NCVER

FACTORS INFLUENCING COMPLETION OF APPRENTICESHIPS AND TRAINEESHIPS[1]

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The number of people employed as an apprentice or trainee has grown rapidly in recent years from 163 300 at the end of 1996 to an estimated 397 100 at the end of 2003. The growth over this period has occurred in occupations that previously did not employ apprentice or trainees and in training contracts of varying duration. Apprenticeships and traineeships are now available to people of all ages and are used for training existing workers in addition to entry level training.

There is considerable interest in the factors that influence the completion of an apprenticeship or traineeship. The output of qualified people with skills relevant to the needs of employers is a key indicator of success in apprenticeships and traineeships. Completion of a qualification is particularly important for young people entering employment through an apprenticeship or traineeship.

The national apprentice and trainee data-base managed by NCVER will be utilised to analyse the demographic and institutional factors that influence the likelihood of completion of an apprenticeship or a traineeship. The analysis will be based on the cohort of apprentices and trainees who commenced their apprenticeship or traineeship in 1998-99.

The analysis will examine a range of demographic and institutional factors to measure their impact on the likelihood of completion. Logistic regression will be used to assess the net effect of various characteristics on completion such as age; gender; residential region; Indigenous status; whether the apprentice of trainee reported a disability; prior education; qualification level and occupation.

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[1] The paper has been revised to incorporate comments made by participants at the workshop.

Introduction

Apprentices and trainees undertake vocational training through a contract of training which is a formal contract between an employer and an apprentice or trainee. Apprenticeships and traineeships are available to new entrants to the labour market, people re-entering the labour market and to existing workers who are upgrading their skills with their current employer. Apprenticeships are available across a wide range of occupations and to both full-time and part-time employees.

There is considerable interest in the factors that influence the completion of an apprenticeship or traineeship. The output of qualified people with skills relevant to the needs of employers is a key indicator of success in apprenticeships and traineeships. Completion of a qualification is particularly important for young people entering employment through an apprenticeship or traineeship.

The paper will discuss the factors that impact on apprentice and trainee completion and consider differences in the likelihood of completion of an apprenticeship or traineeship for disadvantaged groups of Australians compared with other Australians.

Information about apprentices and trainees

NCVER, as the national vocational education and training data collection agency, releases apprentice and trainee statistics on a quarterly basis based on administrative data submitted by State and Territory Training Authorities. Demographic information about apprentices and trainees is collected on the training contract and recorded by State and Territory Training Authorities. Information about the type of employer, the type of employment, the qualification level of the vocational training and the occupation of the apprentice is also collected.

Figures on apprentice and trainee commencements, completions, cancellations/withdrawals and numbers in-training are estimated by NCVER because of lengthy delays before employers submit data to the State Training Authorities and other administrative delays. It can take up to two years before a cancellation/withdrawal is reported by an employer to the State and Territory Training Authority and nine months to a year before commencements and completions are reported, respectively.

Apprentice and trainee completion

There are three components to the successful completion of an apprenticeship or traineeship. The requirements that need to be met are:

- completion of formal off-the-job requirements of the apprenticeship or traineeship. This requires the qualification specified in the contract to be completed

- completion of the indenture period of the contract of training and meeting the on-the-job requirements as endorsed by the employer

- notification to the State/Territory training authority, once both of these requirements have been met, of the successful completion of the contract of training by the apprentice or trainee, together with provision of required evidence of the successful completion of the apprentice or trainee.

Legislative and administrative requirements governing contracts differ between states and territories. In some states and territories, a change in employer requires the original contract to be cancelled and a new contract with the new employer to be commenced. A commencement is only recorded for the first contract for an individual training in a particular occupation.

Expired contracts

There are a number of apprentice and trainee contracts that pass their expected completion date and the final outcome of the contract is unknown. Surveys of expired contracts were undertaken in 2000 and 2002 to investigate the extent of apprentice and trainee completions and non-completions amongst expired contracts. The surveys showed that about 37 per cent of the expired contracts were actually completions and 30 per cent were found to be a cancellation or withdrawal. The remaining 33 per cent of expired contracts were a mix of other outcomes including 'partial' completions (completion of only off-the-job or on-the-job components) and contracts for which a final status could still not be determined.

Expired contracts have not been taken into account in this paper as the analysis has utilised the unit record level information in the apprentice and trainee data collection unit and has not used aggregate level data.

