emerson, Honey and Llewellyn (2008) have compared aspirations and wellbeing between young people with disability and other Australian adolescents and young adults, and have found that young people with disability are significantly worse off in most aspects of life except for aspiration. Yu (2009), using the first seven waves of HILDA, has specifically investigated social participation of youth with disability and has reported significant associations and interactions between disability and other sources of disadvantage. Several studies, based on the Young People in Custody Health Survey and Young People on Community Orders Health Survey, have found that young people with intellectual disability are over-represented in custody, and Indigenous young people in contact with the juvenile justice system are four to five times more likely to have an intellectual disability than the general population (see, Calma, 2008, and references therein; and Kenny *et al.*, 2006).

In the context of building a socially inclusive society, especially promoting social inclusion among young people with disability, more in-depth and up-to-date Australian research is needed to inform appropriate policy development. In this respect the current research may make the following contributions: first, it uses a unique and recent data source – the Youth in Focus (YIF) data – to supplement findings based on ABS and HILDA survey data; second, it not only looks at the youths' current situation, but also looks back (at past experiences) and into the future (aspirations and expectations) to provide a lifetime perspective of youths growing up with disability in Australia.

3. Data and Methodology

Data

This research uses data from the Youth in Focus (YIF) Project, which consist of two parts. One part is an administrative dataset, the Second Transgenerational Data Set (TDS2), which was extracted from Centrelink records for a cohort of Australian children born between 1 October 1987 and 31 March 1988 – referred to as the primary children (or primary youths, or TDS2 population) in this research. TDS2 also contains information collected from parents and siblings of the primary children.² There are approximately 128,000 primary children in TDS2, covering about 95 per cent of children born in Australia in that half-year period; only a small proportion of children, most of whom were likely from wealthy families, were not covered (Yu, 2008).

The other part of the YIF data is a longitudinal survey – the YIF survey – which contains a stratified random sample of the primary children in TDS2 based on family income support history since 1991.³ This study is based on the first wave of the YIF survey, which was conducted in 2006 when the primary youths were about 18 years old. In the first wave, 4,097 youths and 3,960 primary parents (those recorded as having the longest period of care for a youth in TDS2) were interviewed, including 2,430 matched pairs of youths and parents. Most primary parents in the survey were the natural or adopted mothers of the youths (95 per cent), about four per cent were fathers, and the remaining one per cent or so included step-parents, grandparents, relatives and others.

The TDS2 and the YIF data can be linked by a unique identifier assigned to individuals (parents and youths), with their consent. Most variables in the analysis for this research were sourced from the YIF survey data, while income support related information and a few other variables (such as the number of siblings) not asked in the survey were derived from TDS2.

In this paper a youth's disability was identified using information from their parent's report on whether the young person had ever been diagnosed as having a physical disability or a developmental/learning disability.⁴ More detailed types of disability were available in the survey data, such as heart condition and learning difficulties (dyslexia/dyspraxia). However, considering the small numbers of the specific types of disability, this research only classified disability into two main categories – physical disability and developmental/learning disability – as termed in the survey. For simplicity, 'developmental disability' is used henceforth for the category of 'developmental/learning disability'.

² In TDS2, 'parent' refers to a carer or guardian who provides primary care and also claims family payments for an eligible child. As such, parents in TDS2 are not necessarily the natural parents (although in most cases they are) and can be grandparents, older siblings, relatives or any other people who act as the primary carer of a child for family payment purposes. 'Sibling' refers to all other children cared for by the parent for family payment purposes.

³ Income support refers to a range of government payments targeting low-income individuals, for instance, people with disability and single parents. Not all the parents in TDS2 were income support recipients (though more than half once were), and some only received family payments (with middle income), which help with costs of caring for children.

⁴ The same questions were not asked to the youths. Instead, they were asked (1) whether they had any work limitations due to health, and (2) whether they had been told by a health professional that they had asthma, attention deficit hyperactivity disorder (ADD/ADHD), or suffered from depression or anxiety.

This definition of disability differs from that used by the ABS. The ABS usually defines disability as ‘any limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts everyday activities’ (ABS, 2004, p. 3). Reports of disability in ABS surveys thus depend on the respondents’ perceptions of their ability to perform a range of activities associated with daily life, whereas in this research disability is based on medical diagnoses.⁵ One more difference in the definition of disability between this paper and that used by the ABS is that the ABS definition refers to people’s current status at a point in time, whereas in this paper disability may be acquired any time in the past and may not be present at the time of survey response.

Sample

Since disability, the key variable of interest, was identified via parental reports, this research restricted the sample to the 2,430 matched pairs of youths and parents. In the matched sample, about 97 per cent of parents were natural/adopted mothers of the youths, and 320 (13.2 per cent) youths were once diagnosed as having a disability – specifically, 173 (7.1 per cent) youths had a physical disability, and 147 (6.1 per cent) had a developmental disability.⁶ As data regarding the severity of disability were not collected, it is impossible to test whether youths with more severe disability were less likely to be interviewed; this issue should be kept in mind in interpreting the results.

