School sector differences in tertiary entrance

School sector differences in tertiary entrance in Australia are substantial. According to Gannicott (1998: 27) the average tertiary entrance score for Government school students in New South Wales in 1994 and 1996 was around 45 compared to 50 and 52 for Catholic school students and 70 for Independent school students. Of the 100 top performing Victorian schools in Year 12, 53 were Independent, 25 were Catholic, and 22 were Government. Of the top 25 performing schools, 20 were Independent schools (Gannicott 1997: 56–57). Birrell et al. (2002) found that of Year 12 Victorian students in 2000, 31 per cent of Government school students were enrolled at University in the following year, compared to 48 per cent of Catholic school students and 60 per cent of Independent school students. The median Equivalent National Tertiary Entrance Rank (ENTER) score for Government school students was 63 compared to 70 for Catholic school students and 84 for Independent school students. According to the On Track study of the destinations of Victorian Year 12 students in 2002, 32 per cent of Government school students entered university compared to 47 per cent of Catholic school students and 64 per cent of Independent school students (Teese et al. 2004: 16). For 2003 the figures were 34, 47 and 67 per cent (Tamazin 2004).

National survey estimates for 2003 from the 1998 Year 9 cohort (Y98) of the Longitudinal Surveys of Australian Youth (LSAY) study show that 34 per cent of Government school students were at university in 2002 or 2003 compared to 52 and 65 per cent of Catholic and Independent school students (Marks 2004). This compares with 32, 48 and 59 per cent of Government, Catholic and Independent, school students for the (Y95) cohort three years older (Marks et al. 2000: ADDENDUM – 2001). For the Y98 cohort the average ENTER scores for Government, Catholic and Independent school students were 69, 73 and 80. For the Y95 cohort the respective mean ENTER scores were 67, 73 and 78 (Marks et al. 2001). The ABS Labour Force Survey also shows substantial school sector differences in post-school destinations. Of those at school in 2000 who left school before May 2001 (not necessarily in Year 12), 22 per cent of Government school students were enrolled in a degree course in May 2001 compared to 44 per cent of non-Government school students (ABS 2001: 30).

So a variety of studies using different sources of data all show substantial sector differences in university entrance.

Do sector differences in university entrance matter?

School sector differences in university entrance are often dismissed. One argument used by both sides of politics is that the emphasis on university entrance is misplaced as there are other equally acceptable post-school destinations such as apprenticeships, TAFE courses and full-time work. Therefore, to focus on university entrance is to assume that somehow university education is ‘superior’ to other post-school outcomes. Oddly, this argument assumes that the distribution of talents and interests across schools and school sectors matches that of post-school outcomes. There is little evidence that there is a close match. Furthermore, the view that university education is not more desirable than other outcomes is not credible. Currently, more than 50 per cent of Year 9 students intend to go university and there is no doubt that university education is associated with less unemployment, higher status jobs, higher incomes and greater wealth (Borland 2002; Lamb 2001; Marks et al. forthcoming). If substantial proportions of highly talented students from lower socioeconomic backgrounds cannot go to university and far less talented students from higher socioeconomic backgrounds do, then there is a serious social equity problem. Because of the substantial rewards to university education, the great danger for Government school systems is that the ‘celebration of diversity’ argument will be interpreted by parents as Government schools ‘giving up’ on university entrance.
A related argument is that the focus should be on tertiary education more generally, rather than limited to university participation. In other words participation at university or at a Technical and Further Education (TAFE) institution should not be distinguished. It is true that there has been some merging of the two sectors but university and TAFE courses are quite different. The types of courses offered are very different, as are the entry requirements. They are associated with very different labour market outcomes. Degrees have much stronger effects on subsequent time spent in full-time work than TAFE qualifications, and TAFE certificates do not reduce the chances of unemployment whereas degrees do (Marks et al. 2003). Participation in a non-apprenticeship TAFE certificate course does not appear to improve the chances of obtaining full-time work (Marks forthcoming). So the two types of post-secondary education should not be grouped together. Furthermore, even if university and TAFE courses are assumed to be equally acceptable post-school outcomes, Government school students still show lower levels of participation. Of Victorian students who applied for a place at a tertiary institution (university or TAFE), 83 per cent of Government school students were offered a place compared to 88 per cent of Catholic and 94 per cent of Independent school applicants (VTAC data cited in Teese et al. 2004: 16).

