

Skill Specificity and Labor Mobility: Occupational and Sectoral Dimensions

By Robert J. R. Elliott* and Joanne Lindley**

Abstract

The ability of workers to change job, sector or occupation and the costs associated with a reallocation of labor is the subject of lively debate among academics. This paper examines occupational and sectoral dimensions of labor mobility in the UK between 1985-2000 using data from the *Labour Force Survey*. By addressing Neal's (1995) conclusion that "future research ... must confront the task of defining job categories that directly capture important skill specificities" we attempt to shed some light on the complex relationship between the flexibility of the labor market, the generality and specificity of skills and the ability of individuals to move between and within sectors as well as within and between occupations. Occupational skill specificity and previous sector of employment are shown to affect mobility jointly and individually. Absolute skill differentials also affect mobility with the less skilled exhibiting a greater propensity to change sector and occupation simultaneously.

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* Robert J. R. Elliott is a Lecturer in Economics in the School of Economic Studies, University of Manchester.

** Joanne Lindley is a Research Fellow in the Leverhulme Centre for Research on Globalisation and Economic Policy, University of Nottingham.

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1 Introduction

In recent years globalisation induced increases in competitive pressures have contributed to significant temporary and permanent shifts in UK production and employment patterns. The result is a renewed interest among academics and policy makers in the flexibility of the workforce, the ability of workers to change employment and the costs associated with a reallocation of labor in reaction to changes in economic circumstances.

This paper investigates occupational and sectoral dimensions of labor mobility using micro data on over 800,000 individuals from the UK *Labour Force Survey*. We shed light on the complex relationship between labor mobility, adjustment costs and the specificity of skills and in doing so make a first attempt to tackle the “task of defining job categories that directly capture important skill specificities” that Neal (1995, pg. 670) deemed desirable to extend research in this area.

Within the larger globalisation and labor mobility debate however, the study of the occupational and sectoral mobility of labor remains a relatively under researched area. Given the documented reluctance of British workers to migrate geographically in response to changes in demand (see e.g. Greenaway *et al.* 2002, Lindley *et al.* 2002 and others), occupational and sectoral mobility becomes the main mechanism by which demand shocks are absorbed by the economy.¹

Existing theories of occupational mobility include Sicherman and Galor (1992) who examine occupational mobility in the context of individual careers, human capital investment models such as Shaw (1987) and a variety of occupational matching models (see e.g. McCall 1990, Miller 1992 and Neal 1999). Empirically, Neal (1998, 1999), Greenaway *et al.* (2000) and Elliott and Lindley (2001) are four of the few studies to specifically investigate industrial and sectoral mobility where

¹ The majority of labor mobility studies tend to concentrate on regional or geographical mobility (see e.g. Jackman and Savouri 1992, McCormick 1997, Henley 1998 and Shelburn and Bednarzik 1993).

the latter examines within and between industry moves controlling for broad occupational classifications.²

As different sectors have different average costs, technologies and degrees of competition and likewise that different occupations have different training requirements, supply constraints and wage rates, it is expected that the mobility or gross turnover of labor will vary by sector and occupation. Using definitions sympathetic to those employed in this paper, Parnes (1954) and later Neal (1999) attempt to examine skill and occupation specificity via a discussion of the “complexity” of labor mobility. ‘Complex’ moves are assumed to encompass an occupation and sector move whereas a ‘simple’ move can mean one of two events; first, a worker changes sector but continues to do the same type of work (same occupation) or second, they change occupation but stay in the same sector (due possibly to a promotion or demotion).

In his study of the specificity of human capital Neal (1995) demonstrates that workers receive compensation for some skills that are neither general nor firm-specific but rather are specific to their industry. He concludes that the greater the skill specificity the higher the adjustment cost associated with an inter-sectoral or inter-industry move is likely to be. We apply similar arguments to the effect or combined effect of the specificity of occupational skills in conjunction with sector specific skills. At this more general level Thomas (1996) suggests that the manifestation of greater human capital specificity is longer in periods of unemployment and Jacoby (1983) to argue that greater human capital specificity has led to a decline in overall job mobility in the twentieth century. We touch on the latter of these issues later in the paper.³

² One recent development in this field is the study of occupational mobility and structural change in transitional economies (see e.g. Jackson and Repkin 1997, Faggio and Konings. 1998, Sabirianova 2000 and Bell 2001). The main exception to the relative dearth of research in this area is the strand of the literature that follows Lilien (1982) and examines whether a positive relationship exists between sectoral mobility and aggregate unemployment fluctuations as suggested by the sectoral shift hypothesis of mandatory search unemployment (see e.g. Abraham and Katz 1986 and Brainard and Cutler 1993).

³ Shaw (1984) demonstrates that occupational skills are also an important determinant of earnings. Podgursky and Swaim (1987), Addison and Portugal (1989) and Haynes *et al.* (2002) also examine the relationship between earnings and mobility and in general demonstrate that industry movers suffer greater earning losses than stayers. Jacobson *et al.* (1993) estimate that an individual’s average lifetime loss from displacement is around \$80,000. These results have led to significant interest from policy makers looking to ease the

The actual affect on the economy of the adjustment costs associated with different types of mobility are also likely to depend in part, on which section of the labor force these pressures manifest themselves. If the pressure to find new employment (whether the individual is currently employed or unemployed) is felt most strongly among the low skilled and least qualified for example, the result may be longer periods of under employment, unemployment or a relative decline in long-term wages (see Lawrence and Slaughter 1993 and Addison *et al.* 1995). This argument however, is based on the proposition that highly qualified and highly skilled workers are more mobile.⁴

There is evidence however that the most mobile workers tend to be the young and less-skilled (Elliott and Lindley 2001). If the pressure for labor to reallocate is absorbed primarily by low skilled and unqualified workers then the adjustment costs, in terms of lost wages and lost occupation and sector specific skills, may be lower than if high skilled workers endowed with skill specificity are forced to move. The overall adjustment costs therefore, may be lower than those predicted by Davidson and Matusz (2001) and others.⁵

Using micro labor data for the UK between 1985 and 2000 the contribution of this paper is two fold. After first documenting changes in occupational, sectoral and regional labor mobility we then break down worker moves into simple sector or occupation moves and complex moves where workers simultaneously change both sector and occupation. One observation is that relative to the number of workers who move sector and/or occupation the actual number of workers that move region is

perceived adjustment burden with policies that include wage subsidies to displaced workers; bonus payments to the unemployed who quickly find new employment; job search assistance and government sponsored training schemes. Finally, in a related literature Nickell (1982) and Connolly *et al.* (1992) investigate aspects of occupational success in Britain.

⁴ Economic theory tells us that within a country, labor should be free to relocate until the wage differential exactly compensates for the utility change experienced by the marginal locating worker. If the tastes, costs of living and labor endowments of individuals are identical and labor is perfectly mobile across the economy, then wage differentials would be fully compensating and welfare equalised. Labor mobility between sectors and occupations is however, seemingly imperfect as evidenced by continued wage differentials and long and short term unemployment.

⁵ Davidson and Matusz (2001) estimate that when the cost of retraining is taken into account adjustment costs may be as high as ten to fifteen percent of the long run benefits of trade liberalisation but go on to state that

three of four times smaller. We also examine the proportion of skilled to less-skilled workers and support Bruinshoofd and Ter Weel's (1998) observation that the proportion of high skilled labor has increased. In addition, over and above the expected relationship between the propensity of an individual to move job and the growth rate of the economy we also observe significant differences in the relationship and individual characteristics of those who make alternative mobility decisions between our simple and complex definitions of a move.

Our second contribution is to investigate the little researched question of how occupation *and* sector specific skills affect the ability of an individual to move in response to reallocation pressures. By including interaction terms we are also able to estimate the joint effect of occupation and sector specific skills. Using multinomial logit estimates we investigate the relative importance of accumulated human capital (academic, occupational and sectoral) in explaining the variation of employment flows and whether there are any implications for existing estimations for the costs of labor adjustment. Our results suggest that workers with different skills are mobile in different ways. For example, it is the lower qualified and less-skilled manual workers employed in the secondary sector that are more likely to move occupation and sector simultaneously. This implies that adjustment costs may not be as severe as first thought. The fall in the proportion of less-skilled workers however, could imply a future decline in the flexibility of the labor market (and increased costs) as more pressure is applied to those workers with a high degree of skill specificity. Policies aimed at increasing labor market flexibility need therefore, to be carefully targeted.

This paper is organised as follows. Section 2 provides a discussion of econometric considerations while Section 3 describes the trends in occupational and sectoral reallocation patterns as well as providing employment shares and individual characteristic means. Section 4 presents the results from a multinomial logit estimation whilst the final section concludes.

these can rise to thirty to ninety percent of the long run gains if the resource costs of this retraining is also taken into account.

3. Econometric Considerations

The econometric model is derived from the principles of a simple matching model. Assume that the probability of an individual moving sector or occupation in a given time period is decreasing in the quality of the current firm-worker match and in the costs of moving. Workers and employers are aware that the likelihood of a match will be higher if the worker is employed in a similar sector or occupation so that the likelihood of a match will be greater for within-sector or within-occupation moves than for between-sector or between-occupation moves. This occurs because of sector and occupation specific and generic skills. Grossman & Shapiro (1982) state that the quality of a prospective match will be a function of job-specific and general skills. Job specific skills increase the value of the existing match, whilst general skills raise the quality of all matches. Comparing sector and occupation specific skills one would expect the former to raise the quality of intra-sectoral matches, whilst occupation specific skills will raise the quality of intra-occupational matches. General skills will raise the quality of both intra-sectoral and intra-occupational matches.

The current model incorporates a four regime multinomial logit specification distinguishing between those who move occupation and stay in the same sector ($m=2$), those who move sector and stay in the same occupation ($m=3$), those who move both occupation and sector ($m=4$) with a residual category containing those who have not moved either occupation or sector ($m=1$). These four alternatives are mutually exclusive.

