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SELECTIVE SECONDARY EDUCATION AND STAYING-ON

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Abstract

Northern Ireland is unique among the regions of the UK in still having an almost entirely selective secondary education system, where roughly one third of pupils attend grammar schools. This paper sets out to study whether attending a grammar school up to age 16 has any effect, *ceteris paribus*, on the transition of young people from compulsory schooling to further schooling, Further Education, employment or training. Such an effect might exist because of differences in school culture between grammar and other schools.

Based on data collected in 1995 for almost 1000 young people in Northern Ireland, we estimate choice-based multinomial logit models for their first destination immediately after completion of compulsory schooling and one year on. The models include a standard set of explanatory variables including examination results at 16 and family background factors as well as a grammar school dummy. Other school variables include a co-ed status dummy, attendance rates, average exam success and a dummy for the presence of a 6th Form. We find that attending a grammar school up to age 16 increases the staying-on rate. Given that high staying-on rates are needed to achieve the Government's qualification targets for 2002, we argue that policy makers should try to apply aspects of grammar school culture across all schools in order to increase our chances of meeting these targets.

1:   Introduction

Educational standards and the performance of schools have been at the forefront of debate in recent years in the UK. The election of a new Government in 1997 whose battle cry was 'education, education, education' is a case in point. A major thrust of policy has been and continues to be aimed at achieving target qualification levels for 16, 19 and 21 year olds (previously FT1, FT2 and FT3). The targets for 19 and 21 year olds, ie: that 85% should achieve a level-2 qualification and that 60% should achieve a level-3 qualification respectively, require high levels of participation in education and training beyond the end of compulsory schooling at the age of 16 (NACETT, 1998). Increasing participation in suitable post-compulsory education and training is therefore of vital importance if we are to achieve these targets.

Participation rates in post-compulsory education have increased dramatically over the last ten years in the UK. The primary factor behind this increase is the improvement in qualification levels at 16 following the introduction of the GCSE examination in 1988 (see, for example, Rice and McVicar, 1996; Payne, 1998). Yet there are many other important factors behind an individual's decision to stay on at school or go into FE, YTP or seek employment. One such factor that has attracted attention in the literature recently is school performance.

Other things being equal, experience of a 'good' school might be expected to have a positive influence on young people's decisions to stay-on. By contrast, a poor school experience might have the effect of discouraging young people from staying-on in post-compulsory education. We refer to the characteristics of the school that make it good or bad as its 'climate' or 'culture'. A large number of related factors may influence the culture or climate of a school. Specifically, recent research has considered factors such as exam success (as used in the Government's league tables), attendance rates, parental involvement, selection criteria and management arrangements in various attempts to quantify school climate effects on young people's transition decisions. This literature is discussed in the following section. In Northern Ireland, the impact of selective secondary education on young people's staying-on decisions is of particular interest.

Northern Ireland's secondary education system differs markedly from that in the rest of the UK by retaining academic selection at 11 for the vast majority of pupils.[1] Roughly one third enter grammar schools with the remainder entering secondary moderns (secondary intermediates) or other schools. In addition to this, and partly as a cause of this, Northern Ireland has a large number of voluntary controlled and voluntary aided schools, mostly church-run, with a great deal of autonomy in developing their own school ethos or culture. These significant differences with the largely LEA-controlled comprehensive pattern of England and Wales make Northern Ireland a particularly interesting region for the analysis of alternative types of schools' performance or culture and their effects on transitions. Indeed, Northern Ireland's selective secondary education system exists against a backdrop of the moratorium on the creation of new selective schools in England and Wales and the gentle encouragement of existing selective schools to drop their selectivity[2]. An immediately apparent policy question is whether Northern Ireland gains or loses by its adherence to selective secondary education. This paper will address the part of this question relating to youth transitions and staying-on. Our answer is, perhaps unsurprisingly, that pupils at the top end gain at the expense of those at the bottom end.

The vast majority of pupils who have attended grammar schools in Northern Ireland stay on at school past the age of 16.[3] This is unsurprising because it is generally those young people who are more academically inclined that both attend grammar school and stay-on after 16. Routes post-16 for those young people that attended secondary intermediate schools are far more diverse, including substantial proportions entering FE or vocational training.[4] Again this is not surprising given that these options are designed to cater for those young people who may not be so academically inclined, and who are therefore likely to be in secondary intermediate school. However, the question we address in this paper is whether there are any effects of being in a grammar school or a secondary school, over and above the academic ability of its pupils, that determine a young person's choice of destination at the end of compulsory education. For example, do grammar schools typically have greater parental

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[1] The exception is the Craigavon area, where there are a small number of comprehensive secondary schools.
[2] …should a majority of parents of the school's pupils want it.
[3] 81% in October 1993 (T&EA 5th Form Leavers Survey).

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involvement or stricter discipline than secondary schools and does this affect staying on rates? In other words, is there anything about grammar schools or secondary schools, *per se*, that influences the decision to stay-on in full-time education or to enter training or employment?

The idea that there might be something about schools themselves that influences *learning* outcomes is not new. The education and sociology literature has been interested in this issue for many years. Although in the 60s and 70s, the loose consensus was that schools did not really affect outcomes, it is now widely accepted that there are substantial differences in the effectiveness of different schools (Reynolds and Reid, 1988). It would be difficult to justify the high level of school inspection that takes place in the UK if this was not the case. Detailed discussion of what these climate factors might be can be found in Finlayson (1973), Rutter et al (1979), Cohen and Manion (1981) and Maxwell and Thomas (1991), for example. Reynolds and Reid (1988) suggest that, at least in Britain, it is not resource factors (eg: pupil-teacher ratios and state of repair of classrooms) so much as the *ethos* of the school that plays a vital role in its success. School ethos is considered explicitly in school inspections (see OFSTED, 1995).

The remainder of this paper is set out as follows. Section 2 outlines the structure of secondary education in Northern Ireland and reviews the recent literature on the effects of selection on staying-on. Section 3 discusses the data set used in the analysis and presents some stylised facts from the raw data. Section 4 outlines the empirical model and discusses the econometric issues arising from the estimation of the model. Section 5 presents and discusses the results of the analysis and Section 6 sums up and concludes with some policy implications.

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[4] 28% stay on at school, 26% enter FE and 34% enter YTP in October 1993 (T&EA 5th Form

2: Background

2.1: Secondary Education in Northern Ireland

Around one third of pupils in Northern Ireland receive their secondary education in grammar schools, with the remainder in secondary intermediate or special schools. Grammar school places are offered largely on the basis of performance in an academic examination, sat at 11, known as the Alternative Transfer Procedure (essentially an 11+ exam). The proportion of pupils in grammar schools in Northern Ireland is far greater than the UK average (5% in 1997/98).[5]

In addition to the selective system, Northern Ireland has a markedly different management structure of schools to the rest of the UK. One possible reason why Northern Ireland lags behind the rest of the UK in persisting with a selective system of secondary education is the importance of the church in the management of many of the Province's schools (Cormack et al, 1987). Indeed, education is still largely segregated along religious lines. Secondary schools can be divided into the three major categories (roughly equal in size): Controlled, Voluntary Maintained and Voluntary Grammar (formerly Voluntary Non-Maintained). Controlled schools are under the control of the Education and Library Boards (formerly LEAs) and are essentially Protestant schools, which can be either grammar or secondary intermediates. Voluntary schools are grant aided and usually run by a Board of Governors. Voluntary Maintained schools are usually Catholic secondary schools, with running costs met by the ELBs[6]. Voluntary grammar schools are spread between the Catholic and Protestant communities. Lastly, there are a small but growing number of grant-maintained integrated schools (mixed denominations).

