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# From school to work

## The role of traineeships

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A National Vocational Education and Training **Research** and **Evaluation** Program **Report**

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# Publisher's note

Additional information relating to this research is available in *From school to work: The role of traineeships—Support document.* It can be accessed from NCVER's website <http://www.ncver.edu.au>.



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# Key messages

Since 1995 traineeships at certificates I and II level have become an increasingly important pathway in young people's transition from school to work. Around 15% of the cohort of school leavers analysed in this study participated in a traineeship at some time between the ages of 15 and 21 years. The aim of the study was to compare the effect of participation in traineeships on labour market outcomes for young people up to the age of 21 years with those who did not enter into any formal post-school education and training in the immediate post-school years (that is, the control group).

- Participation in traineeships was found to have positive effects on both employment prospects and wages. At the age of 21 years, participants in traineeships were less likely to be experiencing unemployment by comparison with the school leaver control group. Moreover, the wages of those who had undertaken traineeships were about 6% higher at the age of 21 years. At the age of 19 years, however, their wages were initially lower compared with the control group of school leavers.
- On average, participation in a traineeship was found to result in greater initial satisfaction with both the type of work undertaken and future career prospects; however, these positive effects appear to have largely dissipated by age 21 years.
- The results suggest strongly the need to take into account longer, as well as shorter-term outcomes when determining the success of traineeships in young people's school-to-work transitions.

# Executive summary

The Australian Traineeship System was introduced in 1985 to add flexibility to the vocational education and training (VET) system. Traineeships followed the apprenticeship principle of combining formal training with on-the-job work experience, but with a shorter training period. Thus they allowed the apprenticeship model to be extended into occupations requiring basic skills, where four-year apprenticeships were not available and/or not suitable.

The number of people participating in traineeships initially remained low but began to accelerate from around 1995. In 1998 the formal distinction between traineeships and apprenticeships was removed with the introduction of the more flexible New Apprenticeships System. Under this system the number in training at certificates I and certificate II level (equating to the pre-existing traineeships) has continued to grow rapidly, such that these now outnumber people in traditional apprenticeships by around two to one. Thus traineeships have become an important avenue for formal entry-level training in Australia.

This study analyses the role of traineeships in the transition from school to work using data from a sample of the cohort of young Australians who were in Year 9 in 1995. The sample has been surveyed each year from 1995 to 2002—corresponding to ages 14 through to 21—as part of the Longitudinal Surveys of Australian Youth conducted by the Australian Council for Educational Research. First of all the characteristics associated with participation in a traineeship are examined; following this we estimate the impact of entering a traineeship upon a range of measures of labour market outcomes. These include the impact of participation upon employment and earnings, career prospects, and the quality of jobs attained.

The transition from school for this cohort corresponds to a time in which traineeships were growing very rapidly. In 1999, the year after the end of high school for those who completed Year 12, there were an estimated 145 000 trainees in training. This was to increase to 238 000 by 2002. In our sample, participation in traineeships peaked at 6.5% at age 18. On a cumulative basis, 10% of the sample had participated in a traineeship (including school-based traineeships) up to and including the age of 18; just under 15% had done so by age 21.

In terms of socioeconomic background and performance at school, those who enter traineeships and apprenticeships are quite similar. They tend to come from a higher socioeconomic background and to have performed better academically in Years 9 and 10 than those who leave at the end of Year 10, but have a lower socioeconomic background and school performance, on average, than those who complete Year 12. Multivariate analysis confirms that people from lower socioeconomic backgrounds, with poorer early literacy and maths aptitude, and poorer school performance are more likely to enter traineeships upon leaving school except for those from non-English speaking backgrounds, who are markedly less likely to enter traineeships. Young people who enjoy artistic activities and those involving personal interaction also tend not to be attracted to traineeships.

To assess the impact of participation in a traineeship on the school-to-work transition, outcomes for those who participated in a traineeship up to and including 1999 (the year the cohort turned age 18, or the first year after Year 12 for those who completed high school) are compared with outcomes for young people who did not enter formal VET or university in either the year they left school or the following year. Outcomes are compared for each of the years 2000, 2001 and 2002 to provide estimates of both the short- and medium-term impact of traineeship participation.

After controlling for a range of individual characteristics, the analysis suggests that entering a traineeship, as opposed to leaving school without undertaking further vocational education or training, results in a modest reduction in the probability of being unemployed by age 21, as well as higher wages of around 5%. These benefits come at the cost of an initially lower wage of around 6% at age 19. This is consistent with the human capital model of training, which predicts that workers partially finance firm-provided training through low initial (training) wages and recoup those costs through higher growth in post-training earnings. For both employment outcomes and wages at age 21, the estimated effect within this group of having participated in a traineeship is greater than the estimated effect of having completed Year 12.

The most robust evidence of the value of entering a traineeship is indicated by the likelihood of the individual being in the type of job they would like as a career. At ages 19 and 20, around 55 to 60% of those who had participated in a traineeship saw their job as one they would like as a career, compared with 35 to 40% of school leavers with no further education and training. This large 20-percentage-point difference persists when other characteristics of the individuals are controlled for, although the estimated difference falls to around ten percentage points for workers aged 21.

Consistent with this, those who had participated in a traineeship are more satisfied with the type of work they do, their training opportunities, and their career prospects in the early stages of their working lives. However, by age 21 years, there are no significant differences between the trainees and non-trainees in terms of job satisfaction (the type of work done, pay, training opportunities, promotion opportunities), or with their overall career prospects. Thus, in contrast to the impact upon quantitative outcome measures of employment status and wages, which improve over the ages of 19 to 21 years, the positive impact of traineeships upon qualitatively assessed outcomes appears to diminish quite rapidly.

On the balance of the evidence from this sample, traineeships can be seen to offer an effective pathway from school to work for young people who are unlikely to go on to higher VET courses, apprenticeships or university. Those who enter traineeships progress relatively quickly into what they perceive as a 'career' job. In relation to the labour market outcome measures investigated in this study, among this group, entering a traineeship appears to be at least as valuable as completing high school.

The analysis has concentrated upon the impact of entering a traineeship, rather than completing a traineeship. Thus the estimate of the effects of a traineeship incorporates the outcomes of the considerable proportion (in the vicinity of 50%) of trainees who do not complete their formal traineeship. We believe this to be the effect of most relevance to policy-makers and to young people assessing their career options. Additional estimations show that concentrating on the effect of 'completing' rather than 'entering' a traineeship would not have changed the conclusions to any substantive extent.

# Background and methodology

While training and learning are important throughout workers' careers, the vocational education and training (VET) system is at its most significant during the transitional stage from school to work. This is the period in which young people are allocated to career pathways and where investment in vocational skills and education is concentrated. Over the years there has been much debate over the adequacy of Australia's VET system. Enrolments in higher education have compared favourably with other advanced countries (OECD 1998, p.43), but it has been noted that Australia lags behind in terms of the proportion of workers with vocational qualifications, particularly relative to countries with strong apprenticeship systems, such as Germany.

For those school leavers who did not go on to tertiary education, the apprenticeship system traditionally represented the main alternative for formal vocational qualifications. However, Australia's apprenticeship system had been seen to be in decline. It had remained relevant to only a handful of traditional trades and had not proved flexible enough to accommodate other requirements and emerging skills (Dockery 1996). Consequently, public policy for several decades has been geared towards bolstering the apprenticeship system and industry training more generally, including employer rebates, wage subsidies and a training levy on firms (the 'Training Guarantee'). One of the more fundamental policy reforms has been to use traineeships to extend formal VET structures into areas that apprenticeships have failed to cater to. This included the introduction of the Australian Traineeship System in 1985, the amalgamation of traineeships and apprenticeships into the single 'more flexible' and integrated framework known as New Apprenticeships in 1998, and the introduction of school-based traineeships (NCVER 2001).

From 1995 the number of people participating in traineeships accelerated significantly. However, there have been relatively few economic evaluations of traineeships, whether from the perspective of the trainee, the firm or wider society. As might be expected, data on traineeship participation indicate that traineeships are pathways utilised by individuals with relatively low levels of schooling and/or low school performance, and from lower socioeconomic backgrounds compared with those who enter other VET pathways, such as apprenticeships or diplomas, or who go on to higher education (see Polesel, Teese & O'Brien 1999; Teese, Polesel & Walstab 2000). Post-training surveys have shown that participants generally have a positive view of the value of traineeships (VET in Schools Centre 2001; Misko, Patterson & Markotic 2001). A high proportion of trainees remain in employment after completion of a traineeship, either with their 'host' employer or another employer, although a few go on to further education or training (see Cully, VandenHeuvel & Goodes 2000; NCVER 2001).