Attrition from apprentice and trainee contracts

Table 1: Pattern of reported attrition from apprenticeships and traineeships*, per cent

Withdrawing within:	Year of commencement								
	1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001***	**2002***	**2003***
1 month	2.8	3.3	3.5	4.5	4.2	3.6	3.2	2.7	2.5
3 months	8.8	10.6	10.6	11.4	10.9	10.2	9.7	8.8	8.0
6 months	16.0	19.0	18.9	19.8	19.7	19.1	18.6	17.5	16.2
1 year	25.1	29.1	29.2	30	30.9	30.0	29.6	28.4	n/a
2 years	34.1	35.8	35.3	36.1	38.4	38.4	38.1	n/a	n/a
3 years	38.3	39.0	38.1	38.6	41.0	41.1	n/a	n/a	n/a
4 years	40.0	40.4	39.2	39.4	41.8	n/a	n/a	n/a	n/a
After 4 years	40.1	40.4	39.3	39.5	41.9	n/a	n/a	n/a	n/a
All	40.1	40.4	39.3	39.5	41.9	n/a	n/a	n/a	n/a

* No allowance has been made for under-reporting of cancellations and withdrawals in contracts that expire and the outcome is unknown.
Source: NCVER Contracts of training collection, March quarter 2003 (1995 to 1998); September quarter 2004 (1999 to 2003)

The length of a training contract differs between qualification level and occupation.   Despite changes that have occurred to the apprentice and trainee system, particularly since the introduction of New Apprenticeships in 1998, the pattern of attrition from apprenticeships and traineeships has been relatively unchanged since 1995.

About 10 per cent of people who commence a training contract do not continue past the first three months of their training and between 16 per cent and 20 per cent do not continue past the first six months. About 29 per cent cancel or withdraw in the first year of their training. Some people will recommence with a new employer in the same occupation; others will commence a new apprenticeship or traineeship in a different occupation with a new employer.

Methodology

Logistic regression was used to determine the probability of an apprentice or trainee completing a contract of training. The analysis utilised the NCVER unit record level apprentice and trainee data collection based on administrative data. The analysis was conducted at the level of the training contract and no allowance has been made for individuals who commence a new training contract with a different employer or for individuals who may later complete a training contract in a different occupation.

Scope and data considerations

The data-sets used in the analysis were constructed by tracking the transaction records of the cohort of apprentices and trainees who commenced an apprenticeship or traineeship in 1998-99. There were 197 130 apprentices and trainees who commenced in 1998-99. Because of delays in the reporting of completions and the length of time required to complete an apprenticeship in some occupations this is the only cohort that can be studied since the introduction of New Apprenticeships.

Unit-level records were excluded from the analysis if demographic or institutional-level data had not been recorded.

The results of the logistic regressions and the diagnostics of the regressions are provided in the Appendix. In addition to the demographic, qualification, employer and occupation-related variables, the model was specified to include variables to capture differences across states and territories and in the duration of the training contract.

Determinants of apprenticeship and traineeship completion

The predicted probabilities presented in this paper cannot be interpreted as completion rates because the statistics have not been adjusted to take account of expired contacts. Expired contracts are contracts which have past their expected completion data and an outcome has not been reported. In some instances, an apprentice or trainee may have completed the on-the-job component of their training but not successfully completed the off-the-job component. This group of apprentices and trainees have neither withdrawn from their contract, nor have they completed their apprenticeship or traineeship.

The profile of expired contracts does not mirror the age profile of apprenticeship and traineeship contracts. Apprentices and trainees in older age groups are over-represented in contracts that have expired. Apprentices and trainees aged 17 and under and aged 18 and 19 comprise 8 per cent and 19 per cent, respectively, of the cohort of apprentices and trainees who commenced in 1998-99 but comprise only 5 per cent and 13 per cent of contracts that expired and do not have a reported outcome. Removing expired contacts from the sample or attributing them an outcome would bias the results of the analysis.

The predicted probabilities of reporting a completion of an apprenticeship or traineeship and the and associated odds ratios are provided in table 2[2]. Table 3 provides a comparison of the predicted probability of reporting a completion by sex and age group. Overall, the predicted probability of an apprentice or trainee who commenced their contract of training in 1998-99 reporting a completion was 46 per cent. The predicted probability of an apprentice or trainee reporting a completion varies by sex, age at commencement, Indigenous ethnicity, presence of a disability, highest school level completed, residential location, employment status, qualification level of the training being undertaken and type of employer.

