The Great Divide: Regional Differences in Education and Training.

by

Patricia Rice

Department of Economics
University of Southampton

(First draft November 2001)

Address for Correspondence:

Dr. P.G. Rice,
Department of Economics
University of Southampton,
Southampton, SO17 1BJ, U.K.

email:rice@soton.ac.uk

Abstract

While regional disparities in the overall rate of participation in further education and training among young people are relatively small, marked differences persist in the pattern of investment across the regions. The proportion of young people continuing in full-time further education in the northern regions continues to lag far behind that in the south. This paper analyses the sources of this 'north-south' divide and the role played by differences in the educational and socio-economic composition of the regions. The results indicate that differences in schooling and levels of educational attainment play a modest role in determining such regional disparities. Further, eliminating all compositional differences across the regions - not only in terms of educational attainment, but also social and ethnic background and local labour market factors - would leave a significant north-south gap in participation in further education. These results point to continuing differences in underlying attitudes to further education and training, and these appear to be particularly marked among young women.

Keywords: human capital, education and training, regional inequality
JEL classification: J24, I21

"The challenge of improving performance in every region and nation is immense, but it is one in which we must succeed if we are to secure long-term prosperity for all" (Treasury, 2001, p.iii)

I. Introduction

Tackling the gap between regions and localities in the UK by improving the productivity performance of the weakest areas is a central element of current government policy (Treasury, 2001). Recent figures show that disparities in economic performance across the regions have widened over the last decade. In 1999, household income per head in Greater London was 122% of the UK average, while in the North East region, it was just 82% of the national average (ONS, 2001). A decade earlier, the corresponding figures were 120% and 86% respectively. Regional differences in average earnings are even greater. Average earnings for full-time male workers in Greater London were 133% of the national average in 1999, as compared with 87% of the national average in the North East region. Empirical studies of the determinants of earnings suggest that disparities in average earnings across the UK regions are attributable largely to differences in the stock of human capital, in particular in the levels of education of the workforce (Blackaby and Manning, 1990, Blackaby and Murphy, 1995, Duranton and Monastriotis, 2001). Duranton and Monastriotis (2001) report evidence of regional convergence over the last two decades in the returns to human capital, but the regional distribution of the stock of human capital has become more dispersed, with levels of average educational attainment in Greater London and the South-East increasing relative to elsewhere. This paper focuses on one source of these changes in the distribution of human capital across the UK, namely regional differences in investment in further education and training by young people following compulsory schooling.[1]

On completing schooling at age 16 years, a young person in the UK has two main options for further enhancing their skills and qualifications. They may continue in full-time education studying for academic or vocational qualifications. Alternatively, they may join a government-supported training scheme, which provides an alternative work-based route to a recognised vocational

qualification.[2] Training provision in employment outside of government-supported schemes is limited increasingly to informal on-the-job training.

Comparing the overall rate of participation in all forms of education and training, the degree of regional variation appears small; 3 percentage points in the case of the 16 years age cohort and 4 percentage points among the 17 years age cohort. However, the pattern of investment in further education and training varies markedly across the regions. Within full-time further education, there is a 'north-south' gap in participation rates of some 13 percentage points. Participation rates among 16 year olds for the Greater London, South East and Eastern regions were 74% in 1998/99, as compared with just 61% in the North East and 64% in Yorkshire and Humberside (DfEE, 2000b). This gap is offset by higher participation rates in government supported training schemes and other forms of part-time education in the northern regions relative to those in the south. A comparison of the pattern of participation in further education and training among the 17 years age cohort reveals a similar regional variation.

Regional differences in the pattern of investment in further education and training can arise from a number of sources. Clearly, type of schooling and levels of educational attainment on completion play an important role. The proportion of the age cohort achieving 5 or more higher grade GCSE qualifications in the South East, South West and Eastern regions significantly exceeds that in other regions of the UK (including Greater London), and has done so for the last decade (Cabinet Office, 1999). Independently of educational attainment, ethnic and socio-economic background have been identified as influential factors in determining the route taken by a young person following schooling (Rice, 2000). Hence, regional differences in participation rates in further education and training reflect differences in the ethnic and social composition of the areas, as well as differences in educational attainment. Furthermore, the decision to invest in additional human capital depends not only on individual characteristics, but also on the conditions prevailing in the labour

market. Hence, differences in unemployment rates and the structure of employment contribute also to the observed disparities in participation rates in further education and training.

The objective of this paper is to disentangle the influence of these various factors, and to determine the extent to which differences in the social and economic composition of the UK regions can account for regional variations in participation rates in further education and training at age 16 years. For this purpose, we specify a statistical model of an individual's choice between three possible activities following schooling – full-time education, a government supported training scheme or direct entry to the labour market. The model is estimated for each of regions England and Wales using data on the post-school activities and characteristics of a large sample of 16 year-olds derived from successive Youth Cohort Studies for the early 1990s. The individual-level information from the YCS is supplemented by data on the employment conditions prevailing in the individual's local labour market.

The results of this statistical analysis indicate that some three-quarters of the so-called 'north-south' gap in participation rates in further education can be accounted for by compositional differences. The remainder is the result of differences in the behaviour of observationally equivalent individuals. Moreover, it would appear that the elimination of regional disparities in educational attainment would of itself have a relatively modest impact on regional differences in participation rates. Independently of their level of educational attainment, young people in the north of England are less likely to choose to continue with full-time education than their counterparts in the south. However, it is among those achieving relatively modest GCSE qualifications that the north-south divide is greatest, with participation rates in further education in the south double those in the northern regions.

The relatively low rates of participation in further education among young people in the northern regions are offset to a large extent by higher rates of participation in work-based training

schemes. The statistical results show that this is largely a consequence of relatively weak labour demand in the areas concerned. Increasing the demand for younger workers in these regions will, all other things being equal, lead young people to opt for direct entry to the labour market in preference to the government supported training schemes. Given the limited opportunities for enhancing job skills afforded by such employment, this may serve only to reduce investment in human capital in these areas.

Section 2 of the paper sets out the modelling methodology. This is followed in section 3 by a discussion of the details of the model specification and the data used. The results are summarised in section 4 and their implications for the sources of regional disparities in participation in education and training examined in Section 5. Section 6 concludes.

2. Modelling Choice of Activity Post-Schooling

A young person completing their schooling at age 16 may choose between three alternative routes - full-time further education, work-based training through a government supported schemes or direct entry into the labour market to seek employment. Over the last decade, the number entering full-time further education has grown substantially, and by the late 1990s, some 70% of the age cohort entered full-time further education to study for range of academic and vocational qualifications (DfEE, 2000c, Table 6). Government supported training schemes provide an alternative route to a recognised vocational qualification through a programme of work-based training. Government-supported training schemes have become the main provider of work-based training for young persons in the 1990s, with more than three-quarters of all 16 year-olds in training funded by such programmes. In many cases, Youth Training has been incorporated into firms' apprenticeship schemes, providing the employer with a subsidy towards their training costs and a means of screening applicants. In this way, Youth Training has become the primary route into skilled craft occupations for young persons, and the more recent Modern Apprenticeship scheme is designed to build further on this.

Outside of government-supported schemes, training provision for young people in employment tends to be limited to informal on-the-job training. In 1999, some 3 percent of 16 year olds received formal work-based training outside of government supported schemes. For the majority of those who opt to enter the labour market directly, employment is "increasingly insecure, part-time, poorly paid and lacking in training or prospects" (Social Exclusion Unit, 1999, p.18). A substantial number fail to find regular full-time employment, and being ineligible for state benefits, become in effect economically inactive, their participation limited to casual employment in the informal sector. A recent study estimates that some 8% of the cohort of 16 year-olds belonged to this category in 1998 (DfEE, 2000a, Table 1); a proportion that, according to Steedman and Green (1997, p.1), "has remained stubbornly constant over the last ten years".

The statistical model analyses the individual's choice between these three alternative routes - full-time further education, government-supported work-based training and direct entry into the labour market. At this level, outcomes may reasonably be regarded as demand-determined, and the analysis can identify the factors influencing individual decisions. With the introduction of pre-vocational and foundation courses, the academic barriers to entering further education have been effectively removed, and survey evidence indicates significant excess capacity in the further education sector in Great Britain for much of the last decade (Foskett and Hesketh, 1996). Furthermore, 16 year-olds not in full-time education are guaranteed a place on a government-supported training scheme. However, the assumption that outcomes are demand-determined is less tenable if outcomes are disaggregated further, for example, to distinguish between different types of training scheme.

Each of the three identified activities is assumed to provide an expected net benefit to the young person in the form of an increment to her stock of human capital through education or training, together with income and/or consumption benefits. One approach to modelling the decision at age 16 years is to assume that the individual chooses the activity that offers the highest expected net benefit.

For the purposes of the empirical analysis, the expected net benefit to activity j for the ith individual, V_i^j is described by a function of the general form

$$V_i^j = V^j(\boldsymbol{x}_i, \boldsymbol{z}_i, u_i^j) \qquad \text{for } j=1,2,3 \tag{1}$$

$\boldsymbol{x}_i$ denotes a vector of observable personal characteristics related to the individual's skills and abilities, and also to their tastes and preferences. $\boldsymbol{z}_i$ denotes a vector of observable variables which reflect the local labour market conditions facing the individual, which affect the expected income streams associated with each of the available activities. u_i^j is a random error term capturing the effects of unobservable variables on the expected return to the jth activity for the ith individual. In this case, j=1 denotes full-time further education; j=2 denotes government supported work based training; j=3 denotes direct entry to the labour market.

For the ith individual we can define an indicator function, A_i, with the property that A_i takes the value j if the individual chooses activity j on completion of compulsory schooling, and takes the value 0 otherwise. It follows that

$$\Pr(A_i = j) \equiv \Pr[V^j(\boldsymbol{x}_i, \boldsymbol{z}_i, u_i^j) = \max(V^k(\boldsymbol{x}_i, \boldsymbol{z}_i, u_i^k), k = 1,2,3)]$$

Adopting a linear approximation for the net benefit function $V^j(.)$, and assuming that the random errors are identically and independently distributed with a Weibull density, we derive a multinomial logit model where

$$\Pr(A_i = j) \equiv P_{ji} = \frac{\exp(\mathbf{x}_i'.\alpha_j + \mathbf{z}_i'.\beta_j)}{\sum_{k=1}^{3} \exp(\mathbf{x}_i'.\alpha_k + \mathbf{z}_i'.\beta_k)} \qquad \text{for } j = 1,2,3 \tag{2}$$

with $\boldsymbol{\alpha}_1 = \boldsymbol{\beta}_1 = \mathbf{0}$, and hence the log-odds ratios are given by

$$\ln \frac{P_j}{P_1} = \mathbf{x}_i' . \alpha_j + \mathbf{z}_i' . \beta_j \qquad \text{for } j = 2,3 \tag{3}$$

A limitation of this approach is that the multinomial logit model assumes the independence of irrelevant alternatives. As is evident from (3), the odds of the individual choosing between any two potential outcomes is independent of the set of alternative outcomes that may be available. This implies, for example, that the odds of the individual choosing full-time education in preference to direct entry to the labour market is independent of the availability of an alternative work-based route to a recognised vocational qualification.

An alternative approach to modelling the choice of activity at age 16 years that does not suffer from this particular shortcoming is to assume that the student makes, in effect, two sequential decisions. First, she decides whether to continue in full-time education following compulsory schooling. Second, conditional on choosing not to enter further education, she chooses between Youth Training and direct entry to the labour market. In this case, we define the latent variables Z_{1i}, the expected net return to continuing in full-time further education at age 16 years, and Z_{2i} , the expected net return to undertaking Youth Training rather than entering the labour market directly.

$$\begin{aligned} Z_{1i} &= \mathbf{x}_i' . \boldsymbol{\phi}_1 + \mathbf{z}_i' . \boldsymbol{\gamma}_1 + \boldsymbol{\varepsilon}_{1i} \\ Z_{2i} &= \mathbf{x}_i' . \boldsymbol{\phi}_2 + \mathbf{z}_i' . \boldsymbol{\gamma}_2 + \boldsymbol{\varepsilon}_{2i} \end{aligned} \tag{3}$$

It follows that the indicator function, A_i has the properties

$$\Pr(A_i = 1) \equiv \Pr(Z_{1i} > 0) = \Pr(\boldsymbol{\varepsilon}_{1i} > -\boldsymbol{x}_i' \boldsymbol{\phi}_1 - \boldsymbol{z}_i' \boldsymbol{\gamma}_1)$$

$$\Pr(A_i = 2) \equiv \Pr(Z_{1i} \leq 0 \quad \text{and} \quad Z_{2i} > 0) = \Pr(\boldsymbol{\varepsilon}_{1i} \leq -\boldsymbol{x}_i' \boldsymbol{\phi}_1 - \boldsymbol{z}_i' \boldsymbol{\gamma}_1 \text{ and } \boldsymbol{\varepsilon}_{2i} > -\boldsymbol{x}_i' \boldsymbol{\phi}_2 - \boldsymbol{z}_i' \boldsymbol{\gamma}_2)$$

$$\Pr(A_i = 3) \equiv \Pr(Z_{1i} \leq 0 \quad \text{and} \quad Z_{2i} \leq 0) = \Pr(\boldsymbol{\varepsilon}_{1i} \leq -\boldsymbol{x}_i' \boldsymbol{\phi}_1 - \boldsymbol{z}_i' \boldsymbol{\gamma}_1 \text{ and } \boldsymbol{\varepsilon}_{2i} \leq -\boldsymbol{x}_i' \boldsymbol{\phi}_2 - \boldsymbol{z}_i' \boldsymbol{\gamma}_2)$$

Assuming that the error terms ε_{1i} and ε_{2i} are distributed as bivariate normals (0,0,1,1,ρ), the model is estimated as a bivariate probit with sample selection.

