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ABSTRACT

A study explored relationships between literacy and numeracy achievement (measured at age 14 in junior secondary school) and education, training, and labor market outcomes (measured at age 19). Data were from the Australian Youth Survey, a longitudinal survey of youth interviewed annually on school experiences, post-school education and training participation, and work activities. Participants were 2,128 16-year-olds interviewed first in 1991 and 1992. At age 14, school achievement was measured by reading comprehension and numeracy tests. Findings at age 19 indicated that school completion was strongly related to earlier numeracy and literacy skills; less than 50 percent of boys with poor literacy or numeracy skills completed school; university entry rates depended strongly on literacy and numeracy achievement; numeracy skills were more discriminating for girls, literacy skills for boys; young people with weak literacy and numeracy skills were less likely to enrol in technical and further education courses; participants in apprenticeships were more often low to very low achievers in literacy and numeracy skills; job seekers with weak numeracy and literacy skills experienced the longest periods of unemployment in teenage years and were more likely to experience long-term unemployment; teenagers with good literacy skills far more often worked in white collar jobs, those with poor skills in skilled manual and laboring occupations; average weekly earnings at age 19 were higher for high achievers in literacy and numeracy. (Contains 11 references and 31 figures.) (YLB)

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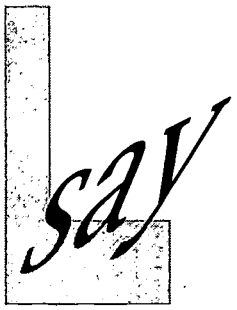

Longitudinal Surveys of Australian Youth

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SCHOOL ACHIEVEMENT AND INITIAL EDUCATION AND LABOUR MARKET OUTCOMES

Stephen Lamb

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a research program that is financially supported by the
Commonwealth Department of Employment, Education, Training and Youth Affairs.

July 1997

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EXECUTIVE SUMMARY

This report looks at the relationships between literacy and numeracy achievement in junior secondary school and a range of education, training and labour market outcomes at age nineteen. It pays particular attention to the education and labour market effects of differences in literacy and numeracy skills. Do the literacy and numeracy skills young people possess early in school influence their chances of survival to Year 12? What about their participation in higher education and other forms of post-school education and training? Do they have any bearing on the likelihood of unemployment or on the types of jobs young people enter? What about on their levels of income and other experiences of young people attempting to make the transition from school to work?

Data to address these issues were derived from the Australian Youth Survey, which is a major longitudinal survey of young Australians interviewed annually on their school experiences, post-school education and training participation, and work activities. The current study was based on 2,128 sixteen year-olds who were interviewed for the first time in 1991 and 1992. The findings relate to their experiences until the age of 19.

Early school achievement was measured from reading comprehension and numeracy tests that respondents completed when they were in the junior years of secondary school (at age 14). Results were used to examine differences in school completion, entry to higher education, entry to technical and further education, unemployment experiences, type of work gained and levels of income.

Key findings are:

School completion

- Staying at school to Year 12 is strongly related to numeracy and literacy skills. Low achievers have much lower chances of completing school.
- Fewer than 50% of boys with poor literacy skills (in the bottom fifth of achievement) complete secondary school. Over 90% of boys with strong literacy skills (in the top fifth of achievers) stay on to Year 12. The gaps related to numeracy skills are similar.
- Girls generally are more likely to complete school, but those with weak numeracy skills survive to Year 12 far less often than those with average to strong skills.
- Girls with weak numeracy skills are more at risk of early leaving than girls with weak literacy skills.
- The likelihood of completing school is also affected by parent's socioeconomic status, the type of school attended and language background.

Entry to higher education

- University entry rates depend strongly on literacy and numeracy achievement. Less than one in twenty boys with poor literacy skills (in bottom fifth of achievers)

enrols in university compared to over one in two with good word skills (in top fifth of achievers). Similar size gaps exist for females.
- Numeracy skills are more discriminating for girls and literacy skills for boys.
- There are large differences in university entry for males and females. Young women are now enrolling in much larger numbers at every skill level.
- Entry to university also depends strongly on family social background, type of school attended, and language background. Other things equal, rates are significantly higher for teenagers from high socioeconomic status backgrounds, those attending private schools, and those from non-English speaking families.

Entry to TAFE and participation in apprenticeships and traineeships

- Entry to TAFE is far broader than entry to university, with participants drawn from a wider range of achievement levels.
- Young people with weak literacy and numeracy skills are still less likely to enrol in TAFE courses than those with strong skills.
- Females entering TAFE tend to have average to above average literacy skills, but they also tend to have weak numeracy skills.
- Male participants are more often drawn from average achievers.
- Participants in apprenticeships are more often drawn from the pool of low to very low achievers in terms of literacy and numeracy skills (as measured by achievement in junior secondary school).

Unemployment

- Young people who experience the longest periods of unemployment in their teenage years are those who possess the weakest literacy and numeracy skills.
- Job seekers with weak numeracy and literacy skills are also more likely to experience long-term unemployment.
- Low school achievers are also more often unemployed at age 19 than high achievers.
- Durations of unemployment are longer for young people who do not complete school and for those from lower socioeconomic backgrounds.

Type of work

- The types of jobs teenagers take up depend on their levels of early school achievement.
- Teenagers with good literacy skills (in the top fifth of achievers at age 14) far more often gain employment in white collar jobs (clerical, professional and managerial, sales).
- Teenagers with poor literacy and numeracy skills more often work in skilled manual and labouring and related occupations.
- There are large gender differences in employment, reflecting gender segmentation of the labour market.

Wages

- Average weekly earnings at age 19 are higher for teenagers who were high achievers in literacy and numeracy during junior secondary school.
- Earnings on average are greater for males than for females.
- Gaps in earnings are also related to where young people live, the schools they attend and their social background.

The findings suggest that schools have a critical role to play in helping young people gain successful entry to Australian labour markets. An important issue for schools is the need to establish and maintain high levels of general achievement and to ensure that young people from all backgrounds are able to reach those levels. While raising levels of literacy and numeracy will not necessarily guarantee young people well-paid and secure jobs, it will help improve their chances of completing school and accessing a wider range of post-compulsory pathways and, in the longer term, achieving more secure careers.

1

INTRODUCTION

Failure to attain basic skills of literacy and numeracy is a major educational and social issue. Recent work suggests that the failure to achieve mastery of literacy and numeracy skills may involve up to a third of all Year 9 students (Marks and Ainley, 1996). Furthermore, the rates of performance are not evenly spread with poor achievement more often experienced by young people from lower socioeconomic backgrounds, those attending government schools and those of Aboriginal and Torres Strait Islander backgrounds (Young, 1994; Marks & Ainley, 1996; Bourke & Keeves, 1978). The effects of achievement have been highlighted in research looking at the relationships with young people's progress through school. Differences in reading achievement and the learning of numeracy skills are linked to differences in levels of study, the subjects undertaken in the senior years, the final grades that are achieved, as well as general academic progress (Ainley & Sheret, 1994; Ainley, Jones & Navaratnum, 1990). Moreover, students' perceptions and values, confidence and self esteem, motivations and horizons, trajectories and reported quality of school experience are related to their achievements in the key learning areas. But the effects are not limited to school progress and outlooks. Because of these initial effects, differences in literacy and numeracy performance are likely to be linked to differences in post-school education and training opportunities, as well as labour market experiences, career paths, and levels of income. Early school achievements, in short, are likely to have lasting education and employment effects.

The aim of this report is to document some of these effects. It will look at the relationships between early school achievement (measured by numeracy and reading comprehension test results) and education, training and labour market outcomes at age nineteen. The outcomes to be measured cover the following six areas: (1) completion of school, (2) entry to higher education, (3) entry to technical and further education including apprenticeships and traineeships, (4) unemployment, (5) type of work entered, and (6) income. The report will examine the relationships between these outcomes and early school achievement taking account of individual, school and social background differences (socio-economic status, rurality, ethnicity, gender, school type).

Data used in the study are from the *Australian Youth Survey* (AYS) which is a major longitudinal survey of young Australians set up to provide policy-relevant information on young people's education and training pathways as well as their access to and success in the Australian labour market. AYS began in 1989 with a nationally representative sample of 5,500 teenagers aged 16 to 19. A new nationally representative sample of 16 year olds was added each year from 1990 to 1994. The main aim of the survey is to monitor the experiences of young people

as they make the transition from school to work. Information is collected annually on school experiences, post-school education and training participation, and work activities.

The data used for the current analysis comprised the 2,128 sixteen year-olds who took part for the first time in the survey in 1991 and 1992. The report is based on their experiences until the age of 19 (in 1994 and 1995). Early school achievement is based on the results from reading comprehension and numeracy tests administered when respondents were 14 years old. For the purposes of comparison in this report, the results were grouped as five levels (on the basis of quintiles) to represent very high achievement, high achievement, average achievement, low achievement and very low achievement.

2

SCHOOL COMPLETION

After a period of substantial and sustained growth in the proportions of young people completing school during the 1980s, recent years have seen a marked downturn. Nationally the proportion of young people remaining to Year 12 grew from approximately one-third at the beginning of the 1980s to a peak of 77% in 1992. Since then it has fallen annually, dropping to a rate of 72% in 1995 (Australian Bureau of Statistics, 1996). These trends in school completion have been based on long-term social and economic influences. The influences include changes in industry and occupational structures, shifts in the full-time and part-time labour markets for young people, and changing perspectives on the importance of school. Policy factors, such as changes in AUSTUDY funding, the expansion of higher education places, and changes to curriculum and certification, have also played a role.

The samples used in this study were surveyed for the first time at sixteen years of age when the national rates of retention had reached their highest levels (1991 and 1992). Apparent retention to Year 12 at this time was over 75%. The rate of school completion for the sample in this study was 76.2%. However, as Figures 1 and 2 show, despite the high level of overall completion there were substantial differences in rates of completion for different groups of young Australians.

Among boys, the biggest differences in school completion are related to early school achievement. Fewer than 50% of very low achievers in numeracy and literacy complete school. Conversely, almost 90% of very high achievers complete secondary school. There is a steep achievement gradient in school completion: as we descend the achievement scales rates of school completion fall away dramatically. Young people with poorly developed word and number skills more often leave school early. The gaps between achievement levels are substantial.

School completion rates do not depend only on achievement. Social background and school type are related to differences in completion rates. Approximately 81% of boys from professional and managerial occupational backgrounds complete Year 12 compared to 65% for those from unskilled manual origins. A similar gap separates non-government and government schools. Differences related to living in a rural or an urban setting are smaller, though, as has been the case historically in Australia, school completion rates are higher in the city than in the country.

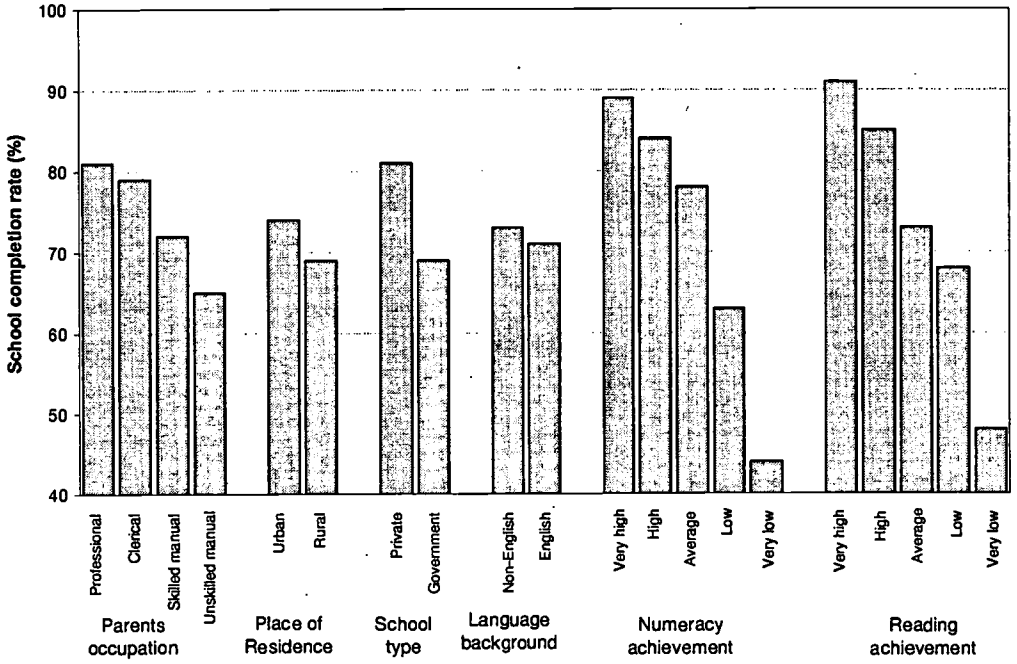


Figure 1: School completion rates for males by achievement and selected background characteristics (%)

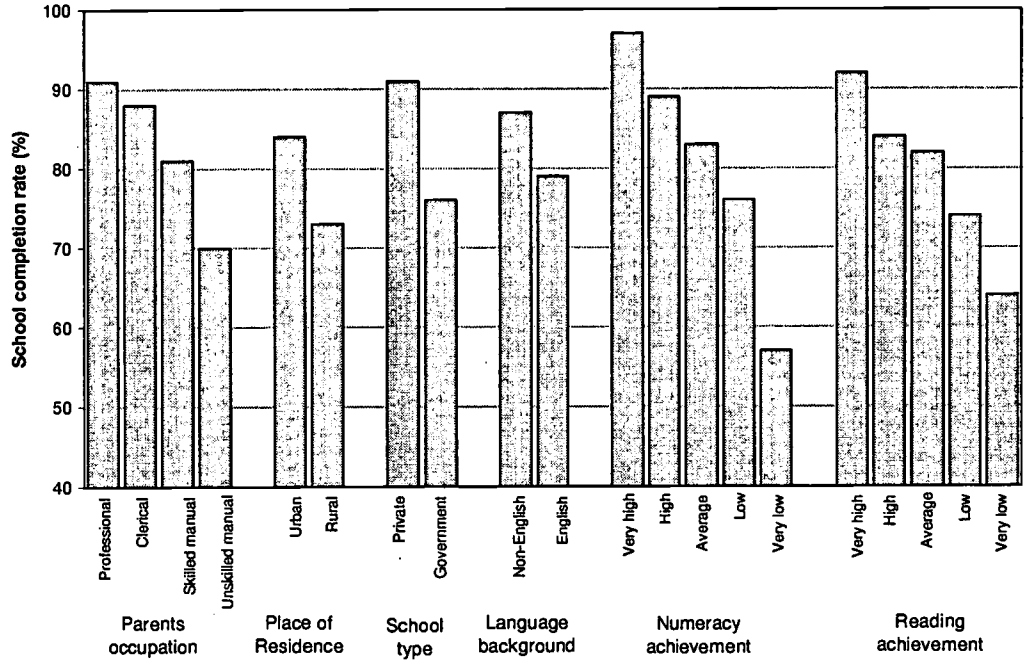


Figure 2: School completion rates for females by achievement and selected background characteristics (%)

In examining completion rates for girls it has to be kept in mind that the average rate of completion is almost nine per cent higher for females than for males (81.1% as against 71.8%). Higher retention rates for girls have existed in Australia since the mid-1970s and reflect, in part, comparatively low access to apprenticeships and a more severe deterioration in labour market opportunities.

Despite higher rates of school completion for all groups of girls, retention remains uneven. Figure 2 shows that there are major differences based on early school achievement. More than 43% of the lowest achieving girls in numeracy leave school prior to Year 12. This is set against fewer than five per cent for the highest achievers. The gaps in completion across levels of achievement in numeracy are large -- as large as they are for boys.

