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Sectoral Mobility in UK Labour Markets

by

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Abstract

In this paper we use data on individuals to analyse the movements of labour between sectors in the UK economy over the period 1975–1995. The mobility of factors of production, in this case labour, is a crucial determinant of the flexibility and competitiveness of an economy. The speed with which labour markets adjust to changes in demand — for example due to increased globalisation or technological change — determines the 'cost' of those shocks in terms of lost production and unemployment.

We show that although the UK economy has experienced substantial restructuring in terms of employment over the period in question, annual net flows of labour between sectors are small and are dominated by gross flows. We seek to explain this fact using a matching model of labour mobility, which suggests that in general individuals change sectors for reasons other than restructuring. We test various predictions of the model by estimating transition probabilities as a function of individual and sectoral characteristics.

Outline

1 Introduction

The pattern of employment in the United Kingdom has changed rapidly over the past two decades. Perhaps the most dramatic manifestation of this has been the shift in the balance of employment between manufacturing and service industries. Between 1975 and 1995 employment in manufacturing fell from 9.6 million to 5.6 million, whilst service employment increased from 12.5 million to over 15 million.[1] Over this same period unemployment in the UK has trended upwards, from under one million in 1975, reaching a peak of 3.3 million in 1986, and remaining at over two million for much of the 1980s.

The reason for these changes remains controversial. Wood (1994) takes a Stolper-Samuelson view and argues that the acceleration in the shift away from manufacturing and the decrease in the relative demand for unskilled labour has been caused by an intensification of competition from low-wage developing countries. This has been challenged by a number of authors who argue that a more credible source of change is skill-biased or sector-biased technological change (Haskel & Slaughter 1997).

We are not primarily concerned with examining the reasons for sectoral shifts, but rather in how the labour market adjusts to them. The mobility of labour between sectors is crucial in determining the 'cost' of changing patterns of production, in terms of lost output and unemployment. The analysis of micro-level patterns of mobility also provides insights into the causes of increasing inequality in employment and earnings opportunities between individuals. Finally, from a policy perspective, the speed of adjustment will also influence the willingness of agents to accept change, whether this be technology or trade based.[2]

In the UK, empirical work on labour mobility has tended to focus on movements between regions rather than between sectors.[3] However, a key assumption of many theoretical models of adjustment is sectoral mobility of factors (Grossman & Shapiro 1982, p.1054). Together with the fact that there has been an enormous sectoral reallocation of labour in the UK, this suggests that the study of sectoral labour flows is important.

We use data on individuals to analyse labour movements between sectors in the UK

[1] See Table 1.

[2] There is a substantial literature on the political economy of protection which suggests that, amongst other things, changes in employment are a powerful driver of changed in trade policy (Leamer 1994).

[3] See, for example, Pissarides & Wadsworth (1989), Jackman & Savouri (1992), McCormick (1997) and Henley (1998).

over the period 1975–1995. Section 2 begins by describing the broad structural change and aggregate flows of labour which have occurred over this period. In Section 3 we set out a matching model of job movement which explains the broad patterns observed and yields a number of testable predictions at the microeconomic level. Section 4 specifies an econometric model, which estimates transition probabilities between sectors as a function of individual and sectoral characteristics. The results are reported in Section 5. We show how estimates of individual transition probabilities can be used to make simple predictions about the influence of sectoral shocks and individual characteristics on net flows and hence sectoral adjustment. We illustrate this by quantifying the effect of the change in the housing stock on the adjustment process. Section 6 concludes.

2 Sectoral reallocation in the UK 1975–1995

In this section we illustrate five important facts. First, there have been large changes in sectoral employment shares. Second, in all sectors, inflows and outflows are *positively* rather than negatively correlated. Third, the total number of job-to-job moves between sectors (gross flows) is procyclical and averages between 4% and 6% per year. Fourth, net job-to-job sectoral flows are much smaller than gross flows, averaging one-tenth the size. Finally, flows into and out of employment are generally larger than job-to-job flows between sectors.

The top panel of Table 1 illustrates the extent to which labour has reallocated across 10 sectors between 1975 and 1995, defined by the 1-digit 1980 SIC code. As is well known, some of these changes have been large. The engineering sector (SIC 3), for example, experienced a decline of nearly 1.6 million workers, requiring an average annual net outflow of 77,000 or about 3% per year. In contrast, the banking sector (SIC 8) expanded by over 1.7 million employees, requiring net inflows of a similar order of magnitude. These averages disguise large variations in inflows and outflows, but it is clear that there has been substantial reallocation of labour between traditional manufacturing industries and the service sector.

In the bottom panel of Table 1 the 10 sectors are grouped into three, based on the ranking of the change in employment (the final column of the top panel). The five industries to experience the largest fall in employment shares are classified as 'declining' — the three manufacturing sectors plus agriculture and energy supply. The three industries to experience a rise in employment shares are classified as 'expanding': The

Table 1: **Changing employment shares in the UK 1975–1995**[a,b]

	1975		*1985*		*1995*		*% Change*
	000s	*%*	*000s*	*%*	*000s*	*%*	*in emp.*
1 digit 1980 SIC							
0 Agriculture, forestry & fishing	388	1.60	321	1.40	233	1.01	−39.95
1 Energy & water supplies	717	2.96	582	2.54	284	1.23	−60.39
2 Metal manufacturing etc	1185	4.90	769	3.36	561	2.44	−52.66
3 Metal goods, engineering & vehicles	3406	14.08	2410	10.52	1860	8.08	−45.39
4 Other manufacturing	2761	11.42	2075	9.06	1835	7.97	−33.54
5 Construction	1207	4.99	994	4.34	842	3.66	−30.24
6 Distribution, hotels & catering	3906	16.15	4213	18.39	4556	19.79	16.64
7 Transport & communication	1480	6.12	1308	5.71	1180	5.12	−20.27
8 Banking, finance, insurance etc	1468	6.07	2039	8.90	2747	11.93	87.13
9 Other services	5691	23.53	6209	27.11	6934	30.11	21.84
3 aggregate sectors							
1 'Declining' (SIC 0–4)	8457	38.08	6157	29.43	4773	22.69	−43.56
2 'Expanding' (SIC 6,8,9)	11065	49.82	12461	59.57	14237	67.69	28.67
3 'Static' (SIC 5,7)	2687	12.10	2302	11.00	2022	9.61	−24.75

[a]Employees in employment.
[b]Source: ONS series 3601, Employment and Earnings.

remaining two are classified as 'static'. Although both (construction and transport) have experienced falls in employment over this period, employment changes in these sectors are far more cyclical, and therefore we do not classify them as declining.

Intuitively, one would imagine that labour moves from declining to expanding sectors. That is, declining sectors have relatively high outflow rates of labour, and expanding sectors relatively high inflow rates. However, Figure 1 reveals something quite different. This shows job-to-job inflow and outflow rates between 10 sectors of economic activity in the UK for each year from 1975 to 1995.[4]

The 45-degree line equates inflow and outflow rates. Two features stand out. First, inflows and outflows are of similar size. Second, they are positively correlated.[5] It might be the case that this relationship arises because some sectors have high turnover whilst others have low turnover, and not because inflows and outflows are positively correlated. Although some sectors do have higher turnover than others, OLS regressions of inflows on outflows separately for each sector reveal a significant positive correlation

[4]The data used in this and the following sections is described in detail in Section 4.

[5]This is a similar pattern to that noted by Jackman & Savouri (1992, p.1434) for movements between UK regions.