3. Definition of Variables and Data

Information on individuals and their activities following compulsory schooling is obtained from the Youth Cohort Studies (YCS) for England and Wales, a longitudinal study of education, employment and training for a sample of those aged 16 to 19 years. The information is collected by postal questionnaire sent to a representative sample of 16/17 year-olds in the March of the year following their completion of compulsory schooling, with follow-up studies over the succeeding two years. The data used in this study is taken from studies 4, 5 and 6, and relate to individuals aged 16/17 years who completed their compulsory schooling in the year 1988, 1990 and 1991 respectively. Combining the three studies provides us with a very large sample - 24,533 males and 27,366 females - spanning a period of substantial change in education, training and the youth labour market in Great Britain.

For the purposes of this analysis, each individual in the sample is assigned to one of three categories according to their stated activities at the time of the survey:

A_i=1 - the individual is currently engaged in full-time further education, or is waiting to take up a place in full-time further education.

A_i=2 - the individual is undertaking government-supported training, or is waiting to take up a place on such a scheme; or is seeking a place on such a scheme.

A_i=3 - the individual is in employment, either full-time or part-time, or without employment and seeking a job.

Table 1 shows the proportion of the sample of 16 year-olds engaged in each of the three activities in each of the ten administrative regions that make up England and Wales. A north-south divide in outcomes is readily apparent. Participation rates in full-time further education decline markedly as one moves north, with participation rates in full-time further education in the South East and Greater London exceeding those in the North by some 20 percentage points. The sample spans a period of substantial growth in full-time education in all regions but there is no evidence of a significant reduction in regional differences during this period. The decline in participation rates in further education as one moves north is offset by an increase in the proportion of the cohort undertaking Youth Training. Regional differences in proportion entering labour market tend to be far less marked.

Attainment levels in the General Certificate of Secondary Education (GCSE) is recognised to be a key factor in determining the route chosen by a young person following schooling (Ashford, 1993; Rice, 1999). Table 2 shows GCSE attainment levels by region for the YCS sample. On the whole, regional disparities in attainment levels at GCSE are less stark than is the case for participation rates in further education and training, and the evidence of a north-south divide is less strong. While it is the case that the proportion of the age cohort with 5 or more GCSEs at higher grades is greater in the South East and South West regions than elsewhere, the proportion in Greater London is similar to that in the Midlands and Wales.

There are a number of aspects of the individual's educational background aside from GCSE performance that are expected to influence the choice of post-16 activity. The type of institution attended – private or state, selective or comprehensive - may contribute to the individual's skills and abilities in ways not fully captured by GCSE grades. Added to this, the institution may influence an individual’s tastes and preferences through, for example, the type of career guidance and support

provided. In addition to information on school type, the model includes indicators of the individual's attitudes to schooling and on whether they have a record of persistent truancy.

The individual's socio-economic background plays a major role in determining not only their level of academic attainment at age 16 years, but also their tastes and preferences for alternative activities. It is to allow for the latter that indicators of the parent's socio-economic group are included as explanatory variables in the model in addition to the GCSE attainment measure. Further, in the absence of any direct information relating to the wealth or income of the household, socio-economic group serves as a crude proxy for the permanent income of the family. It is on this basis that, indicators of the current working status of each parent and of household composition are included in the model also.

Finally, the expected return to an investment in human capital depends not only on the attributes of the individual, but also on the labour market conditions that he/she faces. A higher rate of unemployment in the local market implies a lower expected level of earnings foregone in the short-run for those who decide to undertake further education or training, and as such increases the expected return on the investment. Against this, it has been suggested that higher levels of unemployment are associated with greater uncertainty regarding future income streams and so tend to discourage investment in human capital (Micklewright, 1989). The empirical evidence to date is mixed. Studies based on time-series data confirm that the proportion of the age cohort entering further education following compulsory schooling is positively correlated with the unemployment rate (Whitfield and Wilson, 1991; McVicar and Rice, 2001). However, the evidence from studies of individual behaviour using micro-level data is more ambiguous (see for example Micklewright et al, 1988, Gray et al, 1994; Rice, 1999).

In this study, local unemployment is measured by the proportion of male workforce in the individual's local area registered as wholly unemployed and claiming benefit in the summer prior to

the survey (i.e. the summer that the individual completed schooling). This measure of unemployment fluctuates markedly over the four-year period spanned by the YCS sample. In June 1988, as the individuals in YCS4 approached the end of their compulsory schooling, the British economy was recovering from a prolonged recession. The average male unemployment rate remained high at 8.5%, but was declining rapidly. The labour market looked rather different for those completing their compulsory schooling two years later. By June 1990, the economy had peaked and unemployment, while still relatively low at 5.7%, was increasing once again. The next twelve months saw a substantial increase in unemployment as the economy moved into deep recession. By June 1991, when the young persons in YCS6 completed their schooling, the unemployment rate averaged 10.4% for males and was rising. In order to allow for these dynamics, the annual change in the unemployment rate, as well as the unemployment rate itself, is included in the model.

In addition to including measures of the level of local labour demand, an attempt is made to capture variations in its composition across areas. Firstly, the proportion of unemployed aged less than 21 years is considered as an indicator of the relative demand for low skilled and inexperienced labour. Secondly, the proportion of local employment within the banking and finance, public administration and health and education sectors is used as an indicator of the relative demand for workers with higher level qualifications.

4. Modelling Choice of Activity at Age 16 years – Multinomial Logit v. Bivariate Probit.

Estimates of the parameters of the multinomial logit model (2) and of the bivariate probit model (3) are obtained by maximising the likelihood function of the sample in each case by Newton-Raphson methods using Stata 6 (Statacorp, 1999). Aspects of this particular problem pose specific estimation issues. First, the achieved YCS sample is known to over-represent certain groups in the population, most notably those in full-time further education.[3] Failure to take this account would lead to significant biases in the sample estimates of the relevant population parameters. To mitigate this problem, the sample is weighted so that it matches the relevant population in respect of known

characteristics such as gender, region, school type, GCSE attainment levels and activities undertaken following schooling.[4] The use of sampling weights in estimation affects both the point estimates of the parameters and their variance-covariance matrix. An estimate of the latter is obtained using the 'robust estimator' of Huber and White (White, 1982). The Huber-White robust estimator takes into account also the possible correlation of error terms that may arise from the clustering of individuals in the sample within local labour markets. Unobservables for individuals in the same local labour market are likely to be correlated, although the assumption of independent error terms for individual in different local labour markets is maintained.

Table 3 reports a range of summary statistics for both the multinomial logit and bivariate probit models for each of the 10 standard regions of England and Wales. The full set of parameter estimates, together with their 'robust' standard errors, for both the multinomial logit and bivariate probit models are provided in the Appendix. The first point to note is that the data does not provide strong support for one formulation of the decision problem in preference to the other. In terms of goodness of fit measures such as proportion of correctly predicted outcomes, the performance of the two models is similar, with between 66% and 80% of outcomes correctly predicted. On closer inspection, we find a tendency to over-predict participation in full-time education in both formulations, but this is more marked in the case of the multinomial logit model.

The validity of the assumption of independence of irrelevant alternatives (IIA) implied by the multinomial logit model is assessed using a Hausman test. However, in a high proportion of cases, the asymptotic assumptions of the Hausman test are not satisfied by the data and consequently the test is invalid.[5] Only in one case, the East Midlands, is the IIA assumption rejected by the data at the 5% level.

The evidence is no more conclusive in respect of the bivariate probit specification. Here, we omit the indicators of the individual's attitudes to schooling from the equation modelling the

individual's choice between undertaking Youth Training and entering the labour market directly for the purpose of identification. The estimate of ρ, the covariance of the error terms in the two decision equations, ranges from -0.75 and +0.73, but only in two cases, the South East and South West regions, is the null hypothesis, $\rho=0$, rejected at the 5% level. Hence, there is little evidence in support of the assumption of joint normality of the error terms in the initial decision to leave full-time education and the subsequent choice between Youth Training and direct entry to the labour market. Further, the equation determining the choice between Youth Training and direct entry to the labour market tends to be poorly determined for all the regions, with few statistically significant parameter estimates.

The overall pattern of results is broadly similar in the two models. As expected, level of GCSE attainment emerges as a very important factor determining the probability of a young person choosing to continue in full-time education beyond compulsory schooling. There is a marked fall in this probability as the GCSE attainment level declines from 5 or more higher grade passes to no higher grade passes. There is some evidence that the impact of lower attainment levels is more pronounced in the northern regions than elsewhere, and this is examined in greater detail in the next section of the paper. As in previous work, we find evidence that decision to continue in full-time education is more sensitive to GCSE attainment level for young men than is the case for their female counterparts (Rice, 2000)

Other aspects of the young person's educational background - type of institution, record of truancy, attitudes to schooling - exert a significant influence on the decision at age 16 years also. Two factors appear common across all the regions. All other things being equal, those who attend an independent school are more likely to remain in full-time education at age 16 than those from schools in the state sector. Secondly, persistent truants are more likely than other groups to opt for direct entry to the labour market in preference to either further education or training.

Having controlled for these various aspects of the individual's educational background, it remains the case that the parents' socio-economic group has a significant independent effect on outcomes, as does ethnic group. However, in general, the composition of the individual's household - whether or not both parents are present, the number of siblings etc - does not appear to exert a significant influence on the young person's decision. The absence of a parent from the household is associated with a lower probability of participation in further education but this is likely to reflect a causal relationship running from activity to household composition rather than the reverse. Individuals in full-time education at age 16 are less likely to have the resources to live in independent households than other groups.

The final set of factors considered are those relating to conditions prevailing in the local labour market. Here, the results are more mixed and no clear pattern of effects emerges. A problem is that the number of 'travel-to-work' areas within a specific region can be small, so that there are relatively few distinct observations on the labour market variables. As a result, the estimates are labour market effects tend to be poorly determined with large standard errors in many cases. This problem is most severe for Greater London with just 2 'travel-to-work areas, and East Anglia with 3 areas, giving just 6 and 9 distinct observations respectively for each of the labour market variables in these regions.

5. Regional Differences in Further Education and Training

In this section of the paper, we see what light the model estimates can shed on the apparent 'North-South' divide in further education and training. We start by examining the extent to which regional variation in participation rates arise from differences in the composition of the regions with respect to key factors such as levels of educational attainment, ethnic and socio-economic composition and local labour market conditions, as opposed to differences in the behaviour of observationally-equivalent individuals.

Table 4 provides an answer this question. Given an estimated model, a predicted probability of each outcome may be computed for each individual in the sample. Table 4 reports for each regional model, the means and standard deviations for two sets of predicted probabilities. The first set relates to the actual sample of individuals in the region as used in estimation. Hence differences across the regions in average predicted probabilities are the result of regional differences in both the estimated parameters of the model and the composition of the sample. The second set of predicted probabilities controls for regional differences in sample composition by using the same sample of individuals in all cases, namely the sample for England and Wales as a whole. The two sets of predicted probabilities are reported for both the multinomial logit and the binomial probit specification.[6] However, the results of this exercise are not very sensitive to choice of model specification, with only small differences between the two specifications.

Controlling for sample composition in this way reduces considerably, but does not eliminate, regional differences in predicted probabilities. If the composition in terms of the observable characteristics of each region matched that of England and Wales as a whole then participation rates in full-time education outside of the south of England would be significantly higher in general. In the southern regions, including Greater London, and East Anglia, participation rates would be somewhat reduced. For example, controlling for sample composition in this way increases the average predicted probability of undertaking full-time further education for the North from 0.5 to 0.59, while reducing that for Greater London from 0.7 to 0.65. Thus, a north-south gap of 0.2 is reduced to 0.06 by eliminating regional differences in the observable characteristics. The changes in predicted participation rates in further education that result from controlling for sample composition tend to be matched by changes in predicted participation rates in Youth Training schemes; with relatively small impact on the predicted probability of direct entry into the labour market.

