The Effect of Local Labour Market Conditions on the Decision to Migrate among UK Graduates.

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Abstract

In this paper we argue that modelling graduate migration decisions to work must also consider the earlier decision to migrate to study. Failure to do so properly introduces potential sample selection bias. We identify the decision to relocate to work on the individual's HE record and exogenous local labour market conditions and find that these as well as the sample selection have a significant impact on the migration decision. Finally, we model wages and find that there is a significant wage premium for those who migrate.

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I. Introduction.

It has long been recognised that geographical mobility is a lifetime event that is much more common in the young and those with education. What is less often understood is that the acquisition of education and finding a suitable first job may both involve geographical relocation and that these decisions are endogenously related to one another.

In the UK a much larger fraction of young people have moved away from the parental home to undertake higher education that is common in other countries. After their degrees are attained they have the choice of where to look for work. Not surprisingly if they have asserted some independence by moving away from home at age 18 it is much less likely that they will return at age 21. The converse is also true - namely that staying at home to study means it is more likely that a first job will be found in the home region at age 21. This paper explicitly models these interrelationships.

The economic conditions of different spatial locations in terms of the unemployment and activity rates and the wages on offer are known to influence the migration decisions of those seeking work. Our study uses detailed local labour market information to explicitly model the extent of the influence of these local conditions on the decisions of the young people.

It is commonly understood that the returns to migration may be highest for those with the most human capital. Our results indicate that this is true even for the most qualified manpower. Those with the better degrees from more prestigious universities are more likely to be mobile and earn more. Likewise it is shown that those with degrees in particular subjects are more likely to relocate than others.

The policy implications of patterns of regional migration between school and university and subsequently between university and the first job for central government, regional authorities and higher education institutions cannot be underestimated. In particular the changing nature of student finance with loans and fees may have a substantial impact in terms of the 'regionalisation' of higher education.

II. Some Special Considerations in Studying the Mobility of Young People.

Modelling the decision of young people to leave home to go to university and then their decision concerning which location to take their first job is fundamentally different from other geographical mobility decisions which have been described in the literature. Most commonly the literature has been concerned with explaining the small proportion of mobility in a cross section of the stable working population in any given time frame. Typically the movers in this context will only constitute a fairly small fraction of those who could move, around 5%[1]. In contrast, approximately 75 percent of individuals entering university relocate to study and almost half of these individuals relocate to a new region (rather than remaining in their region of study, or returning to their home region) for their first job.

Many young people when choosing to participate in higher education are implicitly choosing to be mobile from the region of their parents home, because for many, getting a job in their chosen occupation would be very difficult if not impossible without being educated to degree level and being prepared to move the location where appropriate jobs are available. Indeed some occupation (and subject of degree) choices are highly constrained in their geographical location. For example, training to be a nuclear physicist may effectively constrain the available choice of job location to Sellafield if BNFL are the only employers of nuclear physicists in the UK. In contrast some occupations do not imply any effective constraint on the available choice of job location. For example, training to be a primary school teacher does not imply any constraint on possible available geographical locations since there is a potential place of work in more or less every location in the UK. Clearly the set of occupations which are not constrained with respect to geographical location has been growing rapidly in the last 5 years with the advent of the internet and email which has meant that many administrative jobs can be performed electronically from home which may be a sizeable distance from any head office.

The location decisions of young people should be analysed in the context of life cycle mobility considerations. For many young people, reaching maturity around 18 means that there is a strong logic about seeking their independence from their

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[1] Pissarides and Wadsworth (1989) find that approximately 1% of the employed workforce and 2% of the unemployed workforce changed regions in a given year. Gordon and Molho (1995) highlight 1981 Census data which suggests that 10% of working aged males move house each year.

parents by moving out of the family home. This is most conveniently achieved by going to university at 18 since this split from home is not completely irrevocable and can be seen as transitory. Many students typically spend around 30-40% of their year in their parents home and still regard their parents home as their main residence. Hence the transition to independence for many people can be accomplished in stages rather than it appearing to be a sudden, once and for all wrench. Having moved away to go to university then it is logical to move to a first job which is another new geographical location. On the other hand if the student finds getting a job difficult upon graduation then there is a certain logic about returning to their parents home for a period of time while attempting to look for a job with the security of their parents home to lessen financial and practical problems. Hence the decision to move away to university and then relocate after graduation are interrelated and must be seen in the context of the individual's life history.

The wider context of other life course events may also impact on mobility plans of young people. Many people of age 21-22 are forming partnerships with other people which may restrict their location choices. For example a women may be choosing a particular location to be with a partner rather than choosing their location based only on their own independent preferences. This choice of location based on the location of a partners job often means that the kind of job the person can get is severely restricted. Often it means that the accommodating partner ends up with a non-graduate job or a job with much lower job entry requirements or lower pay that they would otherwise have been able to achieve if that had been choosing freely without reference to another individual's job of location constraints.

III. The Importance of Understanding Graduate Mobility.

It is important to know where young people choose to go to university and where they take their first jobs for a variety of reasons. Universities, regional educational authorities, and central government need to make plans concerning the appropriate levels of resources to devote to these facilities.

Graduate manpower is very important to a region's economy. A region's economy cannot be self-sustaining or growing if it is continually a net exporter of graduates, that is, it continues to educate (and import) fewer graduates than it exports.

If the region trains significantly more graduates than it can employ this may have serious consequences for the balance of economic activity in the region. It is therefore relevant to examine what proportion of a region's graduates stay in the region after qualification and what proportion leave.

It has been suggested that the change in student finance which has introduced more widespread student loans and the payment of fees may mean that a higher proportion of students will opt to study at the university closest to their parent's home in order to minimise the cost of their higher education. The effects of this 'regionalisation' of higher education could be far reaching. More specifically it may mean that some universities in the more remote geographical locations may no longer be viable since they may not be able to attract sufficient students to leave home to go away to university. In turn there may be urban regions of high population density which are under-provided for in terms of university space in a world where the vast majority of students were choosing to study at home. Research into the patterns of leaving home to go to university is therefore necessary if we are to understand the future need for higher education provision on a regional basis.

In the present system of higher education it is commonly accepted that young people leave home to attend university and that the most able students may well be attracted to jobs in disparate regions on graduation. In this sense there may well be a return to mobility associated with the extra value of the human capital acquired by people who have been mobile. Whether this return is caused by the increasing human capital associated with moving and achieving independence or whether it is simply the case that the movers constitute a higher ability group is unclear. However, the implications of there being a return to mobility raises the question of the optimality of individual investment in mobility if it augments human capital.

IV. Modelling School Leaving Mobility and College Graduate Mobility.

The choices of location on leaving school at age 18 and on graduating from college at age 21 are essentially sequential. Individuals leaving school who want to go to university have the choice of :

i) Whether to go to their local university (and live at home with their parents).

or ii) Whether to move away to go to university in a location different from their parental home.