## The methodology and data

In this study we investigate the benefits to the individual of participating in a traineeship in the transition from school to work. To do this it is important to assess the outcomes for trainees relative to their alternative pathways. There are two sets of outcomes relevant to the decision to enter traineeships as a pathway from school to work—the set of outcomes contingent upon the individual completing the traineeship, and the set of outcomes contingent upon non-completion of the traineeship. The focus in this report is on outcomes conditional upon entry into a traineeship, and thus the results reflect the weighted probability of non-completion and completion for those

deciding to embark upon a traineeship. We believe this is the most relevant outcome measure since an individual decides whether or not to enter a traineeship—they do not know *a priori* whether or not they will complete it.

The analysis uses data from the Longitudinal Surveys of Australian Youth. These comprise a series of panel surveys of young Australians and aim to collect information on the transition from school to work. The data used in this study come from a panel survey of youth who were first surveyed as Year 9 students in 1995, the year in which most turned 14. Self-completed questionnaires were administered in 1995 and 1996, and telephone interviews were conducted in each year from 1997 to 2002. A total of 13 613 valid returns were gained from those completing the initial survey; the attrition rate over the eight waves to date stands at 45%. A total of 5368 individuals participated in all six surveys.

Since our interest is in the role of traineeships in the transition from school to work, we provide an analysis, firstly, of those who participate in traineeships and, secondly, of the effect of entering a traineeship on their labour market outcomes. To gain an appreciation of the characteristics of the school leavers who enter traineeships, a range of variables is derived relating to individuals' socioeconomic backgrounds, academic performance and attitudinal or personality traits. The means of these variables for trainees are compared with those for other selected groups: those who left school at the end of Year 10 or earlier; those who entered apprenticeships; those who completed Year 12 and those who went on to university. A multivariate regression model is also estimated in order to assess the independent effect of these variables on the probability of an individual entering a traineeship.

The impact of participating in a traineeship is estimated relative to those school leavers who undertook no further education and training in the year after they left school. More specifically, the sample is restricted to those who had entered a traineeship by 1999 (or before) or who had left school in 1996, 1997 or 1998 (Years 10, 11 and 12) and did not enter formal education and training in the following year. Multivariate models of labour market outcomes in each of the years 2000, 2001 and 2002 are then estimated with a dummy variable for traineeship participation among the explanatory variables. Those who entered short courses after leaving school have not been excluded, and the effect of having done such a course is captured by the inclusion of a further dummy variable. The labour market outcomes measures (the dependent variables) estimated are the probability of being employed (as opposed to unemployed), hourly earnings for those in employment, and measures of job quality. These qualitative measures are based upon individuals' responses to survey questions on whether or not the job they have is the type of job they would like as a career; their level of satisfaction with the kind of work they do; their pay, training opportunities and opportunities for promotion; and how happy they are with their career prospects. As detailed in the support document, logit models, ordered probit models and standard wage equations are estimated in accordance with the nature of the dependent variable measuring each outcome. The support document can be accessed from NCVER's website <http://www.ncver.edu.au>.

# Findings

## Who participates in traineeships?

A picture of the cohort's transition from school to work, at a very general level, is presented in table 1. By 1999, almost all (96.7%) had left school, with roughly equal proportions in work and higher education. By 2002, the most recent year for which data are available, around two-thirds of the cohort were working and one-quarter remained in study. Table 2 shows that traineeships had been a reasonably significant activity for this cohort in the transition from school to work. Participation in traineeships peaked in 1999, the year in which the bulk of the sample turned 18 and the year following the cohort's final year of secondary schooling. Significant numbers had participated in both school-based traineeships and post-school traineeships in earlier years. In each of the years 1997 and 1998, around 10% of those who had left school participated in a traineeship. The incidence of participation in traineeships declines steadily after 1999. By 2002, the final year for which we have data, just under 15% of the remaining sample had participated in a traineeship at some point. It is likely that the cumulative participation rates are actually higher than those recorded here due to the fact that those who had undertaken a traineeship had higher attrition rates in the earlier waves of the survey.

### Comparison of means

To describe the role of traineeships in the transition from school to work, we concentrate on those young people who participated in traineeships during or before 1999. This includes people who completed the final year of schooling and went on to do a traineeship in the following year, as well as those who left school earlier and participated in a traineeship.[1] To gain an appreciation of the characteristics of those who entered traineeships upon or soon after leaving school, we compare the means for a selection of variables for the trainees with four other groups:

- those who left school at the end of Year 10 or before
- those who completed Year 12
- those who entered an apprenticeship by 1999
- those who went on to university in 1999.

Note that the groups are not mutually exclusive. For example, some of those who entered traineeships left after Year 10 and others completed Year 12. Almost all of those who went on to university and one-third of those who entered apprenticeships also completed Year 12.

[1] The interviewing takes place in the last few months of the year so, to be more precise, the data up to the 1999 survey can identify those who had participated in traineeships up until around November.

**Table 1: The transition from school to work: Current activity by survey year, Longitudinal Surveys of Australian Youth**

| | 1996[a] | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| | (Year 10) | (Year 11) | (Year 12) | (Aged 18) | (Aged 19) | (Aged 20) | (Aged 21) |
| **Still at school (%)** | **94.9** | **86.1** | **79.4** | **3.8** | **0.4** | **0.0** | **0.0** |
| Has left school and main current activity is (%): | | | | | | | |
| Working | 1.8 | 9.3 | 14.7 | 43.6 | 46.6 | 56.9 | 63.5 |
| *Doing an apprenticeship* | *0.5* | *2.8* | *2.7* | *6.9* | *8.2* | *6.8* | *2.2* |
| *Doing a traineeship* | *0.1* | *1.1* | *1.7* | *4.9* | *4.0* | *2.3* | *1.7* |
| Study | 0.3 | 1.8 | 1.1 | 44.2 | 40.5 | 33.0 | 25.1 |
| Work and study[b] | 0.0 | 0.2 | 0.1 | 1.4 | 5.8 | 2.5 | 2.3 |
| Looking for work | 0.7 | 2.0 | 3.6 | 4.9 | 4.4 | 4.3 | 4.6 |
| Other | 0.2 | 0.6 | 0.9 | 1.4 | 2.3 | 2.9 | 3.9 |
| Missing | 2.0 | 0.1 | 0.3 | 0.7 | 0.1 | 0.4 | 0.5 |
| **Total left school (%)** | **5.1** | **13.9** | **20.6** | **96.2** | **99.6** | **100.0** | **100.0** |
| **Total (%)** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| Sample number | 9 837 | 10 307 | 9 738 | 8 783 | 7 889 | 6 876 | 6 095 |
| Sample survival rate | 72.3% | 75.7% | 71.5% | 64.5% | 58.0% | 50.5% | 44.8% |

Notes: a Data for 1996 relate to main activity since leaving school and are not strictly comparable to other years;
b Were working and studying, but doing neither full-time.

**Table 2: Respondents who had participated in a traineeship, by year of the survey**

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| | (Year 10) | (Year 11) | (Year 12) | (Aged 18) | (Aged 19) | (Aged 20) | (Aged 21) |
| Participated in a traineeship (no.) | | | | | | | |
| *School-based traineeship* | *na* | *67* | *83* | *na* | | | |
| *Post-school traineeship* | *22* | *147* | *223* | *570* | *294* | *187* | *124* |
| **Annual total** | **22** | **214** | **306** | **570** | **294** | **183** | **124** |
| **Cumulative total** | **22** | **219** | **452** | **884** | **927** | **930** | **906** |
| Completions by year | 1 | 24 | 44 | 118 | 290 | 121 | 50 |
| Cumulative completions | 1 | 25 | 66 | 172 | 424 | 504 | 493 |
| Participation rates (%) | | | | | | | |
| By year | 0.2% | 2.1% | 3.1% | 6.5% | 3.7% | 2.7% | 2.0% |
| Cumulative | 0.2% | 2.1% | 4.6% | 10.1% | 11.8% | 13.5% | 14.9% |
| Respondents | 9 837 | 10 307 | 9 738 | 8 783 | 7 889 | 6 876 | 6 095 |

Note: The annual and cumulative frequencies and percentages for each year are calculated only from the sample of respondents for that year.

