Determinants of post secondary aspirations of secondary students

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Introduction

This paper examines the cultural and economic influences behind the decision to attend higher education. While the decision making process is long, and varies significantly between individuals, Foskett and Hemsley-Brown (2001) note that patterns can be identified suggesting important differences between groups. In particular aspirations are dependant on a student's gender, ethnic background and socio-economic status (the demographic of university students is also dependant on the geographic location of the student; however, this variable is not considered within this study). A student's ambition to attend university is also impacted by other factors and in particular we consider cultural factors (including the type of school they attend and the role of the teachers) and economic considerations such as opportunity costs.

To examine these influences a binary logit model is developed to measure the marginal effect of variables on the probability of a student aspiring to attend university. The emphasis is on measuring the influence of variables rather than choice per se as the use of the word choice can be considered misleading due to a number of factors. Firstly we consider influences rather than specific information which an individual may use to make a choice (for example, expected future income). Secondly, it is argued that many students in fact have little or no 'true choice'. The effect of the variables is considered in the context of the sociological theory of 'structure', which maintains that social systems are influential and act as a significant constraint on individual behaviour leading to a reproduction of the macro-environment. (There is also an opposing view of 'agency' revolving around personal choice largely without constraint; however, the focus of this paper is on theory of structure).

The 'Aspirations Online' project

This study is based on data from the 'Aspirations Online' project that surveyed year 9 through to year 12 students (aged from 15 to 18) from 36 high schools in Melbourne's western suburbs in 2006-7. The 36 schools in the 7 municipalities that took up the offer to participate comprised a cross-section of the three broad 'types' of schools found in Australia: 23 public (funded and managed by the State Governments), 6 independent and 7 Catholic schools. A

total of 2198 students responded to the survey. Of the completed surveys, 56 per cent were paper based. The survey asked year 11 and 12 students approximately 140 demographic and attitudinal questions, on paper and online. Year nine and ten students answered a shorter version of the survey in both formats. Project information was multilingual, in 16 languages. This region was selected because it provides a unique mix of socio-economic background, in large part due to a recent trend of positive net migration to the inner-suburbs of Melbourne. Further, the region is also characterised by high levels of cultural and linguistic diversity.

The impact of socio-economic status and ethnic background on secondary students' aspirations to attend university

Within the context of higher education, those students from high socio-economic backgrounds are more likely to attend university while those with a lower background tend to enrol in technical and further education (TAFE), a lower-level qualification gained at a vocational training institution, or enter the workforce after completing their final year of secondary school.

Two alternative perspectives that have influenced sociology are from French scholars Bourdieu (1973) and Boudon (1974). Central to Bourdieu's approach is the concept of cognitive 'habitus', which can be thought of as habits arising from customs, traditions or rules of a society. These habits are, in turn, heavily influenced by the social class structure. In economics this would be consistent with the effects of social norms on decision making. Bourdieu defines cognitive 'habitus' as a collection of dispositions which in turn is a tendency to act (Nash, 2005). According to Bourdieu (1973: 83) this has a direct impact on the composition of student backgrounds in the education market.

> It follows from this that the negative dispositions towards the school which result in the self-elimination of most children from the most culturally unfavoured classes and sections of class...must be understood as an anticipation, *based upon the unconscious estimation* of the objective probabilities of success possessed by the whole category, of the *sanctions objectively reserved by the school* for those classes or sections of a class deprived of cultural capital. [Emphasis added]

There is a number of important points to be made. The first is that the evaluation of the costs and benefits are 'unconscious' thereby suggesting that there is no conscious decision to be made. Secondly, school environment plays a key role in moulding the student's view of costs and benefits of education. Together it can be seen that the social system (including the school) seeks to exclude the most culturally unfavoured classes. These points are well made in Nash (1990).

In contrast to Bourdieu, Boudon (1974) suggests that cultural reproduction occurs as a result of conscious decisions made by the student and their family whether to continue study

and, if so, then to progress to a more prestigious education. Boudon (1974) suggests that there are two effects, primary and secondary, that account for the fact that students from high socio-economic status families are more likely to obtain higher qualifications and seek prestigious occupations. The primary effect is that the lower the socio-economic status, the poorer the cultural background, the lower the school achievement and the more likely the student is to step out of the education market.

