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Participation in and Completion of Vocational Education and Training for People with Disability

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Participation in and Completion of Vocational Education and Training for People with Disability*

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Abstract

Improving the educational outcomes of people with a disability is seen as key in helping improve their employment and life prospects. Vocational Education and Training (VET) is an important avenue for further education for people with disability because it is a highly flexible and accessible form of education. This paper uses the HILDA survey and multivariate estimation to examine whether people with disability face barriers in participating in and completing a VET qualification, with particular focus on the role of social support. Overall, we find that people with disability are not disadvantaged in terms of participation, but are in terms of completion, especially those with more limiting conditions and those with mental health problems who have low levels of social support. These findings add to the growing literature on the role of social support in the functioning of people with mental illness and underline the importance of ensuring access to adequate support services.

1.   Introduction

Studies in Australia and overseas show that having a disability is associated with adverse labour market outcomes. In particular, people with a disability are less likely to be in paid employment (Baldwin & Johnson 1994; Wilkins 2004; Jones, Latreille & Sloane 2006; Mavromaras, Lee and Black 2006). Most recent estimates from the HILDA survey suggest that in the period between 2001 and 2008 only 59% of working age people with a disability are in paid work, compared to 84% of people without a disability.

Improving labour market outcomes for people with a disability is part of the Australian government's social inclusion agenda, clearly spelled out in their National Mental Health and Disability Employment Strategy (Commonwealth of Australia 2009). The social inclusion agenda emphasises the importance of improving education levels of people with disability, particularly through Vocational Education and Training (VET). Recent data (2008) from the HILDA survey show that over 40% of people with disability did not complete school and have not obtained any further qualification, compared to less than 25% for the whole population. VET is potentially an important avenue to bridge this gap because it is highly accessible (open to people from all educational backgrounds), available in many different modes and its modularised nature means that it can be tailored to meet individual training needs. A recent study by Polidano and Mavromaras (2009) estimates that for people with a disability, completing a VET course not only significantly increases their chances of moving into employment, but also improves the chances of staying in employment 2-3 years after completion.

Given the potential of VET to improve labour market outcomes of people with disability, the Australian government (Commonwealth of Australia 2009) and the Australian National Training Authority (ANTA 2004) have made accessibility of VET a priority. Since 2000, the

ANTA Bridging Pathways Strategy, has focussed on a 'whole-of-life' approach to improving accessibility for people with a disability, by addressing not only barriers on campus, but more generally all challenges people with a disability may face in their lives.

A number of studies to date have used descriptive statistics to find that people with a disability are less likely to complete a VET course than those without a disability (Cavallaro et al. 2005, Dumbrell, de Montfort and Finnegan 2004). In a multivariate study of student performance using data from the National VET Provider Collection, Karmel and Nguyen (2008) found that people with disability, especially mental and physical disabilities, are less likely to complete a given VET course module than those without a disability. In a qualitative study, lack of support was identified as being a cause of poor performance among VET student with mental illness (Miller and Nguyen 2008).

These studies leave a number of important questions unanswered, some of which are addressed in this paper. First, we examine if people with disabilities take part in education as much as their comparators without a disability. To this purpose, we use multivariate analysis to examine whether there is equity in participation. Second, we model explicitly the fact that disability is not a homogenous state. We utilise detailed information on disability in HILDA, including timing of disability onset and severity, to analyse the impact of different types of disability. Finally, we use two measures of social support in HILDA to examine whether social support can help people with disability overcome some of the difficulties that they face in acquiring further qualifications.

This project uses data on the working age population from the latest version of the HILDA survey, a representative dataset of Australian households, which tracks the same individuals through time (panel dataset) from 2001 to 2008. Panel data enables the researcher to observe and analyse changes at the individual level. Being able to track individual changes is

important in the context of this study because we are interested in following the progress of VET students. As well as providing a longitudinal perspective, HILDA includes rich information on labour market outcomes, education and training, socio-demographic characteristics, and personal health conditions. Other representative Australian datasets with detailed information on disability, such as Survey of Disability and Ageing and Carers (SDAC) 2003, do not have information on individuals' study outcomes.

2. Data and definitional issues

Given that improved labour market outcomes is a key motivation for undertaking a VET course, we restrict our sample to individuals who are of working age (between 15 and 64 years) at the time of interview. In HILDA, we identify participation in and completion of a VET course in the time since the last interview, which is around 1 year. This means that in the first interview, there is incomplete information on course participation (only information on current course enrolment is available) and there is no information on course completion. Therefore, we omit all observations from wave 1.

