From the dark end of the street to the bright side of the road?♣

Investigating the returns to residential mobility in Britain

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Abstract: We examine the impact of moving home, the distance moved and reasons for moving on both household income and labour market earnings for a representative sample of individuals using panel data. Our results suggest that there are monetary returns to migration which apply to both household income and labour market earnings. However, not all migrants enjoy these returns, which depend on distance moved, family structure, and the employment situation of other family members. Further, returns to migration may not be enjoyed for some time after the move, emphasising the need for panel data in studies of residential mobility. Using data that are too recent relative to the time of migration will yield misleading results and underestimate the size of the premium attributable to residential mobility.

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♣ Morrison, 1979.

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Non-technical Summary

There are at least two potential economic benefits to moving house for labour market participants. The first relates to earnings from the labour market or income more generally. The second concerns employment. Individuals move either to increase their labour market earnings (a 'contracted' move) in which migration is a result of the job search process, or to increase their likelihood of finding work (a 'speculative' move) in which migration is an intrinsic part of the search for work. Our aim in this paper is to investigate the success of migrants by analysing the returns to migration in terms of earnings and household income more generally. In particular, using data from 1991 to 1997 from the British Household Panel Survey, individuals who move house are identified and their pre- and post-move earnings and household incomes are compared with non-movers.

We examine current household income and current individual labour income at each date of interview t, and their correlation with individuals migration status since the previous date of interview t-1. Controlling for a wide range of individual, area and job related characteristics and household circumstances, as well as taking into account unobserved differences, we are able to assess the impact of moving home, the distance moved and reasons for moving on household income and individual earnings. We also examine time dimensions in the returns to moving home through introducing lagged migration variables. Panel data provide accurate information on earnings and income, migrant status and a wide range of characteristics both before and after any move, and allow individual fixed effects to be eliminated. Descriptive statistics show that movers have higher incomes, both pre- and post move, than non-movers. Moving home is associated with increases in labour market earnings, but small falls in household income. This suggests that migration is a response to more favourable labour market opportunities.

Multivariate analysis shows that heads of households who move between regions experience falls in their household income relative to non-movers, all things equal. These relative income falls are particularly large for heads of households who are unemployed prior to the move. This is an important result as recent research has shown that unemployed individuals have higher rates of regional migration than those in work. Further, although recent movers experience relative falls in their household income, heads of households that moved between regions two years previously have relatively large increases in their household income. This suggests a significant time dimension in the returns to migration at the household level, which can perhaps be explained by other household members searching for suitable work in the new location. Men who move locally are found to receive an earnings premium relative to longer distance migrants and non-movers. Local moves may therefore be a response to wage increases, rather than wage increases resulting from migration.

Our results suggest that there are monetary returns to migration for both household income and labour market earnings. However, not all migrants enjoy these returns, and their magnitude depends on distance moved, family structure, and the employment situation of household members. Perhaps most importantly, a significant time dimension in the returns to migration emerges, emphasising the need for panel data in studies of residential mobility. Using data that are too recent relative to the time of migration will yield misleading results.

Introduction

> "…differences in net economic advantages, chiefly differences in wages, are the main causes of migration." (Hicks, 1932, p.76).

As the above quote suggests, the underlying motivation for migration from an economist's perspective is an expected net utility gain. In many theories of migration the decision to migrate is a choice variable determined by expected utility flows. There are at least two potential economic benefits to moving for labour market participants. The first relates to earnings from the labour market or income more generally. The second concerns employment. Individuals move to either increase their labour market earnings (a 'contracted' move) in which migration is a result of the job search process, or to increase their likelihood of finding work (a 'speculative' move), in which migration is an intrinsic part of the search for work. The aim of this paper is to investigate the success of migrants by analysing the returns to migration in terms of earnings and income more generally.[1] In particular, using data from 1991 to 1997 from the British Household Panel Survey (BHPS), individuals who move house are identified and their pre- and post-move labour market and household incomes are compared with non-movers.

Previous work has suggested that employment is an important motivation for moving. For example, Böheim and Taylor (1999) show that a desire to move motivated by employment reasons has the single largest impact on the probability of moving between regions. However, the most common reasons for moving are related to accommodation problems and partnership dissolution and formation. By analysing the monetary returns to migration, it is possible to investigate the impact of moving on the financial situation of households and individuals.

[1] We are interested in the impact of residential mobility on earnings and household income rather than on earnings mobility *per se*. See Atkinson et al (1992) for a survey of the earnings mobility literature, and Dickens (2000) and Ramos (1999) for studies of earnings mobility in Britain. Jarvis and Jenkins (1998) study household income mobility in Britain in the 1990s.

Early economic theories of migration were based on the notion that movers are in disequilibrium (Sjaastad, 1962). Migration was assumed to be driven by non-market clearing regional wages offering opportunities for utility gains. Differential wage rates across regions offer potential utility gains which can be exploited through migration. Alternative theories have been developed more recently, based on general equilibrium models (Greenwood, 1997). These assume that at any point in time both households and firms are in equilibrium. As a result, any movement away from this cannot improve the utility of the households or the profits of the firms. The underlying concept of this approach is that migration is a response to changes in demand for amenities resulting from rising incomes or other more general life-cycle developments.

These theories differ only in the relative importance of the factors that provide utility to individuals and households. The common theme is that individuals and households react to shocks to maximise their utility flows and migrants move in expectation of higher utility in the destination region. Mincer (1978) suggests that one potential reason why not all migrants enjoy positive monetary returns to migration is because some are 'tied' movers. 'Tied' individuals are defined as those whose net gains from migration are dominated by the gains (or losses) of their spouse. Mincer suggests that family ties result in negative personal externalities that are usually internalised by the family and therefore tend to discourage migration. A husband-wife family will migrate from Slumpcity to Boomtown if their joint net returns to migrating exceed their joint net costs. For example, if the wife's expected earnings in Boomtown are less than in Slumpcity, but the husband's are sufficiently greater to offset these losses, the wife would be a "tied mover". However, if husband's earnings gains in Boomtown fail to offset his wife's earnings loss, the couple would remain in Slumpcity and the husband would be a "tied stayer". Such ties tend to reduce the employment and earnings of those wives who do migrate and to increase the employment and earnings of their husbands. Therefore the earnings of tied husbands or wives who migrate will not necessary increase, and may be expected to fall relative to their pre-migration earnings, at least temporarily. However, the family income would be expected to increase. There is some evidence supporting this in the British and German literature, with individuals with a spouse in work having a lower probability of moving house (Böheim and Taylor, 1999 for Britain, and Jürges, 1998 for Germany).

Empirical evidence on the returns to migration, much of which is based on cross-sectional data, is rather mixed. The changing industrial structure of Britain's economy in recent years has certainly resulted in uneven patterns of economic development and declining job opportunities in different regions (Malpass and Murie, 1994). However, research suggests that the manual labour market in particular is unresponsive to these changes for various reasons (Hughes and McCormick, 1981, 1985, 1987), resulting in unemployment in areas of low demand and high wages in areas of high demand (Minford et al, 1987). In contrast, the non-manual labour market is more flexible, with similar regional unemployment rates, relatively high rates of regional mobility and net migration towards regions with high employment growth (Evans and McCormick, 1994).