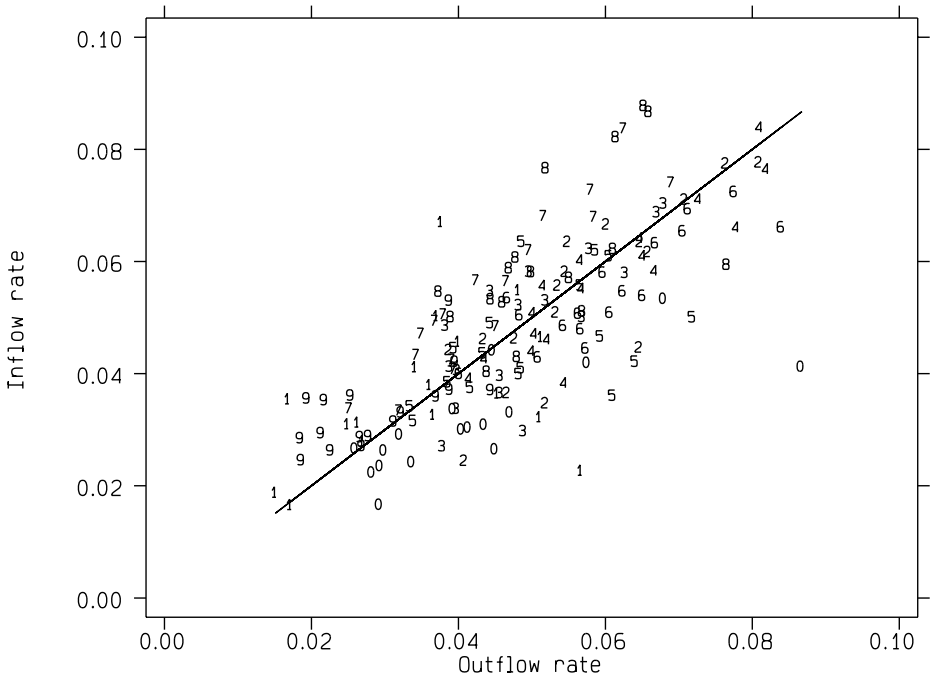

Figure 1: **Inflows and outflow rates by 1980 1-digit SIC 1975–1995**

within sectors for nine of the ten sectors. Expanding sectors such as SIC 8 (banking) and SIC 9 (other services) tend to lie above the 45-degree line, whilst declining sectors tend to lie below it. Note also that one of the sectors which we have classified as 'expanding' (SIC 6) actually tends to lie *below* the 45-degree line. This suggests that inflows into these sectors are made up of people entering employment rather than people making job-to-job moves from other sectors.

The fact that inflows and outflows are of a similar size implies that gross flows are larger than net flows. Gross flows are the proportion of the workforce who change sector each year, while net flows are those which are not 'cancelled out' by return flows. Figure 2 plots gross and net flows between sectors, ignoring flows into and out of employment. Clearly, their size depends on the number of sectors — the smaller the number, the smaller the number of flows. For this reason we calculate flows for (a) 10 1-digit sectors and (b) 3 aggregate sectors defined in Table 1.

Gross flows appear procyclical, which is intuitive if we think that job-to-job moves are primarily voluntary. The pattern of net flows is less clear-cut, although there is a sharp increase at the beginning of economic downturns (1981 and 1991), but before

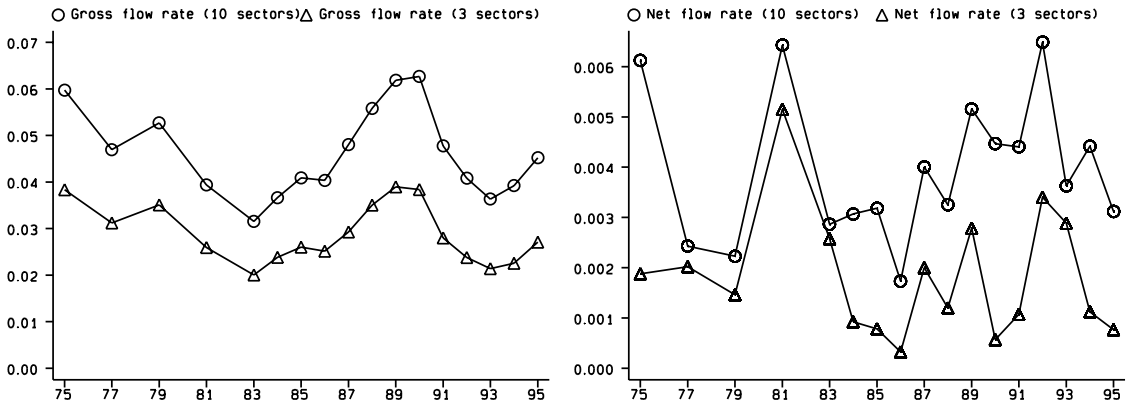

Figure 2: **Gross and net flow rates 1975–1995**

unemployment reaches its peak (1985 and 1993). Crucially, gross flows completely swamp net flows. Less than $\frac{1}{2}\%$ of the labour force moves between sectors in a way that contributes to sectoral adjustment. As expected, gross and net flows are greater when sectors are more disaggregated, but the general pattern is very similar for both measures.

Net flows between sectors are small (Figure 2), but employment shares have changed dramatically (Table 1). This suggests that most of the adjustment of labour is facilitated by flows into and out of employment. Figure 3 compares net flows between sectors (net job-to-job moves) with net flows between employment and non-employment.[6] The left hand panel shows flows for the declining sector, the right hand panel for the expanding sector.

Net flows between sectors and non-employment are generally much larger than net flows with other sectors. Only a small proportion of flows which contribute to sectoral adjustment are job-to-job. As we would expect, net flows to the declining sector are (on average) negative, and net flows to the expanding sector are positive. But net flows to the declining sector from non-employment show a large variation. The reduction in employment in manufacturing in the early 1980s and 1990s clearly occurred via large outflows to non-employment; these were five times larger than outflows to other sectors.

[6]Non-employment is defined as both unemployment and 'not in the labour force' (NILF). This grouping is necessary because a proportion of individuals who classify themselves as NILF do move into and out of employment.

Figure 3: **Flows between sectors and in and out of employment 1975–1995**

The pattern of flows for the expanding sector is completely different. Net flows with non-employment are far less cyclical, and are always positive apart from 1992. Interestingly, the 1990s recession appears to have had completely different effects on net flows to the expanding sector than the 1980s recession. Even in the early 1980s net flows to this sector were positive, but in the early 1990s this was not the case.

To summarise, whilst there have been large shifts in labour between sectors, only a small proportion of these flows are made up of individuals moving directly from a job in one sector to a job in another. Instead, flows into and out of non-employment appear to play a large part of the adjustment process. We need to take both these features into account in the modelling process.

3 A Matching Model of Job Movement

Our strategy is to adapt and develop a model of inter-sectoral movement from Jovanovic & Moffitt (1990), which allows us to analyse gross as well as net labour movements. Assume there are N sectors in the economy. Each has a constant number of identical price taking firms, normalised to unity. Each firm is assumed to have a production function of the form:

$$y_{st} = f^s(x_{st}, z_{st}), \tag{1}$$

where y_{st} is the output of sector s at time t, $f^s(x_{st}, z_{st})$ is the production function of sector s at time t, x_{st} is total labour in efficiency units, and z_{st} is a sector specific shock. On the demand side, each firm is assumed to choose the amount of labour in efficiency units which will maximise profits:

$$\max_x [p_{st} f^s(x, z_{st}) - w_{st} x], \tag{2}$$

where p_{st} is the output price in sector s at time t and w_{st} is the price per efficiency unit of labour in sector s at time t. Thus employment is chosen so that the marginal revenue product of efficiency units equals the wage, which implies a derived demand for labour of the form:

$$x_{st} = \Psi^s \left(\frac{w_{st}}{p_{st}}, z_{st} \right), \tag{3}$$

where Ψ^s is the inverse marginal product function in sector s.