In total, there are 66,252 observations in the sample, 21 percent of these are for people with a disability (Table 1). Of these, 4903 VET courses are undertaken, 3983 were undertaken by people without a disability at the time of study and 920 were undertaken by people with a disability at the time of study. While analysis of participation in VET is conducted on the full sample of 66,252 observations, analysis of completion is limited to the sub-sample of observations in which a VET course enrolment is observed (4903 observations in total).

INSERT TABLE 1

There are three important definitional issues in the context of this study: the definition of VET, the treatment of disability and the definition of social support.

2.1. Vocational Education and Training

People studying a VET qualification are defined in this study as those who are enrolled in a course that leads to an Australian Qualifications Framework Certificate I to IV, a Diploma or Advanced Diploma, or, in some cases, to an 'undefined certificate'. The category of 'undefined certificates' includes people who may not have been able to identify their certificate level when asked if, for example, they completed a trade certificate before the introduction of the Australian Qualifications Framework.

To identify VET participation and completion in HILDA, the following rules are applied. An individual is identified as having participated in VET if they report being currently enrolled in VET or were enrolled since their last interview. An individual is identified as having completed the course if they are no longer studying and were awarded a VET qualification subsequent to their previous interview. If the same individual ceased study but were not awarded a qualification, they are assumed to be a non-completer. A limitation of HILDA is that we cannot identify whether non-completers have deferred study, ceased study after completing all intended parts of a course (module completer) or withdrew from the course. For ease of analysis, we record participation occurring at the same time as completion (the year after ceasing study). This is not likely to affect the analysis because we are not interested in the duration of study, only participation and the outcome. By identifying participation when study ends, we treat multiple enrolments in the one spell as the same engagement, which avoids double counting and means course changes are not counted as a non-completion.

2.2. Disability

In HILDA, the definition of someone with a disability is 'someone who has a long-term health condition, impairment, or disability that restricts everyday activities, and has lasted or

is likely to last, for 6 months or more'. A pertinent point to keep in mind is that this definition excludes the vast majority of the outcomes of workplace-related illnesses and injuries, as very few of them force an absence from work for more than a fortnight. This also excludes other transient health shocks, especially those caused by illnesses or injuries that do not lead to permanent incapacity. Transient health shocks are a different issue and they lead to distinct responses in terms of labour market behaviour (see Cai, Mavromaras and Oguzoglu 2008), which are not the subject of this report.

Because we observe outcomes from study in the year after completion, we use information on an individual's disability status, severity, type and onset from the previous interview (regardless of their present status), which in most cases will be the last year of study. Because disability status, type, severity and onset can change through time, we use information on disability in the last period before ceasing study because in many cases it is the only time during the spell in which they are observed to be in study.[1]

A limitation of the data we use is that information on disability type and onset is not available in the first two waves of HILDA. For individuals who report a disability in wave 2 and wave 3, the type and onset of their condition in wave 2 is assumed to be the same as that reported in wave 3. However, if the onset or condition type for people who report a disability in wave 2 is not observed in wave 3 (either because they left the sample, did not respond to the question or no longer report a disability), then we treat these people as two separate categories, called 'disability onset unknown' and 'disability type unknown'. Because we use information on disability from the year before ceasing study, there is still a considerable number of individuals with missing information on disability type and disability onset in

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[1] The duration of most VET courses is 12-18 months.

2003 (Table 1). As can be seen from Table 1, there are also cases after 2003 of individuals who report having a disability, but do not report the date of onset or disability type.

2.3. *Severity of disability*

Severity of disability is controlled for in this analysis by using a self-reported measure of the extent to which disability limits the type or amount of work that an individual can do. The variable is measured on an 11-point scale where 0 means that the reported disability leaves work capacity unaffected and 10 means that it makes work impossible. The question of severity is only asked of those who have reported a disability. A limitation of the measure of disability severity is that it assumes first, that individuals can judge the extent to which their disability limits their capacity to work, and second, that respondents in employment may make the judgment based on the characteristics of their present job and not necessarily on their more general ability to work, as their present job gives them their best guess in the presence of future uncertainty. [2] The average severity reported by a person with a disability is 3.51 (on a scale of 0–10) and only 3 percent report that their disability prevents them from working (score of 10).