There are few studies on the returns to migration that use longitudinal data.[2] Grant and Vanderkamp (1980) use Canadian data and find that recent migrants experience negative financial returns, especially long-distance migrants. The authors speculate that this is because long distance migration involves more uncertainty. Of long-distance migrants, single males experience the greatest monetary returns, while married females suffer large losses, supporting Mincer (1978). Maxwell (1988) uses U.S. data and concludes that married female migrants suffer substantial earnings losses immediately upon migration which decline over time, further evidence in favour of the tied mover hypothesis. Borjas et al (1992) find that migrants in the U.S. initially earn 10% less than local workers, but that this differential disappears after about six years. Long distance migrants experience an initial disadvantage about twice that of short distance migrants. Raphael and Riker (1999) study migrant workers in the U.S. and report that movers have considerably higher earnings before the move than non-movers, while moving results in an earnings premia of around 9%.

We investigate the monetary returns to migration from both the individual and household perspective using the first seven waves of the BHPS covering 1991 to 1997. We examine both current household income and current individual labour income at each wave t, and their correlation with the individuals' migration status. Controlling for a wide range of individual, area and job related characteristics and household circumstances, as well as taking into

[2] Most cross-sectional studies focus on US data and find that migration has a negative impact on earnings. Greenwood (1997) discusses why this might be the case.

account unobserved differences, we are able to assess the impact of moving home and the distance moved on household income and individual earnings.

Our results establish that there are monetary returns to migration for both household income and labour market earnings. However, not all migrants enjoy these returns, the magnitude depends on distance moved, family structure, and the employment situation of household members. Perhaps most importantly, a significant time dimension in the returns to migration emerges, emphasising the need for panel data in studies of residential mobility. Data obtained shortly after a move will yield misleading results, and underestimate the premia for regional mobility.

Methodology

Most previous studies of the monetary returns to migration have used cross-sectional data and focussed mainly on labour market earnings. The following specification of an earnings equation has typically been estimated:

$$\ln w_i = a_i\alpha + M_i\beta + R_i\gamma + \varepsilon_i$$

where w_i is the hourly wage, a_i are the personal characteristics, M_i the migrant dummy variable, R_i are characteristics of the destination region, α, β, and γ are vectors of coefficients to be estimated and ε_i is the random error term. The problems with such a specification are obvious. If, for example, migration is correlated with unobserved variables which also influence wages, then the coefficients will be biased.

Panel data allow such problems to be overcome. The following specifications, by taking differences, eliminate any individual and time invariant fixed effects reflected in the error terms.

$$\ln s_{i,t} - \ln \bar{s}_i = b_0\left(X_{i,t} - \overline{X}_i\right) + b_1(M_{i,t} - \overline{M}_i) + (u_{i,t} - \bar{u}_i)$$

$$\ln Y_{h,t} - \ln \overline{Y}_h = d_0\left(Z_{h,t} - \overline{Z}_{h,t-1}\right) + d_1(M_{h,t} - \overline{M}_h) + (v_{h,t} - \bar{v}_h)$$

where s_i are the weekly labour market earnings of individual i, X_i is a vector of personal, household, employer and local labour market characteristics thought to influence earnings,

M_i is the migration dummy variable, and $u_{i,t}$ the time varying individual specific error term. b_0 and b_1 are coefficient vectors to be estimated. Similarly, Y_h is the income of household *h*, Z_h a vector of household characteristics, d_0 and d_1 are coefficient vectors to be estimated, and $v_{i,t}$ is an error term. Such fixed effects models regress changes in labour market income and household income against changes in the explanatory variables. We essentially estimate whether migration is associated with greater increases in individual labour income or household income than for those who do not move, controlling for changes in a wide range of personal, household, family, job-related and local labour market characteristics.

Data

Our analysis uses data collected in the British Household Panel Survey (BHPS), a nationally representative sample of some 5,500 households recruited in 1991, containing approximately 10,000 persons. These same individuals are interviewed each successive year. If anyone splits from their original households to form a new household, all adult members of the new households are also interviewed. Children in original households are interviewed when they reach the age of 16. Thus the sample remains broadly representative of the population of Britain as it changes through the 1990s. We examine the residential mobility, income and earnings behaviour of individuals who move house relative to those who remain at the same address over the period 1991 to 1997.

The BHPS core questionnaire elicits information about income from various sources, labour market status, housing tenure and conditions, household composition and consumption, education and health at each annual interview. Information on employment changes that have occurred within the period between interviews is also collected. The BHPS attempts to follow all movers who remain in Great Britain and, although attrition among migrants is higher than that among non-migrants, Buck (1997) reports that almost 75% of actual movers between waves 1 and 2 were traced. Panel data such as these are ideally suited to the study of

migration, providing detailed information on individuals and households before and after any move.[3]

Excluding full-time students, who tend to live in temporary accommodation and move frequently, the BHPS provides a sample size of 51,605 person-year observations. We use an unbalanced panel, although individuals have to be interviewed at two consecutive waves to be included.[4] Movers are defined as those who have changed address in the period between two consecutive dates of interview. Table 1 shows that approaching 8% of the sample moves house each year.[5] From the data we are also able to identify local moves, defined as moves within a local authority district, moves out of a local authority district but within a standard region, and moves that cross regional boundaries. Most moves are short distance, with 66% of all moves occurring within local authority boundaries. We find that about 1.4% of individuals move regions each year, while regional moves account for 18% of all moves.

The BHPS is a multi-purpose survey, and therefore devotes less time to the collection of income data than specialist surveys such as the Family Expenditure Survey (FES). While this has some disadvantages, it has the clear benefit of collecting information on a wide range of household and demographic characteristics. Taylor *et al* (1994) compare household income recorded in the BHPS at wave 1 to comparable data from the FES, and remark on their similarity. Taylor (1994) provides further discussion of the representativeness of the BHPS data.

Table 2 presents the average gross weekly income by wave for a number of different categories of income. Note that gross weekly household income has been equivalised to take the greater needs of larger households into account. All incomes are real, deflated to January 1998 prices, and imputed values are excluded from all analysis. The first row considers gross

[3] Coleman and Salt (1992) suggest that "the general lack of longitudinal data is a major vacuum in understanding British migration.." (p.400).
[4] Böheim and Taylor (1999) use the same data source to examine residential mobility in Britain in some detail, and provide some descriptive statistics regarding housing tenure, employment status and migration.
[5] This proportion is lower than the 10% reported in Böheim and Taylor (1999) using the same data set. The difference can be explained by the inclusion of pensioners in the current sample, who tend to have lower rates of residential mobility.

weekly equivalised household income for each head of household in the sample.[6] This shows that, across the seven currently available waves of data, the average household income is over £380 per week. Real gross equivalised household income has, on average, been consistently increasing across the period, from £355 per week at wave 1 to £410 per week at wave 7. The second and third rows show that each individual in the sample earns on average £135 gross per week in 1998 prices, while the average labour income conditional on working is £240 gross per week.[7] Again, the table shows a consistent increase in this across the period, with the exception of wave 6 when average labour income fell marginally relative to that in wave 5. Focusing on full-time workers (the last 2 rows) shows a considerable difference between men and women's average gross weekly labour income. Average gross weekly labour income for women is only 80% of that for men, although this differential has narrowed. The real gross labour income of full-time men has increased by 6% over the seven years (from £288 to £312), while that for women has increased by 13% (from £215 to £244).