At the end of their period of college study for a degree the individual is faced with a second location decision. During this phase of a persons career they are likely to be seeking a full time job. Assuming that the person may or may not be successful in their job search their mobility decision may be characterised for those who move away to university as taking the form of:

i) Moving back to the region of their parents home to take a job (or be unemployed)

ii) Moving to a new region on graduation to a job.

iii) Staying in the region of their university to undertake employment (or continue to search for a job).
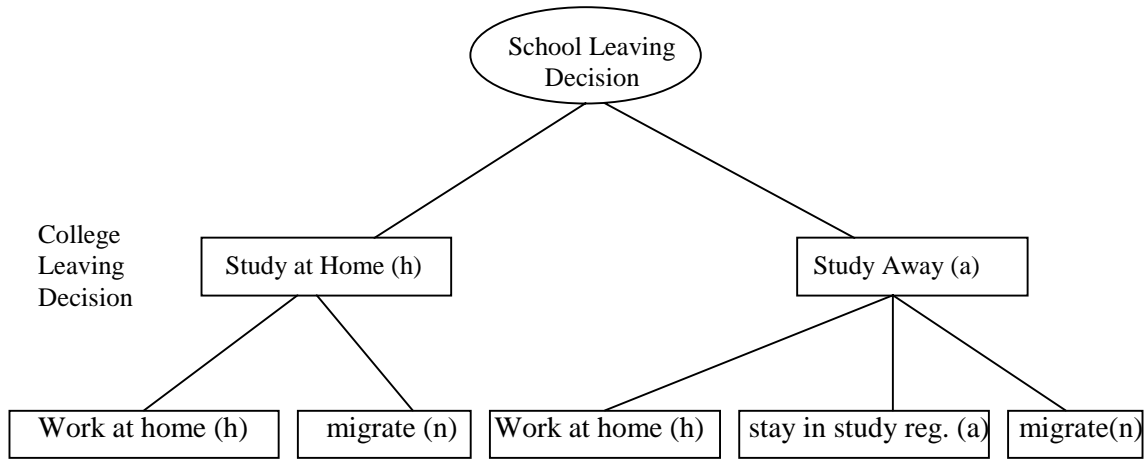
For those who stayed at home to study for their degree their choice of location at age 21 is slightly simpler, namely:

i) To stay in the same region on graduation.

ii) To move to a new region on graduation, presumably with a job.

This two stage sequential choice can be shown clearly in Figure 1 below.

Figure 1   The Migration Decision at 18 & 21

School Leaving
Decision

College
Leaving
Decision

Study at Home (h)

Study Away (a)

Work at home (h)   migrate (n)   Work at home (h)   stay in study reg. (a)   migrate(n)

Consider the school leaving decision by assuming that there is a well defined utility index defined over the alternatives of attending the home university U_h and the alternative university away from home, U_a then we may write this choice as:

$$U_s = \alpha_s X_i + e_s \qquad \text{s=h,a} \qquad (1)$$

Likewise assume the utility of the college leaving choice between a job in the parental home region (h), the university region away from home (a) or a new third alternative (n) may be written:

$$U_c = \alpha_c Z_i + e_c \qquad \text{c=h,a,n.} \qquad (2)$$

Assume the individual chooses to attain the highest utility. Let Y_s (s=h,a) and be the indicator variables for this choice. If the error terms in equations (1) and (2) are independently and identically distributed with a Type 1 Extreme Value distribution then we can write the probability of any specific choice as:

$$P(Y_s = 1) = \frac{\exp(\alpha_s X_i)}{\sum_{j=h}^{a} \exp(\alpha_j X_i)}$$

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Likewise the probability of choosing an alternative in the college leaving decision can be written as:

$$P(Y_c = 1 | Y_s, \lambda_s) = \frac{\exp(\alpha_c Z_i + \zeta_{1s} \lambda_s)}{\sum_k \exp(\alpha_k Z_i + \zeta_{1s} \lambda_s)}$$

where $\lambda_s = \dfrac{\varphi(J_s(Y_s))}{P(Y_s = 1)}$ and $J_s(Y_s) = \Phi^{-1}(P(Y_s = 1))$.

Hence the above formulation explicitly allows the college choice decision to be sequentially influenced by the prior school leaving choice through the non-random λ_s selectivity term. The inclusion of such a conditioning factor will ensure the consistency of the maximum likelihood estimates of the structural parameters in the college leaving choice model. (See the results of Lee (1983)).

Assuming the school leaving and college leaving decision are sequential then the latent structure of earnings to be considered is:

$$w_{ig} = \beta' R_i + \gamma' D_{ig} + \zeta_{2c} \lambda_c + u_i \tag{3}$$

where R are a set of individual characteristics which condition wages, and D are the regional demand conditions which may influence local wages rates in region g. In addition u_i is $N(0, \sigma^2)$, $\lambda_c = \dfrac{\varphi(J_c(Y_c))}{P(Y_c = 1)}$ and $J_c(Y_c) = \Phi^{-1}(P(Y_c = 1))$. Hence the λ_c selectivity term corrects for the sample selectivity of location choice on college graduation.

In our data the dependent wage variable falls into certain distinct intervals on the real line. It is divided into K intervals, the kth being given by (A_{k-1}, A_k) and these K intervals exhaust the real line (i.e. $A_0 = -\infty$ and $A_k = +\infty$). As a result the expectation of wages given this latent variable structure and the relevant selectivity and conditioning factors is:

$$E(w_i \mid A_{k-1} < w < A_k, R_i, D_{ig}, \lambda_c) = \beta' R_i + \gamma' D_{ig} + \zeta_{2c} \lambda_c + \sigma^2 \left[\frac{f(Z_{k-1}) - f(Z_k)}{F(Z_k) - F(Z_{k-1})} \right]$$

the log likelihood will be:

$$\sum_{k=1}^{K} \sum_{i \in k} \log \left\{ F[A_k - \beta' R_i + \gamma' D_{ig} + \zeta_{2c} \lambda_c \mid \sigma] - F[(A_{k-1} - \beta' R_i + \gamma' D_{ig} + \zeta_{2c} \lambda_c \mid \sigma] \right\}$$

Stewart (1983) derives the equations which define the maximum likelihood estimates and suggests alternative estimators.[2] We are able to estimate our structural steps:

i) estimate equation (1) by probit estimation

ii) compute the selectivity correction for the non-random school leaving choice.

iii) estimate equation (2) by multinomial logit.

iv) compute the selectivity correction for the non-random college leaving decision.

v) estimate equation (3) using the grouped data on wages allowing for the sample selection of college leaving decision.

This structure allows us to explicitly consider the endogenous role of school leaving choice and college leaving location decision as well as the determination of earnings. The model is flexible enough to facilitate study of the role of local labour market conditions on individual decisions and permit the estimation of the returns to migration.