Another argument commonly used to dismiss school sector differences is to claim that they simply reflect socioeconomic background. It is argued that the observed school sector differences in ENTER score and university participation can be attributed to socioeconomic background. In other words Government schools are just as good at ‘adding value’ to student performance, the only difference is that their students have lower socioeconomic backgrounds so cannot be expected to do as well as other students. This argument is not sustainable. First, the generally higher levels of performance of Catholic school students found in most, if not all, studies cannot be attributed to socioeconomic background since the socioeconomic backgrounds of Catholic school students differs little from that Government school students. Other more credible explanations are higher levels of parental and community involvement with Catholic schools, higher standards of discipline, and greater emphasis on academic performance, as have been found, for example, in the United States (see Coleman and Hoffer 1987). Second, socioeconomic background cannot explain why selective Government schools show the highest levels of student performance, higher than that of the elite Independent schools.4 Their exceptional performance can be simply explained by their enrolment of high ability students. Third, research has shown that socioeconomic background has only a moderate relationship with educational outcomes, not the deterministic relationship so often claimed. The correlations between socioeconomic background and student outcomes are of the order of between 0.2 and 0.3 (Ainley and Long 1995; Marks 2000; Marks et al. 2001: 19). This is consistent with overseas research (White 1980; White 1982). A correlation of 0.3 means that only 9 per cent of the variation in the outcome measure can be accounted for. Finally, when taking into account socioeconomic background, substantial school sector differences remain. Kelley and Evans (1999) found that attendance at a private school with associated with higher chances of completing school and university even when taking into account differences in socioeconomic background.

The strongest evidence that school sector differences in university entrance are not simply reflections of socioeconomic background comes from the Longitudinal Study of Australian Youth Project. In the analyses presented in Table 1, school sector differences in mean ENTER score and university participation are estimated with and without a comprehensive measure of socioeconomic background. The measure

| Table 1 | Effects of school sector and socioeconomic background on ENTER score |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| ENTER score     | University participation |
| Intercept       | 68.9***          | 69.8***         | -0.67***        | -0.51***        |
| School sector   |                  |                 |                 |                 |
| Government (reference category) | - | - | - | - |
| Independent schools | 11.0*** | 7.1*** | 1.30*** | 0.94*** |
| Catholic schools | 4.5*** | 2.9*** | 0.75*** | 0.59*** |
| SES (standardised) | - | 4.9** | - | 0.58** |
| R square        | 0.04             | 0.10            | 0.07            | 0.15            |

Notes: Year 9 1998 cohort. ENTER score in 2002. Participation in either 2002 or 2003. The odds ratios are the exponents of the coefficients. *** P < 0.001, ** 0.001 < P < 0.01, * 0.01 < P < 0.05.
includes information on father’s and mother’s occupation and education (see the Technical notes). If differences between sectors were simply a reflection of socioeconomic background, then there should be no differences when taking into account socioeconomic background.

Independent school students average 11 points higher ENTER scores than do Government school students, with no controls. Controlling for the composite measure of socioeconomic background reduces the difference in ENTER score between Independent and Government school students from 11 to 7 score points, indicating that socioeconomic background accounts for only 36 per cent of the difference (columns 1 and 2). Even when taking into account socioeconomic background, attendance at an Independent school increases the odds of university participation by 2.6.\(^5\) The odds ratio for attendance at a Catholic school is 1.8. These are substantial effects and socioeconomic background only partially accounts for school sector differences.

A similar but less common argument is that sector differences can be accounted for, at least in part, by student ability. Independent schools do recruit high ability students and anecdotal evidence suggests they are less inclined to allow low ability students to compete for tertiary entrance. However, sector differences are reduced but not eliminated by taking into account student ability. Rowe (1999) controlling for performance in the General Achievement test (GAT) found that among the 20 largest VCE subjects, Independent and Catholic school students scored about 0.22 and 0.10 standard deviations higher than students attending Government schools. Similarly, Marks et al. (2001: 28) found that sizable school sector differences in tertiary entrance score remained when controlling for ability.