Differences related to reading comprehension are not as large, though still substantial. Poor readers (very low achievers in reading) have a completion rate that is almost 18% below the average for girls and almost 30% below the rate for very high achievers.

As well as achievement differences, Year 12 completion varies by socioeconomic background, region and type of school. The social differences are if anything sharper for females than for males. More than 20% separates girls from unskilled manual backgrounds and those from professional and managerial origins. School sector differences are also strong. Over 90% of girls in non-government schools complete Year 12 compared to about 75% in government schools. Following an established trend, girls from non-English speaking backgrounds more often complete school than girls from English-speaking families. A similar pattern exists for girls living in urban areas rather than in rural parts of Australia.

Of course some of these differences are interrelated and some fall away once we take account of the influence of different factors. This becomes apparent in comparing the predicted probabilities of school completion for children from different social, geographical and school backgrounds and with different levels of achievement. These are displayed in Figures 3 and 4. The probabilities are derived from logistic regression analyses and show the independent effects of each attribute after controlling for the other factors. Factors which significantly increase or decrease the likelihood of school completion are marked with an asterisk. The rate of completion for the control group in each analysis (young people with average levels of achievement in numeracy and literacy at age 14, attending government schools, living in urban areas, from English-speaking backgrounds, and with parents in intermediate non-manual jobs) is marked with the line at zero. Deviations below this line represent factors that reduce chances of completion, whereas deviations above the line are those that increase chances.

The strongest predictors of school completion for males are the achievement measures. Other things equal, being a very low achiever in numeracy decreases the chances of completing school by 20 percentage points. Boys who have poor numeracy skills have significantly lower chances of remaining in school until Year

12. However, while poor numeracy skills reduce chances, very high achievement does not necessarily improve chances. The probabilities of school completion for high achievers in numeracy are not significantly greater than those of average achievers. This is not the case for literacy skills, however. Having strong literacy skills (very high reading comprehension achievement) significantly increases the likelihood of Year 12 completion compared to average achievers: chances improve by 10 percentage points. At the same time the failure to achieve average literacy skills in reading significantly reduces the likelihood of surviving to Year 12 -- by 13.5% for very low achievers.

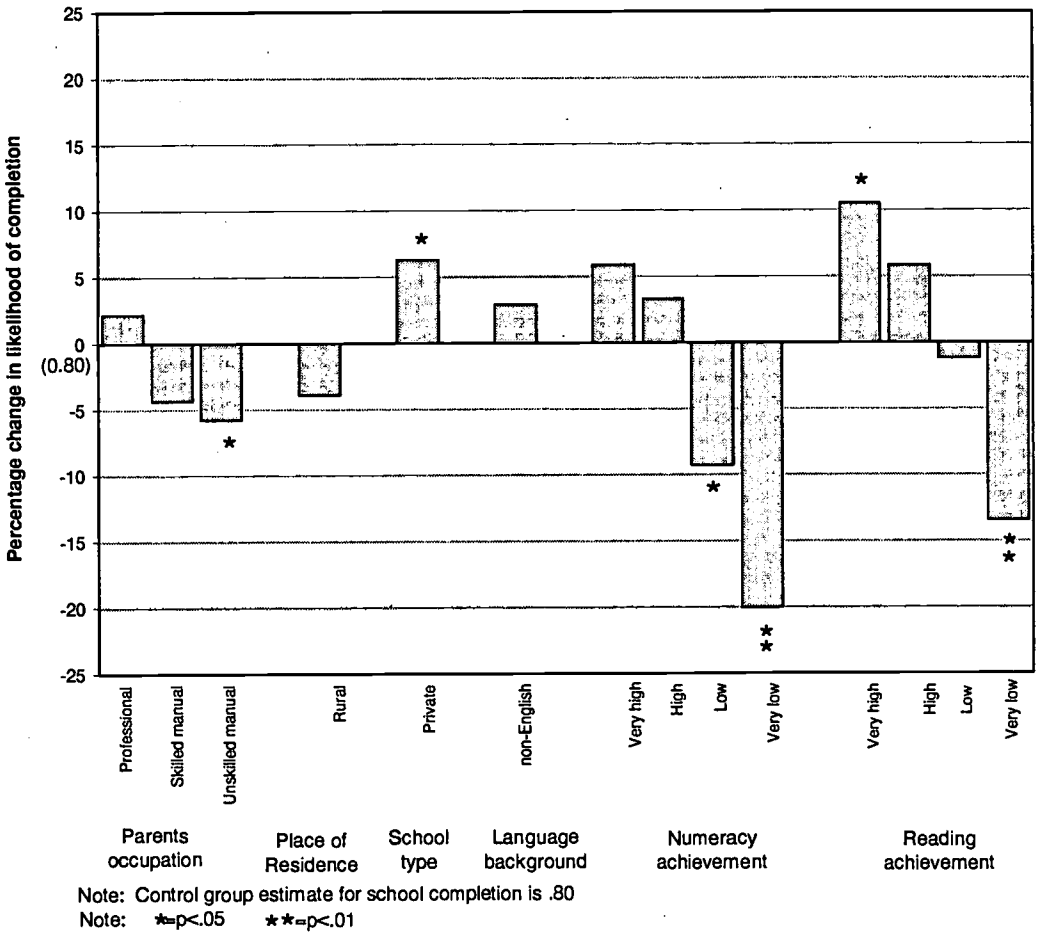


Figure 3: Percentage change in likelihood of completing school: males

In summary it seems that irrespective of their social background, the type of school they attend or where they live, poor achievement in reading and in numeracy significantly reduces boys' chances of school completion.

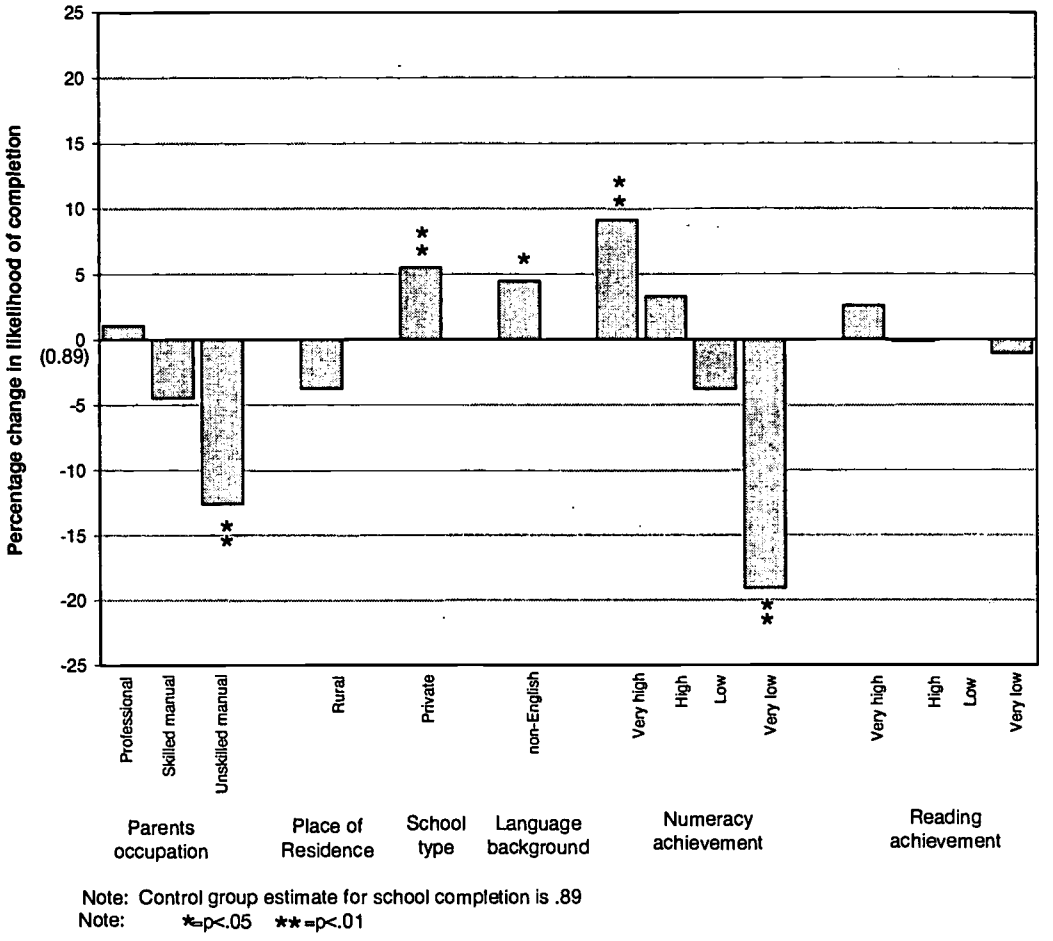


Figure 4: Percentage change in likelihood of completing school: females

For girls, the likelihood of school completion is linked to family background and non-government schooling. For example, girls from families in which parents have unskilled manual jobs are significantly less likely to complete school, other things equal (by 12.5 percentage points).

The strongest relationships are with achievements in numeracy. After allowing for the influence of other factors, girls who achieve very high levels of number skills significantly increase their chances of completing school (by almost 10 percentage points) whereas girls who do not achieve well in numeracy (very low achievers) reduce their chances by almost 20 points. This pattern does not hold for literacy -- literacy achievement does not exert an independent influence on the likelihood of completing school for girls, after allowing for the influence of other factors. The finding may be due to the problem of multicollinearity (i.e. an artefact of the regression analysis). The literacy and numeracy achievement scores are highly correlated and in the regression analysis the effects of literacy could be

weakened by the inclusion of the numeracy measure.[1] This problem did not seem to influence other outcome results for girls where strong independent effects of reading achievement were recorded. This suggests that other factors need to be considered to help explain the weak effects of reading achievement on school completion.

The weak effect of literacy on female rates of school completion runs counter to the results for males. It suggests that literacy skills are less critical than numeracy skills for girls in deciding on whether to remain at school or not. This may reflect a more important role of mathematics in shaping girls' school plans. Compared to boys, girls tend to have lower levels of participation in mathematics, particularly advanced maths, in the senior years of secondary school and are less often represented in the high bands of performance. Boys' results tend to be weaker in English and humanities subjects (Teese, McLean & Polesel, 1993). Mathematics, therefore, may play a more critical role for girls in forming views about their own abilities, their chances of success in school and their decisions to leave school early or not. Alternatively, literacy achievement plays a more critical role for boys than for girls.

Success in the learning of numeracy and literacy skills is fundamentally linked to staying at school to Year 12. The drop-out rates among young people with poor word and number skills point to the need for a different set of assumptions to guide plans to improve participation in school. In the past much of the effort to improve retention has focused on expanding the range of options in the senior school curriculum. The aim has been to offer a much wider range of subjects to cater for more diverse groups of students. While this may have been successful in the past, the recent downturn in school completion suggests that offering more diverse options is no longer an effective strategy. Rather, future efforts will have to address the issue of *quality of learning* in school. With completion rates below 50% for the lowest achievers, plans to help increase rates of retention must confront the problem of how to improve literacy and numeracy skills and raise general levels of performance.

[1] The problem of multicollinearity may influence the size of other estimates. For example, strong correlations are likely between school achievement and social background. The effects of social origin are likely to be transmitted through achievement. In the regression analysis the stronger achievement estimates could weaken the influence exerted by social background.

3

ENTRY TO UNIVERSITY

A major area of growth in education over the last decade in Australia has been higher education. A much higher proportion of young people enter higher education today than did so a decade ago. Growth has resulted from two major trends. First, there has been a massive expansion in the number of places made available to young people. Across the 1980s the number of places offered by universities increased by about a third. Secondly, there has been a substantial increase in the numbers of young people completing Year 12. More and more young Australians have been completing school and qualifying for entry to higher education. This has led to increased demand for university places, a demand which now exceeds supply.

Despite the high level of overall growth, substantial differences remain in patterns of entry. As Figures 5 and 6 show rates of entry vary by occupational background, type of schooling, language background and early school achievement. It is important to note that what is measured here is not the transition rate from Year 12 to higher education but the rates of participation for the national sample of 16 year-olds. The question being asked is "what proportion of 16 year-olds enter higher education by 19 years of age"?

There are important social differences. For both boys and girls, the lower the social status (measured by parental occupation) the lower the rate of entry to higher education. About 60% of girls from professional family backgrounds take up places in university compared to 25% of those from unskilled manual origins. There are also substantial differences based on type of school attended. Young people in non-government schools more often progress to higher education.

But by far the largest differences are based on numeracy and literacy achievement. The results show that if students are low achievers they do not go to university. About one in fifty boys from the lowest achieving group in literacy take up a place. Among high achieving students, on the other hand, about one in two boys and two in three girls enter university.

In some respects these results are not surprising. We might expect school achievement to be strongly related to the take up of university places. Universities, after all, are places concerned with training the best and brightest for future professional roles in industry, business and the community more broadly. However, the size and direction of the relationships between early school achievement and university entry displayed in Figures 5 and 6 suggest that schools

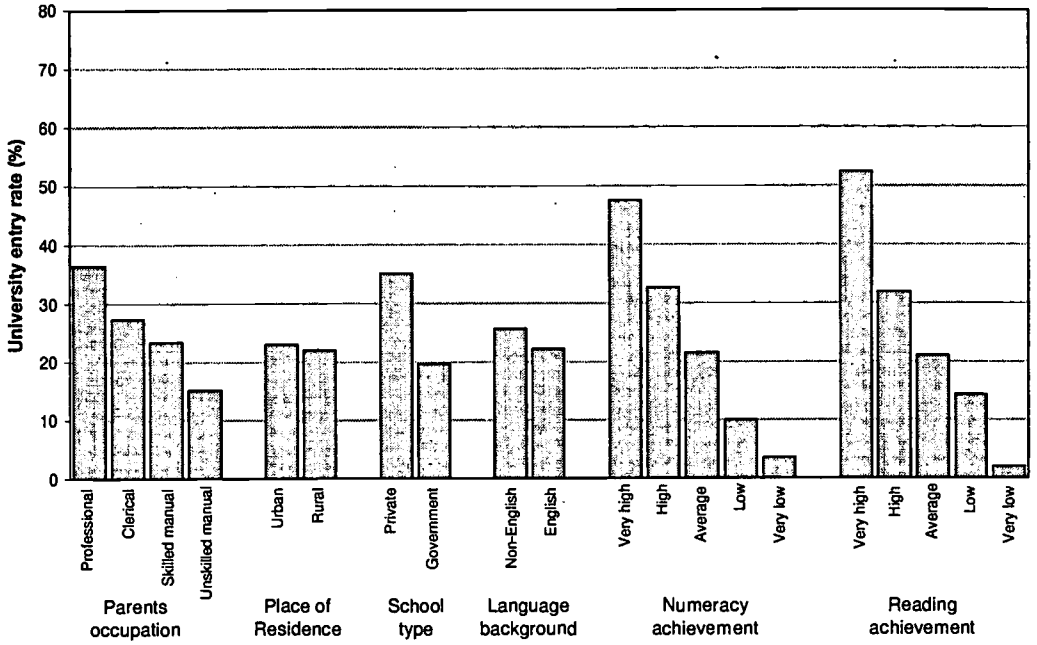


Figure 5: University entry rates for males by achievement and selected background characteristics (%)

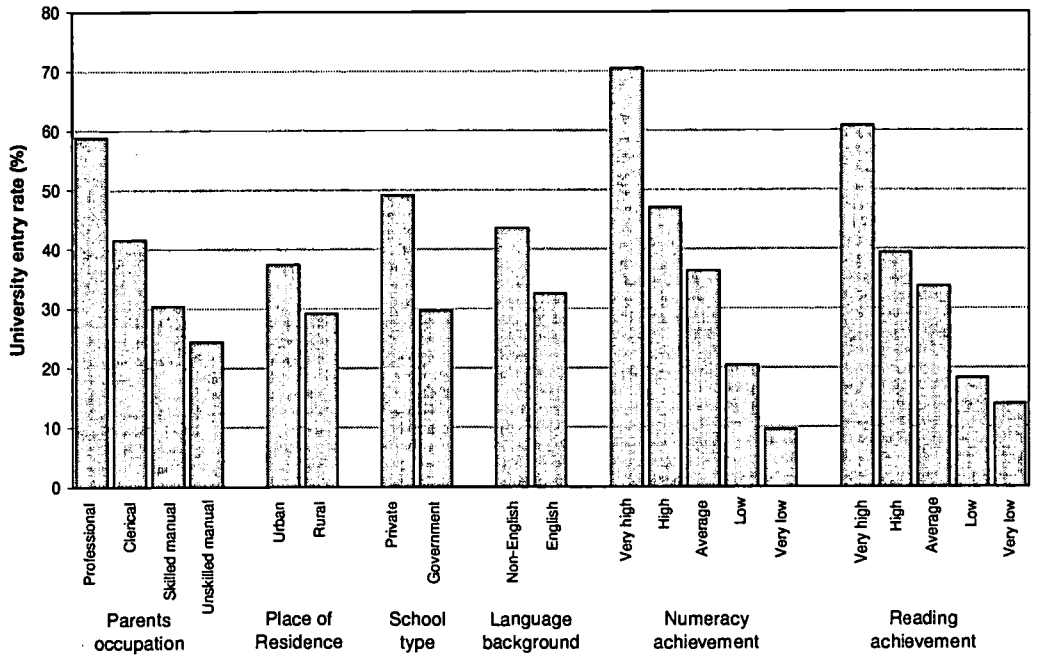


Figure 6: University entry rates for females by achievement and selected background characteristics (%)

do very little to improve or modify differences in learning that appear early in school. Poor achievers do not make up ground as they progress through school. Therefore, low achievement in numeracy and reading early in school has a profound effect on the likelihood that one will enter higher education. In other words, schools fail to improve levels of performance among low achievers in ways which make higher education an option.

