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SCHOOL ACHIEVEMENT AND LABOUR MARKET OUTCOMES

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Australian Council for Educational Research

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Literacy and numeracy skills, it has been argued, influence labour market outcomes such as earnings and unemployment. However, achievement in these foundation skills at school has seldom been used in investigations of unemployment. Longitudinal data allow the effects of earlier school achievement to be investigated net of background factors. Higher qualifications are associated with lower levels of unemployment and higher earnings but it has not been established whether this arises from the qualifications themselves or because more academically able young people tend to obtain higher qualifications. Longitudinal data are required to investigate the extent to which qualifications influence employment and earnings.

In addition many aspects of social background and environments are associated with school achievement, school completion and labour market outcomes (Williams, 1989). For that reason the effects of factors such as age, aspects of social background and prevailing level of unemployment need to be incorporated in investigations of labour market outcomes. This paper reports on analyses of the influence of various factors, including school achievement and attainment, on the employment and earnings of young adults. It uses longitudinal data from four cohorts of young people who were followed from school into their twenties over the 1980s and 1990s. More detailed analyses are reported in two research reports (Marks & Fleming, 1998ab).

LITERATURE

Unemployment

Earlier research has established a number of factors associated with the likelihood of unemployment among Australian youth. The main influences are age, gender, ethnicity, region and education. Specifically, "younger" people generally have relatively poor employment prospects, as do young males, those living in rural areas, and those from non-English speaking backgrounds. From a policy perspective, low levels of educational qualifications and poor performance in literacy and numeracy are critical factors to examine in relation to youth unemployment.

Younger people tend to have a higher probability of being unemployed. Miller (1987) reports Census data showing sequential declines in the proportion unemployed by five year age cohorts. More recently, Wooden (1996) and Borland (1997) show that unemployment rates decline in successively older youth cohorts. The most readily apparent explanation for the inverse relationship with age is that older young people are more qualified and thus more employable. However, Chapman and Smith (1992) found that the effect of age remained after controlling for education beyond year 12. Similarly, Miller (1987), commenting on analyses that controlled for educational qualifications, noted that unemployment rates amongst 16 year-olds are about two and half times the unemployment rate for 25 year-olds. Older young people may be more efficient in their job search activities or generally more employable because of their greater experience and maturity.

Young men generally show higher levels of unemployment than young women. Statistics for August 1995 showed that 12.4 per cent of men aged 15 to 19 years were unemployed compared to 10.8 per cent of young women (Wooden, 1996). This is the reverse of the figures for 1980 when 12.7 per cent of 15-19 year old males were unemployed compared to 16.6 per cent of females (Miller, 1987). (These results may be

in part due to the higher participation rates in full-time education of young women compared to young men). The gap between male and female long-term unemployment for the adult labour force appears to have widened between 1970 and 1982 (Trivedi & Hui, 1987). More recent work also suggests that males are relatively worse off. Athanasou et al. (1995) list 'being male' a risk factor for (adult) unemployment.

Unemployment rates for those of non-English speaking background are generally higher than average. Borland's (1997) figures show the unemployment rate for those born overseas was 9.7 per cent compared to 8.3 per cent for the Australian born. For young adults these differences should be less pronounced since language is rarely a problem and they tend to have been educated in Australia. Empirical research shows little or no difference in unemployment experiences between those from non-English and English speaking backgrounds, net of other attributes among Australian young people. Chapman and Smith (1992) report no differences in the probability of leaving unemployment between Australian born youths and those born in non-English speaking countries.

There is evidence that education is important in reducing the likelihood of unemployment. Athanasou et al. (1995) list both having a low level of education and lacking post-school qualifications as risk factors for long-term unemployment. Recent estimates put the unemployment rate for adult men at six per cent for those with a degree, eight per cent for those with vocational qualifications, increasing to over 16 per cent for those who had not completed high school (Borland, 1997). University graduates typically show lower levels of unemployment which may reflect the positive attributes employers judge graduates to have, and relatively buoyant demand in the sectors of the labour market that graduates typically enter. Miller (1987) noted that more years of schooling reduce the chances of unemployment particularly at lower levels. Harris (1996) found that, having a degree or a diploma had a substantial influence on employment versus unemployment for young men but not for young women.

There is a city-rural divide in unemployment. Chapman and Smith (1992) estimated that rural young people were unemployed for an average of 56 weeks compared to 24 weeks for city residents. Earlier work by Eyland (1986) and Miller (1987) also found that geographic location influenced unemployment. These results reflect the greater job opportunities in large cities and the continuing decline in employment in many rural areas.

Recently, literacy and numeracy have been cited as important factors relevant to youth unemployment. The 1997 House of Representatives report on youth unemployment devotes several pages to increasing the levels of literacy and numeracy as a means of improving the employment prospects for Australian youth (House of Representatives Standing Committee on Employment, Education and Training, 1997). An ACER study found that higher achievements in literacy and numeracy at age 14 have substantial positive effects on employment for 19 year-olds (Lamb, 1997). Analysing the data from the 1996 *National Study of Adult Literacy*, Miller and Chiswick (1996) conclude that 'literacy and numeracy skills are inexorably linked to labour market outcomes'. Labour market participation rates decline substantially from the highest literacy skill level group (around 90 per cent) to the lowest literacy skill group (around 61 per cent). The decline is steeper for women than men. There is also a strong relationship between literacy skill and unemployment. For the highest literacy skill level, unemployment rates were around 3 per cent, rising to 20 per cent for the lowest literacy skill group. In this case there were no clear gender differences.

Macroeconomic factors clearly influence the unemployment experiences of individuals. The national unemployment rate is related to both the chances of becoming unemployed and of leaving unemployment. Interestingly, economic downturn effect a rapid rise in unemployment but the decline in unemployment is much slower during

economic recoveries. Using data for the period 1970-1980, Trivedi and Hui (1987) found significant effects of the lagged unemployment rate on the proportion experiencing long-term unemployment. Although the finding that the unemployment rate for the labour force as a whole influences youth unemployment may appear obvious, the strength of this relationship varies among OECD countries (OECD, 1996) and has yet to be fully documented in Australia.

Early success in school, and completion of Year 12, are key influences on the employment and earnings of young Australians in their mid-twenties. Longitudinal data indicate that young people who do not master the foundational skills of literacy and numeracy in the early secondary years suffer higher unemployment and lower earnings a decade or more later. Early school leavers are more likely to be unemployed, or experience marginal attachment to the labour market, in their first years after leaving school than those who complete Year 12 (Ainley, 1997). An unsatisfactory start in the labour market can be difficult to overcome. This is a particular concern in the Australian context where, despite improvements in school completion rates, early school leaving is still largely concentrated among young people from disadvantaged backgrounds.

Earnings

The dominant approach to earnings attainment is human capital theory developed by Becker (1975). In simple terms, human capital theory is based on the idea that individuals make investments in their education and training and are rewarded at a later date by higher incomes. Individuals defer present income and invest in increasing their productive capacities and, according to neo-classical economics, their wages will move to a level in accordance with their marginal productivity.