Despite these differences, Northern Ireland has a similar exam system (GCSEs, A-Levels and GNVQs, for example) to the rest of the UK. School curricula are also broadly similar (largely based on the National Curriculum). In other words, the differences between secondary education in Northern Ireland and in Great Britain are structural rather than differences in curriculum or assessment. In this respect, our

Destinations Survey).
[5] Source: Social Trends, 1999, HMSO.

results have implications for education policy in Great Britain in addition to education policy in the Province.

2.2: *Existing Literature*

There is a considerable amount of literature concerning the transition from school to the labour market and the factors that may influence this transition. A small subset of this literature considers the effects of school type on transition decisions and outcomes, usually in the context of staying on at school after the end of compulsory education, and often as a small part of an analysis into the wider factors behind transition decisions. We focus mainly on the parts of this literature that consider the effects of selection on transition, but touch briefly on the wider transition literature and the larger selection and academic performance literature, to put our discussion in a broader context.

2.2.1: *Selection and Transition*

McWhirter et al (1987) consider data from the Youth Training Programme Cohort Study of 1984 in Northern Ireland, where 5th Form leavers were sampled in a number of sweeps, notably the October after finishing compulsory education (October 1984) and the following October (1985). In common with many other transition studies, they find individual and background factors, such as gender, religion and qualifications, to be the most important determining factors behind transition decisions. However, they also find some evidence for a school type effect, after controlling for these factors, where grammar school pupils may be more inclined to stay on in school. Various reasons for this are suggested, including the fact that grammar schools "...identify their role in terms of preparing young people for entry into Higher Education." This is essentially a reference to school 'culture'. For example, careers guidance in grammar schools is more likely to involve discussion of the eventual qualification requirements of possible career paths than in intermediate schools, where guidance may be more concentrated on the mechanics of job applications or information about alternatives to staying on at school, such as YTP. A separate, but potentially interesting, finding is

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[6] Until recently, these schools received only 85% of capital costs from public funds. See Teague (1997)

that activities of school leavers change considerably between the first and second sweeps (October 1984 and 1985). This suggests the importance of carrying transition studies beyond the first destination if we are to develop an understanding of the long-term effects of school type on young peoples' futures.

The present paper builds upon previous research conducted on transition in Northern Ireland (Armstrong, 1999) and we will return to discussion of this research in the following sections. Armstrong's paper studied the effects of school performance, captured by standard indicators of school exam performance and attendance rates, on the chance of young people staying on at school, entering employment, further education, training or unemployment. His findings suggest that school culture, as proxied by these performance indicators, has various significant effects on transition decisions, even after controlling for individual and background effects. For example, 'good' schools (those with high examination success rates and with high attendance rates) were likely to produce pupils who were inclined to stay on at school post 16.

Interestingly for our present analysis, Armstrong included a grammar school dummy variable in his analysis, although there is little discussion of its effects. Grammar school pupils are more likely to stay on at school, although not significantly so, even after controlling for all other factors, including the school performance indicators discussed above. Despite correlation between these performance indicators and the grammar school dummy variable, grammar school pupils were found to be significantly less likely to enter Further Education (FE) than secondary intermediate pupils. These results, although somewhat ambiguous, suggest the presence of aspects of grammar school culture that are not captured by standard school performance indicators, and over and above the characteristics of the young people concerned, that have an effect on transition.

Murphy and Shuttleworth (1997) study first destinations (after 6 months) of school leavers in Northern Ireland in 1990/91. Like McWhirter et al (1987) and Armstrong (1999), they find individual and background factors such as religion and qualifications to be significant in determining choice of destination. In addition, they find grammar

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for a discussion. Some, but not all, now receive 100% of capital costs.

school leavers at 6th Form level, ceteris paribus, to be less likely to be economically active than non-grammar 6th Form leavers. Although the economically active/inactive breakdown is somewhat vague in terms of precise destinations, this is compatible with the notion that attending a grammar school makes pupils more likely to choose the HE route as opposed to the employment route. In broader terms, there is further evidence that grammar schools have an effect on transitions over and above that accounted for by standard factors.

Andrews and Bradley (1997) consider transitions from school in Lancashire. A number of school performance indicators are included in the analysis, along with a selection dummy variable (5.4% of pupils in their sample attended a selective school) and also a school 'type' variable to capture any effects of LEA control, Grant Maintained status or special school status. This latter variable was found to be sometimes significant. For example, Grant Maintained schools were more likely to produce pupils choosing non-vocational education and less likely to produce pupils choosing youth training (YT). The selection variable also produced some interesting results. Pupils educated at grammar schools were also significantly less likely to choose YT and more likely to choose FE. Although grammar school pupils were also more likely to stay on at school, this effect was not found to be significant at usual levels. Once again we find evidence that selection, and also school management, has effects on transitions even after accounting for individual, background and standard school performance factors.

Payne (1998), although she does not consider selection explicitly, finds two very interesting results that are relevant to the selection/transition debate. Firstly, she finds evidence that pupils from independent schools are more likely to stay on at school after completion of compulsory education. This suggests school management and culture effects once again. Secondly, she finds that pupils from secondary modern schools or comprehensives with no 6th Form are significantly less likely to stay on after 16. This begs the question whether grammar schools are more likely to encourage staying on mostly because of the presence of a 6th Form alongside the lower forms, whereas intermediates are less likely to have such a 6th Form? We test to see if there is any truth in this (alternative) hypothesis.

Cheng (1995), analysing the Youth Cohort Study data for England and Wales, finds a similar pattern of factors behind transitions as the above literature. Examination grades are again significant, for example. Although there is no explicit consideration of selection, a variety of school type and school performance variables are found to have significant transition effects. For example, voluntary controlled schools and single sex schools all increase the chance of pupils staying on, whereas LEA controlled schools decrease the likelihood staying on. He also finds evidence that the presence of a 6th Form increases staying-on rates. A possible interpretation of this is that a role model or peer group effect is at work. An alternative explanation is that the presence of a 6th Form has implications for school funding, the benefits of which might filter down to lower forms.