The productivity of the firm's workforce depends on how well the characteristics of its workers match with those of the firm. A worker's productivity, m_i, is assumed to be randomly drawn from a normal distribution and is specific for each worker-firm match. Workers and firms only discover the quality of the match once the appointment has been made.

$$F(m) \sim N(\bar{m}, \sigma^2) = \Phi \left(\frac{m - \bar{m}}{\sigma} \right). \tag{4}$$

Individual workers are paid according to the quality of the match that they achieve with the firm. That is, they are paid their own marginal revenue product.

$$w_{ist} = m_i p_{st} f^{s\prime}(x, z_{st}) = m_i w_{st}, \tag{5}$$

where w_{ist} is the wage per worker. This structure is important because it determines the mobility of individuals. Poorly suited individuals receive a wage lower than the mean,

whilst well suited individuals obtain a wage above the mean. If a worker is poorly paid then in the next period they may decide to move. In deciding whether or not to move, individuals compare the quality of their existing match and the expected benefit of moving.

Consider an individual who is considering a move from sector r to sector s. Their expected second period earnings are $w_{st}\bar{m}$, because workers new to a sector are randomly matched with a firm and so on average they achieve the mean value of a prospective match, $\bar{m}$. So if the cost of moving is c, the expected benefit is $w_{st}\bar{m} - c$. This implies that the minimum acceptable alternative wage is one which is just high enough to compensate them for the cost of moving:

$$w_{rt}m_i = w_{st}\bar{m} - c. \tag{6}$$

Hence the quality of the current match below which movement will be induced is given by:

$$m_i = \bar{m}\frac{w_{st}}{w_{rt}} - \frac{c}{w_{rt}}. \tag{7}$$

The probability of a given individual moving from r to s is thus the probability that the match is less than this level. Since the distribution of matches is defined by $F(\cdot)$, this is

$$q_{s|r,t} = F\left(\bar{m}\frac{w_{st}}{w_{rt}} - \frac{c}{w_{rt}}\right), \tag{8}$$

where $q_{s|r,t}$ is the probability of an individual moving from sector r to s in period t.

This movement of workers serves to equalise rewards per efficiency unit across sectors, and is the process by which net flows are generated. Note however, that even if payments per efficiency unit are equalised across sectors, movements of individuals will still occur. Some workers will still find themselves badly matched in their current job and will find it beneficial to move.

This model seems to accord with the patterns of labour movement that we observed earlier for the UK. Gross flows are generated by individuals' positions in the matching distribution, and occur even in the absence of shocks. Moreover, flows may occur from an expanding to a declining sector as a result of this process. The model predicts that individual mobility will be decreasing in the quality of the firm-worker match, and in the costs of moving between sectors.

Net flows are generated by differences in the wage per efficiency unit across sectors, which result from sector-specific shocks. An increase in the return to efficiency units in another sector (a beneficial shock in another sector) will induce movements as individuals are now on average paid better in this sector. This will serve to increase supplies of labour where there have been beneficial sectoral shocks and lead to equalisation of payments per efficiency units across sectors.

At a more aggregate level, if it is assumed that the marginal product of efficiency units is procyclical, then booms lead to a rightward shift in demand. By stimulating an increase in the wage per efficiency unit, this increases the separation rate. The prospective rewards of moving have increased relative to the costs. Hence we would expect to find gross flows to be procyclical, which is the pattern observed in the left-hand panel of Figure 2.

Further, if it is the case that declining sectors contract relatively more quickly in recessions, then net flows will be counter-cyclical. This is the pattern found in the right-hand panel of Figure 2. It is also interesting to note that there is no obvious secular pattern of gross flows in Figure 2. In contrast to the evidence of Murphy & Topel (1987) for the US, there has been no obvious decline in gross flows in the UK.[7]

Of course, this is not a complete characterisation of labour movements in the UK, because we have assumed that (a) all separations are voluntary and (b) individuals do not move between employment and non-employment. As we have seen, flows between employment and non-employment are significant. In the econometric analysis below we therefore allow for non-employment as an additional state.

[7]In a companion paper (Greenaway, Upward & Wright 1998), we provide evidence that the decline in gross flows in the US revealed by Murphy & Topel and other authors may have reversed somewhat in the late 1980s.

4 An Econometric Analysis of Matching and Movement

The matching model provides a framework for modelling the determinants of labour mobility, and yields a number of testable predictions. We estimate the probability of changing from sector r at time $t-1$ to sector s at t, given by Equation 8.

The data source used is the UK Labour Force Survey (LFS) from 1975 to 1995. This is an annual[8] survey of 60,000 households comprising about 120,000 adults (Office for National Statistics 1998). In every year of the survey, individuals are asked about their current labour force status (working, unemployed, out of the labour force), and their current industry, if employed. Individuals are also asked about their status and industry 12 months previously. This allows us to analyse the movements of individuals between sectors.

For each individual in each year we construct a measure of the current sector (s_t) and the sector 12 months previously (s_{t-1}). Sectors are defined as 'declining', 'expanding' or 'static' as in Table 1. A fourth group $s = 4$ is defined which includes any individual who is unemployed or out of the labour force. We therefore assume that the probability of moving sector (q) can also represent the probability of entering or leaving employment altogether. Table 2 summarises the transition probabilities $q_{s|r,t}$ for 1981 and 1990.

1981				*Sector at* $t-1$		
			1	2	3	4
	Declining	1	88.17	1.00	1.39	4.08
Sector	Expanding	2	2.50	91.66	2.14	11.62
at t	Other	3	0.67	0.49	87.09	1.63
	Non-emp.	4	8.66	6.84	9.39	82.67
1990				*Sector at* $t-1$		
			1	2	3	4
	Declining	1	89.73	1.76	2.11	3.83
Sector	Expanding	2	3.53	91.75	3.27	13.13
at t	Other	3	1.24	0.87	89.21	2.05
	Non-emp.	4	5.50	5.63	5.42	80.99

Table 2: **Transition probabilities at different points in the cycle**

[8] Biennial from 1975 to 1983; quarterly from 1992 onwards.

Note that in 1981 an individual in the declining (manufacturing) sector has a higher probability of leaving employment than someone in the expanding (service) sector, as we would expect (8.66% to 6.84%). But in 1990 an individual in the declining sector actually has a *lower* probability of leaving employment than someone in the expanding sector (5.50% to 5.63%). This illustrates again how flows between employment and non-employment in the declining sector are far more cyclical (see Figure 3). A second feature to note is that the transition probabilities do not in themselves indicate the absolute size of the gross and net flows, since these will depend on the size of the stock.

The key question is: what determines the transition probabilities $q_{s|r,t}$? The model set out in Section 3 allows us to identify these as:

1. The quality of the match, m. This is expected to be a function of job specific and general skills, as suggested by Grossman & Shapiro (1982). Job-specific skills are expected to increase the value of the existing match, whilst general skills raise the quality of all matches.

2. The costs of movement, c. These are expected to be affected by housing (ownership status, region) and family circumstances (marital status, age and sex).

3. Sector specific shocks, z_{st}, which reflect themselves in differences in the wage per efficiency unit, w_{st}. This can be measured by wages in each sector relative to the average. In addition, the relative sectoral vacancy and unemployment rates control directly for differences in sectoral shocks.

Table A.1 describes the variables used to proxy items (1)–(3). There are two restrictions which make the choice of variables difficult. First, for time-varying information we require information from $t-1$ rather than t, and only some of the questions in the LFS refer to 12 months previously. Thus, for example, we are prevented from including employment tenure as a regressor, since this is only known at time t. Those who move sectors will therefore always have tenure of less than 12 months. Second, we require variables which are consistently defined over a long period of time.