2.4. *Type of disability*

Independent of severity, different types of disability are likely to have varying impacts on participation in and completion of VET as they may impose varying restrictions on learning and everyday functioning. HILDA respondents who report that they have a disability are asked to choose from a list of disability categories they presently have. It is possible that an individual will report having more than one type of disability. For the purposes of this study,

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[2] A more objective approach would be to use measures of restrictions in core activities (self-care, mobility, and communication); however, these are only available in Wave 4 and 8 of HILDA.

we classify disability types from HILDA into the following five categories, which, by the way category 5 is constructed, are mutually exclusive:

1. Sensory: sight (that cannot be corrected with glasses), speech, or hearing impairment;

2. Physical: deformity, limited use of limbs, difficulty gripping, health condition that affects physical activity, recurring pain, and long-term conditions that restrict activity;

3. Mental health: learning difficulties, mental illness that requires help or nervous (emotional) condition that requires treatment;

4. Other: long-term stroke, or head injury, and other long-term health conditions; and

5. Multiple: more than one of the above disability types.

The majority of people who report a disability in HILDA have physical or multiple conditions (Table 1). In terms of participation and completion, the raw statistics show that, in the main, there are only small differences in participation and completion rates between people with and without disability.

2.5.   Onset of disability

It is possible that the timing of disability onset can affect incentives to return to study. For example, the disruption of a working career due to the onset of a disability may be a prime motivation for re-training. All else being equal, this implies that individuals who experience working-age onset may be more likely to re-engage in education and training than those with an earlier life onset. It is however, also clear that the older someone is, the less returns can be expected from re-training, so that the incentive to re-train for those with a later onset of disability will be lower. The net effect from these influences is an empirical matter.

In HILDA, disability onset is identified for each disability type. For the purpose of this study, we take 'onset' to mean the time of the first disability onset. Consistent with Wilkins (2004), we treat age of onset as a categorical variable:

- *Child (0-14 years);*
- *Youth (15-24 years);*
- *Prime-age adult (25-44 years);*
- *Older adult (45-64 years); and*
- *Unknown.*

2.6. Social support

There is a growing body of literature on the 'buffering effect' of social support in helping people cope with their health problems (Cohen et al. 1985; Holahan et al. 1997; Schwarzer and Leppin 1989; Cohen 2004; Litwin 2006 and Ostberg 2007). In broad terms, social support can be emotional, tangible or informational (Schaefer, Coyne, and Lazarus 1981). Emotional support includes intimacy and attachment, reassurance, and being able to confide in, and rely on, another person; all of which contribute to the feeling that one is loved or cared about; or even that one is a member of a group and not a stranger. Tangible support can include loans, gifts of money or goods, and provision of services such as taking care of a person in need or doing a chore for them. Informational support involves the transfer of information and advice which could help a person solve a problem.

For robustness, we derive two measures to test whether social support helps people with disability participate in and complete a VET course: an indicator for whether an individual lives in a multiple-person household or not and a score of perceived support derived from combining responses to questions on social support from HILDA. These questions are:

1. People don't come to visit me as often as I would like

2. I often need help from other people but can't get it

3. I don't have anyone that I can confide in

4. I have no one to lean on in times of trouble

5. I often feel very lonely

6. I seem to have a lot of friends

7. There is someone who can always cheer me up when I'm down

8. I enjoy the time I spend with the people who are important to me

9. When something is on my mind, just talking with the people I know can make me feel better

10. When I need someone to help me out, I can usually find someone

Individuals are asked to respond to these questions on a seven point scale, where 1 is strongly disagree and 7 is strongly agree.

After reverse coding the negatively-worded items, we used factor analysis to derive two scores of social support;[3] however, the factors identified were loaded on the positively-worded (items 6-10) and negatively-worded items (1-5). Therefore, we settled on producing one score rather than two. After examining the correlation between each of the 10 items, we omitted responses to question 1 because of the low correlation between responses to this question and the responses to other social support questions (corrected item-total correlation is 0.3).[4] A score based on these 9 items gives a Cronbach's alpha score of 0.82, which is higher than the 0.7 rule of thumb for a reliable score (De Vaus 2002). To derive the score, we averaged responses to the 9 items for each individual in each wave. We chose to use an average score rather than an aggregate to avoid eliminating people who did not answer all of the 9 questions (around 500). To capture the effect that incomplete information on the social

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[3] There were two factors with eigen values greater than 1.

[4] According to De Vaus (2002) corrected item-total correlation should be at least 0.3 to remain in a score. The total-item correlation for all other items in the scale were at least 0.46.

support score may have on the results, we include a dummy indicator that is 1 if the social support score is derived by averaging less than 9 items and is zero if all 9 items are used.

INSERT TABLE 2

A frequency of the social support measures by disability type is presented in Table 2. Both measures point to lower levels of social support for people with mental health issues and with multiple disabilities. The low levels of social support for those with multiple disabilities may still be related to mental health issues because over half of members of this group report having a mental health condition. People with mental health problems are well known to have difficulty developing and maintaining social relationships outside of family members (Davidson et al. 2004; Mueser and Tarrier 1998).