2.2.2.   *Selection and Exam Performance*

A more substantial literature exists examining the effects of selection on exam performance. A common finding of this literature is that selection is good for the top end and bad for those at the bottom end of the academic ability range (see, for example, Kreft, 1995; Kersckhoff, 1986; Bradley and Taylor, 1998; Steedman, 1980, 1983). Kreft (1995) goes further in concluding that, overall, exam performance in Dutch selective schools is worse than performance in Dutch non-selective schools. In other words, the net effect of selection is negative.

Coleman and Hoffer (1987) argue that selectivity, in, for example, Catholic or grammar schools, leads to more consensus between parents and teachers and that this might have a positive impact on performance. The existence of such a link between selection and parental involvement is also supported by Benn and Chitty (1996), in their analysis of school choice effects.

On the whole, this literature suggests that the factors behind the selection/exam performance relationship are the same school culture factors that lie behind the apparent selection/transition relationship. This related literature therefore offers support for the hypothesis that school culture effects reflected in selective schools exist and can have significant effects on outcomes.

2.2.3. General Factors Behind Transition Decisions

An extensive literature exists analysing the staying on decisions of 5th Form leavers (see, for example, Rice, 1987; Micklewright et al, 1990). This literature generally stresses the importance of individual and background factors in transition decisions, as discussed above in 2.2.1. One of the legacies of this literature is that there is a generally agreed upon core set of variables that one must include in any research on transition. This core set of variables includes such factors as qualifications at 16, social class (or parental occupation), expected returns to the transition alternatives and other labour market factors, such as local unemployment rates, for example.

Over and above these core variables, there are factors particular to Northern Ireland that have been found to be important and these must be added to the core set of variables. In particular, religious differences and sub-regional location differences have been found to have important effects on transition (Armstrong, 1999).

2.2.4. Summary of the Literature

Below, we outline some of the main findings of the existing literature in the form of a summary. Research to date has found:

- Staying-on and more general transition decisions are influenced heavily by individual and background factors, such as examination success or religion.
- Some studies find significant 'school culture' effects, where the school attended to age 16 has an effect on transition decisions.
- Some evidence exists, although it is somewhat ambiguous, that grammar school pupils are more likely to stay-on at school and less likely to enter YT, for example, even after controlling for individual, background and other school factors. 5th Form pupils in schools with 6th Forms are more likely to stay on.
- Grammar school pupils tend to perform better in examinations than non-selective school pupils of similar ability and backgrounds. Intermediate or Secondary Modern pupils tend to fare worse than pupils of similar ability and backgrounds in non-selective schools. In other words, selective education is good for the top

end but bad for the bottom end of academic ability. Some studies suggest the net overall effect of selection on performance is negative.

3:   The Data

The data we use in this paper are taken from a survey of 1,492 young people in Northern Ireland who became eligible to leave school for the first time in 1993.[7] This is the same data set as used by Armstrong (1999) in his study of school performance and staying on. The survey was carried out in June 1995, with a total of 980 responses (ie: a response rate of 65.7%).[8] It is important to note that the sample was stratified by post-5th Form destination, giving extra weight to those young people who left school and entered employment, unemployment or vocational training.[9] As such, the sample proportions do not match population proportions, as shown in Table 1 below. This also has implications for the estimation procedure, and we discuss this in the following section (Section 4).

Table 1: Dependent Variable Population and Sample Proportions

	Pop (16) %	Sam (16) %	Pop (17) %	Sam (17) %
School	47	21	37	16
FE College	21	39	17	32
Voc Training	23	21	25	22
Employment	4	13	16	24
Unemp/Other	5	6	5	7

Notes: Population figures for 16 year olds for 1993, taken from Armstrong (1999). Population figures for 17 year olds for 1994 from NI Annual Abstract of Statistics and from NIERC data based on the Labour Force Survey. Columns may not add to 100% due to rounding. All figures are for Northern Ireland only. Our sample is reduced to 952 observations by deleting missing values. Consequently, sample proportions for 16 year olds may vary slightly from those reported in Armstrong (1999).

It is immediately clear from Table 1 that the activities of the population of young people and of the sample are not identical at ages 16 and 17. Unsurprisingly, less 17 year olds than 16 year olds are in full-time education and substantially more are in employment. More precisely, participation rates in full-time post-compulsory education for 16 year olds and 17 year olds in 1993 and 1994 are 68% and 54% respectively. This pattern corresponds to the findings of McWhirter et al (1987), as

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[7] The Status 0 Survey (see Armstrong et al, 1997).
[8] Deleting observations with missing values cuts the sample down to 952.
[9] These young people were the focus of the original research for which the survey was carried out (see Armstrong et al, 1997).

discussed in the previous section, and supports our interest in analysing destinations at 17 as well as the more standard analysis of first destinations at 16. Our dependent variables (one for each sweep) are based on the above sample proportions (see Section 4).

The explanatory variables of primary interest are whether an individual attended a secondary grammar or non-grammar school prior to leaving 5th Form and the management type of school attended. Population and sample figures for these variables are given below in Table 2, for the 1992/93 school year.

Table 2: Grammar/Non-Grammar and Management Type: Population and Sample Proportions

	Grammar	Secondary	Controlled	Maintained	Voluntary	Integrated
Pop	39.5	60.5	37.1	31.5	30.4	1.0
Sam	15.4	84.6	46.0	41.4	10.3	1.7

Notes: Grammar schools are under-represented in the sample because of the survey focus, as discussed above. This is also reflected in the Maintained/Voluntary proportions (Maintained are secondary schools and Voluntary are mostly grammars). These categories imply that the school-management and grammar variables will not be entirely linearly independent. Population figures are for 1992/93 from Northern Ireland Annual Abstract of Statistics.

In addition to the selection variable and the school management variable we follow Armstrong (1999) by including two school performance indicators in the empirical model, namely the proportion of 5th Form leavers with 5+ GCSEs and the school attendance rate. These variables, taken from the 1992/93 School Performance Indicators (DENI, 1993), are discussed in depth in Armstrong's paper, so we do not repeat this discussion here. These variables give us independent proxies for aspects of school culture across all types of school. Our analysis of the effects of grammar schools (and of different school management arrangements) is therefore over-and-above these more general school culture indicators. Clearly, however, such performance indicators are likely to be correlated with the grammar dummy variable, as shown in Table 4 below. Indeed, Armstrong (1999) provides us with scatter plots of these performance indicators against participation in post-compulsory full-time education for both grammar and secondary schools. It is immediately apparent that grammar schools tend to cluster together in the top right hand corner of these graphs

(ie: grammars tend to show significantly higher values for the performance indicators and for staying-on rates than secondary schools).

An alternative to the grammar school culture hypothesis is that grammar school pupils may be more likely to stay on at school because these schools usually have 6th Forms, in contrast to many secondary intermediate schools (see Cheng, 1995; Payne, 1998). If a school has a 6th Form, then 5th Form pupils are more likely to know some of the teachers and many of the pupils who will be entering the 6th Form in the cohort. Therefore, both aversion to uncertainty and peer group effects might reasonably be expected to increase the likelihood of such pupils staying on at school. Alternatively, the presence of a 6th Form has implications for school funding, and there may be a trickle down effect to lower forms. Almost half of the schools in our sample have 6th Forms. The presence of a 6th Form is positively correlated with staying on at school or FE, but less so than the grammar dummy.