We estimate the transition probabilities as a function of the above variables using a multinomial Logit model. This assumes that the probability of an individual being in sector s at time t conditional on being in sector r at time $t-1$ is given by:

$$q_{s|r,t} = \frac{\exp(\mathbf{x}_i'\boldsymbol{\beta}_{s|r})}{\sum_{j=1}^{4}\exp(\mathbf{x}_i'\boldsymbol{\beta}_{j|r})}, \qquad s = 1, \ldots, 4, r = 1, \ldots, 4. \tag{9}$$

where $\mathbf{x}_i$ is the vector of characteristics of individual i, including characteristics of sector r at time $t-1$. We define movement probabilities relative to the probability of staying in the same sector, which allows us to normalize the coefficient vector $\boldsymbol{\beta}_{s|r} = 0$ when $s = r$. Equation (9) is estimated separately for each sector at $t-1$, allowing the estimates of $\boldsymbol{\beta}$ to vary across r. Since the impact of the $\mathbf{x}_i$ on transition probabilities may vary over time, we avoid imposing constancy of parameter estimates over time, but estimate (9) separately for each year. This approach, whilst flexible, generates 16 sets of transition probabilities for each year as a function of k parameters.[9]

[9]In total there are $12k$ parameter estimates for each year, because $\boldsymbol{\beta}_{s|r}$ is normalised to 0 when $s = r$.

5 Results

The theoretical model outlined in Section 3 predicts that the probability of movement will be greater if: the costs of movement are low; if the quality of worker-firm match is high; or if the returns to efficiency units in alternative sectors are high. How well do the estimates accord with these predictions? Tables A.2 and A.3 show the impact of the independent variables on the sectoral transition probabilities for 1990.[10]

Turning first to those factors which may affect the quality of the match, we find that one of the most important influences on mobility is age. Older individuals are significantly less likely to make job-to-job moves and also less likely to enter employment from non-employment. This partly reflects the influence of tenure on mobility, insofar as older employees are more likely to be well-matched with their current employer.

We also find that skilled workers (both manual and non-manual) are significantly less likely to make job-to-job moves, presumably because they have higher levels of job-specific skills and are also well-matched with their employer. Unskilled manual workers, on the other hand, find it harder to get jobs if unemployed and are typically laid off first. Job-to-job moves are more frequent for unskilled non-manual workers, whom we would expect to have lower levels of job-specific skills and are therefore likely to be less well matched with their employer. Also in accord with the model, general skills (measured by non-vocational qualifications) are associated with higher movement probabilities into the expanding sector, as these workers have a higher level of 'general match'. Such workers also find it easier to rejoin the labour force from unemployment.

The costs of moving sector may also be important in determining behaviour. We find some evidence to support the idea that the housing market affects sectoral mobility. Table A.4 shows marginal effects for two of the housing tenure variables for every year in the model. Individuals with mortgages are usually less likely to make job-to-job moves than those in the rented sector. Note however that this is not true of entry and exit into employment. Owner-occupiers are less likely to be made unemployed and more likely to re-enter employment, suggesting that any 'inflexibility' as a result of housing tenure only applies to job-to-job moves. This point is taken up in the next section.

The variables intended to measure sectoral shocks are the relative sectoral wage, unemployment and vacancy rate. As expected, we find that individuals in sectors with higher than average unemployment rates are significantly less likely to remain in the

[10] A full set of results are available from the Authors on request.

same sector. We would also expect higher wages to be associated with lower transition probabilities. This is not the case for 1990, but the effect of wage is in the expected direction for most other years. The effect of sectoral vacancy rates is generally insignificant.

The impact of the explanatory variables on the estimated transition probabilities generally accords with the matching model of job movement. However, the impact of these factors on total net flows between sectors is more difficult to determine. We are interested in assessing the relative importance of personal and sectoral variables on sectoral flows of labour. For example, we would like to be able to quantify the effect of the change in the housing stock on the adjustment process.

Authors such as Oswald (1997) have conjectured that the large rise in European home ownership may explain the coincident rise in unemployment. He argues that "when someone buys a home, they invest in immobility. Because it is then costly to move, an owner takes on the risk of local area demand shocks in a more severe way than those who rent." (1997, p.3). This is precisely the kind of question which we should be able to answer in our framework. We focus on how the changes which have occurred in the labour market since the 1970s affect the predictions for the size and direction of net flows.

For each year we compute a matrix $\hat{\mathbf{Q}}_t$, which contains estimates of each of the transition probabilities $q_{s|r,t}$ for $s, r = 1, \ldots, 4$, calculated from Equation (9) where the individual characteristics $\mathbf{x}_i$ are replaced by some mean value $\bar{\mathbf{x}}$. A natural baseline is the mean characteristics for individuals in sector r at time $t-1$, $\bar{\mathbf{x}}_r$. The estimated stock of individuals in each sector at time t is given by $\hat{\mathbf{s}}_t = \hat{\mathbf{Q}}_t \mathbf{s}_{t-1}$, where $\mathbf{s}_{t-1}$ is a column vector containing the stocks in each sector at $t-1$. An estimate of gross flows between all sectors, $\hat{\mathbf{G}}_t$ is given by $\hat{\mathbf{Q}}_t \mathbf{S}_{t-1}$, where $\mathbf{S}_{t-1}$ is a matrix containing $\mathbf{s}_{t-1}$ in the leading diagonal. Net flows between sectors $\hat{\mathbf{N}}_t$ are given by $\hat{\mathbf{G}}_t - \hat{\mathbf{G}}_t'$. By summing $\hat{\mathbf{N}}_t$ across t, we can predict the total adjustment which takes place. This adjustment can then be decomposed into three components: the characteristics of the sectors $\mathbf{x}$, the coefficients on the probability of moving sector, $\boldsymbol{\beta}$, and the size of the stocks, $\mathbf{s}$.

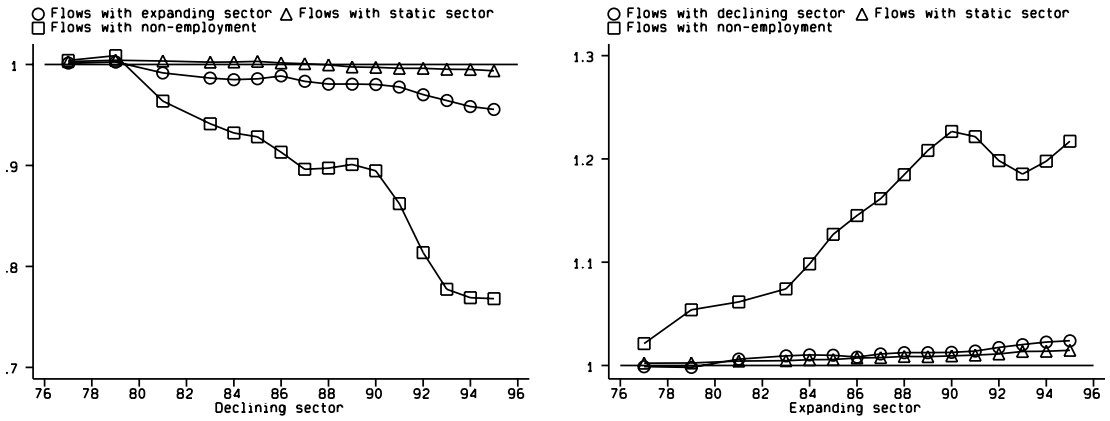

Figure 4: **Cumulative net flows**

Figure 4 plots the resulting cumulative net flows for the declining and expanding sectors. The declining sector has outflows totalling over 25% of the original sector size, of which over 20% are to non-employment. Similarly, the expanding sector has inflows of over 20%, of which the great majority are from non-employment.

What role did the changing housing market play in this sectoral adjustment process? An alternative set of net flows $\tilde{\mathbf{N}}_t$ are calculated, holding the elements in $\mathbf{x}$ corresponding to the housing market constant for all years and equal to their 1979 levels. By doing this we are asking the counterfactual question: what flows would have occurred if the housing stock had remained as it was in 1979? Figure 5 plots various components of $\tilde{\mathbf{N}}$ against $\hat{\mathbf{N}}$, the baseline predicted net flows where $\tilde{\mathbf{N}}_t$ are those net flows which would have occurred if the structure of the housing market had remained unchanged over the sample period.