Education and training are important aspects of earnings for several other reasons. For many professional and increasingly managerial occupations, qualifications are mandatory with specific qualifications leading to specific jobs. Workers with particular skills generally have a higher market value, and either collectively or individually demand higher wages. Awards include specific qualifications in determining wage rates and employers are likely to use educational qualifications when selecting and promoting employees.

Whatever the reasons, a large body of empirical research shows that education is an important influence on wages and earnings. Analysis of Australian data collected in 1986, suggested that each additional year of education increased annual income by approximately \$1500 (Marks, Western, & Western, 1989). Across industrialised nations the rate of income return from additional years of formal education is quite robust, around 10 per cent with the figure for Australia slightly less (McNabb & Richardson, 1989).

Returns to university degrees are higher than the returns to other forms of education. Using 1989-90 income data Gregory (1993) estimates that male employees aged 35-44 years with a university degree earned about 42 per cent more than males who left school at 17. Recent work from the United States suggests that the relative returns to higher education are increasing. However in Australia relative returns to University degrees fell between 1968 and 1990. Similarly the returns to a non-trade diploma have fallen (Gregory, 1995). Gregory also notes that the returns to trade and technical qualifications are considerably lower than returns to degrees and (non-trade) diplomas. The relatively low returns to trade and technical qualifications have been noted elsewhere. Long, McKenzie & Sturman (1996) found that the earnings of apprenticeships and TAFE graduates were about 10 per cent higher than those who had not completed year 12 but similar to year 12 completers.

Experience or years in the work force is commonly employed in analyses of earnings (Tigges, 1988). Within the framework of human capital theory the rationale for including experience is compelling. According to this theory, workers with more experience have better skills and work more efficiently than others, so are more valuable to the employer. Therefore they are paid more in accordance with their greater productivity or alternatively they can attract higher wages due to their superior market position. Even if more experienced workers are not more productive, there are good reasons why they can be expected to have higher incomes. For a start many awards have built in increments so that a worker with more experience in the same job will receive a higher income. In some organisations promotion is automatic given so many years service and promotion invariably means higher incomes. Furthermore, workers with a greater number of years' service in an organisation have had more time to climb organisational hierarchies and gain more highly paid positions.

Although the gender gap differs across industrial nations, on average women receive lower incomes than men do. Studies indicate that the hourly wage rates of women are between 60 and 80 per cent of those of men. Interestingly, the gender gap in income is decreasing in many industrialised nations (Sorenson, 1991). A great deal of research has investigated the causes of the income gap between males and females.

Recently research into income disparities has found that cognitive skill or ability measured during adolescence has a substantial impact on adult incomes (Bedard & Ferrall, 1996; Murnane, Willett & Levy, 1995). Analyses that do not include measures of ability upwardly bias estimates of the returns to educational qualifications by as much as 40 per cent (Blackburn & Nuemark, 1995). Although in this study we use school achievement in literacy and numeracy rather than ability, achievement includes a substantial ability component. For Australian data, Karmel (1995) estimates that the returns to a degree decline by about 30 per cent once achievement is taken into account.

DATA AND METHODS

Data

These analyses are based on data collected as part of the *Youth in Transition* project conducted by the Australian Council for Education Research. The four *Youth in Transition* cohorts were born in 1961, 1965, 1970 and 1975. Each cohort had an initial sample size of over 5,000 respondents. The 1961 and 1965 cohorts were, respectively, the 14 and 10 year-old samples who completed literacy and numeracy tests as part of the 1975 *Australian Studies in School Performance*. The 1970 cohort was the 10 year-old sample that completed similar tests in 1980. The 1975 cohort was specially selected for the study in 1989, when they were 14 years old. They also completed achievement tests in literacy and numeracy. These cohorts were annually sent mail questionnaires, which collected information on their education, labour market, and family situations. The mail questionnaires included a calendar where respondents indicated what they were doing for each month of the year. The non-mutually exclusive categories were full-time work, part-time work, looking for work, home duties, full-time study and part-time study. Comparing the respondents' responses to questions on study, occupation and unemployment provided confirmation of these data. Information from the calendar was used to construct measures of unemployment status in a particular year and unemployment duration. In addition the questionnaires were used to obtain information about the individual and social background (eg family socioeconomic status, non-English speaking background) of respondents.

Measures

A number of measures were derived from these data for the analyses presented in this paper.

Unemployment

Respondents were defined as unemployed if they indicated they were 'looking for work' and were not in full-time employment. If they were also 'looking after a house' or working part-time or studying and indicated that for that month they were also looking for work they were still defined as unemployed. A respondent was defined as unemployed for a given year if he/she was looking for work for three months or more. Measures based on a shorter period of unemployment include too many respondents looking for work over the summer break.

Hourly Earnings

In each questionnaire each year respondents were asked their occupation, the hours they worked each week and their take home pay (after tax and other deductions). Several adjustments were made to the data. Respondents without a job or whose take home pay was missing or zero were excluded for the earnings equations for that year. Respondents for whom hours data was missing but who indicated they worked full- or part-time were assigned 35 and 20 hours worked per week respectively. Respondents who indicated they worked an excessive number of hours per week were reassigned the value 35 for hours worked. Therefore these analyses include both full- and part-time employees as well as the self-employed. Hourly earnings were calculated by dividing take home pay by hours worked. As is common in analyses of income attainment, hourly earnings were converted to the log form and therefore can be conveniently interpreted as percentage effects. Conversion to the log form also reduces the undesirable effects on parameter estimates caused by the high degree of skewness in earnings distributions.

Earlier School Achievement

The respondents' scores on the literacy and numeracy tests they completed when they were either 10 or 14 years of age measured achievement. The achievement measure was constructed by combining scores for reading comprehension and numeracy. Since the tests differ in their level of difficulty, the achievement measures were standardised. The combined measure was standardised to a mean of zero and a standard deviation of one.

Socioeconomic Background

Socioeconomic background was measured by the Australian National University socioeconomic scales ANU2 and ANU3 based on parental occupation. The ANU2 scale was adjusted so that it ranged from zero to one hundred, as does the ANU3 scale. The occupation data refers to a parent's main occupation. Father's occupation was used if available and mother's occupation used whenever father's occupation was missing. These socioeconomic status scales are used widely in Australian research on social stratification and are parsimonious in terms of degrees of freedom (Jones, 1989).

Qualifications

Several dichotomous measures of educational qualifications were constructed to capture the range of educational qualifications available to students in these cohorts. The most important of these for the present analyses was year 12 completion. In addition variables were constructed to reflect whether the respondent had obtain post-school qualifications such as a university degree, a university diploma, a TAFE diploma, a TAFE (non-trade) certificate, apprenticeship or trade certificate, or a qualification obtained at a private institution. Respondents were coded as having a qualification if they had completed a qualification in a previous year. In general population samples, it is a reasonable assumption that qualifications were gained sometime prior to employment. However, in these youth cohorts there is a substantial amount of

movement between study and employment so we needed to establish the temporal sequence. For the 1961 and 1965 cohorts the qualification measures are identical to those used by Long, McKenzie & Sturman (1996). The same procedure was adopted to construct measures of educational qualifications for the 1970 cohort.