3. Modelling participation and completion of VET

Participation and completion of VET are represented as two binary outcomes, which take the value 1 for a positive outcome and 0 otherwise – 1 for participation/0 no participation, 1 for completion/0 no completion. Where the completion of a VET qualification took place some time between the previous and the current interviews, the VET completion variable takes the value of zero for the previous and one for the current interview. Modelling this type of either-or outcome, necessitates the use of limited dependent variable estimation methods, such as probit or logit. Estimations are principally done using the univariate binary probit method, noting that in practical terms the probit and logit methods produce very similar estimates.

In modelling these outcomes, it is assumed that there are two latent variables of participation and completion, y_1^* and y_2^*, that represent the net benefit of participating and completing VET programs respectively, which depend upon individual characteristics and their environment x_1 and x_2:

$$y_1^* = x_1'\beta + e_1$$
$$y_2^* = x_2'\beta + e_2 \tag{1}$$

In both cases, if either of the two latent variables of participation and completion, y_1^* and y_2^*, are greater than or equal to zero, individuals are assumed to participate in VET or complete and if they are less than zero, individuals do not participate or do not complete, as summarised in equation (2).

$$y_j = \begin{cases} 1 \text{ if } y_j^* \geq 0 \\ 0 \text{ if } y_j^* < 0 \end{cases}, \, j=1 \text{ or } 2. \tag{2}$$

Under the univariate probit model, it is assumed that the two error terms in equation (1) are independent and normally distributed with a zero mean and a variance of 1. The validity of the assumption is not tested, but in practical terms, it means that results for the completion model are generated using only the sub-sample of individuals who are observed to participate in VET and the results cannot be used to examine the conditions under which those who did not participate may complete. This is not an issue in this study because we are primarily interested in barriers faced by those who undertake VET and not the barriers that may be faced if participation was expanded, for example, through a policy change.

3.1. *Model specification*

Consistent with human capital theory, it is assumed that the prime motivation for participating in study is to improve labour market outcomes (Becker 1962). Under the human capital model, an individual's decision to return and complete education is based on whether their expected discounted future benefits outweigh the costs of studying/completing. Expected future benefits can be financial (fewer spells without an income and higher wages) and non-financial (such as greater job satisfaction and security and expanded employment

options) (Duncan 1976). Costs involved in studying are immediate and may include course costs, such as fees, transport and equipment costs and foregone income and time that could have been spent in leisure, socialising or with family. When weighing-up the expected future benefits and costs, because of time preference, people tend to discount the importance of expected future benefits, which means that they may still choose not to engage in education even though their expected future benefits outweigh the costs.

We allow for human capital motivations for participating in VET by including information on individual financial year gross income, wealth (proxied by whether an individual can raise $2000 in an emergency), highest education level and employment status prior to entering study. By controlling for past educational and labour market outcomes, as well as wealth and income, any estimated difference in participation rates between those with and without disability is independent of these past outcomes. Therefore, we are only estimating the impact that the condition has on an individual's capacity to participate in VET and we do not test the possibility that people with disability may be more likely to participate because they may potentially benefit more because of their inferior past education and labour market outcomes (Polidano and Mavromaras 2009).

When estimating completion, information on employment status and income is included in the year prior to completion being recorded because in most cases, this is the only period in which individuals report to be in study.[5] Including information on employment status and the presence of dependent children while studying in the completion equation captures the effect of activities that may compete with the time spent studying. The descriptive statistics of all variables included in the participation and completion equation are presented in Appendix 1.

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[5] The typical VET course has a 12 to 18 month duration.

4. Results

The marginal effects presented in Table 3 represent the estimated percentage point change in the probability of participation and completion for a one unit change in each of the explanatory variables, after the effects of all other explanatory variables in the model have been controlled for. For categorical variables, the marginal effects represent the percentage point change in the probability of employment for a given outcome, relative to the reference category that is omitted.[6] The marginal effects for categorical variables can be interpreted as the estimated difference in the predicted probability of participation or completion for an average individual with and without the presence of the characteristic, while the marginal effects for continuous variables are the estimated coefficients weighted by the density function for an average individual. At this point, we remind the reader that the marginal effects for completion only apply for the sub-sample who were observed to enrol in HILDA (waves 2-8). All t-statistics are generated using standard errors that are derived using the delta method.