V. Econometric Issues.

a) Sample Selection and Migration.

One of the clearest econometric problems involved in modelling migration and mobility is that we can only ever observe the outcome chosen for individuals in any sample. Hence the statistical evaluation of the treatment - migration - based only on a

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[2] A similar problem is considered in Bhat (1994).

sample of those who migrate and those who do not is extremely difficult. The main reason for this is the split on the data is usually by the choice of the individuals themselves. Hence in the two subgroups we may not observe a random partition of the population. More specifically we may suggest that there are certain unobservable traits which condition the moving decision but also relate to eventual later earnings or employment prospects. This correlation of unobservables in the decision equation with the outcome equation lie at the heart of the selectivity problem.

Several papers have attempted to tackle this problem which has a common structure to many others in the applied econometrics literature. Most notably, papers by Nakosteen and Zimmer (1980) and Robinson and Tomes (1982) endeavour to find variables which can be used to explain the moving decision which do not relate to subsequent outcomes. A further complication in much of this literature is that it seeks to use predicted future earnings in the two distinct choice regimes as the basis for the economic decision problem of whether to move or stay.

With respect to the mobility of young people leaving school it is clear that potential income will not affect the location decision at 18 since their student finance will not be contingent on location. Likewise it is unclear how income prospects will be affected by the college leaving location choice. Most firms who recruit graduates have a policy of identical graduate starting salaries which are independent of location. The sole exception to both these statements is a London allowance is explicitly available for student support and that most firms include in their salary package a London weighting to attempt to compensate for the higher cost of living in London. Hence it is unclear whether in our modelling we can explicitly include the role of endogenously predicted wages which are conditioned on location prior to them actually moving to the region and receiving the wage. In this respect our modelling of the migration decision is fundamentally different to the simple mover-stayer type models in the literature.

In our context the selectivity of our model arises in the related sequential nature of the location decisions on leaving school and on leaving college.

b) Identification.

One of the most important considerations in migration models with earnings endogeneity is the exogenous exclusion restrictions which are used to identify the mobility model.

Various exclusion restrictions have been used in the literature. Nakosteen and Zimmer (1980) use a variable denoting whether the individual changes their industry of employment at the two digit level. Clearly it is possible in such a model of migration and job (industry) mobility are being confounded.

Robinson and Tomes (1982) use marital status and family size as identifying variables by including them in the probit equation to model migration but excluding them from the earnings equations of movers and stayers which are estimated separately. However from the extensive human capital literature it is well known that both marital status and family size have a clear effect on wages. In the context of graduate mobility it is hard to see how these exclusion restrictions can be justified.

c) The Role of Distance and Direction in Migration

One consideration which has received attention in the migration literature is the distance of the location transfer is in the migration decision. Clearly there will be distance effects in the mobility decision. Molho (1987) amongst others have modelled this feature of the decision explicitly.

A logical corollary of how far a person moves is the possibility that the person may re-migrate or return to their original location. Clearly the temptation to view an alternative location in too favourable a light prior to experiencing that location is commonplace. Hence many movers tend to re-migrate back to their original home location. Papers which tackle the directional flow of migration issue are by Farber (1978) and return migration by Vanderkamp (1971).

This literature may have interesting implications for modelling graduate mobility particularly in the context of migration to a new region to on leaving school and going to college and understanding the possible re-migration back home to the parental region on taking a first job. In addition the distances involved in the migration from home to university may have an interesting pattern since students rarely go to regions greater than 200 miles from their home town. The main reason for this is the practicality of weekend return visits to their parental home. These

factors naturally limit the potential set of locations of university for those who live in the more remote geographical regions.

d) The Role of Education in Migration.

The role education plays in migration has been explicitly examined in the literature by, amongst others Levy and Wadycki (1974). In this literature it is explicitly appreciated that increased human capital increases the scope for migration since the higher premium to skill makes the transaction and moving costs more worthwhile. In addition it is true to say that the more human capital a person has the more likely it is that their marginal product is higher in other location or in new jobs. This is true since increased human capital is also associated with more flexible skills which can be more readily adapted to new work environments.

The literature on migration shows quite clearly that there is a higher rate of return to migration for those with more human capital. In particular, in developing countries, skills of a technical or computing nature transfer well from the agricultural sector to the industrial and urban economies.

In the context of the graduate labour market in the UK it is clear that those with the highest levels of educational performance are more likely to be offered the highest paying jobs in the bigger cities. Hence it is clear that we would expect the return to mobility to be higher for those with better degrees. An additional question worthy of empirical examination is whether those students who leave home at 18 gain from the relative independence of this early separation from the parental home and if so whether it is this independence which imparts a new and additional form of human capital?

e). The Role of Job Mobility in Migration.

The econometric modelling of mobility, must for the most part, be endogenously related to the need or desire to find another job. Of course some mobility is associated with the desire to leave an area because of lack of available work and seek, an unspecified, new job at another location. In other contexts many people do not migrate until a new job in another location is already found. Hence the distinction of whether a new job precedes migration or whether searching for a new job acts as the motivation to relocate is a central theme to the literature. The nature of

this decision process was recognised and modelled nearly twenty years ago, Bartel (1979), and is still important today.

In the context of the graduate labour market invariably job search begins whilst at college and mobility to a new region usually only takes places when a suitable, often graduate level job, is found. Likewise, not finding a suitable job will prevent moving to a new location and graduates will usually stay in their region of university or return home if they remain unemployed or cannot find suitable employment on graduation.

f). The Role of Unemployment in Migration.

Harris and Todaro (1970), De Vanzo (1978) and others have been concerned with the problem of identifying the relationship between unemployment and migration, i.e. 'is the unemployed person more likely to migrate or are people living in areas of high unemployment more likely to migrate regardless of their own employment status'.[3] Most importantly the probability of finding suitable employment must act as a draw to large cities where jobs are more plentiful than in urban regions.

In the graduate data sets we do not have to worry about this problem since in a sense no graduate has a job on graduation - this allows us to model the role of relative regional unemployment (or more generally local demand conditions) on the likelihood of migration.

g) Use of Exogenous Data on Demand Conditions.

A good source of exogenous identifying variables in mobility/migration models are the local demand conditions in the region of origin compared to alternative regions of destination. There is large literature on the role of local and regional economic conditions on migration which include the role of local labour markets (see Topel (1986)), the differential and spatial nature of unemployment autocorrelation and persistence across regions (Molho (1995)), and the role of regional demand shifts (see Holzer (1991)). In the context of the UK, graduate market candidate variables which may influence the mobility decision are local

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[3] See page 505, De Vanzo (1978)

unemployment rates, the level of wages and the indicators of economic activity like vacancy rates.

h) The Role of Housing Costs.