The level of attainment in the GCSE qualification is evidently a key factor influencing a young person's choice of activity having completed schooling. Disparities in schools performance

and in average levels of GCSE attainment both across and within regions are highlighted in a recent Cabinet Office report, and current policy places considerable emphasis on reducing such differences. To what extent would the elimination of regional differences in GCSE attainment levels contribute to reducing the apparent north-south gap in investment in education and training? Table 5 reports the average predicted probabilities of each outcome conditional on attainment levels at GCSE within each region being the same as that for England and Wales as a whole. Controlling for GCSE attainment levels in this way increases the predicted participation rate in further education not only for the northern regions and the midlands, but also in Greater London and East Anglia. Only in the South East and South West regions do participation rates decrease slightly. Overall, the impact of equalising GCSE attainment levels on regional differences in participation rates in education and training is relatively modest.

A more detailed examination of predicted behaviour conditional on GCSE attainment level reveals two key differences between young people in the northern regions - North, Yorkshire and Humberside and North West - and those in the south, more particularly Greater London and the South-East. Individuals in the northern regions are less likely on average to undertake further education than their counterparts in the south irrespective of gender and level of attainment, but the differences tend to be greater for females, and for those with mid-level GCSE qualifications (Table 6). The gender effects are most apparent among the relatively well-qualified groups (i.e. those with 5 or more GCSE passes, including some at higher grades). In the southern regions, well-qualified females are significantly more likely to enter full-time further education than their male counterparts. In the North, North West and East Midlands, the reverse is the case. Thus for these GCSE attainment categories, the 'north-south' gap in predicted participation rates for young women is more than twice that for young men. In general, regional differences increase as attainment levels decline, for both males and females. Overall, we find that it is among those with relatively modest qualifications - some GCSEs but no awards at higher grade - that the gap between north and south tends to be greatest.

A second focus of government policy to reduce regional disparities in economic prosperity is the labour market, and more particularly levels of unemployment. Table 5 reports the average predicted probabilities of each outcome conditional on local labour market conditions in each region matching the average for England and Wales as a whole. It is worth emphasising again that for the reasons discussed above, local labour market effects are not well-determined in general, and these results are at best indicative. Controlling for local labour market characteristics, young people in the Yorkshire and Humberside, the North West and the West Midlands are significantly more likely to opt for direct entry to the labour market than their contemporaries in the southern regions and Wales. Comparing these predicted probabilities with those based on the actual regional samples in Table 4, the overall effect of equalising local labour market conditions across the UK regions is to reduce differences in participation rates in Youth Training schemes, but to increase differences in the proportions of the age cohort entering the labour market directly. In view of the very limited opportunities for acquiring additional skills or qualifications provided by the type of low-skilled employment available to these young people, regional disparities in investment in human capital are if anything accentuated as a result.

6. Conclusions

Recent studies of regional variations in earnings have highlighted the disparities in the average level of educational attainment of the work force across the UK regions. In this paper, we have examined one possible source of such disparities, namely differences across the regions in the pattern of investment in further education and training by young people. If we consider the overall figures for the proportion of the age cohort undertaking some form of education or training following schooling, regional differences appear relatively small, of the order of 4 percentage points in the late 1990s. However, the pattern of investment in human capital differs sharply across the regions. Participation rates in full-time further education in the northern regions lag behind those in the south by as much as

13 percentage points. Offsetting this, young people in the north are more likely to undertake government-supported work-based training than their contemporaries in the south of the country.

The statistical analysis undertaken in this behaviour confirms that weak labour demand is an important factor in the higher participation rates in government supported training programmes observed among young people in the northern regions. Despite efforts to improve the status of government training schemes, it would appear that they are still regarded as a residual activity to be undertaken when local labour demand is weak. Increase the demand for young workers in these regions and the probability of a young person entering the labour directly following schooling, in preference to undertaking further education or training increases significantly. Given this response, policies directed towards equalising local labour market conditions across regions on their own may in fact accentuate regional disparities in investment in human capital.

Considerable emphasis has been placed on importance of educational attainment, and more specifically, levels of attainment in GCSE qualifications. However, this analysis suggests that variations in performance at GCSE account for a relatively small proportion of the observed regional differences in behaviour. Equalising levels of educational attainment would contribute to some narrowing of differences in participation rates but overall the effects are modest. Indeed, we find that eliminating all compositional differences across the regions with respect to observable characteristics such as educational attainment, social and ethnic background and local labour market factors would leave a significant north-south gap in participation rates in further education of some 5 percentage points. These results point to the persistence of underlying differences in attitudes to further education among young people in the northern regions compared with those in the south, and these appear to be particularly marked among young women. These differences need to be addressed if policies to improve the productivity performance of the weakest regions are to succeed.

Bibliography

Ashford, S., Gray, J., and Tranmer, M. (1993), *The Introduction of GCSE Exams and Changes in Post-16 Participation*, ED Research Series: Youth Cohort Report 23 (October), Sheffield: Employment Department.

Blackaby, D., and Manning, D (1990), "The North-South Divide: Questions of Existence and Stability?", *Economic Journal*, 100, 510-527.

Blackaby, D., and Murphy,P. (1995),"Earnings, Unemployment and Britain's North-South Divide: Real or Imaginary", *Oxford Bulletin of Economics and Statistics*, 57, 487-512.

Cabinet Office (1999), *Sharing the Nation's Prosperity: Variations in Economic and Social Conditions Across the UK, Report to the Prime Minister.* London: HMSO.

Courtenay, G and McAleese, I (1993a), *Cohort IV: Young People 16-17 years Old in 1989. Report on Sweep 1*, ED Research series: Youth Cohort Report, 21 (July), Sheffield: Employment Department.

Courtenay, G and McAleese, I (1993b), *Cohort IV: Young People 16-17 years Old in 1991. Report on Sweep 1*, ED Research series: Youth Cohort Report, 22 (August), Sheffield: Employment Department.

Department for Education and Employment (2000a), Youth Cohort Study: Education, Training and Employment of 16-18 year olds in England and the Factors Associated with Non-Participation, Statistical Bulletin 02/2000, London: Department for Education and Employment.

Department for Education and Employment (2000b), *Participation In Education and Training by Young People Aged 16 and 17 in Each Local Area and Region, England, 1994/95 to 1998/99.* Statistical Bulletin, 11/2000, London: Department for Education and Employment.

Department for Education and Employment (2000c), *Participation In Education and Training by 16-18 year olds in England 1998-1999,* Statistical First Release 28/2000, London: Department for Education and Employment.

Duranton, G. and Monastriotis, V. (2001), *Mind the Gaps: The Evolution of Regional Inequalities in the UK 1982-1997*, Centre for Economic Performance Discussion Paper 485, London:LSE.

Foskett, N.H. and Hesketh, A.J. (1996), *Student Decision-making and the Post-16 Market Place,* Report of the Post-16 Markets Project, Centre for Research in Education Marketing, School of Education, Southampton: University of Southampton.

Gray,J., Jesson, D., and Tranmer, M.(1994), *Local Labour Market Variations and Post-16 Participation: Evidence from the End of the Eighties,* ED Research series: Youth Cohort Report, 26, Sheffield: Department of Employment.

HM Treasury (2001), *Productivity in the UK:3-The Regional Dimension* (November), London: HM Treasury.

McVicar, D. and Rice, P.G. (2001), "Participation in Further Education in England and Wales: An Analysis of Post-war Trends", *Oxford Economic Papers,* 53, 47-66.

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

Micklewright, J, Pearson, M. and Smith, S. (1988), *Unemployment and Early School Leaving,* Institute for Fiscal Studies Working paper Series 88/9, London:IFS.

Office of National Statistics (2001), *Regional Household Sector Income and Consumption Expenditure,* July, London: National Statistics.

Rice, P.G. (1999), "The Impact of Local Labour Markets on Investment in Further Education: Evidence from the England and Wales Youth Cohort Studies", *Journal of Population Economics,* 12, 287-312.

Rice, P.G. (2000), *Participation in Further Education and Training: How Much Do Gender and Race Matter?* University of Southampton Discussion Papers in Economics and Econometrics, 19, Southampton: University of Southampton.

Social Exclusion Unit (1999), *Bridging the Gap: New Opportunities for 16-18 Year Olds Not In Education, Employment or Training,* Cmnd 4405, London: HMSO.

Statacorp (1999), *Stata Statistical Software Release 6.0,* College Station, TX: Stata Corporation.

Steedman, H and Green A (1997), *Widening Participation in Further Education and Training: A Survey of the Issues*, London: LSE.

White, H.(1982), "Maximum Likelihood Estimation of Misspecified Models", *Econometrica*, 50, 1-25.

Whitfield, K.and Wilson, R.A. (1991), "Staying-on in full-time education: the education participation rate of 16 year-olds", *Economica,* 58, 391-404.

[1] Throughout the paper, the term 'further education' is used to refer to education or training undertaken within a specialised educational establishment, school or college, following compulsory schooling.

[2] Youth Training, introduced in 1990, provided up to two years of work-based training leading to a National Vocational qualification at level 2. Youth Training was superseded by National Traineeships in 1997. The Modern Apprenticeship scheme was introduced in 1995 and provides three years of training leading to NVQ level 3.

[3] The original YCS sample is representative of the population of 16 year-olds but the response rate averages approximately 70%. For further details of YCS response rates see Courtenay and McAleese, 1993a, 1993b.

[4] For details of the construction of the sampling weights see Courtenay and McAleese, 1993a, 1993b.

[5] The test statistic is $\chi^2 = (\hat{\beta}_r - \hat{\beta})'[\hat{V}_r - \hat{V}]^{-1}(\hat{\beta}_r - \hat{\beta})$ where *r* indicates the estimators based on the restricted set of choices. Asymptotically, the matrix of the differences in covariances is positive definite, but this property may not hold in small samples.

[6] In the case of the multinomial logit model, the means of the predicted probabilities based on the actual regional sample are equal to the sample proportions for each outcome by construction. This is not the case for the bivariate probit specification.

Table 1:

	Year of completion of compulsory schooling	Activity following schooling		
		Full-time further education %	Youth training %	Direct entry to labour market %
North	1988	39.28	40.02	20.70
	1990	47.67	31.87	20.46
	1991	56.24	27.37	16.39
Yorkshire & Humberside	1988	42.82	35.06	22.12
	1990	52.44	23.36	24.21
	1991	60.84	20.91	18.25
North West	1988	45.22	31.30	23.48
	1990	59.30	17.88	22.82
	1991	63.13	17.42	19.45
East Midlands	1988	43.62	31.46	24.92
	1990	54.29	21.19	24.53
	1991	65.17	17.33	17.49
West Midlands	1988	42.05	33.02	24.93
	1990	55.99	19.98	24.02
	1991	63.89	17.10	19.01
Wales	1988	50.39	28.74	20.87
	1990	62.05	17.40	20.56
	1991	67.68	16.64	15.68
East Anglia	1988	47.05	24.02	28.93
	1990	59.12	16.49	24.39
	1991	64.46	13.10	22.44
South East	1988	56.66	28.63	14.71
	1990	66.67	10.55	22.78
	1991	75.68	8.12	16.20
Greater London	1988	58.38	10.54	31.22
	1990	67.19	8.80	24.01
	1991	78.85	6.16	14.99
South West	1988	48.06	24.30	27.64
	1990	64.45	15.31	20.23
	1991	70.52	12.55	16.93

