Gender Specific Peer Groups and Choice at Sixteen

Don J. Webber

School of Economics, 'University of the West of England, Bristol', UK and
Policy Research Institute, 'Leeds Metropolitan University', UK

Abstract:

The UK government's aim of achieving a 50% staying on rate in higher education at the age of 16 might not be achievable because it is demand-constrained: not all students want to stay on in education at 16. Peer groups are known to be stronger for boys than for girls and often influence choice at 16. The purpose of this paper is to examine the influence of gender-specific peer groups on students' *intentions* and *realisations* to stay-on into post-compulsory education at the age of 16. The results suggest that boys' intentions and realisations are influenced by their male peers. However, girls' intentions are influenced by their whole peer group while their realisations are influenced by their female peer group. Policy targeted to increase participation rates should recognise these gender differences.

JEL Classification: J24, J31, I2.

Keywords: Education economics, School choice.

Correspondence Details: Dr Don J. Webber, School of Economics, 'University of the West of England, Bristol', Frenchay Campus, Bristol, BS16 1QY, UK. Tel: +44 117 328 2741. Fax: +44 117 328 2295. Email: Don.Webber@uwe.ac.uk.

Gender Specific Peer Groups and Choice at Sixteen

Abstract:

The UK government's aim of achieving a 50% staying on rate in higher education at the age of 16 might not be achievable because it is demand-constrained: not all students want to stay on in education at 16. Peer groups are known to be stronger for boys than for girls and often influence choice at 16. The purpose of this paper is to examine the influence of gender-specific peer groups on students' *intentions* and *realisations* to stay-on into post-compulsory education at the age of 16. The results suggest that boys' intentions and realisations are influenced by their male peers. However, girls' intentions are influenced by their whole peer group while their realisations are influenced by their female peer group. Policy targeted to increase participation rates should recognise these gender differences.

JEL Classification: J24, J31, I2.

Keywords: Education economics, School choice.

1. Introduction

If the UK government is going to achieve its objective of having 50% of people under the age of 30 to have experienced higher education by 2010, then more students must decide to stay-on having realised their intentions to stay on or having changed their mind away from intending to leave. This government objective might not be achievable because it is demand-constrained: not all students want to stay on in education at 16. Moreover, rates of participation in higher education are unequal across groups within society (Dearing, 1997) and one of the UK government's priorities is to encourage participation from groups that have been underrepresented in higher education. This is exemplified in the UK government's Green Paper – *The Learning Age–A Renaissance for a New Britain* – which emphasises the need to identify both the factors that lead some young people to decide not to enter higher education and also the factors that are associated with low rates of participation by various social groups.

One factor that has been identified as being important for decision making at the age of 16 is the role of peer groups. The purpose of this paper is to investigate whether students are influenced by whole-group and gender-specific peer-groups when making their decision to stay-on into post-compulsory education at the age of sixteen. This choice is separated into two a) the *intention* to leave education at the age of sixteen and b) the *realisation* of this decision. This will allow us to gather information that could inform us on policies that may be developed to increase participation and identify characteristics of those individuals who are most at risk of not staying-on before their decision is taken. If a cohort has a large proportion leaving education at

the age of 16, then there will be greater pressure on those intending to stay-on to realise their intentions. The next section of this paper reviews the literature and discusses rationale that suggests peer groups might be gender-specific. Theory and modelling, data description, results and conclusions then follow in order.

2. Literature Review

A common hypothesis is that student outcomes, including the probability of staying-on into post-compulsory education, are higher in the presence of good peer groups. Measures of peer-group characteristics include mean student ability and the social class of parents, perhaps generated by parental education. Thomas & Webber (2004) use both of these proxies and identify that peer groups are multidimensional: not only will the probability that a student stays-on into post-compulsory education increase with higher ability peers, but this probability will also be enhanced with increases in the social class of peers' fathers and with the educational backgrounds of peers' parents. The peer groups of the parents, often formulated by their occupation and their educational background and frequently associated with income, will influence the probability that the student will accumulate knowledge at the post-compulsory educational level.

Some of these factors are endogenous. For instance, Oates (1977) conjectures that peer group quality might be proxied adequately by income while Evans, Oates & Schwab (1992) suggest that individual households make a residential location choice, often influenced by income, and are inadvertently choosing a peer group for many of their local services, including their local school(s) for their children's education.

Residential mobility is likely to be greater and more selective (because of more choice) for the higher earners in society, and this will lead to schools being perceived to be producing higher-achieving students because of a clustering of wealthier and more educated parents around a school.[1] Nevertheless, there will still be individuals who are trapped in an urban underclass because of their lack of purchasing power for a house in a different location; their choice of housing will be constrained to geographically isolated neighbourhoods (Wilson, 1987). However, such effects are likely to be small in areas that have high proportions of ethnic minorities, as ethnic minorities tend to live near to each other, which waters down the income/residential location effect.

Notwithstanding such endogeneity, the composition of a student's peer group will influence the probability of the student staying-on into post-compulsory education. Clearly the development of peer relationships begins in early childhood. However, due to the increasingly complex development of cognitive skills in later schooling, peers become more important and children will associate with others who are similar to themselves in terms of gender and other areas such as academic motivation and achievement (Kindermann, 1993).

[1] This endogenous relationship will mean results generated from ordinary least squares estimation procedures will be inappropriate. Evans, Oates & Schwab (1992) employ ordinary least squares and simultaneous equation estimates to identify the importance of peer groups on teenage school dropout behaviour and pregnancy. Their results suggest that single equation estimates that do not control for endogeneity often indicate significant peer group effects that vanish with the use of simultaneous equations. Data availability problems often preclude such estimates. Evans, Oates & Schwab (1992) do not reject the role of peer groups out of hand, but rather they find that the effects are to some extent under the control of the individuals who choose to become members of the peer group.

The presence of more able children in the classroom will have a favourable effect on educational achievements, perhaps by imparting higher motivation or better learning discipline. Henderson, Mieszkowski & Sauvageau (1978) find that the increase in educational achievement, consequent on an improvement in peer group, is equal for all abilities and shows diminishing marginal returns. In contrast, Coleman *et al*. (1966) find that the sensitivity of educational achievement to the percentage of high achievers is less for students with higher scores, while Summers & Wolfe (1977) find that the improvement is greater for the less able child.