Housing costs and proxies for the cost of living variation, like average rateable value have a role in the explanation of migration and location decisions. Important in this literature are the papers by Hughes and McCormick (1997) and McCormick(1997) which show the importance of relative housing costs in the migration decision. In particular they show that council house tenants are much less likely to move regions. In the context of the graduate labour market council housing is not relevant as most young people would not qualify for council house lists. However, it is clear that the relative size of rents in the rentable sector will be particularly important in first job and migration decisions on leaving college. In addition, the relative size of first mortgages across different regions and the effect of different interest rates over time will have an important influence on first job migration. These trends and their consequences are described in Evans and McCormick (1994).

VI. The Data.

The HEFCE Survey of Highly Qualified Workers

To conduct this analysis of graduate migration and earnings, longitudinal data collected by the Higher Education Funding Council for England (HEFCE) is used. The HEFCE data is a detailed sample of 13,449 "highly educated workers" (i.e. university or college graduates) surveyed in 1996. 5264 of these graduated in 1985 and the remaining 8185 graduated in 1990. The questionnaire is constructed to provide information on the 11 year careers of the 1985 graduates and the 6 year careers of the 1990 graduates.

The data provides extensive detail regarding respondents activities prior to entering higher education, their experience at university or college, their subsequent careers and additional qualifications they may have received. In addition, individual characteristics such as age, race, gender and family background are also collected.

In terms of geographic location, individuals are asked the region[4] in which they resided prior to attending university, while at university, for their first job and where they are currently residing. An individual is defined as having migrated if his/her region of residence changes between these time intervals. One weakness in using this database to analyse migration trends is that while it captures *inter*-regional migration, there is likely a great deal of *intra*-regional migration, which the data cannot capture. One area which we intend to examine further is the sensitivity of our findings to this somewhat crude definition of migration. To do this we will utilise two alternative datasets which are described below.

We use the geographic information to construct 5 separate migration regimes. These are: 1) those who study and work in their home region; 2) those who study in their home region and migrate to work; 3) those who migrate to study, then return to work at home; 4) those who migrate to study and work in their study region; 5) those who migrate to study and then move then move to a new region. Summary statistics for relevant variables (for each migration regime) can be found in Appendix 2.

We use these 5 regimes to simultaneously model the decision to migrate to study and the decision to migrate to work. The decision to migrate to study is identified using family background (household main wage earner's occupation status and whether or not the house they resided in was owner-occupied) and their A-level results[5]. The decision to migrate for work is identified using local labour market conditions (unemployment, wage rates, Job Centre vacancy rates and labour market activity rates), as well as HE institution type[6] and performance at university. Finally, wage equations are identified using activity and wage rates as well as occupation, industry and subject choice. It should be noted that the wages used in these equations are the salaries reported by the individuals 5 years after graduation as a this allows graduates adequate time to find employment. It also allows for the inclusion of those graduates who continue on to do post-graduate training prior to entering the job market. As such our results should be interpreted as determining the effect of early

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[4] In this survey the geographic region is narrower than the standard 12 UK regions. Full definitions of these regions can be found in Appendix 1.

[5] A-levels are the exams taken at age 18. We aggregate the scores across their examinations to arrive at a points score.

[6] These are "traditional" or "old" universities, former polytechnical institutions, further education colleges, and "Oxbridge" (Oxford and Cambridge Universities).

migration on future earnings.   The data show several interesting characteristics. These include:

- Graduates who do less well in terms of their degree result tend to stay in their home region or the region of their university and are less likely to venture to a new region on graduation.

- Students who stay in their local university are more likely to remain in the region after graduation.

- Graduates have a tendency to migrate to London and the South East for their first job and then later, in mid career, migrate out to the provinces. More generally, life cycle position and family status may be endogenous to the migration decision since couples may delay the timing of their marriage or the rearing of children until they have moved out of the London area.

- Graduates who are unemployed on graduation are more likely to return home or stay in the region of their university after graduation. Such inertia is consistent with expected utility maximisation since it is in these locations that the individual's living costs are likely to be lowest and their potential network into the labour market for attempting to find a job are the most useful. At home because it relies on the contacts of their mother, father, siblings and friends, and at their university region since it is where they have spent the last three years and have the most contacts.

- The area of geographical migration is not independent of the subject studied or the desired occupation the person seeking employment. For example there are many more jobs in financial services and the commerce sector in London that anywhere else in the UK. Hence graduates in Accountancy are more likely to be based at head office of their company in London that a graduate of agriculture seeking a job with the Forestry Commission.

Alumni Data

This dataset contains detailed information on the labour market experiences of approximately 2500 Newcastle University graduates and was designed to be comparable to the HEFCE survey.

This data will be useful to examine whether our results apply only to specific cohorts. Since their ages are all different the alumni data will enable us to examine how different labour market conditions have affected graduates of different ages.

Likewise the Alumni data will allow us to examine the mobility decision from university region to a new region or back to home region with the 'initial conditions' fixed for each observation. This is possible since all Newcastle University graduates face the exact same background advantages and disadvantages as a result of having graduated from the same university (Newcastle's reputation, its geographical isolation, its image, the Career's Service, etc).

The Alumni data is less likely to suffer from the specific kind of attrition bias that the HESA data (described below) has as a result of sampling only at he sixth month after graduation point. In addition strenuous efforts have been made to follow up non-responders to the initial survey unlike in many other studies where those falling out of the sample means attrition from the survey.

HESA Data

The Higher Education Statistics Agency (HESA) collects microdata on the "first destinations" of the majority of graduates from each HE institution in the UK and as such provides and excellent comparison for findings using smaller samples, which are potentially biased.

The HESA data has much more detailed information about the exact location of the parental home location. This means that we can be much more precise about whether a person stays in the parental home during higher education. In contrast the HEFCE data has fairly wide regions and even if the region of parental home is the same as the region of university it is unclear as to whether or not this meant the student lived at home during their higher education. Hence the HESA allows us to investigate how sensitive the use of the HECFE results are to the size of the areas in the geographical location data.

The HESA data will also allow us to examine whether controlling for local labour market conditions at the level of travel to work area and the postcode is more appropriate than simply looking at the effect of regional demand conditions. An additional possibility with this data it is use exogenously created data related to the

profile (known as 'superprofiling') of the postcode to examine the influence of local background on progress in higher education and eventual labour market success.

VII. The Empirical Results.

a) The location decision at 18.

Table 1 reports the probit estimates of the decision of whether to go away from the home region to university at age 18.

Family socio-economic background variables play an important role in the decision. If an individual's father has a managerial occupation or lives in an owner occupied house then it is significantly more likely that the person will go away to university. In addition, members of the ethnic minorities are much less likely to go away to university. This result is most likely to be conditioned on the Indian, Pakistani and Bangladeshi community who encourage their sons and daughters to live at home whilst going through higher education. Mature students, over the age of 21 at the time of applying to university, are also more likely to stay at home to study than their younger counterparts who are more likely to leave home. There would appear to be no clear gender differences in the propensities of men or women to go away to university.