The latent variable Y_m^* takes one of the four discrete values, $m = 1,2,3$ and 4. A transition m occurs when $Y_{im}^* > 1$, where i is the individual. The determination of the value of the underlying latent variable for each alternative is therefore

$$Y_{im}^* = Z_{imk} \mathbf{b}_{mk} + \mathbf{e}_{im} \quad (1)$$

where Z_{imk} includes information on k regressors. To highlight the interdependency between human capital and labor mobility we attempt to include different kinds of human capital acquired which improve the likelihood of a match between employer and employee. Hence, we distinguish between general skills, occupation specific skills and sector specific skills. We measure general skills using academic qualifications, occupation specific skills using occupation prior to the move and sector specific skills using sector of employment prior to the move. We also include interaction terms to capture any joint relationship between skills that may be specific to certain combinations of sector and occupation. Socio-economic characteristics (housing ownership, region of residence, marital status, age and sex) are included to measure the costs of moving.

Following McFadden (1973), we assume that e_{im} is extreme value distributed. It follows then that the probability P_{ir} of belonging to any regime $r \in m$, is given by

$$P_{ir} = \frac{\exp(Z_{ik} \mathbf{b}_{rk})}{\sum_{m=4} \exp(Z_{ik} \mathbf{b}_{mk})}, \quad m = 1, 2, 3, 4 \quad (2)$$

where the condition $\mathbf{b}_{1k} = 0$ is imposed to identify the other parameters in the equation.

3. Data and Descriptive Statistics

3.1 Data and Definitions

We use micro data for males and females taken from the *Annual Labour Force Survey* for the period 1985-1991 and Spring quarters of the *Quarterly Labour Force Survey* for 1992-2000. The main advantage of the *LFS* is that it contains a large sample of individuals so we are able to work at high levels of disaggregation and still achieve sufficient cell sizes (not possible with the *British Household Panel Survey* for example). The pooled 1985-2000 sample contains information on

816,544 male and female working age respondents that were both employed at the time of the survey and also employed 12 months prior to the survey.⁶

In the annual *LFS* and the Spring-quarter of the *QLFS*, all individuals are asked questions about their circumstances 12 months prior to the survey. Included are questions on economic activity such as employment status, sector of employment and occupational status. This information enables us to construct our measure of labor mobility as a dichotomous transition variable.

Given our emphasis on skill specificity and mobility our interpretation of what constitutes “skills” is important. As Shaw (1987, pg. 703) states “... the [...] problem associated with studying occupational change is that a broad theoretical model of change is inherently difficult to measure, due to the very idiosyncratic nature of occupational skills”. While the OCED define skills “as the qualifications needed to perform certain tasks in the labor market” (OCED, 1996 pp. 82), Wolff (1995) extends this definition and adds that “skill” is a multi-dimensional concept that includes physical abilities, numerical and verbal abilities and inter-personal and cognitive skills.

Part of our solution of how to define skills relies on our choice of aggregation level for occupation and sector. The more detailed our definitions of an occupation the more accurately we will be measuring the subtle differences in skill requirements across occupations. Our aggregation choices apply to regions, sectors and most importantly for this paper, occupations. Throughout this paper we employ occupation and sector definitions based on the Standard Occupation Classifications 1980 (SOC80) and the Standard Industrial Classification 1980 (SIC80) respectively.⁷ Taking the 171 three-digit SOC80 occupation codes we then regroup them according to a slight modification of

⁶ The *LFS* began in 1973 as a biennial continuous survey as part of Britain’s obligations on joining the European Union. The survey became annual in 1983 and has been quarterly since 1992. The *QLFS* is a pseudo panel that follows the same individuals for five consecutive quarters. It currently includes a representative sample of approximately 60,000 households. Our sample is restricted to employees and excludes the self-employed. Including only those respondents with no missing covariates means our final sample consists of 810,234 individuals (see Table A1 in the data appendix).

a classification in Dolton and Kidd (1998) (hereafter to be known as the DK classification) where each three-digit code is recoded into one of 43 categories. This classification is also used by the Department of Employment in their official coding of data.⁸ A *sector* is defined as the one-digit level of the SIC80 and includes the ten sectors described in Table A2 of the data appendix. To our knowledge no existing work employs this level of occupational disaggregation. One reason is that, given cell size considerations, the numbers of movers in any given year would be too small. To obtain sufficiently large sample sizes by detailed occupation therefore it is necessary to pool the *LFS* over our sample.⁹

An employed respondent who has moved sector, occupation or both during the 12 months prior to the survey is coded as a ‘mover’. An individual who has not moved sector or occupation is coded as a ‘stayer’. In the broadest sense we consider all moves to be a form of labor market mobility that incurs by definition some degree of short-run adjustment cost.

To generate our transition variable an individual is classified as a simple occupation mover (SS, NO) if they have remained in the same sector but moved to a new occupation. An individual is known as a simple sectoral mover (NS, SO) if they have moved to a new sector but remained employed within the same occupation. Finally an individual is classified as a complex sector occupation mover (NS, NO) if they have moved to a new occupation and a new sector. This categorisation is summarised as a simple transition system in Figure 1.¹⁰

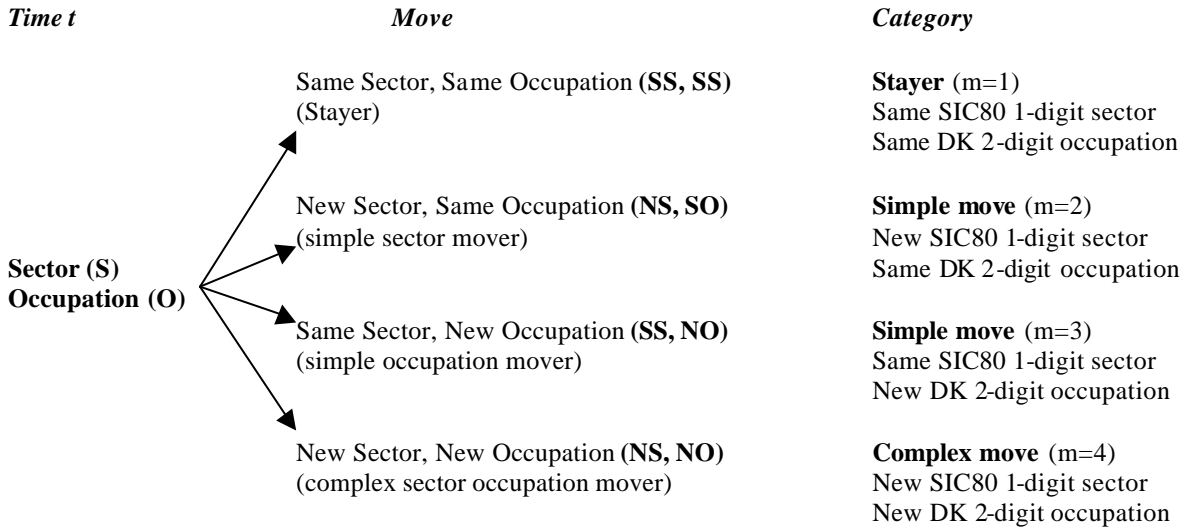
⁷ A description of the SOC80 three-digit codes can be found in Volume 5: LFS Classification or at <http://www.data-archive.ac.uk/doc/4547/mrdoc/pdf/c33246na.pdf> and SIC80 one-digit codes are provided in Tables A2 in the data appendix.

⁸ A detailed breakdown of the DK classification is provided in Table A3 in the data appendix while Table A4 provides details our one-digit modifications.

⁹ The analysis in this paper was undertaken using a number of different occupational classifications and levels of disaggregation including our own and other published classifications. The results were broadly similar but for reasons of consistency and comparability we employ the modified (at the one and three-digit level) Dolton and Kidd (1998) classification.

¹⁰ Although our approach is one of the most disaggregated available we acknowledge that we are not picking up more subtle forms of labor mobility that effect true adjustment costs such as intra-firm changes in responsibility or a move onto a different production line within a given firm. This paper concentrates on moves between jobs. Elliott and Lindley (2001) consider moves into and out of unemployment.

Figure 1. Occupational and Sectoral Mobility



Simple occupation moves (SS, NO) are estimated separately from other moves in order to control for career mobility. We hypothesise that since these are simple occupation moves they will contain promotions and demotions as well as horizontal occupational moves within a sector. Such moves do not incur a loss of sectoral skills. Simple sector moves (NS, SO) are also isolated and measure mobility within occupations but between sectors that although involving a loss of sectoral skills do not incur any loss of occupational skills. Finally, complex sector occupation moves (NS, NO) can be considered a truer measure of the flexibility of the UK labor market and are potentially the most costly in terms of adjustment since they involve the possible loss of occupation-specific and sector-specific skills. The actual cost depends on the characteristics of the workers who are making these moves, their attendant skills and the comparison between the requirements of the new job relative to the old.

3.2 Descriptive Statistics

Table 1 presents employment shares by occupation and sector for the period 1985-2000. As well as notable differences between professions there is also a clear split between skilled and less skilled workers. Professions commonly described as skilled such as ‘Teachers’, ‘Engineers’, ‘Scientists’, ‘Technical workers’, ‘Managerial and Sales’, ‘Legal, Financial and Economists’, ‘Social Scientist

and Health workers' and 'Welfare workers' demonstrate generally increasing employment shares over the period. Employment in 'Legal, Financial and Economist' professions for example increased from 1454 respondents (2.81 percent) in 1985 to 2120 respondents (4.60 percent) in 2000. In contrast, the relatively less skilled professions such as 'Clerical and Related', 'Selling and Catering', 'Manual' and 'Other' demonstrate generally declining employment shares. The most notable of these is for 'Manual' workers, where employment fell from 14433 respondents (27.92 percent) in 1985 to 9153 respondents (19.87 percent) in 2000. Figure 1 reveals the extent of the trend towards employment in so called skilled professions by plotting the percentage of skilled and less-skilled workers over our period. This trend in employment patterns is consistent with Bruinshoofd and Ter Weel (1998) where it appears that sectors are increasing their share of high skilled workers at the expense of the lower skilled.¹¹

Table 2 provides employment shares and column percentages by one-digit SIC80 sector. Again there appears to be a clear distinction between the different types of sector. The *primary* sector that consists of 'Agriculture, Forestry and Fishing', 'Energy and Water' and 'Minerals, Metals and Chemicals' sectors that show a moderate decline in their employment shares between 1985-2000. For example, there were 1980 (3.83 percent) respondents employed in 'Minerals, Metals and Chemicals' in 1985, compared with 1171 (2.54 percent) in 2000. Secondly, the *secondary* sector consisting of 'Metal Goods, Engineering and Vehicles', 'Other Manufacturing' and 'Construction' sectors show a more serious decline. Employment in 'Other Manufacturing' for example fell from 5931 (11.47 percent) in 1985 to 3494 (7.58 percent) in 2000. Finally, the *service* sector consisting of the 'Distribution, Hotel and Catering', 'Transport and Communication', 'Banking, Financial and Business' and 'other Services' sectors demonstrate increasing employment shares. Figure 2 summarises these findings by plotting primary, secondary and service sector employment shares over the period.