Cheng (1995) finds that pupils from single sex schools are more likely to stay on at school beyond compulsory schooling. In so much that grammar schools are less likely to be co-ed schools than other secondary schools, this provides a further alternative to the grammar school culture hypothesis.[10] In other words, grammar school pupils might be more likely to stay on at school merely because of the positive correlation between grammar schools and single sex schools. We control for this with a binary single sex dummy (0=co-ed).

Our other explanatory variables consist of those core variables consistently included in transition analyses in the literature and those variables particular to Northern Ireland that have previously been found to be important determining factors of staying-on rates and other post-5th Form choices (see Section 2.2.3). We briefly describe these variables below.

Gender has been shown in numerous studies to effect choice of post-5th Form destination (refer to any of the transition studies reviewed in Section 2.2). Typically, young women are far more likely to remain in full-time education than young men,

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[10] In our sample, 43.2% of grammar school pupils attend a single-sex school compared to 31.1% of non-grammar pupils.

and this is equally true of Northern Ireland as it is of the UK as a whole. Gender is included as a binary dummy explanatory variable (1=male).

Qualifications at 16 have become widely regarded in recent years as possibly the most important determinant of routes post-16 (see, for example, Rice and McVicar, 1996; Payne, 1998). Young people with a good portfolio of qualifications tend to stay on at school whereas those with little or no qualifications are more likely to enter training schemes or unemployment. This may partly reflect entrance requirements for the various routes, but also young people's aspirations and their raw (academic) ability. Armstrong (1999) points out that qualifications at 16 are likely to be endogenous in transition models because destinations are often chosen before these examinations are sat and examination effort may depend on the route chosen beforehand. For example, if a young person chooses to stay on at school (with a standard 5+ GCSEs entrance requirement for A level study) he or she may be more motivated to study for the end of year examinations than a young person who has chosen the training scheme route. A natural solution to this problem would be to find an exogenous variable, correlated with qualifications at 16, to use as an instrument. However, such instruments (exam success at 11 or 14, for example) are difficult to come by and we do not have any such information in our data set.[11] Our qualifications variable is the number of GCSE passes at grades A-C.

Unemployment rates are often found to be important determinants of staying on rates (see, for example, Rice, 1987; Micklewright et al, 1990; Armstrong, 1995). Two alternative hypotheses are firstly that high (local) unemployment encourages young people to stay on at school because job opportunities are limited (low opportunity cost of staying on). Secondly, unemployment might discourage young people from staying on because they believe their future job prospects will be limited which reduces the perceived benefits to staying on. This theoretical ambiguity is reflected in often contrasting empirical results. We include local unemployment rates for both October 1993 and October 1994, based on claimant counts, at Local Government District (LGD) level, following Armstrong (1999). This variable (for 1993) was found by Armstrong to be significant in many cases.

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[11] Even if we could obtain such information, it may be a poor proxy for academic ability at 16.

Parental occupation can be used both as a measure of social class and of family disposable income. Such measures are intended to pick up factors such as parental aspirations for their children (professional workers may have more demanding academic aspirations for their children than manual workers, for instance) or the family's ability to fund a young adult through years of post-compulsory education. We include a binary dummy for father employed in managerial, professional and related occupations and a similar dummy for mother employed in managerial, professional and related occupations. Alternative dummies are experimented with, including father employed full-time and mother employed full-time in all occupations.

The number of siblings in the household is sometimes included as an explanatory variable in studies of staying on (see, for example, Micklewright, 1989; Armstrong, 1999).[12] A large family may cut down the amount of time parents can spend with individual children, which can affect intellectual development. Equally, it may reduce family income per head.

Religion is far more important in Northern Ireland than in many other parts of the UK, both in terms of the number of people who actively go to church and in terms of the strong religious/community identification that many people feel. In addition to this, or as a result of this, schools are predominantly segregated along religious lines and there are persistent Protestant/Catholic labour market differences. For example, the adult male Catholic unemployment rate has consistently been over twice as high as that of adult male Protestants in the region for many years. Because of this latter apparent disadvantage, Catholics might be expected to stay on at school or not, depending on the relative weights of the arguments used to explain unemployment's possible effects (ie: reduced opportunity cost and discouraged worker effects). Armstrong (1999) finds Catholics are more likely to stay on at school, other things being equal. We include a binary dummy for Catholic/Non-Catholic.

Geographical dummies are included to allow for possible effects of living in the urban areas of Belfast or Derry, for example, over and above the local labour demand effects

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[12] These studies include separate variables for the number of older and the number of younger siblings, and find evidence that the effects are different for different positions in the birth order. We do not

captured by the unemployment rates. In this we follow Armstrong (1999), who suggests there may be social factors such as the incidence of crime or other cultural factors that have an effect on staying on rates. In addition to the two binary urban dummies, travel-to-work areas (TTWAs) are aggregated (following the approach of Armstrong, 1999) to North, East, South and West sub-regional dummies. Finally, we include a Targeting Social Needs (TSN) dummy for those individuals living in a designated TSN area (by ward). This last variable may also act to capture some social class effects.

Table 3 below lists the explanatory variables used in the analysis along with their sample means.

Table 3: Explanatory Variables with Sample Means

Variable	Sample Mean	Variable	Sample Mean
Grammar	.15	Number of siblings	2.70
Single-Sex	.33	Father prof & related	.25
Controlled	.46	Oct 1993 LGD unemployment rate	14.20
Sixth Form	.42	Oct 1994 LGD unemployment rate	13.00
School % 5+GCSE passes (A-C)	35.50	TSN Area	.61
		Belfast DC	.13
Attendance rate	91.80	Derry DC	.08
Catholic	.51	North	.12
Male	.52	South	.14
No. GCSE passes (A-C)	5.20	East	.37
Mother prof & related	.11	West	.12

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separate older and younger siblings in the present study due to the proliferation of explanatory variables.

Table 4 below gives simple pair-wise correlation coefficients for the dependent variables (treated as binary dummies for each of our two years, 1=FT Education, 0=otherwise) and key explanatory variables.