Gender Differences: Boys

Mac an Ghail (1994) argues that peer groups are stronger for males than females. This is because various elements inform how male students should act within schools, which he terms the 'macho-male' culture, and is associated with the perception of academic life being more suitable for females. Archer and Yamashita (2003) stress this further when they pay particular attention to male constructions of 'bad boy' masculinities that are positioned in opposition to education and which are discussed in relation to hegemony, patriarchy and racial/class inequalities in inner-cities.

Some empirical evidence supports the proposition that males are more influenced by peers than are females.[2] Burlingame (1967) found that adherence to peer culture was

[2] The role of peer groups is likely to be prevalent across all spectra of activity. Some research that would appear to corroborate such findings has been conducted into offending amongst young people. Jamieson, McIvor & Murray (1999) found a higher rate and frequency of offending among boys than among girls. Girls were more likely than boys to report having never offended and were less likely than boys to be classified as persistent offenders. At least some of this variation could be attributed to different peer influences. The authors found that peer pressure was considered by young people to be particularly influential in respect of offending among boys.

greater amongst boys than girls and that adherence to the peer group was negatively correlated with educational achievement. This supports the 'macho lads' culture identified by Mac an Ghaill (1994) and could lead to the conclusion that masculinity is a non-academic trait that may result in males leaving education early to nurture their masculine identity. Following this line of thought, it may be the case that males have to look for intellectual approval before they decide to continue onto post-compulsory education, and for this intellectual approval to be associated with masculinity. Male intentions to continue onto post-compulsory education might be influenced by their male peers, but this is not to say that their male peers equally determine the realisation of this intention. Boys might intend to leave education to earn money and to break away from an activity that might be perceived as being feminine; however, when the decision to stay-on in education is actually made, boys might then gather more information in order to make a better-informed decision that might change their time discount rate of the future earnings.

A difference between intentions and realisations of decisions to participate in post-compulsory education could be linked with the accumulation of more knowledge. Attitudes associated with changing masculine identities were examined by Marks (2003) who hypothesised that as society changes from being production-led to information-led the nature of working class masculinity will have to change and move away from the working class masculinity which was previously seen as being inextricably linked to notions of hard, unpleasant work. If boys appreciate that greater future purchasing power, linked with information-led production, will be the result of greater quantities of human capital then this shift in masculine identity would increase the probability of boys staying-on into post-compulsory education. Such additional

advice and information can be acquired from a range of sources, including parents, friends, teachers and careers' advisors. Hence, if boys are told that they should stay on, and they respect and value the source of this information, boys might be more likely to stay on.

If Mac an Ghaill (1994) is correct, there should be no surprise that the decision to continue on to post-compulsory education is based on a wealth of contrasting and contradictory forces which can confuse or strengthen the decision making process of boys. Such complex decision-making processes have not been identified, or are not as well documented, for females leading to the supposition that the decision-making process for female pupils might be based upon more straightforward choices, such as ability.

Gender Differences: Girls

Although girls are seen by Mac an Ghaill (1994) as having less influential peer groups, this is not to say that peer groups will not have any influence on their decision to stay-on into post-compulsory education. When girls intend to stay-on into post-compulsory education, this might well be because they view post-compulsory education as a way of increasing their prospects of achieving a job with greater income streams or a job that will provide them with a higher utility levels. This is similar across gender. However, Francis (2000) finds that girls' increased career ambition, coupled with a feeling that they may be disadvantaged as women in the

workplace, is providing girls with the impetus to achieve.[3] This corresponds with the change in girls' career aspirations over the last twenty years. Although Spender (1982) found that girls were prepared to work until they were married, and then stop work or assume the role of secondary breadwinner, Francis (2000) finds that primary and secondary school girls are now far more career minded. A variety of factors could have contributed to this change including more successful role models in the media (perhaps the most prominent over the last twenty years being the former British prime minister, Margaret Thatcher). Francis (1998) finds that the increasing number of single-parent families could have had a significant effect when she writes that pupils informed her that women must fend for themselves as you 'cannot rely on a man'. Equal opportunities programmes could also have contributed to a change in impetus to stay-on in education and girls may see gaining qualifications as imperative in securing their future careers if gender discrimination exists in employment practices (Francis, 2000).

Although relatively autonomous thought processes might influence girls' *intentions* when compared to the decision making process of boys, this is not to say that the *realisations* of girls' intentions are based on equally independent thought. In the same way that Marks (2003) suggests that societal changes from production-led to information-led output would stimulate changes in the nature of working class masculinity, the recognition of productive activity being more suited to the non-traditional perception of masculinity might also stimulate girls to decide to stay-on into post-compulsory education.

[3] Francis (2000) supports this with evidence that girls are now considering a far wider range of occupations than they did in the 1980s and that these occupations increasingly require degrees as an

Changes in workplace characteristics and roles could have had an effect in a slightly different way. Pickering (1997) speculated that higher levels of motivation for girls to stay-on into post-compulsory education may be because they feel that they have to do better than boys in order to compete with them on even terms in the workplace.[4] If girls do base their intentions on independent thought, they might accumulate qualifications to let their 'CV do the talking' so they can avoid competitive pressures with other girls and boys. Hence, girls might decide to stay-on into post-compulsory education at the age of sixteen and do exactly what their female peers decide to do to avoid competition with their female pee4s in a world that they might perceive as being gender-driven.[5]

So are whole-cohort and gender-specific peer groups stronger for boys than for girls and are peer groups important in shaping intentions and realisations of the decision to stay on into post-compulsory education at the age of sixteen?

---

entry requirement (such as doctors of solicitors).

[4] Benenson, Roy, Waite, Goldbaum, Linders & Simpson (2002) examine whether females exhibit greater discomfort than males in competitive contexts, which could account for females' greater avoidance of direct competition. They found that female children exhibit significantly more discomfort than males when they were asked to choose one leader for their groups, even though there were no gender differences in then level of participation or length of negotiations during the process of leadership selection. They provide evidence that females exhibit higher levels of discomfort than males when competing directly with same-sex peers. One plausible proximate reason for sex differences in engagement in direct competition is females' more negative emotional response.