¹¹ Table A5 of the data appendix provides a precise definition for skilled and less-skilled professions that are also used as summary categories for the characteristic means in Table 3 and our multinomial logit estimates in

Figure 3 goes beyond simple employment shares by plotting the proportions of regional, sectoral and occupational movers by year. The first observation is that occupational and sectoral mobility are significantly greater than regional with the percentage of individuals moving occupation in any one year ranging between four and eight percent (always over and above regional mobility that ranges between one and two percent). This evidence is consistent with both Greenaway *et al.* (2002) and Lindley *et al.* (2002). After 1988 figure 3 shows that occupational mobility was higher than sectoral mobility although both seem follow a similar cyclical trend. The cyclicity in the trends of our series seem to follow the general business cycle with peaks at the height of the booms in 1989 and 1999 and a trough in 1993 (this trend is less pronounced for regional mobility).

We now look more closely at occupational and sectoral moves and distinguish between our three transition groups. Figure 4 plots separately actual average mobility rates for simple occupation moves (SS, NO), simple sector moves (NS, SO) and complex sector occupation moves (NS, NO). Time-variant differences in the type of move are now apparent. All average moves demonstrate some cyclicity, although simple sector (NS, SO) moves occur the least often and are the least volatile meaning that the transfers of occupations between sectors remain fairly stable over the period. However, complex sector occupation (NS, NO) moves appear to be hypercyclical to simple occupation (SS, NO) moves, since the former involves a deeper trough in 1993 and higher peaks in 1990 and 1999. This suggests that *complex* moves are more responsive to fluctuations in demand so individuals are more likely to change sector and occupation rather than just sector.

Finally in Table 3 we compare key mean characteristics of the raw data for our three different types of movers. All means are unweighted. These include age and qualifications, occupation (profession) and sector of employment prior to the move (at $t-1$) as well as sector/occupation interaction terms. We include both one-digit and summary groupings for sectors and occupations as well as the interactions between the summary groups. In the absence of tenure information at $t-1$, we assume that age contains both age and tenure effects. Highest qualifications are banded into

Table 4.

three mutually exclusive groups. The respondent will have either 'Higher', 'Further', 'Other' or 'None' as the highest qualification attained.¹²

The first column in Table 3 provides sample unweighted means and standard deviations for 741,870 stayers (SS, SO). These are respondents who have not moved occupation (at the DK two-digit occupational level) or sector (at the one digit SIC80 sectoral level) and therefore act as a benchmark. The second column refers to 27,039 simple occupation (SS, NO) movers, the third column refers to the 15,211 simple sectoral movers while the fourth column refers to the 26,114 sector and occupation movers. Table 3 reinforces the evidence from figure 4 and shows that when an individual does change sector it appears that they are more likely to change occupation at the same time. Figures in **bold** are where the mean in columns two, three or four is greater than that for stayers in column one. The first point to note is that it seems that there are significant differences between the final three columns.

We now compare the unweighted sample means across all four columns, specifically comparing the mean for stayers with the equivalent mean from the other three columns. For example, the mean age for stayers (SS, SO) is 38.8 years old and as expected this is higher than the age for simple occupation (SS, NO) movers and simple sector (NS, SO) movers with ages of 33.57 and 33.23 years respectively. The youngest average age of 31.7 years was for complex moves (NS, NO). Comparing the sample means for highest qualification attained shows that only increased simple occupational (SS, NO) mobility is linked to the highest level of academic achievement. We suspect this is picking up moves related to promotion and demotion as well as within sector horizontal occupational moves. Only 'Other' as the highest qualification however is associated with simple sector (NS, SO) moves although 'Other' is also associated with greater complex sector occupational (NS, NO) and simple occupational (SS, NO) mobility. The raw data suggests that those with highest qualifications as 'Higher' or 'Further', as well as those with no qualifications, are less likely

¹² See Table A6 in the data appendix for definitions of personal characteristic and human capital variables.

to move between sectors both within and between occupations (columns three and four) and suggests that 'Other' vocational qualifications may significantly enhance sectoral mobility.

Turning to prior occupation of employment, a comparison of the first and the second columns shows 'Engineers', 'Technical workers', 'Managerial and Sales', 'Legal, Financial and Economists', 'Clerical and related', 'Selling and Catering' and 'Other' occupations to be associated with increased simple occupational (SS, NO) mobility. Of greater interest however, is to compare the third and fourth columns, since these demonstrate important differences between those who change sector but remain in the same occupation and those that change both. Broadly speaking it is the skilled occupations ('Engineers', 'Technical workers' and 'Legal, Financial and Economists') that make simple sector (NS, SO) moves, although non-manual less-skilled workers ('Clerical and related' and 'Selling and Catering') are also over-represented in this category. In comparison, it is less-skilled workers ('Selling and Catering', 'Manual' and 'Other') that can be associated with complex sectoral occupational (NS, NO) mobility. When we consider the broad occupation classifications 'unskilled manual' seem less likely to make simple moves but are more likely to make complex moves. 'Skilled professionals' on the other hand are less likely to move at all and are the most immobile group.

Finally, consider the characteristic means of the sectors of employment prior to a move. Comparing the first and the second column shows more simple occupation (SS, NO) moves in the 'Metal Goods, Engineering and Vehicles', 'Distribution, Hotel and Catering' and 'Banking, Financial and Business' sectors suggesting that these sectors provide the best scope for career mobility. Furthermore, the second column shows that workers in most sectors ('Energy and Water', 'Minerals, Metals and Chemicals', 'Metal Goods, Engineering and Vehicles', 'Other Manufacturing', 'Construction', 'Distribution, Hotel and Catering', 'Transport and Communication' and 'Banking, Financial and Business') tend to be simple sector movers (NS, SO), rather than stayers. It seems that it is generally workers from *secondary* sectors that tend to be associated with simple sector moves, with 'Distribution, Hotel and Catering' being one exception. The 'Other

Manufacturing' sector for example has a sample mean for complex sector occupation moves (NS, NO) of 0.12 compared to 0.09 for stayers. For the broad sectoral categories there is a clear difference between the service sector and the others with service sector employees more likely to move sector but stay in the same occupation (two examples maybe lorry drivers or secretaries whose general job remains the same whichever sector their place of work is located).

In short, it seems that skilled workers tend to move between sectors without changing occupation, in contrast to less-skilled workers who are more likely to change sector and occupation. Table 3 however also shows that some skilled professions ('Engineer', 'Technical worker' and 'Legal, Financial and Economist') and non-manual less-skilled professions ('Clerical and related' and 'Selling and Catering') are more mobile between sectors than other professions. Finally, of all the ten sectors, it is 'Agriculture, Forestry and Fishing', 'Other Manufacturing', 'Construction' and 'Distribution, Hotel and Catering', that are the most strongly associated with *complex* moves. For both *simple* and *complex* sectoral moves, the important distinctions appear to be between skilled workers, less-skilled manual workers and less-skilled non-manual workers, as well as between primary, secondary and service sectors pointing to a strong inter-relationship between sector and occupation. To understand the complexity of these relationships it is necessary to undertake a multivariate analysis.

4. Empirical Results

Table 4 provides cross-sectional multinomial logit marginal effect estimates for our three mover regimes, where year dummies are included to control for changes over time.¹³ On the basis our descriptive results, our multinomial logit includes our four composite skill groups (skilled managers, skilled professionals, less-skilled manual and less-skilled non-manual workers) as well as are composite sectors (primary, secondary and service sectors). We also include interaction terms.

These interact skill groups with sectors of previous employment and therefore measure the marginal impact of occupational skills separately by sector, over and above the individual skill group and sectoral effects.¹⁴

The default category are married male, non-home owners, living in the North or North East, born in the UK, with no qualifications, employed as a less-skilled manual worker, in the secondary sector, sampled in the 1995 Spring quarter of the *QLFS* and has not moved occupation and/or sector. The first column refers to simple occupation moves (SS, NO), the second column to simple sector moves (NS, SO) and the final column to complex sector occupation moves (NS, NO). The predicted average probabilities are consistent with the actual average mobility rates in Figure 3, since complex sectoral occupational mobility is more likely than simple sectoral mobility. A χ^2 likelihood ratio test for the joint hypothesis of coefficient equality across the three regimes, suggests that the null hypothesis of common slope coefficients is rejected and provides statistical evidence that the determinants of the three mobility regimes differ.¹⁵

We now discuss the key results concerning qualifications, occupational skills and sector of employment prior to the move. To identify differences in the skills required to make each type of move, we compare key marginal effects across the three columns. For simple occupational mobility (SS, NO), relative to those who have no qualifications, the 'highest qualification' variables have a positive and significant effect on mobility that increases the higher the qualification attained. For example, having a 'Higher' qualification as the highest attained implies a 1.24 percentage point increase on simple occupational mobility, relative to those who have no qualifications. For simple sectoral mobility (NS, SO), highest qualifications again have a positive and significant effect, which

¹³ The marginal effects for dummy variables are computed for incremental changes from the mean. They are not computed for a discrete change in probability as dummy variables go from 0 to 1. Greene (1999) claims that this difference is usually very small and can therefore be ignored.