**Table 3: Comparisons of means between trainees and other selected groups**

| Variable | Left school by Year 10 | | Trainees | Apprentices | | Finished Year 12 | | Went on to university | | All | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Male | 0.57 | *** | 0.49 | 0.82 | *** | 0.45 | ** | 0.40 | *** | 0.49 | |
| Std. reading tests (score/20) | 11.17 | *** | 12.54 | 11.89 | *** | 14.18 | *** | 15.25 | *** | 13.21 | *** |
| Std. maths test (score/20) | 10.46 | *** | 11.67 | 11.57 | | 13.34 | *** | 14.47 | *** | 12.38 | *** |
| English not first language at home | 0.06 | *** | 0.03 | 0.06 | *** | 0.10 | *** | 0.12 | *** | 0.10 | *** |
| Had a disability | 0.04 | | 0.02 | 0.03 | | 0.01 | ** | 0.01 | *** | 0.02 | |
| Father's occ: manager/ prof./para-prof. | 0.21 | ** | 0.26 | 0.23 | | 0.42 | *** | 0.51 | *** | 0.36 | *** |
| Mother's occ: manager/ prof./para-prof. | 0.18 | * | 0.21 | 0.23 | | 0.32 | *** | 0.38 | *** | 0.28 | *** |
| Father's education: degree or diploma | 0.11 | | 0.13 | 0.15 | | 0.32 | *** | 0.42 | *** | 0.27 | *** |
| Mother's education: degree or diploma | 0.13 | | 0.17 | 0.15 | | 0.29 | *** | 0.37 | *** | 0.25 | *** |
| Self-assess: how doing at school in 1996 (1 = very poorly, 5 = very well) | | | | | | | | | | | |
| ✧ English | 3.20 | *** | 3.41 | 3.22 | *** | 3.77 | *** | 4.02 | *** | 3.63 | *** |
| ✧ Maths | 3.01 | *** | 3.17 | 3.17 | | 3.60 | *** | 3.89 | *** | 3.45 | *** |
| ✧ Humanities and social sciences | 3.09 | *** | 3.34 | 3.24 | * | 3.79 | *** | 4.04 | *** | 3.64 | *** |
| ✧ Economics and business | 3.15 | ** | 3.35 | 3.25 | | 3.75 | *** | 4.01 | *** | 3.62 | *** |
| ✧ Science | 3.00 | *** | 3.21 | 3.24 | | 3.72 | *** | 4.02 | *** | 3.57 | *** |
| ✧ Arts | 3.59 | *** | 3.80 | 3.67 | * | 4.01 | *** | 4.08 | *** | 3.93 | *** |
| ✧ Languages | 2.87 | *** | 3.36 | 3.00 | ** | 3.73 | *** | 3.91 | *** | 3.61 | *** |
| ✧ Technology | 3.67 | *** | 3.84 | 4.00 | *** | 3.95 | ** | 4.05 | *** | 3.89 | |
| ✧ Physical education and health | 3.60 | *** | 3.81 | 3.90 | * | 3.86 | | 3.88 | | 3.83 | |
| Family wealth index (weighted) | 35.83 | | 37.45 | 42.42 | *** | 43.22 | *** | 45.63 | *** | 41.61 | *** |
| Lived in sole-parent home (1997) | 0.15 | | 0.15 | 0.13 | | 0.13 | * | 0.12 | *** | 0.11 | *** |
| Mother lived at home and worked (1997) | 0.54 | *** | 0.64 | 0.66 | | 0.68 | *** | 0.71 | *** | 0.65 | |
| Father lived at home and worked (1997) | 0.63 | *** | 0.76 | 0.79 | | 0.79 | ** | 0.82 | *** | 0.76 | |
| Factors: attitudes towards school (1995) | | | | | | | | | | | |
| ✧ enjoys school | -0.35 | *** | -0.10 | -0.19 | * | 0.12 | *** | 0.25 | *** | 0.00 | *** |
| ✧ gets on well with teachers | -0.25 | ** | -0.09 | -0.16 | | 0.13 | *** | 0.24 | *** | 0.00 | ** |
| ✧ is a good student academically | -0.32 | *** | -0.04 | -0.10 | | 0.12 | *** | 0.23 | *** | 0.00 | |
| ✧ values what is learnt | -0.38 | *** | -0.11 | -0.12 | | 0.18 | *** | 0.37 | *** | 0.00 | *** |
| ✧ finds school a happy and safe place | -0.40 | *** | -0.11 | -0.18 | | 0.14 | *** | 0.27 | *** | 0.00 | *** |

**Table 3: Comparisons of means between trainees and other selected groups (continued)**

| Variable | Left school by Year 10 | | Trainees | Apprentices | | Finished Year 12 | | Went on to university | | All | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Factors: things I would like to do (1996) | | | | | | | | | | | |
| ✧ business person | 0.22 | | 0.14 | 0.72 | *** | -0.07 | *** | -0.18 | *** | 0.00 | *** |
| ✧ handyperson | -0.24 | *** | -0.05 | -0.29 | *** | 0.06 | *** | 0.15 | *** | 0.00 | |
| ✧ problem-solver | -0.05 | | 0.04 | -0.40 | *** | 0.01 | | 0.01 | | 0.00 | |
| ✧ artist | -0.29 | * | -0.21 | -0.20 | | 0.10 | *** | 0.31 | *** | 0.00 | *** |
| ✧ 'people' person | -0.35 | *** | -0.17 | -0.49 | *** | 0.07 | *** | 0.15 | *** | 0.00 | *** |
| ✧ in power | -0.32 | *** | -0.06 | -0.26 | *** | 0.05 | *** | 0.15 | *** | 0.00 | |
| Factors: view of self (1997) | | | | | | | | | | | |
| ✧ extrovert | 0.10 | | 0.05 | 0.12 | | -0.04 | *** | -0.06 | *** | 0.00 | * |
| ✧ easygoing | 0.12 | *** | -0.01 | 0.01 | | 0.00 | | 0.05 | | 0.00 | |

Notes: Maximum number of observations used in calculation of means is 1110 for those who left school by Yr. 10, 962 for trainees, 1187 for apprentices, 6577 for those who completed Yr. 12 and 3238 for those who went on to university. The sample sizes are reduced by missing/not applicable observations, particularly with respect to performance in languages, arts and economics/business subjects at school for which the question is not applicable for the majority of the sample.
***, ** and * denote that the mean is significantly different from that for 'trainee' sample at the 1%, 5% and 10% levels, respectively, according to the standard t-test for the difference in means between two samples.

The means for each group and for the cohort as a whole for a range of variables are reported in table 3, and the meaning and construction of the row variables are given in the following discussion. Unless otherwise indicated in the table, the data for the variables were collected in the 1995 survey. Most of the data come from the 1995 and 1996 surveys, although some items from the 1997 survey are also included. The reason for concentrating upon these early variables is that we are interested in 'exogenous' factors that may influence an individual's decision to enter a traineeship. Many of the variables collected in later waves of the Longitudinal Surveys of Australian Youth, such as labour market status and participation in further education and training, may well have been shaped by the individual's chosen pathway. Some of the variables, particularly those from the 1997 survey, will have been collected after the decision had been made on whether or not to enter a traineeship or other pathway. However, those variables included relate to relatively 'fixed' items, and should not be contingent upon that decision. The results from t-tests of the significance of the differences in the means between the trainees and the other groups are reported.[2]

We can group the variables into three main groups: socioeconomic background; academic performance; and attitudinal or personality traits. With respect to socioeconomic background and academic performance, there is a clear and predictable pattern in the differences in the means. Those who enter traineeships and apprenticeships are quite similar. They have higher socioeconomic backgrounds and performed better at school than those who leave school straight after Year 10 or earlier. On average, however, those who complete Year 12 score better on these measures than do the trainees and apprentices, and those destined to go on to university are a more 'elite' group still.

The measures of academic performance include scores for standardised reading and mathematics tests administered in 1995 and self-ratings of how well the individual is doing in various subjects relative to other students in their year in 1996. With few exceptions, the means for trainees and apprentices sit between those for early school leavers and those who completed Year 12. Interestingly, those who went on to enter traineeships scored significantly higher than those who entered apprenticeships on both the standardised reading test undertaken in 1995 and the self-assessed performance in English in 1996.

[2] In each case these have been calculated comparing the mean for the trainees with those in the other group who did not do a traineeship. For example, the mean for all trainees is tested against those who finished Year 12 but did not enter a traineeship.

## *Socioeconomic background*

Students were asked about the occupation and highest level of education of both parents. If the parents were not currently working, the respondents were asked to describe the job their mother or father had before they stopped working. Unfortunately, there is a considerable number of missing observations for these data. This is partly because occupation was not coded where the response given was 'home duties'. The variables constructed are dummy variables indicating whether the parent had a higher educational qualification (degree or diploma) and whether the parent worked in a managerial, professional or para-professional job. For the latter, we classified those parents for whom 'home duties' was recorded as a zero (non-professional).