[5] Peer group effects may well have an effect through the psychological consequences of success or failure. Okamoto (1999) investigates the relation between the existence of intimate others and fear of success for 302 undergraduate students and shows that males tend to be afraid of success when they have fear of failure, while females tend to be afraid of success when they think that success would violate their traditional feminine role. In an educational setting, this might transpire to have an affect on the decision to stay-on into post-compulsory education: if boys' peers are staying-on into post-compulsory education then boys might feel they are being perceived as a failure if they decide not to stay-on; if girls peers increasingly perceive educational success to abide with the traditional feminine role, and increasingly do so with the societal change from production-led to information-led output, then staying-on in education will strengthen their perceptions that they are conforming to the expectations placed on them by society and not to compete against it.

3. Theory and Modelling

The theoretical model that underpins the empirical section is the standard model of human capital. This tells us that individuals make decisions regarding education by comparing the utility streams associated with leaving education to those from continuing and leaving at some time in the future. In such models extra schooling, which represents a cost to the individual in terms of foregone earnings and direct costs of education, enhances the individual's productivity and leads to higher future wages. It is by comparing these costs and benefits that the individual decides upon the optimal amount of schooling to undertake. One stays-on until the economic costs of doing so become greater than the benefits.

In modelling this decision we can follow two approaches. The structural approach, adopted by Willis and Rosen (1979), uses a two-stage modelling procedure. In the first stage a logit model of the decision to stay-on is estimated, using variables assumed to determine expected wages and discount rates. This model is then used to compute extra regressors that correct for any sample selection bias in the education specific wage equations in the manner of Heckman (1976). Using the corrected equations predicted wages are computed for each of the options, and these are then included in the structural logit model.

A second approach adopted here estimates single equation logit models, where no attempt is made to compute the future expected wage.[6] The estimates employ measures of ability and other variables as proxies for the expected difference in

wages, discounted rates and other factors believed to affect the decision. Examples of this approach using UK data are Micklewright (1989), Rice (1987, 1996) and Thomas & Webber (2004).

Even though a multitude of factors may influence individuals in the cohort to different extents, the intention to stay-on into post-compulsory education should be modelled in a manner that incorporates both individual effects and the effects of clustering across schools. A multilevel statistical analysis may therefore be appropriate and would be in accordance with recommendations made by Brooks (1998). Consider the following education production function:

$$D_{ij} = \beta_0 + X_{ij}\beta_1 + P_j\beta_2 + \varepsilon_{ij} \quad (1)$$

where D_{ij} is the decision of student *i* in school *j* to stay-on into post-compulsory education and is a function of student and family characteristics, X_{ij}, and characteristics of the peer groups, P_j.[7] Unobserved determinants of achievement are captured in an error term, ε_{ij}. There is a possibility that the explanatory variables are correlated with the error term. Such correlations could stem from the omission or the incorrect capture of the family determinants of the decision to stay-on into post-

[6] Various data sets indicate that students frequently have unrealistic expectations of their future wage streams.

[7] The data set indicates which individuals study in each school; it does not indicate whether individuals are friends of other students and whether they are considered their immediate peers by the student. This leads us to have to assume that the whole cohort represents the student's peers. Nevertheless, this might be a correct assumption because direct peers are often comprised of different people for each person: different groups of the cohort will influence different people but each person will then have an effect (to varying extents) on each of the other students.

compulsory education that are correlated with the peer variables because of family sorting.

The econometric method relies upon within-school variation in peer characteristics, such that the error term has a school-specific component that is constant for each individual in a school, u_j, and an idiosyncratic component that varies across individuals within schools, v_{ij}:

$$\varepsilon_{ij} = u_j + v_{ij}$$

Biased estimates of β_2 may result from correlation between peer-group variables and the school-specific component ($COV(P_j, u_j) \neq 0$), but such bias may be attributable to peer effects that function at the school level.

4. Data

4.1 Data Set

The data are drawn from the Bradford Youth Cohort Study (1998 Sweep) that was collected at the school level by the Policy Research Institute (at Leeds Metropolitan University) and is an important source of information about the attitudes of students in a vibrant and multicultural city environment. The principal objective of the survey was to examine the experiences and attitudes of young people about a range of issues associated with education, qualifications and the labour market in order to inform the

policy and practice of organisations including schools, the careers service and the Training and Enterprise Council. Thirty-two schools were included in the sample and both public and private schools were represented.

At the centre of the work was an administered questionnaire that was distributed in class time with students completing them under teacher supervision. As the data in the survey were collected at school-level, the probability of an individual being included in the sample depends on the school that he or she attends. There exist two levels to the data here: the individual level and the school level. We cannot estimate a model of pupil choice, ignoring the fact that the individual data are clustered within schools; to do so would be to assume independence of observations, which is unlikely to be true as individual observations are clustered within schools and are therefore likely to be correlated. The solution to this problem is to use a model in which the degree of dependency within clusters is jointly estimated with the usual model parameters, such as random or fixed effects models (see, for example, Greene, 1990). In order to estimate the models a maximum likelihood estimator is employed that incorporates random school effects to control for clustering. The STATA software package was employed in these estimations.

4.2 Variables

Two dependent variables are employed in the study: a) the *intention* to stay-on into post-compulsory education and b) the *realisation* of this decision. The reason for modelling intentions, as well as actual choices, allows us to use the estimation to inform on policies that may be developed to increase participation in post-compulsory

education *before* such decisions have been made. The use of choice realisations reflects not only intentions but also the outcome of exams. This muddies the effect that background variables have on the staying-on decision and also the inferences that can be drawn. By using data on intentions and on realisations it is possible to identify who is at risk *prior* to exam success/failure and whether realisations are influenced by other factors than simply exam success/failure. In doing so we can identify whether intentions and realisations are driven by different factors, or the same factors to different extents, and whether we should act on intention data to encourage those intending to leave to stay-on. It would be too late to act on realisation data.

Morris, Nelson, Robinson, Stoney & Benefield (1999, p. 33) argue that post-sixteen educational choices can be seen to represent young people acting upon their pre-sixteen educational attitudes. Such attitudes are formed by many factors; early contributions include Micklewright (1989), Rice (1987) and Rice (1996) who found that ability, family background and type of school attended were all independently important in the decision to stay-on.

Stressing the importance of family background, McWhirter, Duffy, Barry & McGuniness (1988) found that this factor had a significant effect on the decision to stay-on, even when controls for academic achievement had been included and yet Emler & St. James (1990) found that school effects disappeared once fathers' social class was introduced into the model. However, Brooks (1998) presented results that suggest whilst staying-on rates are increasing overall, the biggest increase is amongst those who had fathers in unskilled manual occupations; this could mean that the

effects of social class and family background on the decision to stay-on in education may be diminishing, at least at the age of sixteen.

