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Welfare to work: Does vocational education and training make a difference?

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About the research

Welfare to work: Does vocational education and training make a difference?

Tom Karmel, Kevin Mark and Nhi Nguyen, NCVER

One of the most important social policy pushes in recent years has been to encourage individuals in the receipt of welfare payments to take up paid work. Welfare to Work initiatives have focused on four particular groups:

- parents of children aged between 6 and 15 years; these recipients will be required to seek part-time work if their youngest child has reached the age of 6 years
- mature-aged recipients aged between 50 and 64 years
- people with disabilities who can work part-time; this group will be required to seek part-time work
- the long-term unemployed.

An important aspect of this policy is the role that training plays in enabling individuals from these groups to obtain paid employment. In particular, it might be expected that vocational education and training (VET), with its emphasis on providing a 'second chance', would play an important role. The National Centre for Vocational Education Research (NCVER) has recently published two reports on this: *The role of vocational education and training in welfare to work* by John Guenther, Ian Falk and Allan Arnott and *Complex not simple: The vocational education and training pathway from welfare to work* by Kate Barnett and John Spoehr. Both have focused on how VET can be delivered effectively to these groups.

The purpose of this paper, *Welfare to work: Does vocational education and training make a difference?* by Tom Karmel, Kevin Mark and Nhi Nguyen, looks at the more fundamental issue of whether VET does improve the employment prospects of the groups in question. It exploits data from the Student Outcomes Survey to construct samples that proxy the first three of the welfare groups listed above and models the post-training employment outcomes.

Key messages

- The completion of certificate III and above significantly improves employment prospects.
- The partial completion of a qualification or the completion of a certificate I or II is not likely to assist employment prospects.
- The impact of training is dependent on the underlying chances of employment of individuals. If they are reasonably high, then training is less likely to have an impact.

The conclusion is that VET can make a difference, but not any VET, and not for all individuals.

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Introduction

In the 2005–06 budget the Australian Government announced a number of initiatives aimed to increase the participation rate of all Australians capable of work, including those in receipt of welfare payments. These initiatives are part of the Welfare to Work reforms. The impetus behind these initiatives is Australia's ageing population and the need to at least maintain our high standard of living. The Welfare to Work reforms were partly guided by the inquiry undertaken by the Standing Committee on Employment, Workplace Relations and Workplace Participation on increasing participation in paid work.

The policy focuses on getting recipients of welfare who are capable of work into at least part-time work, because the policy recognises that more individual and community benefits are gained through income, rather than welfare. This current policy differs from past approaches, in that the gaining of part-time as opposed to full-time work is regarded as a marker of success. The Welfare to Work initiatives focus on four particular groups:

- parents of children aged between 6 and 15 years; these recipients will be required to seek part-time work if their youngest child has reached the age of 6 years
- mature-aged recipients, aged between 50 and 64 years
- people with disabilities who can work part-time; this group will be required to seek part-time work
- the long-term unemployed.

This analysis focuses on measuring the impact of vocational education qualifications on employment outcomes of the first three groups.

A stylised fact is that almost all members of the four groups will have a poor educational background, and with such a background they are ill equipped for the workforce. One obvious strategy to improve the job prospects of these people is to provide vocational training. This is certainly the view of the Australian Council of Social Service (2007), which argues that many job-seekers under Welfare to Work policies need training as well as help with job search. But this raises the question about the effectiveness of this training for these groups. The purpose of this paper is to answer this question, by exploiting data from the Students Outcomes Survey.[1] This survey collects a range of demographic characteristics of people who have completed their vocational education and training (VET) (either completing a qualification or not, as the case may be) and employment outcomes around six months after the training has been completed.

Unfortunately, the survey does not explicitly identify students who have been welfare recipients. What it does allow, however, is for us to construct groups with characteristics similar to the first three of the four groups identified above.

[1] Data used for this research come from the Student Outcomes Survey (SOS), which is conducted by NCVER. The survey provides information about VET students in Australia who completed their training during the previous year. The survey covers students who have an Australian address as their usual address and who were awarded a qualification in the previous year (graduates) or who successfully completed part of a course and then left the VET system (module completers). Students who undertook recreational, leisure or personal enrichment (short) courses are excluded.

We have information on age and disability status, employment status before training, and prior education level. The groups we construct to proxy the welfare groups are:

- parents with children between 6 and 15 years: female students aged between 25 and 44 years, not employed prior to training, undertaking training for employment-related reasons, and with prior education of certificate III and below [2]
- mature-aged people over the age of 45 years: males and females (separately) over the age of 45 years, not employed prior to training, undertaking training for employment-related reasons, and with prior education of certificate III and below[3]
- people reporting a disability: males and females (separately) students reporting a disability, not employed prior to training, undertaking training for employment-related reasons, and with prior education of certificate III or below.

A further challenge is the lack of a proper control group. We address this by using those students who undertook a certificate I/II but did not complete it. (The non-completers are labelled *module completers*.) This is as close as we can get to a group undertaking no training.

The methodology we use is quite straightforward. For each of the groups we have constructed, we regress whether employed or not six months after training on the level of the qualification studied, whether that qualification was completed or not, the field of study, and the disability condition (for people reporting a disability).

The results of this exercise are presented in the next section. In brief, we find that training does improve the job prospects for most, but not all, of the groups. The sort of improvement we are talking about is of some substance and the completion of a qualification at the certificate III level or higher, in general, is what pays off.

[2] The Australian Bureau of Statistics (ABS 2006) shows that women, particularly those aged between 25 and 44 years, are less likely to be in the labour force than men. The most common reason cited for this was that they were caring for children. In order to gain a picture of the proportion of students who are parents of children aged between 6 and 15 years, a proxy group of female students aged between 25 and 44 years was extracted from the 2005 Student Outcomes Survey to represent this population.