Table 1 provides a statistical summary of selected characteristics of the sample by disability status. Descriptive statistics for variables used as measures of youth outcomes, aspirations and expectations are presented later in the paper (see table 2).

Table 1 - Summary Statistics of Youths

	<i>With no Disability (n=2,110)</i>	<i>With Physical Disability (n=173)</i>	<i>With Developmental Disability (n=147)</i>
<i>Gender (per cent):</i>			
1. Male	47.1	50.8	57.5
2. Female	52.9	49.2	42.5
<i>Indigenous status† (per cent):</i>			
1. Indigenous	3.4	2.6	6.5
2. Non-Indigenous	96.6	97.4	93.5
<i>Country of birth (per cent):</i>			
1. Australia	93.1	94.1	95.2
2. Main English-speaking countries	2.8	4.0	3.3
3. Other countries	4.1	1.9	1.5

⁵ Disability tends to be under-reported by young people themselves. For instance, in the US National Longitudinal Transition Study-2 (NLTS2), more than half of post-secondary students identified by their secondary schools as having a disability did not self-report as having a disability (Newman *et al.*, 2009).

⁶ There were 21 youths with both physical and developmental disabilities in the sample. They were likely to have worse outcomes than those with only a physical or a developmental disability. As such, it would be useful to put them in a separate category. However, the number of observations is too small to draw reliable conclusions. In this paper youths in this category were generally merged into the category of developmental disability. Two additional tests were conducted: (1) putting them in the category of physical disability, and (2) excluding them from the sample. The main findings were not significantly different.

Table 1 - Summary Statistics of Youths (continued)

	<i>With no Disability (n=2,110)</i>	<i>With Physical Disability (n=173)</i>	<i>With Developmental Disability (n=147)</i>
<i>Type of school attended (per cent):</i>			
1. Government schools	64.8	62.8	66.0
2. Catholic schools	20.9	23.7	20.1
3. Other private schools	14.3	14.5	14.0
<i>Number of siblings†</i>	2.0 (0.3)	1.9 (0.1)	2.0 (0.1)
<i>Number of schools attended</i>	3.0 (0.03)	3.2 (0.2)	3.3 (0.3)
<i>Number of changes in accommodation†</i>	4.4 (0.1)	4.3 (0.3)	5.5 (0.6)
<i>Overall health status (per cent):</i>			
1. Excellent	29.1	19.6*	24.3
2. Very good	40.6	35.7	29.4*
3. Good	23.7	28.9	33.3
4. Fair/poor	6.6	15.7*	13.0
<i>Mother was a teenager at birth of youth (per cent)</i>	3.4	4.9	6.6
<i>Age of primary parent at birth of youth (years)</i>	28.1 (0.1)	28.0 (0.4)	27.8 (0.4)
<i>Type of family where youth grew up (per cent):</i>			
1. Intact families	65.3	63.0	62.8
2. Stepfather families	12.3	11.7	21.1*
3. Single-parent families	12.7	15.3	9.7
3. Other families	9.7	10.0	6.4
<i>Family income support history†† (per cent):</i>			
1. No income support history	41.0	42.9	37.0
2. More than 6 years on income support	27.1	25.4	35.2
3. First exposure to income support after 1998 and less than 6 years in total	8.8	7.9	6.7
4. First exposure to income support between 1994 and 1998 and less than 3 years in total	8.4	10.0	7.9
5. First exposure prior to 1994 and less than 6 years in total	9.6	8.5	8.9
6. First exposure to income support between 1994 and 1998 and 3-6 years in total	5.1	5.2	4.4
<i>Primary parent received income support when youth aged 0-4 years† (per cent)</i>	13.0	14.3	25.3*
<i>Parental income support duration when youth aged 0-4 years† (days)</i>	101.8 (6.8)	95.3 (23.0)	218.1* (39.0)
<i>Mother's education when youth aged 14 years (per cent):</i>			
1. Post-school qualifications	45.5	52.8	41.2
2. Finished Year 12	19.8	15.0	26.5
3. Not finished Year 12	30.5	27.4	24.8
4. Can't say	4.2	4.8	7.5
<i>Mother's occupation when youth aged 14 (per cent):</i>			
1. Manager	3.4	5.8	2.8
2. Professional/associated professional	31.6	33.8	30.4
3. Farmer/tradesperson	3.8	4.1	5.0
4. Clerical, sales and services employee	34.9	30.0	28.6
5. Labourer	8.0	11.4	14.5
6. Homemaker/housewife	4.7	5.1	3.4
7. Other/can't say/unemployed	13.6	9.9	15.3

Table 1 - Summary Statistics of Youths (continued)