Other Measures

Gender was measured as a dichotomous variable with males coded as one and females as zero. Age was calculated from birth year and centered at age 25. Respondents were defined as from a non-English speaking background if both parents were born in a non-English speaking country. A variable distinguishing respondents who lived in a major metropolitan area from other respondents was created. Other variables are categorical and based on self-reported information from respondents. Dummy variables were constructed for the multivariate analyses.

Analytical Procedures

The data from all survey years were pooled for the analyses of earnings and unemployment incidence¹. An identifier for the year the data was collected was included and a repeated measures design was followed. In the analyses of factors influencing unemployment incidence, the parameter estimates are logits or logistic regression coefficients. Logistic regression was used since the dependent variable (unemployed/not unemployed) is a dichotomy. Ordinary Least Squares regression is not appropriate in the case of dichotomous dependent variables. Throughout the text, these parameter estimates have been converted to odds ratios².

The analysis was based on three groups of variables: social background and demographic variables; school variables (school sector and achievement); qualifications (year 12 completion). Other analyses have considered a fourth group of variables concerned with experience in the labour market (Marks & Fleming, 1998ab). The present analyses are limited to the three oldest cohorts since the cohort born in 1975 had not yet spent sufficient time in the labour market for the effects of qualifications to stabilise.

Three models were analysed in order to estimate the total and direct effects of factors influencing labour market outcomes. These groups of factors form a temporal sequence with social background most removed in time from the measurement of unemployment incidence followed by school factors and qualifications. Marks and Fleming (1998ab) also report the effects of including measure of employment experience in a fourth model.

The first model specifies social background factors as influences on unemployment. In these analyses we isolate the total effects of age, gender, socioeconomic status, residence and non-English speaking background on being unemployed for three months or more in a given year. Model 2 adds school factors, specifically school sector and achievement

¹ Combining the data for the whole cohort minimises fluctuations due to sampling and measurement error and provides for parsimony. In addition the effects of missing data are minimised by estimating random rather than fixed effects (Littell, Milliken, Stroup, & Wolfinger, 1996: 115-134). This specification is appropriate since the nature of the data is hierarchical with unemployment status at the level 1 (the repeated measures) and individuals at level 2. The repeated measures model specification provides more reliable estimates of population parameters and the associated statistical tests for both individual and group effects (Littell et al., 1996).

² In the case of continuous variables (such as age, achievement and socioeconomic status) these denote the difference in the odds of being unemployed for a one unit change in the dependent variable. In the case of categorical variables (such as gender or year 12 completion) possession of that attribute is contrasted with non-possession of the attribute. Odds ratios are the exponent of the parameter estimate.

in literacy and numeracy. The results from this model show the total effects of school factors on unemployment incidence. In addition, the effects for the social background factors are the direct effects net of school factors. Model 3 adds educational qualifications. The total effects for educational qualifications are estimated as well as the direct effects of social background, net of school factors and qualifications, and the direct effects of school factors net of qualifications. These total and direct effects are of interest because they show the overall (total) effects of factors such as socioeconomic background, non-English speaking background, attendance at a Catholic or independent school and school achievement as well as their direct effects net of more proximate influences.

INFLUENCES ON YOUNG ADULT UNEMPLOYMENT

Patterns

Table 1 presents the percentage of respondents looking for work by age for the four cohorts. These results show a strong negative relationship between unemployment incidence and age, especially among the two older cohorts for which long-term data are available. As the respondents grew older the proportion looking for work declined. This result is in accordance with research literature. These data suggest that the inverse relationship with age may be weaker among the younger cohorts. It is also evident from Table 1 that unemployment rates for the 1961 cohort are generally lower than for the three later cohorts: exceptions to this correspond to recessions in 1982-83 and 1981-93. The effects of the macroeconomic environment on youth unemployment are clearly evident from these survey data.

Associations

Table 2 shows the relationship between the incidence of unemployment (unemployed for 3 months or more) and background characteristics.

There is little difference in unemployment incidence between males and females. Respondents from non-English speaking backgrounds show a higher incidence of unemployment than other young people, as do young people from non-metropolitan areas. Socioeconomic is related to unemployment incidence. For the 1961 cohort, respondents from professional and managerial backgrounds showed an unemployment incidence of 4.4 per cent compared to 7.1 per cent for those from unskilled manual backgrounds. For the 1965 cohort the unemployment incidence of respondents from unskilled manual backgrounds is twice that of those from professional and managerial backgrounds. The corresponding ratio is about 1.9 for the 1970 cohort and 1.7 for the 1975 cohort.

It should be noted that these results are based on the combined data. The effects of socioeconomic background may be stronger than the figures reported here for younger ages and weaker in the older age groups. The weaker effect for the 1961 cohort compared to the 1965 and 1970 cohorts may therefore be due to the longer time period this cohort has been surveyed.

Table 3 presents the unemployment rates earlier school achievement, high school completion and various post-school qualifications.

School achievement has a strong relationship with unemployment incidence. Respondents with achievement levels more than one standard deviation above the mean showed unemployment rates of 3.2 and 3.9 per cent for the 1961 and 1965 cohorts respectively. This compares with 9.1 and 11.5 per cent for respondents whose

achievement level was more than one standard deviation below the mean. For the later two cohorts the difference increases to about 9 percentage points.

For all cohorts the proportion unemployed is smaller among those who had completed year 12 than for the entire samples. These differences are substantially smaller in the 1961 cohort. In the two older cohorts, apprenticeships, university degrees and diplomas also reduce the levels of unemployment.

Multivariate Analyses

Results from three sets of analyses are presented in Tables 4, 5, and 6. Table 4 includes the results of analyses that include context, background and demographic factors as influences on unemployment. Table 5 refers to analyses that include these factors and also school factors, specifically school sector and achievement. These show the total effects of school factors on unemployment incidence and the direct effects for the social background factors net of school factors. Table 6 adds educational qualifications in addition to these factors. The total effects for educational qualifications are estimated as well as the direct effects of social background, net of school factors and qualifications, and the direct effects of school factors net of qualifications.

Contextual Variables

Overall Employment Rate

Not surprisingly, the higher the unemployment rate for the labour force as a whole, the greater the unemployment incidence for the youth cohorts, other factors equal. For the 1970 cohort, a 1 per cent rise in the overall national unemployment rate increased the odds of becoming unemployed by about 1.1 times. Given that the national unemployment rate varied by several percentage points over the period concerned, this effect is considerable.