The secondary effect is that given two students with the same school achievement (and hence the same primary effect) but with different socio-economic backgrounds, the one with the lower background is less likely to choose to continue on to university. According to Boudon (1974) both students will consider the (opportunity) costs and benefits of attending university but these costs vary according to the socio-economic status of the student. In the case of the high socio-economic status student the cost of not attending university involves a fall in their social status that is large. However, for the student with the low socio-economic background the benefit of going to university, that is the benefit of increasing their status, is not considered as high. Students with low socio-economic backgrounds may also consider costs such as losing touch with friends when considering whether to attend university or not.

Boudon (1974) goes on to show that even in the absence of primary effects, the secondary effects are large and result in higher education being dominated by high socio-economic status students. As a result he claims that secondary effects are more critical and that inequality of educational opportunity lies outside rather than inside the school and is a result of decisions of costs and benefits of students and their families.

Bowden and Doughney (forthcoming) find that the socio-economic status impacts on the aspirations of secondary school students to attend university. However, it was also found that preference for higher education is significantly stronger in households in which English is not the main language spoken at home. This is consistent with other studies. Taylor and Krahn (2005) find that visible minority immigrant youths in Canada are more likely to aspire to go to university than Canadian born non-visible minority counterparts. Kao and Tienda (1998) find that Asian, Black and Hispanic youth in America report higher aspirations than would otherwise be expected based on socio-economic status alone.

One explanation for this is that ethnic cultural groups are more likely to encourage success at school as well as participation in higher education. Marjoribanks (1991) finds that Greeks and southern Italians had more supportive family context than Anglo/Australians. In a British study Allen (1997) finds that a higher proportion of ethnic minority respondents believed that higher education was greatly valued by their family than that for whites. Bowden and Doughney (forthcoming) also find that students from a non-English speaking background are more likely to perceive stronger levels of support from parents (however, greater than 90 per cent of all students believe they receive some encouragement from their parents to do well at school).

Methodology

A binary logit is used to model the influences of macro-variables which has the standard form:

$$P(y_i = j) = \frac{e^{\chi_i'\beta}}{1 + e^{\chi_i'\beta}}$$

where *i* represents the individual students in the sample and *j*, the aspirations of each student. Specifically, if the student aspires to attend university then *j* equals one otherwise it is set to zero. $\chi_i'\beta$ is a vector containing the independent variables including the constant. The marginal effects (of the k^{th} variable) for continuous (or a variable where the underlying concept is continuous such as the Likert Scale) is the partial derivative $\partial(y_i \mid \chi_i'\beta)/\partial x_k$ while for dummy variables the marginal effect must be measured as the difference in the height of the cumulative distribution function when the variable is one and when it is zero.

Independent variables

The independent variables included in the model serve two purposes. The first is to capture adequately the structural variables that influence a secondary student's choice of whether to attend university. The second purpose is to capture the variables that both Boudon (1974) and Bourdieu (1973) consider to underpin the reproduction of society. In line with the first purpose, three key variables included in the model are socio-economic status, ethnic background and gender.

1. *Socio-economic status* could be said to fit within both of the alternative theories of Boudon (1974) and Bourdieu (1973). As a result its significance does not support one theory over another. However, as it has been seen as an important indicator of student aspirations as well as enrolments it is important to include it in the model in order to ensure that it is adequately specified. The socio-economic status of students is measured by the level of parental education. In Bowden and Doughney (forthcoming) we argue that this is an appropriate measure of socio-economic status with support coming from Marks et al. (2006), who find that cultural resources play a more important role than material resources, and James (2002), who finds that parental education levels are perhaps the most reliable indicator of educational aspirations.

2. *Ethnic background* is captured in this study by splitting students into two groups according to whether they speak English at home. One question in the Aspirations Online survey asked respondents: 'Is English the main language spoken in your family?' Students who responded 'Yes' were classified as 'English-speaking background' while those who answered 'No' were classified as 'non-English speaking background'. As noted in Bowden and Doughney (forthcoming) while this approach does not capture the

differences between different cultural groups it does capture the broad differences faced by those migrants that are from countries that speak English as a first language from those that are not.