	<i>With no Disability (n=2,110)</i>	<i>With Physical Disability (n=173)</i>	<i>With Developmental Disability (n=147)</i>
<i>Mother's employment status when youth aged 14 (per cent):</i>			
1. Employed	69.4	62.2	69.4
2. Not working but previously employed	22.7	31.9*	21.4
3. Never employed	7.9	5.9	9.2
<i>Parents or other persons often read to youth at night in childhood (per cent)</i>	42.1	41.7	43.9
<i>State/Territory of residence (per cent)‡:</i>			
1. New South Wales/Australian Capital Territory	31.6	30.7	27.1
2. Victoria	26.6	25.2	24.7
3. Queensland	20.1	22.4	22.9
4. Tasmania	4.3	1.9	3.2
5. South Australia	7.6	8.4	14.4
6. Western Australia/Northern Territory	9.8	11.4	7.7
<i>Remoteness of living areas (per cent):</i>			
1. Major cities	55.9	52.4	57.0
2. Inner regions	28.6	31.6	25.3
3. Outer regions	13.4	12.8	16.6
4. Remote/very remote areas	2.1	3.2	1.1
<i>SEIFA disadvantage index</i>	1,004 (1.4)	1,012 (4.8)	1,007 (4.9)

Note: Mean values, adjusted for sample stratification. Linearised standard errors in brackets.

* Significantly different from youth without disability at the five per cent level. n=number of observations in related sub-samples without adjusting for stratification (variables may have different numbers of missing values). † Derived from parents' records in TDS2. †† Sample stratification category (see Breunig *et al.* (2009) for details of the YIF survey design). ‡ To reach reasonable cell sizes, Australian Capital Territory and Northern Territory were combined with New South Wales and Western Australia, respectively; alternative ways of combination did not affect the main findings.

As shown in table 1, in comparison with young people without disability, those with developmental disability were significantly more likely to have once lived with a stepfather and to have had a primary parent receiving income support in their early childhood (0-4 years).⁷ Young people with physical disability were significantly more likely to report poor or fair health status. However, with respect to other individual characteristics and family background variables, differences between young people with and without disability were generally insignificant.

⁷ It should be noted that unlike in many other studies where family type is often a snapshot measure of current family structure, in this paper it was derived from parental relationship history. A youth was identified as having been growing up (1) from an intact family if her/his parents had never separated; (2) from a stepfather family if she/he had once lived with a stepfather; and (3) from a single parent family if her/his parent had never been married or remarried since her/his birth. Stepmother family was not listed as a separate category due to the small number of observations in the group.

Methodology

As many commentators pointed out, relativity is a key feature of social exclusion (Atkinson, 1998; and Saunders, Naidoo and Griffiths, 2008). Social exclusion is also a dynamic process; it is not just an issue with regard to current circumstances, the future prospects of a socially excluded person are also likely to be limited (Atkinson, 1998; Levitas, 2006; and Saunders, Naidoo and Griffiths, 2008). To inform the relative risk of social exclusion among youth with disability, one key task of this paper is to analyse how youth with disability are faring in comparison to their peers without disability, who act as the reference group and whose situations may be viewed as the social norms and expectations; in addition to the current situation, the past experiences as well as the aspirations and expectations of youth are also examined.

In total, 11 measures in three groups were investigated in this paper, including: (1) school attainment (completed school levels), school performance and overall childhood happiness, reflecting the youths' past experiences; (2) participation in education and employment, income support receipt, active club membership and frequency of contact with friends, reflecting current circumstances; and (3) expected education and career, and confidence in their control over the future, reflecting aspirations and expectations.⁸

Each of the measures was first compared by youth disability status using direct tabulation. The results inform whether, on average, youth with disability had significantly worse outcomes and poorer aspirations and expectations than their peers without disability.

Then, multiple regression techniques were applied to examine the extent to which differences in outcomes, aspirations and expectations could be explained by disability independent of family background, other individual characteristics and contextual factors.

In the models for the three measures of past experiences, control variables included sex, country of birth, Indigenous status, family type, number of siblings, family income support history, mother's education, mother's age when the youth was born and age squared, number of times the youth changed accommodation, mother's employment status and occupation when the youth was aged 14 years, having parents or someone else often reading to the youth at night in childhood, number of schools attended, type of school attended, remoteness of residence, the Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Disadvantage, SEIFA index squared, and state/territory of residence.^{9 10}

In the models for present situation as well as aspirations and expectations, self-reported health, school attainment and school performance were added as controls. In addition, no access to car/motorcycle was controlled in the models for economic and social participation; parental view of the importance of education was added in the

⁸ The related question for childhood happiness in the survey is: 'overall how would you describe your childhood (including teenage years)?' The interviewee had four options to choose: very happy, pretty happy, unhappy, and very unhappy. The category of unhappy and that of very unhappy were combined to reach a reasonable cell size.

⁹ Due to data limitations, this paper does not attempt to identify causal relationships. Nonetheless, where possible, variables of current individual or family characteristics, such as current health, were not controlled for in the models for past experiences as they were more likely to be endogenous than other variables regarding history, such as maternal education.