Adjustments to take account of the effects of social background, type of school attended and place of residence do not substantially alter the basic patterns. As Figures 7 and 8 reveal having strong number and word skills significantly increases the likelihood of gaining entry to university. For example, boys in the top band of achievers in reading increase their chances of entering higher education by almost 20 percentage points, other things equal. For girls with strong numeracy skills (very high achievers), the chances are almost 30 points higher than for girls with average skills. Conversely, young people with poor word and number skills at 14 years of age have significantly reduced chances of gaining a university place.

Comparing males and females, skills in numeracy are more critical for girls whereas literacy skills are more critical for boys. Weaker numeracy skills for women are a greater impediment to the chances of entering university than

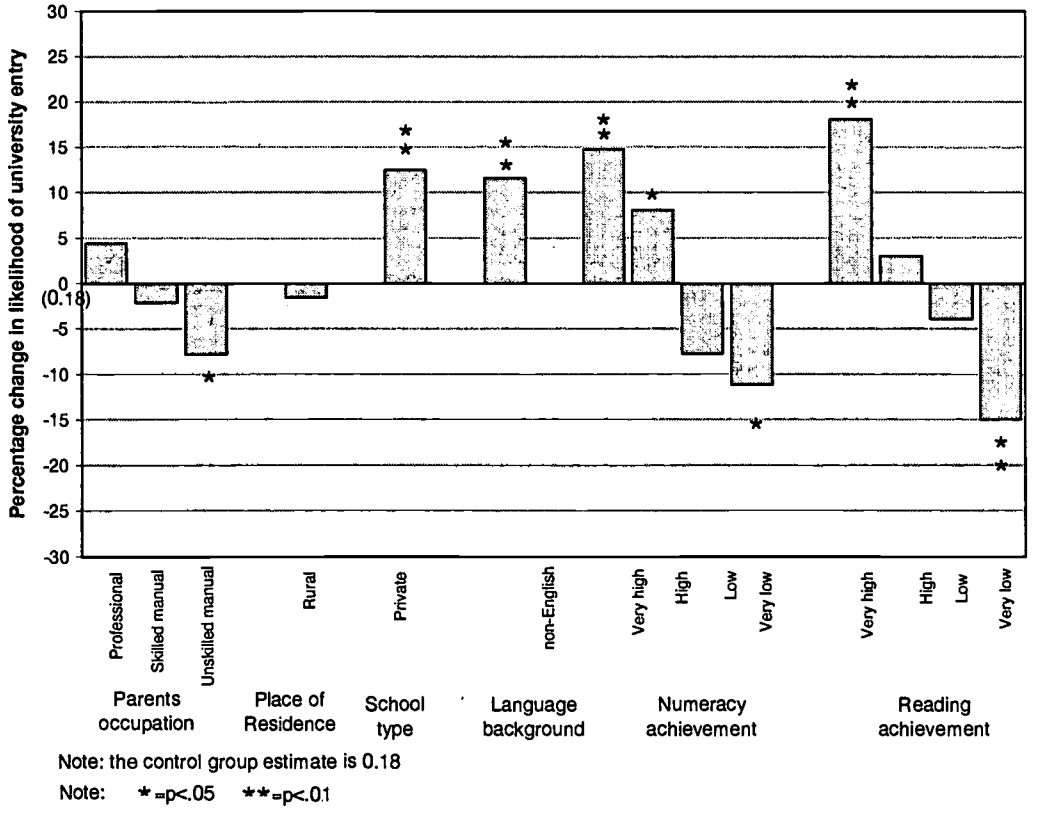


Figure 7: Percentage change in likelihood of entry to university: males

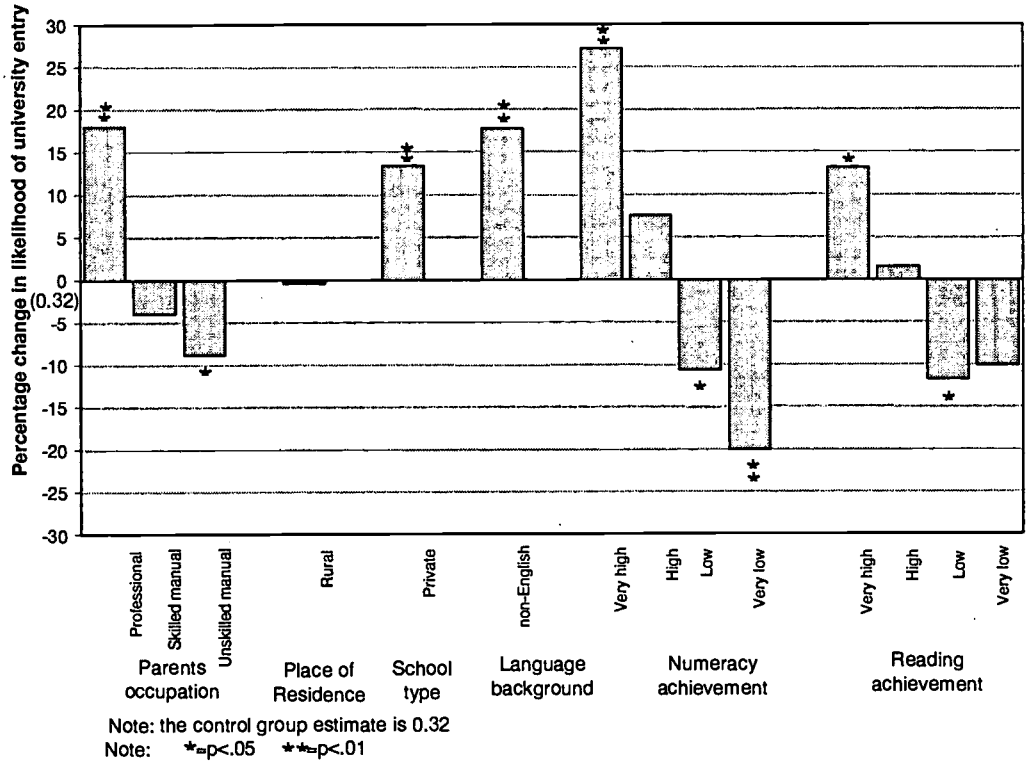


Figure 8: Percentage change in likelihood of entry to university: females

poor literacy skills. The opposite is true of males. This may reflect the pattern of much weaker performance in English (and humanities subjects) among boys and a more discriminating role for that subject in shaping outcomes (Teese, McLean and Polesel, 1993). The area of disadvantage for girls, however, has been in mathematics, at least in the advanced mathematics subjects. Rates of participation in this area are lower than for boys and representation among top performers less frequent.

A further point is worth mentioning. Gender differences in rates of entry to university are substantial. In the past boys have tended to enrol in higher education in larger numbers. However, that pattern has reversed dramatically. The chances for the control group of females of entering university is 32 percent. The rate for the matching sample of males is 18 percent. Results from a separate analysis show that, other things equal, being female increases your chances of entering higher education by twelve percentage points. This finding partly reflects the fact that a much higher proportion of girls now complete Year 12 and qualify for entry to university. It also shows the effects of comparatively low access to apprenticeships, weaker teenage labour market opportunities and the greater reliance that girls now place on higher education as a way of securing their futures.

The likelihood of taking up a university place is also affected by social origin, language background and school type. Even after taking account of differences in achievement, strong differences remain. Other things equal, attending a non-government school increases the chances of progressing to higher education by over 12 percentage points for both boys and girls. Significantly increased chances are also associated with a non-English speaking background. At the same time, coming from a lower status occupational background significantly reduces chances. Given that these findings are over and above differences in achievement they suggest that there is substantial wastage of talent among certain groups of young people, if university training is treated as a valuable social and personal goal for school achievers.

4

ENTRY TO TAFE AND PARTICIPATION IN APPRENTICESHIPS AND TRAINEESHIPS

Over the last twenty-five years Australia has seen a dramatic increase in the participation of young people in Technical and Further Education (TAFE). In the early 1970s less than half a million Australians participated in TAFE, whereas by 1994 over one and three quarter million students were enrolled. Some of this growth has resulted from the development of job training programmes (such as the Australian Traineeship System), a substantial increase in basic education, employment and labour market programs, and increased demand for advanced technical courses. The strong vocational focus of TAFE has meant that participation is far less narrow than in higher education. This becomes evident when examining the backgrounds of those who enter TAFE courses.

Participation in TAFE is not dependent on very high literacy and numeracy achievement. At the same time, this does not mean that young people entering TAFE have weak literacy and numeracy skills. On the contrary, young people with the weakest literacy skills are the least represented among those who take up TAFE training (Figure 9 and Figure 10). Those entering TAFE tend to more often have average to above average literacy skills. They are also more likely to have average numeracy skills, though there are some gender differences. Girls who enter TAFE tend to have average to above average literacy skills. Those who are the highest achievers in literacy are the second most represented group in TAFE participants. Girls entering TAFE do, however, tend to have weaker skills in numeracy with the strongest representation among average to below average achievers. For boys, TAFE entrants tend to more often have average word and number skills, though boys with very low literacy achievement have low representation. To have learnt good literacy skills at school is an advantage in terms of gaining entry to the courses offered at TAFE.

One other difference in TAFE participation is worth noting. Figures 9 and 10 show that many young people entering TAFE have completed Year 12. About 12% of female early leavers entered TAFE compared to 20% for those who had completed Year 12. The gap is marginally smaller for males. This finding is consistent with recent figures which suggest that there has been a shift in the school level from which TAFE vocational courses are accessed by young people. In line with the substantial growth in rates of school completion during the 1980s, younger teenagers have tended to defer entry to TAFE until the completion of Year 12. In line with this trend early school leavers may find it increasingly

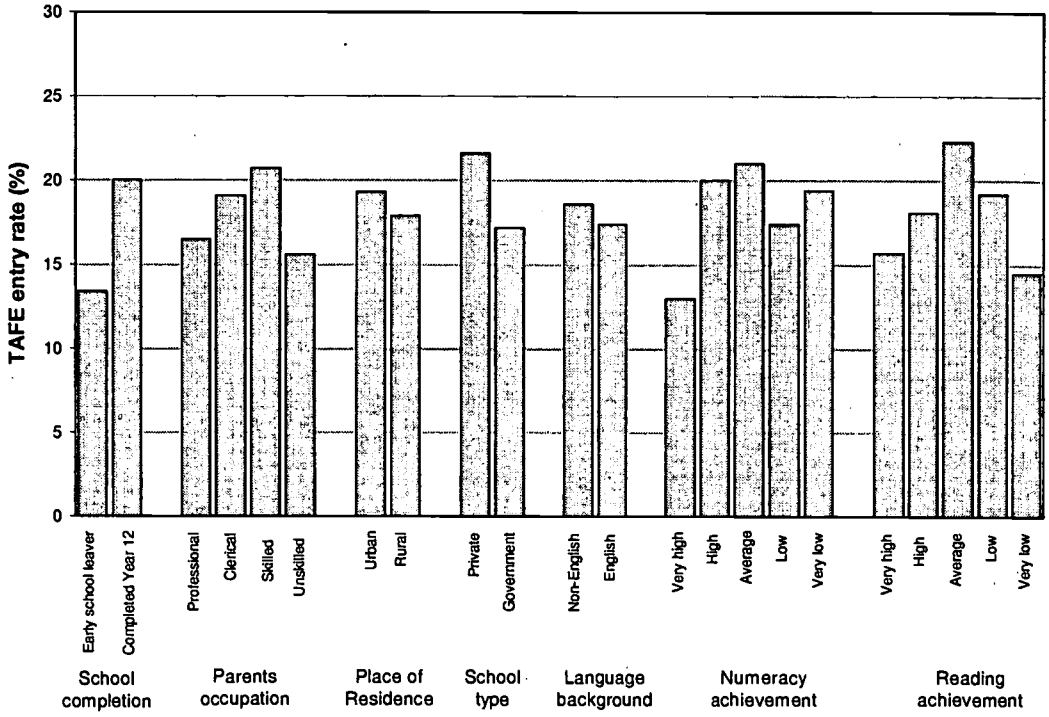


Figure 9: Rates of entry to Technical and Further Education for males by achievement and selected background characteristics (%)

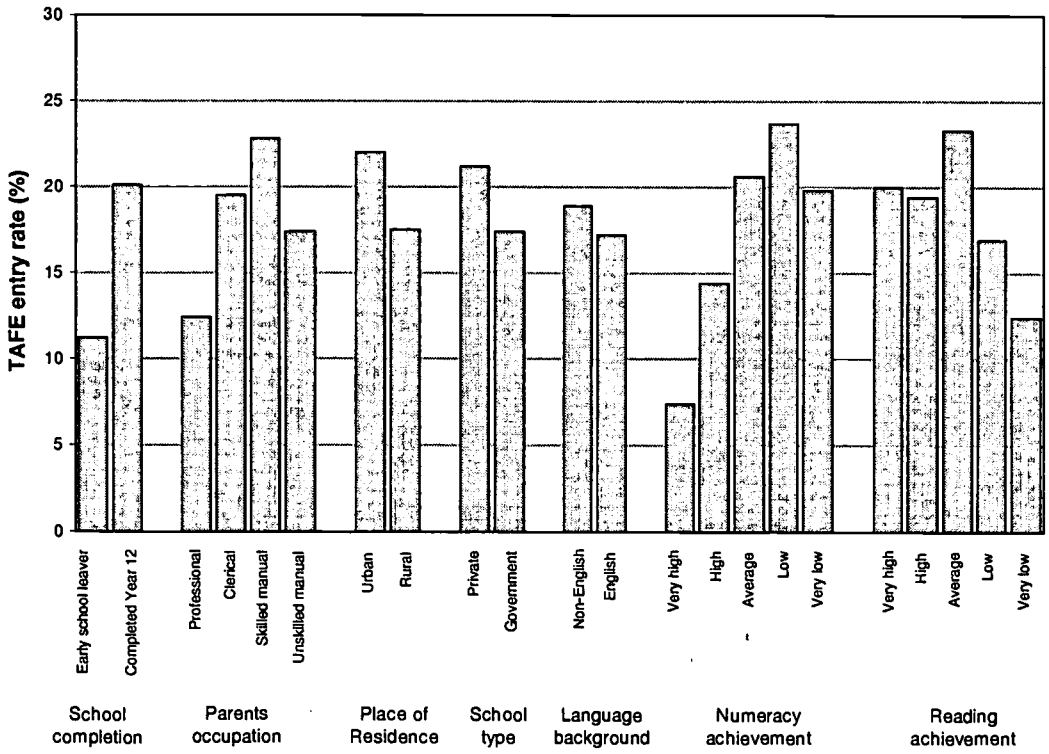


Figure 10: Rates of entry to Technical and Further Education for females by achievement and selected background characteristics (%)

difficult to gain places in tertiary education and training. Year 12 is now the important point of direct entry from school to TAFE.