Education variables also play an important part in the decision of location at 18. Most importantly the higher the A-level results of the student the more likely they are to attend a university outside their own town. However the type of school attended does not seem to alter the location decision at 18. The type of degree that the individual has opted to study plays an important role in whether they stay at home. Specifically, part time and distance degrees are more likely to be studied at home than to move away. Not surprisingly this result is partially due to the fact that those who study for their degree part time are more likely to be mature students with family and other commitments and may possibly have jobs at the same time as studying.

Table 1 The Decision to move to Study
(Dependent Variable: Move to new region = 1, Stay in home region = 0)

Parameter	Coefficient	T-Statistic
Constant	0.840**	3.935
Worked < 1 year prior to university	0.057	0.805
Worked > 1 year prior to university	-0.111**	-2.746
"A" level points	0.011**	5.399
Attended Selective or Private School	-0.008	-0.216
Attended FE College	0.039	0.901
1990 Cohort (Yes = 1)	-0.090	-1.600
Gender (Female = 1)	0.123	1.148
Ethnic Minority (Yes = 1)	-0.194**	-2.987
Mature Student	-0.553**	-12.344
Studied Part-time	-1.056**	-14.560
Studied by Distance Learning	-0.751**	-3.109
Did a Sandwich Degree	-0.056	-1.050
Main wage earner was a manager	0.105**	3.068
Main wage earner was a supervisor	0.030	0.617
Lived in owner occupied housing	0.149**	3.237
Unemployment in region of origin	-0.022	-1.082
Regional Dummy Variables		
(Base Case is West Midlands)		
Northern Region	0.095	1.160
Yorkshire and Humberside	0.487**	6.270
East Midlands	0.069	0.865
East Anglia	1.644	6.79
Greater London	0.124	1.548
Rest of South East	-0.476**	-6.775
South West	0.031	0.397
North West	0.196**	2.800
Wales	-0.587	-7.501
Scotland	-0.994**	-14.199

** Denotes significance at a 95% confidence level

These results demonstrate a clear regional pattern with young people from East Anglia, and the North West (relative to the West Midlands) more likely to travel away to go to university whilst their contemporaries from Scotland, Wales and the South East are more likely to go to a university within their region. To some extent this reflects the degree of local provision of places in higher education but is also influenced by the remoteness of certain areas with respect to the nearest university. It is also likely that Welsh and Scottish universities have elements of a distinctive national character which may induce a higher proportion of young people in these countries to want to stay in the country when attending higher education. In Welsh

universities part of the teaching may be in the Welsh language and in Scottish universities there is general treatment of undergraduates as if they all had Scottish Highers rather than English A-levels. The fact that most Scottish 18 year olds do not sit A-levels is a significant obstacle for their entrance to English universities. These factors explain part of the strength of the regional effects shown by the coefficients.

b) The location decision at 21 for those who study at home

Table 2 reports the probit estimates of the decision to migrate for employment following graduation for those who remained in their home regions to study.

The findings show evidence of those with the highest degree classifications being the ones who are most likely to be mobile. In particular, those who studied at "Oxbridge" institutions are particularly likely to move to take their first job. The findings also show quite clearly that females, ethnic minorities and older graduates are the less likely to migrate. There is also a significant cohort effect, indicating that 1990 graduates were more likely to migrate than their 1985 counterparts. Subject effects show that Engineering graduates and Architecture and Building graduates (although only at a 90% confidence level) are more likely to relocate from their home region to take their first job. The results also show it is those who go on to obtain further qualifications and those who move into jobs requiring qualifications that are more likely to have migrated from their home region to obtain them.

The exogenous labour market variables show a very pronounced effect on the decision to migrate after graduation. In particular, the non-manual wage rate and the Job Centre vacancy rate have significant predictive power on the migration decision. The higher the wage and vacancy rate in the individual's home region, the less likely he/she is to migrate. Local unemployment and activity rates do not significantly impact the decision to migrate following graduation.

Table 2 The Decision to Migrate for Work (Non university movers)
(Dependent Variable: Move to new region = 1, Stay in home region = 0)

Parameter	Coefficient	T-Statistic
Constant	3.505	1.406
Gender (Female = 1)	-1.696**	-2.394
Mature Student	-0.590**	-4.475
Ethnic Minority (1 = yes)	-0.566**	-2.875
Disabled	0.238	1.118
1990 Cohort (Yes = 1)	0.801**	3.253
Attended traditional university	0.150	1.276
Attended "Oxbridge" institution	1.162**	2.984
Attended FE College	-0.016	-0.096
Received upper class degree	0.173*	1.747
Received diploma	-0.436**	-2.572
Subject Dummies (Base Case is Humanities)		
Studied Biology	0.064	0.315
Studied Agriculture	0.063	0.172
Studied Physical Sciences	0.064	0.346
Studied Mathematics	0.204	1.049
Studied Engineering	0.482**	2.676
Studied Architecture and Building	0.546*	1.918
Studied Social Sciences	-0.265	-1.629
Studied Business Administration	0.102	0.542
Studied Linguistics	-0.032	-0.169
In Educ. or training 1 year after grad.	0.851**	6.582
Qualification required for job	0.480**	4.134
Sponsored for degree	-0.467**	-3.275
Unemployment in home region	0.038	1.186
Wages in home region	-0.006**	-2.964
Vacancies in home region	-0.126**	-2.821
Activity rate in home region	-0.037	-1.383
Work in Greater London	2.033**	13.298
lamda (λ)	0.160	0.994

* Denotes significance at a 90% confidence level

** Denotes significance at a 95% confidence level

It is important to note that the selectivity term not being statistically significant suggests that there is no sample difference between those who leave and those who remain at home in the decision to migrate for a first job.

c) The migration decision at 21 for those who move to study

Table 3 reports the multinomial logit results for those who leave their home region to study.   These estimations compare the decision to remain in the study region

for one's first job against the base case of returning to one's home region. It also compares those who migrate to a region other than their home region for their first job in comparison to those who return to their home region to work. First looking at the decision to remain in the study region in comparison to returning home, we observe that ethnic minorities are less likely to remain in their study region (and more likely to return home). Individuals graduating from "traditional" universities and those graduating with upper class degrees are also more likely to remain in the region of study (and less likely to return home). In addition, there are several significant subject effects (as compared to having a degree in the Humanities) with those studying Agriculture, Physical Sciences, Social Sciences and Linguistics being less likely to take a first job in their region of study. The results suggest that if the job the individual moves into requires a qualification, they are more likely to remain in the region of study, suggesting that those who return to their home region are more likely to end up in non-graduate jobs. The selection term does not significantly influence the decision to remain in the region of study or return to their home region.