No direct measure of wealth or income is available; however, in 1996 students were asked whether there was a range of consumer goods in their home, such as a washing machine, microwave, computer and so on, as well as whether or not they had a swimming pool. Based on the number of these assets present in the home, a 'wealth' index is constructed where items that were less commonly present were given a higher weighting. The index ranges from zero if none of the items was present, to 100 if all were present in the home. We use this wealth index and parents' education and occupation to represent dimensions of socioeconomic status. The 1997 survey also asked whether or not the respondent's mother and father worked, and this question was answered only if the mother or father lived with the respondent.

Compared with those who entered traineeships or apprenticeships, those who went on to complete school and to higher education were more likely to have professional parents, either in the sense of their education or occupations. They also came from 'wealthier' family backgrounds and their parents were more likely to have been working in 1997. On some of these measures, notably the proportion of parents working and the proportion with professional parents, the means for those who were to enter traineeships were significantly higher than the means for the early school leavers. Trainees were also more likely to have come from a sole-parent family and to have had a disability than those who went on to higher education. They are also the least likely of all the groups to have come from a non-English speaking background.

## *Factor scores—personality traits*

In the 1995, 1996 and 1997 surveys different sets of questions were asked, from which we may gain some insight into the attitudes and personality traits of the individuals. In the initial survey, the Year 9 students were asked whether they agreed or disagreed with each of 30 statements relating to school. In 1996 they were asked how much they thought they would enjoy doing each of 18 different activities, such as fixing things, acting in plays, chairing meetings etc. In 1997 they were asked to rate themselves on a set of eight different personality characteristics, such as how popular or outgoing they were, how open to new experiences they were, and so on.

A principal components analysis was carried out to try to identify linear combinations of the responses (factors) that could be used to summarise the patterns of responses between individuals. As always with factor analysis, the choice of how many factors to retain is somewhat arbitrary (Kline 1994). Based on the proportion of variance explained by each factor and how meaningful the combination of highly weighted questions appeared, scores are calculated for five factors relating to attitudes towards school, six factors relating to expected enjoyment in different activities and two relating to self-perceptions. The factor scores calculated are standardised to have a mean of zero for the sample population and a standard deviation of one. For the set of questions relating to the students' feelings about school, the five factors can be summarised as follows:

- *Enjoys schoolwork*: this factor is most strongly correlated with (or 'loads on') agreement with statements such as 'learning is a lot of fun', 'I get excited about the work that we do', 'I like to do extra work', 'I like learning' and so on.

- *Gets on well with teachers*: this factor loads most heavily on the statements 'teachers are fair and just', 'teachers treat me fairly in class', 'teachers listen to what I say' and 'teachers help me to do my best'.
- *Is a successful student*: this correlates with agreement on 'I always achieve a satisfactory standard in my work', 'I am a success as a student', 'I know how to cope with the work' and 'I know I can do well enough to be successful'.
- *Values what is learnt in school*: this loads most heavily on statements such as 'the things I learn will help me in my adult life', 'the work I do is good preparation for my future' and 'I have acquired skills that will be of use to me when I leave school'.
- *Feels happy and secure at school*: this correlates with the statements 'I feel happy', 'I feel safe and secure' and 'I get enjoyment from being here'.

For the series of questions from the 1996 survey on how much the students thought they would like doing different types of activities, we chose the following six factors which appear to describe neatly six different personality types:

- *Business people*: this factor is most strongly correlated with individuals indicating that they would enjoy keeping accounts for a small business, doing the banking, office work and working with figures.
- *Handypersons*: this loads on working with machines and tools; repairing things and building things.
- *Problem-solvers*: this correlates with thinking your way through problems, solving problems and puzzles, helping other people and working with figures.
- *Artists*: these felt they would enjoy writing stories, poems, plays etc., painting or drawing, and acting in a play.
- *People people*: this loads on perceived enjoyment with helping cater for a party, helping other people, going shopping and selling things.
- *Power people*: this correlates with enjoyment of getting other people to do things your way—influencing others, organising or chairing meetings and selling things; and is negatively correlated with an enjoyment of helping other people.

Although we retained these six factors for use in the analysis, it should be acknowledged that the final two factors only explain a relatively small proportion of additional variance (around 5% each) in the matrix of responses. Finally, with respect to the individuals' perceptions of their 'self' as given in 1997, two dominant factors can be identified:

- *Extrovert*: strongly correlated with seeing themselves as being outgoing, confident, popular and open to new experiences.
- *Easygoing*: seeing themselves as being calm, agreeable and hardworking.

The means for the factor scores are reported in the lower part of table 3. The factor scores are standardised to have a mean of zero for the sample population as a whole. The pattern observed for academic performance above is reinforced with respect to attitudes to schooling. Compared with the groups who finished Year 12 and who went on to university, trainees and apprentices had negative attitudes towards school. The differences in the means between the groups are very similar for each of the factors relating to different aspects of the school experience, and as expected, the early school leavers had markedly more negative sentiments towards each aspect of school (in relative terms).

When it comes to what sort of activities they thought they would like doing, the trainees seemed to be business-oriented but not artistic or 'people people' compared with the population as a whole. The results for those who went on to do apprenticeships are quite surprising on these scores—they were very strongly business-oriented but neither problem-solvers nor handypersons. This seems

somewhat counter-intuitive. It may be that the factor we have labelled 'business people' relates more strongly to running one's own business or otherwise being self-employed, which is common among tradespersons. It appears also that trainees, apprentices and early school leavers are relatively more extroverted than those who continue in further education.

## Multivariate analysis of participation in traineeships

There will be multi-correlations between many of these associations and our variable of interest, participation in a traineeship. To assess the independent effect of individual variables on commencing a traineeship (that is, holding the values of others constant), we estimate a multivariate regression.[3] Initially we model the probability of an individual participating in a traineeship at any time during the years from 1996 to 1999, which by and large, coincides with the years from Year 10 through to the year following the cohort's final year of high school. This specification is not ideal for a number of reasons. It is difficult to incorporate year-specific variables—it makes little sense to include an explanatory variable from the 1998 survey in a 'predictive' model when some of the individuals entered their traineeships in 1997 or 1996. Other variables collected, such as the self-ratings of performance in various subjects in 1996, are only available and contingent upon the individual's status in relation to whether or not they have left school, making their interpretation questionable.

Further, traineeships are unlikely to be homogenous as is implied by capturing participation using a single dummy variable. In particular, the traineeships that young people who have completed Year 12 enter may be of significantly higher 'quality' than those that people enter straight from Year 10. Thus in the initial model we include variables derived primarily from 'baseline data', collected in 1995 and 1996. We then proceed to estimate separate models for the participation in a traineeship in years 1997, 1998 and 1999 for the sample of young people who were still at school in the preceding year. Full results for the logistic regression models are reported in table 7 of the support document which can be accessed from NCVER's website <http://www.ncver.edu.au>.

First we discuss the results from the model for participation in any year up to 1999. One exception to the inclusion of only baseline data is the factor scores on personality traits. Although these are based on data collected in 1997, we take them to be 'fixed' characteristics. In any event, neither the 'extrovert' nor 'easygoing' factor scores are significant in the initial model. The results confirm that young people from lower socioeconomic backgrounds and of lower scholastic performance are more likely to enter traineeships. With respect to indicators of socioeconomic background, having a father with tertiary qualifications is associated with a lower likelihood of entering a traineeship at some time from the ages of 15 to 18. The family 'wealth' index, whether entered directly or using quartiles, confirms a negative relationship between our proxy for wealth and traineeship participation. It also appears that young people from non-English speaking backgrounds are markedly less likely to participate in traineeships.

In this model we have included only the results for the standardised reading and maths tests. The coefficients on each of the quintiles show a declining likelihood of participation with the test scores, although only the coefficient on attaining a maths score in the top 20% is statistically significant. In terms of the factor scores, we find that valuing what was learnt at school and enjoying activities which are artistic or involve interaction with other people are characteristics which reduce the probability of entering traineeships. Young people who liked doing business-related activities were more likely to enter traineeships, other things held constant.