Table 4: Correlation of Key Explanatory Variables

	Ed93	Ed94	Gram	Cont	Male	Cath	UR93	Fprof	Quals	Sixth	S.sex	TSN	%A-C
Ed93	1.00	.72	.19	-.06	-.15	-.03	.03	.14	.44	.15	.00	-.06	.26
Ed94	.72	1.00	.27	-.12	-.13	-.07	.05	.17	.51	.19	.01	-.03	.30
Gram	.19	.27	1.00	-.12	-.02	.00	-.03	.14	.35	.44	.09	-.03	.57
Cont	-.06	-.12	-.12	1.00	-.07	-.84	-.22	-.02	.02	.19	-.32	-.26	-.06
Male	-.15	-.13	-.02	-.07	1.00	.05	-.03	.02	-.13	-.01	.03	-.01	-.12
Cath	-.03	-.07	.00	-.84	.05	1.00	.28	-.03	-.06	.12	.30	.29	.01
UR93	.03	.05	-.03	-.22	-.03	.28	1.00	.00	-.01	-.05	.09	.44	-.04
Fprof	.14	.17	.14	-.02	.02	-.03	.00	1.00	.21	.07	.13	-.04	.22
Quals	.45	.51	.35	.02	-.13	-.06	-.01	.21	1.00	.15	-.04	-.06	.35
Sixth	.15	.19	.44	.19	-.01	.12	-.05	.07	.15	1.00	.15	.03	.44
S.sex	.00	.01	.09	-.32	.03	.30	.09	.13	-.04	.15	1.00	.03	-.09
TSN	-.06	-.03	-.03	-.26	-.01	.29	.44	-.04	-.06	.03	.03	1.00	-.04
%A-C	.26	.30	.57	-.06	-.12	.01	-.04	.22	.35	.44	-.09	-.04	1.00

Notes: Variable labels, where not self-explanatory, are as follows. Ed93 and Ed94 are in full-time education in October 1993 and October 1994 respectively (including school and FE). 'Vol' is a binary dummy to capture all non-controlled schools. Fprof is father employed in professional, managerial and related occupations. Quals is the individual's number of GCSEs grade A-C and %A-C is the school rate of 5+GCSE grade A-Cs. Correlation coefficients given are Spearman correlation coefficients for rank ordered variables (see SPSS 7.5 User's Guide).

Although the above table is somewhat unwieldy, a number of facts are clear from such analysis of the raw data in the sample. We summarise the most interesting for our purposes below:

1. Grammar school pupils are more likely to stay on in full time education than secondary school pupils. The correlation is stronger for those staying on into a second year.
2. Pupils from schools with 6th Forms are more likely to stay on. All grammar schools have 6th Forms, but only some secondary intermediates have 6th Forms. The grammar dummy and the 6th Form dummy are positively correlated, as are the grammar school and the single-sex dummy.
3. Staying on is positively correlated with qualifications gained at 16.

4. Grammar schools and schools with 6th Forms (unsurprisingly) display a clearly superior school exam performance. Individual grammar school pupils are more likely to do well in examinations at 16 than secondary school pupils.

5. Males are more likely to enter employment, unemployment or training schemes than females, who are more likely to stay on in full-time education.

6. Religious background is largely uncorrelated with staying on, but highly correlated with school type (the Controlled dummy).

7. Local unemployment rates are largely uncorrelated with staying on.

8. School performance in examinations is positively correlated with individual examination success and both variables are positively correlated with the dummy variable for father being employed in professional, managerial and related occupations.

4:   Estimation of the Empirical Model

The specification of our empirical model follows that of Armstrong (1999), with multiple categories for the dependent variable. This approach allows for the fact that decisions at 16 are more complex than a simple binary choice (education or not) and follows other recent work, by, for example, Andrews and Bradley (1997). There are clear differences between FE and school in terms of courses followed and examinations studied for (eg: traditional subjects and A-levels compared to more vocational subjects and GNVQs). There are also clear differences between employment and unemployment and training schemes. Once again following Armstrong (1999) we treat unemployment and training schemes as a single category because of small sample numbers in unemployment. This treatment is supported by the similar sample characteristics of those individuals in unemployment and on training schemes, and the argument that training schemes may sometimes be more unemployment palliatives than serious attempts to train young people.[13]

Our dependent variable is therefore split into four possible states:

$Y_i = 0$, if young person is at school,

$Y_i = 1$, if young person is in full-time FE,

$Y_i = 2$, if young person is employed,

$Y_i = 3$, if young person is in unemployment or training scheme.

The identification of these four separate states for the dependent variable is supported by Cramer-Ridder tests of pooling outcomes 0 and 1 and 2 and 3 (see Cramer and Ridder, 1991).[14]

Given our dependent variable, we specify a multinomial logit model as follows. Let Y_{ij} be a binary variable that takes the value one if an individual is in category j and zero otherwise, ie:

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[13] This unemployment-palliative label for youth training schemes in Northern Ireland has recently been challenged by Armstrong and McVicar (1998).

[14] The Cramer-Ridder test is a likelihood- ratio test comparing the log-likelihoods of the model when the dependent variable is aggregated (into 2 states) and when it is disaggregated (into 4 states). Two separate tests are performed for separation of states 0 and 1 (school and FE) and states 2 and 3 (YT and employment). The test statistics are 27.2 and 63.2, respectively, and are distributed chi-square with 19

$\sum_j Y_{ij} = \sum_j P_{ij} = 1,$

where P_{ij} is the probability that individual i is in category j. The individual probabilities are given by:

$P_{ij} = P(Y_i = j) = \exp(X_i'b_j)/\sum_j \exp(X_i'b_j).$

The parameters b_j measure the effect of X_i (the set of explanatory variables) on the *relative* probability of individual i being in one of two categories. In this case, we have normalised on school, so probabilities of being in employment, for example, are expressed relative to the probability of being at school. Whilst these estimated parameters are interesting in themselves, our primary interest is in the *marginal effects* at the sample means, which we can recover from the estimated parameters in the following way:

$\delta P_{ij}/\delta X_i = P_{ij} (b_j - \sum_k P_k b_j),$

giving us the effect of the explanatory variables on the *absolute* probability of being in category j, where P_k is the relative probability of being in category k, as given above. In our particular case, given that some of our explanatory variables are binary dummies, we need to take care in interpreting these marginal effects. We cannot talk in terms of individual-level effects (there is no margin at which to change with a binary dummy; it is either 0 or 1) but only in terms of sample proportion effects. For example, we interpret a marginal effect of .19 for the grammar school dummy variable, on the probability of staying on, as a .19% increase in the sample proportion staying on resulting from a 1% increase in the proportion of the sample attending grammar schools.

The log-likelihood is given by:

$\ln L = \sum_i \sum_j d_{ij} \ln P (Y_i = j),$

where $d_{ij} = 1$ if individual i chooses option j and zero otherwise.

degrees of freedom (the number of parameter restrictions in the model). The 5% critical value is 10.12,

Unfortunately, matters are slightly complicated by the fact that the original sample was stratified in such a way that a predetermined number of young people were in each category. Thus the probability of being in the sample in the first place is related to the model itself, or the sample is *choice-based* (Armstrong, 1999). Fortunately, we know the population proportions for both years (see Table 1), and so we can follow Armstrong (1999) and use the Manski-Lerman estimator (see Manski and Lerman, 1977) based on the following log-likelihood:

$$\ln L = \sum_i \sum_j d_{ij}\, w\,(Y_i = j)\, \ln P\,(Y_i = j),$$

where $w(Y_i=j)$ is the ratio of the population proportion to the sample proportion in category j. The variance-covariance matrix for this estimator is given by:

$$H^{-1} B H^{-1},$$

Where $H = -\delta^2 \ln L^*(\hat{b})/\delta\hat{b}\,\delta\hat{b}'$,

$$B = \sum_i g_i g_i,$$

and $g_i = \delta \ln L^*(\hat{b})/\delta\hat{b}$.