Table 3 examines changes in income between two consecutive waves by migrant status and by the distance moved. First, it is worth noting that movers on average have higher incomes (both pre- and post- move, and for all definitions of income) than non-movers. This may reflect the ability to meet the costs of moving home. Non-moving heads of households experience average increases in their household incomes of £3.73 per week from wave to wave, while movers experience a fall of £1.43 per week. There appears to be little systematic relationship between distance moved and changes in household income.[8] Household heads who move between local authorities but within standard regions experience the largest average fall in income of £2.93 per week. Regional movers experience the smallest fall at £1.03 per week. Note however, that these equate to proportionate changes of less than one per cent.

A different picture emerges with labour income. It is evident that movers have considerably larger increases in their gross weekly labour income than non-movers. The largest increases

[6] This is measured in the month prior to the respective date of interview.
[7] By conditional on working, we mean employed or self-employed at the current date of interview. Labour income is measured as gross usual pay for employees, and calculated from earnings in the most recently available period for the self-employed.

are for those who move across local authority boundaries but not regional ones. For those in work pre- and post- move, such a move results in an average increase in labour income of more than £70 per week (or 23%), compared to £46 (19%) and £47 (13%) for those who move either within a local authority or across regional boundaries. This compares to an average annual increase of £11 per week (4%) in labour income from wave to wave. These purely descriptive tables suggest that moving home is a response to higher labour income opportunities, but results in small falls in household income.

Multivariate results

Household income

Multivariate analysis takes the form of fixed effects models which regress the log of equivalised household gross weekly income against a variable indicating whether the individual changed address in the last year and a host of other controls. The results from the estimation procedure are shown in Table 4, Table 5 and Table 6 and continue in Appendix Table 1.[9] We estimate two specifications. The first uses a dummy variable for having moved house since the previous date of interview, while the second includes three dummy variables to capture the distance moved since the previous date of interview. We limit discussion to the coefficients of main interest.

From the estimation results, it appears that moving house has no significant impact on gross equivalised household income (Table 4, specification 1). The estimated coefficient is negative, but small and poorly determined (an estimated coefficient of –0.027 and a t-statistic of 1.43). Therefore heads of households who move house do not experience any increase in their household income relative to non-movers, all things equal. This suggests that movers experience utility gains from non-financial sources.[10]

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[8] Of course, these measures of distance moved are only approximations. For example, it is possible for short distance moves to cross regional boundaries, while some moves within the same local authority district could involve considerable distance.

[9] Note that the F-test for the individual fixed effect equals zero (v_i=0) is rejected in all specifications, indicating that the fixed effects specification is preferred to a pooled OLS regression.

[10] As we have no amenity controls, other than the local unemployment rate and regional house price index, it is difficult to capture these sources.

The second specification examines the impact of distance moved on household income. Moves within a local authority district and within a region are not associated with significant changes in household equivalised income. However, moves across regional boundaries have a negative and significant impact. Therefore, heads of households who move between regions experience relative falls in their household income, all things equal. This corresponds with the findings of Grant and Vanderkamp (1980) for Canada, and may reflect the increased uncertainty of long distance moves. Migrants who move long distances are likely to have less information on their destination location, particularly knowledge of the local labour market and job contacts. A negative relationship between distance moved and changes in household income may also reflect tied movers. Household moves may result in a temporary fall in income if one or more members of the household are required to quit their job to facilitate the career of another. Successful job search in the new location may restore household income to a level exceeding that pre-move.

Table 5 reports the results from investigating these issues in more detail by interacting migrant status and distance moved with household type, spouse's employment status, and the employment status of the head of household. Specification 1 shows that single person households who move experience falls in their household income relative to non-mover households. Furthermore, specification 2 suggests that it is single person households who move locally or between regions that experience these relative income falls (the coefficient on the latter is significant at the 10% level only). The lack of significance of the other family type and spouse employment status interactions implies that tied moves do not have an impact on migrant household income. Specification 2 also shows that households where the heads are unemployed at the date of interview prior to the move suffer a relative drop in their income. Therefore inter-regional moves are not beneficial to households with unemployed heads. This is an important result, as unemployed individuals have been found to have higher rates of regional mobility than those in employment (Böheim and Taylor, 1999). These findings suggest that high levels of regional mobility is not advantageous for the unemployed.

Table 6 investigates the time aspect in more detail by including lagged migration variables. In particular, we include variables which indicate whether a head of household moved in the

current year, in the last year or in the year before that (at t, t-1 or t-2).[11] Specification 1 shows that heads of households who moved recently experience a relative fall in their income (significant at the 10% level). The size of the effect is larger than in Table 4. However, heads of households who moved two years previously experience a relative increase in their household income. The coefficient is large and well determined (0.0706 with a t-statistic of 3.02). Specification 2 suggests that this time effect is particularly relevant for moves between regions. Heads of households who moved between regions two years previously have large relative increases in their household income. This may be explained by successful job search in the new location restoring household income to a level exceeding that pre-move. There is, therefore, a significant time dimension in the returns to migration at the household level, emphasising the need for panel data. Using data that are too recent relative to the time of migration will give misleading results.

Labour income

Table 7 focuses on the impact of residential mobility and the distance moved on individual weekly labour income for men and women.[12] Specification 1 shows that, for men, moving house is associated with an increase in labour income relative to non-movers, all things equal. The coefficient on the mover variable is large, positive and well-determined. As shown in specification 2, local moves display a positive effect on male labour income. Intra- and interegional moves have no significant impact. Therefore men who move locally receive a wage premium relative to longer distance migrants and those that do not move at all. This questions the causality involved here, with local moves perhaps a response to a wage increase rather than wage increases resulting from migration.[13]

For women, moving house is also associated with larger than average increases in labour income (specification 1). Specification 2 shows that both local and intraregional moves have a positive and significant association with labour income. Therefore only moves that cross regional boundaries do not result in higher labour income. This may reflect tied movers, with

[11] The introduction of lagged variables results in the smaller sample size for the estimation presented in Table 6. Within this specification, it is possible to move locally at t, intraregionally at t-1, and interregionally at t-2. The number of such cases however is small.
[12] Estimation is conditional on respondents being employed at the dates of interview both pre- and post move.
[13] We are unable to investigate causality as we have no information on individual's earnings profiles between dates of interview.

longer distance female migrants needing time to adjust to the labour market at their destination.