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[2] A logistic regression to model the probability of attrition from an apprenticeship or traineeship was run to validate these results. The predicted probabilities of characteristics in the model of the probability of an apprentice or trainee cancelling/ withdrawing were the converse of the results for the predicted probabilities of characteristics obtained from the logistic regression run to model the probability of reporting a completion, for all characteristics.

Table 2: Predicted probability* of reporting a completion and estimated odds ratios, 1998-99

Characteristic	Predicted probability of reporting a completion	Odds ratio estimate
Sex		
Male*	45.4	Reference group
Female	46.9	1.059
Age at commencement		
17 years and under	48.1	1.355
18 and 19	44.7	1.186
20 to 24*	40.6	Reference group
25 to 44	46.5	1.273
45 and over	54.7	1.766
Background		
Indigenous	30.2	0.498
Not reported Indigenous*	46.4	Reference group
Disability	42.1	0.849
No reported disability*	46.1	Reference group
Highest school level completed		
Year 9 or less	38.5	0.608
Year 10	42.3	0.712
Year 11	44.9	0.790
Year 12*	50.8	Reference group
Location of residence		
Capital city*	43.0	Reference group
Other metropolitan	46.8	1.168
Rural	51.9	1.433
Remote	45.6	1.114
Interstate	44.0	1.045
Employment status		
Full time*	46.2	Reference group
Part time	45.2	0.962
Occupation group (ASCO 2-digit)		
Specialist managers	60.9	1.907
Farmers and farm managers	42.7	0.912
Science, building and engineering professionals	42.7	0.910
Business and information professionals and education professionals	45.2	1.007
Health professionals	50.3	1.239
Social, arts and miscellaneous professionals	39.8	0.807
Science, engineering and related associate professionals	50.6	1.255
Business and administration associate professionals	40.5	0.833
Managing supervisors (sales and service), health and welfare associate professionals and other associate professionals	44.3	0.971
Tradespersons and related workers (n.f.d)	41.2	0.858

Mechanical and fabrication engineering tradespersons	70.4	2.909
Automotive tradespersons	64.7	2.244
Electrical and electronics tradespersons	68.8	2.691
Construction tradespersons	59.2	1.776
Food tradespersons	35.8	0.681
Skilled agricultural and horticultural workers	53.0	1.379
Other tradespersons and related workers	53.4	1.403
Other advanced clerical and service workers	53.9	1.428
Intermediate clerical workers*	45.0	Reference group
Intermediate sales and related workers	36.4	0.698
Intermediate service workers	42.5	0.905
Intermediate plant and machine operators	40.6	0.835
Road and rail transport drivers	52.6	1.355
Other intermediate production and transport workers	44.0	0.961
Elementary clerks	33.2	0.609
Elementary sales and service workers	43.4	0.937
Cleaners	38.0	0.751
Factory labourers	41.2	0.858
Other labourers and related workers	41.6	0.871
Qualification level		
AQF Cert level I	31.8	0.463
AQF Cert level II	38.7	0.628
AQF Cert level III*	50.2	Reference group
AQF Diploma and above	59.7	1.471
Employer		
Private sector*	44.3	Reference group
Group training	49.6	1.237
Government sector	61.6	2.021
All apprentices and trainees	46.0	

*Probabilities have been derived by holding other characteristics constant at their average values

Factors influencing completion of apprenticeships and traineeships

Table 3: Predicted probability* of reporting a completion by sex and age group, 1998-99