Unfortunately the questionnaire did not include data explicitly relating to family background. This is a problem for the estimation because family background has been identified as an important factor in some studies. However, Foskett & Hesketh (1997) found that while staying-on in post-compulsory education has increased, the nature of the differences across social classes have changed. They found that working class pupils who stayed-on were more likely to opt for vocational courses. Yet as vocational courses are less likely to lead to higher education, it suggests that social class differences may now be important in the decision at age eighteen rather than at age sixteen. Also, if the student considers the advice of parents to be important when reaching a decision about whether to stay on into post-compulsory education, then this is likely to be influenced by the background and financial well-being of the family. The locational choice for a home is likely to be strongly related to income and so to identify whether parental income has an effect of the intention and realisation of the decision to stay-on into post-compulsory education, the postcode of the student is matched with average income for the postcode district and the average income of the residents of the postcode district is used here as a proxy for the economic background of the parents (*Average Income*).

Valuing parents, teachers and careers' advice might be associated with a higher probability of staying-on at school. Parents, teachers and careers advisors will assist the student in identifying the path that might be best for them and this will be dependent on the student's ability, interests and maybe even the needs of the local or

national economy. Advice from teachers and careers advisors will probably be independent of the financial background of the parents, but this will probably not be the case when parents advise their children. If the parent of the child suggests that the child will not be able to be supported financially or emotionally by the family then the student will be swayed away from undertaking further study at the post-compulsory level.

Undertaking work experience may reduce the likelihood of staying-on into post-compulsory education. Although engaging in employment while in full-time education may have positive aspects, such as an opportunity to learn about the world of work, Martinez & Munday (1998) cite work experience as a contributory factor behind withdrawing from education. Maychell, Evans, Brooks, Lee & Pathak (1998) suggest that the desire to get a job and earn money is a strong reason for leaving education, and this may be strengthened by work experience. However, with more and more university students working long hours to support their studies, it would be no surprise that 16 to 18 years olds also decided to work part-time to support their studies, with work facilitating study activities.

Bradford is a relatively multicultural city in the UK since a relatively large proportion of its population is from ethnic communities. Various studies have shown that ethnicity has an effect on aggregate participation rates. These studies include Shaw (1994), who finds Asians were more likely than whites to participate in post-compulsory education, and Drew (1995), who reports that participation rates were higher for ethnic minorities than for white students. Similarly, Leslie & Drinkwater (1999) found ethnic minorities were less likely to leave education than whites and

even though Black Caribbean males had lower overall staying-on rates in the raw data, they were more likely to stay-on once other characteristics were controlled for in their empirical model. Ethnicity controls are included in this study to investigate whether differences across ethnic backgrounds persist when controls for ability etc. are included.

Cheng (1995) and Armstrong (1999) include school attributes such as overall GCSE performance and the school attendance rate. One would expect schools with better GCSE performance to be more likely to have pupils that decide to stay-on. Armstrong (1999) finds this to be the case with pupils who attend schools with good overall GCSE performance being more likely to remain in full-time education. These effects are interpreted as picking up different school cultures in that better exam performance is linked to an educational culture that fosters staying-on in education.

Collecting data at school level also allows for the construction of school culture variables similar to those of Cheng (1995) and Armstrong (1999). As we are able to identify the schools that each of the pupils attended, it is possible to construct a variable aimed at capturing whole-group peer group effects.[8] The variable is calculated by aggregating data on each of the individuals in the school sample, but excluding the response of the particular individual. The measure we use is the average staying-on rate of all of the pupils in the school, excluding the decision of the individual.

[8] These peer group effects might well be illustrative of some type of school culture effect that is not captured by the fixed effects in the regression.

To capture gender-specific peer groups, the same effect is estimated for each gender: the variable is calculated by aggregating data on every male (female) in the school sample, but excluding the response of the particular male (female). Such gender-specific peer groups are designed to capture the staying-on probabilities of a student's peers, which will influence the choice of staying-on of the individual student.[9]

The models are estimated for the full sample and then for girls and boys separately. The reason for doing so is that it is possible that the factors which affect the decision to stay-on may differ across gender. For example, using data on intentions to stay-on, Thomas & Webber (2004) found that there were significant differences across gender relating to peer group effects. The most important factor affecting the decision to stay-on for girls was ability, and whilst some support was found for the influence of peer groups, the variable had little effect on predicted staying-on probabilities. This was in stark contrast to the situation for boys. Again ability was found to be important but predicted staying-on probabilities were found to be highly sensitive to the peer group variable.

5. Results

Intention data can provide us with information on who is at risk before a choice has been made; results using such data are discussed in section 5.1. Section 5.2 deals with

[9] Selective schools might promote academic achievement that fosters the academic culture and encourages students to stay-on. Jesson, Gray & Sime (1991), Cheng (1995) and Mortimore, Sammons & Hillman (1997) all found that the pupil's school type did in part explain post-sixteen destinations and Smith & Tomlinson (1989) found that the school attended influenced exam results at age sixteen and, as a consequence, the decision to stay-on. However, including a dummy variable to capture school type did not prove statistically significant or alter the results in any important manner.

the realisation of this decision and can signal reasons why students decided not to stay-on. The results are briefly summarised in Section 5.3.

5.1 Intentions

Table 1 presents the random effects logistic regression results for the probability of staying-on into post-compulsory education at age of sixteen. The first column provides estimates for the full sample, including a dummy variable to account for gender, and assesses the statistical impact of the student's perceived importance of various factors on the probability of staying-on. This is not to say that the student has already listened to or requested information and advice from all sources, instead it indicates that such factors and advice are or will be perceived to be important in shaping their intentions on whether to stay-on or leave education. The first column is for the whole sample; the second and third sets of results correspond to girls and boys respectively.

{Table 1 about here}

Students who value teachers' advice are more likely to intend to stay-on into post-compulsory education: if the student respects the advice provided by the teacher and the teacher advises the student to stay-on into post-compulsory education, then the student will intend to stay-on. Those students who consider parents, friends or careers advice to be important appear to be no more or less likely to stay on into post-compulsory education. Family background, proxied by the average income of the postcode district, is also found to be insignificant, suggesting support that social class

differences may now be important in the decision at age eighteen rather than at age sixteen (Foskett & Hesketh, 1997).