From panel (a) it can be seen that the changing structure of the housing market appears to have inhibited adjustment from the declining to the expanding sector. Flows would have been greater if the housing market had maintained its 1979 structure, a finding that lends support to Oswald's conjecture. However a number of caveats must be borne in mind. Firstly, as we have seen, sector to sector movements represent only a small proportion of total flows. Even if the trend in owner-occupation were to be reversed, the impact on overall mobility would be small. Secondly, as can be seen from panels (b) and (c), owner-occupiers are both less likely to flow into unemployment and more likely to re-enter employment, an effect which is considerably larger. The interpretation

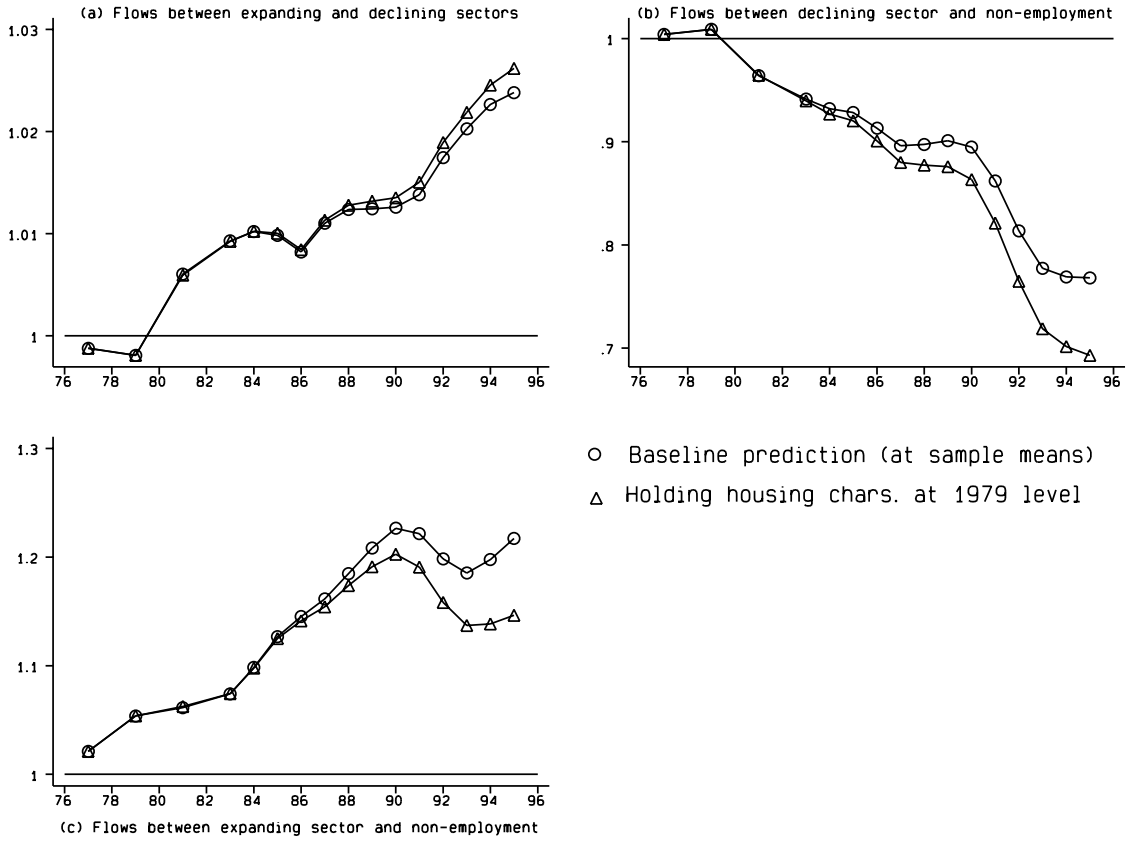

Figure 5: **Cumulative net flows: housing market characteristics constant**

of these flows into and out of the labour market is however difficult since clearly this effect is in some senses recursive. As well as the negative impact on mobility alluded to by Oswald, those who are advantaged in terms of their labour market status are both less likely to suffer unemployment and more likely to be in a position to buy their own homes. Indeed it appears that such effects are strong enough to outweigh the impact that fixed costs may have on mobility.

In Figure 6 we repeat the experiment, this time holding *all* elements of $\mathbf{x}$, apart from the three sectoral variables, constant at their 1979 level. This counterfactual is an attempt to measure the proportion of the adjustment process which can be 'explained' by the changing characteristics of the labour force. Has the adjustment process been helped or hindered by the change in labour force characteristics over this period? For example, to

what extent has the increased level of general education in the workforce contributed to sectoral adjustment?

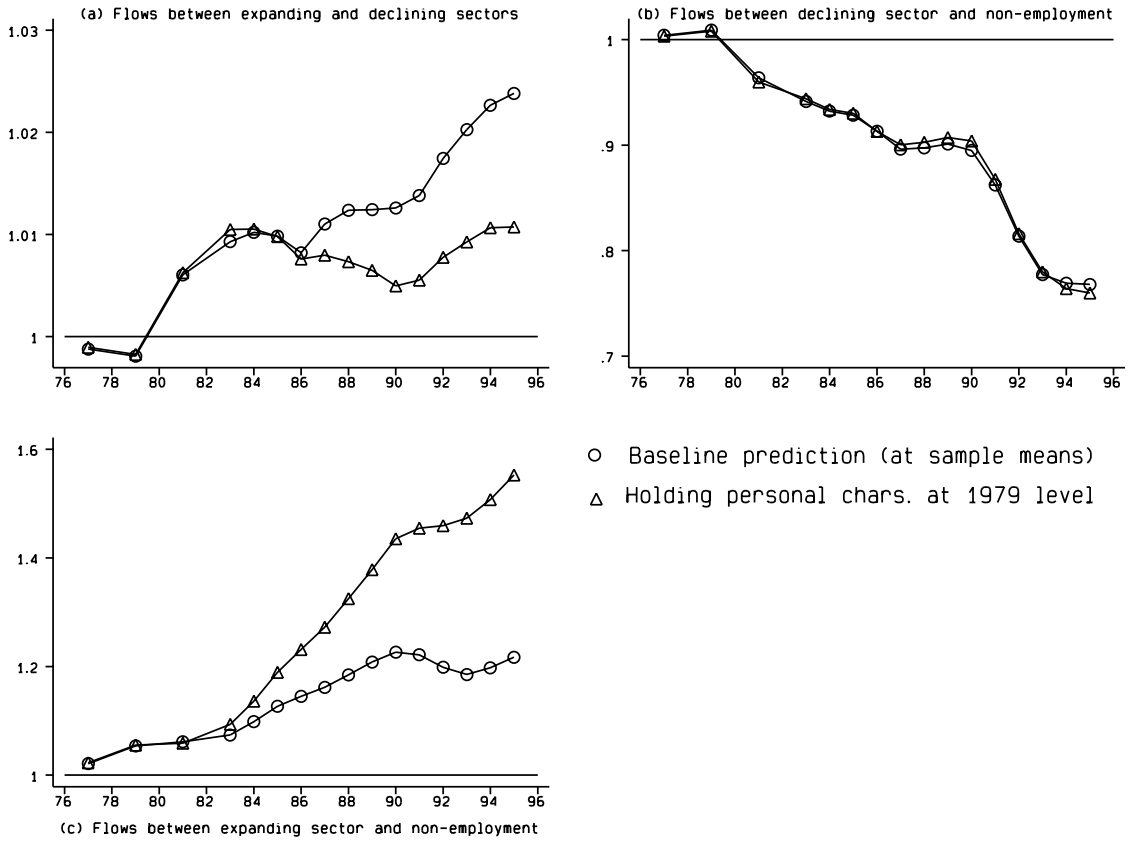

Figure 6: **Cumulative net flows, personal characteristics constant**

A striking result is the effect on flows from non-employment to the expanding sector, shown in panel (c). We have already seen that these flows were by far the most important contribution to the expansion of the service sector. By holding characteristics constant at their 1979 level, the proportion of females in non-employment (which actually fell from 83% to around 60%) causes far higher inflows to the service sector than actually occurred. This serves to illustrate the importance of inflows of new workers, and particularly women, in the expansion of the service sector. Although the characteristics effect on flows between the declining and expanding sector is positive (panel (a)), in absolute terms this effect is small compared to the effect shown in panel (c).