Characteristic	Sex		Age at commencement				
	Male	Female	17 years and under	18 and 19	20 to 24	25 to 44	45 and over
Sex							
Male*	45.4	-	47.5	44.2	40.0	45.9	54.1
Female	-	46.9	48.9	45.6	41.4	47.3	55.5
Age at commencement							
17 years and under	47.5	48.1	48.1	-	-	-	-
18 and 19	44.2	44.7	-	44.7	-	-	-
20 to 24*	40.0	40.6	-	-	40.6	-	-
25 to 44	45.9	46.5	-	-	-	46.5	-
45 and over	54.1	55.5	-	-	-	-	54.7
Background							
Indigenous	29.7	30.9	31.9	29.1	25.7	30.6	37.9
Not reported Indigenous*	45.8	47.3	48.5	45.2	41.0	46.9	55.1
Disability	41.5	42.9	44.1	40.8	36.8	42.6	50.7
No reported disability*	45.5	46.9	48.2	44.8	40.7	46.6	54.8
Highest school level completed							
Year 9 or less	38.0	39.3	40.5	37.3	33.4	39.0	47.0
Year 10	41.8	43.2	44.4	41.1	37.0	42.8	51.0
Year 11	44.3	45.7	46.9	43.6	39.5	45.3	53.5
Year 12*	50.2	51.9	52.8	49.5	45.2	51.2	59.3
Location of residence							
Capital city*	42.4	43.8	45.0	41.7	37.6	43.4	51.6
Other metropolitan	46.2	47.6	48.8	45.5	41.3	47.3	55.5
Rural	51.3	52.7	54.0	50.6	46.4	52.4	60.4
Remote	45.1	46.5	47.7	44.4	40.2	46.1	54.3
Interstate	43.5	44.9	46.1	42.8	38.7	44.5	52.7
Employment status							
Full time*	45.6	47.0	48.2	44.9	40.1	46.7	54.8
Part time	44.6	45.2	47.3	44.0	39.8	45.7	53.9
Occupation group (ASCO 2-digit)							
Specialist managers	60.4	61.7	62.9	59.7	55.5	61.4	68.8
Farmers and farm managers	42.1	43.5	44.7	41.5	37.4	43.2	51.3
Science, building and engineering professionals	42.1	43.5	44.7	41.4	37.3	43.1	51.3
Business and information professionals and education professionals	44.6	46.0	47.2	43.9	39.7	45.6	53.8
Health professionals	49.7	51.1	52.4	49.0	44.8	50.8	58.9
Social, arts and miscellaneous professionals	39.2	40.6	41.7	38.5	34.6	40.2	48.3
Science, engineering and related associate professionals	50.0	51.5	52.7	49.3	45.1	51.2	59.2
Business and administration associate professionals	39.9	41.3	42.5	39.3	35.3	41.0	49.1
Managing supervisors (sales and service), health and welfare associate professionals and other associate professionals	43.7	45.1	46.3	43.0	38.9	44.7	52.9
Tradespersons and related workers (n.f.d)	40.7	42.0	43.2	40.0	36.0	41.7	49.8

Mechanical and fabrication engineering tradespersons	69.9	71.1	72.1	69.3	65.6	70.8	77.1
Automotive tradespersons	64.2	65.5	66.6	63.5	59.5	65.2	72.2
Electrical and electronics tradespersons	68.2	69.5	70.5	67.6	63.8	69.2	75.7
Construction tradespersons	58.6	60.1	61.2	58.0	53.8	59.7	67.3
Food tradespersons	35.2	36.5	37.7	34.6	30.8	36.2	44.0
Skilled agricultural and horticultural workers	52.4	53.8	55.0	51.7	47.4	53.5	61.5
Other tradespersons and related workers	52.8	54.2	55.5	52.1	47.9	53.9	61.9
Other advanced clerical and service workers	53.3	54.7	55.9	52.6	48.3	54.3	62.3
Intermediate clerical workers*	44.4	45.8	47.0	43.7	39.6	45.5	53.6
Intermediate sales and related workers	35.8	37.1	38.3	35.2	31.4	36.8	44.7
Intermediate service workers	41.9	43.3	44.5	41.3	37.2	43.0	51.1
Intermediate plant and machine operators	40.0	41.4	42.6	39.3	35.3	41.0	49.1
Road and rail transport drivers	52.0	53.4	54.6	51.3	47.0	53.0	61.0
Other intermediate production and transport workers	43.4	44.8	46.0	42.7	38.6	44.5	52.6
Elementary clerks	32.7	34.0	35.1	32.1	28.5	33.6	41.3
Elementary sales and service workers	42.8	44.2	45.4	42.1	38.0	43.8	52.0
Cleaners	38.8	0.39	40.0	36.8	33.0	38.5	46.5
Factory labourers	42.0	0.42	43.2	40.0	36.0	41.7	49.8
Other labourers and related workers	42.4	0.42	43.6	40.3	36.3	42.0	50.2
Qualification level							
AQF Cert level I	31.3	32.5	33.6	30.7	27.2	32.2	39.8
AQF Cert level II	38.2	39.5	40.7	37.5	33.6	39.2	47.2
AQF Cert level III*	49.6	51.0	52.2	48.9	54.2	50.6	58.7
AQF Diploma and above	59.1	60.5	61.6	58.4	44.6	60.1	67.7
Employer							
Private sector*	43.7	45.1	46.3	43.0	38.9	44.7	52.9
Group training	49.0	50.4	51.6	48.3	44.0	50.0	58.2
Government sector	61.0	62.4	63.5	60.4	56.2	62.1	69.4
All apprentices and trainees	45.4	46.9	48.1	44.7	40.6	46.5	54.7