Table 3 The Decision to Migrate for Work (University movers)
(Dependent variable: Move to new region = 2, Remain in study region = 1, Return home = 0)

Parameter	Stay in study reg.		Move to new reg.	
	Coeff.	T-Stat	Coeff.	T-Stat
Constant	-2.531	-0.930	8.866**	3.730**
Gender (Female = 1)	0.481	0.618	-3.622**	-5.300**
Mature Student	0.1754	1.374	0.308**	2.727
Ethnic Minority (1 = yes)	-0.477**	-2.938	-0.505**	-3.693
1990 Cohort (Yes = 1)	-0.018	-0.087	1.792**	9.299
Attended traditional university	0.446**	4.629	0.254**	3.018
Attended "Oxbridge" institution	-0.033	-0.109	0.810**	3.229
Attended FE College	0.073**	0.425	0.357**	2.448
Received upper class degree	0.314	4.085	0.268**	3.996
Received diploma	-0.030	0.150	0.013	0.077
Subject Dummies (Base Case is Humanities)				
Studied Biology	-0.202	-1.305	0.127	0.914
Studied Agriculture	-0.714**	-2.441	-0.107	-0.460
Studied Physical Sciences	-0.331**	-2.314	-0.074	0.588
Studied Mathematics	0.082	0.474	0.303*	1.948
Studied Engineering	-0.054	-0.347	0.250*	1.817
Studied Architecture and Building	-0.100	-0.431	-0.025	-0.125
Studied Social Sciences	-0.260**	-1.976	-0.081	-0.692
Studied Business Administration	-0.074	-0.483	-0.128	-0.915

Studied Linguistics	-0.344**	-2.212	0.092	0.683
In educ / training 1 year after grad.	0.013	0.138	0.485**	5.582
Qualification required for job	0.239**	2.598	0.730**	8.808
Sponsored for degree	-0.647**	-4.592	-0.3356**	-2.943
Unemployment in home region	0.129**	5.069	0.059**	2.662
Unemployment in study region	-0.069**	-2.321	0.0452*	1.749
Wages in home region	-0.0004	-0.238	-0.006**	-4.562
Wages in study region	0.004**	2.511	-0.004**	-2.850
Vacancies in home region	-0.011	-0.238	-0.048	-1.475
Vacancies in study region	-0.076**	1.981	-0.037	-1.104
Activity rate in home region	-0.061**	-2.588	-0.077**	-3.746
Activity rate in study region	0.062**	2.399	-0.260	-1.216
Work in Greater London	0.010	0.878	1.636**	17.552
lamda (λ)	0.015	0.090	-0.614**	-3.860

* Denotes significance at a 90% confidence level

** Denotes significance at a 95% confidence level

Of particular interest are the labour market variables, which show that graduates will remain in their region of study if the labour market conditions are relatively better than those of their home region. The higher the rate of unemployment in the home region, the more likely the individual is to remain in the region of study. Conversely, the higher the unemployment in the region of study, the more likely the individual is to return to his/her home region. A similar pattern is apparent for the activity rates, with the higher the activity rate in the home region, the less likely the individual is to remain in the study region, however this is offset with the higher the activity rate in the region of study, the more likely the individual is to remain there. Wages and vacancy rates are only significant for the region of study, with the higher the wage and vacancy rate in the study region, the more likely the individual is to remain there.

Again, the sample selection term is not statistically significant, suggesting that there are no sample differences between those who choose to remain in their region of study and those who choose to return to their home region.

d) The migration decision at 21 for those who move to study

The decision to migrate to a new region after university as compared to returning to one's home region demonstrates a much more striking contrast. Table 3 shows that females and ethnic minorities are less likely to migrate to a new region (and more likely to return home) while those mature students who migrate to university, are more likely to migrate again for their first job. There is also a

significant cohort effect, with 1990 graduates being significantly more likely to relocate to a new region for work than their 1985 counterparts. This, along with the finding that the 1990 cohort were more likely to migrate to university show that mobility among young people increased considerably through the 1980's. There appear to be minimal subject effects, with only those graduates from Mathematics and Engineering being somewhat more likely to migrate than their colleagues from other disciplines.

The results also show that those who relocate for their first job tend to be the best qualified, with those receiving upper class degrees being more likely to relocate than those who obtain lower class degrees or diplomas. In addition, those who move are more likely to end up in a position for which a qualification is required, suggesting that mobility greatly increases the likelihood of obtaining a graduate job. The results also show that graduates from the traditional universities, and in particular Oxbridge institutions, are more likely to be geographically mobile than those individuals who graduate from the former polytechnics. As well, individuals graduating from FE colleges also tend to be the more likely to migrate than those attending the former polytechnics. Given that this decision to move is conditioned on the decision to move away to study, it may be that these individuals have relocated to take a highly specialised course, which would necessitate a further move to find appropriate employment. In this comparison, the selection term is significant, suggesting that the decision to migrate to university has an important influence on future decisions to migrate when moving into employment. This reinforces our view that the migration decision of graduates cannot be modelled independently of the migration decision of those entering university. The relationship between these two events is endogenous and as such must be modelled simultaneously.

Again, several of the exogenous labour market variables exhibit a significant influence on the decision to migrate. We observe that coming from or studying in a high unemployment region makes one more likely to migrate, while coming from or studying in a high wage region makes one less likely to migrate to a new region for one's first job. Vacancy rates and activity rates are for the home region and the region of study are all negatively signed, indicating higher activity and vacancy rates makes migration less likely, although only the activity rate in the home region is significant at a 95% confidence level.

e) Estimating the returns to migration

Table 4 indicates the wage equations for graduates. Given that the a large percentage of the individuals who graduate in the sample tend to obtain further qualifications, or have yet to settle into careers within one year of graduation, we estimate earnings equations on the earnings 5 years after graduation.

Table 4 Wage Equations

Parameter	Coefficient	T-Statistic
Constant	7177.4**	9.634
Gender (Female = 1)	-1471.4**	-5.237
Ethnic Minority	-80.0	-0.224
Disabled	-992.3**	-2.135
Received and upper class degree	840.8**	4.868
Received a FE diploma	-220.7	-0.601
Mature Student	1846.7**	7.017
Attended traditional university	1577.1**	7.602
Attended "Oxbridge" institution	3536.4**	5.832
Attended FE College	107.03	0.314
Obtained a post graduate qualification	612.9**	2.950
Employed 1 year after graduation	1170.0**	2.967
Studied home/migrated to work (mig1)	712.00**	2.135
Studied away/migrated to work (mig2)	578.8**	2.706
Mature*mig1	-604.6	-0.929
Mature*mig2	-909.7*	-1.844
Subject Dummies (Base Case is Humanities)		
Studied Biology	35.28	0.097
Studied Agriculture	88.33	0.132
Studied Physical Sciences	523.34	1.570
Studied Mathematics	3545.0**	9.266
Studied Engineering	2095.2**	5.817
Studied Architecture and Building	-1683.7**	-3.200
Studied Social Sciences	1979.7**	6.496
Studied Business Administration	2658.5**	7.484
Studied Linguistics	363.7	1.043
Employment Sector Dummies (Base case is local and public authorities)		
Not full time employed/in education	-3600.2**	-2.121
Civil service and Central Gov't bodies	-584.2	-1.484
Schools/Further Education	-1268.8**	-3.619
Higher Education	-2752.2**	-6.418
Agriculture/Forestry/Fisheries	-1892.1**	-2.098
Oil/Mining/Chemicals and related	3228.4**	7.145
Engineering and related	1127.3**	2.793
Commerce and Commercial services	3271.0**	9.823
Other Manufacturing	2346.6**	5.808