Age

Age has a large and significant negative influence on unemployment incidence for the two oldest cohorts. For each year increase in age the odds of being unemployed are between 0.8 and 0.9 times lower. For example, people five years older are on average 1.6 times less likely to be unemployed for 3 months or more. This effect of age is independent of the prevailing overall unemployment rate and, importantly, independent of achievement and qualifications. The effect of age is much weaker in the 1970 cohort although a significant negative effect was found for women.

Background and Demographic Characteristics

Gender

In the 1961 cohort men were more likely to become unemployed than women. They were about 1.5 times more likely to be unemployed for 3 months or longer, net of differences in schooling and qualifications. In the 1965 and the 1970 cohorts the gender differences were not significant.

Socioeconomic background

Young people whose parents were in relatively low status occupations experienced a higher unemployment incidence, other factors equal. The effect of socioeconomic status was weaker when school factors and qualifications were included in the analyses. On average, a 20-unit increase in Socioeconomic status (around one standard deviation on the 100-unit scale) decreased the odds of being unemployed by 0.8 to 0.9 times for each of the three cohorts. Therefore it can be concluded that socioeconomic background status affects unemployment incidence net of school achievement, other school factors

and qualifications. Parents in high-status occupations may have access to resources and networks that improve the chances of their children finding work.

Non-English speaking background

In general there were no substantial differences in unemployment incidence between those from an English-speaking and non-English speaking background, other factors equal (the sample sizes were too small to examine particular ethnic groups). It seems that the higher unemployment incidence reported for those from a non-English speaking background in Table 2 is largely associated with lower school achievement. However, men from non-English speaking backgrounds in the two youngest cohorts were significantly more likely to experience unemployment for 3 or months in a given year.

Area of residence

There were no significant differences in unemployment incidence between those from homes in metropolitan and non-metropolitan areas, other factors equal. The higher unemployment incidence reported for those from non-metropolitan homes in Table 2 is due largely to the fact that they tend to have lower educational qualifications.

School Factors

Early school achievement

Young people who perform well in literacy and numeracy in early secondary school tend to experience less unemployment by their mid-twenties, other factors equal. On average, an increase of one standard deviation in achievement score decreased the odds of unemployment by 0.8 times for the 1970 cohort, and a two standard deviation increase decreased the odds by 0.6 times. (Analyses of the 1961 and 1965 cohorts indicated similar effect sizes.) This result applies after controlling for other factors, including educational qualifications. In other words, even among those who hold the same qualifications, those with higher school achievement are likely to experience less unemployment.

Even though achievement affects school completion and post-school qualifications that in turn affect unemployment incidence, substantial effects of achievement remain after controlling for qualifications. The direct effects of achievement are larger than the total effects for Socioeconomic status. Controlling for employment experience further reduces the effect of achievement although its effects for the 1961 and 1970 cohorts remained substantial and significant. This result shows that achievement also has an indirect effect, influencing employment history, which in turn impacts on unemployment incidence.

School Sector

Attendance at a Catholic school, compared to a government school, tended to reduce the chances of being unemployed. However, the effects were not significant in the oldest cohort (born in 1961). In the younger cohorts, attendance at a Catholic school relative to a government school decreased the odds of unemployment by about 0.8 times. Attendance at an independent school also reduced the odds of unemployment for the two youngest cohorts: the result for the 1961 cohort was not significant.

Qualifications

Completing Year 12

Completion of Year 12 had a substantial effect on unemployment incidence. For the 1970 cohort completing Year 12 reduced the odds of unemployment by 0.6 times compared to those who did not complete Year 12, other factors equal. It is noteworthy that the

importance of completing Year 12 seems to have persisted over time: completing Year 12 decreased the odds of unemployment in the 1961 and 1965 cohorts by 0.8 and 0.7 times, respectively. The beneficial effect of completing Year 12 has been maintained despite the large rise in the percentage of young people with this qualification. Furthermore, the effect of Year 12 completion on decreasing the likelihood of unemployment is independent of the effect of school achievement. This finding suggests that encouraging low achievers to complete secondary school will improve their employment prospects.

Post School Qualifications

The impact of the various post-school qualifications on unemployment incidence was often not statistically significant, after allowance for other factors such as school completion and earlier achievement. Since most of those with post-school qualifications had also completed Year 12, and Year 12 has a powerful downward effect on unemployment, the well-qualified generally do experience lower unemployment overall as shown in the data for unadjusted associations.

Interaction Effects

A variety of interaction tests (not presented) were performed to examine whether the effects of an influence on unemployment change with age. A statistically significant interaction between age and gender was found. Gender differences increased with age. This is not unexpected as women are more likely to move out of the labour force and no longer be classified as being unemployed. The estimates were similar in all cohorts, increasing the odds of unemployment for males (relative to females) by about 1.1 times each year. For a single year this effect is small, but over five years the cumulative effects are substantial. For the most part there were no significant interactions between age and socioeconomic background, having a degree or school achievement. When a significant interaction with age was identified (for example, the effect of socioeconomic status on unemployment in the 1965 cohort) it was generally a decline with age.

In Summary

School achievement (in literacy and numeracy) was found to be a consistent factor in unemployment among young adults. Initial analyses revealed a substantial gap in unemployment incidence between those with achievement scores one standard deviation above the mean and those with an achievement score one standard deviation below the mean. The effects of achievement were confirmed in subsequent multivariate analyses showing that its effect was in addition to its effects on qualifications and school completion. The effects of school achievement on the incidence of unemployment remain until at least the age of 30 even when controlling for post-school qualifications.

Completion of year 12 has a substantial effect on reducing the chance of becoming unemployed for three or more months. Although the proportion of young people completing year 12 has increased during the period investigated, the effect of year 12 completion on unemployment incidence has not decreased in that time. Furthermore, the effect of year 12 completion is independent of the effect of school achievement, suggesting that low achievers should be encouraged to remain at school. These findings suggest the continuation and possible expansion of policies that promote school retention.

Post-school qualifications do not appear to affect the chances of becoming unemployed. This finding was especially surprising for degrees since these are associated with labour market success such as higher incomes. Even when not controlling for employment experience, degrees and other qualifications did not generally reduce the incidence of unemployment. The lower incidence of unemployment for degree holders appears to be due to the fact that almost all degree holders have completed year 12. Our findings suggest

that other qualifications have small effects on unemployment for those youths that did not complete year 12.

A strong influence on unemployment in the 1961 and 1965 cohorts that is not evident in the 1970 cohort is the overall unemployment rate. When the unemployment rate rose, the probability of unemployment within these samples also rose. This relationship is substantial and is stronger in the 1965 cohort than the 1961 cohort. The unemployment rates had very little effect on unemployment for the 1970 sample. There are two explanations for this finding. Either the youth and overall labour market have become more weakly linked or this (1970) cohort has had too little exposure to the labour market for the effects of aggregate unemployment rates to be apparent.

INFLUENCE OF SCHOOLING ON YOUNG ADULT EARNINGS

The extent to which young people perform well in tests of early school achievement, and complete Year 12, affects not only the likelihood of being employed in their mid-twenties, but also their hourly earnings.