*Probabilities have been derived by holding other characteristics constant at their average values

Table 4: Job mobility by age and gender, per cent

Characteristic	Persons who worked at some time during the year ending Feb 2002			Persons who worked at some time during the year ending Feb 2004		
Age group	Males	Females	Persons	Males	Females	Persons
15-19	19.0	19.6	19.3	19.2	18.0	18.6
20-24	25.2	26.6	25.8	23.5	25.6	24.5
25-34	20.6	18.3	19.6	19.5	17.6	18.6
35-44	13.5	12.7	13.1	14.7	10.8	13.0
45-54	10.1	9.5	9.9	9.8	7.8	8.9
55-69	5.9	5.3	5.6	7.2	5.2	6.4
All ages	15.2	14.9	15.1	15.0	13.5	14.3

Source: Labour mobility, ABS cat no 6209.0, February 2002 & February 2004

Factors influencing completion of apprenticeships and traineeships

Demographic characteristics

Sex

There is a significant difference in the likelihood for females reporting a completion compared to males with females more likely to report a completion than males. Although the difference is significant it is small. The predicted probability of a female completing an apprenticeship or traineeship is 47 per cent for females compared to 45 per cent for males.

Age

The predicted probability of completing an apprenticeship or traineeship differs with age with those in the age group 20 to 24 least likely to complete. Apprentices and trainees who commenced their training contract at ages 18 or 19 were less likely to complete than those who commenced at a younger age. Apprentices and trainees who commenced their training contract at 45 or older were most likely to complete with a predicted probability of reporting a completion of 55 per cent.

Labour mobility

The results of the analysis can be explained, in part, by the overall differences in job mobility across age groups. The training contract is broken because there has been a job separation and in some states and territories a new contract has to be opened when the apprentice or trainee recommences with a new employer. Results of the ABS 2002 and 2004 labour mobility surveys on job mobility by age and sex (table 4) suggest that the most job mobile age group was people aged 20 to 24. A quarter of all people employed in this age group changed jobs in the year to February in the 2002 and 2004 surveys. Teenagers and people aged 25 to 34 were less job mobile than the 20 to 24 year age group but more job mobile than people in older age groups.

There was no discernible difference in job mobility between males and females in the 2002 ABS labour mobility survey with 15 per cent of both males and females changing jobs in the year to February 2002.

Disadvantaged groups

Indigenous Australians are significantly less likely to complete an apprenticeship or traineeship compared to other Australians. The predicted probability of an Indigenous apprentice or trainee reporting a completion was only 30 per cent compared to 46 per cent for other Australians. The predicted probability of reporting a completion for Indigenous apprentices and trainees reduces to 26 per cent for those aged 20 to 24 years of age (table 3).

Apprentices and trainees with a disability are significantly less likely to complete an apprenticeship or traineeship compared to other Australians. The predicted probability of an apprentice or trainee who reported they had a disability reporting a completion was 42 per cent. The predicted probability of reporting a completion for apprentices and trainees who reported they had a disability reduces to 37 per cent for those aged 20 to 24 years of age.

Apprentices and trainees who commenced their training contract without completing Year 12 had a lower probability of completing their training contract than apprentices and trainees who had completed Year 12. The predicted probability of an apprentice or trainee reporting a completion reduced with each year of completed schooling from 51 per cent for those who completed Year 12 to 38 per cent for those who had completed Year 9 or less.

Residential location

There was a significant difference in the likelihood of an apprentice or trainee who lived in a capital city completing their training contract compared to those living in other metropolitan and rural areas. Apprentices and trainees who lived in non-capital city metropolitan areas and rural areas were more likely to complete compared to those living in capital cities and remote or interstate localities. Apprentices and trainees living in rural areas had the highest predicted probability of completing their training contract.

Employment status

Apprentices and trainees employed part-time were less likely to complete a training contract than those employed full-time. Although the difference is significant it is small. The predicted probability of an apprentice or trainee employed full time completing an apprenticeship or traineeship is 46 per cent per cent compared to 45 per cent for apprentices and trainees employed part time.