[3] We chose to define the age group as over 45 years in order to provide a larger sample size.

Results

Appendix A describes the characteristics of the five groups that we have constructed. Tables 1(a) and 1(b) summarise the regression results, which are shown in detail in appendix B. They show which courses had significant regression coefficients relative to the control group (those undertaking a certificate I or II without completing it).

The interpretation of a positive and significant coefficient is that the training treatment has led to a significant increase in the probability of employment six months after the training. No importance is attached to statistically significant negative coefficients; we are content to assume that training has not assisted in these cases.

Table 1(a) The effect of VET on employment outcomes, relative to the control group (those who did not compete a certificate I or II), 2005

Group	Cert. IV & above (graduate)	Cert. IV & above (module completer)	Cert. III (graduate)	Cert. III (module completer)	Cert. I or II (graduate)
Parents with children 6–15 years	++		++	..	++
Mature-aged males	+	..	++	..	..
Mature-aged females	–	–	..	–	–
Males with a disability	..	–	+	..	..
Females with a disability	++	++	++	..	..

Legend: ++ positive coefficient, significant at 5%
+ positive coefficient, significant at 15%
– negative coefficient, significant at 15%
.. not significant at 25%

Source: Appendix tables B1–B5.

Table 1(b) The effect of VET on employment outcomes, relative to the control group (those who did not compete a certificate I or II), 2007

Group	Cert. IV & above (graduate)	Cert. IV & above (module completer)	Cert. III (graduate)	Cert. III (module completer)	Cert. I or II (graduate)
Parents with children 6–15 years	+	..	++	..	..
Mature-aged males	+	..		..	..
Mature-aged females	+	..	++	..	..
Males with a disability	+		+	..	
Females with a disability	++	++	++	++	+

Legend: ++ positive coefficient, significant at 5%
+ positive coefficient, significant at 15%
.. not significant at 25%

Source: Appendix tables B11–B15.

The statistical significance is of no real interest unless it represents an increase of some magnitude in the probability of being employed. Tables 2(a) and 2(b) show the increase in the probability of employment that the positive significant coefficients represent.

Table 2(a) Percentage point increase in the probability of employment associated with VET (relative to control group), 2005

Group	Cert. IV and above (graduate)	Cert. IV and above (module completer)	Cert. III (graduate)	Cert. III (module completer)	Cert. I or II (graduate)	Probability of employment (for control group)
Parents with children 6–15 years	22.4		25.7	..	14.5	32.7
Mature-aged males	19.2	..	24.0	..	..	32.9
Mature-aged females	–	–	..		–	61.3
Males with a disability	..	–	16.4	..	..	40.2
Females with a disability	20.2	30.0	20.4	..	..	25.2

Note: The probabilities are derived by assigning average values for the control characteristics (such as field of study) and 1 for the category of interest, and 0 for the other categories.

Source: Appendix tables B6–B10.

Table 2(b) Percentage point increase in the probability of employment associated with training (relative to control group), 2007

Group	Cert. IV and above (graduate)	Cert. IV and above (module completer)	Cert. III (graduate)	Cert. III (module completer)	Cert. I or II (graduate)	Probability of employment (for control group)
Parents with children 6–15 years	14.3	..	28.5	..	..	35.9
Mature-aged males	26.1	..		..	..	28.1
Mature-aged females	16.5	..	29.4	..	..	30.9
Males with a disability	19.5		16.1	..		27.2
Females with a disability	18.4	25.7	30.6	21.1	12.0	17.9

Note: The probabilities are derived by assigning average values for the control characteristics (such as field of study) and 1 for the category of interest, and 0 for the other categories.

Source: Appendix tables B16–20.

From these tables we can see that training is associated with substantial increases in employment in a number of cases. These effects are far from trivial. But they are also far from being universal.

There are some differences between the results for 2005 and 2007. This suggests that the results are sensitive to the nature of the people in the sample and thus any conclusions need to be cognisant of this. Putting this to one side, the overall picture is pretty clear. It is the completion of certificate III or certificate IV and above qualifications that has the pay-off. In general, partial completion of a qualification or the completion of a certificate I or II does not improve employment prospects compared with the control group.

The sensitivity of the results to the choice of year merits discussion. In 2005 mature-aged females did not benefit from training, while in 2007 they did. The difference lies in the probability of employment of the control group. In 2005 it was relatively high at 61.3%, while in 2007 it was much lower, at 30.9%. Similarly in 2005 males with a disability benefited only from completing a

certificate III, while in 2007 they benefited from completing either a certificate III or higher qualification. The difference in these results is at least due to the relatively high probability of employment for the control group in 2005 compared with 2007 (52.1% compared with 28.1%). Thus it appears that the efficacy of training (or at least completing a certificate III or higher) depends on the underlying characteristics of the individuals. If they already have a good chance of employment, then training will have less effect.

We have been discussing these results with an implicit assumption that undertaking various levels of certificate can be considered to be 'treatments' in a controlled experiment. Obviously, this is not the case, and individuals undertaking certificate III or IV may well have different personal characteristics that we have not observed. Notwithstanding this, the results do suggest that completion, in particular of a certificate III or IV or above, is associated with improved employment prospects of some magnitude.

The completion of qualifications being associated with employment prospects is consistent with general results from the Student Outcomes Survey. For example, the 2006 survey provides the result that, restricting ourselves to those not employed before training, 47.6% of graduates were employed after training compared with 28.3% of module completers. Similarly, Karmel and Nguyen (2007) argue that completion of a higher qualification has a pay-off, and there is a wide literature documenting the relationship between educational level and labour market outcomes.