Table 2

	Year of completion of compulsory schooling	GCSE qualifications on completion of schooling				
		5+ 5+ A-C %	5+ 1-4 A-C %	5+ no A-C %	1-4 %	None %
North	1988	25.71	27.68	24.04	15.03	7.53
	1990	30.22	30.25	18.50	14.14	6.90
	1991	32.27	27.91	19.64	13.30	6.87
Yorkshire & Humberside	1988	26.21	26.22	19.97	18.69	8.91
	1990	29.25	27.06	20.70	17.54	5.46
	1991	30.88	31.18	19.30	13.25	5.39
North West	1988	30.84	26.19	18.43	16.10	8.45
	1990	36.12	28.47	13.93	13.88	7.60
	1991	39.34	28.05	16.22	10.46	5.93
East Midlands	1988	28.68	28.11	22.92	13.73	6.55
	1990	30.20	31.21	21.25	12.31	5.03
	1991	35.40	30.13	21.70	8.85	3.92
West Midlands	1988	23.61	29.22	23.04	16.43	7.70
	1990	30.09	30.62	20.11	13.62	5.57
	1991	35.75	29.11	18.82	11.43	4.90
Wales	1988	31.99	26.08	16.57	13.39	11.97
	1990	32.11	29.70	14.40	14.21	9.58
	1991	35.38	24.57	19.98	13.86	7.21
East Anglia	1988	30.46	29.75	19.12	14.48	6.19
	1990	39.49	30.46	13.63	12.45	3.97
	1991	37.41	28.27	22.08	6.83	5.41
South East	1988	37.58	28.55	18.17	11.10	4.60
	1990	42.59	28.77	15.14	9.82	3.68
	1991	43.73	29.39	15.15	7.37	4.36
Greater London	1988	33.30	28.42	15.15	13.76	9.38
	1990	34.18	32.19	13.29	12.79	7.56
	1991	34.69	35.25	15.18	10.31	4.57
South West	1988	32.98	28.79	17.90	14.98	5.36
	1990	42.25	31.76	15.24	8.68	2.08
	1991	41.61	29.27	1821	7.90	3.01

Table 3: Modelling Choice of Activity at Age 16 Years – Summary Statistics

		Multinomial Logit Model				Bivariate Probit Model (with sample selection)		
	Sample size	**Maximised log-likelihood**	**Pseudo R-squared**	**% correct predictions**	**IIA Test statistic**	**Maximised log-likelihood**	**% correct predictions**	**Test statistic: H_0:ρ=0**
North	4214	-3273.49	0.2424	66.92	Not valid Not valid	-2555.85	66.21	ρ=0.1678 $\chi^2(1)=0.30$
Yorkshire & Humberside	5313	-4155.83	0.2253	66.91	$\chi^2(42)=9.2$ $\chi^2(42)=0.61$	-4062.75	65.84	ρ=0.1282 $\chi^2(1)=0.20$
North West	5908	-4353.92	0.2464	69.75	$\chi^2(42)=25.6$ Not valid	-4997.53	68.84	ρ=-0.3374 $\chi^2(1)=1.98$
East Midlands	4056	-3006.78	0.2507	69.16	$\chi^2(39)=61.0$ Not valid	-3044.91	67.85	ρ=-0.2676 $\chi^2(1)=0.84$
West Midlands	5639	-4215.03	0.2428	68.75	Not valid $\chi^2(42)=2.4$	-4451.22	66.96	ρ=0.4717 $\chi^2(1)=1.13$
Wales	5394	-3818.63	0.2385	73.56	Not valid Not valid	-2086.83	72.95	ρ=0.5091 $\chi^2(1)=1.53$
East Anglia	2473	-1830.36	0.2313	69.87	Not valid $\chi^2(38)=11.7$	-1570.19	68.14	ρ=-0.7526 $\chi^2(1)=0.36$
South East	9737	-5905.90	0.2640	76.65	Not valid $\chi^2(41)=1.4$	-6724.24	76.15	ρ=0.4881 $\chi^2(1)=4.61$
Greater London	4951	-2848.22	0.2692	80.43	$\chi^2(41)=6.5$ Not valid	-3096.22	79.24	ρ=0.1826 $\chi^2(1)=0.32$
South West	4212	-2927.39	0.2402	72.63	$\chi^2(39)=6.8$ Not valid	-3456.27	72.08	ρ=0.7346 $\chi^2(1)=3.43$

Table 4:

		Predicted Probabilities											
		Based on actual regional sample						Controlling for sample composition					
		Multinomial logit			Bivariate probit (with sample selection)			Multinomial logit			Bivariate probit (with sample selection)		
		FE	YTS	LM	FE	YTS	LM	FE	YTS	LM	FE	YTS	LM
North	Mean	0.4951	0.3188	0.1860	0.4952	0.3190	0.1858	0.5969	0.2294	0.1737	0.5936	0.2350	0.1714
	St.dev.	0.3138	0.2332	0.1174	0.3136	0.2311	0.1181	0.3190	0.2159	0.1381	0.3214	0.2156	0.1384
Yorkshire & Humberside	Mean	0.5364	0.2540	0.2096	0.5366	0.2541	0.2093	0.5823	0.1908	0.2269	0.5956	0.1874	0.2270
	St.dev.	0.2991	0.1942	0.1458	0.2982	0.1927	0.1463	0.2974	0.1724	0.1775	0.2976	0.1711	0.1777
North West	Mean	0.5735	0.2127	0.2138	0.5730	0.2129	0.2141	0.5437	0.1959	0.2604	0.5492	0.1940	0.2568
	St.dev.	0.3119	0.1672	0.1674	0.3109	0.1661	0.1662	0.3112	0.1556	0.1976	0.3091	0.1542	0.1945
East Midlands	Mean	0.5615	0.2244	0.2141	0.5610	0.2246	0.2144	0.6028	0.2004	0.1968	0.6032	0.2005	0.1962
	St.dev.	0.3121	0.1761	0.1739	0.3121	0.1762	0.1736	0.3137	0.1826	0.1820	0.3135	0.1819	0.1805
West Midlands	Mean	0.5640	0.2174	0.2186	0.5637	0.2172	0.2191	0.5854	0.1831	0.2315	0.5884	0.1809	0.2307
	St.dev.	0.3092	0.1686	0.1709	0.3078	0.1652	0.1697	0.3092	0.1616	0.1940	0.3082	0.1580	0.1927
Wales	Mean	0.6178	0.1990	0.1831	0.6176	0.1991	0.1833	0.6600	0.1856	0.1544	0.6580	0.1836	0.1584
	St.dev.	0.2989	0.1640	0.1548	0.2985	0.1625	0.1563	0.2888	0.1705	0.1427	0.2879	0.1662	0.1475
East Anglia	Mean	0.5814	0.1707	0.2478	0.5816	0.1703	0.2481	0.5191	0.2773	0.2036	0.5341	0.2546	0.2113
	St.dev.	0.2970	0.1428	0.1856	0.2971	0.1401	0.1848	0.3328	0.2506	0.1603	0.3293	0.2181	0.1695
South East	Mean	0.6842	0.1045	0.2113	0.6841	0.1044	0.2115	0.6245	0.1418	0.2338	0.6277	0.1377	0.2346
	St.dev.	0.2881	0.0990	0.2000	0.2861	0.0972	0.1984	0.2007	0.1186	0.1976	0.2972	0.1130	0.1968
Greater London	Mean	0.6987	0.0808	0.2205	0.6982	0.0811	0.2207	0.6486	0.1293	0.2221	0.6574	0.1225	0.2201
	St.dev.	0.2794	0.0859	0.2136	0.2762	0.0857	0.2100	0.2884	0.1334	0.1900	0.2790	0.1280	0.1906
South West	Mean	0.6286	0.1645	0.2069	0.6292	0.1645	0.2063	0.6137	0.2100	0.1763	0.6267	0.2016	0.1717
	St.dev.	0.2924	0.1464	0.1724	0.2886	0.1439	0.1722	0.2950	0.1912	0.1698	0.2886	0.1777	0.1699

Table 5

		Predicted Probabilities											
		Controlling for GCSE attainment levels						Controlling for local labour market conditions					
		Multinomial Logit			Bivariate probit (with sample selection)			Multinomial Logit			Bivariate probit (with sample selection)		
		FE	YTS	LM	FE	YTS	LM	FE	YTS	LM	FE	YTS	LM
North	Mean	0.5268	0.2946	0.1786	0.5286	0.2983	0.1731	0.5483	0.2486	0.2031	0.5461	0.2542	0.1996
Yorkshire & Humberside	Mean.	0.5675	0.2220	0.1977	0.5765	0.2295	0.1940	0.5345	0.1791	0.2864	0.5390	0.1765	0.2845
North West	Mean	0.5836	0.2122	0.1979	0.5840	0.2098	0.2062	0.5257	0.1842	0.2901	0.5307	0.1832	0.2862
East Midlands	Mean	0.5711	0.2207	0.2091	0.5701	0.2280	0.2019	0.5931	0.2050	0.2019	0.5863	0.2049	0.2088
West Midlands	Mean	0.5879	0.2088	0.2033	0.5882	0.2101	0.2017	0.5662	0.1684	0.2654	0.5671	0.1677	0.2652
Wales	Mean	0.6478	0.1856	0.1654	0.6346	0.1871	0.1783	0.6433	0.1931	0.1636	0.6400	0.1914	0.1686
East Anglia	Mean	0.5984	0.1599	0.2519	0.5926	0.1538	0.2536	0.5023	0.2593	0.2383	0.5043	0.2220	0.2737
South East	Mean	0.6749	0.1099	0.2154	0.6672	0.1126	0.2202	0.6654	0.1277	0.2069	0.6675	0.1266	0.2059
Greater London	Mean	0.7167	0.0771	0.2059	0.7168	0.0776	0.2056	0.6706	0.1305	0.1990	0.6799	0.1224	0.1977
South West	Mean	0.6243	0.1640	0.2118	0.6103	0.1734	0.2163	0.6467	0.1863	0.1670	0.6466	0.1887	0.1647

Table 6

		Predicted Probability of Participation in Full-time Education Conditional on GCSE Attainment Level (Multinomial Logit Specification)									
		Females					Males				
		5+ grades 5+ A-C	5+ grades 1-4 A-C	5+ grades no A-C	1-4 grades	No grades	5+ grades 5+ A-C	5+ grades 1-4 A-C	5+ grades no A-C	1-4 grades	No grades
North	Mean	0.7854	0.5088	0.3420	0.2045	0.1280	0.8379	0.5597	0.2414	0.1831	0.2051
Yorkshire & Humberside	Mean	0.8257	0.6264	0.4160	0.3603	0.2439	0.8171	0.5199	0.3652	0.2154	0.1338
North West	Mean	0.8319	0.5462	0.3543	0.2836	0.1785	0.8719	0.6091	0.4398	0.2920	0.1284
East Midlands	Mean	0.7888	0.5326	0.3403	0.2230	0.0659	0.8836	0.6512	0.4255	0.2431	0.1551
West Midlands	Mean	0.8321	0.6063	0.4015	0.3274	0.1953	0.8595	0.6011	0.3751	0.2881	0.1478
Wales	Mean	0.8599	0.6850	0.5811	0.3431	0.1887	0.8790	0.6798	0.4779	0.2868	0.2051
East Anglia	Mean	0.8917	0.7392	0.5895	0.5491	0.3524	0.7075	0.4088	0.2777	0.1542	0.1319
South East	Mean	0.9074	0.7251	0.6284	0.5219	0.3253	0.8687	0.6398	0.4777	0.2913	0.2429
Greater London	Mean	0.8939	0.7475	0.6356	0.4963	0.3742	0.8888	0.7061	0.5897	0.4863	0.2772
South West	Mean	0.8528	0.6845	0.5843	0.4381	0.4389	0.8348	0.5635	0.3635	0.2378	0.2005