3. *Gender*. There is reasonable international evidence that females undertake degree qualifications in greater proportions than males (see Le and Miller (2002) for an Australian context).

The following variables were included in the regression equation in order to attempt to capture Bourdieu's (1973) concept of cognitive 'habitus'.

4. *Wealth*. The Aspirations Online survey made the statement that 'University is really only an option for wealthy people' and then asked students if they disagreed or agreed with this statement (1 = strongly disagreed, to 5 = strongly agreed).

5. *School effects*. Bourdieu (1973) felt that the school environment played an important part in social reproduction while Boudon (1974) felt that it played a much more neutral role. The three broad types of schools found in Australia are picked up in the regression equation by two dummy (or indicator) variables CS (=1 if attended a Catholic school) and IS (=1 if attended an independent school).

6. *Views of teachers (Tviews)*. Consistent with the philosophy that teachers are the gate keepers to further education we include a variable that captures the teachers' influence on aspirations. Specifically students were asked whether their teachers encouraged them to attend university (1 = strongly disagreed, to 5 = strongly agreed).

Two variables were included to attempt to capture the effects that Boudon (1974) believed were important: the views of parents and the opportunity cost associated with losing friends by attending university.

7. *Views of parents (Pviews)*. The survey asked students 'if their parents wanted them to undertake a degree' (1 = strongly disagreed, to 5 = strongly agreed).

8. *Losing friends*. Students were asked if they agreed with the statement that 'going to university will mean they will lose touch with their friends' (1 = strongly disagreed, to 5 = strongly agreed).

Results and discussion

There are three key results from the analysis. The first is that all variables are significant except for socio-economic status. This has two implications; both cultural (Bourdieu) and economic (Boudon) variables are important for understanding the main influences behind

student aspirations. Also when cultural and economic variables are adequately (rather than completely) covered in the regression analysis then socio-economic status adds little to the result. The second result is that socio-economic status appears to be more important for students from an ethnic background. The final key result is that Internet access at home appears to be a key determinant in understanding aspirations. The results of the binary logit model are presented in Table 1.

As can be seen from Table 1 all variables have the expected sign. Student preferences for higher education are stronger (with marginal effects included in brackets):

- in households in which English is not the main language spoken at home (11.8 per cent);
- in households in which at least one parent attended university (2.9 per cent);
- where the student attended either a Catholic (9.1 per cent) or independent school (8.9 per cent);
- when the student was encouraged to attend university by their teachers (7 per cent);
- when the students' parents wished for them to attend university (10 per cent);
- for females (9.8 per cent); and
- when the student had access to the Internet at home (14.9 per cent).

Table 1: Determinants of students' aspirations to attend university

	Coefficient	Std Error	Prob
Constant	-2.71	0.35	0.000
English not spoken at home	0.71	0.15	0.000
Socio-economic status	0.19	0.16	0.215
University is only for the wealthy	-0.21	0.05	0.000
Student attends an independent school	0.56	0.23	0.014
Student attends a Catholic school	0.56	0.16	0.000
My teachers have encouraged me to go to university to do a degree	0.40	0.05	0.000
My parents want me to do a degree course	0.57	0.06	0.000
If I did a degree I would lose touch with my friends	-0.20	0.06	0.000
Internet access at home	0.74	0.18	0.000
Gender	0.55	0.13	0.000

Note: The results of the goodness of fit tests, the H-L Statistic and the Andrews Statistic respectively, were χ^2=8.3799 (p=0.3973) and χ^2=8.9085 (p=0.5408).

Student preferences for higher education are weaker if they believe that:

- they will lose touch with their friends (-3.6 per cent); and
- university is only for the wealthy (-3.7 per cent).

A second model was run without the socio-economic status variable and it was found that the outcomes of the goodness of fit tests, the H-L Statistic and the Andrews Statistic, were χ^2=13.8326 (p=0.0862) and χ^2=16.1460 (p=0.0955) respectively. Therefore, at the 10 per cent level, the null hypothesis 'that the model is correctly specified' is rejected and we conclude that the socio-economic status variable should not be removed. However, we note that the effect is not large.