A rather provocative alternative view is put by Saunders (2007), who argues that undertaking further education and training is not the answer to getting people off welfare. The thrust of his argument is that education and training will only benefit those of higher ability and does not lead to comparable outcomes for those of lower ability. Since welfare recipients tend to be of lower ability, education and training will be ineffective for them. Our results give a partial refutation to this view, as our 'welfare' groups tend to benefit from completing certificates III and above in particular.

To summarise, we have used data from the Student Outcomes Survey to proxy welfare groups targeted in the Welfare to Work policy push. Our results suggest that some but not all groups benefit from undertaking vocational education and training, with completion of a certificate III or higher level qualification providing the better pay-off. Partial completion of a course or completion of a certificate I/II has, in general, little effect on the probability of being in employment six months after training.

References

ABS (Australian Bureau of Statistics) 2006, *Persons not in the labour force*, cat.no.6220.0, ABS, Canberra.

Australian Council of Social Service 2007, 'The role of further education and training in welfare to work policies', paper 146, ACOSS, Sydney.

Karmel, T & Nguyen, N 2007, *The value of completing a vocational education and training qualification*, NCVER, Adelaide.

Saunders, P 2007, *Issues analysis: What are low ability workers to do when unskilled jobs disappear? Part 1: Why more education and training isn't the answer*, The Centre for Independent Studies, Sydney.

Appendix A: Characteristics of the proxy groups

2005

Table A1 Parents with children aged between 6 and 15 years, 2005

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	317	20.2	58.4
Certificate III – graduate	671	42.7	61.4
Certificate II and I – graduate	369	23.5	42.8
Certificate IV and above – MC	55	3.5	44.4
Certificate III – MC	98	6.2	33.7
Certificate II and I – MC	63	4.0	29.0
Field of education			
Natural and physical sciences	19	1.1	47.4
Information technology	63	3.5	36.5
Engineering and related technologies	53	3.0	56.6
Architecture and building	14	0.8	28.6
Agriculture, environmental and related studies	49	2.7	48.9
Health	86	4.8	65.9
Education	151	8.4	67.3
Management and commerce	500	28.0	47.6
Society and culture	464	26.0	61.0
Creative arts	33	1.8	33.3
Food, hospitality and personal services	170	9.5	44.6
Mixed field programs	170	9.5	39.3
Subject-only enrolment	16	0.9	56.3

Note: MC = Module completer

Table A2 Mature-aged people, males, 2005

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	82	22.7	50.0
Certificate III – graduate	101	28.0	58.0
Certificate II and I – graduate	116	32.1	33.9
Certificate IV and above – MC	15	4.2	40.0
Certificate III – MC	20	5.5	40.0
Certificate II and I – MC	27	7.5	30.8
Field of education			
Natural and physical sciences	4	0.8	50.0
Information technology	27	5.4	22.2
Engineering and related technologies	92	18.5	58.2
Architecture and building	23	4.6	43.5
Agriculture, environmental and related studies	68	13.7	29.9
Health	13	2.6	61.5
Education	19	3.8	52.6
Management and commerce	99	20.0	41.2
Society and culture	57	11.5	56.1
Creative arts	2	0.4	50.0
Food, hospitality and personal services	42	8.5	40.5
Mixed field programs	42	8.5	31.0
Subject-only enrolment	8	1.6	62.5

Note: MC = Module completer

Table A3 Mature-aged people, females, 2005

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	137	18.3	52.6
Certificate III – graduate	289	38.7	65.6
Certificate II and I – graduate	204	27.3	38.1
Certificate IV and above – MC	20	2.7	30.0
Certificate III – MC	53	7.1	39.6
Certificate II and I – MC	44	5.9	52.4
Field of education			
Natural and physical sciences	8	0.9	50.0
Information technology	33	3.6	38.7
Engineering and related technologies	28	3.1	53.6
Architecture and building	11	1.2	18.2
Agriculture, environmental and related studies	36	4.0	36.1
Health	45	5.0	68.9
Education	47	5.2	61.7
Management and commerce	256	28.2	38.7
Society and culture	219	24.1	67.0
Creative arts	19	2.1	26.3
Food, hospitality and personal services	68	7.5	53.0
Mixed field programs	119	13.1	40.3
Subject-only enrolment	19	2.1	52.6

Note: MC = Module completer

Table A4 People reporting a disability, males, 2005

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	82	17.5	51.2
Certificate III – graduate	93	19.8	61.3
Certificate II and I – graduate	193	41.2	40.9
Certificate IV and above – MC	25	5.3	24.0
Certificate III – MC	29	6.2	34.5
Certificate II and I – MC	47	10.0	45.7
Field of education			
Natural and physical sciences	6	1.1	66.7
Information technology	47	8.2	42.6
Engineering and related technologies	118	20.7	52.5
Architecture and building	26	4.6	65.4
Agriculture, environmental and related studies	67	11.7	37.3
Health	17	3.0	47.1
Education	11	1.9	45.5
Management and commerce	90	15.8	36.0
Society and culture	53	9.3	52.8
Creative arts	15	2.6	33.3
Food, hospitality and personal services	44	7.7	40.9
Mixed field programs	71	12.4	35.2
Subject-only enrolment	6	1.1	83.3
Age			
15–24	195	34.5	51.8
25–34	87	15.4	41.4
35–54	212	37.5	42.5
55–69	66	11.7	35.4
70+	5	0.9	60.0
Disability condition			
Hearing/deaf	59	10.4	47.5
Physical	213	37.6	41.0
Intellectual	38	6.7	65.8
Learning	98	17.3	46.9
Mental illness	85	15.0	42.4
Acquired brain impairment	17	3.0	52.9
Vision	72	12.7	47.9
Medical condition	185	32.6	45.1
Other disability	80	14.1	41.3