Appendix

Table A1

	Multinomial Logit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Direct Entry to the Labour Market										7
Female	-0.0160 (0.3961)	-0.1239 (0.5291)	0.0838 (0.3328)	0.7897 (0.5380)	0.0341 (0.3435)	0.0974 (0.3868)	-1.5117 (1.0056)	-0.3746 (0.2730)	0.1186 (0.6423)	-0.2343 (0.4828)
Afro-caribbean*		-1.9369 (0.7736)	-1.9461 (0.4018)		-1.5158 (0.2835)			-0.3283 (0.5377)	-1.3835 (0.3510)	
Indian/Other Asian*	-0.6416 (0.4830)	-1.4854 (0.5489)	-2.6141 (0.5100)	-1.9340 (0.3495)	-1.9855 (0.2533)	-0.8460 (0.4687)	-0.7287 (0.3933)	-2.1948 (0.3674)	-1.8080 (0.3884)	-1.4567 (0.4714)
Pakistani/Bangladeshi*		-1.6982 (0.3148)	-1.8419 (0.5204)		-1.9825 (0.2572)			-1.5246 (0.4955)	-2.0350 (0.1847)	
Educational background: Independent school	-1.8022 (0.7427)	-1.6127 (0.3566)	-1.2786 (0.4375)	-1.2869 (0.7245)	-1.9934 (0.4866)	0.4550 (0.4905)	-1.9023 (0.2219)	-1.0808 (0.2383)	-1.7135 (0.3761)	-1.2716 (0.2921)
Grammar/other school	-	0.3394 (0.1934)	-0.0994 (0.1438)	-0.3293 (0.1181)	-0.4586 (0.4308)	-	-	0.2368 (0.1264)	0.3786 (0.3820)	0.2300 (0.2229)
Persistent truancy	0.9961 (0.1418)	0.9201 (01465)	1.0991 (0.1089)	0.8210 (0.1694)	0.9246 (0.1369)	0.9069 (0.1721)	0.9727 (0.1742)	1.0177 (0.1052)	0.9883 (0.2078)	1.1228 (0.1471)
Participated in work experience scheme	0.0426 (0.1265)	-0.0064 (0.1451)	0.1999 (0.1201)	-0.0612 (0.1550)	0.1213 (0.0773)	0.2934 (0.1491)	-0.1893 (0.1712)	0.2964 (0.1056)	0.1481 (0.0842)	0.0361 (0.1420)
Positive attitudes to schooling	-0.1133 (0.1171)	-0.4279 (0.0969)	-0.1378 (0.1235)	-0.2867 (0.0907)	-0.3122 (0.0946)	-0.2680 (0.1173)	-0.2042 (0.1719)	-0.6177 (0.0806)	-0.5397 (0.0626)	-0.3457 (0.1071)
Negative attitudes to schooling	0.7633 (0.3506)	0.7034 (0.1850)	0.3801 (0.1915)	0.6528 (0.2013)	0.5532 (0.2583)	0.7141 (0.2307)	0.3380 (0.4697)	0.4423 (0.2002)	0.8292 (0.3402)	0.2870 (0.3255)
5+ GCSE grades; 1-4 A-C grades	1.2762 (0.2087)	1.5943 (0.1534)	1.3712 (0.1214)	1.4932 (0.2106)	1.4549 (0.2066)	1.0830 (0.2182)	1.6067 (0.3489)	1.3449 (0.1321)	1.3555 (0.0983)	1.4313 (0.2243)
5+ GCSE grades; no A-C grades	2.5860 (0.2908)	2.1082 (0.1259)	2.1760 (0.2216)	2.4249 (0.2319)	2.4755 (0.1849)	1.9456 (0.1760)	2.2943 (0.2865)	2.2191 (0.2214)	1.8812 (0.1343)	2.2613 (0.2431)
1-4 GCSE grades	2.8761 (0.3201)	2.9163 (0.2451)	2.9566 (0.2587)	3.4067 (0.3722)	2.9365 (0.2120)	2.9098 (0.2114)	3.3191 (0.3484)	3.2142 (0.2214)	2.3638 (0.2728)	3.1277 (0.2278)
No GCSE grades	2.9335 (0.2941)	3.8848 (0.3616)	4.2800 (0.2883)	4.3137 (0.4381)	4.2184 (0.4545)	3.5504 (0.3472)	3.5874 (0.4630)	3.5939 (0.1915)	3.8389 (0.2343)	3.4095 (0.3622)
Female × 5+ GCSE grades; 1-4 A-C grades	-0.3018 (0.2834)	-0.8110 ().1927)	0.2188 (0.1701)	-0.6007 (0.3555)	-0.4490 (0.3096)	-0.2041 (0.2952)	-0.4910 (0.4505)	0.0507 (0.1599)	-0.2486 (0.1049)	-0.6343 (0.2865)
Female × 5+ GCSE grades; no A-C grades	-1.1412 (0.3623)	-0.5113 (0.2019)	0.2518 (0.3220)	-0.5535 (0.3502)	-0.6161 (0.3311)	-0.8460 (0.4687)	-0.7528 (0.5231)	-0.3731 (0.2000)	-0.1530 (0.1707)	-1.0062 (0.4291)

	Multinomial Logit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Female × 1-4 GCSE grades	-0.6603	-1.0481	-0.1847	-0.5794	-0.4299	-0.2278	-1.1044	-0.6898	0.0421	-1.1252
	(0.4102)	(0.2258)	(0.2971)	(0.4572)	(0.2859)	(0.3075)	(0.5087)	(0.2719)	(0.2558)	(0.3025)
Female × no GCSE grades	0.2469	-1.2904	-0.6674	0.4276	-0.8827	0.1548	-0.3966	-0.0470	-0.8396	-1.2678
	(0.3991)	(0.4149)	(0.3150)	(0.4535)	(0.5762)	(0.4009)	(0.5641)	(0.3641)	(0.4146)	(0.3766)
Socio-Economic Background										
Parent with a degree	-0.2876	0.0652	-0.1144	0.0171	-0.4690	-0.2256	-0.3662	-0.3094	-0.8673	0.2771
	(0.3047)	(0.1361)	(0.1330)	(0.2501)	(0.1892)	(0.1049)	(0.2920)	(0.1175)	(0.4199)	(0.1847)
Father's SEG - Professional and related	-0.6202	-0.9613	-1.0729	-0.7289	-0.7212	-0.5423	-0.6070	-1.0178	-0.4273	-1.0858
	(0.3950)	(0.2550)	(0.2185)	(0.4803)	(0.2990)	(0.2945)	(0.3529)	(0.2160)	(0.2200)	(0.2705)
Father SEG - Employer/manager (large); intermediate non-manual.	-0.4533	-0.5026	-0.2555	-0.8035	-0.3314	-0.4865	-0.9578	-0.3875	-0.6038	-0.7339
	(0.2712)	(0.1639)	(0.1109)	(0.1468)	(0.1800)	(0.1855)	(0.2177)	(0.1046)	(0.1789)	(0.1916)
Father's SEG - Employer/manager (small); junior non-manual; personal service worker.	-0.1709	-0.3591	-0.2934	-0.2898	-0.0432	-0.2692	-0.2785	-0.2362	-0.2400	-0.2936
	(0.1454)	(0.1677)	(0.1320)	(0.1390)	(0.1424)	(0.1824)	(0.1692)	(0.0878)	(0.1004)	(0.1543)
Father's SEG - Semi-skilled/unskilled manual worker	0.2885	0.0973	0.3622	0.5001	0.0614	0.1271	0.5171	0.2220	0.1547	0.4869
	(0.0964)	(0.1595)	(0.1119)	(0.2651)	(0.1719)	(0.1762)	(0.2807)	(0.1116)	(0.2900)	(0.0862)
Mother's SEG - Professional; employer /manager (large); intermediate non-manual.	-0.5465	-0.7490	-0.3405	-0.3029	-0.5136	-0.4856	-0.3215	-0.4084	-0.0931	-0.6090
	(0.2212)	(0.1541)	(0.1714)	(0.1154)	(0.1882)	(0.1741)	(0.2310)	(0.1173)	(0.1941)	(0.1413)
Mother's SEG - Personal service; skilled/semiskilled/unskilled manual worker.	0.2829	0.4136	0.1612	0.1408	0.4345	0.2481	0.3715	0.3196	0.0677	0.1506
	(0.1964)	(0.1048)	(0.1414)	(0.1515)	(0.1272)	(0.1364)	(0.1832)	(0.0780)	(0.1558)	(0.1241)
Father not employed currently	-0.0533	-0.0255	0.1233	0.0578	-0.0798	-0.0136	-0.1438	-0.0966	0.4931	0.2324
	(0.1503)	(0.1422)	(0.2104)	(0.1950)	(0.2055)	(0.1381)	(0.1898)	(0.1406)	(0.1192)	(0.1660)
Mother not employed currently	-0.1292	-0.0672	-0.1833	-0.0633	-0.2448	-0.1370	-0.2691	0.0731	0.0159	0.0114
	(0.0998)	(0.0839)	(0.0853)	(0.1042)	(0.0990)	(0.1126)	(0.1479)	(0.0841)	(0.1226)	(0.1006)
Household composition										
Father only present	-0.0675	-0.1948	-0.1612	0.3903	0.1898	-0.2265	-0.5081	0.1868	0.1247	0.1220
	(0.2736)	(0.2779)	(0.2895)	(0.3493)	(0.2508)	(0.2931)	(0.4680)	(0.1824)	(0.3440)	(0.2699)
Mother only present	0.0621	-0.1025	-0.2893	-0.2038	-0.1594	-0.0575	0.0747	-0.0710	0.2426	-0.3857
	(0.2309)	(0.1539)	(0.0773)	(0.1736)	(0.1299)	(0.1313)	(0.1623)	(0.1114)	(0.0722)	(0.1975)
No parent present	1.0813	0.9380	0.4783	0.8476	0.9337	2.4223	1.5656	0.9801	0.6307	0.7652
	(0.4458)	(0.3567)	(0.3083)	(0.4999)	(0.3564)	(0.3545)	(0.2182)	(0.3199)	(0.2455)	(0.3665)
Number of siblings in h'hold	-0.0358	-0.0319	-0.0109	0.0905	0.0708	0.0526	0.1014	-0.0218	0.0361	-0.0571
	(0.0683)	(0.0335)	(0.0472)	(0.0327)	(0.0317)	(0.0399)	(0.0599)	(0.0402)	(0.0322)	(0.0546)
Number of other persons in h'hold	-0.0076	-0.0772	0.1974	0.2030	0.0973	0.1015	-0.0712	0.2154	0.0432	0.1396
	(0.1029)	(0.0866)	(0.0748)	(0.1633)	(0.0964)	(0.1112)	(0.1623)	(0.0802)	(0.0890)	(0.1332)

	Multinomial Logit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Local labour market conditions:										
(Log) male unemployment rate	-0.4375 (0.1677)	-0.1221 (0.3460)	-1.1799 (0.3690)	-0.2327 (0.2657)	-0.4620 (0.5686)	-0.0250 (0.3495)	0.3060 (0.4408)	-0.0744 (0.1764)	0.0947 (1.1784)	-1.3711 (0.3274)
Annual % change in male unemployment rate	0.2613 (0.6032)	1.0525 (1.7385)	0.1866 (1.1921)	0.1370 (0.9788)	-0.0405 (0.6493)	1.2736 (1.4393)	0.9063 (0.1567)	0.2755 (0.3311)	-0.5796 (0.6409)	-0.9952 (1.1159)
(Log) % of male unemployed aged < 21 years	1.7067 (0.3248)	-0.5533 (1.5464)	-1.5406 (0.8242)	-1.5625 (1.2947)	-1.5444 (0.5775)	1.6752 (0.9875)	3.8799 (2.8247)	0.5994 (0.4044)	-0.6553 (1.2796)	-1.3048 (0.6545)
(Log) % of local employment in 'professional service' sector	-0.3439 (0.3539)	0.5467 (0.7002)	-0.9230 (0.3842)	-1.1971 (0.4977)	-0.1984 (0.3065)	-0.4900 (0.5608)	2.8098 (1.4938)	0.1937 (0.4228)	-0.6316 (1.7943)	0.3023 (0.8046)
Metropolitan area dummy	0.3456 (0.0868)	0.1931 (0.1361)	0.5977 (0.1532)	-	0.5527 (0.2962)	-	-	-	-	-
1989/90 dummy	-0.0759 (0.2799)	-0.8718 (1.0263)	-1.2777 (0.6169)	-0.9239 (0.6408)	-0.8362 (0.5640)	-0.8453 (1.0334)	-0.1709 (1.4594)	-0.7007 (0.3471)	-0.1313 (0.6226)	-0.3519 (1.0278)
1990/91 dummy	-0.5539 (0.2399)	-1.1164 (0.8312)	-1.0525 (0.4741)	-1.4410 (0.5034)	-0.8422 (0.4376)	-0.9740 (0.7264)	-0.0539 (1.3490)	-1.0307 (0.2910)	-0.9104 (0.8458)	-0.4441 (0.7608)
constant	-3.3673 (1.4508)	-1.8266 (4.2946)	7.3602 (2.6154)	5.8749 (3.1972)	2.8712 (1.7527)	-3.9329 (3.6201)	-19.3627 (11.230)	-3.4337 (1.7831)	1.4752 (6.7993)	2.5660 (3.6681)
Youth Training										
Female	0.9547 (0.3182)	0.0204 (0.6183)	0.7505 (0.3714)	0.8173 (0.8254)	0.5514 (0.4797)	0.3342 (0.3602)	-1.4338 (1.2118)	-0.6422 (0.4726)	-1.0001 (0.2025)	0.0270 (0.4859)
Afro-caribbean*		-0.8492 (0.3892)	-1.8699 (0.4073)		-0.9085 (0.5755)			-0.9472 (0.7331)	-0.1969 (0.2858)	
Indian/other Asian*	-2.4686 (0.4153)	-1.6653 (0.4910)	-1.8082 (0.3025)	-1.3219 (0.3245)	-1.7391 (0.3069)	-0.8954 (0.3858)	-0.9704 (0.6345)	-1.4495 (0.3208)	-1.2150 (0.2902)	-0.9842 (0.5894)
Pakistani/Bangladeshi*		-1.5948 (0.3660)	-2.2907 (0.6019)		-2.0633 (0.4131)			-1.0486 (0.4027)	-1.2878 (0.2672)	
Educational background:										
Independent school	-1.3239 (0.6465)	-1.5854 (0.7693)	-0.6854 ().2868)	-1.3453 (0.4467)	-1.6574 (0.3505)	-0.5756 (0.5945)	-2.1300 (1.0078)	-2.2330 (0.4352)	-0.9270 (0.4671)	-1.5837 (0.3964)
Grammar/other school	-	-0.1350 (0.3053)	-0.0824 (0.2595)	0.0264 (0.0979)	-0.3690 (0.5583)	-	-	-0.0084 (0.1827)	0.6608 (0.2985)	-0.0943 (0.2430)
Persistent truancy	0.5370 (0.1637)	0.3941 (0.1019)	0.7637 (0.1263)	0.5391 (0.2286)	0.4691 (0.1432)					
Participated in work experience scheme	0.1010 (0.1237)	0.1194 (0.1161)	0.1262 (0.1108)	0.1602 (0.1327)	0.1916 (0.1191)	0.2838 (0.1032)	0.2001 (0.2637)	0.4553 (0.1096)	0.0059 (0.1824)	0.2328 (0.1362)