The importance of Internet access at home

In a somewhat surprising result the analysis suggests that having access to the Internet at home is a strong determinant of aspirations. It is surprising in that many studies have found that a family's economic status is not a strong determinant of university enrolments (which is why most studies use parental education attainment rather than, say, income as a indicator of student enrolment at university). Having access to the Internet at home could potentially be an economic or a cultural variable. On the one hand, it is a good source of information and could lead to a better assessment of the costs and benefits of attending university. On the other, it could give students the opportunity to broaden their cultural exposure. However, more work is needed to better understand this link.

Is the model under-specified?

There are some concerns that the model may be under-specified. In particular while the ability of the model to predict that a student aspires to attend university is high (92.24 per cent), the model was only able to predict correctly when a student does not aspire to attend university 40 per cent of the time. This is shown in more detail in Table 2.

Therefore, the marginal effects of the model give an indication of the size of the effect only and in particular may change when other significant variables are considered. We suspect

Table 2: Expectation-prediction evaluation for binary specification

	Dep=0	Dep=1	Total
P(Dep=1)<=0.5	192	95	287
P(Dep=1)>0.5	288	1129	1417
Total	480	1224	1704
Correct	192	1129	1321
% correct	40	92.24	77.52
% incorrect	60	7.76	22.48

Table 3: Determinants of students' aspirations to attend university (model 2)

	Coefficient	Std Error	Prob
Constant	-1.54	0.20	0.000
High SES english not spoken at home	0.70	0.18	0.000
Low SES english not spoken at home	0.36	0.09	0.000
High SES english spoken at home	0.06	0.10	0.54
University is only for the wealthy	-0.12	0.03	0.000
Student attends an independent school	0.32	0.13	0.012
Student attends a Catholic school	0.30	0.09	0.000
My teachers have encouraged me to go to university to do a degree	0.23	0.03	0.000
My parents want me to do a degree course	0.31	0.03	0.000
If I did a degree I would lose touch with my friends	-0.12	0.03	0.000
Internet access at home	0.44	0.11	0.000
Gender	0.32	0.07	0.000

Note: The results of the goodness of fit tests, the H-L Statistic and the Andrews Statistic respectively, were χ^2=8.1670 (p=0.4173) and χ^2=8.1619 (p=0.61.30). All variables have the correct sign.

that one of the variables that need to be included in the model is the previous marks of the student. In particular, it is anticipated that the higher the marks of the student, the more likely they are to aspire to attend university. However, there is a problem of causality as the reverse is likely to be true as well. That is, in the event that a student does not wish to attend university, they are less likely to strive for higher results in exams.

Combining the effect of ethnic background and socio-economic status

To examine the effect of socio-economic status for students by ethnic background we combine the effect of each by constructing three dummy variables for the students' family background, each of which is compared to the base case, low socio-economic status and English spoken at home, with the marginal effects again provided in the brackets as follows:

- high socio-economic status and English not spoken at home (13.6 per cent);
- low socio-economic status and English not spoken at home (7.7 per cent); and
- high socio-economic status and English spoken at home (1.4 per cent).

The result of the regression analysis is presented in Table 3.

The results of the analysis suggest that for students from an ethnic background the effect of socio-economic status is stronger than for students that speak English at home. These results are tentative and we have not considered the theoretical reasoning for such a result. However, they may point to an area of future research.

Conclusion

A binary model has been developed to examine the cultural and economic decision to attend higher education. We find that both economic and cultural variables play a role in the forming of aspirations to attend university (or not) after completing school. When the cultural and economic factors are adequately covered by the model then socio-economic status (as an independent variable) does not play a significant role. We also find that socio-economic status appears to be more important for students that do not speak English at home than for students that do. In a somewhat surprising result, aspirations are impacted by whether a student has access to the Internet at home. We are not able to determine if economic or cultural factors are behind this result. Given the importance of the Internet, knowing whether cultural or economic factors underpin this relationship may be important in any policy prescription to increase the level of low socio-economic status students enrolled in universities. Finally, the impact of the type of school attended by the student is also strong, independent of the level of teacher encouragement and socio-economic status, and warrants further investigation.

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