¹⁰ For details of the SEIFA indexes, refer to the ABS website, www.abs.gov.au.

model of youth expected education; and parental confidence in own control over the future was included in the model of youths' confidence in their control over the future.¹¹

Another key task of the paper concerns the presence of more than one source of disadvantage, which is often associated with a higher risk of social exclusion.¹² This research explored the correlations and interactions between youth disability and other sources of disadvantage including Indigenous status, non-intact or non-English speaking family background, heavy exposure to family income support receipt (i.e., on income support for more than six years), poor educational attainment and teenage motherhood of mothers, no access to a car or a motorcycle, and locational disadvantage.¹³

Although the control variables were carefully selected based on their expected or observed relationships with the outcome measures in the current or previous studies, it is debatable whether some variables should or should not be included. Therefore, the models were re-estimated excluding some explanatory variables that are mostly insignificant, or less commonly controlled in previous studies, or more likely to be controversial (such as type of school attended and number of times changing accommodation); the key findings were found to be consistent. In addition, as a general rule in this research, control variables were added in stages into the models to check the sensitivity of the key variables of interest – the disability variables – in all multivariate regressions. In addition, all analyses in this paper took the sample stratification into consideration to make the findings generally applicable to the TDS2 population.

4. Results

This section reports the main results of the research, starting with direct tabulations of selected measures by disability status, followed by multiple regressions.

Direct Tabulation of Key Measures by Disability Status

Table 2 compares the selected measures by disability status: no disability, physical disability, or developmental disability.

Past experiences. The first panel of table 2 shows significant differences in past experiences by youth disability status. Youths with physical or developmental disability were both significantly more likely to report an unhappy childhood than those without disability (9.3 per cent and 11.2 per cent versus 6.8 per cent). Almost 41 per cent of youths with developmental disability did not finish Year 12, and 17.6 per cent reported a below average school performance, two to three times higher than their peers without disability (20.7 per cent and 5.6 per cent, respectively); however, the differences between youths with physical disability and those without disability were insignificant in these two aspects.¹⁴

¹¹ The variable of having parents or someone else often reading at night in childhood was excluded as always being insignificant (highly correlated with school attainment).

¹² Both the UK and European Union definitions of social exclusion have highlighted the associations between social exclusion and multiple disadvantages (see, Hayes, Gray and Edwards, 2008).

¹³ Yu (2009) found significant interaction effects of disability and some other sources of disadvantage in terms of affecting youth social participation, indicating effects of double disadvantage.

¹⁴ In 2003, 67 per cent of Australian young people aged 20-24 years with a disability completed Year 12, in comparison to 83 per cent of the general population in the age group (AIHW, 2007).

Table 2 - Youth Outcomes, Aspirations and Expectations by Disability

	<i>With no Disability (n=2,110)</i>	<i>With Physical Disability (n=173)</i>	<i>With Developmental Disability (n=147)</i>
Past experiences:			
<i>I. School attainment (per cent):</i>			
1. Completed Year 10 or below	8.3	9.8	16.0*
2. Completed Year 11	12.4	18.0	24.7*
3. Completed Year 12 or equivalent	79.3	72.2	59.3*
<i>II. School performance (per cent):</i>			
1. Well above average	9.5	8.8	5.9
2. Above average	36.7	39.6	18.5*
3. Average	48.2	46.8	57.9
4. Below average (incl. well below average)	5.6	4.8	17.6*
<i>III. Overall happiness in childhood (per cent):</i>			
1. Very happy	46.2	27.7*	37.4
2. Pretty happy	47.0	63.0*	51.4
3. Unhappy (incl. very unhappy)	6.8	9.3*	11.2*
Present circumstances:			
<i>IV. Participation in education and employment (per cent):</i>			
0. Neither studying nor working (not participating)	8.1	9.0	12.8
1. Studying, not working	15.9	16.4	21.4
2. Working, not studying	26.3	22.1	24.3
3. Studying and working	49.7	52.4	41.5
<i>Usual working hours per week in all jobs</i>	27.0 (0.9)	29.0 (3.5)	26.8 (5.4)
<i>Hourly wage (gross, main job) (\$)</i>	13.6 (0.3)	12.9 (0.5)	13.8 (0.6)
<i>V. Income support receipt:</i>			
Currently on income support (per cent)	22.8	21.1	32.4*
Currently on income support other than YALstudent (per cent)	8.2	10.4	21.3*
<i>VI. Social participation:</i>			
Active club membership (per cent)	45.5	49.3	45.3
Often visiting friends or having friends visit (per cent)	69.1	69.7	58.5*
Aspirations and expectations:			
<i>VII. Expected education level (per cent):</i>			
1. Year 11 or below	3.6	3.3	4.8
2. Year 12	13.9	10.9	25.7*
3. Certificate or diploma	30.9	31.8	38.2
4. University degree or above	51.6	54.0	31.2*
<i>VIII. Current job is the kind of job youth would like to have as a career (per cent):</i>			
1. Yes	23.7	27.5	33.8*
2. No	74.3	71.4	61.6*
3. Not sure	2.1	1.0	4.6
<i>IX. Future mostly depends on oneself (per cent):</i>			
1. Disagree/strongly disagree	5.9	8.1	7.6
2. Agree	48.5	54.1	54.1
3. Strongly agree	45.6	37.8	38.3

Note: Mean values, adjusted for sample stratification. Linearised standard errors in brackets.