4.1. *Engagement and completion for people with disability*

The marginal effects from Table 3 show that the impacts of disability on participation and completion are heterogenous, depending on the severity of work limitation and in the case of participation, whether onset occurs as an older adult (45-64). In terms of severity, we find that for a one point increase in the index, there is a 0.2 percentage point decrease in the probability of participation and a 1 percentage point reduction in the probability of completion respectively for people with disability. For onset, we find that relative to people who experience onset as a child (0-14), people who experience onset as an older adult (45-64) are 4.7 percentage points less likely to participate in VET. The low rates of participation for

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[6] Crucially, the statistical significance also depends on the choice of reference case.

people who experience onset as an older adult may be due to a reluctance to retrain, given their limited time to recoup their investment in the labour market. However, it should be noted that the limited length of the panel data (only 7 years) implies that our estimates may still be unable to distinguish between individual and cohort effects.

INSERT TABLE 3

To test for the total effect of the presence of disability, we re-estimated the participation and completion models with just the disability identifier and without the disability type, onset and severity information. We find that people who report having a disability participate in VET at the same rate as those without (t-statistic on marginal effect of disability status is -0.34), but that people with disability are 4 percentage points less likely to complete VET relative to those who have no disability (t-statistic on marginal effect of disability status is -2.29). Therefore, we can summarise the above by concluding that while disability is not a barrier to participation, it is a barrier to completion, especially for those with more severe work limitations.

4.2. *The role of social support*

To test whether social support plays an important role in helping people with a disability participate and complete study, we estimate two models with interactions (one for each social support measure) for participation and completion. However, the interaction results for participation in both models were insignificant at 10% (not presented), which implies that social support does not play a particular role in aiding participation of people with disability. On the other hand, the significant positive interaction effects between mental health and social support for both models (I and II in Table 4) suggests that social support is important in helping people with mental health problems complete their course (Table 4).

INSERT TABLE 4

We estimate that for someone with a mental health condition, but with otherwise sample average characteristics, living in a multiple person household rather than a single person household is associated with a 27 percentage point higher chance of completion (model II in Table 4). We find a similar result using the multi-item scale of social support (model I in Table 4). For someone with a mental health problem, but with otherwise sample average characteristics, a social support score that is at the average for people without disability (5.5 out of 7) rather than at the average for people with a mental health problem (4.5 out of 7), is associated with a 14 percentage point higher probability of completion.

From post-estimation calculations, we find that disadvantage faced by people with mental illness compared to those without disability depends heavily on the level of social support. We estimate no significant difference in completion rates between a person with mental health problems and otherwise sample average characteristics and a person without disability with otherwise sample characteristics if their social support index is on par.[7] However, if the same calculation is repeated using the average social support scores for people with mental health issues (4.91 out of 7) and the average score for people without disability (5.58 out of 7), we find that an average person with a mental health problem is 14 percentage points less likely to complete.[8] Similarly, a person with a mental illness who lives in a multi-person home and with otherwise sample average characteristics is estimated to be just as likely to

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[7] In this calculation, it is assumed that the person with mental health problems has onset and severity traits that are equal to the average for someone in the sample with a mental illness: a limitation severity of 3.53 (on a scale of 0–10), 8% onset in youth, 4% onset while an adult and 53% onset unknown. The average support for a person without a disability is 5.58 out of 7. It is estimated that the predicted probability of completion is 4 percentage points lower for an average person with mental health issues, but the result is insignificant (t-statistic of 0.62).

[8] T-statistic of -2.14.

complete as a person without a disability and otherwise sample average characteristics.[9]

However, if a person with a mental health problem lives alone, they are 43 percentage points less likely to complete compared to a person without disability who lives alone.[10]

These results point to the importance of social support in helping to bridge the gap in education outcomes between people with and without mental health problems.

5. Conclusions

After controlling for past labour educational and labour market outcomes, we find no evidence that, between 2001 and 2008, working age Australian with a disability participate in VET courses at a lower rate than those without disability. Given the considerable and ongoing concern and intervention in this area of social policy, the findings in this paper could be taken as indirect evidence that efforts to improve the accessibility and learning experiences of VET for people with disability since the launch of 'Bridging Pathways National Strategy' in 2000 may be working.

However, our results suggest that more needs to be done to help support people with disabilities while they are studying. We find that those with more severe limitations are less likely to complete and also that, independent of severity, people with mental health issues who report inadequate support — measured as those who live alone or those who report a social support score that is lower than the average score reported by people without disability — have a lower rate of VET course completion than people without any disability. Reassuringly, we find that people with a mental health illness who report that they get adequate support have the same VET completion rate as people without a disability.