For more details readers are referred to the Armstrong (1999). Estimation uses LIMDEP7's 'marginal effects' command, for each of the two years.

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therefore the separation of states is supported in both cases.

5:   Results and Discussion

We estimate the choice-based multinomial logit model as outlined in the previous section for October 1993 and October 1994 separately. Following a general to specific methodology, we begin by estimating a fully inclusive model and proceed by omitting those variables found to have insignificant marginal effects for all states of the dependent variable. For this purpose, we take 10% as our significance level.

5.1. First Destinations

Table 5 below outlines the estimated marginal effects for the October 1993 model (hereafter called First Destinations). No variables can be dropped from the model, as all display significant marginal effects.

The grammar school dummy variable has a significant marginal effect in three of the four cases. Firstly, individuals who have attended grammar schools are more likely to stay on at school. An increase of 1% in the proportion of pupils attending grammar schools would increase the staying-on rate by .17%. Secondly, grammar school pupils are less likely to enter FE and less likely to enter employment. There is no significant effect on the likelihood of entering training schemes or unemployment. These results suggest that there is something about grammar schools *per se* that leads pupils to stay on at school rather than enter FE or employment. This is over and above any academic ability effect (as measured by the qualifications variable), and over and above the two quantifiable measures of school culture (ie: GCSE pass rates and attendance rates).

Table 5: First Destinations Marginal Effects at Sample Means

	School	FE	Employment	YTS / Unemployed
Constant	0.94 *	-1.96 **	0.14 **	0.87
	(0.51)	(0.22)	(0.04)	(0.76)
Grammar	0.17**	-0.14 **	-0.01 **	-0.04
	(0.05)	(0.02)	(<0.01)	(0.08)
Controlled	0.01	-0.06**	0.02 **	-0.03
	(0.01)	(0.02)	(<0.01)	(0.06)
Sixth Form	0. 23**	-0.11 **	-0.02 **	-0.09 **
	(0.03)	(0.01)	(<0.01)	(0.04)
Single Sex	0. 08**	-0.04 **	-0.02 **	-0.01
	(0.03)	(0.01)	(<0.01)	(0.04)
% with 5+ GCSEs, A-C	<0.01 *	<-0.01	<-0.01 **	<-0.01
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Attendance Rate	-0.01 **	0.02 **	<-0.01 **	-0.01
	(0.01)	(<0.01)	(<0.01)	(0.01)
Qualifications	0.01 **	<0.01 *	<-0.01	-0.01 **
	(<0.01)	(<0.01)	(<0.01)	(0.01)
Male	-0.19 **	0.02**	0.01 **	0.16 **
	(0.03)	(0.01)	(<0.01)	(0.04)
Catholic	0.08*	-0.02	0.01 **	-0.06
	(0.04)	(0.02)	(<0.01)	(0.06)
Unemployment (LGD93)	0.01 **	<0.01	<0.01 **	-0.01 *
	(0.01)	(<0.01)	(<0.01)	(0.01)
Father Prof & Managerial	0.04	0.02*	-0.02 **	-0.04
	(0.03)	(0.01)	(<0.01)	(0.04)
Mother Prof & Managerial	0.19 **	<0.01	0.01 **	-0.20 **
	(0.04)	(0.02)	(<0.01)	(0.07)
No. Siblings	<-0.01	<-0.01	<0.01 **	<0.01
	(0.01)	(<0.01)	(<0.01)	(<0.01)
TSN	-0.07 **	-0.01	0.01 **	0.06 *
	(0.03)	(0.01)	(<0.01)	(0.04)
Derry DC	-0.01	-0.05 **	-0.02**	0.08
	(0.06)	(0.03)	(<0.01)	(0.09)
Belfast DC	0.06	-0.01	-0.01 *	-0.04
	(0.05)	(0.02)	(<0.01)	(0.09)
North	0.08	-0.08 **	0.01 **	-0.02
	(0.06)	(0.02)	(<0.01)	(0.09)
South	0.08	-0.03	-0.02 **	-0.03
	(0.06)	(0.02)	(<0.01)	(0.08)
East	0.08	-0.03 *	0.01 **	-0.06
	(0.06)	(0.02)	(<0.01)	(0.08)
West	0.21 **	-0.05 **	0.01 *	-0.17*
	(0.06)	(0.03)	(<0.01)	(0.09)

Notes: Standard errors are given in parentheses. Pseudo R^2 = 0.14. Marginal Effects significant at 5% are marked with **. Marginal effects significant at 10% are marked with a single *. We round to 2 decimal places because of the large number of figures in the tables. '<' denotes smaller than in absolute magnitude.

The estimated effects of attending grammar school on first destinations are consistent with our priors and much of the existing literature. It was suggested in Section 1 that we might expect some sort of positive staying-on effect because of greater parental

involvement, for example. McWhirter et al (1987), for example, find a similar positive staying-on effect, which they argue might be due to grammar schools identifying their role as preparing pupils for entry into HE (a course which generally requires staying on at school). These are both references to school culture effects, where something about the school itself, over and above the background and characteristics of its pupils, influences the transition paths chosen by these pupils. Unfortunately, without far more detailed data sets, it is impossible to identify *exactly what it is* about grammar schools in Northern Ireland that drives this effect. This is in any case a question more for educational sociologists than economists.[15]

Our results are broadly consistent with other previous research. Armstrong (1999) finds a significant negative marginal effect on the chance of entering FE, although the effect on staying on at school is insignificant. Murphy and Shuttleworth (1997) find a negative effect on the chance of being economically active (employment or unemployment). Andrews and Bradley (1997) interestingly find a positive effect of grammar schools on entering FE, in contrast to Armstrong (1999) and the present paper. Of course, there are big differences between the grammar school sector in Lancashire and that in Northern Ireland. There may also be differences in the FE sector as perceived by young people in the two regions.

Attending a Controlled school 5th Form reduces the probability of entering FE and increases the probability of entering employment. Our prior is that there may be an effect of the management structure of the school (run directly by ELBs) on pupils choices of first destination, although we have no strong feeling as to which direction this effect may act. One possible explanation of the effects as estimated is that the arms length management of such schools is reflected in a more distant relationship between the school and parents than would be the case where the school is run by its own board of governors. This result is consistent with the opposite effect of Grant Maintained Status found in Andrews and Bradley (1997). However, matters are complicated by the controlled dummy's correlation with religious background. Controlled schools are predominantly Protestant schools, and previous research has

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[15] Readers are referred to Reynolds and Reid (1988) and Maxwell and Thomas (1991) as potential sources of inspiration.

suggested that Protestants are more likely to enter employment and less likely to remain in education than Catholics. It is possible that the variable is picking up a religion effect not entirely picked up by the Catholic dummy.