Analyses of Correlations

Table 7 presents the correlation coefficients for hourly earnings with a range of social, educational and labour force variables. When considering these results it is worth remembering that these cohorts have had different lengths of time in the labour force so the correlations are not comparable over time. However, the size of the correlations within cohorts can be compared to show which factors have stronger associations with earnings.

The correlations with age are large because of the combination of several effects, seniority, the acquisition of qualifications, and wage inflation. However, these correlations are suggestive of strong ageing and contextual effects. In subsequent multivariate analyses the effect of age remains strong despite controlling for qualifications and time in the labour force.

As might be expected, earnings and gender were correlated, reflecting a gender gap in income: hourly earnings for men are, on average, higher than for women. A rough calculation from this estimate indicates that men's hourly earnings are on average about 12 per cent higher than women's hourly earnings for both the 1961 and 1965 cohorts. The gap is smaller for the 1970 cohort. This is lower than many estimates of the gender gap but here we are dealing with young people with limited time in the labour market.

Socioeconomic background also shows a small correlation with hourly earnings. Further analyses reveal that the correlation was weaker at younger ages and increased, as the cohort grew older: mainly due to the tendency for respondents from higher Socioeconomic status backgrounds to gain additional qualifications.

Completion of year 12 has a moderate correlation with hourly earnings. The correlation appeared to be increasing over time. Subsequent analyses show that within cohorts year 12 completion is associated with higher earnings but the increment declines as the cohort ages. This explains why its effect appears to be stronger in the younger cohorts. Additional analyses showed that there was little difference in the magnitude of the correlation between achievement and earnings for men and women.

The post-school qualification having the strongest correlation with earnings is a university degree. Apprenticeships, TAFE certificates, post-graduate diplomas and diplomas and other post-school qualifications have positive, but slightly lower, correlations with hourly earnings.

In general these findings correspond with the findings in the wider literature. Degree holders earn higher salaries followed by those with other qualifications. The question is to what extent can the size of these correlations be attributed to correlations with other variables. For example, degree holders tend to score higher on the school achievement tests and almost necessarily have completed year 12.

Multivariate Analysis

This section reports the results of the multivariate analyses of hourly earnings. As for the analyses of unemployment incidence three groups of variables were included in these analyses: social background, demographic and contextual variables; school variables (school sector and achievement in literacy and numeracy); and post secondary school qualifications. Table 8 includes the results of analyses that include context, background and demographic factors as influences on unemployment. Table 9 refers to analyses that include these factors and also school factors, specifically school sector and achievement. These show the total effects of school factors on unemployment incidence and the direct effects for the social background factors net of school factors. Table 10 adds educational qualifications in addition to these factors. These analyses allow identification of the direct effects of social background, school achievement and educational qualifications on earnings. The longitudinal data employed here also allow isolation of the effects of age and whether aggregate unemployment and earnings are related in these youth cohorts.

Contextual Variables

Age

The effect of age is considerable showing that hourly earnings increase between 8 and 14 per cent annually. However, this age effect includes both the substantial effects of wage inflation and seniority. The strong yearly increase in earnings for the 1970 cohort is mainly due to seniority since they are moving from junior to adult wages. In contrast the effects for the 1961 and 1965 cohorts are mainly due to the high levels of inflation during the 1980s. The effects of age are similar for men and women.

Overall unemployment rate

Overall unemployment rates had a significant effect on hourly earnings. A one per cent rise in the overall unemployment rate was associated with decreases in hourly earnings: of about four per cent in the 1961 cohort, eight per cent in the 1965 cohort and five per cent in the 1970 cohort. Over all the time periods of these data collections, differences in the unemployment rate had a substantial effect on hourly earnings. There was no difference in this association between men and women.

Background and Demographic Variables

Gender

Males earn more than females, other factors equal, but the gender gap in earnings appears to be narrowing: 14 per cent in the 1961 cohort, 11 per cent in the 1965 cohort and 6 per cent in the 1970 cohort. Further evidence of a decline in the gender gap comes from analyses of specific age groups. These estimates of the gender gap in earnings are lower than estimates for adult population samples but it is important to note that since these cohorts are young, part-time and casual work are included in these estimates. Women are more often employed in part-time and casual work often at relatively high hourly rates.

Socioeconomic and Non-English Speaking Background

Factors such as parents' Socioeconomic status and coming from a non-English speaking home do not have an effect on hourly earnings net of qualifications and other factors.

Area of Residence

Living in a major metropolitan area (while at secondary school) had a slight beneficial effect on hourly earnings. Living in a major metropolitan area increased hourly earnings up to about seven per cent for the 1961 cohort but only about two per cent in the two younger cohorts. Therefore, there are indications that the differences in earnings due to region (defined in this manner) are declining. The lower earnings in non-metropolitan areas are not due to differences in achievement, qualifications or labour force experience. This indicates that persons with comparable endowments earn lower wages in non-metropolitan areas.

School Factors

Earlier school achievement

The analysis of correlations suggested that the effects of school on earnings were moderate and stronger than the effects of socioeconomic background. This was not surprising since higher levels of school achievement are associated with school completion and university qualifications. The more interesting result was that the direct effects of school achievement were statistically significant. School achievement has an effect on hourly earnings, net of qualifications and employment experience. For the 1970 cohort a one standard deviation increase in achievement increases hourly earnings by 4 percent, other factors equal. Furthermore, the effects of achievement appear to be increasing slightly over time (a one standard deviation increase in achievement was associated with higher hourly earnings of 3 percent and 2 percent in the 1961 and 1965 cohorts respectively). The other noteworthy finding was that the impact of achievement on earnings strengthens, as a cohort grows older. Before the age of 22 there was little impact, between 23 and 27 years of age the effects of achievement were moderate, and after 28 years slightly stronger still.

School Sector

Attendance at an independent school or Catholic school had no effect on earnings, after controlling for other factors. However, there were significant total effects on earnings attributable to school type. In the 1961 cohort, young people who attended an independent school enjoyed 5 per cent higher earnings than those who attended a government school. For women in the 1965 cohort attendance at a non-government school increased hourly earnings, by around 9 per cent for independent schools and 4 per cent for Catholic schools. These differences did not remain after the inclusion of educational qualifications in the analysis. Attendance at an independent school may affect earnings only indirectly through qualifications.

Qualifications

When considering the returns to qualifications, it should be kept in mind that the returns discussed here are for the whole survey period for each cohort. Other analyses show that the size of the returns varies according to the age of the respondents. In particular the results for the 1970 cohort may be unreliable given that many people aged 18-24 are finishing qualifications and are in a state of transition.

Completing Year 12

Completion of Year 12 had an effect on hourly earnings, net of school achievement, other qualifications and social background factors. For the 1970 cohort Year 12 increased hourly earnings by 4 percent on average, which was one or two percentage points less than in the 1961 and 1965 cohorts. The impact of Year 12 completion on hourly earnings is stronger for women than for men (8 percent and 2 percent respectively in the 1970 cohort). It may well be that completing Year 12 opens up a proportionately wider range of job possibilities for young women than for young men, since most of the job market is open to men in any case.