6 Conclusions

This paper has been motivated by the impact of recent structural change in the UK on labour mobility. Work on labour mobility in the UK has tended to focus on regional mobility, but it would seem that the logical starting point for the analysis of structural adjustment is the movement of labour between sectors. As we saw at the outset, the patterns of inflows and outflows across sectors are not consistent with the kinds of movements one would expect to observe with sectoral reallocations. Specifically, inflows and outflows broadly match each other in both expanding and declining sectors. To provide a framework for evaluating these movements, we set up a matching model of job movement.

This model accords well with the broad patterns of labour movement we observe for the UK. It also yields a number of testable predictions. Transition probabilities across sectors of activity and into inactivity were found to be a function of the quality of the match, the costs of movement and sector specific shocks. Using data from the Labour Force Survey we tested these predictions using a multinomial Logit model. Our results suggest that job specific and general skills, housing tenure, age and sectoral shocks all impact on mobility. Not surprisingly perhaps, there is a distinct penalty for being unskilled, especially manual unskilled; the rewards to general skills in terms of transition probabilities appear to have increased through time; workers in private rented accommodation are significantly more likely to move into another sector than those in public rented or mortgaged accommodation; older workers are less likely to leave the declining sector than younger workers and more likely to leave employment completely.

Using the estimates from the model we suggest a method for relating individual transition probabilities to aggregate flows between sectors. The key feature of this relationship is that flows in and out of employment contribute far more to the adjustment process than direct job-to-job moves. This has important implications for the study of sectoral mobility. Factors which influence direct job-to-job moves, such as housing tenure, may not affect entry and exit to the labour market in the same way, and hence may have a limited impact on the overall level of unemployment.

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Appendix

Table A.1: **Means of explanatory variables by sector, 1981 and 1990**[a]

	1981				*1990*			
	1	*2*	*3*	*4*	*1*	*2*	*3*	*4*
Sectoral wage[b]	0.949	1.048	0.887	—	0.957	1.037	0.866	—
Sectoral unemployment	1.016	0.832	1.532	—	1.057	0.927	1.155	—
Sectoral vacancies	0.747	1.178	1.008	—	0.711	1.106	1.081	—
Female	0.287	0.559	0.123	0.798	0.276	0.575	0.153	0.658
Married	0.727	0.716	0.734	0.735	0.734	0.735	0.742	0.648
Age 26–35	0.239	0.263	0.284	0.300	0.248	0.256	0.257	0.243
Age 36–45	0.238	0.243	0.239	0.188	0.257	0.281	0.272	0.191
Age 46–55	0.225	0.210	0.201	0.173	0.207	0.204	0.195	0.179
Age 55–65	0.088	0.075	0.076	0.101	0.106	0.086	0.102	0.177
1 child ≤ 16			—		0.168	0.175	0.176	0.183
2 children ≤ 16			—		0.152	0.164	0.164	0.188
3+ children ≤ 16			—		0.056	0.053	0.067	0.112
Non-white	0.075	0.074	0.072	0.100	0.094	0.103	0.087	0.153
Unskilled non-manual	0.172	0.457	0.156	0.000	0.165	0.434	0.163	0.000
Skilled manual	0.281	0.065	0.404	0.000	0.273	0.052	0.389	0.000
Skilled non-manual	0.178	0.360	0.123	0.000	0.249	0.418	0.161	0.000
Apprenticeship	0.223	0.107	0.301	0.051	0.253	0.118	0.322	0.085
Degree or equiv.	0.051	0.143	0.039	0.050	0.061	0.133	0.037	0.043
A-level	0.040	0.079	0.036	0.050	0.062	0.124	0.056	0.069
O-level	0.138	0.192	0.133	0.148	0.250	0.293	0.239	0.203
Own house outright	0.149	0.148	0.139	0.147	0.168	0.148	0.155	0.181
House mortgaged	0.407	0.465	0.421	0.337	0.615	0.657	0.630	0.385
Private renting	0.100	0.114	0.104	0.126	0.049	0.063	0.042	0.058

[a]Controls also include a set of region dummies. Full set of descriptive statistics available from the Authors on request.

[b]Sectoral variables are averages by one-digit sector, and therefore vary within aggregate sector.

Table A.2: **Multinomial Logit Estimates of $q_{s|1}$ and $q_{s|2}$, 1990**[a]

	Marginal Effect							
	$\Pr(q_{1\|1})$	$\Pr(q_{2\|1})$	$\Pr(q_{3\|1})$	$\Pr(q_{4\|1})$	$\Pr(q_{1\|2})$	$\Pr(q_{2\|2})$	$\Pr(q_{3\|2})$	$\Pr(q_{4\|2})$
Sectoral wage	-0.0446^{**}	0.0099	0.0009	0.0338^{**}				
Sectoral unemployment	-0.0388^{**}	0.0044	0.0069^{*}	0.0276^{**}	-0.0235^{**}	0.0453^{**}	-0.0158^{**}	-0.0061
Sectoral vacancies	-0.0284^{**}	0.0203^{**}	0.0049	0.0032	0.0165^{**}	-0.0410^{**}	0.0097^{**}	0.0148^{**}
Female	-0.0387^{**}	0.0196^{**}	-0.0076^{**}	0.0267^{**}	-0.0036^{**}	-0.0144^{**}	-0.0043^{**}	0.0224^{**}
Married	0.0085^{*}	0.0008	-0.0024^{*}	-0.0068^{**}	0.0004	-0.0022	0.0008	0.0010
Age 26–35	0.0348^{**}	-0.0110^{**}	-0.0022	-0.0217^{**}	-0.0069^{**}	0.0306^{**}	-0.0028^{**}	-0.0209^{**}
Age 36–45	0.0627^{**}	-0.0177^{**}	-0.0082^{**}	-0.0367^{**}	-0.0129^{**}	0.0668^{**}	-0.0058^{**}	-0.0481^{**}
Age 46–55	0.0599^{**}	-0.0181^{**}	-0.0122^{**}	-0.0295^{**}	-0.0187^{**}	0.0627^{**}	-0.0078^{**}	-0.0361^{**}
Age 55–65	0.0374^{**}	-0.0324^{**}	-0.0115^{**}	0.0066	-0.0253^{**}	0.0362^{**}	-0.0093^{**}	-0.0016
1 child ≤ 16	-0.0269^{**}	0.0039	0.0026^{*}	0.0203^{**}	0.0017	-0.0289^{**}	-0.0004	0.0275^{**}
2 children ≤ 16	-0.0242^{**}	0.0056^{*}	0.0017	0.0168^{**}	-0.0011	-0.0167^{**}	-0.0002	0.0180^{**}
3+ children ≤ 16	-0.0291^{**}	0.0019	-0.0001	0.0274^{**}	0.0003	-0.0328^{**}	-0.0007	0.0332^{**}
Non-white	0.0001	-0.0168^{**}	-0.0054	0.0222^{**}	-0.0038	0.0017	-0.0032^{*}	0.0053
Unskilled non-manual	0.0041	0.0066^{**}	0.0015	-0.0121^{**}	-0.0067^{**}	0.0196^{**}	-0.0033^{**}	-0.0096^{**}
Skilled manual	0.0156^{**}	-0.0093^{**}	0.0000	-0.0063^{*}	-0.0071^{**}	0.0295^{**}	-0.0032^{**}	-0.0192^{**}
Skilled non-manual	0.0286^{**}	-0.0054	-0.0031	-0.0200^{**}	-0.0138^{**}	0.0397^{**}	-0.0057^{**}	-0.0203^{**}
Apprenticeship	0.0216^{**}	-0.0085^{**}	-0.0012	-0.0119^{**}	0.0048^{**}	-0.0068^{*}	0.0019^{**}	0.0001
Degree or equiv.	0.0054	0.0129^{**}	-0.0033	-0.0150^{*}	0.0005	0.0104^{**}	-0.0035^{**}	-0.0074^{*}
A-level	-0.0115	0.0199^{**}	-0.0097^{**}	0.0013	0.0013	0.0160^{**}	-0.0036^{**}	-0.0137^{**}
O-level	0.0056	0.0098^{**}	-0.0020	-0.0135^{**}	-0.0006	0.0162^{**}	-0.0014^{*}	-0.0142^{**}
Own house	0.0292^{**}	-0.0090^{**}	-0.0045^{**}	-0.0157^{**}	-0.0039^{**}	0.0273^{**}	-0.0029^{**}	-0.0206^{**}
Buying house	0.0432^{**}	-0.0052^{*}	-0.0029^{**}	-0.0352^{**}	-0.0030^{**}	0.0396^{**}	-0.0006	-0.0360^{**}
Private renting	-0.0047	0.0032	-0.0004	0.0019	-0.0002	0.0183^{**}	0.0001	-0.0183^{**}
Sample size		18020				37390		
Log-likelihood		-7072.8007				-12269.892		
Pseudo-R^2		0.0856				0.0709		
Actual q	0.8973	0.0353	0.0124	0.0550	0.0176	0.9175	0.0087	0.0563
Predicted q[b]	0.9243	0.0263	0.0083	0.0410	0.0125	0.9363	0.0053	0.0459