To investigate the relationships between migration, distance moved, family status, and spouse's employment status in more detail, we estimate the models with several interaction terms included. Table 8 shows that men heading couples (either with or without children) and single men who move experience increases in their labour income relative to non-moving households. As before, however, Table 9 suggests that it is moves within a local authority district that result in the relative increases in labour income. Partnered male heads of households and single men who move locally experience net gains in their labour market income. Again this may reflect households moving locally in response to a wage increase rather than receiving a wage premium for moving home. Single men who move within their region but outside the local authority district also experience a relative increase in their labour income.

The results however are rather different for women. Single women who move experience an increase in their labour income relative to non-movers (Table 8). The coefficient is large and well determined. Women in couples without children and who move also appear to be financially rewarded in the labour market, although this coefficient is statistically significant only at the 10% level. Again it is single women that move within a local authority district, or within a standard region, that receive the premia (Table 9). However, partnered women with children who move between regions also receive relative increases in their labour income. Further, women with an employed husband who move between regions experience a relative fall in their labour income (significant at the 10% level). This suggests that women with employed husbands who move between regions are tied since they earn less after the move than before. However, women with children and a non-working husband move to exploit labour income opportunities between regions, with the husbands as the tied movers.

Table 10 presents the results from an estimation including lagged migration measures to investigate how the time elapsed since the move affects the labour market returns to migration. We expect a time dimension to be important for tied movers, who may need to find suitable employment in the new location. Similarly, moves associated with a change in employer may result in future wage premia as individuals accumulate more firm-specific

human capital. Estimates presented in specification 1 suggest that, although residential moves in the previous two years are associated with significant relative increases in labour market income for both men and women, the greatest effect is for recent moves. The coefficient on the recent mover variable is 50% larger among men and 40% larger among women than on the lagged mover variables. Therefore, moving home is associated with an immediate significant labour income increase, which continues in successive years post move.

Specification 2 shows that this is true of local moves for both men and women. However, the returns to intraregional moves among women and interregional moves among men appear to increase with the time since move. The coefficients on the lagged mover variables are larger and better determined than those on the recent mover variables. This may reflect tied movers finding more suitable jobs in the destination location, perhaps due to establishing networks, contacts or accumulating knowledge of the local labour market, or returns to firm-specific human capital for those who change employers.

Reasons for moving

The results discussed thus far have concentrated on all movers, irrespective of the reasons for the move. Previous research suggests that only a small proportion of migrants move for reasons that are related to their job or employment. Böheim and Taylor (1999) report that under 15% of migrants report moving for job related reasons, and that one third of these do so to start a new job with a new employer. Over one half of moves are for either accommodation or partnership reasons.[14] Therefore, perhaps we should not expect premia for those who move for reasons unrelated to their employment situation. To correct for this, all models have been re-estimated with a variable controlling for job-related moves. The results from doing so are reported in Table 11, Table 12 and Table 13.

Table 11 reveals that heads of households who move for job related reasons experience falls in their gross weekly equivalised household income relative to both non-movers and those who move for other reasons (significant at the 10% level), with a point estimate of –0.0158-0.0877=-0.1035 (specification 1). Interestingly, specification 2 shows that it is those that

[14] Figures reported in Böheim and Taylor (1999), Table 9, p.31.

move locally for job reasons that experience the most significant relative fall in household income. An intuitive explanation for this is not obvious.[15]

Table 12 and Table 13 present the estimates for the impact of moving for job-related reasons on gross weekly labour income for men and women. The former shows that, in general, moving for job-related reasons has no differential impact on labour income than moving for other reasons – the coefficient is small and poorly determined (specification 1). Specification 2 shows that moving any distance for job-related reasons has little impact for men over and above other moves. Among women, job-related moves again have little differential impact on labour income (Table 13, specification 1). Specification 2 shows that local movers experience increases in their labour income relative to non-movers. Moving locally for job reasons has no additional impact. Women who move out of their local authority district but remain within the standard region also experience relative increases in their labour income (significant at the 11% level). However, this increase is significantly greater for those who move interregionally for job-related reasons.[16] Inter-regional moves offer labour income premia for women, irrespective of the reasons for moving.

Conclusions

In this paper we investigate the monetary returns to migration from both the individual and household perspective using the first seven waves of the BHPS covering 1991 to 1997. We examine both current household income and current individual labour income at each wave, and their correlation with the individuals migration status since the previous wave. Controlling for a wide range of individual, area and job related characteristics and household circumstances, as well as taking unobserved differences into account, we assess the impact of moving home and the distance moved on household income and individual earnings. Panel data provide accurate information on earnings and income, migrant status and a wide range of

[15] Further investigation, interacting distance moved by more detailed categories of reasons for moving, shows that individuals who move locally in order to start a business experience the largest relative falls in household income. Economic theory suggests that longer distance movers who change job experience a fall in earnings, as they will lose environmental factors that may affect productivity. Also, occupational changes and changes of employer may involve losses of human capital and firm-specific training.

characteristics both before and after any move, and allow individual fixed effects to be eliminated.

Our results demonstrate the existance of monetary returns to migration, for both household income and labour market earnings, and support conventional economic theory. However, not all migrants enjoy these returns, the size of the premium depends on distance moved, family structure, and the employment situation of household members. Perhaps most importantly, we show that movers experience relative financial gains some time after the move. Although some households experience temporary financial losses on moving, this is compensated by future gains. This emphasises the need for panel data in studies of residential mobility as using data that are too recent relative to the time of migration will yield misleading results.

[16] In particular, women who move within a region but outside a local authority district and who move to start a new job (either with the same employer or with a new employer) experience large relative increases in their labour income.

References

Atkinson, A.B., Bourguignon, F. and Morrisson, C. (1992), *Empirical Studies of Earnings Mobility*, Harwood Academic Publishers: Reading.

Böheim, R. and Taylor, M.P. (1999), "Residential mobility, housing tenure and the labour market in Britain", Programme on Labour Market Dynamics in a Changing Environment, Discussion paper 99/35, Institute for Labour Research, University of Essex.

Borjas, G.J., Bronars, S.G. and Trejo, S.J. (1992), "Self-selection and internal migration in the United States", *Journal of Urban Economics*, 32, pp.159-185.

Buck, N. (1997), "Using panel surveys to study migration and residential mobility" in D. Rose (ed), *Researching Social Change*, UCL Press: London.

Coleman, D. and Salt, J. (1992), *The British Population: Patterns, Trends and Processes*, Oxford University Press: Oxford.

Dickens, R. (2000), "The evolution of individual male earnings in Great Britain, 1975-1994", *Economic Journal*, Vol. 110 (460), pp27-49.

Evans, P. and McCormick, B. (1994), "The new pattern of regional unemployment: Causes and policy significance", *Economic Journal*, Vol 104 (424), pp633-647.