Post-school qualifications

University Degree. Having a university degree is one of the major positive influences on hourly earnings, other factors equal (22 percent for the 1961 cohort and 19 percent for the 1965 cohort).

Apprenticeship. Apprenticeships produced increases in hourly earnings: by 6 per cent in the 1961 cohort, by 11 per cent in the 1965 cohort and by 16 per cent in the 1970 cohort. Other analyses indicate that the initial earnings advantage for those who have completed an apprenticeship tends to diminish over time. It should also be noted that apprentices in these cohorts tended not to have completed year 12 so the overall returns to apprenticeships are less than for degrees. It should be noted that although the returns to apprenticeships are lower than for degrees, the rate of return is likely to be higher since the costs of doing an apprenticeship are considerably lower. There are considerable gender differences in the returns to apprenticeship possibly because men are most often involved in the traditional trades, whereas women's apprenticeships tend to be limited to hairdressing and hospitality.

Diplomas. A diploma gained at a University or CAE increased hourly earnings by around 10 per cent in all three cohorts. However, the benefits to earnings from diplomas are generally confined to women. In the 1961 cohort, a diploma increased earnings for women by 15 percent, 12 per cent in the 1965 cohort and 13 per cent for the 1970 cohort. There were no significant effects for men.

Other Qualifications. TAFE certificates and diplomas gained at a TAFE college did not have an appreciable effect on earnings, other things equal. Qualifications gained at a private institution increased earnings by around 5 per cent in the 1961 and 1965 cohorts.

In Summary

These analyses show that earlier school achievement in reading comprehension and numeracy has a moderate impact on earnings. This result is not surprising given that other research has found effects of 'ability' on income. Nonetheless, it is significant that students' scores on tests are associated with higher earnings 10 and 15 years after the tests were taken, independent of educational qualifications and employment experience. Furthermore, the impact of achievement on earnings strengthens as a cohort grows older. As well as intra-cohort increases in the effects of school achievement on earnings, there are indications that its effect is increasing between cohorts. One possible explanation for this finding is an increased importance of skills in the workplace associated with the requirements of modern technology.

Achievement measures have two components, both school learning and underlying ability. It is the balance between these that is important to the policy implications of the effects of school achievement. There is a variety of factors, other than ability, that may affect school achievement such as social background, school sector, teacher quality and school curriculum. However, these factors only partially explain variation in achievement test scores. Part of the variation in school achievement is potentially open to the effects of educational and social policies.

An important aspect of the youth labour market investigated in this study is the gender gap in earnings. In accordance with other studies, there appears to be a narrowing of the gap in male and female earnings over time in these youth cohorts. This conclusion is not surprising given the concern governments have shown about gender inequality in the workforce and the policies instigated to remedy the situation. The gap that remains in this results is net of the effect of differences in qualifications (in these age groups, women tend to have comparable or better educational qualifications than men). These data suggest that the gender gap among young adults is possibly due to occupational segregation or discrimination.

The effect of living in a major metropolitan area while at school remained significant after the addition of educational qualifications and employment experience. To some extent this finding reflects lower wages outside the major metropolitan areas assuming that most respondents from non-metropolitan areas did not migrate to the cities when they entered the labour market. Further analyses would employ measures of the respondents' current address (preferably the address of the place of employment) in order to draw conclusions about the effect of location.

Results from this study confirm the importance of educational qualifications on earnings, although it was difficult to make conclusions about the 1970 cohort because of their limited time in the labour market. The qualification with the largest impact on earnings is a university degree. The returns to degrees found in this study are generally lower than those found in other studies. Gregory (1995) shows that for equivalent cohorts degree holders enjoy between 1.25 and 1.50 times the earnings of year 12 completers that are larger than the estimates presented here. This difference in magnitude possibly reflects larger returns to degrees being shown in the absence of controls for ability. Gregory (1995) also notes that the gap between more and less educated workers widens with age. This study confirms this earlier work which show that trade qualifications and technical certificates are not well rewarded in the Australian labour market (Dockery & Norris, 1996; Gregory, 1995). Our data show that an apprenticeship initially leads to higher returns but not during the mid- and late twenties. Diplomas gained at a University or College of Advanced Education do provide higher hourly earnings especially for women.

The issue of the relationship between the overall unemployment rate and the wages of young people is a contentious one. We found, not unexpectedly, that increases in the overall unemployment rate dampen hourly earnings. However, this does not mean that the converse is true.

This study has shown that early school achievement has a long-term effect on future earnings. It also shows the benefits of apprenticeships, year 12 completion and university or CAE diplomas on earnings during the early career years. Degrees stand out as consistently increasing earnings relative to other qualifications. Furthermore, this study suggests a narrowing of the gender gap in youth earnings over time.

CONCLUSION

Achieving well in school, and completing Year 12, have significant employment and earnings outcomes for young people a decade or more after leaving school. Early school leavers have less chance of securing full-time employment, and a problematic early start in the labour market can be difficult to overcome. From an educational policy perspective, the strongest thrust needs to be preventative: improving young people's foundation skills and providing learning environments that are attractive and relevant to the great majority of the young. Experience in Australia and elsewhere shows that there is no inevitability about the number of early school leavers, and that chances for successful intervention are higher while young people are still in school. Offering a range of pathways suited to differing interests and needs at the end of compulsory

education encourages a higher proportion of young people to remain in education and training. Intensive measures to help early leavers in the labour market can be all the more effective if resources are freed up by keeping their numbers low in the first place.

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Table 1 **Percentage of Cohort who are Unemployed, by Age**

Age	1961 Cohort	1965 Cohort	1970 Cohort	1975 Cohort
17	9.6	12.7	7.6	11.0
18	11.1	14.1	8.5	12.4
19	8.5	9.3	6.5	10.2
20	4.1	6.9	6.0	7.3
21	5.3	4.9	9.4	
22	9.2	5.3	9.4	
23	5.0	5.3	7.0	
24	-	3.2	6.1	
25	2.9	3.3		
26	3.0	5.0		
27	-	5.4		
28	-	3.9		
29	2.7	3.2		
30	3.2			
31	3.0			
32	2.2			
33	2.5			

Note: Unemployment Incidence is defined as the proportion of respondents looking for work for 3 months or more in each year.

Table 2 Unemployment Incidence by Social Characteristics

	Cohort Birth Year			
	1961	1965	1970	1975
All	5.4	6.9	7.7	9.2
Males	5.4	7.0	7.9	9.0
Females	5.4	6.8	7.5	9.3
English Speaking Home	5.3	6.8	7.6	9.1
Non-English Speaking Home	6.0	7.7	9.2	10.0
Major Metropolitan	5.2	5.9	7.1	9.2
Non-Metropolitan	5.7	6.7	8.5	9.2
Socioeconomic Background (Parents)				
Professional/Managerial	4.4	4.7	5.6	7.0
Clerical, Sales	5.0	7.3	8.2	9.4
Trade	5.3	6.7	7.3	9.7
Unskilled/Semiskilled Manual	7.1	9.5	10.5	11.7

Note: Unemployment Incidence is defined as the proportion of respondents looking for work for 3 months or more for each year averaged for the period surveyed.