¹⁴ Due to problems of small cell sizes it was not possible to interact one-digit sectors and one-digit occupations as for example, it is likely that there would be no teachers in the mining sector. Hence, we concentrate on broad categories for our regression analysis. Table A7 of the data appendix provides the *mlogit* results without the aggregation of the occupation and sector variables and therefore also without the interaction terms.

is increasing with highest qualification attained. However, the marginal effects are now much smaller. Having a higher qualification as highest implies a 0.546 percentage point increase on simple sectoral mobility. More importantly, for complex moves (NS, NO), highest qualifications have a negative impact on mobility. Furthermore, there is no statistically significant effect for those with 'Other' as their highest qualification. This suggests that workers with high levels of general skills embodied in degree-level qualifications are more likely to make *simple* moves. Conversely, less qualified workers are more mobile between sectors and occupations and suggests that less-qualified workers provide a pool of mobile workers that are able to react quickly to national and international demand shocks.

The variables included to capture occupation-specific skills tell a similar story. Relative to less-skilled manual workers, all other workers are more likely to make *simple* occupation (SS, NO) and simple sector (NS, SO) moves. Skilled managers are one exception, since they are not significantly different to less-skilled manual workers in terms of simple sectoral mobility. The opposite holds for *complex* moves. Skilled workers and less-skilled non-manual workers are less mobile between occupations and sectors, than are manual workers. For example, skilled professionals are 1.02 percentage points less likely to make *complex* moves than less-skilled manual workers. So workers with high levels of occupational skills (such as professionals) and non-manual less-skilled workers, are more likely to make *simple* moves and less likely to make *complex* moves, compared to less-skilled manual workers.

The sector-specific skill variables indicate that workers previously employed in the service sector are more likely to make simple moves (both simple occupation and simple sector moves), relative to secondary sector workers. However, service sector workers are not more likely to move sector when this is between-occupation. Only primary sector workers are more likely to make *complex* moves, relative to all secondary sector workers.

¹⁵ See the notes to Table 4.

The interaction terms in the first two columns demonstrate that all service sector workers (skilled and less-skilled non-manual workers) are less likely to make *simple* moves, than are their secondary sector counterparts. The final column shows that skilled professionals and less-skilled non-manual workers are also less likely to make *complex* moves than their counterparts in the secondary sector. In short, it is less-skilled manual workers that are more likely to make *complex* moves, although all secondary sector workers (except managers) are more likely to make *complex* moves, than those in the service sector.

5. Discussion

This paper suggests that occupational and sectoral labor flexibility are important aspects of an economy's response to demand shocks, a factor that is reinforced by the relatively low levels of geographical mobility in the UK. The relationship between occupational and sectoral mobility however is not straightforward and requires an understanding of the complex relationship between generic and sector/occupation specific skills. At a general level we demonstrate that the proportion of skilled workers in the economy is increasing at the same time as the proportion of workers employed in the service sector (secondary sector) is growing (shrinking).

When worker moves are decomposed into different simple moves and complex moves it becomes clear that there are distinct differences in the characteristics of the individuals who chose to move just sector or occupation and those who change both at the same time. Our multinomial logit estimations reveal that it is the less qualified, lower skilled manual workers that tend to make *complex* moves, whilst higher qualified skilled workers tend to make *simple* moves within occupations and between sectors (due in part to aspects of career development via promotion or demotion). Interacting the two sets of skills enabled us to estimate the effect of sector and occupation specific skills singularly and jointly on the ability of an individual to change jobs where it seems that the lower qualified and less-skilled manual workers employed in the secondary sector that those that are most likely to move occupation and sector simultaneously. Policies aimed at

increasing labor market flexibility need therefore, to be carefully targeted. Given that employment shares for the less-skilled professions are falling, such a result implies a potential short fall in that section of the work force that is able to react most quickly to the changing competitive environment.

Perhaps it is not surprising that it is skilled professionals that are less likely to change sector and occupation (due in part to their significant investment in their current specific human capital) although a degree of immobility also seems to prevail for some non-manual less-skilled workers. Less-skilled non-manual occupations (mainly ‘Clerical and related’) for example are also less likely to make complex moves leaving the less-skilled non-manual workers as the group most likely to make sector occupation moves.¹⁶

In sum, this paper has demonstrated that the relationship between skill specificity, mobility and adjustment costs involves a number of complex subtleties that warrant future investigation. Different combinations of sector and occupation and general qualifications have different policy implications for controlling the adjustment costs associated with labor reallocation pressures. The prevalence of the low skilled and the young among the complex mover group does however suggest that the magnitude of the adjustment costs may be lower than at first feared.

¹⁶ This research also touches on issues related to the knowledge worker hypothesis that suggests that professionals and less-skilled non-manual workers in the service sector are less likely to move between occupations and sectors than secondary sector professionals and less-skilled workers

**Table 1: Employment Shares by Occupation (based on the modified DK Classification).
(% in brackets)**

Occupation	1985	1986	1987	1988	1989	1990	1991	1992
Teacher	2351 (4.55)	2236 (4.26)	2249 (4.39)	2353 (4.39)	2345 (4.23)	2479 (4.57)	2453 (4.62)	2421 (4.72)
Engineer	862 (1.67)	1010 (1.92)	867 (1.69)	919 (1.71)	1000 (1.80)	909 (1.68)	913 (1.72)	984 (1.92)
Scientist	242 (0.47)	251 (0.48)	328 (0.64)	286 (0.53)	327 (0.59)	291 (0.54)	287 (0.54)	319 (0.62)
Technical	2111 (4.08)	2182 (4.15)	1977 (3.86)	2013 (3.75)	2174 (3.92)	2270 (4.19)	2248 (4.23)	2228 (4.35)
Managerial or Sales	6350 (12.28)	6528 (12.42)	5964 (11.64)	6647 (12.40)	6910 (12.46)	7062 (13.02)	8186 (15.41)	8347 (16.28)
Legal, Financial or Economist	1454 (2.81)	1565 (2.98)	1695 (3.31)	1875 (3.50)	1943 (3.50)	2168 (4.00)	1964 (3.70)	2005 (3.91)
Social Scientist or Health	2662 (5.15)	2813 (5.35)	2561 (5.00)	2609 (4.87)	2775 (5.00)	2673 (4.93)	2430 (4.58)	2326 (4.54)
Welfare Workers	893 (1.73)	981 (1.87)	1048 (2.05)	1228 (2.29)	1315 (2.37)	1404 (2.59)	2289 (4.31)	2526 (4.93)
Clerical & Related	8525 (16.49)	8336 (15.87)	8990 (17.55)	9388 (17.51)	9694 (17.48)	9743 (17.97)	7986 (15.04)	7465 (14.56)
Selling & Catering	9050 (17.50)	9347 (17.79)	8879 (17.34)	9355 (17.45)	9654 (17.40)	8883 (16.38)	8666 (16.32)	8526 (16.63)
Manual	14433 (27.92)	14467 (27.53)	13947 (27.23)	14222 (26.530)	14482 (26.11)	13709 (25.28)	13058 (24.59)	11603 (22.63)
Other	2767 (5.35)	2826 (5.38)	2711 (5.29)	2714 (5.06)	2850 (5.14)	2630 (4.85)	2632 (4.96)	2519 (4.91)
Total	51700	52542	51216	53609	55469	54221	53112	51269

**Table 1 Cont: Employment Shares by Occupation (based on the modified DK Classification).
(% in brackets).**

Occupation	1993	1994	1995	1996	1997	1998	1999	2000	Total
Teacher	2494 (4.85)	2580 (5.18)	2436 (5.01)	2474 (5.11)	2413 (5.06)	2396 (5.02)	2467 (5.21)	2367 (5.14)	38514 (4.75)
Engineer	980 (1.91)	882 (1.77)	892 (1.84)	919 (1.90)	914 (1.92)	922 (1.930)	949 (2.00)	942 (2.04)	14864 (1.83)
Scientist	300 (0.58)	288 (0.58)	285 (0.59)	270 (0.56)	255 (0.53)	273 (0.570)	290 (0.61)	261 (0.57)	4553 (0.56)
Technical	2159 (4.20)	2071 (4.16)	2106 (4.33)	2028 (4.19)	2052 (4.30)	1971 (4.13)	2075 (4.38)	2063 (4.48)	33728 (4.16)
Managerial or Sales	8802 (17.11)	8735 (17.55)	8471 (17.43)	8394 (17.34)	8369 (17.55)	8439 (17.67)	8237 (17.39)	8076 (17.53)	123517 (15.24)
Legal, Financial or Economist	2099 (4.08)	2069 (4.16)	2096 (4.31)	2163 (4.47)	2177 (4.57)	2180 (4.57)	2155 (4.55)	2120 (4.60)	31728 (3.92)
Social Scientist or Health	2422 (4.71)	2501 (5.02)	2312 (4.76)	2448 (5.06)	2449 (5.14)	2422 (5.07)	2353 (4.97)	2388 (5.18)	40144 (4.95)
Welfare Workers	2746 (5.34)	2769 (5.56)	2759 (5.68)	2921 (6.03)	2998 (6.29)	3039 (6.360)	3149 (6.65)	3178 (6.90)	35243 (4.35)
Clerical & Related	7374 (14.34)	7118 (14.30)	6937 (14.27)	6829 (14.11)	6752 (14.16)	6737 (14.11)	6727 (14.20)	6366 (13.82)	124967 (15.42)
Selling & Catering	8487 (16.50)	8136 (16.34)	7998 (16.45)	7900 (16.32)	7477 (15.68)	7413 (15.52)	7385 (15.59)	7203 (15.63)	134359 (16.58)
Manual	11110 (21.60)	10375 (20.84)	10022 (20.62)	9797 (20.24)	9698 (20.34)	9818 (20.56)	9480 (20.01)	9153 (19.87)	189374 (23.37)
Other	2457 (4.78)	2259 (4.54)	2295 (4.72)	2266 (4.68)	2124 (4.45)	2139 (4.48)	2098 (4.430)	1956 (4.25)	39243 (4.84)
Total	51430	49783	48609	48409	47678	47749	47365	46073	810234

Figure 1. Employment Shares for Skilled and Less-skilled workers.