Apprenticeships and Traineeships

In the past apprenticeships in Australia have provided a major pathway for young people, particularly for males, making the transition from school to work. This function has been recognised in the development of the federal government's training scheme, the 'Modern Apprenticeship and Traineeship System', which aims to strengthen the links between school-based vocational education programs and employment through the enhanced role of apprenticeships and traineeships.

While the apprenticeship system has always been an important pathway for school leavers, it has been particularly important for those who leave school early. This has not changed even though during the 1980s, with the rapid increase in school retention rates and the marked increase in competition for available positions, there was a substantial increase in the proportions of commencing apprentices having completed Year 12 (Sweet, 1990). The findings from the present study suggest that the rate of take-up of apprenticeships is much higher among early school leavers than among those who complete Year 12 (Figures 11 and 12). Over one-third of boys who left school before Year 12 took up an apprenticeship. This compares with about 13% of boys who completed Year 12.

With apprentices more often drawn from the pool of early school leavers, there are higher proportions with average to below average literacy and numeracy skills. Over 25% of apprentices were average readers and over 20% were very low achievers in reading. Differences were not as large in terms of numeracy achievement, though apprentices were more often drawn from the pool of low to very low achievers. So despite increasing competition for apprenticeships in Australia, entrants tend to have average to poor literacy and numeracy skills (as measured at 14 years of age).

Very few females take up apprenticeships. This has been an enduring feature of Australian labour markets and reflects in part the strong gender segmentation of labour market opportunities. Girls do better, however, when it comes to traineeships which tend to play a more important role for young women than for young men in making the transition from school to employment. This gender pattern in part reflects the stronger white collar (particularly clerical) employment base of this training activity. The comparison of participants shows that traineeships are important for Year 12 graduates as well as early leavers (Figure 12). Reflecting the white collar employment base of traineeships, and possibly strong levels of competition, entrants are drawn more evenly from across the literacy and numeracy achievement levels in contrast to the pattern for male apprentices.

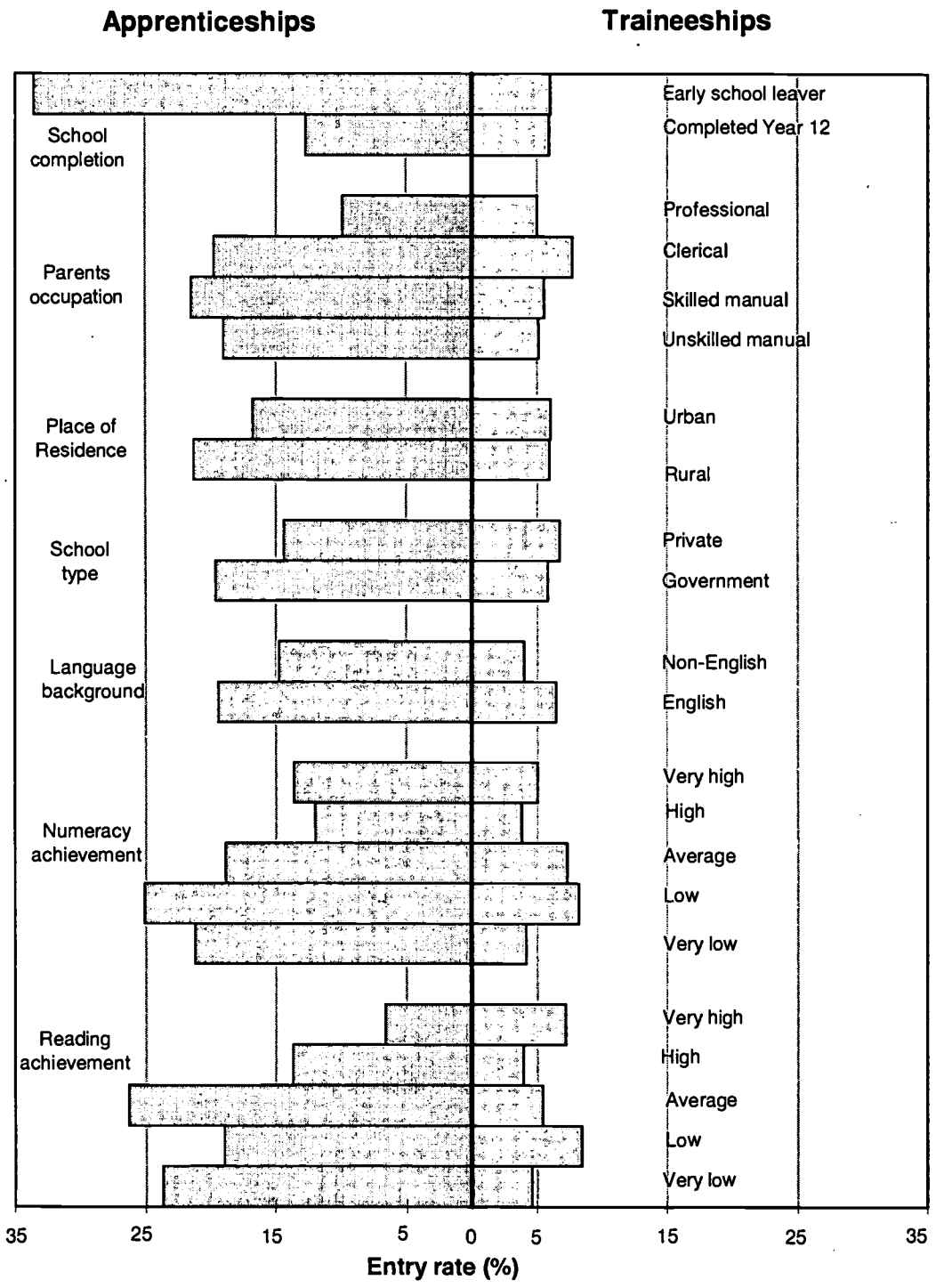


Figure 11: Participation rates in apprenticeships and traineeships for males by achievement and selected background characteristics (%)

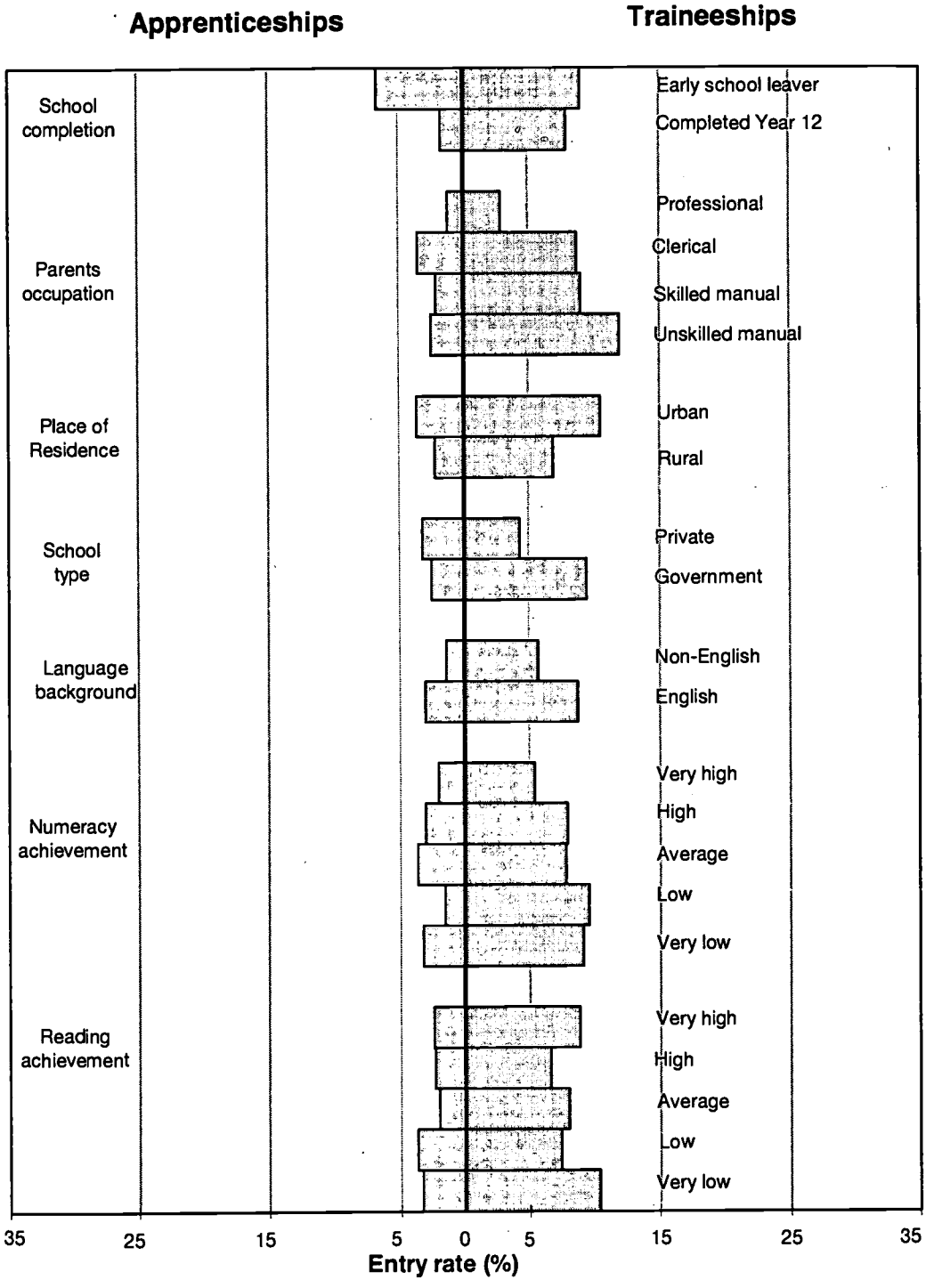


Figure 12: Participation rates in apprenticeships and traineeships for females by achievement and selected background characteristics (%)

5

UNEMPLOYMENT

Young people with weak literacy and numeracy skills are fundamentally disadvantaged when it comes to getting a job. They are less likely to have completed Year 12 and, therefore, attempt to enter the labour market without formal school qualifications. They are less likely to be competitive in a labour market which has seen long term reduction in full-time teenage job opportunities as well as increased levels of youth unemployment and substantial growth in the numbers of new entrants who have completed Year 12. They also remain vulnerable in a labour market which increasingly favours skilled workers. As a result the transition from school to secure employment for young people with poor literacy and numeracy skills is more difficult and the establishment of secure livelihoods more uncertain. This becomes apparent in looking at their experiences of unemployment.

One of the main effects of poor numeracy and literacy skills is longer spells of unemployment. Figure 13 presents the average amount of time young people were unemployed from the point of leaving school until 19 years of age. The comparisons include only those who sought direct entry to the labour market. The data suggest that job seekers with poor numeracy and literacy skills spend considerably longer periods of time unemployed. The average time unemployed of males with very low levels of reading achievement is 24 per cent compared to 14 per cent for average achievers and 12 per cent for high achievers. The gaps are even wider across the different levels of numeracy achievement.

Another effect for job seekers with weak numeracy and literacy skills is that they are *more likely to experience long-term unemployment.* Figure 14 shows the proportions of young people unemployed for more than twelve months. The effect of literacy and numeracy achievement is striking. The young people who experience the longest periods of unemployment in their teenage years are those who possess the weakest literacy and numeracy skills. Possessing poor number skills, for example, substantially increases the risk of sustained periods of unemployment. This, no doubt, reflects the greater vulnerability of job seekers with poor skills trying to gain entry to a labour market that has become increasingly difficult for the least skilled.

The converse also tends to be true. Figure 15 displays the proportions of job seekers who have made a rather successful entry to the labour market after leaving school and have not experienced any period of unemployment. It shows that the most successful in gaining access to the labour market (those who experience no periods of unemployment on leaving school) are those who, at age 14, had above

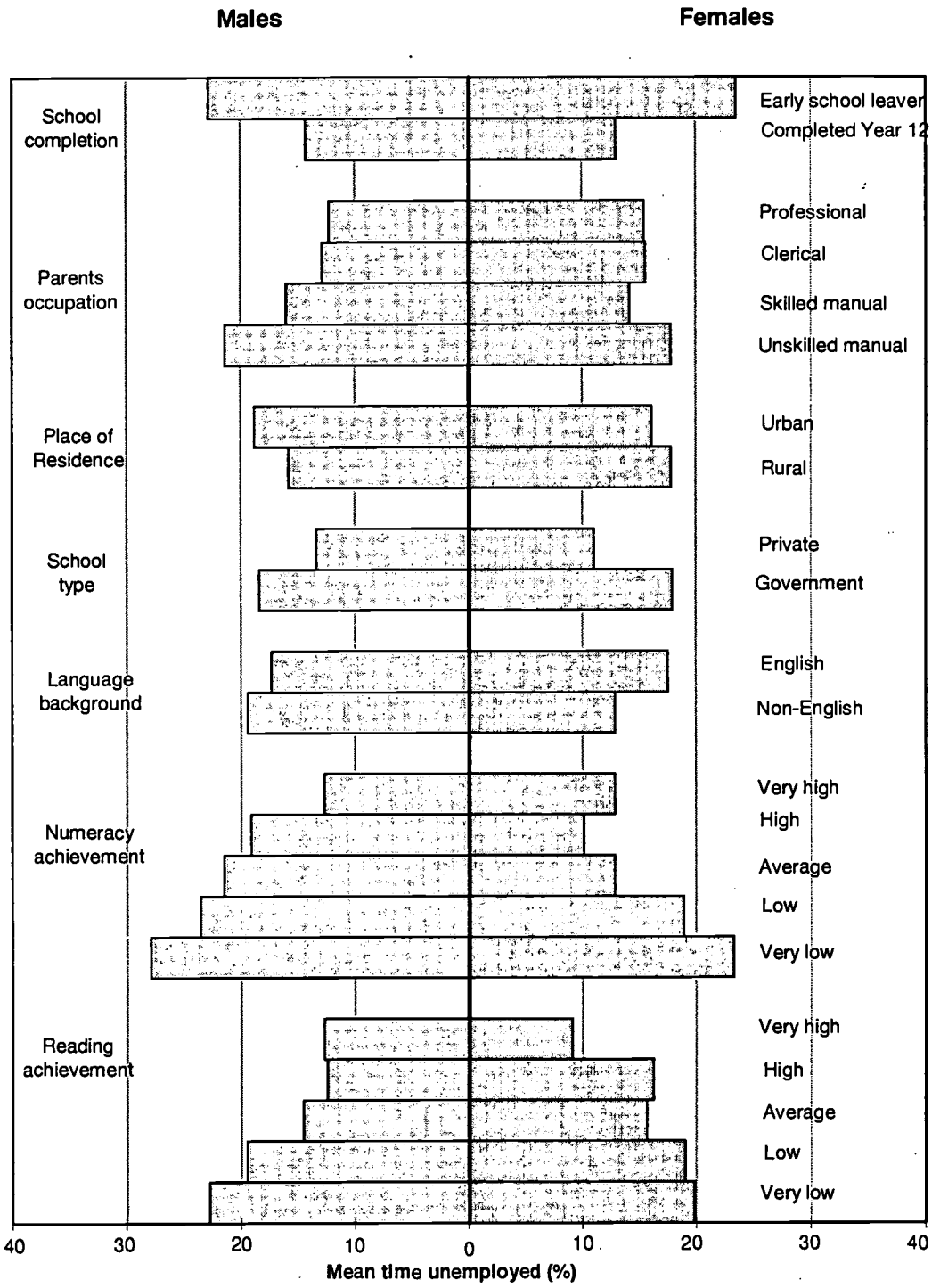


Figure 13: Average percentages of time unemployed by achievement and selected background characteristics