	Multinomial Logit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Positive attitudes to schooling	-0.1158 (0.0850)	-0.3206 (0.1015)	-0.0137 (0.1125)	-0.2827 (0.1074)	-0.1821 (0.1004)	-0.1347 (0.2227)	-0.2021 (0.1868)	-0.3406 (0.1405)	-0.3996 (0.2109)	-0.2677 (0.1263)
Negative attitudes to schooling	0.8829 (0.3227)	0.6977 (0.1782)	0.2101 (0.2648)	0.3979 (0.2156)	0.2624 (0.2529)	0.4600 (0.2643)	0.6761 (0.3068)	0.1341 (0.1618)	0.3894 (0.2072)	0.3274 (0.3094)
5+ GCSE grades; 1-4 A-C grades	2.0581 (0.2279)	1.6396 (0.2244)	2.1272 (0.1896)	1.7793 (0.2579)	1.8529 (0.2692)	1.7907 (0.2194)	1.6834 (0.2749)	1.9543 (0.1609)	1.6092 (0.3077)	1.9578 (0.2355)
5+ GCSE grades; no A-C grades	3.9113 (0.2806)	2.6458 (0.2064)	2.9523 (0.2557)	3.0765 (0.3830)	3.0945 (0.2144)	2.8405 (0.2374)	2.5482 (0.3683)	2.6983 (0.2378)	2.4642 (0.6027)	3.1495 (0.2409)
1-4 GCSE grades	4.3847 (0.3471)	3.5649 (0.2847)	3.7094 (0.2015)	4.0891 (0.3600)	3.6112 (0.2631)	3.7488 (0.2793)	3.3266 (0.4835)	3.7414 (0.3688)	3.0596 (0.4652)	3.7083 (0.2629)
No GCSE grades	4.0648 (0.3272)	3.8813 (0.3555)	4.7971 (0.3487)	4.4685 (0.4769)	4.3342 (0.4865)	4.1078 (0.3893)	3.4622 (0.6138)	3.9393 (0.2597)	3.6062 (0.3831)	3.9365 (0.4513)
Female × 5+ GCSE grades; 1-4 A-C grades	-0.3181 (0.3277)	-0.1070 (0.2682)	-0.4421 (0.2195)	0.1151 (0.3948)	-0.2020 (0.2858)	-0.2988 (0.3507)	-0.1116 (0.4077)	-0.1168 (0.2762)	0.3820 (0.4610)	-0.3565 (0.3309)
Female × 5+ GCSE grades; no A-C grades	-1.2395 (0.4066)	-0.0045 (0.2969)	-0.2440 (0.3137)	-0.2376 (0.4356)	-0.3427 (0.2323)	-0.8689 (0.3276)	0.2643 (0.2704)	-0.1480 (0.3423)	0.3062 (0.4955)	-0.9786 (0.3855)
Female × 1-4 GCSE grades	-0.8804 (0.4693)	-0.6439 (0.3859)	-0.5786 (0.3381)	-0.8465 (0.4270)	-0.6269 (0.3325)	-0.7735 (0.3853)	-0.7037 (0.3485)	-0.9401 (0.4376)	0.5739 (0.5834)	-0.8531 (0.2853)
Female × No GCSE grades	-0.0509 (0.4068)	-0.3437 (0.5821)	-1.0670 (0.4912)	0.0037 (0.7667	-0.4659 (0.5145)	-0.3839 (0.4651)	0.2822 (0.4445)	-0.0880 (0.4610)	0.7744 (0.7093)	-1.2272 (0.5249)
Socio-economic Background Parent with a degree	-0.3060 (0.3096)	-0.1766 (0.1614)	-0.6311 (0.2016)	0.2478 (0.2746)	-0.4348 (0.2225)	-0.1976 (0.2326)	0.2516 (0.3533)	-0.0962 (0.1292)	-0.1846 (0.1007)	-0.0897 (0.2530)
Father's SEG - Professional and related:	-1.2997 (0.4742)	-0.6290 (0.2125)	-0.7404 (0.2282)	-0.7325 (0.4632)	-0.3578 (0.2500)	-0.7438 (0.2319)	-0.2403 (0.3164)	-0.8089 (0.3212)	-0.4840 (0.1250)	-1.1161 (0.2877)
Father's SEG - Employer/manager (large); intermediate non-manual.	-0.3438 (0.1897)	-0.6172 (0.1386)	-0.4598 (0.1579)	-0.2548 (0.1575)	-0.4645 (0.1825)	-0.2918 (0.1784)	-0.6515 (0.2644)	-0.5886 (0.1664)	-0.8918 (0.3056)	-0.7334 (0.1586)
Father's SEG - Employer/manager (small); junior non-manual; personal service worker.	-0.5103 (0.0963)	-0.3353 (0.1415)	-0.5471 (0.1511)	-0.2303 (0.2247)	-0.0523 (0.1315)	-0.0071 (0.1583)	0.0736 (0.1184)	-0.5339 (0.1363)	-0.5606 (0.1804)	-0.2644 (0.1559)
Father's SEG - Semi-skilled/unskilled manual worker	0.1201 (0.1396)	0.2504 (0.1300)	0.3241 (0.1132)	0.2840 (0.2140)	0.1614 (0.1439)	0.2386 (0.1493)	0.6131 (0.2348)	0.1989 (0.1153)	-0.0124 (0.2423)	0.5749 (0.1326)
Mother's SEG - Professional; employer /manager (large); intermediate non-manual	-0.4338 (0.2347)	-0.4737 (0.1937)	-0.4235 (0.1182)	-0.1073 (0.2132)	-0.4256 (0.1831)	-0.4615 (0.1635)	-0.4237 (0.4316)	-0.3570 (0.1334)	-0.7857 (0.1919)	-0.3241 (0.1373)
Mother's SEG - Personal service; skilled/semi-skilled/unskilled manual worker	0.4679 (0.2140)	0.4514 (0.1080)	0.0109 (0.1002)	0.3226 (0.1635)	0.3981 (0.1163)	0.3351 (0.1545)	0.2931 (0.3145)	0.2394 (0.1046)	0.1088 (0.2223)	0.1232 (0.1075)

	Multinomial Logit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Father not employed currently	-0.3477 (0.1481)	-0.2890 (0.1590)	-0.0422 (0.1687)	-0.1176 (0.2515)	-0.2434 (0.2072)	0.0624 (0.1525)	-0.1001 (0.4270)	0.0196 (0.1584)	0.2978 (0.1851)	0.0881 (0.1398)
Mother not employed currently	-0.0694 (0.1204)	-0.0045 (0.0978)	-0.2178 (0.1413)	0.1237 (0.1500)	-0.0682 (0.0944)	-0.0551 (0.1142)	0.0832 (0.1907)	-0.0030 (0.0963)	-0.3098 (0.2050)	0.2542 (0.1116)
Household composition										
Father only present	0.1355 (0.3148)	-0.2783 (0.3345)	-0.1460 (0.2722)	-0.0104 (0.4708)	0.3202 (0.3505)	-0.1358 (0.2857)	0.1380 (0.7117)	-0.1400 (0.2367)	0.6093 (0.2400)	-0.9792 (0.3925)
Mother only present	-0.3245 (0.2628)	-0.2525 (0.1671)	-0.4455 (0.1275)	-0.4986 (0.2592)	-0.3568 (0.1724)	-0.2849 (0.1518)	-0.1828 (0.1467)	-0.0315 (0.1500)	0.2541 (0.1713)	-0.2680 (0.2322)
No parent present	1.0540 (0.6092)	0.7078 (0.3618)	-0.1683 (0.4075)	0.8153 (0.5806)	0.7069 (0.3924)	1.9810 (0.4537)	0.8804 (0.2117)	1.1247 (0.3924)	0.4585 (0.6660	0.4999 (0.4062)
Number of siblings in h'hold	0.1340 (0.0575)	-0.0347 (0.0448)	-0.0255 (0.0551)	-0.0006 (0.0394)	0.0671 (0.0432)	0.0395 (0.0521)	0.0173 (0.1186)	-0.0015 (0.0430)	0.0718 (0.0466)	-0.1076 (0.0714)
Number of other persons in h'hold	-0.1777 (0.1467)	-0.1019 (0.1109)	0.1734 (0.1060)	0.1307 (0.1626)	-0.0804 (0.0673)	0.0688 (0.1125)	-0.0520 (0.0996)	0.1106 (0.0748)	0.0359 (0.0830)	0.0066 (0.1256)
Local labour market conditions										
(Log) male unemployment rate	0.3159 (0.2063)	0.8436 (0.3159)	0.0650 (0.1931)	1.2707 (0.2209)	0.0766 (0.6683)	-0.1470 (0.2141)	1.9762 (0.6216)	0.1219 (0.2785)	-0.6683 (0.9436)	0.1121 (0.3609)
Annual % change in male unemployment rate	-0.7634 (0.7258)	-0.2386 (1.2344)	-0.2291 (0.8221)	0.1266 (0.6624)	-0.1983 (0.6179)	-0.6168 (0.9146)	0.8517 (1.4785)	0.4286 (0.5227)	-0.1892 (0.6152)	-1.3563 (1.1030)
(Log) % of male unemployed aged < 21 years	0.8084 (0.4535)	0.1166 (0.9090)	-1.2197 (1.0474)	-1.5143 (1.4943)	0.6570 (0.7206)	0.4132 (0.8696)	4.8965 (2.1980)	1.3558 (0.5391)	2.6828 (1.1415)	-0.0502 (0.5752)
(Log) % of local employment in 'professional service' sector	-1.1069 (0.3937)	-0.4440 (0.5551)	-0.9980 (0.4067)	-1.4636 (0.7233)	-0.8107 (0.5758)	-0.7559 (0.4150)	1.6754 (1.6560)	0.7785 (0.5372)	0.5523 (1.4573)	-0.1945 (0.7900)
Metropolitan area dummy	-0.0706 (0.1579)	-0.2330 (0.1848)	0.1955 (0.1347)	-	-0.0169 (0.3713)	-	-	-		-
1989/90 dummy	0.2744 (0.3369)	-0.0076 (0.7522)	-1.0297 (0.4602)	-0.9348 (0.3242)	-0.3355 (0.5185)	-0.4998 (0.7626)	0.1837 (1.5349)	-0.7143 (0.5797)	0.7327 (0.6969)	0.6146 (0.9845)
1990/91 dummy	-0.5327 (0.2730)	-0.6658 (0.5296)	-1.0993 (0.3673)	-1.9729 (0.4856)	-0.6191 (0.6097)	-0.7951 (0.5797)	-0.6788 (1.4646)	-1.0299 (0.4688)	-0.0487 (0.7626)	-0.4210 (0.7086)
constant	-1.5550 (1.4994)	-2.7262 (2.6566)	3.8131 (3.3193)	3.0246 (3.8825)	-1.5850 (2.3983)	-0.7635 (3.2483)	-21.3737 (10.058)	-8.2561 (2.1304)	-8.8102 (5.7911)	-2.0741 (3.4347)

* Small sample sizes mean that it is not practical to distinguish ethnic minority groups in certain regions