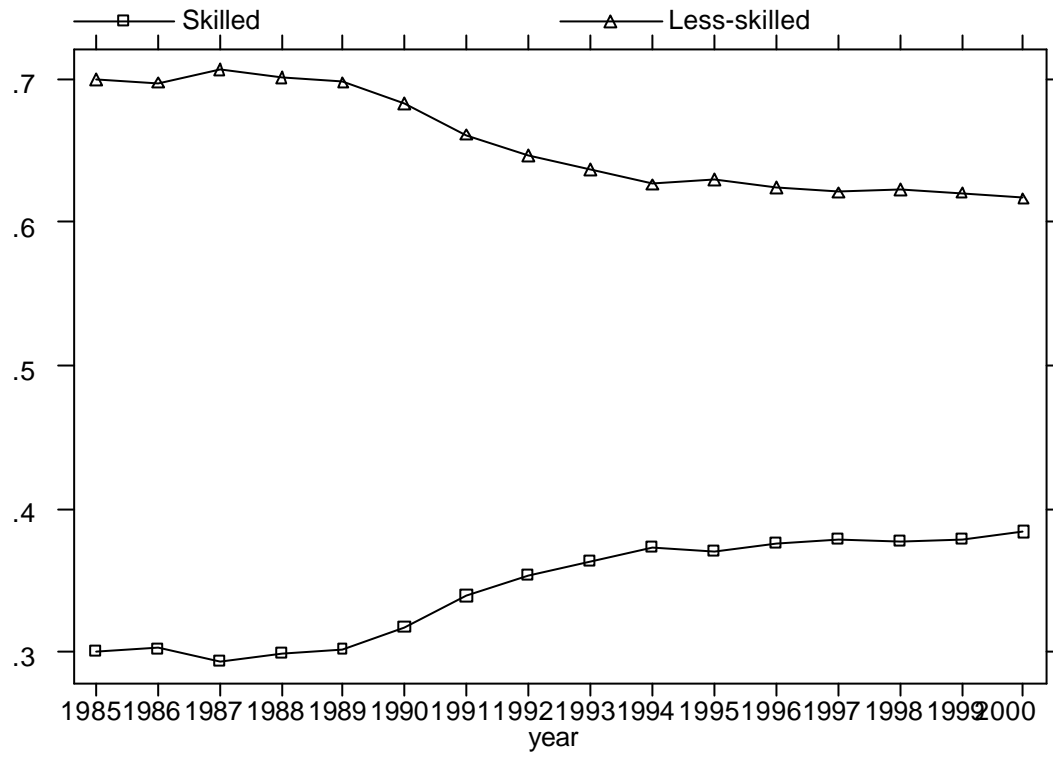


Table 2: Employment Shares by SIC80 Sector, 1985-2000. (% in brackets)

Sector	1985	1986	1987	1988	1989	1990	1991	1992
Agriculture, Forestry & Fishing	691 (1.34)	628 (1.20)	642 (1.25)	636 (1.19)	658 (1.19)	615 (1.13)	607 (1.14)	503 (0.98)
Energy & Water	1651 (3.19)	1682 (3.20)	1502 (2.93)	1490 (2.78)	1501 (2.71)	1505 (2.78)	1400 (2.64)	1273 (2.48)
Minerals, Metals & Chemicals	1980 (3.83)	2088 (3.97)	1814 (3.54)	1952 (3.64)	2040 (3.68)	1972 (3.64)	1961 (3.69)	1747 (3.41)
Metal goods, Engineering & Vehicles	6296 (12.18)	6363 (12.11)	6003 (11.72)	6361 (11.87)	6250 (11.27)	6136 (11.32)	5857 (11.03)	5788 (11.29)
Other Manu	5931 (11.47)	5908 (11.24)	5436 (10.61)	5629 (10.50)	5774 (10.41)	5462 (10.07)	5079 (9.56)	4545 (8.87)
Construction	3065 (5.93)	2869 (5.46)	2899 (5.66)	2866 (5.35)	3095 (5.58)	3022 (5.57)	2800 (5.27)	2515 (4.91)
Distribution, Hotel & Catering	8632 (16.70)	8935 (17.01)	9046 (17.66)	9530 (17.78)	9970 (17.97)	9647 (17.79)	9663 (18.19)	9257 (18.06)
Transport & Comm	3464 (6.70)	3468 (6.60)	3392 (6.62)	3592 (6.70)	3776 (6.81)	3569 (6.58)	3548 (6.68)	3346 (6.53)
Banking, Financial & Business	4696 (9.08)	4896 (9.32)	4923 (9.61)	5375 (10.03)	5780 (10.42)	5921 (10.92)	5916 (11.14)	5612 (10.95)
Other Services	15294 (29.58)	15705 (29.89)	15559 (30.38)	16178 (30.18)	16625 (29.97)	16372 (30.19)	16281 (30.65)	16683 (32.54)
Total	51700	52542	51216	53609	55469	54221	53112	51269

Table 2 continue d: Employment Shares by SIC80 Sector, 1985-2000. (% in brackets).

Sector	1993	1994	1995	1996	1997	1998	1999	2000	Total
Agriculture, Forestry & Fishing	504 (0.98)	508 (1.02)	496 (1.02)	485 (1.00)	436 (0.91)	418 (0.88)	409 (0.86)	420 (0.91)	8656 (1.07)
Energy & Water	1203 (2.34)	901 (1.81)	845 (1.74)	753 (1.56)	671 (1.41)	635 (1.33)	641 (1.35)	628 (1.36)	18281 (2.26)
Minerals, Metals & Chemicals	1665 (3.24)	1524 (3.06)	1503 (3.09)	1505 (3.11)	1469 (3.08)	1382 (2.89)	1323 (2.79)	1171 (2.54)	27096 (3.34)
Metal goods, Engineering & Vehicles	5599 (10.89)	4762 (9.57)	4676 (9.62)	4795 (9.91)	4636 (9.72)	4784 (10.02)	4499 (9.50)	4199 (9.11)	87004 (10.74)
Other Manu	4640 (9.02)	4498 (9.04)	4334 (8.92)	4271 (8.82)	4167 (8.74)	3926 (8.22)	3782 (7.98)	3494 (7.58)	76876 (9.49)
Construction	2347 (4.56)	2331 (4.68)	2210 (4.55)	2199 (4.54)	2300 (4.82)	2502 (5.24)	2466 (5.21)	2591 (5.62)	42077 (5.19)
Distribution, Hotel & Catering	9174 (17.84)	8988 (18.05)	8932 (18.38)	8963 (18.52)	8723 (18.30)	8538 (17.88)	8610 (18.18)	8230 (17.86)	144838 (17.88)
Transport & Comm	3378 (6.57)	3256 (6.54)	3201 (6.59)	3112 (6.43)	3110 (6.52)	3199 (6.70)	3228 (6.82)	3234 (7.02)	53873 (6.65)
Banking, Financial & Business	5842 (11.36)	5946 (11.94)	5972 (12.29)	5869 (12.12)	6043 (12.67)	6083 (12.74)	6261 (13.22)	6115 (13.27)	91250 (11.26)
Other Services	17078 (33.21)	17069 (34.29)	16440 (33.82)	16457 (34.00)	16123 (33.82)	16282 (34.10)	16146 (34.09)	15991 (34.71)	260283 (32.12)
Total	51430	49783	48609	48409	47678	47749	47365	46073	810234

Figure 2. Employment Shares by Primary, Secondary and Service Sectors.