Having undertaken work experience, intending to work outside of the area when they are aged 19 or 20 and the economic background of the student appear to have no effect on the intention to stay on. Instead, the factors that appear to be most important are the expected GCSE grades, ethnicity, gender and peer groups.

Those students who expect higher grades for English language and for maths are much more likely to stay on into post-compulsory education: the magnitude of the effect appears to be greater for English language than for maths. This could be suggesting that the students who believe they are relatively more capable in their cohort are going to have greater confidence in their ability to be successful in post-compulsory education and therefore are more likely to intend to study at the post-compulsory level.

Ethnicity appears to influence intentions to stay-on into post-compulsory education and support evidence provided by Drew (1995). Black African and Caribbean students are more likely to intend to stay on into post-compulsory education than Whites. This is contrary to the expected sign but may indicate the success of encouraging ethnic minorities to stay-on. Advice should also be geared towards encouraging Whites to stay on.

Peer groups are important for the whole group. The greater the number of peers who intend to stay-on then the higher the probability of the student also intending to stay-

on. The coefficient for gender indicates that there is a significant difference in the intentions to stay-on into post-compulsory education across gender and therefore we should reconsider the impact of these same regressors for girls and boys separately.

When we split the sample by gender some interesting results appear. There are similarities for boys and girls: both appear to be positively influenced to stay-on into post-compulsory education if they expect good grades at English language and at maths. However, the differences across gender is perhaps more intriguing.

Relative to the whole cohort, the importance of ethnicity appears to be much weaker for girls: being Black African is no longer statistically significant at the 1% level. Being of Caribbean dissent does still have a statistically significant effect on the intention to stay on into post-compulsory education, but its effect is much weaker in magnitude and significance. As one might expect, the coefficient for Indian ethnicity is positive and large for girls although there appears to be no significantly higher probability of intending to stay on into post-compulsory education than for White girls. On the other hand, boys' intentions to stay on are influenced by their ethnicity with Caribbean and Black African male students are statistically more likely to intend to stay-on than Whites males.

The students who considered the advice of teachers to be important were statistically more likely to intend to stay on while those who considered careers' advice to be important were no more likely to intend to stay on. When the results are examined only for girls, considering the advice of teachers to be important did not increase the probability of staying on and yet careers' advice now appears to have a positive and

statistically significant effect, albeit at the 10% level. The positive coefficient of career advice for girls might indicate that they are using career advisors as a source of information, whereby the information informs them of the need for more qualifications in order to progress into their desired occupations. In stark contrast, boys appear to be strongly influenced by their perception of the importance of teachers' advice while the importance of career advisers is not significance at traditional levels and appears to have a negative effect. For boys, advice from teachers is perceived as an important source of information of the potential of the student to succeed in education, and encouragement from the teacher might increase the probability of the student to stay-on in education. Alternatively this might be due to the teacher informing the boys that academic is not a feminine trait and that they should accumulate knowledge to participate in information-led production that is a characteristics of the current business environment. The asymmetry between the signs of the coefficients for teachers and the careers advisers for boys is symptomatic of a link between teachers and education on one-hand and careers advisers and the world of work on the other. It might be the case that boys perceive teachers to be linked with a more academic path and career advisors could be linked with non-academic paths. More research is needed in this area.

In addition to the importance of teachers' advice and ethnicity being important for boys' and not for girls' intentions, peer group effects are asymmetric: girls are more likely to intend to stay-on into post-compulsory education if their whole-peer group intends to stay-on, thereby intending to be no different from their whole peer group. Conversely, boys are more likely to intend to stay-on if their male peers intend to stay-on and they might need to look for intellectual approval from other boys before they

decide to continue onto post-compulsory education, and for this intellectual approval to be associated with masculinity. Hence boys might need approval that they are part of the 'macho lads' culture (Mac an Ghaill, 1994) before they make their decision.

Girls-specific peer groups with higher intentions to stay on appear to have no significant effect on girls' intentions to stay-on and the influence of the whole-group peer group is not significant in shaping boys' intentions when male-only peers are also explicitly considered. These results emphasise the importance of identifying the influence of gender-specific peer groups in shaping intentions to stay-on into post-compulsory education at the age of sixteen and cry out for more research to be conducted in this area to shape policy and to ensure that such policy is not gender-blind.

The results suggest that if the UK government is going to achieve its objective of having 50% of people under the age of 30 to have experienced higher education by 2010, then policy should be formulated to change the intentions of a) boys by enhancing the intentions of all boys and encouraging teachers to advise boys to stay-on, and of b) girls by enhancing the intentions of all the girls' peers.

5.2 Realisations

Table 2 presents the results for the realisation of the decision on whether to stay-on into post-compulsory education of students at the age of sixteen. The results are first presented for the whole cohort and then for girls and boys separately.

{Table 2 about here}

The first thing to note from the results of the whole sample is that results are broadly similar for realisations as they were for intentions: ethnicity has an important effect, as is the perceived importance of teachers advice and the actions[10] of the rest of the peer group. As before for intentions, family background, proxied by the average income of the postcode district, is found to be insignificant, suggesting support that social class differences may now be important in the decision at age eighteen rather than at age sixteen (Foskett & Hesketh, 1997).

The ability indicators suggest something similar to before: previously it was found that higher *expected* GCSE grades for English language and maths were associated with higher probabilities of intending to stay on (with English language having a larger effect than for maths); now we find that the *realised* GCSE grades have a similarly enhancing effect with better achieved grades for both English language and maths increasing the probability of having stayed on (but this time with maths having a slightly larger effect than English language).

For the first time, *Local02* is now found to have an effect negative and significant effect, suggesting that those choosing to remain in the area in four years time are less likely to stay on into post-compulsory education. This is an expected result and indicates that students identify a connection between education and mobility: staying on into post-compulsory education is perceived to be advantageous if they with to find a job in another area because qualifications would enhance the probability of being

successful when applying for the job. The most interesting result, however, is that gender is no longer identified as being statistically significant. Irrespective of this finding, the results are split by gender and the results are discussed first for girls and then for boys.