Table 3 Unemployment Incidence by Qualification and Achievement

	Cohort Birth Year			
	1961	1965	1970	1975
All	5.4	6.9	7.7	9.2
School Achievement				
More than 1 SD below mean	9.1	11.5	13.4	15.4
Mean to 1 SD below mean	7.1	8.8	9.6	10.0
Mean to 1 SD above mean	4.7	6.1	6.7	8.2
More than 1 SD above mean	3.2	3.9	4.4	6.2
Year 12 Completed	4.3	4.8	5.7	7.5
Qualifications				
University Degree	2.4	3.3	8.6	-
Diploma at University	2.2	2.4	4.6	-
Apprenticeship	4.0	3.1	7.0	-
Diploma at TAFE	5.1	6.2	5.6	-
Certificate at TAFE	4.8	6.6	10.0	-

Table 4 Logistic Estimates of Main Effects on Unemployment Incidence - Background Factors

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.16***	-3.08***	-3.31***	-3.33***	-3.11***	-3.24***	-2.84***	-2.56***	-3.02***
Age (Centred at 25)	-0.16***	-0.13***	-0.18***	-0.14***	-0.10***	-0.17***	-0.03	0.00	-0.05*
Male	-0.06	-	-	0.06	-	-	0.11	-	-
Socioeconomic Status	-0.009***	-0.013***	-0.005*	-0.014***	-0.014***	-0.014***	-0.012***	-0.008**	-0.015***
Non-English Speaking Background	0.16	0.14	0.19	0.22 [†]	0.35*	0.08	0.30*	0.47*	0.13
Major Metropolitan	-0.13*	-0.07	-0.18*	-0.13 [†]	0.03	-0.28**	-0.21**	-0.22*	-0.20 [†]
Overall Unemployment Rate	0.17***	0.25***	0.09*	0.21***	0.21***	0.22***	0.08*	0.07	0.09 [†]

Note. [†] 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table 5 Logistic Estimates of Main Effects on Unemployment Incidence Background and School Factors

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.25***	-2.74***	-3.42***	-3.20***	-3.12***	-3.27***	-2.72***	-2.54***	-2.88***
Age (Centred at 25)	-0.13***	-0.12**	-0.14***	-0.13***	-0.10***	-0.16**	-0.03	0.00	-0.05*
Male	0.41***	-	-	0.03	-	-	-0.02	-	-
Socioeconomic Status	-0.005*	-0.011**	-0.003	-0.010***	-0.011***	-0.009**	-0.006**	-0.001	-0.010**
Non-English Speaking Background	0.09	0.26	-0.18	0.19	0.35*	0.03	0.33*	0.62***	0.10
Major Metropolitan	-0.19*	-0.16	-0.20	-0.11	0.01	-0.19 [†]	-0.07	-0.06	-0.10
Overall Unemployment Rate	0.16***	0.19***	0.12*	0.21***	0.21***	0.22***	0.09**	0.08 [†]	0.09*
Catholic School	-0.27*	-0.30	-0.20	-0.26**	-0.09*	-0.39*	-0.26*	-0.34*	-0.20
Independent School	-0.23	-0.35	-0.12	-0.45*	-0.40 [†]	-0.57**	-0.62***	-0.91***	-0.38 [†]
Achievement Test Score (Std.)	-0.33***	-0.35***	-0.30***	-0.27***	-0.15***	-0.41***	-0.31***	-0.25***	-0.37***

Note. [†] 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table 6 Logistic Estimates of Main Effects on Unemployment Incidence - Background, School Factors and Qualifications

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	-3.13***	-2.56***	-3.35***	-3.17***	-2.95***	-3.38***	-2.49***	-2.27***	-2.78***
Age (Centred at 25)	-0.13***	-0.12***	-0.14***	-0.14***	-0.09***	-0.18***	-0.04	0.01	-0.10**
Male	0.40***	-	-	0.03	-	-	-0.01	-	-
Socioeconomic Status	-0.004 ¹	-0.011**	-0.004	-0.009***	-0.009**	-0.008**	-0.004 [†]	0.000	-0.008*
Non-English Speaking Background	0.08	0.23	-0.16	0.16	0.36*	-0.05	0.27 [†]	0.61**	-0.04
Major Metropolitan	-0.16 ¹	-0.11	-0.17	-0.08	0.05	-0.17 ¹	-0.03	-0.05	-0.03
Overall Unemployment Rate	0.16***	0.19***	0.12*	0.21***	0.19***	0.22***	0.08*	0.06	0.09 [†]
Catholic School	-0.23	-0.26	-0.16	-0.22*	-0.04	-0.38**	-0.26*	-0.40*	-0.13
Independent School	-0.18	-0.32	-0.04	-0.38*	-0.29	-0.55*	-0.57**	-0.84**	-0.34
Achievement Test Score (Std.)	-0.28***	-0.29***	-0.23**	-0.22***	-0.09	-0.38***	-0.25***	-0.22**	-0.28***
Completed Year 12	-0.30**	-0.27 ¹	-0.41*	-0.38***	-0.52***	-0.27*	-0.54***	-0.32*	-0.71***
Degree	0.11	-0.03	0.27	0.37*	0.18	0.50*	0.66***	0.60**	0.74**
Apprenticeship	-0.26 ¹	-0.43**	0.59 ¹	-0.34	-0.49 ¹	-0.21	-0.46 [†]	-0.40	-0.40
Ph.D.	-0.64	-0.97	0.17	0.76	0.65	0.95	-	-	-
Other Qualification (Private)	-0.28	-0.49	-0.12	0.01	0.32	-0.02	0.19	0.03	0.29
Certificate at CAE/University	-2.17 ¹	-1.68	-9.20	-0.28	-0.29	-0.26	0.68 [†]	0.91 [†]	0.54
Certificate at TAFE	0.04	0.02	0.09	0.11	-0.28 ¹	0.38**	0.33**	-0.09	0.60***
Post-Graduate Diploma	-0.01	-0.51	0.31	-0.28	-0.43	-0.15	-0.51	0.08	-1.10
Diploma at CAE/University	-0.41	-0.36	-0.39	0.04	0.02	0.05	-0.61	-0.85	-0.40
Diploma at TAFE	0.18	0.00	0.35	0.21	0.58	0.68*	-0.37	-0.17	-0.58

Note. [†] 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table 7 Correlation Coefficients of Hourly Wages with Social Background Earlier School Achievement and Educational Qualifications

Factor	Cohort Birth Year		
	1961	1965	1970
Age	0.77	0.73	0.65
Gender (Male)	0.12	0.11	0.06
Socioeconomic Background	0.08	0.09	0.08
Earlier School Achievement	0.12	0.08	0.10
Year 12 Completion	0.13	0.19	0.17
Degree	0.33	0.30	0.24
Apprenticeship	0.13	0.11	0.15
Certificate at TAFE	0.10	0.08	0.10
Diploma at CAE/University	0.12	0.13	0.12
Diploma at TAFE	0.04	0.05	0.06

Note: These correlations are based on the correlation between earnings and the particular factor in each year averaged for all years the cohorts were surveyed.