Occupational differences

There are wide differences in the predicted probabilities of an apprentice or trainee completing their training contract across occupational groups. The predicted probability of a mechanical and fabrication engineering tradesperson reporting a completion of a training contact was 70 per cent, increasing to 77 per cent for those aged 45 years and over. The predicted probability of an elementary clerk reporting a completion was only 33 per cent, reducing to 29 per cent for those in the 20 to 24 year age group.

Labour mobility

Differences in the predicted probabilities of apprentices and trainees completing a training contract reflect occupational trends in job mobility (table 5). Elementary clerical, sales and service workers are highly job mobile with 32 per cent of people employed in these occupations reporting they had spent less than one year in their current job in February 2002. The results of the analysis indicate that the provision of training by an employer through a traineeship is not sufficient inducement to encourage an employee working in these occupations to complete their traineeship and remain with the employer.

Level of qualification

Apprentices and trainees studying a lower-level qualification (AQF Certificate I or II) are much less likely to complete a training contract than apprentices and trainees studying for a higher level vocational qualification. The predicted probability of an apprentice or trainee completing a training contract increases as the level of vocational qualification increases.

Labour mobility

These findings cannot be explained by overall trends in labour market mobility. There is no evidence from the ABS labour mobility surveys that people who have attained a lower-level vocational qualification, on average, change jobs more frequently than people who have attained higher-level vocational qualifications (see table 6).

Type of employer

Apprentices and trainees employed in the government sector were more likely to complete an apprenticeship or traineeship than apprentices and trainees employed in the private sector or by group training companies.

Table 5: Labour mobility: Under one year in current job, by occupation and gender, per cent

	Persons who were working at Feb 2002			Persons who were working at Feb 2004		
Occupation	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Managers & administrators	12.5	14.8	13.0	11.0	15.0	12.0
Professionals	19.8	19.5	19.6	18.8	18.6	18.7
Associate professionals	20.1	21.4	20.6	19.7	20.4	20.0
Tradespersons & related workers	18.2	22.9	18.7	20.5	24.1	20.8
Advanced clerical & service workers	23.5	15.6	16.5	22.9	18.3	18.8
Intermediate clerical, sales & service workers	24.6	27.7	26.9	25.8	26.2	26.1
Intermediate production & transport workers	24.3	21.0	23.9	22.9	22.4	22.9
Elementary clerical, sales & service workers	32.1	32.3	32.2	30.5	35.2	33.5
Labourers & related workers	31.6	29.6	30.9	33.4	26.0	30.9
All workers	21.7	24.3	22.9	22.0	23.9	22.8

Source: Labour mobility, ABS cat no 6209.0, February 2002 & February 2004

Table 6: Job mobility by level of highest non-school qualification and gender, per cent

Characteristic	Persons who worked at some time during the year ending Feb 2002			Persons who worked at some time during the year ending Feb 2004		
Level of highest non-school qualification	Males	Females	Persons	Males	Females	Persons
With non-school qualifications				15.1	14.3	14.7
Postgraduate degree	13.9	14.3	14.1	12.4	12.7	12.6
Graduate diploma / Graduate certificate	12.3	13.3	12.9	14.0	11.7	12.6
Bachelor degree	16.9	17.0	17.0	15.1	13.6	14.4
Advanced diploma / Diploma	14.5	16.2	15.4	14.6	13.8	14.1
Certificate III / IV	14.3	18.6	15.2	14.7	16.1	15.0
Certificate I / II	15.8	15.2	15.4	16.3	13.4	14.5
Certificate not further defined	24.7	20.9	22.6	26.6	23.7	24.9
Level not determined	14.7	12.5*	13.9	20.1	13.0	16.9
Without non-school qualifications	15.2	13.2	14.2	14.9	12.6	13.8
All workers	15.2	14.9	15.1	15.0	13.5	14.3

* Estimate has relative standard error of between 25% and 50% and should be used with caution.
Source: Labour mobility, ABS cat no 6209.0, February 2002 & February 2004

Comparison with earlier studies

The Department of Education, Training and Youth Affairs undertook separate analyses of non-completion of traineeships (Grey, K. et al, 1999) and apprenticeships (Ray, D. et al, 2000). Grey et al found that the rate of non-completion by trainees was around 44 per cent. Non-completion rates were highest for traineeships undertaken fully on-the-job. The rate of non-completion was highest for trainees with low levels of educational attainment and those who had been unemployed prior to commencing a traineeship. Trainees in the 20 to 24 year age group had a higher rate of non-completion than trainees in the 15 to 19 year age group. Older trainees aged over 25 years of age had the lowest rate of non-completion. The study found that age (life experience) improves completion rates with older trainees with low levels of prior education experiencing lower levels of attrition than younger trainees with similar levels of education.