* Significantly different from youth without disability at the five per cent level. n=number of observations in related sub-samples (some variables may have missing values). YAL-student denotes Youth Allowance payable to young people who are independent and either studying or undertaking an Australian Apprenticeship full-time.

Present circumstances. Overall, as shown in the middle panel of table 2, most of the measures of present circumstances – participation in education and employment, usual working hours and hourly wage, and active club membership – were not significantly different across the disability categories.

However, youths with developmental disability were significantly more likely to be receiving income support and less likely to have frequent contact with friends than their peers without disability. Based on the TDS2 records, more than 90 per cent of the youths on income support were receiving Youth Allowance (YAL) and the rest were on Disability Support Pension (DSP) or other payments.¹⁵ YAL is payable to young people who are independent and either unemployed (YAL-unemployed) or studying or undertaking an Australian Apprenticeship full-time (YAL-student). As such, YAL recipients are not necessarily unemployed and may be studying or participating in a training course; the employment prospects for the latter (recipients of YAL-student) are likely to be much better than those for the unemployed YAL recipients. Therefore an alternative measure of more disadvantaged income support recipients was used, that is, receiving income support other than YAL-student. Using this measure, it was found that a significantly larger proportion of youths with developmental disability received income support (21.3 per cent) relative to their peers without disability (8.2 per cent) or those with physical disability (10.4 per cent). The difference between youths with physical disability and those without disability was insignificant in both cases.

Aspirations and expectations. As shown in the last panel of table 2, youths with developmental disability were significantly less likely to expect to achieve a university degree (31.2 per cent) than their peers without disability (51.6 per cent) and also those with physical disability (54.0 per cent).

Although the youths' expectations for their future career were not directly asked in Wave 1 of the YIF survey, some indication can be obtained by examining the youths' answers to two questions: one is about the nature of their current job, and the other is whether their current job is the kind of job they would like to have as a career. The survey statistics suggest that the current jobs of the youths were mostly casual (61.7 per cent), relatively low skilled (78.8 per cent being clerical, sales and services employee, tradesperson or labourer), and poorly paid (slightly higher than the 2006 minimum wage – \$12.75 per hour). However, differences in the characteristics of the current jobs were insignificant by disability status.

When asked whether they would like to have their current job as a career, the majority of youths answered no. However, youths with developmental disability were significantly more likely to say yes (33.8 per cent) than their peers without disability (23.7 per cent). As such, it seems that youths with developmental disability had relatively lower career aspirations than their peers without disability. The proportion of youths with physical disability who reported that they would like their current job as a career (27.5 per cent) was not significantly different from that of youths without disability. Some caution should be exercised in interpreting the results as young people at this age are mostly still studying and may not be clear about their career choices, and the analysis was only based on those currently working.

¹⁵ For more information on YAL and other income support payments, refer to the Centrelink website: www.centrelink.gov.au.

Another measure of aspirations and expectations was how confident the youths were in their sense of control over their future.¹⁶ As shown in table 2, there were no significant differences in this respect between youths with and without disability, although youths with disability (physical or developmental) were slightly less confident than those without disability.

Associations between Disability and Youth Outcomes, Aspirations and Expectations after Considering other Factors

To explore whether the significant differences across youth disability groups revealed by direct tabulation remain significant after considering other factors, multivariate regression was undertaken. Ordered logistic models were estimated for the multi-categorical measures, such as school attainment and school performance; logistic models were applied for the estimation of binary measures such as participating in education or employment (0. neither working nor studying, 1. working or studying) and income support receipt (0. not on income support, 1. on income support).

Table 3.1 reports the estimated odds ratios (exponential of coefficients) of disability variables in models including a full set of control variables as described in the Data and Methodology section.¹⁷ Table 3.2 reports the estimated marginal effects of disability. Overall, the results were consistent with the associations revealed by direct tabulation, while differences in some aspects between youths with and without disability became statistically insignificant, or became significant in some instances, after controlling for other factors. Where the estimated differences were significant statistically, they were also significant in magnitude, with the odds ratios ranging from 0.40 to 0.64 for the negative coefficients, and from 1.56 to 2.89 for the positive coefficients (see, table 3.1); the estimated marginal effects were also sizable (see, table 3.2).