Table 8 Effects on Hourly Earnings - Background Factors

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	1.98***	2.11***	1.96***	2.45***	2.53***	2.47***	2.89***	2.98***	2.86***
Age (Centered at 25)	0.11***	0.11***	0.10***	0.12***	0.12***	0.12***	0.15***	0.15***	0.14***
Male	0.12***	-	-	0.10***	-	-	0.05***	-	-
Parental Occupational Status (x10)	0.009***	0.008**	0.010***	0.012***	0.004	0.020***	0.011***	0.009*	0.012***
Non-English Speaking Background	-0.04 [†]	-0.03	-0.05 [†]	0.00	0.04	-0.03 [†]	-0.01	-0.02	0.01
Major-Metropolitan	0.05***	0.05***	0.05***	0.03***	0.05***	0.02 [†]	0.03 [†]	0.01	0.04**
Unemployment Rate for Year	-0.02***	-0.02***	-0.01 [†]	-0.08***	-0.07***	-0.08***	-0.06***	-0.06***	-0.06***

Note. [†] 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table 9 Effects on Earnings - Background and School Factors

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	2.04***	2.17***	2.06***	2.43***	2.52***	2.44***	2.86***	2.95***	2.83***
Age (Centered at 25)	0.08***	0.09***	0.07***	0.12***	0.12***	0.12***	0.14***	0.15***	0.14***
Male	0.14***	-	-	0.10***	-	-	0.06***	-	-
Parental Occupational Status (x10)	0.010***	0.010 [†]	0.010 [†]	0.009***	0.002	0.015***	0.006 [†]	0.006	0.006 [†]
Non-English Speaking Background	-0.03 [†]	-0.03	-0.03	0.01	0.04	-0.03	0.01	-0.01	0.03
Major Metropolitan	0.08***	0.09***	0.06***	0.03**	0.04**	0.01	0.02	0.00	0.03 [†]
Unemployment Rate for Year	-0.04***	-0.04***	-0.04***	-0.08***	-0.07***	-0.08***	-0.06***	-0.06***	-0.06***
Catholic School	0.01	0.00	0.01	0.02	-0.01	0.04**	0.03 [†]	0.02	0.03 [†]
Independent School	0.04 [†]	0.03	0.05 [†]	0.03 [†]	0.00	0.07***	0.03	0.02	0.03
Achievement Test Score (Std.)	0.07***	0.05***	0.08***	0.03***	0.03**	0.03***	0.04***	0.05***	0.04***

Note. [†] 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001

Table 10 Effects on Earnings - Background, School Factors and Qualifications

	1961 Cohort			1965 Cohort			1970 Cohort		
	All	Male	Female	All	Male	Female	All	Male	Female
Intercept	2.00 ^{***}	2.13 ^{***}	2.00 ^{***}	2.38 ^{***}	2.48 ^{***}	2.38 ^{***}	2.75 ^{***}	2.84 ^{***}	2.72 ^{***}
Age (Centered at 25)	0.08 ^{***}	0.08 ^{***}	0.07 ^{***}	0.11 ^{***}	0.11 ^{***}	0.11 ^{***}	0.13 ^{***}	0.13 ^{***}	0.13 ^{***}
Male	0.14 ^{***}	-	-	0.10 ^{***}	-	-	0.05 ^{***}	-	-
Parental Occupational Status (x10)	0.002	0.004	0.001	0.005 [*]	0.001	0.009 ^{***}	0.006 [*]	0.006	0.006 [†]
Non-English Speaking Background	-0.02	-0.02	-0.02	0.01	0.03	-0.01	0.02	0.01	0.03
Major Metropolitan	0.06 ^{***}	0.07 ^{***}	0.04 [*]	0.02 [*]	0.03 [*]	0.00	0.02 [*]	0.00	0.04 ^{**}
Unemployment Rate for Year	-0.04 ^{***}	-0.04 ^{***}	-0.04 ^{***}	-0.07 ^{***}	-0.07 ^{***}	-0.08 ^{***}	-0.05 ^{***}	-0.06 ^{***}	-0.05 ^{***}
Catholic School	-0.01	-0.01	-0.00	0.01	-0.01	0.02 [†]	0.02	0.01	0.02
Independent School	0.01	-0.00	0.02	0.00	-0.01	0.03	-0.00	-0.01	-0.00
Achievement Test Score (Std.)	0.03 ^{***}	0.03 ^{**}	0.04 ^{***}	0.01 [*]	0.02 [*]	0.01	0.04 ^{***}	0.04 ^{***}	0.03 ^{**}
Completed Year 12	0.06 ^{***}	0.04 [*]	0.08 ^{***}	0.04 ^{***}	-0.01	0.07 ^{***}	0.06 ^{***}	0.05 [*]	0.07 ^{***}
Degree	0.18 ^{***}	0.17 ^{***}	0.19 ^{***}	0.17 ^{***}	0.19 ^{***}	0.15 ^{***}	0.03 [†]	0.07 [*]	0.01
Apprenticeship	0.07 ^{***}	0.05 ^{**}	0.12 [*]	0.12 ^{***}	0.10 ^{***}	0.09 [†]	0.15 ^{***}	0.17 ^{***}	0.05
Ph.D.	0.12 [*]	0.19 ^{**}	-0.14	-0.09	-0.07	-0.12	-	-	-
Other Qualification (Private)	0.05 ^{**}	0.02	0.07 ^{***}	0.05 ^{**}	0.05	0.04 ^{**}	-0.05 [*]	-0.07	-0.04 [†]
Certificate at CAE/University	0.06	-0.01	0.11 [†]	-0.04	-0.09	0.01	0.07	0.07	0.08
Certificate at TAFE	0.00	0.03	-0.03	0.02 [†]	0.06 ^{**}	-0.01	-0.04 ^{**}	-0.03	-0.05 [*]
Post-Graduate Diploma	0.00	-0.03	0.03	0.05 [†]	0.04	0.05 [†]	0.10 ^{**}	0.14 [†]	0.09 [*]
Diploma at CAE/University	0.09 ^{***}	0.01	0.12 ^{***}	0.08 ^{***}	0.02	0.11 ^{***}	0.11 ^{***}	0.07	0.12 ^{***}
Diploma at TAFE	-0.00	-0.03	0.02	-0.01	0.07 [†]	-0.08 [*]	0.02	0.00	0.03

Note. [†] 0.10<P<0.05; * 0.01<P<0.05; ** 0.001<P<0.01; *** P<0.001