Grant, E.K. and Vanderkamp, J. (1982), "The effects of migration on income: A micro study with Canadian data 1965-1971", *Canadian Journal of Economics*, 13, pp.381-406.

Greenwood, M.J. (1997), "Internal migration in developed countries", in M.R. Rosenzweig and O. Stark (eds.), *Handbook of Population and Family Economics*, Amsterdam: Elsevier.

Hicks, J.R. (1932), *The Theory of Wages*, Macmillan, London.

Hughes, G. and McCormick, B. (1981), "Do council housing policies reduce migration between regions?", *Economic Journal*, Vol. 91

Hughes, G. and McCormick, B. (1985), "Migration intentions in the UK: Which households want to migrate and which succeed?", *Economic Journal*, Vol. 95.

Hughes, G. and McCormick, B. (1987), "Housing markets, unemployment and labour market flexibility in the UK", *European Economic Review, 31*, pp615-645.

Jarvis, S. and Jenkins, S.P. (1998), "How much income mobility is there in Britain?", *Economic Journal*, 108(447), March 1998, pp428-443.

Jürges, H. (1998), "Beruflich bedingte Umzüge von Doppelverdienern", *Zeitschrift für Soziologie*, 27, pp358-377.

Malpass, P. and Murie, A. (1994), *Housing Policy and Practice, 4th Edition*. Macmillan: London.

Maxwell, N.L. (1988), "Economic returns to migration: Marital status and gender differences", *Social Science Quarterly*, 69, pp108-121.

Mincer, J. (1978), "Family migration decisions", *Journal of Political Economy*, 86, pp749-773.

Minford, P., Peel, M. and Ashton, P. (1987), "*The Housing Morass*", Institute of Economic Affairs; London.

Ramos, X. (1999), "Anatomy of earnings mobility in Great Britain: Evidence from the BHPS, 1991-1995", *Institute for Social and Economic Research* Working Paper 99-4, University of Essex: Colchester.

Raphael, S. and Riker, D.A. (1999), "Geographic mobility, race and wage differentials", *Journal of Urban Economics*, 45, pp.17-46.

Sjaastad, L.A. (1962), "The costs and returns of human migration", *Journal of Political Economy*, Supplement 70, pp.80-89.

Taylor, A. (1994), "Appendix: Sample characteristics, attrition and weighting", in N. Buck, J. Gershuny, D. Rose and J. Scott (eds), *Changing Households*, University of Essex: Colchester.

Taylor, M.P., Keen, M., Buck, N. and Corti, L. (1994), "Income welfare and consumption", in N. Buck, J. Gershuny, D. Rose and J. Scott (eds), *Changing Households*, University of Essex: Colchester.

Tables

Table 1: National, regional and local moves, BHPS waves 1-7

	All moves	Between Regions	Between LA districts but within regions	Within Local Authority Districts
Number of movers t+1	3822	694	604	2525
Per cent	*7.8*	*1.4*	*1.2*	*5.2*
Per cent of moves	*100*	*18.2*	*15.8*	*66.1*
N=48,896				

Note: BHPS. Movers are defined on a wave-on-wave basis. Weighted using cross-sectional weights.

Table 2: Mean gross weekly income by wave, BHPS waves 1 to 7

	Wave							
Income measure	1	2	3	4	5	6	7	Total
Equivalised household income	355.06	359.67	366.41	379.91	395.95	399.87	409.66	380.39
N households	*3,671*	*3,557*	*3,298*	*3,333*	*3,229*	*3,246*	*3,260*	*23,594*
Individual labour income	126.86	129.80	131.20	135.08	141.14	139.85	144.45	135.31
N individuals	*8,541*	*8,187*	*7,776*	*7,823*	*7,627*	*7,774*	*7,748*	*55,476*
Individual labour income conditional on working*	224.89	234.23	235.15	240.47	246.54	245.30	253.89	239.92
N individuals	*4,951*	*4,732*	*4,582*	*4,677*	*4,633*	*4,789*	*4,823*	*33,217*
Full-time labour income, men	288.33	298.19	302.15	310.50	310.90	311.07	316.14	305.02
N individuals	*2,363*	*2,210*	*2,111*	*2,152*	*2,179*	*2,234*	*2,270*	*15,519*
Full-time labour income, women	215.35	233.28	238.66	243.51	257.49	250.06	271.81	244.26
N individuals	*1,382*	*1,345*	*1,317*	*1,380*	*1,348*	*1,388*	*1,402*	*9,562*

Notes: All income measures deflated to January 1998 prices. Household income equivalised using McClements scale before housing costs. Weighted using cross-sectional weights. Full-time workers defined as working more than 30 hours per week. * Refers to those in employment at wave t.

Table 3: Mean gross income by migrant status and distance moved

Income measure (£ per week)	Migrant status*		Distance moved*			Total
	Non-mover	Mover	Local	Intra-regional	Regional	
Equivalised household income						
At t-1	383.39	451.15	409.19	520.35	535.26	388.66
At t	387.12	449.72	408.00	517.42	534.22	391.99
Difference	3.73	-1.43	-1.18	-2.93	-1.03	3.33
(as % of income at t-1)	*(0.97)*	*(-0.32)*	*(-0.29)*	*(0.56)*	*(-0.19)*	*(0.86)*
Labour income						
At t-1	129.09	169.84	147.25	203.05	226.85	132.26
At t	130.66	194.52	169.81	249.63	240.72	135.63
Difference	1.58	24.68	22.56	46.58	13.88	3.37
(as % of income at t-1)	*(1.22)*	*(14.53)*	*(15.32)*	*(22.94)*	*(6.12)*	*(2.55)*
Labour income conditional on working						
At t-1	243.05	274.65	244.90	307.04	355.90	245.82
At t	249.86	324.77	290.27	377.40	403.12	256.41
Difference	6.80	50.12	45.77	70.37	47.22	10.59
(as % of income at t-1)	*(2.80)*	*(18.25)*	*(18.69)*	*(22.92)*	*(13.27)*	*(4.31)*

Notes: All income measures deflated to January 1998 prices. Household income equivalised using McClements scale before housing costs. Weighted using cross-sectional weights.

* Household migrant status defined by status of the head of household.

Table 4: Estimated gross weekly equivalised household income by distance moved (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover	-0.0270	*1.43*		
Local mover			-0.0106	*0.47*
Intraregional mover			-0.0318	*0.72*
Interregional mover			-0.0847	*2.00*
R^2	0.113		0.111	
F	43.44		40.72	
Prob > F	0.0000		0.0000	
F ($v_I = 0$)	3.29		3.28	
Prob > F	0.0000		0.0000	
N Observations	16,308		16,308	
N Households	5,128		5,128	

Notes: Dependent variable is log weekly equivalised household income. Migration status refers to the status of the head of household. Regression also includes; age, age^2, lagged weekly equivalised household income, employment status, family status, partner's employment status, number and ages of children, housing tenure, household size, number employed in household, region dummies, local unemployment rate, regional house price index, duration in current labour market status. See Appendix Table 1 for coefficients on these variables.