The picture we get as we model the probability that those in school in each of 1996, 1997 and 1998 participated in a traineeship in the following year is that these same effects generally persisted up until the final year of school. The inclusion of self-assessed performance in other subjects suggests that participation in traineeships is more common among those achieving poorer results. This is also true of the reading test scores for those in school in 1996 and 1997. The significance of

[3] More specifically, a logit model of the probability of entering a traineeship is estimated. Details on the model specification and the construction of the dependent and independent variables are provided in the support document.

attitudinal and personality characteristics measured in 1995 and 1996 diminishes over time. The 1997 survey asked how strongly individuals felt on a range of positive comments about school. We take an average of the responses to derive a measure of how much the individual liked school in 1997, with a potential range of 1 to 5. Although this variable was not significant in the model for entering a traineeship in the following year (1998), it was in the model for 1999. The coefficient indicates that those with less favourable feelings about school were more likely to enter a traineeship after Year 12. Participation in VET subjects (collected in 1997) was associated with a higher likelihood of entering a traineeship in both 1998 and 1999. Surprisingly, participation in VET subjects in 1998 was not found to be significant in the model for traineeship participation in 1999. We find no significant effect of gender in any of the models.

In the 1997 and 1998 surveys, individuals were asked to indicate how happy they were on a range of aspects of their lives, using a scale ranging from 1 (very unhappy) to 4 (very happy). We tested the effects of responses to a number of these questions in the models, including the individual's satisfaction with their financial situation, independence, career prospects and life at home. Only one of these variables turned out to be significant (at the 5% level), the coefficient indicating that those young people who were happier with their life at home in the final year of school were less likely to enter a traineeship the following year.

To gain an idea of the magnitude of some of these effects, table 4 presents the predicted likelihood of individuals from the cohort having participated in a traineeship up to and including 1999, calculated from the estimated coefficients from the regression model. If all variables are evaluated at their sample means, the predicted likelihood of that 'average' person entering a traineeship is 7.5%. We see, for example, that the model predicts that coming from a home in which English is not the first language reduced the likelihood of entering a traineeship in the transition from school to 2.7%, compared with 8.3% for youth from English speaking backgrounds. The effect of having a father with tertiary qualifications also had a large negative impact on the likelihood of entering a traineeship.

**Table 4: Predicted likelihood of individuals participating in a traineeship between 1995 and 1999, conditional upon selected characteristics (mean likelihood = 7.5%)**

**(a) Dummy variables**

| Variable | No (%) | Yes (%) |
|---|---|---|
| From non-English speaking background | 8.3 | 2.7 |
| Father's education—degree or diploma | 10.4 | 4.8 |

**(b) Continuous variables**

| | 1 Std deviation below mean (%) | 1 Std deviation above mean (%) |
|---|---|---|
| Wealth Index (weighted) (1996) | 9.2 | 6.1 |
| Factors: values learning at school (1996) | 8.6 | 6.6 |
| Factors: things I like to do (1996) | | |
| ✧ business person | 6.3 | 9.0 |
| ✧ problem-solver | 6.7 | 8.5 |
| ✧ artist | 8.9 | 6.4 |
| ✧ people person | 9.0 | 6.3 |

**(c) Test score quintiles**

| | Top quintile (%) | Fourth quintile (%) | Middle quintile (%) | Second quintile (%) | Bottom quintile (%) |
|---|---|---|---|---|---|
| Reading | 6.4 | 7.0 | 8.7 | 8.6 | 8.0 |
| Mathematics | 5.0 | 7.5 | 8.7 | 9.8 | 9.1 |

The effects of the factor scores and wealth are more modest. Note that the values tested for these variables are their mean plus and minus one standard deviation. Thus the range takes in around two-thirds of the sample. Put another way, we are comparing the predicted likelihood of participation for a person from around the 16th percentile of values for that variable with one from around the 84th percentile. Young people from low 'wealth' families are predicted to be around one-and-a-half times as likely to enter a traineeship as a person from a high 'wealth' family (9.2% as opposed to 6.1%). Mathematical ability also appears to have substantial impact, but note that only the coefficient for being in the top quintile of maths scores was statistically significant. Young people within the top quintile of maths scores are predicted to have a 5% probability of entering a traineeship, given that they are 'average' in all other respects. None of the coefficients for the reading scores was statistically significant.

# Traineeships and labour market outcomes

We have seen that traineeships constitute a minor but significant and growing pathway for school leavers. They are utilised predominately by those of lower scholastic aptitude and socioeconomic background, particularly when compared with those who go on to university or into apprenticeships. In this section we investigate how the labour market outcomes of those who undertake traineeships compare with other school leavers. The most common measure used to evaluate the impact of a training program is the program's impact upon earnings. Earnings can only be observed for persons who are in employment at the time of the surveys. Thus we model firstly the impact of having done a traineeship on the likelihood of being employed (as opposed to unemployed) and secondly, conditional on being in a job, we model hourly earnings.

The Longitudinal Surveys of Australian Youth also contain other qualitative measures of labour market outcomes which we will use to assess the quality of jobs individuals gained, and their perception of their labour market circumstances. For those who are currently in work, the 1997 to 2002 surveys ask the employees whether the job they are in is one they would like as a career, along with questions about their satisfaction with a range of other aspects of their job. We look at satisfaction with the kind of work being done, pay, opportunities for training and opportunities for promotion as measures of various aspects of job quality. The questions on general attitudes from these waves of the survey also enquire how happy people are with their career prospects. We utilise these responses as an indicator of wider labour market prospects.

As discussed, the focus of the analysis is upon the effect of participation in a traineeship, rather than having formally completed a traineeship. Re-estimation of the multivariate models shows that the results pertaining to the effect of traineeships are insensitive to the inclusion of additional information on completion in all but two minor instances (see the support document for details).

## Descriptive overview of outcomes

With the available data covering years up until the age of 21, a large proportion of the cohort who went on to higher education or who undertook apprenticeships will still be participating in education and training, or else have had very limited post-education and training labour market experience. The most suitable comparison group available is thus those who did not go on to formal post-school education and training. More specifically, we compare outcomes of those who had entered a traineeship by 1999 or before with those who left school in 1996, 1997 or 1998 (Years 10, 11 or 12) and who did not enter formal education and training in the following year. We identify 2254 young people who left school in one of those three years and did no formal post-school education or training in that year or the following one (334 in 1996, 338 in 1997 and 1582 in 1998). There are 962 individuals identified as having participated in a traineeship up to and including 1999.

Table 5 presents the means of the variables selected to measure labour market outcomes for those who participated in a traineeship and for the comparison group who did not participate in post-

school education and training. A comparison of the means for the two groups suggests that the trainees experienced significantly superior outcomes with respect to their incidence of unemployment and, for those in work, more indicate that the job they have found is the kind of job they would like to have as a career. People who participated in traineeships also appear significantly more satisfied with several other aspects of their work and more content with their future career prospects in the initial years after school. However, such a comparison of simple means does not account for differences in other characteristics between those who entered traineeships and those who undertook no post-school education and training, such as differences in their scholastic ability or socioeconomic background. To estimate more precisely the effect of participating in a traineeship, we estimate multivariate regression models for each of the outcome variables.

**Table 5: Mean labour market outcomes for those who did traineeships and those who left school without going on to further education and training**

| | Left school and no further education and training | | | Entered traineeship | | |
|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2000 | 2001 | 2002 |
| All—unemployed | 9.6% | 7.8% | 6.5% | 8.1% | 4.9%** | 3.6%*** |
| In labour force—unemployed | 10.8% | 9.5% | 7.8% | 8.6%* | 6.1%** | 4.1%*** |
| Employed | | | | | | |
| Hourly wage | $12.12 | $13.49 | $14.90 | $11.41** | $13.80 | $14.76 |
| Want job as career | 36.4% | 41.2% | 42.8% | 55.8%*** | 58.5%*** | 56.0%*** |
| Satisfaction with (1 to 4): | | | | | | |
| ✧ the kind of work you do | 3.25 | 3.27 | 3.24 | 3.32** | 3.35* | 3.30 |
| ✧ the pay you get | 3.10 | 3.09 | 3.07 | 3.07 | 3.08 | 3.10 |
| ✧ opportunities for training | 3.07 | 3.06 | 3.03 | 3.19*** | 3.18*** | 3.09 |
| ✧ opportunities for promotion | 2.96 | 2.93 | 2.91 | 2.94 | 2.96 | 2.89 |
| All—happiness with (1 to 4): | | | | | | |
| *your career prospects | 3.25 | 3.22 | 3.23 | 3.32** | 3.31*** | 3.29* |

Note: ***, ** and * denote that the mean is significantly different from the corresponding figure for the 'no further education and training' sample at the 1%, 5% and 10% levels, respectively, according to the standard t-test for the difference in means between two samples.