[a]Estimates include a set of region dummies, not shown. Estimates for other years available by request from the Authors. Two asterisks denotes 5% significance, one asterisk denotes 10% significance.

[b]Estimated at the sample mean.

Table A.3: **Multinomial Logit Estimates of $q_{s|3}$ and $q_{s|4}$,1990**

					Marginal Effect			
	$\Pr(q_{1\|3})$	$\Pr(q_{2\|4})$	$\Pr(q_{3\|3})$	$\Pr(q_{4\|4})$	$\Pr(q_{1\|3})$	$\Pr(q_{2\|4})$	$\Pr(q_{3\|3})$	$\Pr(q_{4\|4})$
Sectoral unemployment	0.0105**	0.0016	−0.0349**	0.0228**				
Female	−0.0019	0.0177**	−0.0304**	0.0146**	−0.0269**	0.0199**	−0.0221**	0.0291**
Married	−0.0001	−0.0052	0.0136**	−0.0083	0.0060**	0.0031	0.0053**	−0.0143**
Age 26–35	−0.0053*	−0.0143**	0.0396**	−0.0199**	−0.0123**	−0.0386**	−0.0064**	0.0573**
Age 36–45	−0.0120**	−0.0157**	0.0596**	−0.0319**	−0.0292**	−0.0603**	−0.0084**	0.0979**
Age 46–55	−0.0334**	−0.0323**	0.1009**	−0.0352**	−0.0472**	−0.1204**	−0.0190**	0.1867**
Age 55–65	−0.0281**	−0.0236**	0.0514**	0.0003	−0.0744**	−0.2389**	−0.0338**	0.3471**
1 child ≤ 16	−0.0053*	0.0008	0.0061	−0.0017	−0.0081**	−0.0415**	−0.0013	0.0510**
2 children ≤ 16	−0.0033	0.0057	0.0038	−0.0062	−0.0126**	−0.0331**	−0.0006	0.0463**
3+ children ≤ 16	−0.0134**	0.0043	−0.0110	0.0202**	−0.0201**	−0.0556**	−0.0005	0.0761**
Non-white	0.0031	0.0062	−0.0160	0.0067	−0.0087**	−0.0332**	−0.0031	0.0450**
Unskilled non-manual	0.0016	0.0030	−0.0036	−0.0010				
Skilled manual	−0.0137**	−0.0138**	0.0365**	−0.0089				
Skilled non-manual	−0.0104**	−0.0100**	0.0391**	−0.0187**				
Apprenticeship	0.0051*	−0.0005	0.0054	−0.0099**	0.0100**	−0.0031	0.0047**	−0.0116
Degree or equiv.	−0.0053	0.0175**	0.0087	−0.0209	0.0096**	0.1133**	0.0009	−0.1239**
A-level	0.0024	0.0088*	0.0035	−0.0147	0.0038	0.0614**	−0.0027	−0.0624**
O-level	0.0011	0.0091**	0.0043	−0.0144**	0.0049**	0.0416**	0.0018	−0.0483**
Own house	0.0021	−0.0165**	0.0389**	−0.0245**	0.0054*	0.0218**	0.0062**	−0.0334**
Buying house	0.0021	−0.0067*	0.0461**	−0.0415**	0.0132**	0.0489**	0.0055**	−0.0677**
Private renting	0.0025	0.0090	−0.0029	−0.0086	0.0092**	0.0422**	0.0017	−0.0531**
Sample size			9542				22854	
Log-likelihood			-3987.1924				-12860.557	
Pseudo-R^2			0.0776				0.1234	
Actual q	0.0210	0.0327	0.8921	0.0542	0.0383	0.1313	0.0205	0.8099
Predicted q	0.0150	0.0233	0.9181	0.0436	0.0270	0.0998	0.0106	0.8626

Table A.4: **Housing variables: marginal effects from multinomial Logits**

Own house outright (base group public renting)

	Pr(2|1)	Pr(3|1)	Pr(4|1)	Pr(1|2)	Pr(3|2)	Pr(4|2)
1979	−0.0025	−0.0025*	−0.0038	−0.0053**	−0.0016*	−0.0095**
1981	0.0013	0.0006	−0.0212**	−0.0018	0.0005	−0.0096**
1983	−0.0017	−0.0008	−0.0156**	0.0001	−0.0010*	−0.0171**
1984	−0.0037	0.0014	−0.0235**	−0.0044**	−0.0013*	−0.0168**
1985	−0.0060*	0.0000	−0.0183**	−0.0013	0.0003	−0.0165**
1986	−0.0031	−0.0002	−0.0150**	−0.0019	0.0007	−0.0183**
1987	−0.0058	0.0002	−0.0150**	−0.0047**	−0.0022**	−0.0193**
1988	−0.0024	−0.0049**	−0.0157**	−0.0037**	0.0026**	−0.0250**
1989	−0.0037	0.0028	−0.0126**	−0.0022	−0.0018	−0.0177**
1990	−0.0090**	−0.0045**	−0.0157**	−0.0039**	−0.0029**	−0.0206**
1991	−0.0023	−0.0003	−0.0395**	−0.0028	−0.0014	−0.0188**
1992	0.0019	−0.0009	−0.0353**	−0.0026*	0.0004	−0.0314**
1993	−0.0018	0.0002	−0.0384**	−0.0009	−0.0007	−0.0214**
1994	−0.0104**	−0.0013	−0.0270**	−0.0018	−0.0011	−0.0286**
1995	−0.0057	−0.0032	−0.0205**	−0.0008	−0.0011	−0.0227**