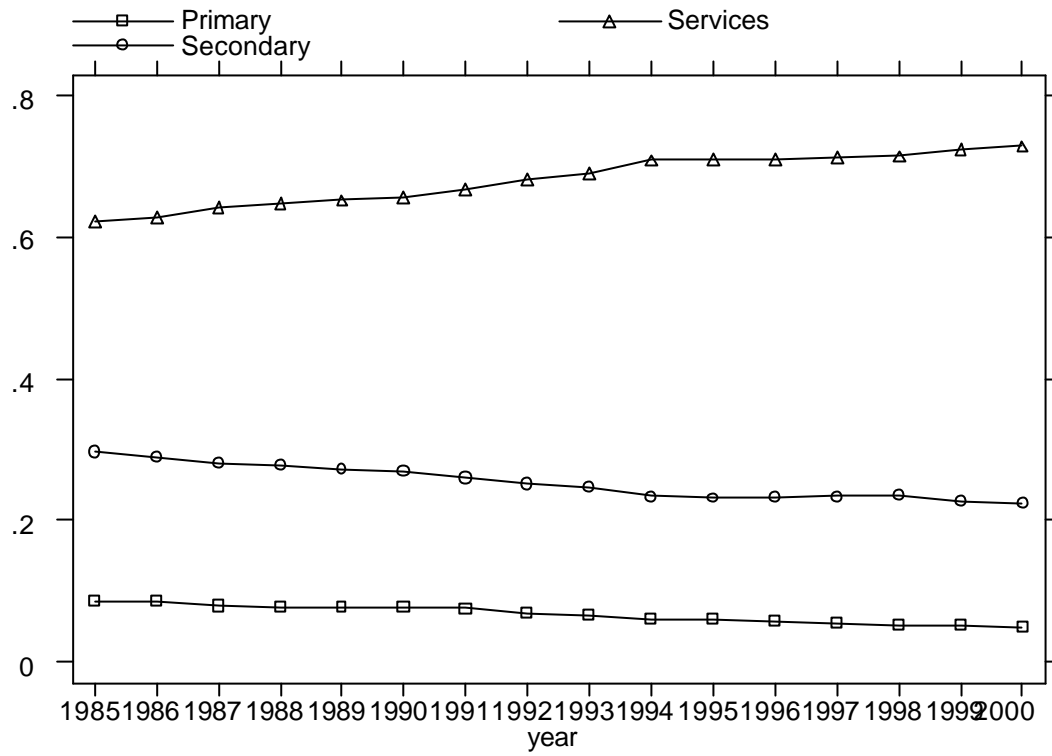
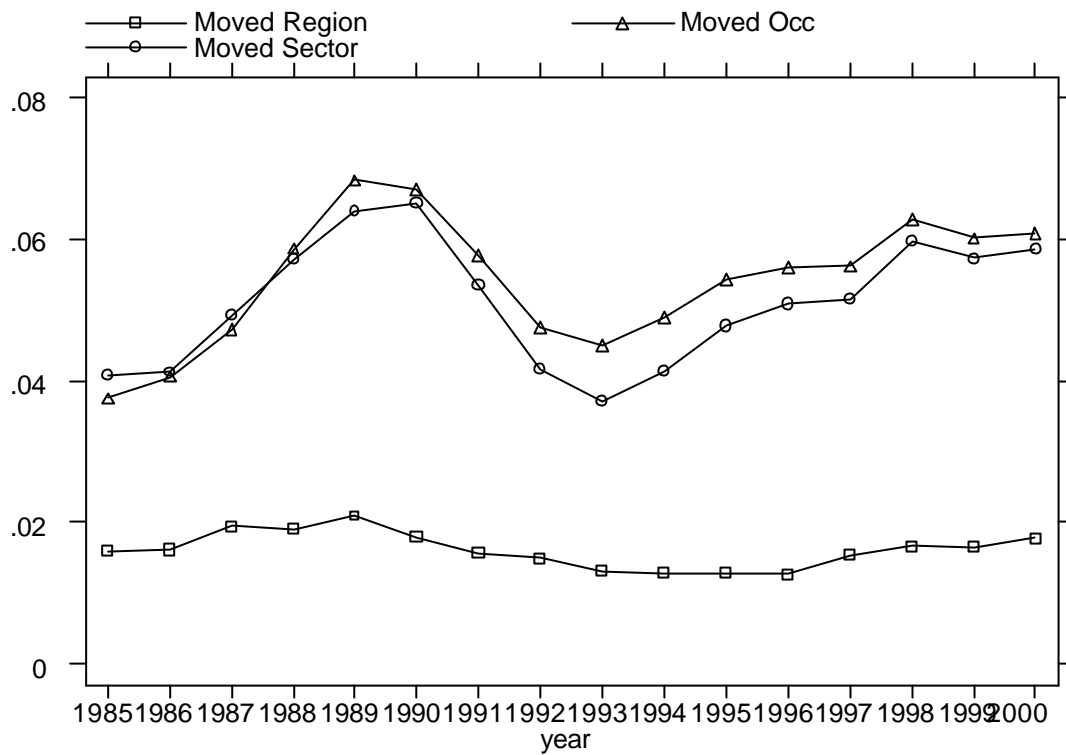
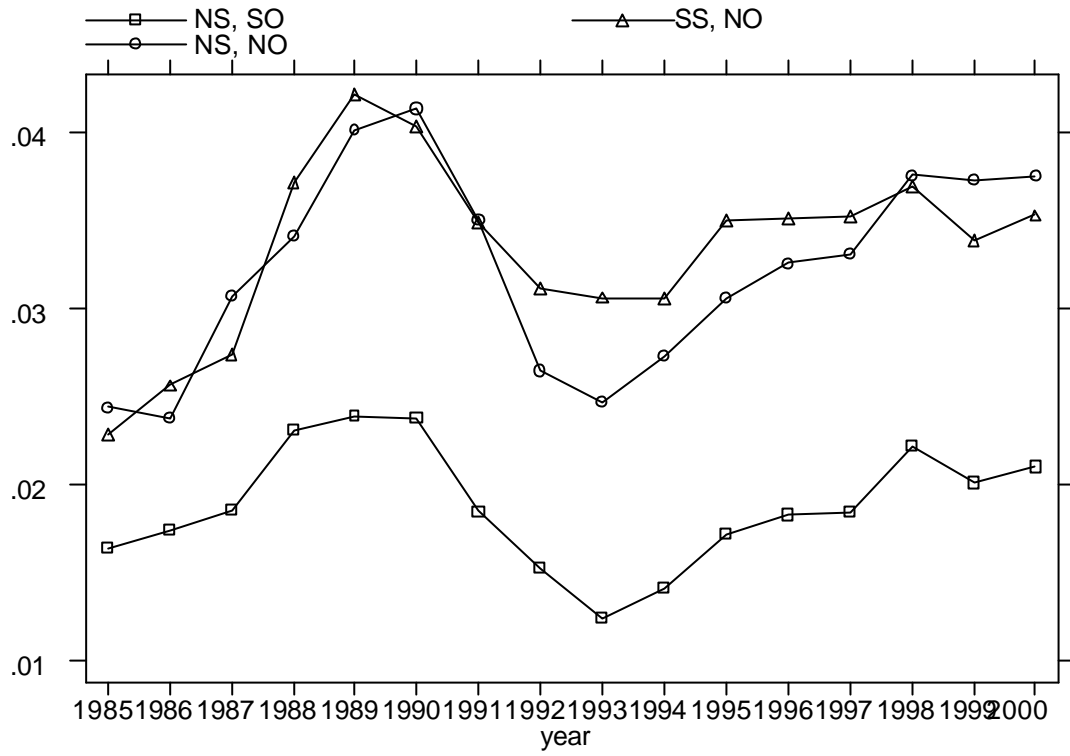


Figure 3. Regional, Sectoral and Occupational Mobility.



Notes: Moved Region is defined as a move between any two of the eleven standard UK regions, South East, South West, North, Wales, Scotland, Northern Ireland, East Midland, West Midlands, North West, Yorkshire, East Anglia.
Moved Sector at the SIC80 level
Moved Occupation at the one-digit level as defined in the data appendix.

Figure 4. Simple and Complex Sectoral and Occupational Moves.



Notes: (NS, SO) are simple sector moves.
(SS, NO) are simple occupation moves.
(NS, NO) are complex sector occupation moves.

Table 3. Sample Means of Key Characteristics.

Variable	SS, SO		SS, NO		NS, SO		NS, NO	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Age	38.892	11.640	33.576	10.657	33.231	10.943	31.713	10.942
Occupations								
Teacher	.05079	.21957	.01460	.11998	.00308	.05550	.00907	.09483
Engineer	.01838	.13432	.02115	.14390	.01880	.13583	.00892	.09403
Scientist	.00582	.07607	.00510	.07125	.00341	.05837	.00279	.05279
Technicians	.04091	.19809	.04830	.21440	.05515	.22829	.03140	.17440
Managers	.15056	.35762	.18059	.38468	.07724	.26699	.12506	.33080
Legal	.03854	.19251	.04319	.20330	.04319	.20329	.02603	.15925
Social	.05157	.22117	.03731	.18953	.01262	.11164	.01995	.13983
Welfare workers	.04438	.20595	.03665	.18790	.00762	.08699	.03354	.18005
Clerical	.15088	.35794	.16701	.37299	.34718	.47609	.12464	.33032
Selling	.16353	.36984	.21162	.40846	.16994	.37559	.26774	.44279
Manual	.23641	.42487	.18062	.38471	.23042	.42111	.26127	.43933
Other occupation	.04818	.21414	.05381	.22564	.03129	.17411	.08953	.28551
Qualifications								
Higher	.12377	.32932	.13990	.34689	.10334	.30442	.08305	.27597
Further	.16577	.37187	.17001	.37565	.15732	.36411	.14880	.35590
Other	.42986	.49505	.48393	.49975	.51988	.49962	.51010	.49990
No qualifications	.14565	.35276	.11320	.31685	.13069	.33707	.13544	.34220
One-digit Sectors								
Agriculture fish	.01091	.10390	.00403	.06336	.00933	.09617	.02351	.15152
Energy	.02287	.14949	.02119	.14402	.02531	.15707	.01336	.11483
Mining	.03333	.17950	.02921	.16841	.05121	.22043	.03285	.17826
Engineer	.10700	.30911	.10788	.31023	.13095	.33736	.09263	.28992
Manufacturing	.09391	.29170	.09064	.28711	.11708	.32153	.12185	.32711
Construction	.05243	.22291	.03446	.18243	.06639	.24898	.06421	.24514
Hotels	.17369	.37884	.27641	.44723	.19834	.39876	.29122	.45433
Transport	.06604	.24836	.05543	.22883	.07297	.26010	.06375	.24432
Bank	.10987	.31273	.12670	.33264	.17204	.37743	.10212	.30282
Other Services	.32990	.47017	.25400	.43530	.15633	.36318	.19445	.39578
Broad Sectors								
Primary	.06712	.25023	.05443	.22688	.08585	.28016	.06973	.25470
Secondary	.25335	.43493	.23299	.42274	.31444	.46430	.27870	.44836
Services	.67952	.46665	.71256	.45257	.59969	.48997	.65156	.47648
Broad Occupations								
Unskilled non manual	.15290	.35989	.16905	.37480	.34718	.47609	.12625	.33214
Unskilled manual	.45404	.49788	.44058	.49646	.42410	.49422	.61108	.48751
Skilled managers	.12783	.33390	.16294	.36932	.07402	.26182	.11223	.31566
Skilled professional	.22082	.41480	.19076	.39290	.14706	.35418	.11687	.32127
Interaction terms								
Primary * unskilled manual	.04162	.19973	.02718	.16261	.04069	.19758	.05062	.21923
Primary * unskilled non manual	.00787	.08838	.00747	.08611	.02333	.15098	.00716	.08432
Primary * skilled professional	.01020	.10050	.01105	.10457	.01393	.11723	.00712	.08409
Primary * skilled managers	.00731	.08522	.00850	.09183	.00775	.08773	.00478	.06902
Secondary * unskilled manual	.02655	.16077	.02533	.15713	.09085	.28741	.02925	.16852
Secondary * unskilled non manual	.15878	.36547	.12951	.33577	.14745	.35457	.19809	.39857
Secondary * skilled professional	.03402	.18128	.04208	.20079	.04950	.21692	.02661	.16095
Secondary * skilled managers	.03385	.18086	.03576	.18570	.02609	.15943	.02446	.15450
Services * unskilled manual	.25363	.43508	.28388	.45089	.23594	.42460	.36237	.48069
Services * unskilled non manual	.11847	.32317	.13624	.34305	.23298	.42274	.08983	.28595
Services * skilled professional	.17659	.38132	.13761	.34450	.08362	.27683	.08313	.27609
Services * skilled managers	.08666	.28133	.11868	.32341	.04016	.19636	.08298	.27586
N	741870		27039		15211		26114	

Notes: The means are all unweighted. The means in **bold** are those with values greater than the mean of the stayers.