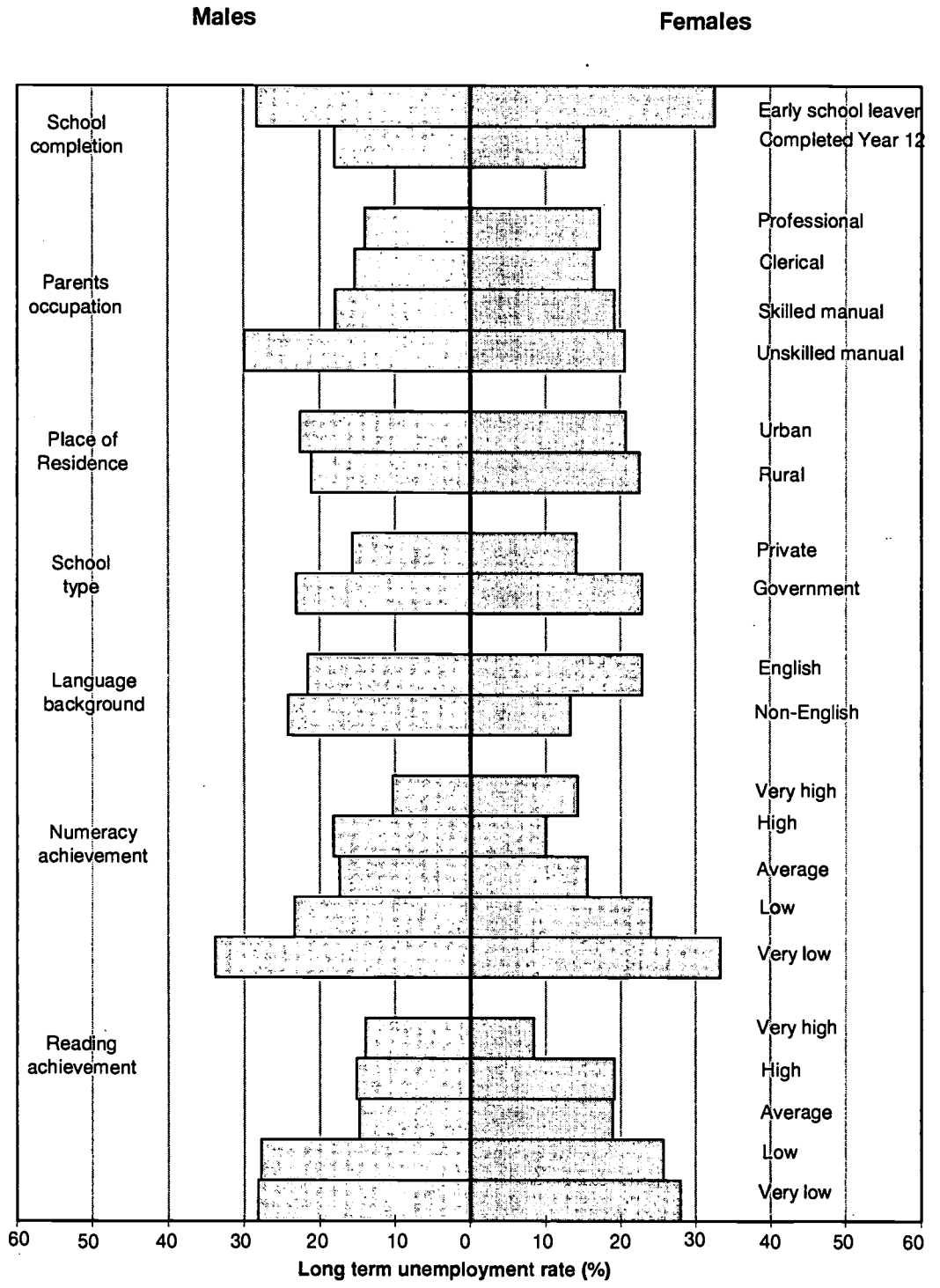


Figure 14: Percentage of long term unemployed by achievement and selected background characteristics

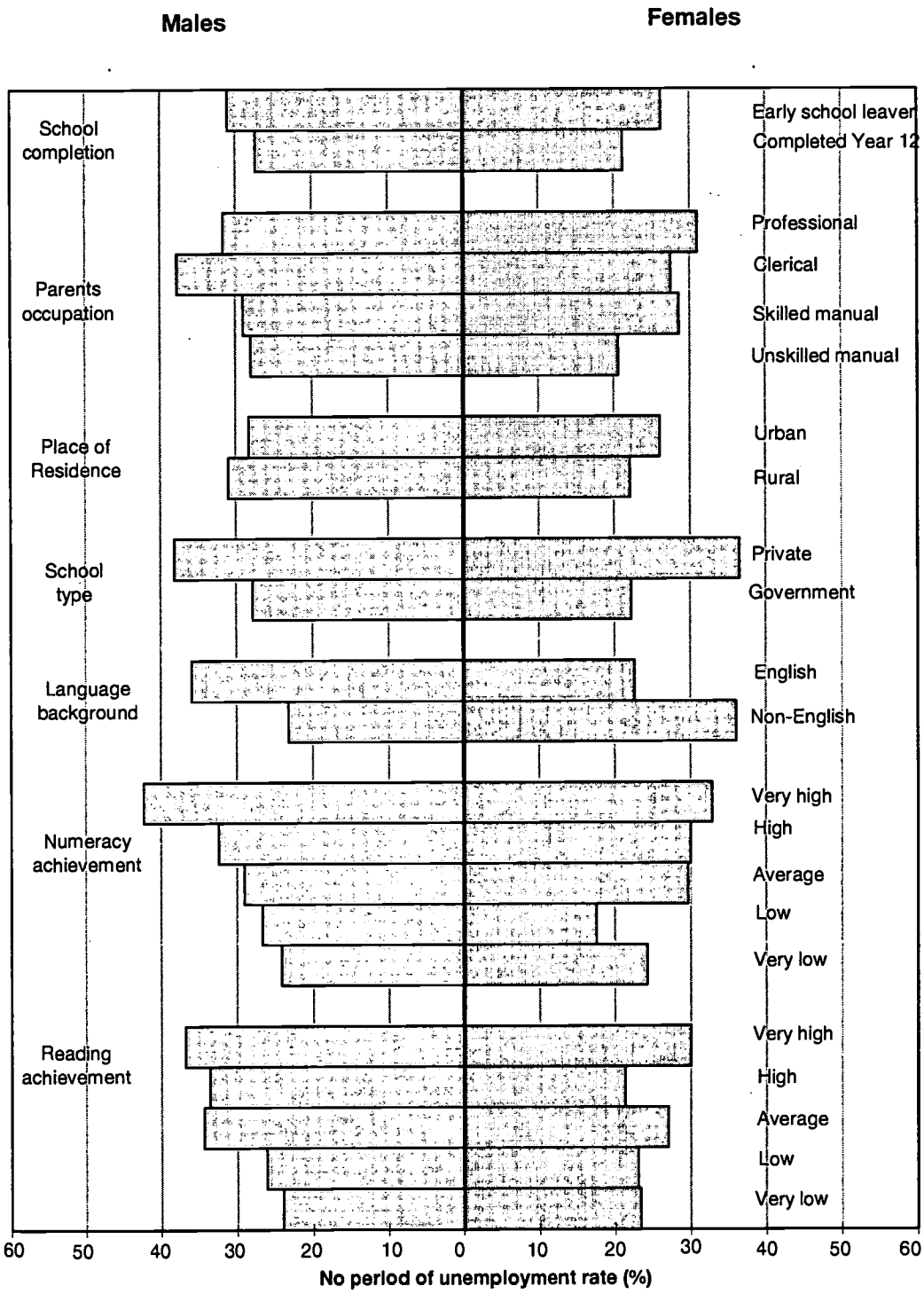


Figure 15: Percentage with no period of unemployment by achievement and selected background characteristics

average reading and numeracy skills. It also shows that the teenagers from non-government schools and those from higher socio-economic origins tend to be more successful than their counterparts in making the transition to stable employment.

One interesting point is that a slightly higher proportion of early school leavers than school completers made successful transitions to work. This is a reminder that not all early leavers are disadvantaged when it comes to getting a job. While many do find the transition difficult and experience extended periods of unemployment, some are able to successfully take up available opportunities.

It is likely that some of these things work together. That is, young people who leave school early are more likely to have lower levels of literacy and numeracy achievement, more often attend government schools and are more likely to experience extended periods of unemployment. To test the independent contributions of different factors on the length of time unemployed linear regression analyses were conducted. The results are presented in Figures 16 and 17.

The results show, other things equal, that:

- Among boys, very high numeracy achievement significantly reduces time unemployed for teenagers seeking direct entry to the labour market from school and very low achievement significantly increases the time.

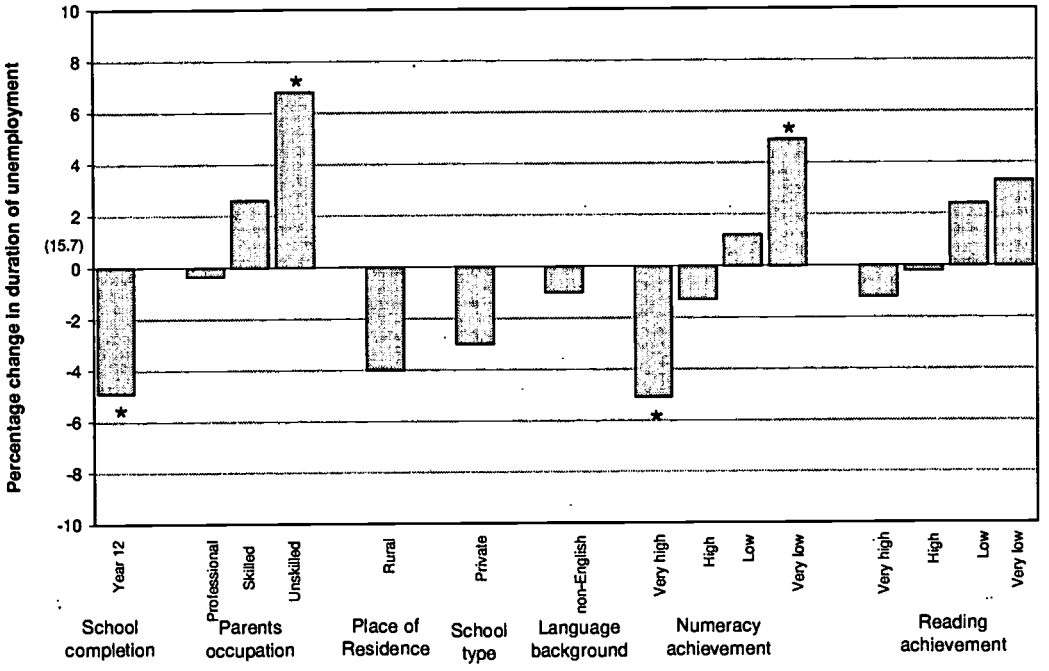
- Poor number skills is the strongest predictor of unemployment among teenage girls.

- Possessing very good literacy skills significantly reduces the time young women spend unemployed.

- Completing Year 12 significantly cuts the time that job seekers are unemployed, particularly for females -- underlining the strong pressure on young women to remain at school.

- Boys from lower socioeconomic status backgrounds spend a significantly longer period unemployed than boys from other status origins.

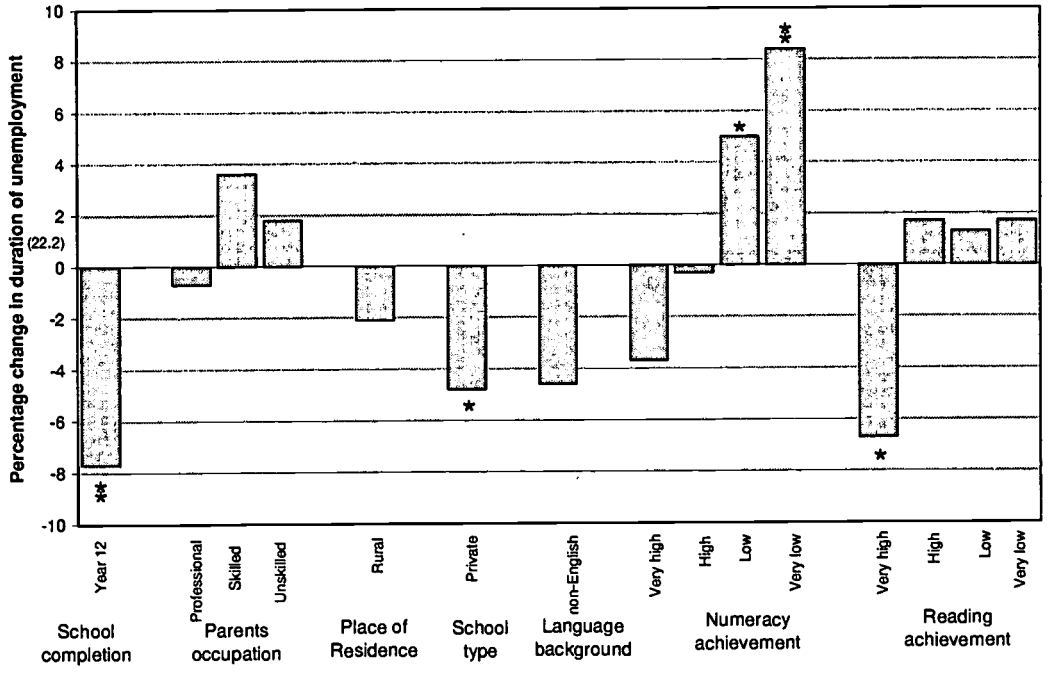
- Girls from non-government schools have a significantly shorter period of time unemployed than girls from government schools.



Note: Regression estimate for the control group is 15.73

Note: *=p<.05

Figure 16: Percentage change in predicted duration of unemployment to age 19: males



Note: Regression estimate for the control group is 22.2

Note: *=p<.05 **=p<.01

Figure 17: Percentage change in predicted duration of unemployment to age 19: females

Unemployment at age 19

The results so far in this section have looked at the unemployment experiences of school leavers across their teenage years. It is also worth looking at the figures on who is unemployed at age 19. Most of the respondents who did not enter further education have had at least eighteen months and usually more than twenty four months in the labour force by the time they reach this age. The results are presented in Figures 18 and 19. They refer to the nineteen year olds who were unemployed in the four week period prior to the date of their survey interview.