Note: MC = Module completer

Table A5 People reporting a disability, females, 2005

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	83	15.5	43.4
Certificate III – graduate	146	27.3	47.6
Certificate II and I – graduate	200	37.4	35.4
Certificate IV and above – MC	19	3.6	52.6
Certificate III – MC	41	7.7	29.3
Certificate II and I – MC	46	8.6	24.4
Field of education			
Natural and physical sciences	5	0.8	40.0
Information technology	24	3.9	17.4
Engineering and related technologies	15	2.4	33.3
Architecture and building	7	1.1	14.3
Agriculture, environmental and related studies	19	3.1	31.6
Health	19	3.1	52.6
Education	18	2.9	55.6
Management and commerce	199	32.2	35.0
Society and culture	129	20.9	47.3
Creative arts	16	2.6	31.3
Food, hospitality and personal services	75	12.1	40.5
Mixed field programs	90	14.6	33.3
Subject-only enrolment	2	0.3	50.0
Age			
15–24	192	31.2	42.6
25–34	101	16.4	35.6
35–54	264	42.9	37.1
55–69	58	9.4	32.1
70+	1	0.2	0.0
Disability condition			
Hearing/deaf	54	8.8	43.4
Physical	198	32.2	33.0
Intellectual	35	5.7	38.2
Learning	101	16.5	30.0
Mental illness	89	14.5	37.1
Acquired brain impairment	14	2.3	21.4
Vision	69	11.2	44.9
Medical condition	227	37.0	33.8
Other disability	66	10.7	39.1

Note: MC = Module completer

Table A6 Parents with children aged between 6 and 15 years, 2007

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	210	15.9	50.7
Certificate III – graduate	581	44.0	65.9
Certificate II and I – graduate	304	23.0	40.6
Certificate IV and above – MC	69	5.2	44.9
Certificate III – MC	96	7.3	44.8
Certificate II and I – MC	60	4.5	33.3
Field of education			
Natural and physical sciences	14	0.9	57.1
Information technology	40	2.6	37.5
Engineering and related technologies	45	2.9	53.3
Architecture and building	8	0.5	50.0
Agriculture, environmental and related studies	47	3.1	42.6
Health	67	4.4	58.2
Education	117	7.6	65.8
Management and commerce	478	31.1	51.8
Society and culture	360	23.4	60.3
Creative arts	34	2.2	41.2
Food, hospitality and personal services	152	9.9	53.6
Mixed field programs	159	10.3	37.1
Subject-only enrolment	18	1.2	33.3

Note: MC = Module completer

Table A7 Mature-aged people, males, 2007

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	47	16.8	53.2
Certificate III – graduate	99	35.5	48.5
Certificate II and I – graduate	86	30.8	44.7
Certificate IV and above – MC	14	5.0	42.9
Certificate III – MC	14	5.0	35.7
Certificate II and I – MC	19	6.8	26.3
Field of education			
Natural and physical sciences	1	0.2	0.0
Information technology	20	5.0	15.0
Engineering and related technologies	92	22.8	51.1
Architecture and building	27	6.7	29.6
Agriculture, environmental and related studies	31	7.7	51.6
Health	15	3.7	33.3
Education	15	3.7	33.3
Management and commerce	56	13.9	40.0
Society and culture	62	15.3	50.0
Creative arts	8	2.0	25.0
Food, hospitality and personal services	24	5.9	41.7
Mixed field programs	40	9.9	37.5
Subject-only enrolment	13	3.2	53.8

Note: MC = Module completer

Table A8 Mature-aged people, females, 2007

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	99	13.4	52.5
Certificate III – graduate	336	45.3	64.2
Certificate II and I – graduate	202	27.3	38.3
Certificate IV and above – MC	25	3.4	36.0
Certificate III – MC	44	5.9	38.6
Certificate II and I – MC	35	4.7	25.7
Field of education			
Natural and physical sciences	4	0.4	50.0
Information technology	24	2.6	37.5
Engineering and related technologies	33	3.6	53.1
Architecture and building	6	0.6	33.3
Agriculture, environmental and related studies	28	3.0	50.0
Health	32	3.5	78.1
Education	45	4.9	64.4
Management and commerce	269	29.0	39.2
Society and culture	242	26.1	62.2
Creative arts	17	1.8	23.5
Food, hospitality and personal services	73	7.9	51.4
Mixed field programs	120	12.9	35.0
Subject-only enrolment	34	3.7	35.3

Note: MC = Module completer

Table A9 People reporting a disability, males, 2007

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	48	11.5	39.6
Certificate III – graduate	120	28.7	47.5
Certificate II and I – graduate	165	39.5	42.4
Certificate IV and above – MC	15	3.6	46.7
Certificate III – MC	32	7.7	34.4
Certificate II and I – MC	38	9.1	28.9
Field of education			
Natural and physical sciences	1	0.2	0.0
Information technology	44	8.3	13.6
Engineering and related technologies	118	22.1	43.2
Architecture and building	44	8.3	45.5
Agriculture, environmental and related studies	58	10.9	51.7
Health	19	3.6	36.8
Education	10	1.9	60.0
Management and commerce	90	16.9	35.6
Society and culture	39	7.3	51.3
Creative arts	9	1.7	33.3
Food, hospitality and personal services	46	8.6	39.1
Mixed field programs	50	9.4	32.0
Subject-only enrolment	5	0.9	60.0
Age			
15–24	203	38.4	48.8
25–34	68	12.9	39.7
35–54	189	35.8	31.2
55–69	66	12.5	39.4
70+	2	0.4	0.0
Disability condition			
Hearing/deaf	52	9.8	38.5
Physical	168	31.8	35.1
Intellectual	51	9.6	45.1
Learning	112	21.2	48.2
Mental illness	81	15.3	37.0
Acquired brain impairment	20	3.8	30.0
Vision	42	7.9	33.3
Medical condition	162	30.6	31.5
Other disability	58	11.0	39.7