For the girls that did stay on, finding the advice of careers to be important did not have a statistically significant effect on their staying on decision. Ethnicity was important in the probability of staying on for girls, contrary to their intentions to stay on. *Local02*, the connection between education and mobility, is again statistically significant and negative, suggesting that girls who wish to work outside of the area in four years time were more likely to stay on into post-compulsory education. Higher *realised* grades at maths than English language were associated with higher probability of staying on.

Turning to the role of peer groups for girls, we identified earlier that the intentions of the whole peer group to stay on were important. However, some of their peers' intentions were not realised. The greater the number of girls' peers who did stay on did not appear to statistically significantly increase the probability of a girl staying on. Instead, the results suggest that the larger the number of females in their school to stay on then the greater the probability of a girl staying on. This could be evidence of the need for girls to gain intellectual approval from other girls, female motivational forces similar to those mentioned by Pickering (1997) whereby the girl wishes to avoid competition and to let her 'CV do the talking', or a collective decision by girls to

[10] This time for the realised as oposed to the intentions.

improve their future and to overcome their perceptions of gender-discrimination by becoming better educated or obtaining skills (Francis, 2000).

For boys, we find that ethnicity does have an effect on intentions and realisation in a similar way: boys of Caribbean of Black African dissent are more likely to have stayed on than White boys. Better realised English language and maths grades are associated with higher probabilities that the boy stayed on. Those who valued teachers' advice were also more likely to have stayed on. Interestingly, the results suggest that the more boys that stayed on into post-compulsory education then the more likely the boy is of staying on into post-compulsory education, suggesting that greater intellectual approval of education being a genderless trait can result in a herding behaviour for boys.

5.3 Summary of Results and Policy Implications

The results presented above suggest that intentions to stay on into post-compulsory education and the realisation of this decision are influenced by slightly different factors. Using a data set that covers schools across the multicultural city of Bradford (UK), the results suggest that:

1. Ethnicity is important: Black African and Caribbean students are more likely to intend to and to realise this intention to stay on into post-compulsory education than Whites. Policy should be geared towards encouraging Whites to stay on into post-compulsory education.

2. Ability shapes the decision to stay on: the greater the expected grade then the higher the probability of intending to stay on. The higher the realised grade then the greater the probability that the student actually stayed on.
3. The influence of peer groups varies across gender:
    - **Girls'** *intentions* are influenced by their whole peer group (and not necessarily by their gender-specific peer group):
        - The more people (boys and girls) in the cohort who stayed on then the greater the probability that a girl will also stay on.
    - **Girls'** *realisations* are influenced by the realisations of their female peers:
        - The more females in the cohort that actually stayed on then the greater the probability that a girl will also stayed on.
    - **Boys'** *intentions* are influenced by their male peer group:
        - The more boys in the cohort who intend to stay on then the greater the probability that a boy will also intend to stay on.
    - **Boys'** *realisations* are influenced by their male peer group
        - The more boys in the cohort who stayed on then the greater the probability that a boy also stayed on.

    Any policy that is designed to increase participation should not be gender-blind.
4. Students recognise there is a link between education and mobility when realising their decision to stay on into post-compulsory education (but this doesn't significantly influence their intentions): those who decide to stay in education on are more likely to want to be working outside of the area in four years time.
5. Boys' intentions to and realisations of staying on are influenced by their perceived importance of teachers' advice: those who take into account the advice of teachers

are more likely to intend to and actually stay on. If teachers can identify those students who do not appear to value their advice then they might also have identified those students who are most likely to leave education at the age of sixteen. Information can then be provided to such students to encourage them to stay on into post-compulsory education.

It is possible that these results are biased because of the sorting that occurs within schools, be it by ability streaming or other peer group constructs. However, random effects logistic regression was employed to capture school-specific effects and could also be capturing the endogenous relationship between income, residential location and school-selection. The impact of streaming and the endogenous effects of residential location, income and peer effect should be the topic of further research in the future. Such research should be conducted to identify whether gender-specific peer-groups exist in other localities and whether the staying-on into post-compulsory education is now perceived as a must-do strategy in order to be able to gain the desired occupation in an increasingly information-led production world.

6. Conclusions

The decision to stay-on into post-compulsory education at the age of sixteen is an important one that will influence an individual's future income streams and job satisfaction. Academic literature has emphasised a range of factors that are important to different groups of people, including the influence of peer groups. This paper examines whether there are gender-specific peer groups and whether they are important for boys and for girls.

Employing logistic regression analysis, and incorporating random effects to control for school specific heterogeneity that might capture differences in school culture and housing location selection connected with inadvertent selection of income related peer groups, this paper presents estimates of a model that captures variables that influence students' decisions to stay-on into post-compulsory education at the age of sixteen in a multicultural city in the United Kingdom. The results suggest that boys' *intentions* are influenced by their male peers, but their realised grades and teachers advice influence their *realisations*. Conversely, girls' *intentions* are influenced by their whole peer group but girls' *realisations* are influenced by their female peers. Policy geared to increase participation rates should recognise such gender specific differences.

ACKNOWLEDGEMENTS

I am grateful to Fiona Walton (Policy Research Institute, Leeds Metropolitan University) for supplying the data and collecting the data for her original report that was funded and supported by the Bradford Training Enterprise Council. Thanks also go to all of the schools that participated in the original study and the young people who completed the questionnaires. I am grateful to Paul Dunne, Peter Howells and Wayne Thomas for their helpful comments on earlier drafts of this script. They bear no responsibility for errors or conclusions.

BIBLIOGRAPHY

Archer, L. & Yamashita, H. (2003). Theorising inner-city Masculinities: 'Race', Class, Gender and Education. *Gender and Education* 15 (2), 115-132.

Armstrong, D.M. (1999). School performance and staying-on: a micro analysis for Northern Ireland. *The Manchester School* 67(2), 203-230.

Benenson, J.F., Roy, R., Waite, A., Goldbaum, S., Linders, L. & Simpson, A. (2002). Greater discomfort as a proximate cause of sex differences in competition. *Journal of Developmental Psychology* 48(3), 225-247.

Brooks, R. (1998). *Staying or Leaving? A Literature Review of Factors Affecting the Take-up of Post 16 Options*. Slough (UK): National Federation for Educational Research.

Burlingame, W. (1967). A*n Investigation of the Correlates of Adherence to the Adolescent Peer Culture*, Seattle College of Education, Washington University.

Cheng, Y. (1995). *Staying-on in full-time education after 16: Do schools make a difference?* Department for Education and Employment, Research series: Sheffield, Youth Cohort report 37.