Table 5: Estimated gross weekly equivalised household income by migrant status and distance moved (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover *				
Couple with child(ren)	0.0245	*0.51*		
Couple without child	-0.0272	*0.54*		
Single	-0.0775	*2.28*		
Single parent	0.0776	*0.89*		
Spouse employed	0.0331	*0.65*		
Spouse changed job	0.0376	*0.31*		
Changed job status	-0.0502	*1.27*		
Unemployed	-0.0640	*0.68*		
Local Mover *				
Couple with child(ren)			0.0384	*0.68*
Couple without child			-0.0139	*0.23*
Single			-0.0831	*2.03*
Single parent			-0.0071	*0.07*
Spouse employed			0.0310	*0.50*
Spouse changed job			0.1115	*0.67*
Changed job status			-0.0337	*0.65*
Unemployed			0.0983	*0.88*
Intraregional Mover *				
Couple with child			-0.0189	*0.13*
Couple no child			-0.0127	*0.08*
Single			-0.0320	*0.45*
Single parent			0.3125	*1.37*
Spouse employed			0.0279	*0.20*
Spouse changed job			-0.1235	*0.52*
Changed job status			-0.1010	*1.03*
Unemployed			-0.2757	*0.82*
Interregional Mover *				
Couple with child			-0.0651	*0.57*
Couple no child			-0.0434	*0.40*
Single			-0.1438	*1.77*
Single parent			0.3645	*1.52*
Spouse employed			0.0331	*0.30*
Spouse changed job			0.0485	*0.20*
Changed job status			-0.0029	*0.03*
Unemployed			-0.6230	*3.08*
R^2	0.111		0.105	
F	35.29		24.77	
Prob > F	0.0000		0.0000	
F ($v_i = 0$)	3.28		3.27	
Prob > F	0.0000		0.0000	
N Observations	16,308		16,308	
N Individuals	5,128		5,128	

Notes: See notes for Table 4 .

Table 6: Estimated gross weekly equivalised household income with lagged migration status (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover	-0.0417	*1.88*		
Mover (t-1)	0.0095	*0.44*		
Mover (t-2)	0.0706	*3.02*		
Local mover			-0.0416	*1.57*
Local mover (t-1)			-0.0041	*0.16*
Local mover (t-2)			0.0439	*1.55*
Intraregional mover			-0.0047	*0.09*
Intraregional mover (t-1)			0.0535	*1.06*
Intraregional mover (t-2)			0.0737	*1.39*
Interregional mover			-0.0827	*1.61*
Interregional mover (t-1)			0.0302	*0.61*
Interregional mover (t-2)			0.1658	*2.99*
R^2	0.138		0.137	
F	30.09		25.38	
Prob > F	0.0000		0.0000	
F (v_i= 0)	2.78		2.78	
Prob > F	0.0000		0.0000	
N Observations	12,905		12,905	
N Households	4,442		4,442	

Notes: See notes for Table 4

Table 7: Estimated gross weekly labour income by mover and distance moved (fixed effects)

Variable	Men		Women	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2
Mover	0.0831		0.0622	
	(6.96)		*(5.05)*	
Distance moved				
Local		0.1059		0.0690
		(7.54)		*(4.63)*
Intraregional		0.0458		0.0626
		(1.73)		*(2.37)*
Interregional		0.0192		0.0359
		(0.67)		*(1.29)*
R^2	0.3	0.3	0.6	0.6
F	14.34	14.10	37.79	36.75
Prob > F	0.0000	0.0000	0.0000	0.0000
F ($v_i = 0$)	2.61	2.62	2.99	2.99
Prob > F	0.0000	0.0000	0.0000	0.0000
N Observations	10,971	10,971	10,449	10,449
N Individuals	3,057	3,057	2,955	2,955

Notes: Dependent variable is log weekly labour income. Regression also includes; age, age^2, lagged weekly labour income, family status, number and ages of children, housing tenure, region dummies, duration in current job, contractual status, occupation, manual job, hours, hours overtime, paid overtime hours, whether training received in last year, manager, foreman, bonus payment received, promotion prospects, pension scheme coverage and membership, incremental pay scales, sector of employment, industry, firm size, time of day worked, travel to work time, whether changed job in past year, local unemployment rate, local house price index. See Appendix Table 2 for full details.

Table 8: Estimated gross weekly labour income by mover (fixed effects)

Variable	Men		Women	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover *				
Couple with child(ren)	0.0531	*1.80*	0.0172	*0.30*
Couple without child	0.0844	*2.29*	0.0934	*1.77*
Single	0.1766	*7.35*	0.1682	*6.36*
Single parent	0.0849	*0.46*	-0.0269	*0.49*
Spouse employed	-0.0100	*0.30*	-0.0336	*0.63*
Spouse changed job	0.0129	*0.20*	0.0465	*0.99*
Changed job	-0.0318	*1.25*	-0.0227	*0.87*
R^2	0.34		0.64	
F	13.51		35.30	
Prob > F	0.0000		0.0000	
F ($v_i = 0$)	2.60		2.99	
Prob > F	0.0000		0.0000	
N Observations	10,971		10,449	
N Households	3,057		2,955	

Notes: See notes for Table 7.

Table 9: Estimated gross weekly labour income by distance moved (fixed effects)

Variable	Men		Women	
	Coeff	*t-stat*	Coeff	*t-stat*
Local Mover *				
Couple with child(ren)	0.0897	*2.58*	-0.0363	*0.54*
Couple without child	0.1399	*3.18*	0.0843	*1.36*
Single	0.1973	*7.13*	0.1843	*5.79*
Single parent	0.1536	*0.71*	-0.1080	*1.72*
Spouse employed	-0.0534	*1.31*	0.0017	*0.03*
Spouse changed job	0.0468	*0.54*	0.0385	*0.68*
Changed job	-0.0160	*0.50*	-0.0081	*0.24*
Intraregional Mover *				
Couple with child(ren)	-0.0555	*0.76*	-0.1358	*0.92*
Couple without child	0.0183	*0.21*	0.0050	*0.04*
Single	0.1579	*2.99*	0.2100	*3.95*
Single parent	—	—	0.0808	*0.70*
Spouse employed	0.0642	*0.80*	0.0625	*0.44*
Spouse changed job	0.1228	*0.78*	0.0702	*0.59*
Changed job	-0.0964	*1.70*	-0.0764	*1.38*
Interregional Mover *				
Couple with child(ren)	-0.0325	*0.46*	0.3391	*2.44*
Couple without child	-0.1103	*1.25*	0.1709	*1.35*
Single	0.0413	*0.66*	0.0598	*0.98*
Single parent	-0.1016	*0.31*	0.2912	*1.81*
Spouse employed	0.0866	*1.15*	-0.2157	*1.71*
Spouse changed job	-0.0941	*0.76*	0.0086	*0.07*
Changed job	0.0524	*0.92*	0.0100	*0.18*
R^2	0.34		0.64	
F	11.78		30.20	
Prob > F	0.0000		0.0000	
F ($v_i = 0$)	2.60		3.00	
Prob > F	0.0000		0.0000	
N Observations	10,971		10,449	
N Individuals	3,057		2,955	

Notes: See notes for Table 7.