Accountancy	3772.8**	7.882
Utilities, transport and communication	2985.6**	6.403
Private Practice	3625.6**	9.108
Other	1238.6**	3.636
Occupational Dummies (Base case is Associate Professional and Technical)		
Managers and Administrators	903.4**	2.987
Professional Occupations	1215.1**	4.934
Clerical Occupations	-3975.0**	-8.390
Manufacturing Crafts	-1450.3*	-1.935
Personal and Protective Services	445.40	-0.709
Sales Occupations	136.76	-0.268
Plant and Machine Operatives	-4612.7**	-3.104
Other Occupations	-181.19	-0.464
Qualification required for job	1137.3**	5.982
Post is Temporary/Fixed term	-5648.5**	-3.171
Post is Part-time	1454.5	0.928
Post is Managerial	2404.1**	13.363
Post is in a large firm (> 25 staff)	2810.6**	12.288
Wage rate in employment region	4.41**	2.129
Activity rate in employment region	-6.60**	-2.597
Regional Dummy Variables (Base Case is West Midlands)		
Northern Region	-533.04	-1.152
Yorkshire and Humberside	858.5**	2.012
East Midlands	415.1	0.978
East Anglia	738.4	1.177
Greater London	2960.0**	8.259
Rest of South East	1198.0**	3.548
South West	-82.42	-0.200
North West	412.6	1.107
Wales	-845.8*	-1.672
Scotland	232.7	0.560
sigma (σ)	6930.3**	117.46

There are several effects which merit attention. First, we observe that those who migrate from their home region to work, or those who migrate from their study region to work tend to be paid more than those who remain in their home region or their region of study. However, this effect is mitigated for mature students. In particular, mature graduates who relocate to study and further relocate for their first job are paid less. However, it should also be noted that overall mature graduates are paid a premium for the extra experience the have gained.

The wage equations also suggest that females and individuals with disabilities get paid less than males and individuals without disabilities. In addition, there are wage premiums for graduates from traditional universities and in particular "Oxbridge" institutions. There is also a significant wage premium for those graduating with upper class degrees, and those who go on to obtain post-graduate qualifications. There are significant positive wage effects for those who study Mathematics, Engineering, Business Administration, and Social Sciences (against the base case of doing a degree in the Humanities). Graduates from Architecture and Building are paid significantly less than their counterparts who study Humanities. The occupational effects show that individuals in managerial or professional positions are paid a significant wage premium, while those in clerical or manual positions are paid significantly less than those who work in associate professional and technical positions. Individuals are paid a premium for working in a large firm. There are also positive wage premium for graduates working in Greater London and the Rest of the South East while there is a negative wage effect for individuals working in Wales.

The exogenous labour market data has mixed effects. The non-manual wage rate in the region of employment has a positive and significant effect. However, the activity rate has a negative (and significant) effect, suggesting that the greater the rate of labour market activity in the region, the lower the wage rate realised by the individuals who work there.

VIII. Conclusions

In this paper we analyse the migration decisions of two cohorts of graduates. This group is unique in terms of its migration behaviour because we capture them at a time when the vast majority of them are mobile. First, we consider the decision of the university entrant to study in their home region, or to move away. We find that the students achieving better grades and those coming from more privileged backgrounds tend to migrate to university while ethnic minorities, individuals with disabilities and mature students tend to be less likely to leave their home region to study.

We then estimate (taking account of potential selection bias) separate equations for the decision to migrate for work for individuals who remain in their

home region and for those who move to study. The estimations show a clear pattern of graduates with the highest degree classifications and those coming from traditional universities of "Oxbridge" being the most likely to relocate. We also find that those who do relocate are more likely to be working in a "graduate" job, while those who do not migrate are less likely to be in a job that requires their qualifications.

The estimations demonstrate that local labour market conditions in the individual's region of study and home region have a significant effect on the decision to migrate into employment, with graduates tending to be more likely to move if they come from, or study in regions, of high unemployment, low wage rates, low levels of job vacancies and low levels of labour market activity. They also demonstrate that the migration decision of graduates needs to be considered in light of their earlier decision to move to study. Treating the migration decisions of graduates as independent from earlier migration decisions fails to account for a potentially significant endogeniety problem.

Finally, we estimate wage equations for graduates and find that there is a positive wage premium for those who migrate, even when accounting for the region to which they migrate, the sector and occupation in which they are employed, the type of institution in which the studied, the class of degree they obtained and the subject they studied.

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Appendix 1 Residence Codes

1. Tyne and Wear Metropolitan districts
2. Rest of Northern Region (Cleveland, Cumbria, Durham, Northumberland)
3. South Yorkshire Metropolitan districts
4. West Yorkshire Metropolitan districts
5. Rest of Yorkshire and Humberside
6. East Midlands region (Derbys, Leics, Lincolns, Northhamptons, Notts)
7. East Anglia (Cambridgeshire, Norfolk, Suffolk)
8. Outer London
9. Inner London
10. South East (Beds, Berks, Bucks, Sussex, Essex, Hamps, Herts, IOW, Kent, Oxfs, Surrey)
11. South West (Scilly Isles, Avon, Cornwall, Devon, Dorset, Gloucs, Somerset, Wilts)
12. West Midlands Metropolitan districts
13. Rest of West Midlands (Hereford, Worcs, Staffs, Warws)
14. Greater Manchester Metropolitan districts
15. Merseyside Metropolitan districts
16. Rest of North West region (Cheshire, Lancs)
17. Wales
18. Central belt (including Glasgow, Edinburgh, Stirling)
19. Rest of Scotland
20. Northern Ireland
21. Outside the UK