Attending a school with a 6th Form up to the age of 16 significantly increases the likelihood that young people will stay on at school. Entering FE, employment or training and unemployment is less likely. A similar effect has been found before in a number of studies (see, for example, Cheng, 1995; Payne, 1998), although not together with a grammar school dummy variable. Our explanation of this pro-staying on effect is that young people may prefer entering a 6th Form where they know most of the other pupils and may know the teachers. It may also be that 6th Formers in the years above them are friends or relatives, which might have further role model or peer-group effects. Another possible alternative explanation is that 6th Forms attract extra funds to the school, the benefits of which might trickle down to the lower forms. The presence of significant 6th Form and grammar school effects suggests that these factors are not alternative explanations but complementary explanations of staying on rates. In other words, pupils in non-grammar secondary schools are more likely to stay on if there is a 6th Form, but grammar school pupils are more likely to stay on both because of the presence of a 6th Form and because of other aspects of grammar school culture.

Attending a single-sex school significantly increases the likelihood that pupils will stay on at school past compulsory education. This supports the findings of Cheng (1995). It also reduces the likelihood of entering employment or FE. Although interesting in itself, it is the fact that the grammar school effect is over and above this effect, as well as all the others included in the model, that is of primary interest here. The significant grammar school culture effect is unrelated to the greater propensity for co-ed schools outside the grammar sector.

The two school performance indicators, as used by Armstrong (1999) to measure school culture, have effects broadly consistent, in terms of sign, with those found by Armstrong. A school with a good examination record is likely to produce pupils who stay on at school or enter employment, rather than FE or youth training and unemployment. The attendance rate has a negative effect on staying on or entering

employment but a positive effect on entering FE. However, although sometimes significant, the marginal effects of both variables are small. Armstrong suggests the examination performance variable might be capturing the academic ethos of the school, which is not inconsistent with the direction of the estimated effects. Given this argument, it is all the more interesting that the grammar school variable has significant effects in the presence of this performance indicator. It suggests that the school culture effects of grammar schools are not purely academic-ethos related.

Many recent studies argue that qualifications obtained at 16 are a key factor in staying on decisions (see, for example, Rice and McVicar, 1996; Payne, 1998). The number of A-C grade qualifications at 16 has a significant positive effect on staying on at school, a positive effect of entering FE and a negative effect on the probability of entering unemployment or training schemes. The signs of these effects are common to the majority of the literature and fully consistent with our priors of the effects of entrance requirements and aspirations.

The qualifications variable is of crucial importance in the model as it controls for individual academic ability, which otherwise would bias our results, particularly for the grammar school variable. However, as discussed in Section 3, it is possible that the qualifications variable is endogenous in the model because destinations might be chosen before exams are sat and this choice might effect the effort put in to study. *A priori* reasoning suggests that the academic ability argument is far stronger than the possible reverse causality argument. Nonetheless, if there is a significant reverse causality between qualifications and first destination, it may also bias our results. The surprisingly small size of these marginal effects suggests the possibility of bias.[16] Unfortunately, in the absence of any suitable instruments, there is little we can do about this potential problem.

The gender dummy has significant marginal effects for all states of the dependent variable. Males are less likely to stay on at school and more likely to enter FE, employment or training than females. This finding is consistent with the standard

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[16] Equally, it could be that the grammar school dummy is picking up part of the ability effect. The correlation between the qualifications variable and the grammar dummy is not *that* high, however, so this is unlikely to provide sufficient explanation.

pattern of results in the existing literature (see, for example, Rice, 1987; Micklewright et al, 1990; Armstrong, 1999).

In common with a number of recent studies (eg: Armstrong, 1999; Murphy and Shuttleworth, 1997), we find Catholics are more likely to stay on at school than non-Catholics. Interestingly, they are also more likely to enter employment at 16, although the effect is very small.

Young people whose fathers are employed in professional, managerial and related occupations are significantly less likely to enter employment at the end of compulsory education and more likely to enter FE. Although this is consistent with our priors of social class and parental aspirations, the lack of any other significant effects is somewhat surprising, as the income and attitudes arguments put forward in Section 3 suggest a positive effect on staying on at school. We find little evidence for such arguments, at least from the father's point of view.

Young people whose mothers are employed in professional, managerial and related occupations are significantly more likely to stay on at school, however. This fits with the income and attitudes arguments discussed previously. It is possible that the contrast between the father's employment status and mother's employment status variables reflects the growing importance of women in the labour market over recent decades. It may be that the maternal employment variable is a better proxy for social class and aspirations. Alternative parental employment variables were included in the model (mother and father employed full-time in all occupations) and these also displayed a similar pattern of the greater importance of the mother's employment status.

The number of siblings has a small significant positive effect on entering employment only. Although weak, this is consistent with our prior that more siblings cuts down parental time to spend with a particular child and also may reduce family income per head, both of which factors should lead to reduced staying on and more chance of entering employment.[17]

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[17] Armstrong (1999) and Micklewright (1989) find some evidence of the number of siblings effect being stronger the further down the birth order the individual is.

Local unemployment rates have a small significant positive effect on staying on at school and a negative effect on entering training or unemployment. The effects of unemployment on staying on have previously been found to be ambiguous (some authors find negative and some find positive effects). Our results lend support for the opportunity cost argument that high unemployment reduces the opportunity cost of staying on at school by reducing the expected earnings foregone, and therefore will increase participation in post-compulsory education.

Following Armstrong (1999), the model includes a number of sub-regional dummies to capture possible urban area effects (Derry and Belfast) and other geographical effects. These are all significant for some states of the dependent variable. For example, young people are more likely to stay on at school if they live in the West of the Province. Living in the urban areas of Belfast or Derry reduces the likelihood of entering FE or employment. Overall, it is difficult to discern a consistent pattern in these sub-regional dummy variables. Nonetheless, there are clearly some sub-regional factors, not captured by unemployment rates or religion that affect young people's transition choices.

Finally, young people living in TSN areas are less likely to stay on at school and more likely to enter employment, training or unemployment. This is consistent with two alternative explanations. Firstly, it may be capturing the disincentive effects of poor local labour demand at a more disaggregated level than the local unemployment variable. At this more localised level, it may be that these disincentive effects dominate the reduced-opportunity cost effects of staying on. More likely, however, is that the TSN variable is capturing some social class effects not captured by the parental occupation variables.

5.2.   One Year On

Table 6 below outlines the estimated marginal effects for the parsimonious October 1994 model (hereafter called One Year On). The only variable consistently insignificant is the Derry dummy, which is dropped. Many of the explanatory variables display similar effects in the two years. For example, grammar school pupils are more likely to stay on at school into a second year of 6th Form. This is consistent

with the notion of grammar school culture being directed at producing young people who aim to enter HE. The presence of a 6th Form and the co-ed status of a school have similar effects in both years. Mothers' employment status is again found to be a significant factor.