## Labour force status

Under the labour force definitions used by the Australian Bureau of Statistics (ABS) and based upon International Labour Organisation conventions, each person in the working-age population can be categorised into one of three main states in terms of their labour market activity: they are either not participating in the labour force or, if they are in the labour force, they are either employed or unemployed. Being unemployed is clearly an inferior outcome to being employed. After all, by definition, those who are unemployed must be actively looking for work. It is customary to compare the incidence of unemployment only among those who are participating in the labour force. It should be noted that non-participation can reflect inferior labour market outcomes, particularly in the case of discouraged job-seekers or people in welfare traps. However, this is not the case where individuals are not participating for reasons such as child rearing, further education and training, or due to preferences for alternative activities to employment. Thus we follow convention by considering the incidence of employment and unemployment only among labour force participants, ignoring any difference in labour market participation rates between those who entered traineeships and those who did not.

To estimate the effect of participation in a traineeship upon labour market status we estimate the probability of being employed as opposed to unemployed in each of the years, 2000, 2001 and 2002. The characteristics included as explanatory variables can be grouped into four categories:

- *Schooling and VET*: in addition to the indicator of traineeship participation we include variables on whether or not the individual completed Year 12 and whether or not they participated in a short course during or before 1999.

- *Early literacy and numeracy*: we include the maths and reading scores from the standardised tests conducted in Year 9. The 'good student academically' factor score derived from the 1995 survey provides an additional control for school performance. It is hoped that these scores capture elements of both acquired and natural ability to perform within school and workplace environments.
- *Socioeconomic background*: controls include parental education, occupational and employment status, whether from a sole parent home or non-English speaking background and the wealth index.
- *Other personal characteristics*: these are captured with the variables for gender, disability and the factor scores for personality traits (1997), activities the individual enjoys (1996) and attitudes to school (1995).

Full results of the logistic regression models are reported in table 8 of the support document to this report. Our principal interest lies in the estimated impact of having participated in a traineeship. The results provide weak evidence that having entered a traineeship at some time up to and including 1999 has a positive effect on the likelihood of being employed in later years or, equivalently, reduces the chance of being unemployed conditional upon participating in the labour force. However, the finding is not robust in statistical terms. The magnitude of the effect is shown in table 6. The effect is largest in the model for 2002 and is significant at the 5% level. For this year the model predicts that the effect of having completed a traineeship is to increase the probability of being in employment by around two-and-a-half percentage points from 95.4% to 97.9% for those in the labour force. Put another way, the impact of having entered a traineeship is to reduce the predicted likelihood of unemployment from 4.6% to 2.1%. For the model for employment status in 2000, the effect of having participated in a traineeship just fails to gain significance at the 10% level, while for the 2001 model, we cannot reject the null hypothesis that the effect is zero at accepted levels of confidence.

**Table 6: Predicted likelihood of being in employment, conditional upon selected characteristics, 2000, 2001 and 2002**

| | 2000 | | 2001 | 2002 | |
|---|---|---|---|---|---|
| All variables evaluated at means | 93.3% | | 93.5% | 96.5% | |
| All evaluated means except: | | | | | |
| ✧ did not complete Year 12 | 90.4% | ** | 92.3% | 96.6% | |
| ✧ did complete Year 12 | 94.4% | ** | 94.1% | 96.5% | |
| ✧ did not participate in a traineeship | 92.3% | | 93.1% | 95.4% | ** |
| ✧ did participate in a traineeship | 94.8% | | 94.3% | 97.9% | ** |
| ✧ did not participate in a short course | 93.4% | | 93.6% | 96.6% | * |
| ✧ did participate in a short course | 78.4% | | 87.2% | 78.1% | * |

Note: ** and * denote statistical significance at the 5% and 10% levels, respectively.

The results also imply a surprisingly small effect of the level of schooling and of the scores in the standardised maths and reading tests at age 14. Having completed Year 12 reduces the chance of being unemployed in 2000—two years later—but in 2001 and 2002 the estimated impact of completing Year 12 is small and insignificant. Reading achievement scores also have a small and insignificant effect in each of the years, while the effect of a higher score in the standardised mathematics test does have a positive effect on employment opportunity, although this is significant (at the 5% level) in the 2001 model only. The estimated effect of having completed a short course is actually to reduce the probability of being in employment by a very large degree. Although this result is significant in one model (at the 10% level in the 2002 model), it is based on a very small number of observations on short course participants. Moreover, it may be capturing other effects associated with participation in a short course, such as periods of unemployment or absence from the labour market, rather than the impact of participation in the course itself.

There are mixed results regarding the effect of socioeconomic background, particularly in relation to parental occupational and educational status. It appears that children from 'wealthier' families do experience higher employment opportunities, particularly in the earlier years after school. The measures of personality traits are not significant in any models. However, there is some evidence that 'people people' do experience higher incidences of unemployment around the ages of 20 and 21, possibly due to high competition for jobs in the service industries to which they may be attracted. We also find that young who are more comfortable in the school environment had better employment opportunities, but those who valued school most for the practical value of what is learnt were more likely to experience unemployment in 2001 and 2002.

It is also possible to include previous unemployment or work experience as explanatory variables in the models. For example, if we include a dummy variable indicating the individual was unemployed in 2000 in the model for 2001, it has a large and highly significant effect indicative of a 'scarring' effect of prior unemployment. However, this presents problems in relation to the interpretation of other variables. For instance, the effect of having participated in a traineeship will then be comprised of its 'direct' effect in 2001 and its effect upon the likelihood of being unemployed in 2000. The coefficient on traineeship participation will be the 'residual' effect of participation conditional upon labour market status in 2000. Our preference is to use the reduced form in which previous labour market variables are omitted. Thus the estimated effect of entering a traineeship is the accumulated effect of traineeship participation on current and intervening labour market experiences.

It should also be remembered that the results are based on estimates for a quite select sample. We have included persons who either entered a traineeship or who left school and did no further vocational education and training in the following year. Thus those who went directly on to university, apprenticeships, or diplomas and associate diplomas at technical and further education (TAFE) institutes are excluded. This may explain why some results are counter-intuitive or not as robust as may have been expected. As a broad generalisation, we are investigating the effect of early literacy and numeracy among a group consisting of those with the lowest reading and maths scores, and the effect of socioeconomic status within a group from lower socioeconomic backgrounds.

## Wage equations

To assess the impact of undertaking a traineeship upon later earnings we estimate the standard wage equation using the log of the hourly wages as the dependent variable in an ordinary least squares regression. As explained above, we do not incorporate variables for prior labour market experience so that the estimated effects on participation in traineeships and other variables represent the full effect of that variable, comprising any direct effect and accumulated effects on labour market experience.

Table 7 summarises some of the estimated impacts from the estimated wage equations (the full regression results are contained in table 9 of the support document). It should be noted that the models underlying these estimates have very low explanatory power, and thus there is a large proportion of variance in earnings for which the models do not account. This is not surprising, considering that the sample is of a group of young people just embarking upon their careers and who are relatively similar in terms of educational background. Further, we are attempting a predictive model based largely on characteristics observed in school and activities immediately following school, and are intentionally omitting much of the information on later labour market experience and job characteristics that would normally be used to capture wage differences. The low explanatory power of the models does not negate the significance levels associated with the estimated coefficients, and the variables are jointly significant according to the standard F-test.

**Table 7: Percentage wage premiums implied from wage equation estimates (significance levels)**

| | 2000 (aged 19) | 2001 (aged 20) | 2002 (aged 21) |
|---|---|---|---|
| Completed Year 12 | +7.3<br>(0.003) | -0.4<br>(0.914) | +4.3<br>(0.181) |
| Participated in a traineeship | -6.2<br>(0.008) | +7.7<br>(0.023) | +5.1<br>(0.083) |
| Participated in a short course | +14.2<br>(0.250) | +7.8<br>(0.703) | -27.7<br>(0.146) |
| Job is part-time | +15.2<br>(0.000) | +13.3<br>(0.000) | +4.3<br>(0.174) |
| **Mean hourly wage** | **$11.20** | **$12.57** | **$13.85** |

Having entered a traineeship is initially associated with lower wages. At age 19, workers who had participated in a traineeship are estimated to have had wages of about 6% less than those who had not participated in a traineeship, and the estimate is highly significant. However, the earnings of the trainees appear to grow more quickly than those of people with no post-school qualifications. Positive wage premiums of 5 to 7% are estimated for the trainees in the following two years, although these estimates are only weakly significant. In contrast, completion of Year 12 is estimated to offer an initial positive wage premium, but this diminishes in the following years.

Working part-time is associated with significant wage premiums in the early years after school, with hourly wages being around 14% higher for part-time workers. This is likely to be a result of higher wages commonly paid to casuals in lieu of other conditions, such as holiday pay and sick leave, and in compensation for greater flexibility in working hours. However, it may be that this initial gain is at the expense of future wages growth. By 2002, or age 21 for the bulk of the cohort, hourly earnings in full-time jobs were no longer significantly different from those earned in part-time jobs. There is no significant difference in wages for those who had completed a short course at a TAFE institute for any of the years, and the estimated coefficient ranges from a sizable positive premium in 2000 to a very large negative premium in 2002. Clearly the small numbers involved preclude identification of an effect with any degree of accuracy.