Note: MC = Module completer

Table A10 People reporting a disability, females, 2007

	No.	%	Percentage employed after training
Qualification undertaken			
Certificate IV and above – graduate	71	14.4	39.4
Certificate III – graduate	137	27.8	51.1
Certificate II and I – graduate	169	34.3	30.2
Certificate IV and above – MC	27	5.5	44.4
Certificate III – MC	42	8.5	38.1
Certificate II and I – MC	47	9.5	19.1
Field of education			
Natural and physical sciences	1	0.2	100.0
Information technology	20	3.3	30.0
Engineering and related technologies	25	4.1	44.0
Architecture and building	7	1.2	28.6
Agriculture, environmental and related studies	13	2.1	15.4
Health	16	2.6	31.3
Education	14	2.3	64.3
Management and commerce	200	33.1	32.5
Society and culture	102	16.9	47.1
Creative arts	21	3.5	28.6
Food, hospitality and personal services	80	13.2	43.8
Mixed field programs	94	15.5	21.3
Subject-only enrolment	12	2.0	25.0
Age			
15–24	187	31.1	39.6
25–34	80	13.3	31.3
35–54	271	45.0	32.8
55–69	62	10.3	40.3
70+	2	0.3	0.0
Disability condition			
Hearing/deaf	48	8.0	33.3
Physical	185	30.7	32.4
Intellectual	44	7.3	27.3
Learning	96	15.9	33.3
Mental illness	117	19.4	32.5
Acquired brain impairment	14	2.3	21.4
Vision	68	11.3	41.2
Medical condition	211	35.0	30.3
Other disability	62	10.3	35.5

Note: MC = Module completer

Appendix B: Regression results

2005

Table B1 Maximum likelihood estimates: Parents with children aged between 6 and 15 years, 2005

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.197	0.339	12.468	0.000
Certificate IV and above – graduate	1	0.926	0.316	8.617	0.003
Certificate III – graduate	1	1.062	0.301	12.423	0.000
Certificate II and I – graduate	1	0.608	0.302	4.061	0.044
Certificate IV and above – MC	1	0.534	0.400	1.777	0.182
Certificate III – MC	1	0.068	0.358	0.036	0.850
Information technology	1	-0.075	0.354	0.044	0.833
Engineering and related technologies	1	0.738	0.361	4.178	0.041
Agriculture, environmental and related studies	1	0.495	0.373	1.758	0.185
Health	1	1.148	0.363	9.986	0.002
Education	1	0.918	0.297	9.554	0.002
Management and commerce	1	0.355	0.240	2.188	0.139
Society and culture	1	0.734	0.254	8.332	0.004
Food, hospitality and personal services	1	0.296	0.283	1.098	0.295
Other	1	-0.153	0.361	0.179	0.672

Note: DF = Degrees of freedom
SE = Standard errors

Table B2 Maximum likelihood estimates: Mature-aged people, males, 2005

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.382	0.517	0.545	0.461
Certificate IV and above – graduate	1	0.795	0.494	2.594	0.107
Certificate III – graduate	1	0.992	0.484	4.203	0.040
Certificate II and I – graduate	1	-0.051	0.482	0.011	0.916
Certificate IV and above – MC	1	0.160	0.697	0.052	0.819
Certificate III – MC	1	0.342	0.639	0.287	0.592
Engineering and related technologies	1	0.462	0.392	1.390	0.238
Agriculture, environmental and related studies	1	-0.746	0.408	3.350	0.067
Management and commerce	1	-0.656	0.364	3.246	0.072
Other	1	-0.505	0.353	2.044	0.153

Note: DF = Degrees of freedom
SE = Standard errors

Table B3 Maximum likelihood estimates: Mature-aged people, females, 2005

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	0.267	0.369	0.524	0.469
Certificate IV and above – graduate	1	-0.579	0.391	2.193	0.139
Certificate III – graduate	1	0.030	0.364	0.007	0.935
Certificate II and I – graduate	1	-0.679	0.351	3.747	0.053
Certificate IV and above – MC	1	-1.319	0.606	4.740	0.029
Certificate III – MC	1	-0.725	0.440	2.715	0.099
Information technology	1	-0.497	0.473	1.105	0.293
Engineering and related technologies	1	0.340	0.477	0.508	0.476
Agriculture, environmental and related studies	1	-0.293	0.443	0.438	0.508
Health	1	1.361	0.531	6.579	0.010
Education	1	0.835	0.470	3.155	0.076
Management and commerce	1	-0.262	0.292	0.807	0.369
Society and culture	1	0.671	0.328	4.191	0.041
Food, hospitality and personal services	1	0.567	0.409	1.921	0.166
Other	1	-0.466	0.469	0.986	0.321

Note: DF = Degrees of freedom
SE = Standard errors

Table B4 Maximum likelihood estimates: People reporting a disability, males, 2005