Ray et al reported that for apprentices who commenced between July 1994 and June 1996, an apprentice's level of prior education had a significant impact on the likelihood of leaving with the probability of attrition increasing significantly for apprentices who had not completed Year 12. The probability of attrition increased with age with apprentices aged under 18 having the lowest rate of attrition. At the time this study was undertaken the number of apprentices in the 25 and over age group was too small to make reliable inferences for this age group.

This analysis concurs with the earlier studies on the impact of prior educational attainment on attrition. The probability of an apprentice or trainees reporting a completion increases with level of prior schooling with those who had completed Year 12 having a higher predicted probability of reporting a completion that those who had only completed Year 11, Year 10 or Year 9 or less. Consistent with the analysis by Grey et al, this study also found that life experience improves completion rates, irrespective of educational background. Older trainees over 45 years of age who had only completed education to the level of Year 9 or less had a higher predicted probability of completion than apprentices and trainees in the 20 to 24 year age group who completed Year 12. Apprentices and trainees over 45 years of age who had only completed Year 10 had a higher predicted probability of reporting a completion than apprentices and trainees aged 18 and 19 who had completed Year 12.

Conclusions

The national apprentice and trainee data-base managed by NCVER was used to analyse the demographic and institutional factors that influence the likelihood of completion of an apprenticeship or a traineeship. The analysis was based on the cohort of apprentices and trainees who commencing an apprenticeship or traineeship in 1998-99.

The analysis has shown that the likelihood of an apprentice or trainee completing a training contract is influenced by age, gender, residential location, the occupation of the apprentice or trainee and the qualification level of the training contract.

The predicted probability of an apprentice or trainee completing differs with age with those in the age group 20 to 24 least likely to complete a contract of training. Apprentices and trainees who commenced their training contract at 45 or older were most likely to complete a contract of training. Apprentices and trainees who commenced their training contract without completing Year 12 had a lower probability of completing their training than apprentices and trainees who had completed Year 12. The predicted probability of an apprentice or trainee reporting a completion reduced with each year of completed schooling. However, consistent with the findings of Grey et al (1999), the effect of life experience improves completion rates, irrespective of educational background.

Apprentices and trainees studying a lower-level qualification (AQF Certificate I or II) are much less likely to complete a training contract than apprentices and trainees studying for a higher level vocational qualification.

Apprentices and trainees from disadvantaged groups such as Indigenous Australians, disabled people and those with low levels of schooling are much less likely to complete a training contract than other Australians. Apprentices and trainees from these groups have a relatively low probability of completing a training contract.

References

Australian Bureau of Statistics 2002, *Labour mobility*, cat.no.6209.0, ABS Canberra
_____ 2004, *Labour mobility*, cat.no.6209.0, ABS Canberra
Grey, K., Beswick, W., O'Brien, C., and Ray, D. Traineeship non-completion. REB Report 1/99, Research and Evaluation Branch, Department of Education, Training and Youth Affairs, Canberra
Ray, D., Beswick, W., Lawson, C., O'Brien, C. and Madigan, S., *Attrition in apprenticeships: An analysis of apprentices commencing between July 1994 and June 1996*, REB Report 1/00, Research and Evaluation Branch, Department of Education, Training and Youth Affairs, Canberra

Appendix

Logistic regression output and diagnostics

Table A1: Output from regression to model likelihood of reporting completion of a contract, 1998-99