The first column of Table 2 updates this analysis for the more recent Y98 cohort. When controlling for socioeconomic background and ability measured by achievement scores in literacy and numeracy in Year 9, the average ENTER score of Independent and Catholic school students is 5 and 3 score points above that of Government school students.

The second column of Table 2 shows that substantial sector differences in the odds of university participation remain when controlling for both socioeconomic background and ability. The odds of participation for Independent and Catholic school students (rather than non-participation) are 2.0 and 1.7 times the odds for Government school students, net of socioeconomic background and student ability. So, even when taking into account differences in the ability levels and socioeconomic backgrounds of students attending Government, Catholic and Independent schools substantial sector differences remain.

### Improving outcomes for Government school students

The conclusion from the foregoing discussion is that in terms of university entrance, Government school students are not performing as well as students in the non-government sector. How then, can we improve the outcomes of Government school students relative to non-Government students? The most common response is to redirect resources from the non-government to the government sector since the Commonwealth Government spends nearly twice as much money on non-Government than Government schools (Burke 2003: 23).\(^6\) However, the great bulk of this money is spent on Catholic schools and low-fee Independent schools. No government would stop funding these schools. Discontinuing the funding of the elite and prominent Independent schools is more likely but no solution. If, for example, the 100 most elite Independent schools receive in total $200 million per annum in government funds, this constitutes less than 1 per cent of $21.3 billion spent on primary and secondary education.\(^7\) Furthermore, abolishing funding for the 100 most elite schools is unlikely to substantially decrease sector differences in university entrance.

Another commonly expressed argument is that the Commonwealth Government should substantially increase funding for Government schools. This option has its own political costs; more money for Government schools most likely means less money somewhere else or an increase in taxes. Also, it is not obvious where the extra money would be most effectively spent, on infrastructure, on more teachers, on...
professional development or paying existing teachers more. On a more general point there is no evidence that increasing government expenditure will substantially improve student performance (Greenwald et al. 1996; Hanushek 1989; Woessmann 2003). Furthermore, expenditure on public primary and secondary education in Australia is close to, not substantially below, the OECD average.8

The only practicable policy goal to reduce school sector differences in university entrance is to improve the outcomes of Government school students. Such a policy goal would be attractive to parents, possibly students and many of the other stakeholders. For a start, Government schools can learn from the non-selective Government schools that do show superior student outcomes. Edmonds (1979) identified five factors for effective schools: strong educational leadership, emphasis on basic skills achievement, safe and orderly climate, high expectations of student’s achievement and frequent evaluation of pupils progress. Although the effective schools literature has had its critics, most of the studies find that ‘academic press’ is important. This includes an academic environment conducive to learning, a demanding curricula, high teacher expectations placed on students, and frequent assessment, monitoring and feedback (for example Phillips 1997). It is in the area of academic press where the Government school sector needs to improve, especially among students who are capable and wish to attend university. However, if the performance of Government school students in university entrance does not improve, then the drift from Government to non-Government schools will continue or accelerate.9 Government schools will increasingly be viewed as a second best option and school sector differences in university entrance will widen.

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Measurement of variables

Ability is based on a combination of achievement scores in literacy and numeracy tests that students took when they were first selected. The literacy tests assessed the student’s ability to recognise the main theme of a text, understand relationships between different pieces of information, make inferences, and understand the structure of an argument. The numeracy tests involved simple mathematical operations, more complex numerical problems and pattern recognition. The content of these tests were unrelated to the school curriculum and the test items are similar (or in some cases) identical to those used in general ability tests. Test scores in reading and mathematics are often used to measure ability in US youth cohort studies such as the Wisconsin study and NSLY79.

Socioeconomic background is measured as a combination of father’s occupational status and father’s and mother’s education. The measures were combined into a sheaf variable which maximises its effects on the dependent variable (Whitt 1986). This is a stronger measure of socioeconomic background than simply using one parent’s occupation or education.