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.874	0.563	2.414	0.120
Certificate IV and above – graduate	1	0.322	0.437	0.541	0.462
Certificate III – graduate	1	0.663	0.406	2.666	0.103
Certificate II and I – graduate	1	-0.092	0.365	0.063	0.802
Certificate IV and above – MC	1	-1.151	0.607	3.591	0.058
Certificate III – MC	1	-0.356	0.532	0.447	0.504
Information technology	1	0.785	0.535	2.152	0.142
Engineering and related technologies	1	1.197	0.462	6.719	0.010
Agriculture, environmental and related studies	1	0.684	0.492	1.928	0.165
Management and commerce	1	0.313	0.481	0.423	0.516
Society and culture	1	1.117	0.541	4.257	0.039
Food, hospitality and personal services	1	0.851	0.525	2.625	0.105
Other	1	1.321	0.541	5.955	0.015
Aged 25–34	1	-0.287	0.321	0.797	0.372
Aged 35–54	1	-0.328	0.273	1.448	0.229
Aged 55–69	1	-0.650	0.387	2.819	0.093
Aged 70 and over	1	-14.096	822.659	0.000	0.986
Hearing/deaf	1	0.458	0.347	1.749	0.186
Physical	1	-0.233	0.237	0.968	0.325
Intellectual	1	1.258	0.443	8.050	0.005
Learning	1	-0.057	0.298	0.037	0.848
Mental illness	1	0.037	0.307	0.015	0.904
Acquired brain impairment	1	0.526	0.598	0.774	0.379
Vision	1	-0.166	0.307	0.291	0.589
Medical condition	1	0.204	0.228	0.802	0.370
Other disability	1	-0.374	0.299	1.567	0.211

Note: DF = Degrees of freedom
SE = Standard errors

Table B5 Maximum likelihood estimates: People reporting a disability, females, 2005

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.146	0.511	0.081	0.775
Certificate IV and above – graduate	1	0.905	0.449	4.058	0.044
Certificate III – graduate	1	0.912	0.421	4.693	0.030
Certificate II and I – graduate	1	0.423	0.392	1.169	0.280
Certificate IV and above – MC	1	1.296	0.609	4.533	0.033
Certificate III – MC	1	0.109	0.523	0.044	0.834
Management and commerce	1	-0.296	0.341	0.753	0.386
Society and culture	1	0.074	0.385	0.037	0.847
Food, hospitality and personal services	1	0.019	0.409	0.002	0.963
Other	1	-0.503	0.383	1.728	0.189
Aged 25–34	1	-0.517	0.293	3.119	0.077
Aged 35–54	1	-0.323	0.234	1.904	0.168
Aged 55–69	1	-0.521	0.399	1.701	0.192
Aged 70 and over	1	-12.103	760.772	0.000	0.987
Hearing/deaf	1	0.003	0.341	0.000	0.993
Physical	1	-0.443	0.227	3.813	0.051
Intellectual	1	0.139	0.439	0.100	0.752
Learning	1	-0.659	0.280	5.524	0.019
Mental illness	1	-0.176	0.289	0.373	0.542
Acquired brain impairment	1	-0.305	0.762	0.160	0.689
Vision	1	0.058	0.309	0.035	0.851
Medical condition	1	-0.497	0.218	5.198	0.023
Other disability	1	-0.193	0.324	0.357	0.550

Note: DF = Degrees of freedom
SE = Standard errors

Table B6 Predicted probability of employment 6 months after training: Parents with children aged between 6 and 15 years, 2005

Qualification undertaken	
Certificate IV and above – graduate	0.551
Certificate III – graduate	0.585
Certificate II and I – graduate	0.472
Certificate IV and above – MC	0.453
Certificate III – MC	0.342
Certificate II and I – MC (ref)	0.327
Field of education	
Information technology	0.385
Engineering and related technologies	0.586
Agriculture, environmental and related studies	0.526
Health	0.680
Education	0.629
Management and commerce	0.491
Society and culture	0.585
Food, hospitality and personal services	0.476
Other	0.367
Mixed field programs (ref)	0.403

Source: Derived from table B1.

Table B7 Predicted probability of employment 6 months after training: Mature-aged people, males, 2005

Qualification undertaken	
Certificate IV and above – graduate	0.521
Certificate III – graduate	0.569
Certificate II and I – graduate	0.318
Certificate IV and above – MC	0.365
Certificate III – MC	0.408
Certificate II and I – MC (ref)	0.329
Field of education	
Engineering and related technologies	0.633
Agriculture, environmental and related studies	0.341
Management and commerce	0.361
Other	0.397
Society and culture (ref)	0.521

Source: Derived from table B2.

Table B8 Predicted probability of employment 6 months after training: Mature-aged people, females, 2005

Qualification undertaken	
Certificate IV and above – graduate	0.470
Certificate III – graduate	0.620
Certificate II and I – graduate	0.445
Certificate IV and above – MC	0.297
Certificate III – MC	0.434
Certificate II and I – MC (ref)	0.613
Field of education	
Information technology	0.355
Engineering and related technologies	0.560
Agriculture, environmental and related studies	0.403
Health	0.779
Education	0.676
Management and commerce	0.410
Society and culture	0.639
Food, hospitality and personal services	0.615
Other	0.362
Mixed field programs (ref)	0.475

Source: Derived from table B3.

Table B9 Predicted probability of employment 6 months after training: People reporting a disability, males, 2005

Qualification undertaken	
Certificate IV and above – graduate	0.482
Certificate III – graduate	0.567
Certificate II and I – graduate	0.381
Certificate IV and above – MC	0.176
Certificate III – MC	0.321
Certificate II and I – MC (ref)	0.402
Field of education	
Information technology	0.415
Engineering and related technologies	0.518
Agriculture, environmental and related studies	0.391
Management and commerce	0.307
Society and culture	0.497
Food, hospitality and personal services	0.431
Other	0.548
Mixed field programs (ref)	0.245
Age	
15–24 (ref)	0.510
25–34	0.438
35–54	0.428
55–69	0.352
70+	0.000
Disability condition	
Hearing/deaf	0.520
Physical	0.384
Intellectual	0.699
Learning	0.407
Mental illness	0.426
Acquired brain impairment	0.545
Vision	0.384
Medical condition	0.452
Other disability	0.343

Source: Derived from table B4.
Disability condition is a multiple response question, so there is no general reference level.