Table 10: Estimated gross weekly labour income with lagged migration status (fixed effects)

Variable	Men		Women	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2
Mover	0.1021		0.0732	
	(7.35)		*(4.99)*	
Mover (t-1)	0.0668		0.0524	
	(4.75)		*(3.54)*	
Mover (t-2)	0.0675		0.0567	
	(4.59)		*(3.66)*	
Local mover		0.1218		0.0823
		(7.57)		*(4.64)*
Local mover (t-1)		0.0806		0.0532
		(4.91)		*(2.92)*
Local mover (t-2)		0.0846		0.0545
		(4.79)		*(2.83)*
Intraregional mover		0.0671		0.0720
		(2.17)		*(2.22)*
Intraregional mover (t-1)		0.0253		0.0897
		(0.80)		*(2.79)*
Intraregional mover (t-2)		0.0628		0.1080
		(1.85)		*(3.12)*
Interregional mover		0.0624		0.0488
		(1.79)		*(1.41)*
Interregional mover (t-1)		0.0704		0.0184
		(2.06)		*(0.58)*
Interregional mover (t-2)		0.0919		0.0224
		(2.52)		*(0.65)*
R^2	0.2	0.2	0.5	0.5
F	9.14	8.66	23.5	21.77
Prob > F	0.0000	0.0000	0.0000	0.0000
F ($v_i = 0$)	2.83	2.84	2.95	2.95
Prob > F	0.0000	0.0000	0.0000	0.0000
N Observations	8,594	8,594	8,241	8,241
N Individuals	2,620	2,620	2,571	2,571

Notes: See notes for Table 7.

Table 11: Estimated gross weekly equivalised household income by mover and reason for moving (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover	-0.0158	*0.79*		
Moved for job related reasons	-0.0877	*1.76*		
Local mover			-0.0018	*0.08*
Moved locally for job reasons			-0.1874	*1.86*
Intraregional mover			-0.0451	*0.92*
Moved intraregionally for job reasons			0.0575	*0.55*
Interregional mover			-0.0418	*0.76*
Moved interregionally for job reasons			-0.1069	*1.26*
R^2	0.11		0.11	
F	42.10		37.29	
Prob > F	0.0000		0.0000	
F ($v_i = 0$)	3.29		3.28	
Prob > F	0.0000		0.0000	
N Observations	16,308		16,308	
N Households	5,128		5,128	

Notes: See notes for Table 4.

Table 12: Estimated gross weekly labour income by mover and reason for moving for men (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover	0.0848	*6.69*		
Moved for job related reasons	-0.0118	*0.40*		
Local mover			0.1041	*7.24*
Moved locally for job reasons			0.0329	*0.57*
Intraregional mover			0.0599	*1.95*
Moved intraregionally for job reasons			-0.0505	*0.88*
Interregional mover			-0.0115	*0.30*
Moved interregionally for job reasons			0.0648	*1.19*
R^2	0.33		0.32	
F	14.14		13.57	
Prob > F	0.0000		0.0000	
F ($v_i = 0$)	2.61		2.62	
Prob > F	0.0000		0.0000	
N Observations	10,971		10,971	
N Individuals	3,057		3,057	

Notes: See notes for Table 7.

Table 13: Estimated gross weekly labour income by mover and reason for moving for women (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	*t-stat*	Coeff	*t-stat*
Mover	0.0609	*4.73*		
Moved for job related reasons	0.0129	*0.37*		
Local mover			0.0714	*4.67*
Moved locally for job reasons			-0.0392	*0.62*
Intraregional mover			0.0448	*1.61*
Moved intraregionally for job reasons			0.1640	*2.00*
Interregional mover			0.0294	*0.87*
Moved interregionally for job reasons			0.0207	*0.36*
R^2	0.63		0.64	
F	37.26		35.35	
Prob > F	0.0000		0.0000	
F ($v_i = 0$)	2.98		2.98	
Prob > F	0.0000		0.0000	
N Observations	10,449		10,449	
N Individuals	2,955		2,955	

Notes: See notes for Table 7.

Appendix

Appendix Table 1: Estimated gross weekly equivalised household income by mover (fixed effects)

Variable	Specification 1		Specification 2	
	Coeff	t-stat	Coeff	t-stat
Log Household income (t-1)	-0.147	*15.48*	-0.147	*15.51*
Family				
Couple with children	*Reference category*			
Couple no children	0.031	*0.73*	0.031	*0.73*
Single	-0.120	*2.08*	-0.121	*2.10*
Single parent	-0.231	*3.59*	-0.232	*3.60*
Number children	0.004	*0.15*	0.004	*0.15*
Child aged 0-5 years	-0.045	*1.09*	-0.045	*1.10*
Child aged 6-10 years	-0.049	*1.12*	-0.049	*1.13*
Child aged 11-16 years	-0.010	*0.24*	-0.010	*0.25*
Labour market				
Employed	*Reference category*			
Self-employed	-0.219	*5.52*	-0.219	*5.52*
Unemployed	-0.689	*18.00*	-0.689	*17.98*
Retired	-0.374	*10.32*	-0.373	*10.29*
Other status	-0.287	*7.46*	-0.287	*7.45*
Spouse employment status				
Spouse employed	0.088	*3.09*	0.087	*3.06*
Spouse changed job	-0.005	*0.10*	-0.005	*0.10*
Housing tenure				
Own home with mortgage	*Reference category*			
Own home outright	-0.026	*0.80*	-0.026	*0.79*
Social housing	0.052	*0.97*	0.052	*0.98*
Housing association	0.040	*0.69*	0.042	*0.73*
Private renter	0.032	*0.87*	0.035	*0.95*
Household characteristics				
Household size	-0.115	*0.63*	-0.115	*6.33*
Number employed in household	0.150	*8.28*	0.150	*8.28*
Region of residence				
London	*Reference category*			
South East	0.008	*0.10*	0.013	*0.15*
South West	-0.199	*1.67*	-0.189	*1.58*
Midlands	-0.024	*0.23*	-0.010	*0.10*
North	0.007	*0.05*	0.017	*0.13*
Wales	-0.038	*0.19*	-0.018	*0.09*
Scotland	0.040	*0.17*	0.045	*0.19*
Regional characteristics				
Regional unemployment rate	-1.208	*3.79*	-1.217	*3.82*
Regional house price index	0.123	*1.73*	0.122	*1.72*
Constant	6.871	*45.84*	6.865	*45.79*

Notes: See notes for Table 4. Dependent variable is log weekly equivalised household income. Note that time invariant individual characteristics such as ethnicity, education and age are removed by differencing. Regression also includes migration variables shown in Table 4.