Table 3.1 - Estimated Associations between Disability and Youth Outcomes, Aspirations and Expectations (Odds Ratios)

<i>Models</i>	<i>Without Disability</i>	<i>With Physical Disability</i>	<i>With Developmental Disability</i>	<i>No. of Obs.</i>
Past experiences:				
<i>I. Better school attainment</i>	Reference	0.635 (0.12)*	0.402 (0.08)**	2,335
<i>II. Poorer school performance</i>	Reference	0.940 (0.14)	2.896 (0.61)**	2,325
<i>III. Less happy childhood</i>	Reference	2.188 (0.41)**	1.559 (0.34)*	1,841
Present circumstances:				
<i>IV. Participation in education and employment</i>	Reference	0.995 (0.37)	0.965 (0.35)	2,322
<i>V. Income support receipt:</i>				
(i) Currently on income support	Reference	0.915 (0.23)	1.933 (0.44) **	2,322
(ii) Currently on income support other than YAL-student	Reference	1.425 (0.46)	2.674 (0.75) **	2,322

¹⁶ The youths were asked how strongly they agreed or disagreed with the statement – ‘what happens to me in the future mostly depends on me’ (on a scale from 1. strongly disagree to 4. strongly agree).

¹⁷ Since tens of models have been estimated, to save space, full estimation results are not reported in this paper, but can be provided on request from the author.

Table 3.1 - Estimated Associations between Disability and Youth Outcomes, Aspirations and Expectations (Odds Ratios) (continued)

<i>Models</i>	<i>Without Disability</i>	<i>With Physical Disability</i>	<i>With Developmental Disability</i>	<i>No. of Obs.</i>
<i>VI. Social participation:</i>				
(i) Active club membership	Reference	1.376 (0.28)	1.347 (0.31)	1,821
(ii) Frequent contact with friends	Reference	1.029 (0.22)	0.615 (0.13) *	1,830
Aspirations and expectations:				
<i>VII. Expected education level</i>	Reference	1.145 (0.20)	0.727 (0.14)	2,129
<i>VIII. Current job is the kind of job youth would like to have as a career</i>	Reference	1.223 (0.26)	1.176 (0.28)	2,080
<i>IX. Future mostly depends on self</i>	Reference	0.786 (0.15)	0.753 (0.16)	1,784

Note: Ordered logistic model was used for Models I, II, III and VII; logistic model was used for the other models. Linearised standard errors in brackets. * Significant at the five per cent level; ** significant at the one per cent level.

Table 3.2 - Estimated Marginal Effects of Disability

<i>Selected Measures</i>	<i>Without Disability</i>	<i>With Physical Disability</i>	<i>With Developmental Disability</i>
Past experiences:			
<i>I. Completed Year 12</i>	Reference	-0.074 (0.03)*	-0.165 (0.04)**
<i>II. Below average school performance</i>	Reference	-0.003 (0.01)	0.077 (0.02)**
<i>III. Unhappy childhood</i>	Reference	0.052 (0.02)**	0.026 (0.02)
Present circumstances:			
<i>IV. Participating in education or employment</i>	Reference	-0.000 (0.01)	0.001 (0.01)
<i>V. Income support receipt:</i>			
(i) Currently on income support	Reference	-0.011 (0.03)	0.104 (0.04) *
(ii) Currently on income support other than YAL-student	Reference	0.012 (0.01)	0.045 (0.02) *
<i>VI. Social participation:</i>			
(i) Active club membership	Reference	0.080 (0.05)	0.074 (0.06)
(ii) Frequent contact with friends	Reference	0.008 (0.04)	-0.110 (0.05) *
Aspirations and expectations:			
<i>VII. Expecting to achieve a bachelor or above degree</i>	Reference	0.034 (0.04)	-0.079 (0.05)
<i>VIII. Current job being the kind of job youth would like to have as a career</i>	Reference	0.036 (0.04)	0.029 (0.04)
<i>IX. Lack of confidence (i.e., disagree with the statement that future mostly depends on oneself)</i>	Reference	0.013 (0.01)	0.016 (0.01)

Note: Based on corresponding models reported in table 3.1, with other covariates fixed at their means. Standard errors in brackets. * Significant at the five per cent level; ** significant at the one per cent level.

Past experiences. As shown in the first panel of table 3.1, after controlling for other factors, youths with developmental disability were still significantly less likely to have completed Year 12, and more likely to report a below average school performance and an overall unhappy childhood than their peers without disability. Youths with physical disability also had significantly poorer outcomes in all aspects than those without disability, except for school performance where the difference remained insignificant. Note that in contrast to the direct tabulation result, after controlling for other factors, the difference in school attainment between youths with physical disability and those without disability became significant.

Present circumstances. The second panel of table 3.1 shows that after controlling for other factors, youths with developmental disability were still significantly more likely to be in receipt of government income support (and also income support other than YAL-student) and less likely to have frequent contact with friends. The differences between youths with physical disability and those without disability remained insignificant for all measures.