Table B10 Predicted probability of employment 6 months after training: People reporting a disability, females, 2005

Qualification undertaken	
Certificate IV and above – graduate	0.454
Certificate III – graduate	0.456
Certificate II and I – graduate	0.339
Certificate IV and above – MC	0.551
Certificate III – MC	0.273
Certificate II and I – MC (ref)	0.252
Field of education	
Management and commerce	0.353
Society and culture	0.442
Food, hospitality and personal services	0.428
Other	0.307
Mixed field programs (ref)	0.423
Age	
15–24 (ref)	0.451
25–34	0.329
35–54	0.373
55–69	0.328
70+	0.000
Disability condition	
Hearing/deaf	0.381
Physical	0.312
Intellectual	0.412
Learning	0.261
Mental illness	0.345
Acquired brain impairment	0.313
Vision	0.392
Medical condition	0.310
Other disability	0.340

Source: Derived from table B5.
Disability condition is a multiple response question, so there is no general reference level.

Table B11 Maximum likelihood estimates: Parents with children aged between 6 and 15 years, 2007

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.93754	0.324	8.376	0.004
Certificate IV and above – graduate	1	0.58722	0.321	3.355	0.067
Certificate III – graduate	1	1.17115	0.302	15.083	0.000
Certificate II and I – graduate	1	0.27276	0.302	0.816	0.366
Certificate IV and above – MC	1	0.41817	0.374	1.248	0.264
Certificate III – MC	1	0.34685	0.352	0.972	0.324
Information technology	1	-0.02515	0.405	0.004	0.950
Engineering and related technologies	1	0.43438	0.382	1.292	0.256
Agriculture, environmental and related studies	1	0.08858	0.377	0.055	0.814
Health	1	0.57913	0.369	2.469	0.116
Education	1	0.7475	0.323	5.344	0.021
Management and commerce	1	0.33631	0.239	1.975	0.160
Society and culture	1	0.44155	0.257	2.952	0.086
Food, hospitality and personal services	1	0.46563	0.281	2.738	0.098
Other	1	0.17401	0.368	0.223	0.637

Note: DF = Degrees of freedom
SE = Standard errors

Table B12 Maximum likelihood estimates: Mature-aged people, males, 2007

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.6563	0.621	1.118	0.290
Certificate IV and above – graduate	1	1.1092	0.619	3.209	0.073
Certificate III – graduate	1	0.70681	0.588	1.445	0.229
Certificate II and I – graduate	1	0.60133	0.583	1.065	0.302
Certificate IV and above – MC	1	0.58776	0.781	0.566	0.452
Certificate III – MC	1	0.26355	0.787	0.112	0.738
Engineering and related technologies	1	0.22745	0.374	0.370	0.543
Agriculture, environmental and related studies	1	0.28174	0.481	0.343	0.558
Management and commerce	1	-0.34521	0.405	0.726	0.394
Other	1	-0.76213	0.370	4.237	0.040

Note: DF = Degrees of freedom
SE = Standard errors

Table B13 Maximum likelihood estimates: Mature-aged people, females, 2007

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.45004	0.468	9.615	0.002
Certificate IV and above – graduate	1	0.70162	0.465	2.278	0.131
Certificate III – graduate	1	1.22106	0.431	8.037	0.005
Certificate II and I – graduate	1	0.42331	0.430	0.969	0.325
Certificate IV and above – MC	1	-0.07346	0.613	0.014	0.905
Certificate III – MC	1	0.38096	0.520	0.536	0.464
Information technology	1	0.64457	0.568	1.286	0.257
Engineering and related technologies	1	0.86811	0.471	3.392	0.066
Agriculture, environmental and related studies	1	0.77796	0.511	2.315	0.128
Health	1	2.23612	0.610	13.451	0.000
Education	1	1.4797	0.498	8.835	0.003
Management and commerce	1	0.30103	0.334	0.813	0.367
Society and culture	1	1.0256	0.351	8.557	0.003
Food, hospitality and personal services	1	1.10297	0.406	7.365	0.007
Other	1	-0.2299	0.582	0.156	0.693

Note: DF = Degrees of freedom
SE = Standard errors

Table B14 Maximum likelihood estimates: People reporting a disability, males, 2007

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.52211	0.603	0.751	0.386
Certificate IV and above – graduate	1	0.85052	0.526	2.612	0.106
Certificate III – graduate	1	0.71541	0.446	2.576	0.109
Certificate II and I – graduate	1	0.56576	0.423	1.792	0.181
Certificate IV and above – MC	1	0.88227	0.689	1.642	0.200
Certificate III – MC	1	0.23965	0.570	0.177	0.674
Information technology	1	-1.07317	0.696	2.377	0.123
Engineering and related technologies	1	0.62442	0.543	1.320	0.251
Agriculture, environmental and related studies	1	0.93147	0.575	2.627	0.105
Management and commerce	1	0.62599	0.568	1.215	0.270
Society and culture	1	1.08301	0.626	2.989	0.084
Food, hospitality and personal services	1	0.36128	0.586	0.380	0.538
Other	1	0.7144	0.599	1.423	0.233
Aged 25–34	1	-0.58423	0.358	2.660	0.103
Aged 35–54	1	-0.98754	0.286	11.922	0.001
Aged 55–69	1	-0.69992	0.407	2.955	0.086
Aged 70 and over	1				
Hearing/deaf	1	-0.28732	0.384	0.559	0.455
Physical	1	-0.3068	0.269	1.299	0.254
Intellectual	1	0.01137	0.378	0.001	0.976
Learning	1	-0.18061	0.304	0.353	0.552
Mental illness	1	-0.31591	0.319	0.982	0.322
Acquired brain impairment	1	-0.22246	0.607	0.134	0.714
Vision	1	-0.71135	0.435	2.678	0.102
Medical condition	1	-0.48202	0.265	3.317	0.069
Other disability	1	-0.07021	0.369	0.036	0.849