Methods

To estimate the initial difference in tertiary entrance score, the following equation is estimated:

\[ \text{ENTER}_\text{Score} = a + b_1 \text{CatholicSchooling} + b_2 \text{IndependentSchooling} + e_1 \]  

(Eq. 1A)

This is the same as the differences in the mean ENTER scores of Catholic and Independent school students with the average score of Government school students.

University Participation is based on a logistic regression equation:

\[ \text{Participation} = a + b_1 \text{CatholicSchooling} + b_2 \text{IndependentSchooling} + e_1 \]  

(Eq. 1B)

To take into account socioeconomic background:

\[ \text{ENTER}_\text{Score} = a + b_1 \text{CatholicSchooling} + b_2 \text{IndependentSchooling} + b_3 \text{ParentsSocioeconomicStatus} + e_1 \]  

(Eq. 2A)

\[ \text{Participation} = a + b_1 \text{CatholicSchooling} + b_2 \text{IndependentSchooling} + b_3 \text{ParentsSocioeconomicStatus} + e_1 \]  

(Eq. 2B)

To take into account socioeconomic background and ability:

\[ \text{ENTER}_\text{Score} = a + b_1 \text{CatholicSchooling} + b_2 \text{IndependentSchooling} + b_3 \text{ParentsSocioeconomicStatus} + b_4 \text{StudentAbility} + e_1 \]  

(Eq. 3A)

\[ \text{Participation} = a + b_1 \text{CatholicSchooling} + b_2 \text{IndependentSchooling} + b_3 \text{ParentsSocioeconomicStatus} + b_4 \text{StudentAbility} + e_1 \]  

(Eq. 3B)

Endnotes

1Tertiary Entrance Scores range from about 30 to 99.95.
2These estimates for university participation are lower than other estimates since the sample includes students in Year 11 and below. The ABS table referred to did not distinguish Catholic from other non-Government school students.
3In 1998, 51 per cent of the Year 9 students indicated that they planned to do a university course after completing school. This compares with 47 per cent of Year 9 students in 1995.
4For example, Melbourne High School and McRobertson Girls High School students show very high levels of University participation (see Teese et al. 2004: Appendix 2). In 2002, the median ENTER score for Year 12 students at Melbourne High School was 94.6 (Melbourne High School Website http://resources.mhs.vic.edu.au/mhs/main.html). In New South Wales the 25 or so selective Government schools are in high demand because of their superior

Data

The data analysed for this paper are from Year 9 1998 cohort from the Longitudinal Studies of Australian Youth (LSAY) project. The initial sample comprised over 13,000 students from all states and territories. The sample was selected by a two step procedure: first schools were randomly selected with probabilities according to size followed by random selection of classes within schools. For more details on the LSAY project see Marks and Rothman (2003).
student outcomes. However, to my knowledge there is no publicly available publications or data which compares the performance of NSW selective schools with other types of schools.

The odds ratios are the exponents of the coefficients. The interpretation of the odds ratio is relative to the contrast group, the odds of Catholic or Independent school students participating at university are so many times the odds for Government school students. The odds ratios are the ratio of the odds of going to university rather than not going to university for the group of interest to the odds for the contrast group.

According to Burke (Burke 2003), the Commonwealth Government spent about $2.9 billion on non-Government schools of a budget of $4.6 billion.

Figure of $21.3 billion for 2001-2002 from Burke (2003: 15). This figure includes $3.8 billion in fees and donations (Burke 2003: 23).

According to the OCED, public expenditure in Australia on primary, secondary and non-tertiary education at 3.7 per cent of Gross National Product is higher than that the OECD average of 3.4 per cent (OECD 2003: 208).

The proportion of students attending non-Government schools increased from 21 per cent in 1977 to 32 per cent in 2002 (Dennis 2004). Most of the growth has been among independent schools with enrolments increasing by about 4 per cent per annum compared to an increase of 1 per cent per annum among Catholic schools (Burke 2003). The strong growth of the non-government sector is also evident in the growth of the number of 'schools in the non-government sector being over 4 per cent per annum between 1984 and 1998 (Jensen 2002).

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