One point to note here is that youth with disability are a target group of social and community support – e.g., special education and employment services as well as various disability associations. Unfortunately the YIF data do not allow us to distinguish these targeted services from the non-targeted ones. As such, significant differences in participation between youth with and without disability may be masked by the imperfect measures; that may weaken the connection between disability and social inclusion. However, this may not be a big issue: some studies, e.g., Yu (2010), suggest that notwithstanding the measurement problem, generally economic and social participation is significantly more, or at least equally, important for youth with disability in comparison to those without disability with respect to their subjective wellbeing, which, rather than participation per se, is supposed to be our ultimate objective of development.

Aspirations and expectations. The results reported in the bottom panel of table 3.1 suggest that once other factors have been considered, the associations between disability and youth aspirations and expectations were generally insignificant, contrasting with the direct tabulation results (in table 2), which showed that youths with developmental disability had significantly lower educational and career aspirations than did their peers without disability. Poor school attainment and performance – significant predictors for educational and career aspirations – of youths with developmental disability may act as mediating factors.

Association and Interaction between Disability and Other Sources of Disadvantage

This section examines the associations and interactions between disability and other sources of disadvantage. As shown in table 1 and discussed in the Data and Methodology section, significant associations between disability and other measures of disadvantage have been found; for instance, between developmental disability and growing up in a stepfather family and also parental income support receipt in early childhood (0-4 years), as well as between physical disability and poor/fair current health.

A question of particular policy interest is whether the co-occurrence of both disability and another source of disadvantage is associated with poorer youth outcomes than the independent occurrence of either disability or another source of disadvantage. To address this issue, interaction terms for disability and other measures of disadvantage (e.g., Indigenous status, and non-English speaking or non-intact family background) were included in the models of youth outcomes, aspirations and expectations. The following interaction terms were significant both statistically and in magnitude (see, table 4), indicating a sizable negative compounding impact of disability and disadvantage on certain youth outcomes:

- physical disability and locational disadvantage (i.e., lowest 20th percentile of SEIFA disadvantage index) in relation to the outcome of finishing Year 12 (odds ratio=0.38);
- physical disability and poor maternal educational attainment (i.e., mother not finishing Year 12) in relation to the outcome of below average school performance (odds ratio=2.00); and
- developmental disability and lack of private transport (i.e., no access to car/motorcycle) in relation to the outcome of frequent contact with friends (odds ratio=0.41).

Table 4 - Significant Interaction Effects (Odds Ratios)

<i>Key Explanatory Variables</i>	<i>Dependent Variable</i>		
	<i>Completed Year 12</i>	<i>Below Average School Performance</i>	<i>Frequent Contact with Friends</i>
Physical disability (PhyD)		0.765 (0.13)	
Developmental/learning disability (DevD)		3.533 (0.97)**	
Mother not finished Year 12 education (MNY12)		1.348 (0.14)**	
PhyD and MNY12		2.000 (0.63)*	
DevD and MNY12		0.452 (0.19)	
PhyD	0.838 (0.18)		
DevD	0.470 (0.10)**		
Socio-economically disadvantaged areas (SEDA)	0.901 (0.12)		
PhyD and SEDA	0.382 (0.16)*		
DevD and SEDA	0.651 (0.29)		
PhyD			0.980 (0.24)
DevD			0.837 (0.23)
No access to car/motorcycle (NOCAR)			0.750 (0.10) *
PhyD and NOCAR			1.237 (0.59)
DevD and NOCAR			0.407 (0.19) *

Note: To make the results relatively easy to interpret, one set of interaction terms was included at a time. Other control variables were the same as in the corresponding models reported in table 3.1: 'Completed Year 12' as in Model I; 'Below average school performance' as in Model II; and 'Frequent contact with friends' as in Model VI.ii. Linearised standard errors in brackets.

* Significant at the five per cent level; ** significant at the one per cent level.

In addition, although some interaction terms were not statistically significant, they and the disability variables were found to be jointly significant. One policy relevant implication of the joint significance is that among people with disability (as a target group), those who also had other types of disadvantage were more disadvantaged than others who had disability only.

Specifically, among youths with physical disability:

- those with heavy exposure to family income support receipt were significantly more likely to be neither working nor studying, and more likely to be on income support themselves than the others; and
- those whose mother did not complete Year 12 education had significantly poorer school attainment and also lower levels of expected education than those whose mother had completed Year 12.

Among youths with developmental disability:

- those from a non-intact family background had poorer school performance than those whose parents never separated;
- those having heavy exposure to family income support receipt were significantly more likely to be on income support themselves; and
- those having no access to a car or a motorcycle were significantly less likely to have frequent contact with friends.

However, it should be noted that the interactions between disability and other sources of disadvantage were complicated, not always implying a negative compounding impact. In many cases adding another source of disadvantage does not significantly worsen, or only marginally worsens, the youth outcomes (Yu (2009) reported a similar finding). Also note that the insignificance of some interaction terms, such as those between disability and Indigenous status and between disability and maternal teenage motherhood, was likely to be, at least partly, due to the small cell sizes of youths with these compound disadvantages.