Table A2

	Bivariate Probit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Selection equation: Not participating in full-time further education										
Female	0.3151 (0.1405)	0.0376 (0.2453)	0.1857 (0.1392)	0.4301 (0.2980)	0.1239 (0.1643)	0.1398 (0.1493)	-0.9333 (0.5033)	-0.2602 (0.1492)	-0.0711 (0.3157)	-0.771 (0.2423)
Afro-caribbean*		-0.6829 (0.1840)	-1.0330 (0.1344)		-0.6935 (0.2295)			-0.3297 (0.2890)	-0.4961 (0.1887)	
Indian/Other Asian*	-0.8479 (0.2437)	-0.9343 (0.2661)	-1.2094 (0.1340)	-0.8983 (0.1638)	-1.0717 (0.1290)	-0.4976 (0.1784)	-0.4573 (0.2473)	-1.0481 (0.1495)	-0.9287 (0.1398)	-0.6669 (0.2071)
Pakistani/Bangladeshi*		-0.9524 (0.1760)	-1.1681 (0.2633)		-1.1615 (0.1682)			-0.6818 (0.2272)	-1.0145 (0.0966)	
Educational background: Independent school	-0.6962 (0.2562)	-0.8237 (0.1715)	-0.4988 (0.1337)	-06631 (0.2431)	-0.9074 (0.1666)	0.0868 (0.2391)	-1.1095 (0.1678)	-0.6355 (0.1157)	-0.7406 (0.1687)	-0.7221 (0.1410)
Grammar/other school	-	0.0867 (0.1115)	-0.0457 (0.1076)	-0.0622 (0.0348)	-0.2530 (0.2519)	-	-	0.0899 (0.0833)	0.2623 (0.1996)	0.0667 (0.0542)
Persistent truancy	0.4231 (0.0758)	0.3727 (0.0633)	0.5530 (0.0616)	0.4197 (0.1111)	0.4165 (0.0734)	0.4423 (0.0886)	0.5127 (0.1043)	0.5158 (0.0575)	0.5644 (0.1128)	0.5513 (0.0743)
Participated in work experience scheme	0.0311 (0.0615)	0.0298 (0.0600)	0.1106 (0.0543)	0.0282 (0.0653)	0.0865 (0.0495)	0.1695 (0.0549)	-0.0302 (0.1181)	0.2088 (0.0541)	0.0542 (0.0553)	0.0640 (0.0754)
Positive attitudes to schooling	-0.0701 (0.0418)	-0.2148 (0.0433)	-0.0437 (0.0546)	-0.1618 (0.0453)	-0.1488 (0.0473)	-0.1164 (0.0514)	-0.1257 (0.0864)	-0.3082 (0.0444)	-0.2847 (0.0412)	-0.1790 (0.0490)
Negative attitudes to schooling	0.5155 (0.1790)	0.4260 (0.0930)	0.1405 (0.1308)	0.2769 (0.1113)	0.2501 (0.1399)	0.3763 (0.1141)	0.3189 (0.1609)	0.2226 (0.1011)	0.4513 (0.1948)	0.1642 (0.1563)
5+ GCSE grades; 1-4 A-C grades	0.9654 (0.1028)	0.9495 (0.0764)	0.9982 (0.0627)	0.9384 (0.1132)	0.9439 (0.1143)	0.8102 (0.1001)	0.9465 (0.1513)	0.8571 (0.0551)	0.7738 (0.0844)	0.9451 (0.1116)
5+ GCSE grades; no A-C grades	1.9418 (0.1361)	1.4366 (0.0744)	1.4907 (0.1222)	1.6312 (0.1476)	1.6274 (0.0917)	1.3994 (0.0859)	1.3973 (0.1960)	1.3639 (0.0747)	1.1404 (0.1682)	1.5494 (0.1132)
1-4 GCSE grades	2.1543 (0.1533)	1.9210 (0.1264)	1.9427 (0.1121)	2.2031 (0.1786)	1.9004 (0.1149)	1.9674 (0.1186)	1.9564 (0.2077)	1.9516 (0.1336)	1.4572 (0.1773)	1.9752 (0.1189)
No GCSE grades	2.0731 (0.1485)	2.2662 (0.1701)	2.5850 (0.1414)	2.5425 (0.2163)	2.4836 (0.2318)	2.2227 (0.1828)	1.9864 (0.2603)	2.1239 (0.1078)	2.1144 (0.1369)	2.0973 (0.1934)
Female × 5+ GCSE grades; 1-4 A-C grades	-0.1579 (0.1408)	-0.3035 (0.0879)	-0.0505 (0.0844)	-0.1544 (0.1785)	-0.1851 (0.1254)	-0.1661 (0.1251)	-0.2109 (0.1592)	-0.0124 (0.0687)	-0.0799 (0.0615)	-0.3130 (0.1488)

	Bivariate Probit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Female × 5+ GCSE grades; no A-C grades	-0.6554 (0.1634)	-0.1984 (0.1222)	0.0156 (0.1601)	-0.2711 (0.1649)	-0.2782 (0.1370)	-0.4453 (0.1177)	-0.1981 (0.2126)	-0.1839 (0.1047)	-0.0490 (0.0575)	-0.5981 (0.2016)
Female × 1-4 GCSE grades	-0.3967 (0.2062)	-0.5245 (0.1489)	-0.2207 (0.1431)	-0.4504 (0.2021)	-0.3084 (0.1506)	-0.3275 (0.1460)	-0.5585 (0.2377)	-0.4538 (0.1676)	0.0700 (0.1136)	-0.6176 (0.1482)
Female × no GCSE grades	0.0438 (0.1953)	-0.4730 (0.2440)	-0.4252 (0.1853)	0.0597 (0.2677)	-0.4319 (0.2608)	-0.0504 (0.1926)	0.0554 (0.3099)	-0.0384 (0.1936)	-0.2236 (0.2205)	-0.7362 (0.1843)
Socio-Economic Background										
Parent with a degree	-0.1817 (0.1576)	-0.0231 (0.0684)	-0.2090 (0.0600)	0.0819 (0.0545)	-0.2788 (0.1011)	-0.1239 (0.0850)	-0.0874 (0.1766)	-0.1361 (0.0620)	-0.3337 (0.1403)	0.0543 (0.0783)
Father's SEG - Professional and related	-0.5450 (0.1992)	-0.4767 (0.1096)	-0.5029 (0.0798)	-0.4349 (0.2158)	-0.3179 (0.1189)	-0.3397 (0.1054)	-0.2699 (0.1358)	-0.4947 (0.1184)	-0.2829 (0.0695)	-0.5967 (0.0994)
Father SEG - Employer/manager (large); intermediate non-manual.	-0.2280 (0.1061)	-0.3358 (0.0716)	-0.2074 (0.0508)	-0.2892 (0.0598)	-0.2201 (0.0741)	-0.2222 (0.0742)	-0.5153 (0.1246)	-0.2654 (0.0541)	-0.3667 (0.0740)	-0.4052 (0.0689)
Father's SEG - Employer/manager (small); junior non-manual; personal service worker.	-0.2084 (0.0501)	-0.2074 (0.0693)	-0.2427 (0.0590)	-0.1599 (0.1021)	-0.0062 (0.0569)	-0.0883 (0.0730)	-0.1044 (0.0710)	-0.1985 (0.0473)	-0.1804 (0.0544)	-0.1352 (0.0871)
Father's SEG - Semi-skilled/unskilled manual worker	0.1052 (0.0589)	0.0988 (0.0591)	0.2130 (0.0543)	0.2338 (0.1314)	0.0664 (0.0805)	0.0899 (0.0895)	0.3026 (0.1300)	0.1281 (0.0573)	0.0439 (0.1579)	0.2980 (0.0506)
Mother's SEG - Professional; employer /manager (large); intermediate non-manual.	-0.2911 (0.1033)	-0.3577 (0.0750)	-0.2319 (0.0559)	-0.1432 (0.0653)	-0.2750 (0.0914)	-0.2715 (0.0670)	-0.2115 (0.1194)	-0.2247 (0.0562)	-0.1304 (0.0854)	-0.2631 (0.0506)
Mother's SEG - Personal service; skilled/semiskilled/unskilled manual worker.	0.2304 (0.1148)	0.2516 (0.0495)	0.0493 (0.0563)	0.1419 (0.0757)	0.2456 (0.0605)	0.1684 (0.0731)	0.2300 (0.1498)	0.1729 (0.0456)	0.0653 (0.0886)	0.0892 (0.0527)
Father not employed currently	-0.1288 (0.0806)	-0.0895 (0.0762)	0.0274 (0.1061)	-0.0295 (0.1102)	-0.0989 (0.1209)	0.0118 (0.0619)	-0.0462 (0.1608)	-0.0380 (0.0747)	0.2470 (0.0556)	0.1031 (0.0801)
Mother not employed currently	-0.0491 (0.0579)	-0.0163 (0.0397)	-0.1156 (0.0566)	0.0216 (0.0549)	-0.0972 (0.0471)	-0.0505 (0.0454)	-0.0836 (0.0776)	0.0253 (0.0404)	-0.0603 (0.0389)	0.0677 (0.0542)
Household composition										
Father only present	0.0181 (0.1565)	-0.1306 (0.1538)	-0.0846 (0.1425)	0.1208 (0.1818)	0.1923 (0.1671)	-0.0958 (0.1317)	-0.1491 (0.2565)	0.0571 (0.0975)	0.1547 (0.1181)	-0.1065 (0.1346)
Mother only present	-0.1006 (0.1308)	-0.1069 (0.0651)	-0.1909 (0.0509)	-0.2078 (0.0980)	-0.1462 (0.0776)	-0.1001 (0.0575)	0.0013 (0.0707)	-0.0339 (0.0611)	0.1355 (0.0428)	-0.1850 (0.1013)
No parent present	0.6188 (0.2943)	0.4879 (0.1644)	0.1287 (0.1648)	0.4603 (0.2675)	0.4954 (0.1636)	1.2905 (0.2101)	0.7658 (0.1292)	0.5405 (0.1682)	0.2725 (0.1931)	0.3831 (0.1959)
Number of siblings in h'hold	0.0412 (0.0296)	-0.0163 (0.0397)	-0.0081 (0.0252)	0.0316 (0.0128)	0.0401 (0.0161)	0.0256 (0.0214)	0.0299 (0.0420)	-0.0093 (0.0186)	0.0275 (0.0117)	-0.0503 (0.0302)
Number of other persons in h'hold	-0.0501 (0.0649)	-0.0489 (0.0423)	0.1025 (0.0427)	0.1197 (0.0849)	0.0169 (0.0398)	0.0415 (0.0544)	-0.0416 (0.0439)	0.1062 (0.0384)	0.0270 (0.0407)	0.0357 (0.0720)

	Bivariate Probit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Local labour market conditions:										
(Log) male unemployment rate	0.0045 (0.0827)	0.2267 (0.1548)	-0.3109 (0.1290)	0.3208 (0.1057)	-0.1188 (0.2733)	-0.0228 (0.1469)	0.5186 (0.3637)	-0.0125 (0.0983)	-0.0745 (0.6273)	-0.3754 (0.1842)
Annual % change in male unemployment rate	-0.0965 (0.3596)	0.2924 (0.7214)	0.1653 (0.4151)	0.1863 (0.4384)	-0.0892 (0.3223)	0.4146 (0.6361)	0.5355 (0.7292)	0.2252 (0.1793)	-0.3784 (0.3757)	-0.6337 (0.6018)
(Log) % of male unemployed aged < 21 years	0.6203 (0.1771)	-0.1490 (0.5455)	-0.6915 (0.4657)	-0.8674 (0.6799)	-0.2881 (0.3031)	0.5816 (0.4978)	2.7538 (1.2545)	0.4877 (0.2487)	0.0577 (0.8110)	-0.3872 (0.2911)
(Log) % of local employment in 'professional service' sector	-0.4970 (0.1670)	-0.0126 (0.2793)	-0.5041 (0.1792)	-0.7004 (0.2523)	-0.2417 (0.1844)	-0.3680 (0.1836)	1.4739 (0.6923)	0.2257 (0.2254)	-0.2023 (0.9381)	0.0785 (0.3975)
Metropolitan area dummy	0.0734 (0.0568)	-0.0270 (0.0771)	0.2248 (0.0617)		0.1594 (0.1306)					
1989/90 dummy	0.0128 (0.1609)	-0.3011 (0.3833)	-0.7373 (0.2264)	-0.6247 (0.2640)	-0.3354 (0.2659)	-0.5493 (0.4943)	-0.0045 (0.7976)	-0.4536 (0.1986)	0.1179 (0.4220)	0.0218 (0.5478)
1990/91 dummy	-0.3718 (0.1284)	-0.5585 (0.2966)	-0.6656 (0.1737)	-1.0585 (0.2423)	-0.4229 (0.2626)	-0.6213 (0.3554	-0.0858 (0.7357)	-0.6194 (0.1700)	-0.3279 (0.5003)	-0.2754 (0.4018)
constant	-0.5985 (0.7482)	-0.7418 (1.5040)	3.2473 (1.4310)	2.7174 (1.5490)	0.7266 (0.8625)	-0.8560 (1.6966)	-12.1011 (5.0439)	-2.4949 (0.9753)	-0.1558 (3.8093)	0.4542 (1.7918)
Youth Training v. Direct Entry to Labour Market										
Female	0.6301 (0.3139)	0.0555 (0.3913)	0.3401 (0.3043)	0.1633 (0.5369)	0.3958 (0.3795)	0.0978 (0.2947)	0.4687 (0.7616)	-0.2319 (0.2681)	-0.6271 (0.3200)	0.1548 (0.2163)
Afro-caribbean*		0.6692 (0.4265)	-0.0184 (0.3565)		0.1831 (0.4480)			-0.4170 (0.3963)	0.7391 (0.0760)	
Indian/other Asian*	-1.0625 (0.2807)	-0.2723 (0.2893)	0.7056 (0.3404)	0.5012 (0.2521)	-0.1648 (0.3339)	-0.2163 (0.2921)	0.0445 (0.4426)	0.1865 (0.2152)	0.2767 (0.1962)	-0.1278 (0.4018)
Pakistani/Bangladeshi*		0.0750 (0.2649)	0.1575 (0.4503)		-0.2785 (0.2764)			0.1351 (0.1952)	0.4354 (0.2066)	
Educational background										
Independent school	1.1186 (0.4266)	-0.0666 (0.6042)	0.4326 (0.3037)	0.0094 (0.4260)	-0.0689 (0.4634)	-0.5471 (0.3146)	0.3668 (0.8424)	-0.8291 (0.2413)	0.4426 (0.3201)	0.5435 (0.2507)
Grammar/other school	-	-0.2698 (0.1983)	0.0558 (0.0854)	0.2335 (0.1056)	0.0363 (0.2670)	-		-0.1001 (0.0713)	0.1903 (0.0899)	-0.1556 (0.1140)