Again the results highlight the importance of having good literacy and numeracy skills when seeking a job as a teenager. Boys who have very poor number and word skills (very low literacy and numeracy achievement) have over double the chances of being out of work at nineteen as those with average to above average skills (23% for very low achievers as against 11% for high achievers). The differences are not as great for females, though teenage girls with strong skills (high and very high achievers) are far less often unemployed at nineteen.

The regression analyses (that make allowance for the effects of other measured factors) confirm the employment advantages for young people with good word and number skills (Figures 20 and 21).

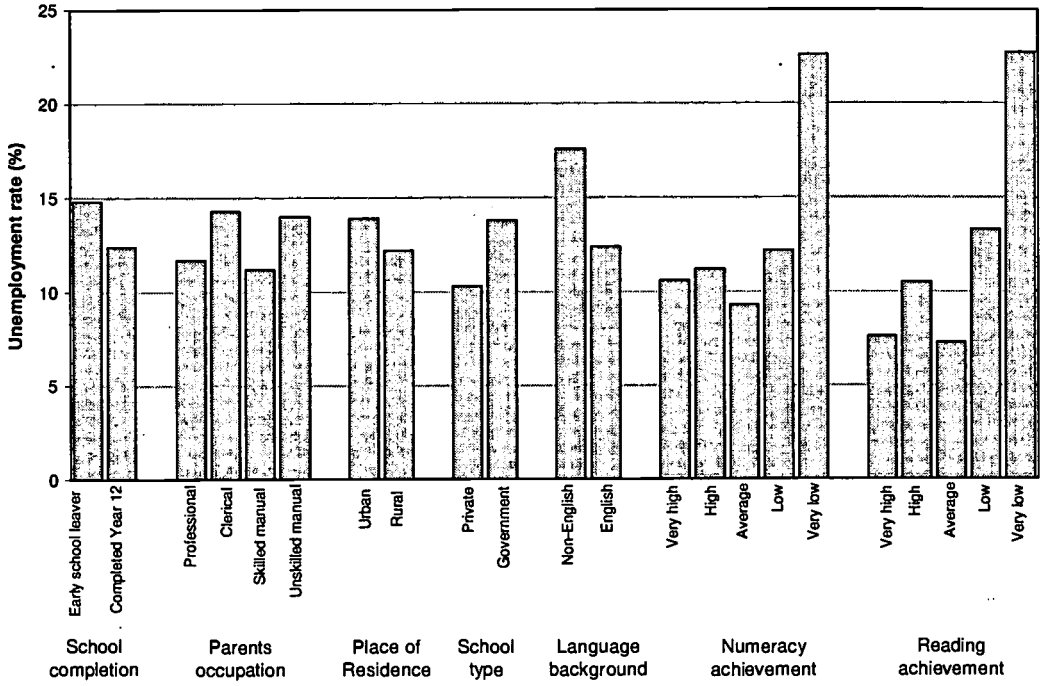


Figure 18: Percentage of males unemployed at age 19 by achievement and selected background characteristics

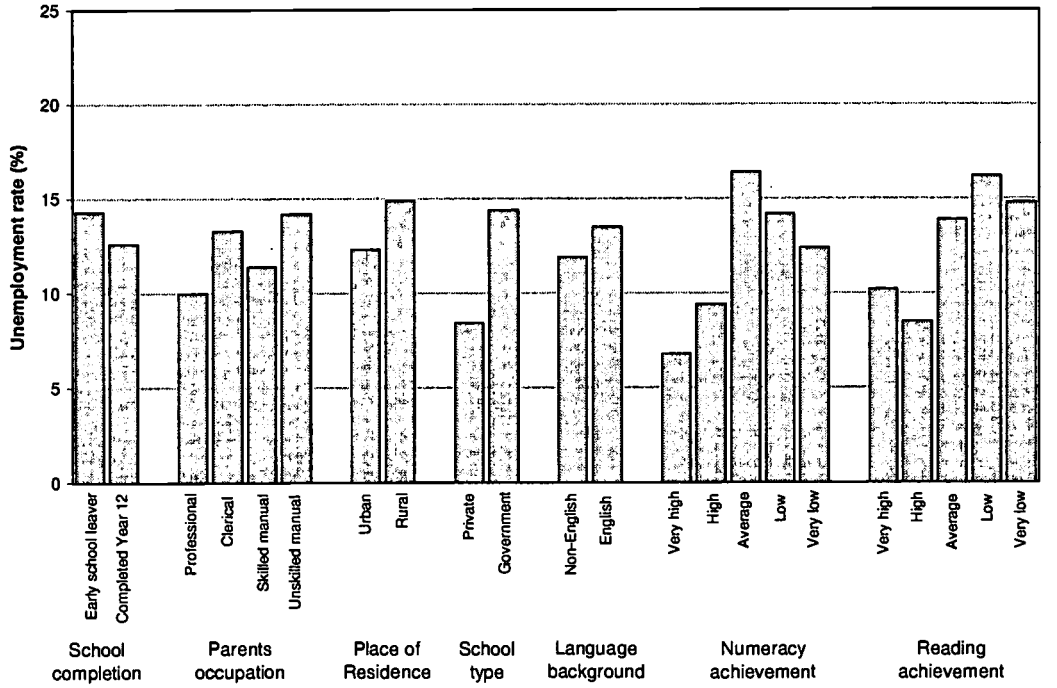


Figure 19: Percentage of females unemployed at age 19 by achievement and selected background characteristics

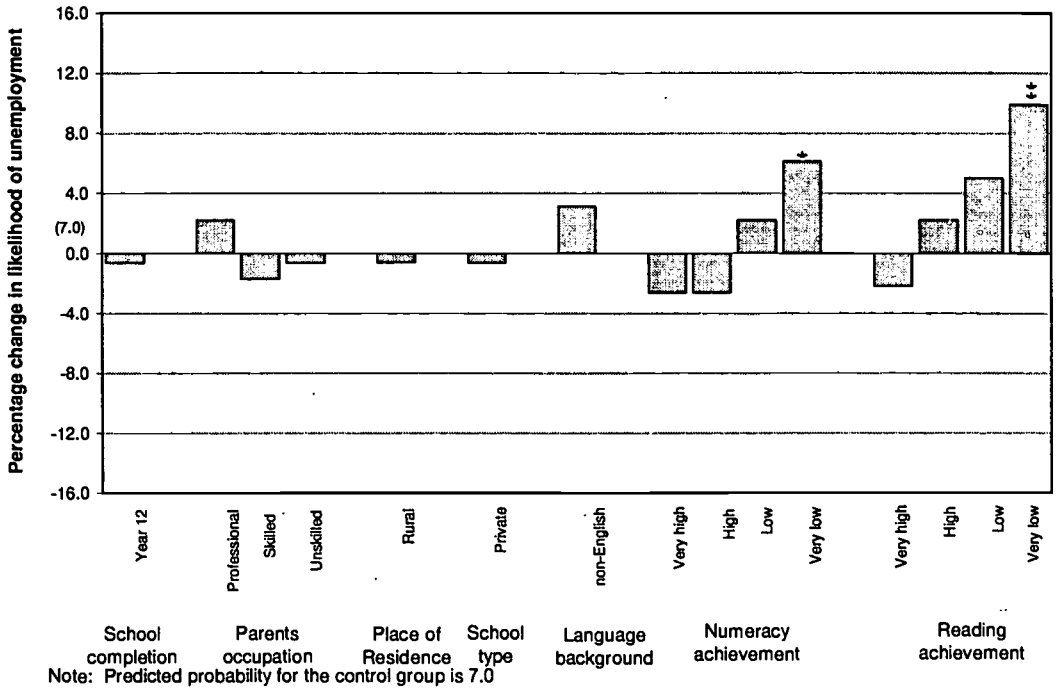


Figure 20: Percentage change in likelihood of unemployment at age 19: males

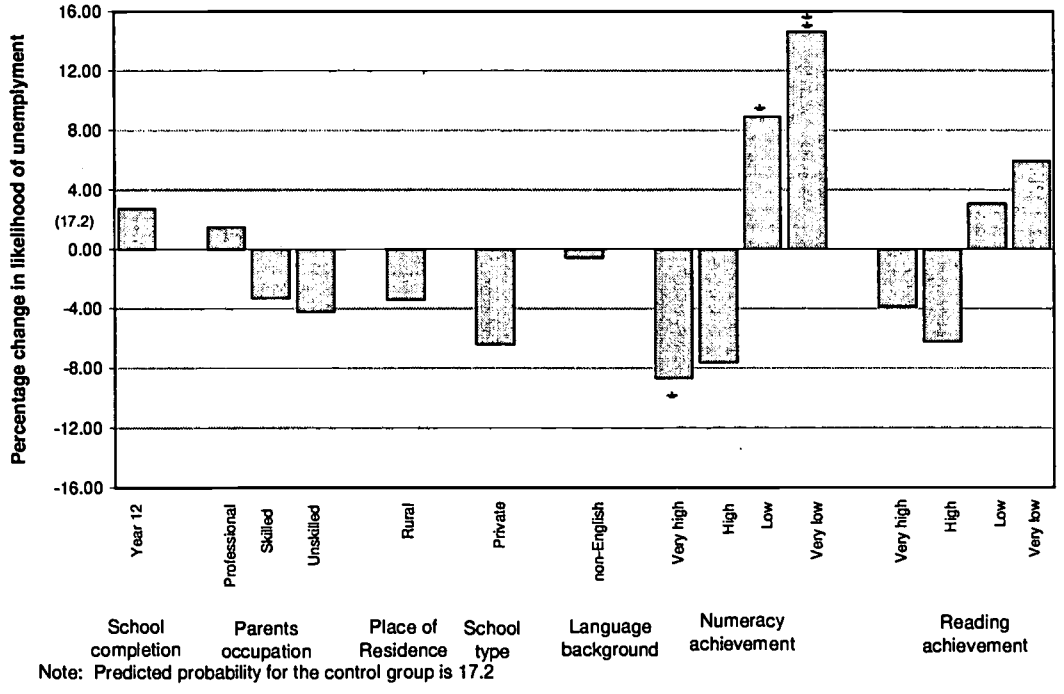


Figure 21: Percentage change in likelihood of unemployment at age 19: females

6

TYPE OF WORK

Employment for teenage Australians is highly concentrated in a small range of industries and occupations. About two thirds of teenage males in the workforce in 1991 were employed as tradespersons, process workers and labourers (Australian Bureau of Statistics, 1991). This is more than double that for all full-time employees. Teenage female employment is heavily skewed towards clerical and sales occupations. Almost half of teenage women in the workforce in 1991 were employed as sales workers and a further 20 per cent were engaged as clerical workers. The concentration of teenage females in these occupations was more than two and a half times that recorded for all full-time employees. The distribution of teenage employment partly explains the difficulties experienced by young people during recession. For example, the industries in which most teenagers are employed were among the most affected by the recession in the early 1990s (e.g. retail trade for males and females, manufacturing and construction for males and finance for females).

Despite the narrow concentration of entry-level employment for school leavers, there are large differences in employment. Figure 22 presents the occupational profiles of 19 year-olds by school completion.

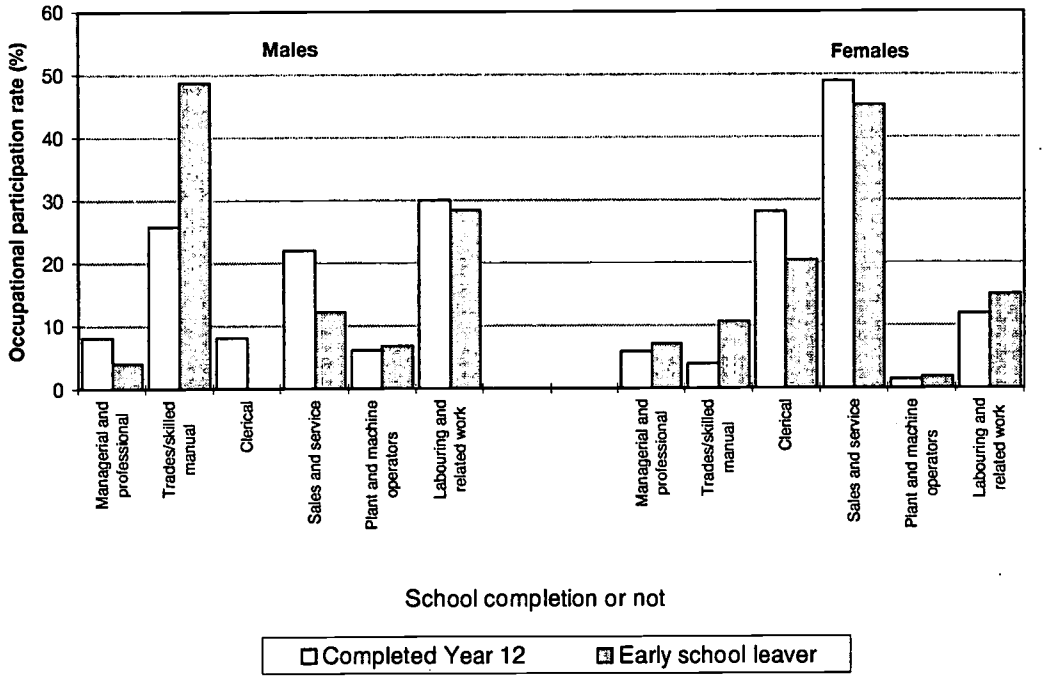


Figure 22: Occupational category of work at age 19 by school completion (%)

For males, the main type of occupation entered by early leavers is skilled manual, reflecting the dominance of apprenticeships for this group. Almost a half of the

early leavers were employed in this field compared to about 25% of Year 12 graduates. School completers are far more often employed in white collar occupations -- clerical, sales and personal service and entry level managerial and professional jobs. For females, differences are smaller though Year 12 graduates are more likely to win positions in the sought after clerical area.

Differences also exist by occupational background. Figure 23 shows that among teenage males, who seek direct entry to the labour market after leaving school without any further education, those from higher social status origins (professional, managerial and intermediate non-manual) tend to more often have white collar jobs at age 19 (particularly in sales and personal service, and managerial and professional). Conversely, males from blue collar backgrounds (skilled and unskilled manual origins) more often are employed in skilled trades, and labouring and related work.