In addition, as touched upon in the above discussion, this research revealed significant associations between certain types of parental disadvantage and poorer youth outcomes in similar aspects, indicating intergenerational transmission of disadvantage. Overall for the youths, significant and positive associations were found: between maternal educational attainment, and youth school attainment and school performance as well as educational aspiration; between maternal and youth labour force participation; between parental and youth income support receipt; and between parental and youth confidence in their control over the future.

5. Summary and Discussion

This paper took advantage of the Youth in Focus (YIF) data on a cohort of Australian youth and explored several key aspects of young people's life, including past experiences (school achievement and childhood happiness), current situation (participation in education and employment, social involvement and income support receipt), and aspirations and expectations (expected education and career as well as confidence in control over the future).

From the analyses presented above, a few direct observations and logical deductions are possible. First, young people with disability had significantly worse outcomes than their peers without disability in many aspects, raising a concern of social exclusion among this focal group. In particular, youths with developmental/learning disability were the most disadvantaged. They not only had poorer outcomes in the past against all the selected measures – school attainment, school performance, and childhood happiness – than those without disability, but also reported poorer present circumstances against some measures (income support receipt and frequency of contact with friends). Youths with physical disability also had poorer school attainment and were less happy in childhood, but did not differ greatly from those without disability with respect to present circumstances. It is noteworthy that consistent with previous studies (Burchardt, 2005; and Emerson, Honey and Llewellyn, 2008), youths with disability (either physical or developmental/learning), were not significantly more disadvantaged than their peers without disability with respect to aspirations and expectations; however, the question remains whether they can achieve their aspirations and expectations with a similar likelihood.

Considering the current age of the youths at the time of data collection (about 18 years old) – the age when most young people have just finished school in Australia – the youths growing up with disabilities may have experienced difficulties in and disruptions to schooling and thus had poorer school attainment and performance, which were found to be significant predictors of most aspects of present circumstances as well as aspirations and expectations. This suggests that early and effective intervention to assist children and young people with disability with their schooling may be important.

Second, disability was associated with and interacted with some other sources of disadvantage. For instance, having a developmental/learning disability was significantly associated with the experience of living with a stepfather and also with parental income support receipt in early childhood (0-4 years); and physical disability was associated with poor/fair current health.

Double disadvantage is an ongoing policy concern; disability may be compounded by other sources of disadvantage, leading to poorer outcomes than would be expected to arise from either disability or another disadvantage alone. Some evidence of double disadvantage (and, potentially, multiple disadvantage) was revealed in this research: youths with a physical disability who lived in a socioeconomically disadvantaged area had significantly poorer school attainment than those either having a physical disability or living in a disadvantaged area; similar results were found for the influence of physical disability and poor maternal education on youth school performance, and for the impact of developmental/learning disability and lack of private transport on contact with friends. As such, the needs of youths who experience more than one form of disadvantage may require specific consideration.

Third, the results indicate the existence of intergenerational transmission of disadvantage, another major concern for public policy. Significant and positive associations were found between maternal education, and youth school attainment and performance as well as youth educational aspiration; between maternal and youth labour force participation; between parental and youth income support receipt; and

between parental and youth confidence in their control over the future. Previous studies (e.g., Case, Fertig and Paxson, 2005; and Case, Lubotsky and Paxson, 2002) have found a positive relationship between children's health and socioeconomic status (household income in particular), which becomes more pronounced as children age, and childhood health has a lasting impact on health and socioeconomic status in middle adulthood. As such, poor outcomes of young people with disability may be influenced by disadvantaged socioeconomic status in early childhood or even earlier, and early intervention may go as early as before the birth of a child (e.g., better healthcare at pregnancy) to assist in reducing the incidence of disability of children and breaking the cycle of intergenerational transmission of disadvantage.

Fourth, the significant differences between youths with physical disability and those with developmental/learning disability confirm that people with disability are a diverse and heterogeneous group, which in turn suggests the need for differentiated policy intervention. A key limitation of the current research is that information on the onset, duration and severity of disability was not available in the data. Although controlling for many background variables serves the purpose of mitigating some of the potential effects of unobserved heterogeneity, the diversity and heterogeneity of youths with disability remains an issue that warrants further detailed investigation.

Another important point to note is that even where youths growing up with a disability had worse outcomes on average, not all youths with disability fared worse. For instance, although in comparison to youths without disability, youths with developmental/learning disability, on average, had poorer school attainment, still nearly 60 per cent of them had completed Year 12 at age 18. Some studies even suggest that having a disability may have positive aspects, 'for example through finding a new or stronger sense of identity, or feeling liberated or enlightened through participation in the disabled people's movement' (Campbell and Oliver, 1996, cited in Burchardt, 2003, p. 2). An analysis of protective factors that promote resilience and facilitate positive outcomes among young people with disability could provide insights into ways of assisting other young people with disability, and could also be a subject of future study.

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