	Bivariate Probit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Persistent truancy	-0.2257 (0.1312)	-0.3021 (0.1182)	-0.3005 (0.0792)	-0.2408 (0.0844)	-0.2013 (0.1085)	-0.0857 (0.1317)	-0.3204 (0.1537)	-0.1155 (0.0761)	-0.0071 (0.1583)	-0.0701 (0.1357)
Participated in a work experience scheme	0.0265 (0.0785)	0.0618 (0.1015)	-0.0446 (0.0826)	0.1144 (0.1035)	0.0607 (0.0719)	0.0578 (0.1007)	0.1738 (0.1587)	0.1653 (0.0603)	-0.0294 (0.0632)	0.1106 (0.0701)
5+ GCSE grades; 1-4 A-C grades	0.6155 (0.2376)	0.0758 (0.2143)	0.1681 (0.2231)	0.0427 (0.2747)	0.4956 (0.3514)	0.6424 (0.1838)	-0.5496 (0.5035)	0.6113 (0.1547)	0.3643 (0.2971)	0.7942 (0.1515)
5+ GCSE grades; no A-C grades	0.9994 (0.3878)	0.4052 (0.2632)	0.0973 (0.3018)	0.1678 (0.4127)	0.8164 (0.4457)	0.9405 (0.3005)	-0.7027 (0.8003)	0.6773 (0.2013)	0.6388 (0.4658)	1.2012 (0.1668)
1-4 GCSE grades	1.1354 (0.4204)	0.4884 (0.3546)	0.0090 (0.3699)	0.1153 (0.4180)	0.8813 (0.4848)	1.0294 (0.3893)	-0.9667 (0.9937)	0.8203 (0.2576)	0.6635 (0.4528)	1.1379 (0.1981)
No GCSE grades	0.8821 (0.3639)	0.0826 (0.3292)	-0.2144 (0.4045)	-0.2387 (0.4064)	0.5972 (0.5367)	0.9007 (0.4083)	-1.0459 (0.9957)	0.7011 (0.2342)	0.2176 (0.3808)	1.1283 (0.2744)
Female × 5+ GCSE grades; 1-4 A-C grades	-0.0441 (0.1792)	0.4008 (0.1826)	-0.3891 (0.1426)	0.2971 (0.2899)	0.0875 (0.2900)	-0.0201 (0.2092)	0.3091 (0.4249)	-0.0797 (0.1765)	0.1725 (0.3030)	-0.0221 (0.1911)
Female × 5+ GCSE grades; no A-C grades	-0.0986 (0.3036)	0.2875 (0.1820)	-0.3165 (0.1587)	0.0543 (0.3231)	0.0733 (0.2142)	-0.2706 (0.2210)	0.6511 (0.5282)	0.1175 (0.2179)	0.0384 (0.4252)	-0.2242 (0.1926)
Female × 1-4 GCSE grades	-0.1823 (0.2830)	0.2470 (0.2126)	-0.2155 (0.2421)	-0.3375 (0.3204)	-0.1653 (0.3340)	-0.3168 (0.2495)	0.3946 (0.2532)	-0.2079 (0.2130)	0.2080 (0.3775)	-0.0417 (0.1848)
Female × No GCSE grades	-0.1686 (0.2181)	0.5833 (0.2040)	-0.1678 (0.2404)	-0.4554 (0.3234)	0.2149 (0.2587)	-0.2447 (0.2769)	0.3593 (0.4333)	-0.0217 (0.2261)	0.6784 (0.2587)	-0.1867 (0.3181)
Socio-economic Background Parent with a degree	-0.0584 (0.2138)	-0.1579 (0.1404)	-0.2730 (0.1269)	0.1240 (0.1435)	-0.0525 (0.1280)	-0.0478 (0.1159)	0.2989 (0.3319)	0.0607 (0.0657)	0.3956 (0.2158)	-0.1693 (0.2017)
Father's SEG - Professional and related:	-0.5233 (0.2175)	0.1211 (0.1746)	0.3261 (0.2098)	0.1083 (0.3137)	0.1103 (0.2231)	-0.2363 (0.1820)	0.3038 (0.3013)	0.0149 (0.2228)	-0.1560 (0.1369)	-0.3257 (0.2275)
Father's SEG - Employer/manager (large); intermediate non-manual.	0.0579 (0.1409)	-0.1383 (0.1200)	-0.0931 (0.1188)	0.3613 (0.1227)	-0.1385 (0.1393)	0.0115 (0.1631)	0.3188 (0.2762)	-0.2017 (0.1131)	-0.2183 (0.2175)	-0.2016 (0.1462)
Father's SEG - Employer/manager (small); junior non-manual; personal service worker.	-0.2516 (0.1017)	-0.0066 (0.1002)	-0.1006 (0.1138)	0.0501 (0.0959)	0.0758 (0.1102)	0.1007 (0.0430)	0.1971 (0.1066)	-0.2157 (0.0883)	-0.2205 (0.1004)	-0.0586 (0.0763)
Father's SEG - Semi-skilled/unskilled manual worker	-0.1020 (0.0933)	0.0773 (0.1314)	-0.0515 (0.0973)	-0.1418 (0.1135)	0.0829 (0.0873)	0.0822 (0.0611)	-0.0626 (0.3151)	0.0250 (0.0628)	-0.0872 (0.1358)	0.1556 (0.1041)
Mother's SEG - Professional; employer /manager (large); intermediate non-manual	0.0005 (0.1932)	0.0923 (0.1974)	-0.0279 (0.1255)	0.1076 (0.1571)	-0.0590 (0.1690)	-0.1193 (0.1297)	0.1259 (0.2657)	-0.0590 (0.0724)	-0.4838 (0.1354)	-0.0231 (0.1326)
Mother's SEG - Personal service; skilled/semi-skilled/unskilled manual worker	0.1367 (0.1087)	0.0436 (0.0940)	-0.1110 (0.0863)	0.1033 (0.1035)	0.0560 (0.0781)	0.0892 (0.0896)	-0.1185 (0.0734)	-0.0090 (0.0612)	-0.0007 (0.1006)	0.0186 (0.0725)

	Bivariate Probit Model									
	North	**Yk & H**	**NW**	**EMd**	**WMd**	**Wales**	**EAng**	**SE**	**GrL**	**SW**
Father not employed currently	-0.2136 (0.0589)	-0.1509 (0.1061)	-0.1036 (0.0670)	-0.1171 (0.1157)	-0.1021 (0.0931)	0.0554 (0.1056)	0.0364 (0.1041)	0.0710 (0.0789)	-0.1559 (0.1499)	0.0179 (0.0629)
Mother not employed currently	0.0255 (0.0579)	0.0236 (0.0796)	-0.0005 (0.0647)	0.1049 (0.0978)	0.0597 (0.1011)	0.0291 (0.0870)	0.2170 (0.0777)	-0.0346 (0.0632)	-0.1806 (0.1622)	0.1376 (0.0587)
Household composition										
Father only present	0.0757 (0.1764)	-0.0184 (0.1717)	0.0523 (0.1565)	-0.2094 (0.2981)	0.1024 (0.1855)	0.0863 (0.1879)	0.4549 (0.3411)	-0.1378 (0.1379)	0.3049 (0.3127)	-0.6176 (0.2401)
Mother only present	-0.2448 (0.1129)	-0.1104 (0.1433)	-0.0509 (0.0820)	-0.1467 (0.1146)	-0.1486 (0.1025)	-0.1548 (0.1108)	-0.1483 (0.1173)	0.0227 (0.0749)	-0.2035 (0.0676)	-0.0197 (0.1420)
No parent present	-0.0217 (0.3056)	-0.1072 (0.2134)	-0.3976 (0.2176)	-0.0864 (0.3322)	-0.0499 (0.2509)	0.0048 (0.2753)	-0.5538 (0.2302)	0.2574 (0.2028)	-0.0538 (0.3287)	-0.0102 (0.1451)
Number of siblings in h'hold	0.1107 (0.0438)	-0.0033 (0.0304)	-0.0049 (0.0326)	-0.0562 (0.0336)	0.0020 (0.0278)	-0.0033 (0.0329)	-0.0731 (0.0624)	0.0099 (0.0317)	0.0043 (0.0331)	-0.0510 (0.0368)
Number of other persons in h'hold	-0.0809 (0.0667)	-0.0121 (0.0719)	-0.0398 (0.0477)	-0.0334 (0.1020)	-0.0795 (0.0591)	-0.0259 (0.0548)	0.0233 (0.0643)	-0.0381 (0.0427)	0.0035 (0.0801)	-0.0672 (0.0459)
Local labour market conditions										
(Log) male unemployment rate	0.4583 (0.1614)	0.6164 (0.2776)	0.7689 (0.2145)	0.9238 (0.2375)	0.2628 (0.4549)	-0.0615 (0.1385)	0.6204 (0.6086)	0.0986 (0.1797)	-0.7796 (0.3751)	0.6549 (0.2453)
Annual % change in male unemployment rate	-0.4834 (0.5243)	-0.6859 (1.1495)	-0.2772 (0.7855)	0.0304 (0.5886)	-0.0541 (0.4153)	-1.1423 (0.5299)	-0.1101 (0.4667)	0.1074 (0.3259)	-0.1980 (0.1756)	-0.3904 (0.3406)
(Log) % of male unemployed aged < 21 years	-0.4951 (0.4297)	0.5892 (1.0244)	0.3699 (0.5286)	-0.0013 (0.9318)	1.1660 (0.4163)	-0.5456 (0.3740)	-0.8755 (1.7288)	0.4941 (0.2628)	2.4695 (0.3598)	0.4345 (0.4947)
(Log) % of local employment in 'professional service' sector	-0.5064 (0.3661)	-0.5808 (0.4207)	0.0724 (0.2977)	-0.1016 (0.5266)	-0.4816 (0.4366)	-0.2489 (0.4201)	-1.2579 (0.7950)	0.3828 (0.2933)	1.1336 (0.6118)	-0.2729 (0.3245)
Metropolitan area dummy	-0.2350 (0.1314)	-0.2608 (0.1221)	-0.2708 (0.1112)		-0.2716 (0.2665)					
1989/90 dummy	0.1333 (0.2581)	0.5272 (0.8037)	0.2747 (0.4009)	0.0210 (0.4239)	0.1382 (0.3313)	0.1625 (0.4041)	-0.0306 (0.7240)	-0.0989 (0.3461)	0.8980 (0.1298)	0.4705 (0.3995)
1990/91 dummy	-0.0722 (0.1903)	0.2858 (0.6165)	0.0961 (0.3157)	-0.2885 (0.4387)	-0.0073 (0.3403)	0.0144 (0.2874)	-0.4346 (0.5899)	-0.1606 (0.2819)	0.8355 (0.2272)	-0.1378 (0.2526)
constant	0.9156 (1.3458)	-1.1733 (2.9208)	-2.4538 (1.8374)	-1.5388 (2.6137)	-2.4763 (1.8085)-0.	1.0200 (1.7083)	5.6917 (7.5767)	-3.6785 (1.1729)	-8.4243 (2.0990)	-2.6670 (1.6763)

* Small sample sizes mean that it is not practical to distinguish ethnic minority groups in certain regions