Coleman, J.S., Campbell, E.Q., Hobson, C.J. McPartland, J., Mood, A.M., Weinfeld, F.D. & York, R.L. (1966). *Equality of Educational Opportunity*. US Department of Health Education and Welfare, National Centre for Educational Statistics, Washington DC.

Dearing, R. (1997). *Higher Education in the Learning Society. Report of the National Committee of Inquiry into Higher Education*. Her Majesty's Stationery Office, London.

Drew, D. (1995). *Race, Education and Work: The Statistics of Inequality*. London: Department of Education and Employment.

Emler, N. & St. James, A. (1990). Staying on at School after Sixteen: Social and Psychological Correlates. *British Journal of Education and Work* 3, 61-70.

Evans, W.N., Oates, W.E. & Schwab, R.M. (1992). Measuring Peer Group Effects: A Study of Teenage Behaviour. *Journal of Political Economy* vol. 100(5), 966-991.

Foskett, N. & Hesketh, A.J. (1997). Constructing Choice in Contiguous and Parallel Markets: Institutional and School Leavers' Responses to the New Post-16 Market Place. *Oxford Review of Education* 23, 299-319.

Greene W. H. (1990). *Econometric Analysis, 1st Edition*. Macmillan Publishing Company, New York.

Francis, B. (1998). *Power Plays*. Stoke-on-Trent (UK): Trentham Books.

Francis, B. (2000). *Boys, Girls and Achievement: Addressing the Classroom Issues*. London: Routledge.

Heckman J.J. (1976). A Life Cycle Model of Earnings, Learning and Consumption. *Journal of Political Economy* 84, S11-44.

Henderson, J.V., Mieszkowski, P. & Sauvageau, Y. (1978). Peer Group Effects and Educational Production Functions. *Journal of Public Economics* 10, 97-106.

Jamieson, J., McIvor, G. & Murray, C. (1999). *Understanding Offending Among Young People*. Edinburgh: The Stationary Office.

Jesson, D., Gray, J. & Sime, N. (1991). Youth Cohort Study of England and Wales: Participation, Progress and Performance in Post-Compulsory Education. *Research and Development No. 64, Youth Cohort Series* 15, Department for Education and Employment, Sheffield.

Kindermann, T.A. (1993). Natural Peer Groups as Contexts for Individual Development: The Case of Children's Motivation in School. *Developmental Psychology* 29, 970-977.

Leslie, D. & Drinkwater, S. (1999). Staying in Full-Time Education: Reasons for Higher Participation Rates among Ethnic Minority Males and Females. *Economica* 66, 63-77.

Mac an Ghaill, M. (1994). *The Making of Men: Masculinities, Sexualities and Schooling*. Milton Keynes: Oxford University Press.

Marks, A. (2003). Welcome to the New Ambivalence: Reflections on the Historical and Current Cultural Antagonism between the Working Class Male and Higher Education. *British Journal of Sociology of Education* 24 (1), 83-93.

Martinez, P. & Munday, F. (1998). 9,000 Voices: Student Persistence and Drop-out in Further Education. *FEDA Report* 2 (7).

Maychell, K., Evans, C., Brooks, R., Lee, B. & Pathak, S. (1998) *Leaving at 16: A Study of Factors Affecting Young People's Decision to Leave Full-time Education*. Slough: National Federation for Educational Research.

McWhirter, L. Duffy, U. Barry, R. & McGuniness, G. (1988). Transition from School to Work: Cohort Evidence from Northern Ireland on Post-Compulsory School Activities and Influencing Factors. *Irish Educational Studies* 7, 131-47.

Micklewright, J. (1989). Choice at Sixteen. *Economica* 56, 25-40.

Morris, M., Nelson, J., Robinson, M., Stoney, S.M. & Benefield, P. (1999). A Literature Review of Young People's Attitudes Towards Education, Employment and Training. *Department of Education and Employment, Research Report*, RR170.

Mortimore, P., Sammons, P. & Hillman, J. (1997). Key Characteristics of Effective Schools: A Response to 'Peddling Feel Good Fictions'. In Barber, M. & White, J. (Eds.), *Perspectives on School Effectiveness and Improvement*. Institute of Education, University of London.

Oates, W.E. (1977). The use of local zoning ordinances to regulate population flows and the quality of local services. In Ashenfelter, O.C. & Oates, W.E., *Essays in Local Market Analysis in Memory of Yochanan Peter Comay*. Wiley, New York.

Okamoto, N. (1999). Relation between the Existence of Intimate Others and Fear of Success. *Japanese Journal of Educational Psychology* 47(2), 199-208.

Pickering, I. (1997). *Raising Boys' Achievement*, Network Educational Press, Stafford.

Rice, P. (1987). The demand for post-compulsory education in the UK and the effects of educational maintenance allowances. *Economica* 48, 465-476.

Rice, P (1996). Further education or the job queue? A study of choice of activity by young persons based on evidence from the Youth Cohort Study. *Discussion papers in Economics and Econometrics, University of Southampton*, No. 9639.

Shaw, C. (1994). C*hanging Lives 3*. London: Policy Studies Institute.

Smith, D. & Tomlinson, S. (1989). *The School Effect: A Study of Multiracial Comprehensives*. Policy Studies Institute, London**.**

Spender, D. (1982). *Invisible Women?* Writers and Readers, London.

Summers, A.A. & Wolfe, B.L. (1977). Do Schools make a Difference? *American Economic Review* 67, 639-652.

Thomas, W. & Webber, D.J. (2003). The Role of Peer Group in the Staying-on Decision at Sixteen. Paper presented at the *European Association of Labour Economists' Conference*, Seville, September.

Willis, R.J. & Rosen, S. (1979). Education and self-selection. *Journal of Political Economy* 87, 7-36.

Wilson, W.J. (1987). The Truly Disadvantaged: The Inner City, the Underclass and Public Policy, University of Chicago Press, Chicago.