Parameter	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.0814	0.0223	13.2827	0.0003
Male		0.0			
Female	1	0.0569	0.0124	21.0673	<.0001
Age 17 years and under	1	0.3041	0.0166	337.0525	<.0001
Age 18 and 19	1	0.1703	0.0159	115.2999	<.0001
Age 20 to 24		0.0			
Age 25 to 44	1	0.2410	0.0152	251.7790	<.0001
Age 45 and over	1	0.5689	0.0217	686.1919	<.0001
Indigenous	1	-0.6965	0.0356	381.9026	<.0001
Not reported Indigenous		0.0			
Disability	1	-0.1636	0.0332	24.2623	<.0001
No reported disability		0.0			
Year 9 or less	1	-0.4978	0.0205	591.9954	<.0001
Year10	1	-0.3390	0.0127	717.8293	<.0001
Year11	1	-0.2360	0.0145	265.6923	<.0001
Year 12		0.0			
Capital city		0.0			
Other metropolitan	1	0.1555	0.0195	63.8384	<.0001
Rural	1	0.3601	0.0117	942.8549	<.0001
Remote	1	0.1084	0.0314	11.9009	0.0006
Interstate	1	0.0436	0.0478	0.8299	0.3623
Full time		0.0			
Part time	1	-0.0385	0.0162	5.6405	0.0175
Specialist managers	1	0.6458	0.0732	77.8348	<.0001
Farmers & farm managers	1	-0.0917	0.0902	1.0342	0.3092
Science, building & engineering professionals	1	-0.0944	0.1614	0.3424	0.5585
Business & information & education professionals	1	0.00711	0.1192	0.0036	0.9524
Health professionals	1	0.2141	0.1065	4.0425	0.0444
Social, arts & misc Professionals	1	-0.2140	0.1236	2.9982	0.0834
Science, engineering & related associate profs	1	0.2271	0.0535	18.0021	<.0001
Business & admin associate profs	1	-0.1827	0.0629	8.4351	0.0037
Managing supervisors, health & welfare & other associate profs	1	-0.0293	0.0855	0.1173	0.7320
Tradespersons &					

related workers	1	-0.1527	0.1797	0.7222	0.3954
Mechanical & fabrication engineering tradespersons	1	1.0679	0.0360	881.0373	<.0001
Automotive tradespersons	1	0.8083	0.0336	579.1695	<.0001
Electrical & electronics tradespersons	1	0.9898	0.0367	728.3610	<.0001
Construction tradespersons	1	0.5744	0.0317	329.2944	<.0001
Food tradespersons	1	-0.3848	0.0297	167.8781	<.0001
Skilled agricultural & horticultural workers	1	0.3210	0.0518	38.4092	<.0001
Other tradespersons & related workers	1	0.3384	0.0310	118.8182	<.0001
Other advanced clerical & service workers	1	0.3565	0.1304	7.4717	0.0063
Intermediate clerical Workers		0.0			
Intermediate sales related workers	1	-0.3589	0.0206	304.9695	<.0001
Intermediate service Workers	1	-0.1004	0.0217	21.4598	<.0001
Intermediate plant & machine operators	1	-0.1807	0.0580	9.7016	0.0018
Road & rail transport workers	1	0.3041	0.0435	48.7751	<.0001
Other intermediate production & transport workers	1	-0.0397	0.0362	1.2057	0.2722
Elementary clerks	1	-0.4966	0.0381	169.8236	<.0001
Elementary sales & service Workers	1	-0.0655	0.0218	9.0044	0.0027
Cleaners	1	-0.2864	0.0338	71.9479	<.0001
Factory labourers	1	-0.1533	0.0298	26.4878	<.0001
Other labourers & related workers	1	-0.1385	0.0296	21.8444	<.0001
AQF Cert level I	1	-0.7693	0.0766	100.8981	<.0001
AQF Cert level II	1	-0.4650	0.0133	1227.4311	<.0001
AQF Cert level III		0.0			
AQF Diploma and above	1	0.3857	0.1736	4.9392	0.0263
Private sector		0.0			
Group training	1	0.2129	0.0152	197.0405	<.0001

Govt sector	1	0.7034	0.0233	912.2727	<.0001
NSW	1	0.1991	0.0148	180.6058	<.0001
Vic		0.0			
Qld	1	-0.0932	0.0146	40.5770	<.0001
SA	1	0.6581	0.0187	1237.2808	<.0001
WA	1	0.5271	0.0228	533.5466	<.0001
Tas	1	0.8836	0.0264	1117.1882	<.0001
NT	1	1.0224	0.0576	314.9264	<.0001
ACT	1	0.4408	0.0344	163.8878	<.0001
Two years or less		0.0			
More than two years	1	1.1315	0.0189	3584.0537	<.0001

Model diagnostics summary:

Dependent variable – Reported completion: frequency = 84706; total frequency = 182548

Convergence criterion satisfied

Model fit statistics:

Criterion	Intercept only	Intercept & covariates
AIC	252121.19	235121.91
SC	252131.30	235698.45
-2 Log L	252119.19	235007.91

Testing global null hypothesis: Beta = 0

Test	Chi-square	DF	Pr > ChiSq
Likelihood ratio	17111.2817	56	<.0001
Score	16258.3555	56	<.0001
Wald	14728.1138	56	<.0001