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[9] It is estimated that the average person with a mental illness is 9 percentage points less likely to complete, but the result is not significant (t-statistic of 1.5).

It is well known in the literature that social support is important in the functioning of people with mental illness (Cohen et al. 1985; Holahan et al. 1997; Schwarzer and Leppin 1989; Cohen 2004; Litwin 2006 and Ostberg 2007). From evidence to date, the absence of social support for people with a mental illness is associated with several psychological symptoms, including low self-esteem and poor perceptions of wellbeing (Goldbert et al. 2003; Corrigan and Phelan 2004). Results from this paper show that the absence of social support also has flow-on effects for study completion. From a policy perspective, ensuring adequate support for students with mental illness is central if they are to bridge the gap in education and employment outcomes.

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[10] T-statistic is -3.7.

6. Appendix 1: Descriptive statistics

Table A1 Average characteristics in the participation and completion equations

	(I) Participation	(II) Completion
Participated in VET	0.07	-
Completed VET	-	0.62
Highest qualification before study		
Higher education	0.21	0.15
VET	0.29	0.50
Year 12 certificate	0.16	0.17
Did not complete secondary school	0.34	0.17
Level of course		
Certificate level I or II	-	0.23
Certificate 3 or 4	-	0.45
Other certificate	-	0.15
Diploma or Advanced diploma	-	0.16
Female	0.53	0.54
Married or defacto	0.65	0.53
Married or defacto and female	0.34	0.28
Resident kids less than 16	0.34	0.31
Resident kids and female	0.19	0.19
Age		
15-24	0.18	0.34
25-34	0.21	0.23
35-44	0.25	0.23
45-54	0.22	0.15
55-64	0.15	0.06
State of residence		
NSW	0.30	0.31
Victoria	0.25	0.24
Queensland	0.21	0.21
Western Australia	0.10	0.08
Tasmania	0.03	0.03
South Australia	0.09	0.09
ACT or NT	0.03	0.03
Live in rural area	0.16	0.15
SEIFA index (0-10)	5.59	-
Support t-1		
Live in a multiple person household	0.90	0.91
Social support index (1-7)	-	5.50
Has a disability t-1	0.21	0.19

Continued over page

Table A1 Continued

	(I)	(II)
	Participation	**Completion**
Disability type t-1		
Sensory	0.02	0.01
Physical	0.07	0.06
Mental health	0.01	0.02
Other condition	0.03	0.03
Multiple	0.06	0.05
Unknown	0.02	0.02
Onset of disability t-1		
Child (0-14)	0.07	0.07
Youth (15-24)	0.01	0.01
Prime age (25-44)	0.01	-
Older adult (45-64)	0.00	-
Prime age and older adult (25-64)	-	0.01
Unknown	0.11	0.09
Extent of work limitation t-1 (0-10)	0.73	0.57
Log of annual gross income t-1	-	9.56
Log of annual gross income before study	9.67	-
Could raise $2000 before study	0.74	-
Employment status before study		
Not in the labour force	0.22	-
Employed full-time	0.49	-
Employed part-time	0.23	-
Unemployed	0.05	-
Employment status t-1		
Not in the labour force	-	0.07
Employed full-time	-	0.16
Employed part-time	-	0.51
Unemployed	-	0.26
Time trend		
2002	0.14	0.13
2003	0.14	0.14
2004	0.14	0.14
2005	0.14	0.16
2006	0.14	0.14
2007	0.14	0.14
2008	0.14	0.14
Number of observations	66,252	4,903

Source: HILDA waves 2-8. Note: - indicates that the variable is not included in the model.

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Table 1: Number of observations in the sample

	No disability	Sensory	Physical	Mental	Other	Multiple	Unknown	Total
	%	%	%	%	%	%	%	%
2002								
Participation	7	9	3	2	4	3	6	7
Completion	63	57	50	100	71	53	67	63
Count	7935	74	404	84	163	494	717	9871
2003								
Participation	7	11	6	5	8	6	8	7
Completion	63	67	69	40	58	73	65	64
Count	8026	81	436	92	149	530	447	9761
2004								
Participation	7	5	7	10	7	6	23	7
Completion	61	78	54	57	63	50	20	59
Count	7443	164	812	137	366	631	43	9596
2005								
Participation	8	9	8	9	6	7	7	8
Completion	70	50	67	60	59	69	50	69
Count	7683	135	782	171	282	671	29	9753
2006								
Participation	7	3	7	9	8	5	8	7
Completion	59	33	64	33	62	49	100	58
Count	7608	176	848	164	328	686	13	9823
2007								
Participation	7	5	6	8	7	5	18	7
Completion	59	75	56	46	62	74	100	59
Count	7707	159	784	153	286	680	11	9780
2008								
Participation	7	7	5	11	7	5	6	7
Completion	62	75	68	52	72	61	100	62
Count	7682	168	775	202	271	698	16	9812
Total								
Participation	8	7	7	9	7	6	8	7
Completion	54	52	52	41	50	54	60	54
Count	52336	929	4707	972	1794	4292	1222	66252