Table 1: Intentions to Stay-on, advice and peer groups

	All		Girls						Boys					
n	1172		640						532					
Constant	-3.720	(-3.13)***	-3.078	(1.91)*	-2.700	(1.34)	1.185	(0.49)	-5.073	(2.70)***	3.830	(3.67)***	-3.373	(1.54)
Parents Important	-0.044	(0.19)	0.200	(0.59)	0.220	(0.65)	0.227	(0.66)	-0.233	(0.69)	-0.229	(0.67)	-0.229	(0.67)
Friends Important	-0.308	(1.21)	-0.048	(0.14)	-0.079	(0.23)	-0.067	(0.19)	-0.623	(1.55)	-0.617	(1.53)	-0.615	(1.53)
Teachers Important	0.619	(2.53)**	0.228	(0.67)	0.209	(0.62)	0.324	(0.91)	0.979	(2.63)***	1.009	(2.68)***	1.010	(2.68)***
Careers Important	0.014	(0.06)	0.562	(1.72)*	0.544	(1.68)*	0.524	(1.51)	-0.479	(1.34)	-0.495	(1.33)	-0.477	(1.33)
Average Income	0.021	(0.53)	0.040	(0.72)	0.060	(1.12)	0.058	(0.94)	0.014	(0.23)	0.017	(0.29)	0.018	(0.30)
Work Experience	0.054	(0.14)	0.303	(0.54)	0.336	(0.61)	0.118	(0.18)	-0.056	(0.10)	-0.136	(0.24)	-0.145	(0.25)
Local 02	-0.294	(1.00)	-0.710	(1.47)	-0.750	(1.55)	-0.722	(1.45)	0.008	(0.02)	0.052	(0.13)	0.055	(0.14)
Black African	2.385	(2.23)**	3.550	(0.00)	3.671	(0.00)	3.463	(0.00)	2.259	(1.98)**	2.270	(1.97)**	2.269	(1.98)**
Caribbean	1.134	(3.65)***	0.709	(1.80)*	0.946	(2.53)**	0.639	(1.44)	1.828	(3.32)***	1.846	(3.40)***	1.858	(3.36)***
Indian	-0.100	(0.09)	3.233	(0.00)	3.436	(0.00)	3.246	(0.00)	-0.298	(0.26)	-0.345	(0.30)	-0.343	(0.29)
Expected English Language	1.202	(6.62)***	1.062	(4.32)***	1.048	(4.31)***	1.118	(4.39)***	1.321	(4.97)***	1.270	(4.61)***	1.266	(4.57)***
Expected Maths	0.585	(3.76)***	0.487	(2.12)**	0.492	(2.16)**	0.542	(2.27)**	0.640	(2.98)***	0.683	(3.16)***	0.686	(3.15)***
Gender	-0.637	(2.98)***		–		–		–		–		–		–
Intentions of Whole Peers Gp	4.478	(4.18)***	3.306	(2.25)**		–	8.511	(3.34)***	5.449	(3.33)***		–	-0.517	(0.12)
Intentions of Girls Peers Gp		–		–	2.24	(1.13)	-10.071	(0.00)		–		–		–
Intentions of Boys Peer Gp		–		–		–		–		–	3.830	(3.67)***	4.135	(1.52)
Log Likelihood	-317.480		-165.738		-167.603		-163.822		-143.588		-142.412		-142.405	

Notes: Absolute values of *z*-scores in brackets

Table 2: Realisations, advice and peer groups

	All		Girls				Boys					
n	1172		640				532					
Constant	-1.922	(1.80)*	-2.185	(1.21)	-3.065	(1.55)	-2.686	(1.12)	-2.546	(1.42)	-1.621	(1.06)	-1.550	(0.76)
Parents Important	-0.125	(0.57)	0.048	(0.16)	0.045	(0.15)	0.046	(0.15)	-0.353	(1.08)	-0.348	(1.06)	-0.349	(1.06)
Friends Important	-0.169	(0.69)	0.054	(0.16)	0.040	(0.12)	0.050	(0.15)	-0.426	(1.07)	-0.427	(1.07)	-0.427	(1.06)
Teachers Important	0.681	(2.97)***	0.334	(1.06)	0.319	(1.03)	0.329	(1.05)	1.139	(3.13)***	1.157	(3.16)***	1.157	(3.16)***
Careers Important	-0.116	(0.53)	0.161	(0.52)	0.188	(0.62)	0.173	(0.56)	-0.514	(1.51)	-0.513	(1.51)	-0.514	(1.51)
Average Income	0.030	(0.80)	0.032	(0.57)	0.026	(0.48)	0.029	(0.50)	0.061	(1.06)	0.064	(1.13)	0.065	(1.13)
Work Experience	-0.080	(0.23)	0.189	(0.35)	0.301	(0.58)	0.235	(0.42)	-0.482	(0.82)	-0.527	(0.90)	-0.531	(0.90)
Local 02	-0.735	(2.64)***	-0.701	(1.76)*	-0.746	(1.87)*	-0.719	(1.78)*	-0.777	(1.90)*	-0.728	(1.79)*	-0.726	(1.77)*
Black African	1.793	(2.37)**	1.851	(1.71)*	1.868	(1.74)*	1.849	(1.72)*	1.975	(1.75)*	1.941	(1.77)*	1.941	(1.77)*
Caribbean	1.929	(5.67)***	1.697	(3.73)***	1.722	(3.96)***	1.697	(3.97)***	2.707	(4.02)***	2.736	(4.11)***	2.742	(4.06)***
Indian	0.231	(0.21)	3.181	(0.00)	3.176	(0.00)	3.276	(0.00)	-0.094	(0.08)	-0.147	(0.13)	-0.147	(0.13)
Realised English Language	0.578	(3.72)***	0.576	(2.79)***	0.552	(2.70)***	0.565	(2.71)***	0.563	(2.21)**	0.570	(2.23)**	0.570	(2.23)**
Realised Maths	0.828	(4.49)***	0.978	(3.36)***	0.948	(3.28)***	0.964	(3.29)***	0.743	(2.94)***	0.755	(3.01)***	0.756	(3.00)***
Gender	-0.150	(0.74)		–		–		–		–		–		–
Realisations of Whole Peers Gp	2.982	(3.04)***	2.652	(1.45)		–	1.589	(0.39)	3.587	(2.27)**		–	-0.210	(0.05)
Realisations of Girls Peers Gp		–		–	3.607	(1.71)*	1.641	(0.29)		–		–		–
Realisations of Boys Peer Gp		–		–		–		–		–	2.537	(2.51)**	2.661	(1.04)
Log Likelihood	-350.378		-194.439		-194.483		-194.401		-148.871		-148.322		-148.321	

Notes: Absolute values of z-scores in brackets