However, there are a number of striking differences between the two models. Grammar school pupils are *more* likely to be in FE and *substantially* less likely to be in employment at the age of 17. Around a fifth of the grammar school pupils in the sample that do not stay on in education at 16 are drawn back, primarily into FE. Equally, the grammar dummy could be picking up the contrast between those in FE studying two-year courses and those studying one-year courses. Controlled school pupils are less likely to stay on at school for a second year. The Catholic dummy variable no longer has a significant school effect, but does have a significant negative employment effect. This suggests a growing contrast in labour market outcomes for Catholics and Protestants one year on. Fathers' employment status acts more strongly as a social class indicator one year on, with the signs predicted. Finally, the geographical dummies generally display more (and larger) significant effects one year on, suggesting increasingly important locational factors in the career development of young people in Northern Ireland.

Table 6: One Year On Marginal Effects at Sample Means

Variable	School	FE	Employment	YTS / Unemployed
Constant	-1.50 **	-0.79 **	1.42 **	0.86
	(0.59)	(0.35)	(0.24)	(1.10)
Grammar	0.10 **	0.06 **	-0.17 **	0.01
	(0.04)	(0.02)	(0.02)	(0.09)
Sixth Form	0.26 **	-0.08 **	-0.06 **	-0.12**
	(0.03)	(0.02)	(0.01)	(0.05)
Controlled	-0.07 *	-0.06 **	0.02	0.11
	(0.04)	(0.02)	(0.02)	(0.08)
Single Sex	0.08 **	-0.04**	-0.05**	0.01
	(0.02)	(0.01)	(0.01)	(0.05)
% 5+ GCSEs (A-C)	<0.01**	<-0.01**	<0.01 **	<-0.01**
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Attendance Rate	0.01	0.01 **	-0.01 **	-0.01
	(0.01)	(<0.01)	(<0.01)	(0.01)
Qualifications	0.02 **	<-0.01	-0.01 **	-0.01
	(<0.01)	(<0.01)	(<0.01)	(0.01)
Male	-0.11 **	-0.05**	0.02 **	0.15 **
	(0.02)	(0.01)	(0.01)	(0.05)
Catholic	0.01	0.01	-0.07 **	0.05
	(0.04)	(0.02)	(0.02)	(0.08)
Unemployment (LGD94)	0.02 **	<-0.01	-0.01 **	-0.01
	(<0.01)	(<0.01)	(<0.01)	(0.01)
Father Prof & Managerial	0.06**	0.05**	-0.06 **	<0.05
	(0.02)	(0.01)	(0.01)	(0.05)
Mother Prof & Managerial	0.24 **	0.04	<-0.01	-0.27 **
	(0.04)	(0.02)	(0.02)	(0.09)
No. Siblings	<-0.01	-0.02 **	0.01 **	0.01
	(0.01)	(<0.01)	(<0.01)	(0.01)
TSN	-0.09 **	<0.01	0.05**	0.04
	(0.03)	(0.02)	(0.01)	(0.05)
Belfast DC	-0.14 **	-0.02	-0.03	0.19
	(0.07)	(0.04)	(0.03)	(0.14)
North	0.09	-0.10 **	-0.05*	0.06
	(0.06)	(0.04)	(0.03)	(0.13)
East	0.15 **	-0.10 **	-0.05 **	0.01
	(0.06)	(0.03)	(0.03)	(0.12)
South	0.19 **	-0.13 **	-0.11**	0.05
	(0.06)	(0.04)	(0.03)	(0.12)
West	0.25 **	-0.07*	-0.08 *	-0.10
	(0.06)	(0.04)	(0.03)	(0.12)

Notes: Standard errors are given in parentheses. Pseudo R^2 = 0.19. Marginal effects significant at 5 and 10% are marked with a ** and * respectively. '<' denotes less than in terms of absolute magnitude.

6:   Summary and Conclusions

Northern Ireland is unique amongst regions of the UK in still having an almost entirely selective secondary education system. Roughly one third of secondary pupils attend grammar schools, with most of the remainder attending secondary intermediates (equivalent to secondary moderns). This paper has set out to study whether attending a grammar school up to age 16 has any effect, *ceteris paribus*, on the transition of young people from compulsory schooling to further schooling, FE, employment or training. Such an effect might exist because of differences in school culture between selective and non-selective schools. For example, grammar schools may see their role as preparing pupils for entry into HE, whereas this would not be the case in secondary modern schools (McWhirter et al, 1987).

We estimate a multinomial logit model for young people's activities separately for the first destination (the October after leaving 5th Form) and for one year on (the following October), where young people are categorised as being at school, in FE, in employment or in training or unemployment. In addition to the grammar school dummy, the model includes a school-management dummy (for ELB-controlled schools), a 6th Form dummy (for schools with a 6th Form), a single-sex school dummy, and two standard school performance indicators (attendance rates and exam performance). A set of other variables is included, based on those core variables included in previous studies (eg: gender, family background variables, religion, unemployment rates and personal academic ability as proxied by exam results). Estimating this model allows us to isolate the effects of the individual factors, including the grammar school effect.

For both the first destination and the one year on destination, there is a clear grammar school effect, other things being equal, where grammar school pupils are more likely to stay on at school. The results can be interpreted as evidence of a grammar school culture effect which encourages pupils to remain at school, over and above the fact that grammar school pupils are generally more academically able (and thus more likely to stay on at school). This culture effect is also over and above the effects of school attendance rates and average examination success, which may be seen as two of the more quantifiable aspects of school culture. It is also over and above the effects

of the presence of a 6th Form at the school and the co-ed status or otherwise of the school in which pupils complete Year 12. Other variables generally behave as expected and as found in previous studies. Unemployment, for example, encourages young people to stay on at school. Those young people with better qualifications at 16 are more likely to stay on at school.

There are two data-related problems with the research that we have been unable to solve. Firstly, the sample on which we base our results is quite small (952 individuals, of which around 16% are at grammar school). Secondly, *a priori* arguments exist that suggest qualifications gained at 16 might be endogenous in a model of post-16 destinations. In the absence of suitable measures (such as 11+ exam results or IQ scores) we are unable to instrument for this variable, which leaves our estimates susceptible to possible bias. These are issues that would seem interesting for further research.

Our results have interesting implications for policy on selective secondary education. Grammar schools in Northern Ireland are getting something right, relative to other schools, that encourages their pupils to stay on at school beyond the age of 16. This suggests that selection may have an important role to play in increasing participation and achieving the Government's National Learning Targets for 2002.

However, our results also imply that there is something about non-grammar schools (mostly secondary intermediate schools) that discourages young people from continuing in education, so more selection may only be good for the top end of the academic ability range at the expense of the bottom end. Therefore the implication for policy is subtler than a recommendation for more or less selection. Rather, policy makers should consider ways of learning from the school culture of many grammar schools in Northern Ireland and applying what they learn to all schools. To the extent that the recent UK-wide focus on school inspections by OFSTED[18] is designed to achieve this in broad terms, policy could be said to be on the right track.

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[18] Inspections are carried out by DENI in Northern Ireland.

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