Table 4. Multinomial Logit for Occupational and Sectoral Mobility, LFS 1985-2000.

Variable	Moved Occupation & Stayed in Sector (SS, NO)			Stayed in Occupation & Moved Sector (NS, SO)			Moved Occupation & Moved Sector (NS, NO)		
	MFx	S E	Z	MFx	S E	Z	MFx	S E	Z
Individual characteristics									
age	-.00054	.00011	0.000	-.00049	.00007	0.000	-.00237	.00009	0.000
Agesquared	-7.3e-08	1.4e-08	0.000	-3.4e-09	9.6e-09	0.719	1.4e-07	1.2e-08	0.000
Divorced	.00072	.00065	0.265	.00092	.00043	0.033	.00146	.00057	0.011
Single	.00014	.00045	0.747	-.00014	.00031	0.644	-.00027	.00039	0.492
Female	.00043	.00039	0.264	-.00164	.00025	0.000	-.00412	.00035	0.000
Home Owner	-.00258	.00047	0.000	-.00288	.00031	0.000	-.00804	.00038	0.000
Foreign Born	-.00287	.00076	0.000	.00029	.00049	0.553	-.00028	.00066	0.668
Yorkshire	.00032	.00074	0.663	-.00028	.00051	0.578	-.00024	.00066	0.716
East midlands	.00145	.00078	0.064	.00072	.00053	0.178	.00235	.00068	0.001
West midlands	.00084	.00073	0.254	.00001	.00050	0.976	.00089	.00064	0.166
East Anglia	.00118	.00101	0.242	.00108	.00068	0.113	.00404	.00085	0.000
South east	.00371	.00054	0.000	.00334	.00036	0.000	.00441	.00048	0.000
South west	.00321	.00074	0.000	.00111	.00052	0.032	.00448	.00065	0.000
Wales	-.00286	.00100	0.004	-.00165	.00069	0.020	-.00067	.00085	0.433
Scotland	-.00543	.00077	0.000	-.00218	.00052	0.000	-.00547	.00068	0.000
Northern Ireland	-.02321	.00123	0.000	-.00853	.00078	0.000	-.01604	.00101	0.000
Broad Occupations									
Unskilled non manual	.00308	.00124	0.013	.01747	.00052	0.000	-.00566	.00100	0.000
Skilled professional	.00763	.00104	0.000	.00520	.00063	0.000	-.01024	.00104	0.000
Skilled manager	.00999	.00105	0.000	-.00147	.00079	0.065	-.00580	.00104	0.000
Qualifications									
Higher	.0124	.00079	0.000	.00546	.00053	0.000	-.00183	.00076	0.017
Further	.00745	.00068	0.000	.00389	.00046	0.000	-.00211	.00062	0.001
Other	.00493	.00050	0.000	.00288	.00032	0.000	-.00001	.00042	0.978
Broad Sectors									
Primary	-.00498	.00116	0.000	.00175	.00066	0.008	.00193	.00077	0.012
Services	.00740	.00058	0.000	-.00297	.00040	0.000	-.00053	.00045	0.240
Interaction terms									
Primary* unskilled non manual	.00495	.00258	0.055	-.00350	.00111	0.002	-.00540	.00217	0.013
Primary* skilled professional	.00251	.00224	0.263	-.00215	.00133	0.106	-.00222	.00220	0.314
Primary* skilled manager	.00670	.00238	0.005	.00291	.00164	0.076	-.00433	.00251	0.085
Services* unskilled non manual	-.0039	.00134	0.003	-.00637	.00062	0.000	-.01080	.00113	0.000
Services* skilled professional	-.01962	.00116	0.000	-.01331	.00078	0.000	-.01155	.00118	0.000
Services* skilled manager	-.00295	.00119	0.013	-.00686	.00100	0.000	.00158	.00117	0.177
Year dummies									
yr85	-.01016	.00112	0.000	-.00484	.00070	0.000	-.01476	.00094	0.000
yr86	-.00715	.00108	0.000	-.00397	.00069	0.000	-.01563	.00094	0.000
yr87	-.0052	.00107	0.000	-.00327	.00068	0.000	-.00888	.00089	0.000
yr88	.00375	.00099	0.000	.00006	.00064	0.918	-.00593	.00086	0.000
yr89	.00845	.00099	0.000	.00120	.00066	0.070	-.00215	.00086	0.013
yr90	.00782	.00101	0.000	.00185	.00067	0.006	.00125	.00087	0.148
yr91	.00315	.00104	0.003	-.00121	.00071	0.087	-.00314	.00089	0.000
yr92	-.00623	.00107	0.000	-.00698	.00074	0.000	-.00974	.00097	0.000
yr93	-.00434	.00102	0.000	-.00851	.00074	0.000	-.01257	.00092	0.000
yr94	-.00439	.00103	0.000	-.00637	.00073	0.000	-.00939	.00091	0.000
yr95	-.00070	.00100	0.485	-.00355	.00069	0.000	-.00652	.00088	0.000
yr96	-.00040	.00100	0.689	-.00243	.00068	0.000	-.00481	.00087	0.000
yr97	-.00046	.00100	0.645	-.00232	.00068	0.001	-.00421	.00087	0.000
yr98	.00109	.00099	0.272	.00057	.00065	0.382	-.00067	.00084	0.424
yr99	-.00139	.00101	0.172	-.00083	.00067	0.213	-.00064	.00085	0.450
constant	-.06699	.00235	0.000	-.03292	.00157	0.000	.00525	.00192	0.006
Pr (Move)	0.03337			0.01877			0.0322		
N	810234			810234			810234		
Pseudo R ²	0.0516			0.0516			0.0516		
Likelihood Ratio	-114640			-71335			-108232		

Notes: The likelihood ratios are estimated from three separate logit equations for each regime. The likelihood ratio for a joint mobility equation, where $m=1$ if moved occupation and/or sector is -221894.65 . Hence the value for coefficient equality across three separate logit equations is 144630.06 , with χ^2 (46 d.o.f. Critical value 43.773).

Data Appendix.

Table A1. *LFS* and *QLFS* Samples by Year, 1985-2000.

Year	Total sample size	Employed at t and $t-1$ and of working age	With no missing covariates
1985	167349	52855	51700
1986	167243	53621	52542
1987	163886	52010	51216
1988	166456	54397	53609
1989	166433	55910	55469
1990	161772	54827	54221
1991	159129	53823	53112
1992	159614	51444	51269
1993	163172	51567	51430
1994	159445	49905	49783
1995	153761	48720	48609
1996	154391	48527	48409
1997	150855	47724	47678
1998	147736	47760	47749
1999	146136	47373	47365
2000	142941	46081	46073
Total	2530319	816544	810234

The data are taken from the 1985-1991 *LFS* and from Spring quarters of the 1995-2000 *QLFS* for the UK and are provided by the Data Archive at the University of Essex. The sample consists of working age men and women that are employed at the time of they survey and employed 12 months prior to the survey.

Table A2. List of Sectors, One -Digit Standard Industrial Classifications (SIC80).

SIC(80)	Description
0	Agriculture, forestry & fishing
1	Energy & water supplies
2	Extraction of minerals other than fuels; manufacture of metals, mineral products & Chemicals
3	Metal goods, engineering & vehicles industries
4	Other manufacturing industries
5	Construction
6	Distribution, hotels & catering
7	Transport & communication
8	Banking, finance, insurance, business services & leasing
9	Other services

Table A3. List of DK Two-Digit Classifications for Occupational Status.

DK Class	Description	SOC80 3-Digit Classification Codes
1	Legal Professions	240-242
2	Financial Occupations	131,120,139,250-251,253, 360-362
3	Personnel Occupations	124, 363,364
4	Economists	252
5	Computer Occupations	126,320,490
6	Marketing Sales	121-123,125, 700-703
7	Statutory and Other Inspectors	348,394,395,311
8	Administrators – Central Government	100, 103, 132, 400
9	Administrators – Local Government	102, 401
10	Other Professions supporting management	127,170,190,270-271, 350,421
11	Education Professions	191,230-239
12	Social and Behavioural Scientists	290-291
13	Welfare Workers	292-293,371,640-642, 644-659
14	Health Professions	220-223,340-347,349,370, 592,643
15	Other Prof & rel in Education, welfare & Health	224,390-393, 396,399
16	Literary, Artistic and Sports	380-387
17	Professional & Related Science	200-209
18	Professional & Related Engineering and Technology	211-219
19	Professional & Related Building	260-262,312,313
20	Scientific and Technological Support Staff	300-310
21	Ship, Aircraft Officers, Air Traffic Control	330-332
22	Production Managers	110
23	Building & Civil Engineering Managers	111-112, 210
24	Managers – transport etc	113,140-142,440
25	Office Managers	101,130
26	Managers – retail & wholesale	171,172, 177-179
27	Managers – Hotel and Catering	173-176
28	Farmers	160,169
29	Armed Forces	150-151
30	Security Occupations	152-155, 610-613
31	Other Managers	199
32	Clerical & Related	410-420,430,441-463, 491
33	Selling	710-792, 954
34	Security and Protective	600-601, 614-619
35	Catering, Cleaning and Personal Service	580-582,620-631,660-669, 800-809,953, 956-958
36	Farming, Fishing and Related	900-904
37	Material Processing, Making and Repairing	550-579,590,591,810-829, 897
38	Processing, , Making and Repairing	510-544,830-844, 899
39	Painting, Assembly, Inspection and Packing	850-869,912-921
40	Construction, Mining, etc	500-509,597,896,898, 910-911
41	Transport Operating, Material Moving & Storage	596,598,870-890,922-941
42	Miscellaneous	593-595,599,891-895, 950-952, 955, 959-999

Table A4. List of modified One -Digit Classifications for Occupational Status .