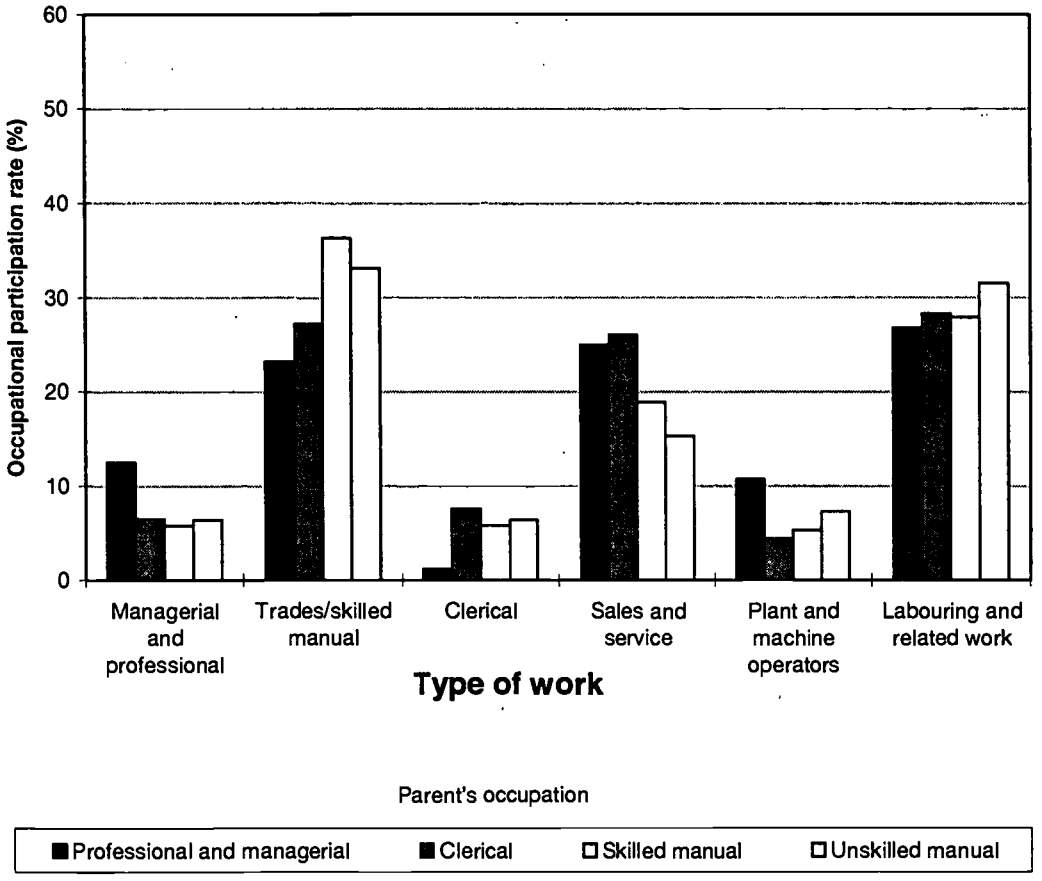


Figure 23: Occupational category of work at age 19 for males by parent's occupation (%)

But the largest differences in employment are those linked to the literacy and numeracy skills young people possess. Figure 24 presents the jobs of employed males at age 19 by numeracy achievement. Teenage males with strong numeracy skills (very high achievement at age 14) more often obtain jobs in clerical and

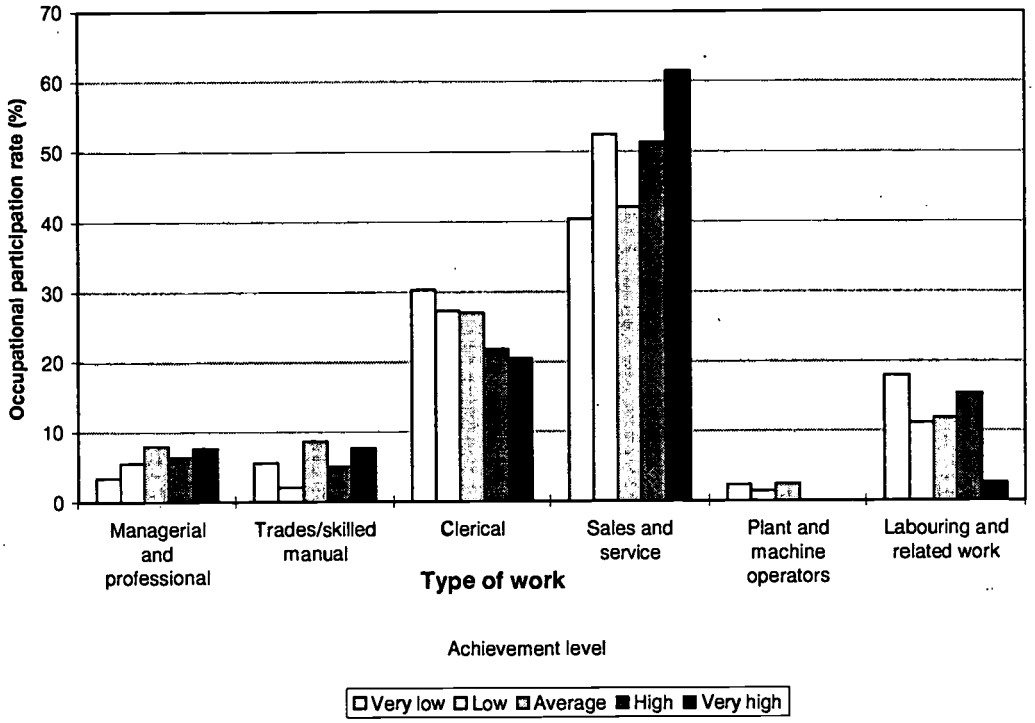


Figure 24: Occupational category of work at age 19 for males by numeracy achievement (%)

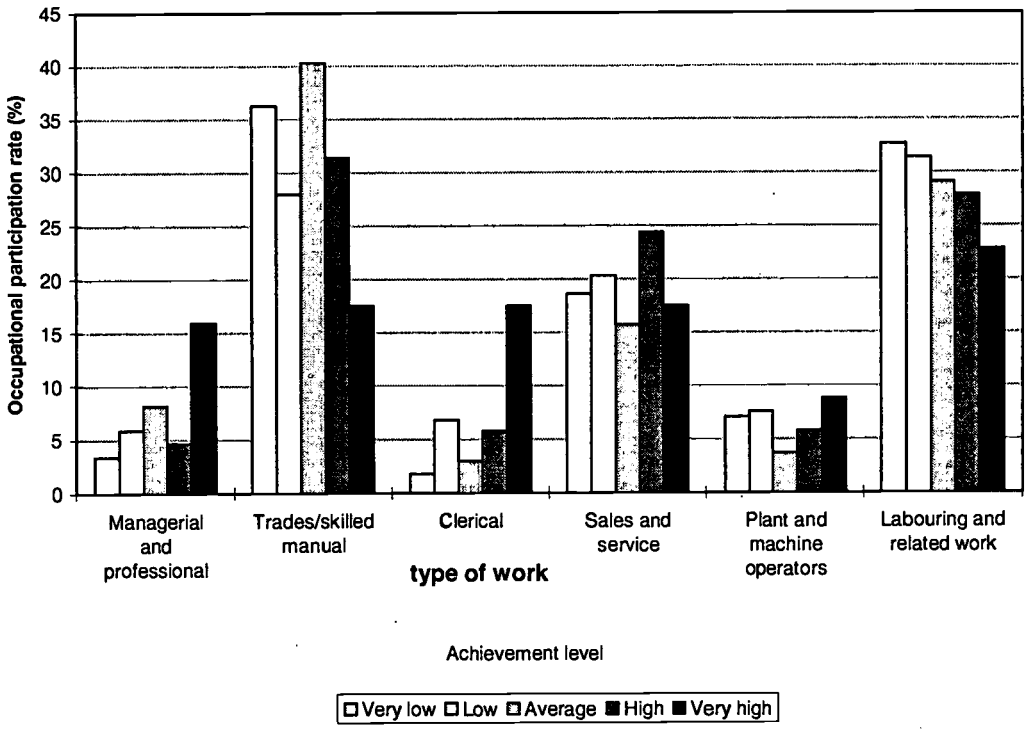


Figure 25: Occupational category of work at age 19 for males by reading achievement (%)

managerial and professional occupations. Roughly one quarter are employed in these occupations compared to less than 5 per cent of males with poor skills (very low achievers). Very low achievers do not gain any clerical positions. Instead, teenage males with weak skills tend to obtain employment more often in labouring and related work or in skilled manual work (trades).

Literacy skills are even more discriminating (Figure 25). Males with well above average reading skills far more often gain employment in white collar work. Over one-third of very high achievers found work in clerical and professional and managerial occupations compared to 10% of those with below average skills and about five per cent of those with well below average skills. Teenage males with average to below average reading comprehension skills more often work in skilled manual and labouring and related occupations.

Similar patterns apply to young women. Teenage females with the weakest literacy skills, as measured at 14 years of age, far more often enter labouring and unskilled jobs and are less often employed in clerical and sales and personal service jobs (Figure 26 and Figure 27). Alternatively, the higher the level of skills, the more often females gain employment in managerial and professional and sales and personal service occupations.

In comparing the type of work teenagers are engaged in it has to be remembered that we are dealing only with those who have left school and attempted to make direct entry to the labour market. Major processes of selection have already taken place: differential school completion, differential entry to higher education, and differential entry to TAFE. Those with the highest levels of skill are least likely to seek employment directly on leaving school since they take up opportunities in universities and in technical and further education. Therefore, good literacy and numeracy skills work for young people at every major juncture: the transition to Year 12, progression to higher education, selection to TAFE. As the results show in this section they also work for young people in the transition from school to employment in terms of providing access to a wider range of occupations. Poor skills, on the other hand, limit choices at every major point. This includes the type of work young people can enter.

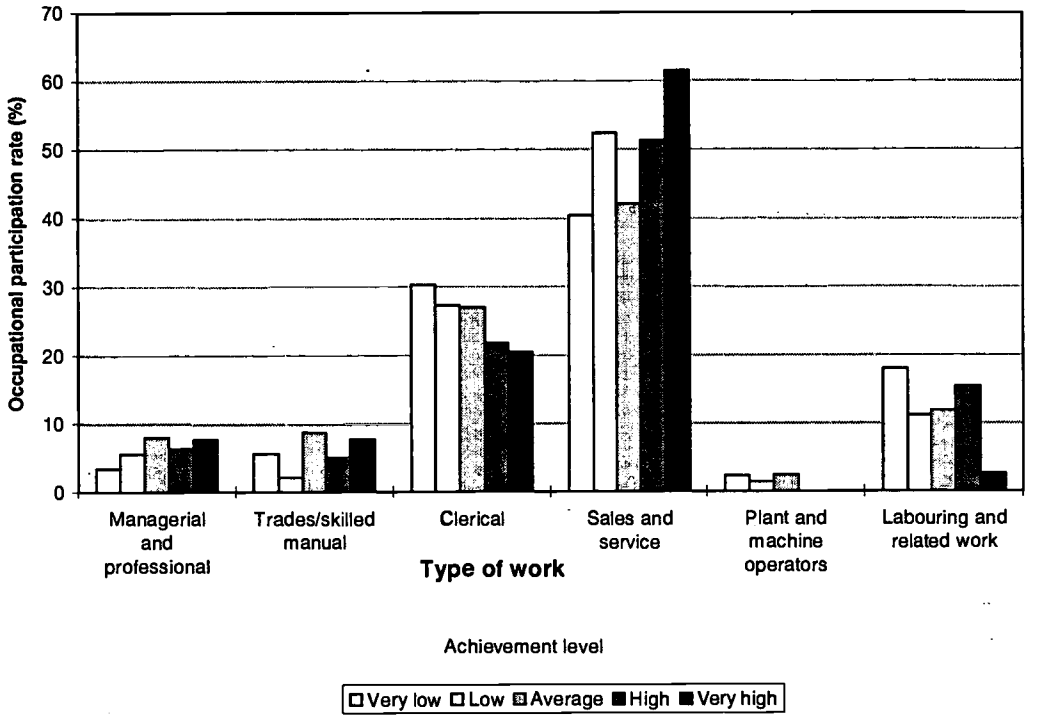


Figure 26: Occupational category of work at age 19 for females by numeracy achievement (%)

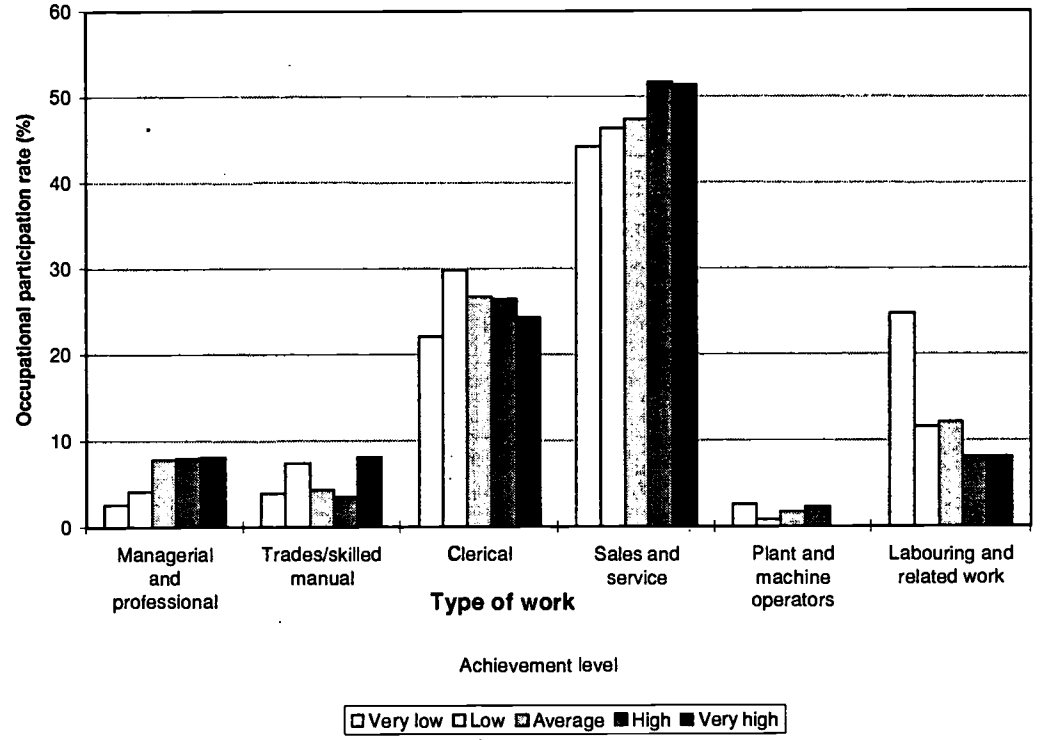


Figure 27: Occupational category of work at age 19 for females by reading achievement (%)

7

WAGES

In comparing the wages of teenagers several things should be kept in mind. In Australia, there are numerous federal and state tribunals covering a diversity of industries and occupations and prescribing variable award (or minimum) wage levels for "juniors". Young people living in different parts of Australia, or entering different industries, therefore, may not have access to the same award rates (though this is also true of adult workers). Furthermore, entry-level employment for many teenagers involves formal training schemes (such as apprenticeships and traineeships) which involve award rates lower than for other workers. For these reasons, the effects of a range of background and other variables on earnings may be less evident at nineteen years of age than at a later age.

Even so, measured at 19 years of age, there are some important differences in the earnings of young people. Figures 28 and 29 present the average weekly earnings for young people in full-time employment (working for more than thirty hours per week). From Figure 28 it would seem that, for males, possessing good literacy and numeracy skills provides a clear earnings advantage. The average weekly earnings for a teenage male who at 14 years of age was a high numeracy achiever was thirty five dollars greater than an average achiever. The gap is even larger compared to low achievers -- some fifty dollars larger than the average wage of very low achievers, and forty dollars above that of low achievers.

Literacy skills are also important, though the relationships are not necessarily linear. Young people who enter the labour market with very good literacy skills (very high achievers) command the highest average earnings at age 19. Their wages were $395 per week on average compared to $342 for those with average literacy skills. The wages of very high achievers were also well above those who possessed below average skills. Those with average skills receive the lowest average weekly earnings and those with very poor skills (very low achievers) the second highest level of average weekly income.