Among other results from the models, we again find very limited impacts of early literacy and numeracy as measured by the Year 9 tests in English and mathematics. There is also no consistent pattern in the results for the various factor scores. However, young people whose parents have higher educational or occupational status do experience some positive effects on wages, and a premium for males in the vicinity of 6% emerges by 2002 (significant at the 5% level).

## Job quality

Several measures of the quality of jobs young people have taken on are available from the survey data. Each individual who was working at the time of the surveys was asked whether or not the job they have is the type of job they would like as a career. They were also asked to assess their satisfaction with a range of other aspects of their job. For the question relating to whether or not the job is one they would want as a career, we model the probability of responding 'yes', as opposed to not responding 'yes'. This reduces the outcome variable to a one/zero dummy and permits estimation by the standard logit model. Those who did not respond in the affirmative may actually have responded either 'no' or 'unsure/can't say'. Satisfaction was measured on a four-point scale ranging from 'very satisfied', 'fairly satisfied', 'fairly dissatisfied' and 'very dissatisfied'. We use the ordered probit model to estimate the effect of the individual's characteristics on their reported level of satisfaction, concentrating on satisfaction with the kind of work being done, pay, opportunities for training, and opportunities for promotion as measures of various aspects of job quality.

### *Is it a career job?*

The results from the logistic regression models provide strong evidence that school leavers who had participated in a traineeship are markedly more likely to be in a 'career' job when compared

with otherwise similar school leavers who did not participate in a traineeship. This can be seen from the calculated predicted likelihood of the individual indicating that they were in a career job as reported in table 8 (the full regressions results are reported in table 10 of the support document). In each year, around 45% of working individuals considered their current job to be one they would like as a career. However, the estimated effect of having participated in a traineeship is to increase the likelihood of responding positively to this question by almost 20 percentage points in 2000 and 2001 (highly significant) and by about 10 percentage points in 2002 (significant at the 5% level). Thus the effect is of considerable magnitude, but may dissipate over time. Conversely, those who completed Year 12 tended to be less likely to view themselves as being in a career job. In part this is likely to reflect that those who complete Year 12 have higher aspirations with regard to their careers, rather than their being in inferior jobs, relative to those who did not complete Year 12. This effect also appears to diminish over time. Again no impact of having participated in a short course at a TAFE institute can be claimed, due to the imprecision of the estimates.

**Table 8: Predicted likelihood of current job being the type one would want as a career, conditional upon selected characteristics, 2000, 2001 and 2002**

| | 2000 | | 2001 | | 2002 | |
|---|---|---|---|---|---|---|
| All variables evaluated at means | 42.8% | | 47.9% | | 47.1% | |
| All evaluated means except: | | | | | | |
| ✧ did not complete Year 12 | 50.2% | *** | 56.3% | *** | 49.1% | |
| ✧ did complete Year 12 | 39.5% | *** | 44.1% | *** | 46.2% | |
| ✧ did not participate in a traineeship | 36.3% | *** | 40.8% | *** | 43.8% | ** |
| ✧ did participate in a traineeship | 54.4% | *** | 59.8% | *** | 52.6% | ** |
| ✧ did not participate in a short course | 42.8% | | 47.8% | | 47.3% | |
| ✧ did participate in a short course | 43.9% | | 50.3% | | 26.0% | |

Note: *** and ** denote statistical significance at the 5% and 10% levels, respectively.

With respect to the other controls, there is evidence that males settle into their career jobs more quickly than do females. Those with parents in managerial, professional or para-professional occupations—and mothers in particular—are less likely to have secured a 'career' job. Again this is likely to reflect differences in aspirations or expectations, for these young people are very unlikely to have entered such occupations themselves. The reading and maths scores were tested both directly as scores out of 20, and using dummy variables to represent each quintile to capture non-linearity in their effects. No clear pattern emerges either way. Some coefficients on the factor scores for attitudes towards school and for personality traits are significant, but again no consistent influence of these variables is apparent across the different models.

## *Job satisfaction*

As discussed, self-reported satisfaction with various aspects of individuals' jobs was recorded on a four-point scale. An appropriate technique to analyse such data, where the dependent variable takes on a limited number of ordered but discrete possible values, is the ordered probit model. The exact specification is set out in the support document. Models are estimated separately for respondents' satisfaction rankings with the kind of work they do, with their pay, their training opportunities, and with their opportunities for promotion in each of 2000, 2001 and 2002. A drawback of the ordered probit model is that it is very difficult to present the results in a way in which their meaning is intuitively appealing, as we can with the logit model by calculating the predicted likelihood of outcomes under various assumptions. Rather than provide quantitative estimates here, we discuss the major findings with respect to the factors that influence job satisfaction, taking account of the statistical significance and general magnitude of the estimated effects from the models. Detailed regression results are contained in tables 11 to 14 of the support document.

As the means reported in table 5 show, the young people indicated being generally satisfied with these aspects of their working lives. The multivariate analysis confirms that, after controlling as best

we can for other characteristics, having participated in a traineeship does result in young people being more satisfied with the type of work they do in their jobs and with their training opportunities relative to those who undertook no post-school education and training. Although the estimated effects are sizeable and significant in the years 2000 and 2001, equating to the ages of 19 and 20 for the bulk of the cohort, there is no discernible effect by 2002. No effect from having participated in a traineeship is observed on satisfaction with pay or promotion opportunities in any of the years. It is unclear why the observed effects should dissipate by 2002. Obviously the jobs young people gain after entering a traineeship are seen to be of a higher quality in terms of the nature of the work done, and the fact that they are also more satisfied with their training opportunities would suggest they would be likely to experience ongoing improvements in their labour market opportunities. It may be that the effects of other factors begin to take precedence by that age, such as other labour market experiences and changing expectations of working life.

Again there is no identifiable effect of having participated in a short course apart from a degree of dissatisfaction with pay received in 2001, a result that is weakly significant. There is some evidence in these models that completion of Year 12 provides openings into better jobs. The wage equations suggest that completion of Year 12 did result in higher reported earnings, at least in 2000. The young people who completed Year 12 are also more satisfied with the pay they receive in the years of 2001 and 2002, as well as with their promotion opportunities in 2002. However, early literacy and numeracy, as measured by the reading and writing test scores, appear to play a very limited role in determining satisfaction with these aspects of work, as does socioeconomic background.

Males have a tendency to report lower levels of satisfaction than do females. This is mainly in relation to training opportunities, but also to pay and promotional opportunities. In part this may reflect higher career expectations. There is also evidence that young people with disabilities, or at least who reported having a disability in 1995, perceive limitations to their promotional opportunities. Self-reported levels of satisfaction with various aspects of work and life are likely to be influenced by individual personality traits, and the results suggest the factor scores are robust in controlling for such individual characteristics. In a number of the models, people who had positive feelings towards school and those who were relatively extroverted and/or relatively easygoing reported higher levels of satisfaction—as would be predicted.

## Career prospects

The Longitudinal Surveys of Australian Youth ask a series of questions about how happy people are with a list of different aspects of their lives. Responses are given on a four-point scale, ranging from very happy to very unhappy. One of the aspects assessed is happiness with 'your career prospects'. This is the final labour market outcome indicator investigated. It departs from the previous indicators in several ways. First, the question is asked of all survey participants and not just those who are employed. Thus it will include people who, by that stage, may have entered further education or training, and those who may have left the labour force for other reasons. Second, the question is forward-looking in nature. It will provide information not only on individuals' current labour market situations, but how well positioned they are for future labour market success. Persons who spent time in traineeships may well have sacrificed some immediate gains in terms of higher-paying jobs or more labour market experience to invest in a career that offers better long-term prospects. This will also be the case for those who stayed on to complete Year 12, and particularly those who completed Year 12 and then entered a traineeship.

The nature of the scale used to measure responses again invokes the use of the ordered probit model for multivariate analysis, and the full results are reported in table 15 of the support document. As with aspects of job satisfaction noted above, having participated in a traineeship is strongly and positively correlated with the perception of superior career prospects in 2000 and 2001 relative to those who did not go on from school to do further education and training, but not by 2002. Completion of Year 12, too, seems to provide an initial positive effect upon individuals' perceptions of their career prospects, but this effect also disappears as the cohort ages.