	Pr(1|3)	Pr(2|3)	Pr(4|3)	Pr(1|4)	Pr(2|4)	Pr(3|4)
1979	−0.0032	−0.0056	−0.0144**	−0.0090**	−0.0032	−0.0011
1981	−0.0044	−0.0034	−0.0403**	0.0075**	0.0211**	0.0012
1983	0.0005	−0.0004	−0.0235**	0.0094**	0.0087**	0.0029**
1984	−0.0002	0.0001	−0.0253**	0.0154**	0.0397**	0.0050**
1985	−0.0027	−0.0004	−0.0293**	0.0101**	0.0344**	0.0012
1986	0.0017	−0.0015	−0.0348**	0.0046*	0.0415**	0.0011
1987	0.0008	−0.0073	−0.0376**	0.0055*	0.0400**	0.0035**
1988	−0.0108**	−0.0068	−0.0288**	0.0099**	0.0390**	0.0009
1989	−0.0055	−0.0101**	−0.0257**	0.0068**	0.0274**	0.0023
1990	0.0021	−0.0165**	−0.0245**	0.0054*	0.0218**	0.0062**
1991	0.0062*	−0.0139**	−0.0399**	0.0078**	0.0242**	0.0029*
1992	−0.0078*	−0.0091	−0.0083	0.0020	0.0282**	0.0028
1993	−0.0079**	−0.0023	−0.0353**	0.0087**	0.0291**	0.0032**
1994	−0.0035	−0.0073	−0.0384**	0.0125**	0.0353**	0.0059**
1995	−0.0003	−0.0024	−0.0243**	0.0144**	0.0397**	0.0070**

House mortgaged (base group public renting)

	Pr(2|1)	Pr(3|1)	Pr(4|1)	Pr(1|2)	Pr(3|2)	Pr(4|2)
1979	−0.0011	−0.0017**	−0.0106**	−0.0070**	−0.0011*	−0.0140**
1981	−0.0017	−0.0010	−0.0279**	−0.0015*	0.0001	−0.0199**
1983	0.0015	0.0001	−0.0364**	0.0014	−0.0001	−0.0214**
1984	−0.0022	0.0006	−0.0439**	−0.0030**	−0.0004	−0.0290**
1985	−0.0008	0.0000	−0.0312**	0.0002	0.0006	−0.0286**
1986	0.0010	0.0018	−0.0328**	−0.0009	0.0000	−0.0310**
1987	−0.0018	0.0000	−0.0309**	−0.0023*	−0.0009	−0.0322**
1988	0.0007	−0.0027*	−0.0264**	−0.0007	0.0009	−0.0328**
1989	−0.0038	0.0021	−0.0276**	−0.0004	−0.0005	−0.0365**
1990	−0.0052*	−0.0029**	−0.0351**	−0.0030**	−0.0006	−0.0360**
1991	−0.0041	−0.0003	−0.0547**	−0.0013	−0.0010	−0.0356**
1992	−0.0025	0.0004	−0.0548**	−0.0017	0.0000	−0.0453**
1993	−0.0039	0.0006	−0.0638**	−0.0015	−0.0006	−0.0393**
1994	−0.0048	−0.0005	−0.0509**	−0.0013	−0.0008	−0.0439**
1995	−0.0061	0.0011	−0.0405**	−0.0007	−0.0008	−0.0419**

	Pr(1|3)	Pr(2|3)	Pr(4|3)	Pr(1|4)	Pr(2|4)	Pr(3|4)
1979	−0.0025	−0.0082**	−0.0199**	0.0007	0.0201**	0.0037**
1981	−0.0027	−0.0033	−0.0598**	0.0088**	0.0373**	0.0047**
1983	0.0028*	0.0048**	−0.0339**	0.0115**	0.0225**	0.0045**
1984	−0.0007	0.0026	−0.0446**	0.0207**	0.0679**	0.0082**
1985	−0.0010	−0.0034	−0.0454**	0.0208**	0.0700**	0.0071**
1986	0.0017	0.0010	−0.0533**	0.0107**	0.0705**	0.0063**
1987	−0.0041*	−0.0008	−0.0488**	0.0185**	0.0742**	0.0059**
1988	−0.0054**	−0.0074**	−0.0321**	0.0172**	0.0714**	0.0059**
1989	−0.0057**	−0.0077**	−0.0377**	0.0145**	0.0629**	0.0066**
1990	0.0021	−0.0067*	−0.0415**	0.0132**	0.0489**	0.0055**
1991	0.0030	−0.0034	−0.0623**	0.0096**	0.0536**	0.0069**
1992	−0.0032	−0.0095**	−0.0528**	0.0145**	0.0529**	0.0072**
1993	−0.0019	−0.0104**	−0.0732**	0.0173**	0.0642**	0.0082**
1994	−0.0043**	0.0018	−0.0618**	0.0172**	0.0702**	0.0112**
1995	0.0001	−0.0027	−0.0423**	0.0216**	0.0775**	0.0125**

Private renting (base group public renting)

	Pr(2|1)	Pr(3|1)	Pr(4|1)	Pr(1|2)	Pr(3|2)	Pr(4|2)
1979	0.0052**	−0.0017	0.0001	−0.0034**	0.0004	−0.0019
1981	0.0094**	0.0008	−0.0017	0.0011	0.0003	0.0023
1983	0.0064**	0.0011	−0.0028	0.0024**	−0.0010	0.0026
1984	0.0073**	0.0002	−0.0129*	−0.0030*	−0.0010	−0.0022
1985	0.0019	0.0003	−0.0102*	0.0015	0.0001	−0.0092**
1986	0.0032	−0.0006	0.0004	−0.0031	−0.0014	−0.0139**
1987	0.0066	0.0010	−0.0028	−0.0016	−0.0013	−0.0073
1988	0.0062	−0.0029	−0.0037	−0.0042**	0.0002	−0.0095**
1989	0.0103**	0.0020	−0.0055	0.0044**	−0.0007	−0.0171**
1990	0.0032	−0.0004	0.0019	−0.0002	0.0001	−0.0183**
1991	0.0087**	−0.0109**	−0.0134*	0.0007	−0.0011	−0.0094**
1992	0.0152**	−0.0054*	−0.0149	−0.0018	0.0011	−0.0043
1993	0.0051	0.0013	−0.0278**	0.0025*	−0.0006	−0.0021
1994	−0.0038	0.0003	−0.0089	−0.0002	−0.0013	−0.0096**
1995	0.0003	−0.0006	−0.0088	0.0005	−0.0016*	−0.0037

	Pr(1|3)	Pr(2|3)	Pr(4|3)	Pr(1|4)	Pr(2|4)	Pr(3|4)
1979	0.0088**	0.0037	0.0010	−0.0083**	0.0076	0.0021*
1981	0.0035	0.0037	−0.0024	0.0005	0.0238**	0.0020
1983	0.0027	0.0121**	0.0046	0.0013	0.0208**	0.0018
1984	0.0068*	0.0115**	−0.0028	0.0050	0.0496**	0.0021
1985	0.0049	0.0064	−0.0094	0.0089**	0.0418**	0.0027*
1986	0.0066**	0.0137**	−0.0059	−0.0049	0.0473**	0.0006
1987	0.0042	0.0148**	0.0021	0.0006	0.0454**	−0.0002
1988	−0.0013	0.0066	0.0064	0.0062*	0.0477**	0.0005
1989	0.0044	0.0107**	−0.0108	0.0091**	0.0497**	0.0043**
1990	0.0025	0.0090	−0.0086	0.0092**	0.0422**	0.0017
1991	0.0129**	0.0091	0.0108	0.0064**	0.0397**	0.0010
1992	−0.0095	0.0061	0.0448**	0.0078**	0.0273**	0.0035*
1993	0.0028	0.0151**	0.0073	0.0074**	0.0446**	0.0030*
1994	−0.0009	0.0148**	−0.0065	0.0041	0.0451**	−0.0012
1995	0.0021	0.0116**	0.0042	0.0061*	0.0412**	0.0029