Source: HILDA waves 2-8

Table 2: Social support measures by disability type

	No disability	Sensory	Physical	Mental	Other	Multiple	Unknown
Live in multi-person household	85%	87%	83%	75%	85%	76%	85%
Social support score (1-7)							
1-3.33	2	2	5	8	2	7	3
3.33-5.66	43	51	52	64	50	60	50
5.66-7	55	47	43	28	48	34	47
Count	3983	896	4434	873	1712	3994	1161

Source: HILDA waves 2-8

Table 3: Marginal effects of participation and completion in VET

	(I)		(II)	
	Participation		**Completion**	
	m.e.	t-stat	m.e.	t-stat
Constant	-0.256	-13.834**	0.168	3.466**
Highest qualification before study				
Higher education	0.001	0.314	0.243	12.643**
VET	0.029	9.561**	0.382	20.276**
Year 12 certificate	0.011	3.364**	0.036	1.547
Did not complete secondary school (reference category)				
Level of course				
Certificate level I or II (reference category)				
Certificate 3 or 4	-	-	-0.115	-6.192**
Other certificate	-	-	-0.081	-3.372**
Diploma or Advanced diploma	-	-	-0.306	-13.141**
Female	0.016	5.167**	0.021	0.937
Married or defacto	-0.006	-1.560	-0.016	-0.581
Married or defacto and female	-0.011	-2.678**	0.039	1.222
Resident kids less than 16	-0.003	-0.862	0.034	1.185
Resident kids and female	-0.005	-1.142	-0.079	-2.120**
Age				
15-24				
25-34	-0.026	-9.381**	-0.073	-3.071**
35-44	-0.034	-12.548**	-0.069	-2.776**
45-54	-0.048	-20.451**	-0.053	-2.002**
55-64	-0.061	-31.265**	-0.035	-0.933
State of residence				
NSW (reference category)				
Victoria	-0.006	-2.356**	-0.025	-1.275
Queensland	-0.008	-3.017**	-0.048	-2.289**
Western Australia	-0.012	-3.878**	-0.052	-1.774*
Tasmania	-0.016	-3.364**	-0.041	-0.882
South Australia	-0.006	-1.752*	-0.037	-1.361
ACT or NT	0.010	1.499	-0.029	-0.679
Live in a rural area	0.002	0.862	0.000	0.002
SEIFA index (0-10)	-0.002	-6.160**		
Social Support t-1				
Social Support score (1-7)	0.002	0.566	-	-
Live in a multi-person house	-	-	-0.026	-0.939
Has a disability t-1	0.002	0.240	-0.003	-0.050

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Table 3 continued

	(I)		(II)	
	Participation		**Completion**	
	m.e.	t-stat	m.e.	t-stat
Disability type t-1				
Sensory (reference category)				
Physical	0.011	0.992	-0.003	-0.037
Mental health	0.017	1.230	-0.108	-1.224
Other condition	0.006	0.550	-0.021	-0.262
Multiple	0.008	0.738	-0.010	-0.130
Unknown	0.009	0.678	-0.020	-0.235
Onset of disability t-1				
Child (0-14) (reference category)				
Youth (15-24)	-0.010	-1.192	0.091	1.353
Prime age (25-44)	0.002	0.173	-	-
Older adult (45-64)	-0.047	-3.130**	-	-
Prime age and older adult (25-64)	-	-	0.058	0.727
Unknown	-0.004	-0.810	0.016	0.414
Extent of work limitation (0-10)	-0.002	-2.919**	-0.014	-2.208**
Log of annual gross income t-1	-	-	-0.007	-1.676
Log of annual gross income before study	-0.001	-2.642**	-	-
Could raise $2000 before study	-0.012	-4.996**	-	-
Employment status prior to study				
Not in the labour force (reference category)				
Employed full-time	0.009	2.757**	-	-
Employed part-time	0.014	4.276**	-	-
Unemployed	0.021	3.994**	-	-
Employment status t-1				
Not in the labour force (reference category)				
Employed full-time	-	-	-0.077	-3.081**
Employed part-time	-	-	-0.031	-1.249
Unemployed	-	-	0.054	1.643
Time trend				
2002 (reference category)				
2003	0.004	1.055	0.008	0.299
2004	0.004	1.076	-0.025	-0.871
2005	0.010	2.605**	0.080	3.091**
2006	0.003	0.691	-0.026	-0.939
2007	0.000	-0.076	-0.008	-0.267
2008	-0.002	-0.599	0.017	0.614
Number of observations	66,252		4,903	