Among females wage gaps by achievement are far less spectacular, though consistent (Figure 29). There is a twenty four dollar per week gap between women with very good literacy skills (very high achievement) and women with very poor skills. The pattern is linear: as skill levels decline so do average weekly earnings. This pattern holds for numeracy achievement as well where females with poor skills earn less per week, on average, than females with average to above average skills. This evidence suggests that the acquisition of literacy and numeracy skills early in school (as measured at fourteen years of age) does affect

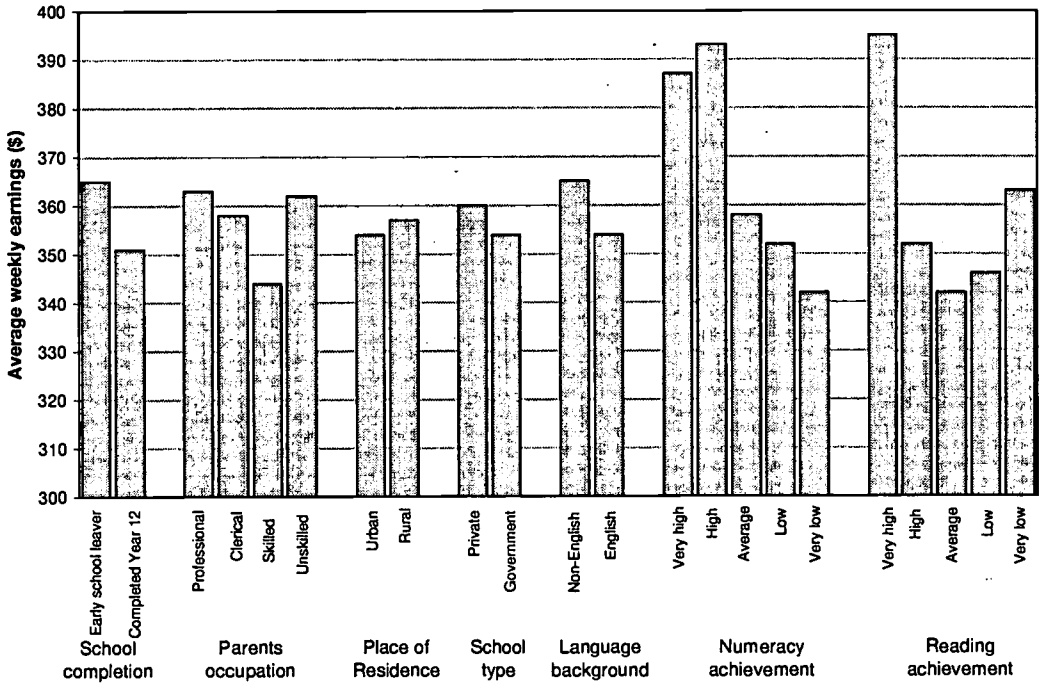


Figure 28: Average weekly earnings for males at age 19 by achievement and selected background characteristics

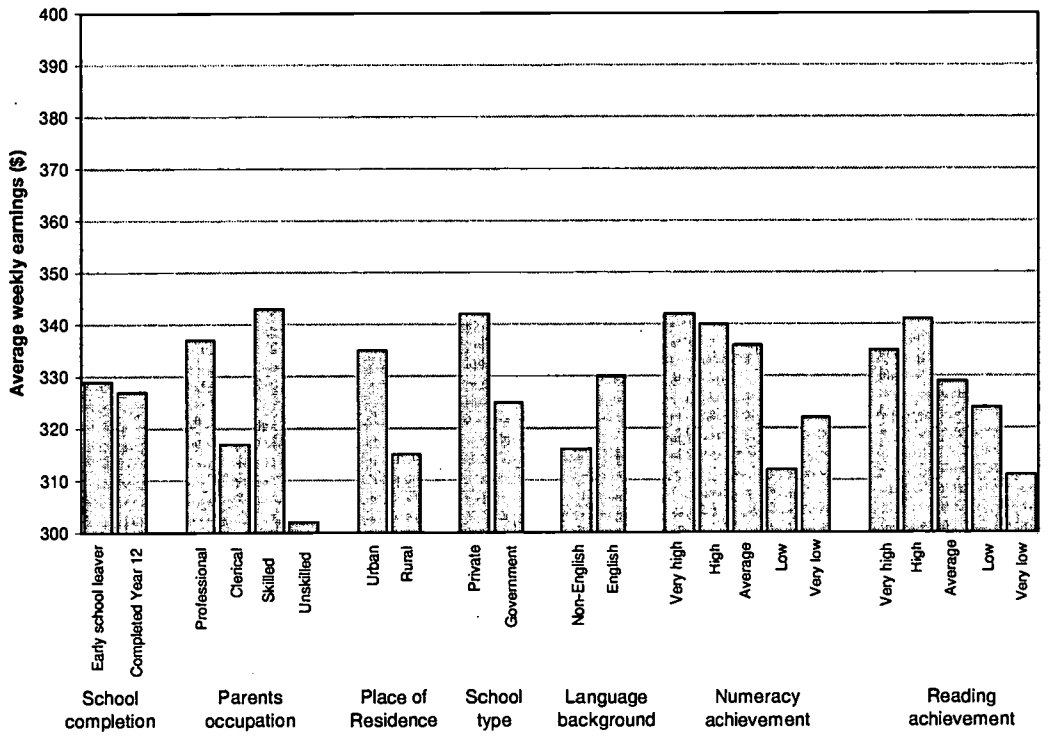


Figure 29: Average weekly earnings for females at age 19 by achievement and selected background characteristics

the earning potential of teenagers as they enter the labour force (at least, at nineteen years of age).

Other wage differences are worth noting. On average, the wages of females are lower than those of males: $328 as against $355 (taking account of differences in numbers of hours worked). This disparity reflects gender differences in earnings more broadly in the Australian workforce. It is partly due to differences in the occupations that males and females enter.

Gaps in earnings are also related to where young people live, the schools they attend and their social background. For females, living in an urban rather than rural area presents a considerable earnings advantage. Those in urban areas earn $335 a week on average compared to $315 a week for those in rural locations. There is also an advantage in attending a non-government school, and having parents in skilled manual, professional or clerical jobs.

To measure the relative effects of the different background factors on wages outcomes at nineteen, regression analyses were conducted. In the analyses predicted earnings were calculated controlling for the number of hours worked and the effects of training wages (participation in an apprenticeship or traineeship). The analyses provide a way of measuring the independent effect of each factor. For example, the earnings advantage or disadvantage of attending a non-government school, other things considered. The findings are presented in Figures 30 and 31.

From Figure 30, males with above average numeracy skills are predicted to have a weekly earnings advantage of approximately $20 over those with average skills, more than $40 over those with below average skills and $60 over those with very poor skills (very low achievers). Differences related to literacy skills are more modest, however, and non-linear, with very high achievers having a $13 dollar a week earnings advantage but very low achievers having a smaller earnings deficit than middle-level achievers. There are also earnings benefits in school completion. Year 12 graduates have a thirteen dollar a week earnings advantage over early school leavers, other things equal.

The pattern of earnings growth associated with literacy and numeracy achievement in the female labour market is similar to that for males, although larger differences appear to exist between those with very good skills and those of other skill levels (Figure 31). Generally females with weaker number and word skills have lower expected weekly earnings, though it is not uniform. There are also differences between females living in rural parts of Australia and those living in urban areas. Females in rural Australia have a $22 a week earnings deficit.

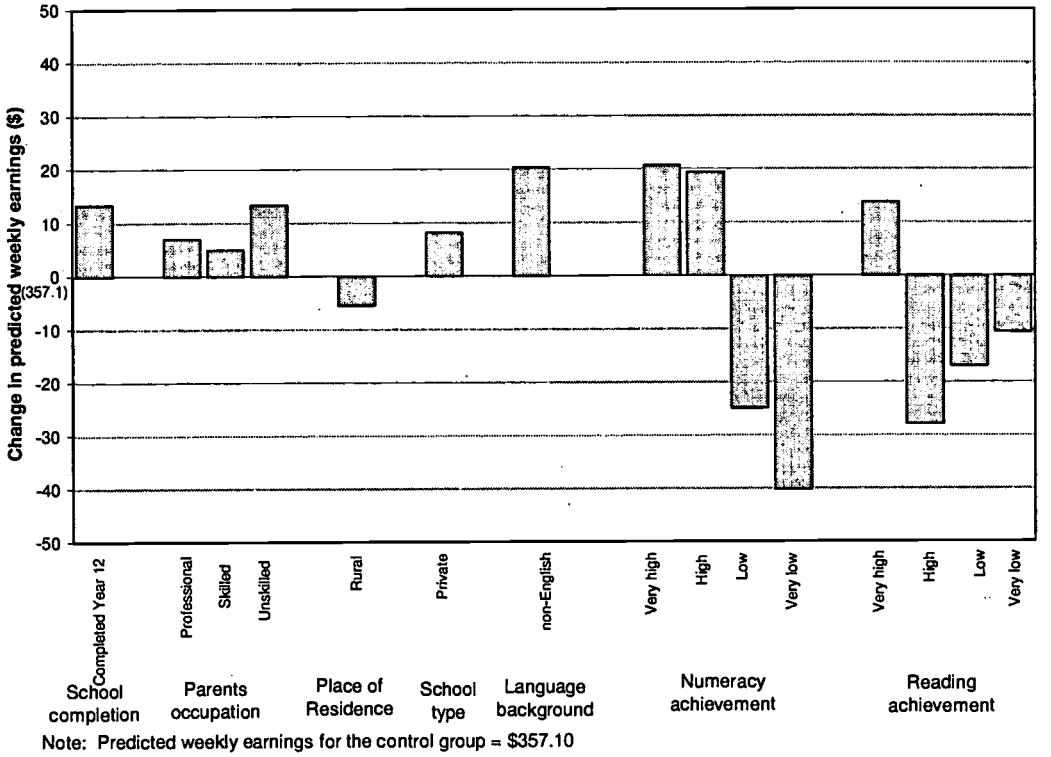


Figure 30: Changes in predicted weekly earnings for males at age 19

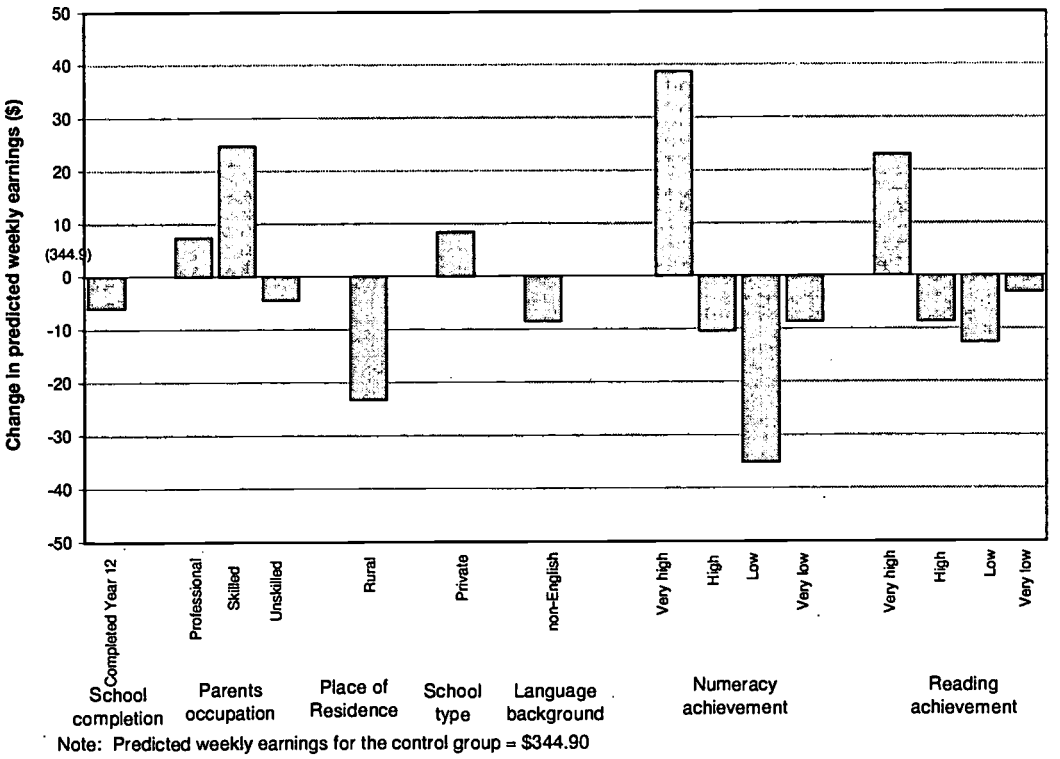


Figure 31: Changes in predicted weekly earnings for females at age 19

A major reason for the differences in levels of pay is the type of work young people enter. There is a fall in wage differences for females when the effect of type of work is controlled, and type of work is itself a significant predictor of weekly earnings. It suggests that the earnings advantages of good literacy and numeracy skills are based on the type of work females with these skills have access to. However, this does not appear to apply to males where type of work is a weak predictor of earnings and has little influence on the size of the effects of other factors (controlling for the influence of training wages). This could suggest that there are large differences in rates of pay for males employed in similar fields of work but with different levels of skill. Or it could suggest that other factors are affecting wage gaps between males with different skill levels. These may include the effects of labour market experience on earnings. Young people with weaker literacy and numeracy skills are more likely to experience extended periods of unemployment. Previous work has found that duration of unemployment has an impact on earnings (Miller and Volker, 1987). This may be particularly important in the early careers of young Australians who are attempting to make the transition from school to work.

8

CONCLUSION

The results presented in this report provide a consistent picture. Students who acquire sound mastery of literacy and numeracy during school tend to be successful academically and to be successful elsewhere. They are more likely to enter university; they are more likely to find jobs; and they are more likely to earn higher incomes, at least at nineteen years of age. But the converse also tends to be true. Young people who do not gain an adequate mastery of literacy and numeracy skills don't get into university; they are more likely to experience unemployment; and they end up with lower wages. Within this context the learning of literacy and numeracy skills in school is critical. While raising levels of literacy and numeracy will not necessarily guarantee young people well-paid jobs, it will help improve their chances of completing school and accessing a wider range of post-compulsory pathways, which, in the longer term, may help young people establish more secure livelihoods.

Schools have a critical role to play in ensuring the futures of young people and helping protect them against the harsh consequences of a labour market that is hostile to the less skilled. Probably the most important issue in considering the role of schools is the need to establish and maintain high levels of general attainment and to ensure that young people from all backgrounds are able to reach those levels. The more that schools are able to raise general levels of attainment for all young people, the better the quality of access to post-school education and training and the better the chances for promoting successful transitions to the workforce. The more successful young people are at school, the more they can develop the capacity to contribute, not simply to becoming more competitive as job seekers and more able to meet the skill requirements of business and industry, but also to help in the further development and enhancement of production and service delivery in the context of modern industry and employment in Australia.

The challenge schools face is the establishment and maintenance of higher levels of general achievement. In the context of educational systems that have been satisfied with wide differences this will not be an easy task. Among the things it will require is an examination of the conditions which help produce uneven patterns of achievement, as well as identification of where achievement is lowest and who is most affected. There is strong evidence that achievement is unevenly distributed geographically and socially (Marks and Ainley, 1996; Bourke and Keeves, 1977; Teese, McLean and Polesel, 1993; Lamb, 1997). Improving the literacy and numeracy skills of disadvantaged groups may be one of the most effective ways of promoting social justice. This is partly because individuals with the weakest results are continually vulnerable to economic and social change and are in this sense robbed of control over their futures, so improving their levels of achievement will go some way to helping promote the establishment of more

secure careers. It is also because in order to improve general performance, schools, which in the past have been satisfied with low levels of general attainment for some, will need to develop broad social strategies in which the care and nurturing of all individuals becomes the guiding value.

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