Note: DF = Degrees of freedom
SE = Standard errors

Table B15 Maximum likelihood estimates: People reporting a disability, females, 2007

Parameter	DF	Estimate	SE	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.67315	0.526	1.637	0.201
Certificate IV and above – graduate	1	0.96366	0.483	3.987	0.046
Certificate III – graduate	1	1.46223	0.443	10.910	0.001
Certificate II and I – graduate	1	0.66966	0.425	2.483	0.115
Certificate IV and above – MC	1	1.26811	0.571	4.929	0.026
Certificate III – MC	1	1.07729	0.519	4.308	0.038
Management and commerce	1	-0.26458	0.385	0.472	0.492
Society and culture	1	0.1554	0.442	0.123	0.725
Food, hospitality and personal services	1	0.2596	0.421	0.380	0.538
Other	1	0.1121	0.417	0.072	0.788
Aged 25–34	1	-0.47567	0.324	2.159	0.142
Aged 35–54	1	-0.54665	0.251	4.725	0.030
Aged 55–69	1	-0.14936	0.395	0.143	0.706
Aged 70 and over	1	-11.9285	768.053	0.000	0.988
Hearing/deaf	1	-0.48349	0.387	1.559	0.212
Physical	1	-0.23019	0.242	0.907	0.341
Intellectual	1	-0.68469	0.446	2.361	0.124
Learning	1	-0.47392	0.313	2.293	0.130
Mental illness	1	-0.24483	0.277	0.783	0.376
Acquired brain impairment	1	-0.64556	0.839	0.593	0.441
Vision	1	0.17907	0.317	0.319	0.572
Medical condition	1	-0.42149	0.232	3.292	0.070
Other disability	1	-0.59115	0.366	2.615	0.106

Note: DF = Degrees of freedom
SE = Standard errors

Table B16 Predicted probability of employment 6 months after training: Parents with children aged between 6 and 15 years, 2007

Qualification undertaken	
Certificate IV and above – graduate	0.502
Certificate III – graduate	0.644
Certificate II and I – graduate	0.424
Certificate IV and above – MC	0.460
Certificate III – MC	0.442
Certificate II and I – MC (ref)	0.359
Field of education	
Information technology	0.439
Engineering and related technologies	0.554
Agriculture, environmental and related studies	0.468
Health	0.589
Education	0.629
Management and commerce	0.529
Society and culture	0.555
Food, hospitality and personal services	0.561
Other	0.489
Mixed field programs (ref)	0.446

Source: Derived from table B11.

Table B17 Predicted probability of employment 6 months after training: Mature-aged people, males, 2007

Qualification undertaken	
Certificate IV and above – graduate	0.543
Certificate III – graduate	0.442
Certificate II and I – graduate	0.417
Certificate IV and above – MC	0.413
Certificate III – MC	0.337
Certificate II and I – MC (ref)	0.281
Field of education	
Engineering and related technologies	0.559
Agriculture, environmental and related studies	0.572
Management and commerce	0.417
Other	0.320
Society and culture (ref)	0.502

Source: Derived from table B12.

Table B18 Predicted probability of employment 6 months after training: Mature-aged people, females, 2007

Qualification undertaken	
Certificate IV and above – graduate	0.475
Certificate III – graduate	0.603
Certificate II and I – graduate	0.406
Certificate IV and above – MC	0.294
Certificate III – MC	0.396
Certificate II and I – MC (ref)	0.309
Field of education	
Information technology	0.494
Engineering and related technologies	0.550
Agriculture, environmental and related studies	0.528
Health	0.828
Education	0.693
Management and commerce	0.409
Society and culture	0.589
Food, hospitality and personal services	0.607
Other	0.290
Mixed field programs (ref)	0.339

Source: Derived from table B13.

Table B19 Predicted probability of employment 6 months after training: People reporting a disability, males, 2007

Qualification undertaken	
Certificate IV and above – graduate	0.467
Certificate III – graduate	0.433
Certificate II and I – graduate	0.397
Certificate IV and above – MC	0.474
Certificate III – MC	0.322
Certificate II and I – MC (ref)	0.272
Field of education	
Information technology	0.123
Engineering and related technologies	0.433
Agriculture, environmental and related studies	0.510
Management and commerce	0.434
Society and culture	0.547
Food, hospitality and personal services	0.370
Other	0.455
Mixed field programs (ref)	0.290
Age	
15–24 (ref)	0.527
25–34	0.383
35–54	0.293
55–69	0.356
70+	NA
Disability condition	
Hearing/deaf	0.339
Physical	0.350
Intellectual	0.402
Learning	0.366
Mental illness	0.337
Acquired brain impairment	0.349
Vision	0.257
Medical condition	0.322
Other disability	0.384

Source: Derived from table B14.
Disability condition is a multiple response question, so there is no general reference level.

Table B20 Predicted probability of employment 6 months after training: People reporting a disability, females, 2007

Qualification undertaken	
Certificate IV and above – graduate	0.363
Certificate III – graduate	0.484
Certificate II and I – graduate	0.298
Certificate IV and above – MC	0.436
Certificate III – MC	0.390
Certificate II and I – MC (ref)	0.179
Field of education	
Management and commerce	0.299
Society and culture	0.394
Food, hospitality and personal services	0.419
Other	0.384
Mixed field programs (ref)	0.357
Age	
15–24 (ref)	0.444
25–34	0.332
35–54	0.316
55–69	0.407
70+	0.000
Disability condition	
Hearing/deaf	0.262
Physical	0.321
Intellectual	0.227
Learning	0.271
Mental illness	0.313
Acquired brain impairment	0.228
Vision	0.394
Medical condition	0.297
Other disability	0.246

Source: Derived from table B15.
Disability condition is a multiple response question, so there is no general reference level.