A number of the results may be taken to imply that young people from higher socioeconomic backgrounds have more positive perceptions of their career prospects. These include positive and significant coefficients on the variables for father's occupation being professional or para-professional (2001) and on the wealth index (2000 and 2002). Traits associated with being of a positive disposition, including having positive feelings towards school and being easygoing or extroverted, are also variously associated with giving more positive responses about one's career prospects. Young people who scored better on the Year 9 standardised maths test were more positive about their career prospects at around age 19, but this effect also dissipated in the following two years.

# Conclusions

The aim of this report was to assess the effect of a young person participating in a traineeship during their transition from school to work on their labour market outcomes several years on. To do so we compared outcomes between those who participated in a traineeship at some time up to and including age 18—which is up until the year after the cohort is due to complete Year 12—with outcomes for those who left school and did not enter into any formal post-school vocational education and training in the year they left school or the following year. By controlling for other factors that influence labour market outcomes, in essence, we were looking at the outcomes for participants in traineeships and asking what would have happened had those persons not entered their traineeships and instead had left school without immediately participating in further vocational education and training.

Labour market outcomes were assessed over the years of 2000–02, corresponding to the years in which the cohort turns 19, 20 and 21 years of age. Evaluations of labour market outcomes usually concentrate upon wages and employment. On these measures we found that participation in a traineeship does have positive effects on both employment prospects and earnings by age 21, but that earnings are initially lower at age 19 compared with those who did no post-school education and training. The effects are quite significant in magnitude. At age 21 we estimate that those who participated in a traineeship during their transition from school to work were markedly less likely to be unemployed by age 21 and, for those in work, to receive wages in the vicinity of 6% higher than those who did no further education and training.

However, it must be recognised that, for young people in the early stages of their careers, many of their decisions and labour market activities need to be considered from a longer-term perspective. At this transition phase many young people may opt for jobs that do not pay as well, but provide better training, promotional ladders or career paths to a higher earnings potential or to otherwise more rewarding future careers. Thus we also assessed wider indicators of the quality of jobs that had been secured and of future labour market prospects. This provided further evidence that traineeships offer positive rewards, but with the precautionary note that the superior outcomes derived from participation appear to dissipate quite quickly. For people in employment in 2000, having participated in a traineeship in the transition from school to work meant a 54.4% chance of being in the type of job preferred as a career, compared with 36.3% for non-participants. Two years on, the difference remained significant but had halved. The former trainees were more satisfied with the type of work they do and with their opportunities for training at age 19, but no difference is discernible by age 21. Equally, those who participated in traineeships were happier about their career prosects in the years they turned 19 and 20, but not by age 21.

A school leaver in the late 1990s should certainly have been encouraged to take up an offer of a traineeship in the absence of the opportunity to enter university or some other post-school vocational education and training. However, questions remain about the longer-term benefits of participating in a traineeship. It is difficult to say exactly what leads to the pattern of the results we have observed. One explanation is that there is some degree of bias in the attrition from the survey, such that either those trainees with better outcomes or those with no post-school qualifications and inferior labour market outcomes are more likely to drop out of the sample over time. The latter is perhaps the more likely of the two. Alternatively, it may be that traineeships do indeed offer positive short-term rewards but tend not to lead to ongoing enhancement of labour market prospects.

Meanwhile, those who did not participate in post-school education and training immediately after school may have later undertaken activities to improve their labour market prospects and a degree of 'catch up' had taken place by age 21. Indeed a number of policy initiatives that have been implemented, including New Apprenticeships, have been aimed at enhancing the career paths or the links to further formal skill development for those completing traineeships.

The picture will become clearer as data from further waves of the Longitudinal Surveys of Australian Youth become available to researchers. Using data from the same cohort of the Longitudinal Surveys of Australian Youth up until 2000, McMillan and Marks (2003) found mixed results relating to the effects of both school completion and completion of a traineeship on labour market outcomes. Their study reinforces the view we have formed here of the need to distinguish between short-term and longer-term outcomes when attempting to assess the success of different pathways. McMillan and Marks also found the effect of completion of a traineeship upon the likelihood of becoming unemployed to be dependent upon whether or not the participant had completed school (2003, p.89). This suggests there may be some value in further distinguishing between the different pathways that lead to a traineeship, including labour market experiences between leaving school and the commencement of a traineeship.

The estimation of formal models to control for selection into traineeships may also provide different estimates of the effect of participation in a traineeship. In this report we provide an analysis of the factors associated with participation in a traineeship, and have attempted to control for 'observables', such as early achievement in numeracy and literacy, individual personality traits and socioeconomic background. However, formal models to account for selection bias and 'unobserved heterogeneity' have not been attempted.

In addition to assessing the impact of participation in traineeships, we also attempted to model the effect of having participated in a short course at a TAFE institute during the transition from school to work. However, it is clear that the data cannot support this analysis. This is primarily due to the small number of observations on participants in short courses in the sample, which may be a result of a low actual degree of participation within the cohort, incomplete reporting of short course participation by the survey respondents, or a combination of the two.

# References*


ABS (Australian Bureau of Statistics) 1998, *Education and training in Australia*, cat. no.4224.0, ABS, Canberra.

Birch, E, Kenyon, P, Koshy, P & Wills-Johnson, N 2002, *Exploring the social and economic impacts of adult and community education*, NCVER, Adelaide.

Cully, M, VandenHeuvel, A & Goodes, R 2000, *Completed traineeships: A longitudinal survey of outcomes*, REB report 4/00, Research and Evaluation Branch, Department of Education, Training and Youth Affairs, Canberra.

Dockery, A 1996, 'Issues for apprenticeship training in Australia', *Labour Economics and Productivity*, vol.8, no.2, pp.97–129.

Dockery, A & Stromback, T 1997, *The development of the apprenticeship system in Western Australia,* Centre for Labour Market Research discussion paper series 97/4, CLMR, University of Western Australia, Perth.

Grey, K, Beswick, W, O'Brien, C & Ray, D 1999, *Traineeship non-completion*, REB report 1/99, Research and Evaluation Branch, Department of Education, Training and Youth Affairs, Canberra.

Harris, R, Simons, M, Bridge, K, Bone, J, Symons, H, Clayton, B, Pope, B, Cummins, G & Blom, K 2001, *Factors that contribute to retention and completion rates for apprentices and trainees*, NCVER, Adelaide.

Kirby, P 1985, *Report of the Committee of Inquiry into Labour Market Programs* (Kirby report), AGPS, Canberra.

Kline, P 1994, *An easy guide to factor analysis*, Routledge, London.

McKenzie, P 2000, *Pathways for youth in Australia*, working paper no.3, September, Monash University–Australian Council for Educational Research, Melbourne.

McMillan, J & Marks, G 2003, *School leavers in Australia: Profiles and pathways*, Longitudinal Surveys of Australian Youth research report no.31, Australian Centre for Educational Research, Melbourne.

Misko, J, Patterson, J & Markotic, R 2001, 'The value of on-the-job traineeships', in *Australian apprenticeships: Research readings*, ed. N Smart, NCVER, Adelaide.

NCVER (National Centre for Vocational Education Research) 2002, *Annual apprentice and trainee statistics 2002,* NCVER, Adelaide.

——2001, *Australian apprenticeships: Facts, fiction and future*, NCVER, Adelaide.

——2000, *At a glance: Apprentices and trainees in Australia 1985 to 1999,* NCVER, Adelaide.

OECD (Organisation for Economic Co-operation and Development) 1998, *Education at a glance, OECD indicators 1998*, OECD, Paris.

——1999, 'Training of adult workers'*, OECD employment outlook*, OECD, Paris.

Polesel, J, Teese, R & O'Brien, K 1999, *The 1998 VET in Schools cohort: How do their post-schooling destinations compare?,* Department of Education, Employment and Training, Melbourne.

Ray, J 2001, *Apprenticeship in Australia: An historical snapshot*, NCVER, Adelaide.

Teese, R, Polesel, J & Walstab, A 2000, *Who studies VET … and who does not? Some profiles*, Centre for Post-Compulsory Education and Training, Melbourne.

VET in Schools Centre 2001, *A longitudinal evaluative study: The Alcoa Metals and Engineering Traineeship*, VET in Schools Centre, Geelong.


* References refer to both the main report and the support document located on NCVER's website.

# Support document details

Additional information relating to this research is available in *From school to work: The role of traineeships—Support document*. It can be accessed from NCVER's website <http://www.ncver.edu.au>. The document contains:

- Introduction
- Literature review
- The Longitudinal Surveys of Australian Youth and Traineeships
- Multivariate analysis of participation in traineeships
- Multivariate analysis of labour market outcomes


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