Occupational Categories		DK Two-Digit Classification Codes
1	Teacher	11
2	Engineer	18
3	Scientist	17
4	Technical	5,19-21
5	Managerial/Sales	3, 6-10, 22-31
6	Legal/Financial/Economist	1, 2, 4
7	Social Scientist/Health Professionals	12, 14-15
8	Welfare Workers	13
9	Clerical and Related	32
10	Selling & Catering	33,35
11	Manual	37-41
12	Other	16, 34, 36, 42

Table A5. List of Skilled & Less-skilled Worker Classifications

Skill Group	DK Two-Digit Classification Codes
Skilled Professionals	1, 2, 4-5, 11-21
Skilled Managers	3, 6-10, 22-27, 31
Less-skilled Non-Manual Workers	29, 32
Less-skilled Manual Workers	28, 30, 33-42

Table A6. List of Personal Characteristics and Human Capital Classifications

<i>Variable</i>	<i>Definition</i>
Age	year of birth, continuous measure
Female	(0,1): dummy for female
Foreign born	(0,1): dummy for foreign born (born outside the UK)
Married	(0,1): dummy for marriage
Single	(0,1): dummy for single or unmarried (not married or divorced)
Divorced	(0,1): dummy for divorced (no longer married and not single)
North	(0,1): dummy for living in the North of UK (North or North-West of England).
Yorkshire	(0,1): dummy for living in Yorkshire
East Midlands	(0,1): dummy for living in the East Midlands
West Midlands	(0,1): dummy for living in the West Midlands
East Anglia	(0,1): dummy for living in East Anglia
South East	(0,1): dummy for living in the South East
South West	(0,1): dummy for living in the South West
Wales	(0,1): dummy for living in Wales
Scotland	(0,1): dummy for living in Scotland
Northern Ireland	(0,1): dummy for living in Northern Ireland
Home Owner	(0,1): dummy for housing owner-occupier
Higher	(0,1): dummy for having a higher degree, degree or equivalent as the highest qualification attained.
Further	(0,1): dummy for having A-levels or equivalent as the highest qualification.
Other	(0,1): dummy for having any other qualification as the highest qualification.
None	(0,1): dummy for having any no qualifications

Table A7. Multinomial Logit for Occupational and Sectoral Mobility, with individual occupation and sector dummies, LFS 1985-2000

Variable	Moved Occupation & Stay in Sector (SS, NO)			Stayed in Occupation & Moved Sector (NS, SO)			Moved Occupation & Moved Sector (NS, NO)		
	MFX	S E	Z	MFX	S E	Z	MFX	S E	Z
age	-.0001563	.0001091	0.152	-.0002823	.0000654	0.000	-.001895	.0000932	0.000
agesq	-1.09e-07	1.44e-08	0.000	-1.68e-08	8.58e-09	0.050	1.00e-07	1.23e-08	0.000
Divorced	.0007922	.0006341	0.212	.0007354	.0003848	0.056	.0012788	.0005586	0.022
Single	.0000687	.0004394	0.876	-.0001943	.0002732	0.477	-.0004091	.0003805	0.282
Female	.0009844	.0004216	0.020	-.0028553	.0002321	0.000	-.004815	.0003721	0.000
Home owner	-.0024588	.0004663	0.000	-.0029358	.0002809	0.000	-.0074879	.0003777	0.000
Foreign born	-.0033744	.000743	0.000	.0002261	.0004409	0.608	-.0006037	.000641	0.346
Yorkshire	.000167	.000727	0.818	-.000335	.0004567	0.463	-.0004839	.0006403	0.450
East Midland	.0011606	.0007651	0.129	.0005996	.0004724	0.204	.0020625	.0006597	0.002
West Midlands	.0006501	.0007173	0.365	-.0000832	.0004483	0.853	.0011194	.0006259	0.074
East Anglia	.0011475	.0009827	0.243	.0010118	.0006042	0.094	.0031066	.0008257	0.000
South East	.0034548	.0005312	0.000	.0025922	.0003286	0.000	.0036708	.0004726	0.000
South West	.0029046	.0007266	0.000	.0011102	.0004601	0.016	.0038459	.0006335	0.000
Wales	-.002474	.0009769	0.011	-.0012429	.0006159	0.044	-.000269	.000829	0.746
Scotland	-.0051281	.0007508	0.000	-.0019675	.0004644	0.000	-.0055539	.0006634	0.000
Northern Ireland	-.0216238	.0011969	0.000	-.0070928	.0006952	0.000	-.0152798	.0009808	0.000
Teacher	-.0232201	.0016062	0.000	-.0292259	.0018176	0.000	-.026523	.0016622	0.000
Engineer	.0059025	.0013017	0.000	-.0009029	.0008207	0.271	-.0150832	.0016153	0.000
Scientist	-.0008846	.0024731	0.721	-.0072404	.0018254	0.000	-.0143705	.0028422	0.000
Technicians	.0070226	.0009283	0.000	.0028809	.0005277	0.000	-.0087568	.0009257	0.000
Managers	.0108739	.0006516	0.000	-.0065093	.0004779	0.000	-.0025694	.0005758	0.000
Legal	.0068989	.0010343	0.000	.0016104	.0006244	0.010	-.0095587	.0010531	0.000
Social	-.0003245	.0011539	0.779	-.0139221	.0010229	0.000	-.0169267	.0012027	0.000
Welfare workers	.0071148	.0011358	0.000	-.0167415	.0012483	0.000	-.0006624	.0009956	0.506
Clerical	.0081454	.0006967	0.000	.0106619	.0003479	0.000	-.0094732	.000625	0.000
Selling	.0098943	.000687	0.000	.0020761	.0004411	0.000	.0056151	.0005393	0.000
Other occupations	.0129567	.0009123	0.000	-.0032347	.0007049	0.000	.0130281	.0006753	0.000
Higher	.0166019	.0007682	0.000	.0076251	.0004792	0.000	.0015974	.0007416	0.031
Further	.0094828	.0006737	0.000	.0048968	.000418	0.000	-.0001263	.0006052	0.835
Other	.0063116	.0004951	0.000	.0034636	.0002922	0.000	.0011914	.0004074	0.003
Agriculture fish	-.032958	.002792	0.000	-.0015458	.0012178	0.204	.0029116	.0011838	0.014
Energy	-.0009411	.001309	0.472	-.0011246	.0007375	0.127	-.0114366	.0013541	0.000
Mining	-.0017102	.001154	0.138	.0036833	.000566	0.000	-.0012145	.000935	0.194
Engineer	.0015097	.0007873	0.055	.0002308	.0004361	0.597	-.0048258	.0006689	0.000
Construction	-.0106344	.0010848	0.000	.0007776	.0005187	0.134	.0021671	.0007451	0.004
Hotels	.007885	.0006937	0.000	-.0037092	.0004454	0.000	-.000099	.0005631	0.860
Transport	-.0037043	.0009293	0.000	-.0029803	.0005071	0.000	-.0024242	.0007418	0.001
Bank	-.0031151	.0008048	0.000	-.0038739	.0004579	0.000	-.0052158	.0007101	0.000
Other services	-.0047124	.0007275	0.000	-.00844	.0004739	0.000	-.0126147	.0006181	0.000
yr85	-.0087526	.0010942	0.000	-.0037353	.0006276	0.000	-.013371	.0009133	0.000
yr86	-.0059984	.0010579	0.000	-.002299	.0006168	0.000	-.0142357	.0009127	0.000
yr87	-.0041661	.0010453	0.000	-.0023452	.0006091	0.000	-.0077942	.0008628	0.000
yr88	.0045161	.0009638	0.000	.0005723	.0005737	0.318	-.004985	.0008324	0.000
yr89	.0093966	.0009705	0.000	.0017807	.0005863	0.002	-.0011065	.0008344	0.185
yr90	.0087738	.0009896	0.000	.0024337	.0005949	0.000	.0021361	.0008398	0.011
yr91	.0043259	.0010173	0.000	-.0002898	.0006281	0.644	-.0019814	.0008668	0.022
yr92	-.0065985	.0010425	0.000	-.0065546	.0006596	0.000	-.0097718	.0009424	0.000
yr93	-.0039714	.0009987	0.000	-.0073265	.0006635	0.000	-.0117042	.000895	0.000
yr94	-.004011	.0010068	0.000	-.0054346	.0006453	0.000	-.0087124	.0008783	0.000
yr95	-.0005507	.0009774	0.573	-.0030013	.0006142	0.000	-.0060974	.0008574	0.000
yr96	-.0002953	.0009773	0.763	-.0019895	.0006052	0.001	-.0044575	.0008454	0.000
yr97	-.0004083	.0009795	0.677	-.0019587	.0006056	0.001	-.0039564	.0008449	0.000
yr98	.0011717	.0009684	0.226	.0006117	.0005784	0.290	-.0005092	.0008182	0.534
yr99	-.0013977	.0009907	0.158	-.0006967	.0005932	0.240	-.0005713	.000822	0.487
constant	-.0761811	.0023797	0.000	-.0306582	.001432	0.000	-.0035642	.0019425	0.067
N	810234			810234			810234		
Pseudo R ²	0.0606			0.0606			0.0606		

Notes: The first column refers to occupation movers, the second to sector movers and the final column to complex movers. The default is manual employees in the Manufacturing sector.

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