Appendix 2 Summary Statistics by Migration Regime

Variable	h-h	h-n	a-h	a-a	a-n
Base Characteristics					
Number	1691	896	1811	1364	2759
Females	807 (.447)	398 (.442)	875 (.483)	661 (.485)	1299 (.471)
1990 cohort	1133 (.775)	547 (.611)	1170 (.646)	868 (.636)	1639 (.594)
Ethnic minority	113 (.067)	54 (.060)	138 (.076)	65 (.048)	138 (.050)
Mature student	770 (.455)	232 (.259)	271 (.150)	215 (.158)	363 (.136)
Disabled	77 (.046)	43 (.480)	54 (.030)	43 (.032)	89 (.032)
School Background					
Comprehensive/6th form	998 (.590)	544 (.607)	1067 (.589)	813(.596)	1595 (.579)
Selective/Private	439 (.260)	188 (.210)	417 (.230)	325 (.238)	673 (.244)
FE/Other	254 (.150)	164 (.183)	327 (.181)	226 (.166)	491 (.178)
A-levels/Scot Highers	1058 (.626)	617 (.689)	1606 (.887)	1183 (.867)	2490 (.903)
A level points	11.3	12.9	12.7	12.4	13.1
Pre HE work < 1year	89 (.053)	48 (.054)	127 (.070)	68 (.050)	140 (.051)
Pre HE work > 1year	792 (.468)	265 (.296)	436 (.241)	340 (.249)	592 (.215)
No pre HE work	810 (.479)	583 (.651)	1248 (.689)	956 (.701)	2027 (.735)
Family Background					
HH' Head Blue Collar	578 (.342)	262 (.292)	515 (.284)	375 (.275)	709 (.257)
HH' Head Supervisor	263 (.156)	104 (.116)	228 (.126)	174 (.128)	325 (.118)
HH' Head Manager	657 (.387)	438 (.489)	892 (.493)	661 (.485)	1453 (.527)
Family Owned House	1311 (.775)	753 (.840)	1608 (.888)	1211 (.878)	2495 (.904)
HE Experience					
Distance degree	19 (.011)	11 (.012)	3 (.002)	0 (.000)	4 (.001)
Part-time degree	339 (.201)	65 (.073)	59 (.033)	29 (.021)	21 (.008)
Sandwich degree	130 (.077)	97 (.108)	204 (.112)	125 (.092)	287 (.104)
Full-time degree	1231 (.728)	735 (.823)	1585 (.875)	1235 (.905)	2503 (.907)
Sponsored degree	367 (.217)	107 (.119)	203 (.112)	98 (.072)	238 (.086)
University	791 (.468)	482 (.538)	976 (.539)	850 (.623)	1706 (.618)
Former Polytechnic.	644 (.381)	282 (.315)	663 (.366)	408 (.291)	788 (.286)
College	237 (.140)	88 (.098)	116 (.064)	73 (.054)	158 (.057)
Oxbridge	12 (.007)	32 (.036)	27 (.015)	23 (.017)	75 (.027)
Upper class degree	549 (.325)	369 (.412)	671 (.371)	601 (.441)	1231 (.446)
Lower class degree	824 (.487)	426 (.475)	954 (.527)	638 (.468)	1291 (.468)
Diploma	247 (.146)	67 (.075)	83 (.046)	47 (.035)	88 (.032)
Biology	121 (.072)	74 (.083)	167 (.092)	138 (.101)	254 (.092)
Agriculture	28 (.017)	15 (.017)	45 (.025)	20 (.015)	53 (.019)
Physical Sciences	170 (.101)	102 (.114)	250 (.138)	174 (.128)	394 (.143)
Maths	137 (.081)	86 (.096)	110 (.061)	108 (.079)	215 (.078)
Engineering	209 (.124)	138 (.154)	221 (.122)	178 (.131)	382 (.139)
Architecture	47 (.028)	32 (.036)	60 (.033)	42 (.031)	88 (.032)
Social Sciences	323 (.191)	142 (.159)	331 (.183)	224 (.164)	457 (.166)
Business Admin.	230 (.136)	88 (.098)	202 (.112)	141 (.103)	234 (.085)
Linguistics	148 (.088)	84 (.094)	181 (.100)	121 (.089)	313 (.113)
Humanities	219 (.130)	113 (.126)	211 (.117)	188 (.138)	303 (.110)
Post Graduate qualif.	465 (.275)	251 (.280)	345 (.191)	303 (.222)	724 (.262)
Home Region					
North	138 (.082)	28 (.031)	92 (.051)	92 (.067)	155 (.056)
Yorkshire & H'side	106 (.063)	32 (.036)	172 (.095)	126 (.092)	323 (.117)
East Midlands	109 (.065)	38 (.042)	137 (.076)	89 (.065)	210 (.076)
East Anglia	4 (.002)	1 (.001)	55 (.030)	55 (.040)	119 (.043)

	h-h	h-n	a-h	a-a	a-n
Greater London	153 (.091)	82 (.092)	257 (.142)	135 (.099)	335 (.121)
South East	412 (.244)	262 (.292)	418 (.231)	222 (.163)	455 (.165)
South West	113 (.067)	65 (.073)	179 (.099)	152 (.111)	282 (.102)
West Midlands	158 (.093)	69 (.077)	187 (.103)	141 (.103)	298 (.108)
North West	118 (.069)	66 (.074)	180 (.099)	186 (.136)	334 (.121)
Wales	130 (.077)	74 (.083)	65 (.036)	68 (.050)	143 (.052)
Scotland	250 (.148)	179 (.200)	69 (.038)	98 (.072)	105 (.038)
Study Region					
North			125 (.069)	77 (.057)	146 (.053)
Yorkshire & H'side			137 (.076)	59 (.043)	171 (.062)
East Midlands			120 (.066)	97 (.071)	152 (.056)
East Anglia			1 (.001)	1 (.001)	5 (.002)
Greater London			194 (.107)	209 (.153)	226 (.082)
South East			237 (.131)	230 (.169)	366 (.133)
South West			119 (.066)	63 (.046)	129 (.047)
West Midlands			345 (.191)	241 (.177)	595 (.216)
North West			300 (.166)	209 (.153)	576 (.209)
Wales			133 (.073)	58 (.043)	202 (.073)
Scotland			100 (.055)	120 (.088)	188 (.068)
Employment Region					
North		20 (.024)			88 (.031)
Yorkshire & H'side		37 (.045)			132 (.049)
East Midlands		32 (.039)			133 (.049)
East Anglia		28 (.034)			90 (.033)
Greater London		276 (.336)			951 (.352)
South East		112 (.136)			361 (.134)
South West		65 (.079)			153 (.057)
West Midlands		46 (.056)			177 (.066)
North West		48 (.059)			227 (.084)
Wales		11 (.013)			42 (.016)
Scotland		70 (.085)			67 (.025)
Employment					
Pay (5 years out)	£19,875.83	£21,330.61	£19,187.77	£19,602.76	£21,089.14
In FE/Unemp. 1 yr. out	364 (.215)	285 (.318)	537 (.297)	375 (.275)	827 (.300)
Over-educated 1 yr. out	998 (.590)	483 (.539)	1114 (.615)	757 (.555)	1381 (.501)

Notes:

- h-h are individuals who study and work in their home region.
- h-n are individuals who study in their home region, and migrate for work.
- a-h are individuals who study away and return to their home region to work.
- a-a are individuals who study away and work in their region of study.
- a-n are individuals who study away and migrate to a new region (i.e. not their home region) for work.