**Significant at 5%, *Significant at 10%.

Table 4: Marginal effects of completion with interactions for social support

	(I)		(II)	
	m.e.	t-stat	m.e.	t-stat
Constant	0.135	2.341**	0.090	1.313
Highest qualification before study				
Higher education	0.244	12.760**	0.228	11.099**
VET	0.383	20.326**	0.367	18.601**
Year 12 certificate	0.038	1.601	0.015	0.595
Did not complete secondary school (reference category)				
Level of course				
Certificate level I or II (reference category)				
Certificate 3 or 4	-0.116	-6.237**	-0.112	-5.732**
Other certificate	-0.082	-3.423**	-0.074	-2.961**
Diploma or Advanced diploma	-0.309	-13.247**	-0.304	-12.398**
Female	0.022	1.014	0.010	0.429
Married or defacto	-0.015	-0.567	-0.011	-0.392
Married or defacto and female	0.039	1.228	0.048	1.425
Resident kids less than 16	0.034	1.203	0.030	1.030
Resident kids and female	-0.081	-2.174**	-0.058	-1.529
Age				
15-24 (reference category)				
25-34	-0.073	-3.068**	-0.077	-3.101**
35-44	-0.070	-2.816**	-0.071	-2.767**
45-54	-0.054	-2.055**	-0.052	-1.886*
55-64	-0.040	-1.069	-0.042	-1.102
State of residence				
NSW (reference category)				
Victoria	-0.025	-1.275	-0.017	-0.801
Queensland	-0.047	-2.255**	-0.039	-1.773*
Western Australia	-0.053	-1.818*	-0.044	-1.490
Tasmania	-0.042	-0.908	-0.044	-0.926
South Australia	-0.040	-1.442	-0.034	-1.214
ACT or NT	-0.031	-0.723	-0.020	-0.455
Live in a rural area	-0.001	-0.038	-0.003	-0.152
Social support t-1				
Live by yourself	0.029	0.944		
Social support score (1-7)			0.016	1.947*
Social support score has a non-response			0.003	0.122
Has a disability t-1	-0.002	-0.024	-0.024	-0.312

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Table 4 continued

	(I)		(II)	
	m.e.	t-stat	m.e.	t-stat
Disability type t-1				
Sensory (reference category)				
Physical	0.071	0.710	0.093	0.655
Mental health	-0.416	-2.895**	-0.555	-4.339**
Other condition	-0.114	-0.625	0.206	1.160
Multiple	0.054	0.524	0.242	2.224**
Unknown	-0.018	-0.211	-0.011	-0.122
Onset of disability t-1				
Child (0-14)				
Youth (15-24)	0.088	1.297	0.118	1.753*
Prime age and older adult (25-64)	0.073	0.927	-0.015	-0.158
Unknown	0.011	0.298	0.009	0.213
Extent of work limitation (0-10)	-0.013	-2.112**	-0.011	-1.729*
Annual gross income t-1	-0.007	-1.637	-0.007	-1.702*
Employment status in last year of study				
Not in the labour force (reference category)				
Employed full-time	-0.077	-3.085**	-0.081	-3.086**
Employed part-time	-0.031	-1.245	-0.045	-1.722*
Unemployed	0.052	1.583	0.060	1.736*
Time trend				
2002 (reference category)				
2003	0.010	0.350	0.008	0.292
2004	-0.023	-0.820	-0.025	-0.847
2005	0.081	3.136**	0.090	3.396**
2006	-0.027	-0.950	-0.030	-1.026
2007	-0.008	-0.275	-0.015	-0.499
2008	0.017	0.615	0.026	0.894
Interactions				
Physical disability x live in a multi-person household	-0.091	-0.939	-	-
Mental health x live in a multi-person household	0.271	3.197**	-	-
Other condition x live in a multi-person household	0.092	0.618	-	-
Multiple condition x live in a multi-person household	-0.082	-0.833	-	-
Physical disability x social support score	-	-	-0.015	-0.563
Mental health condition x social support score	-	-	0.117	2.139**
Other condition x social support score	-	-	-0.045	-0.973
Multiple condition x social support score	-	-	-0.055	-1.801*
Number of observations		4,903		4,903

**Significant at 5%, *Significant at 10%.