Appendix Table 2: Estimated gross weekly labour income by mover and distance moved (fixed effects)

Variable	Men		Women	
	Spec. 1	Spec. 2	Spec. 1	Spec. 2
Labour income (t-1)	0.116	0.116	0.140	0.140
	(11.07)	*(11.06)*	*(13.95)*	*(13.97)*
Couple no children	0.070	0.071	0.082	0.082
	(2.88)	*(2.90)*	*(3.49)*	*(3.48)*
Single	0.219	0.218	0.235	0.235
	(6.93)	*(6.90)*	*(7.14)*	*(7.14)*
Single parent	0.199	0.198	0.312	0.311
	(2.57)	*(2.55)*	*(8.58)*	*(8.57)*
Number of children	-0.035	-0.036	-0.032	-0.032
	(2.77)	*(2.80)*	*(2.18)*	*(2.20)*
Child aged 0-5 years	0.038	0.039	-0.025	-0.025
	(1.54)	*(1.56)*	*(1.02)*	*(1.01)*
Child aged 6-10 years	0.042	0.043	0.012	0.012
	(1.60)	*(1.63)*	*(0.48)*	*(0.49)*
Child aged 11-16 years	0.052	0.054	0.031	0.032
	(2.32)	*(2.38)*	*(1.46)*	*(1.48)*
Own home outright	-0.149	-0.149	-0.073	-0.073
	(6.84)	*(6.87)*	*(3.35)*	*(3.34)*
Social housing	-0.055	-0.056	-0.063	-0.063
	(1.57)	*(1.62)*	*(1.91)*	*(1.90)*
Housing Association	0.116	0.116	0.026	0.026
	(2.49)	*(2.48)*	*(0.57)*	*(0.57)*
Private renter	0.058	0.061	0.109	0.110
	(2.69)	*(2.82)*	*(4.81)*	*(4.84)*
South East	-0.174	-0.170	-0.157	-0.162
	(2.83)	*(2.78)*	*(2.83)*	*(2.91)*
South West	-0.410	-0.404	-0.253	-0.257
	(4.70)	*(4.62)*	*(3.00)*	*(3.04)*
Midlands	-0.226	-0.212	-0.217	-0.216
	(3.23)	*(3.02)*	*(2.99)*	*(2.98)*
North	-0.263	-0.257	-0.089	-0.093
	(3.35)	*(3.27)*	*(1.01)*	*(1.06)*
Wales	-0.119	-0.095	-0.927	-0.920
	(1.18)	*(0.93)*	*(5.66)*	*(5.61)*
Scotland	-0.213	-0.230	-0.102	-0.111
	(1.79)	*(1.92)*	*(0.98)*	*(1.06)*
Job characteristics:				
Self-employed	-0.090	-0.092	-0.000	-0.000
	(3.10)	*(3.15)*	*(2.00)*	*(2.01)*
Current job tenure	0.0000	0.0000	-0.163	-0.163
	(0.06)	*(0.09)*	*(3.55)*	*(3.54)*
Fixed term job	-0.009	-0.009	0.005	0.005
	(0.37)	*(0.36)*	*(0.19)*	*(0.18)*
Temporary job	-0.258	-0.258	-0.179	-0.179
	(7.14)	*(7.14)*	*(6.77)*	*(6.75)*
Manual job	-0.016	-0.018	0.035	0.034
	(0.61)	*(0.68)*	*(1.05)*	*(1.05)*
Usual weekly hours	0.004	0.004	0.017	0.017
	(6.52)	*(6.55)*	*(27.97)*	*(27.95)*
Overtime hours	0.002	0.002	0.004	0.004
	(1.79)	*(1.85)*	*(3.83)*	*(3.83)*
Paid overtime hours	0.010	0.010	0.005	0.005
	(8.50)	*(8.44)*	*(3.30)*	*(3.31)*
Received training in last year	0.005	0.005	0.017	0.017
	(0.62)	*(0.53)*	*(1.97)*	*(1.98)*

Continued over

Appendix Table 2 (cont)

Managerial responsibilities	0.073	0.072	0.085	0.085
	(4.43)	*(4.37)*	*(5.13)*	*(5.16)*
Foreman	0.051	0.052	0.054	0.054
	(4.04)	*(4.06)*	*(4.39)*	*(4.40)*
Receives bonus payments	0.024	0.024	0.034	0.034
	(2.32)	*(2.27)*	*(3.00)*	*(2.99)*
Regular promotion opportunities	0.008	0.008	0.008	0.008
	(0.77)	*(0.79)*	*(0.79)*	*(0.80)*
Pension scheme coverage	-0.006	-0.005	0.014	0.014
	(0.34)	*(0.31)*	*(0.98)*	*(0.97)*
Pension scheme member	0.004	0.004	-0.000	-0.000
	(0.25)	*(0.26)*	*(0.03)*	*(0.01)*
Incremental pay scales	0.008	0.008	0.021	0.021
	(0.72)	*(0.73)*	*(2.10)*	*(2.10)*
Civil servant	-0.007	-0.006	0.017	0.016
	(0.23)	*(0.21)*	*(0.55)*	*(0.53)*
Local government	-0.024	-0.024	0.083	0.082
	(0.99)	*(1.00)*	*(4.73)*	*(4.70)*
NHS/Education	-0.025	-0.027	0.045	0.045
	(0.73)	*(0.79)*	*(2.16)*	*(2.17)*
Nationalised industry	-0.004	-0.004	0.074	0.074
	(0.11)	*(0.11)*	*(1.05)*	*(1.05)*
Charity	-0.010	-0.008	-0.010	-0.010
	(0.23)	*(0.20)*	*(0.38)*	*(0.38)*
Army	0.101	0.099	-0.044	-0.045
	(1.23)	*(1.20)*	*(0.35)*	*(0.36)*
SIC1	0.097	0.094	-0.061	-0.061
	(1.41)	*(1.36)*	*(0.64)*	*(0.64)*
SIC2	-0.034	-0.039	-0.046	-0.046
	(0.55)	*(0.64)*	*(0.55)*	*(0.54)*
SIC3	-0.067	-0.072	-0.017	-0.018
	(1.20)	*(1.29)*	*(0.23)*	*(0.24)*
SIC4	-0.061	-0.067	-0.032	-0.032
	(1.08)	*(1.18)*	*(0.43)*	*(0.43)*
SIC5	-0.041	-0.046	0.175	0.172
	(0.71)	*(0.80)*	*(2.00)*	*(1.97)*
SIC6	-0.131	-0.136	-0.098	-0.098
	(2.35)	*(2.44)*	*(1.38)*	*(1.38)*
SIC7	-0.080	-0.086	-0.033	-0.034
	(1.33)	*(1.44)*	*(0.43)*	*(0.44)*
SIC8	-0.059	-0.064	-0.033	-0.033
	(1.05)	*(1.14)*	*(0.46)*	*(0.47)*
SIC9	-0.114	-0.119	-0.057	-0.058
	(2.14)	*(2.23)*	*(0.81)*	*(0.82)*
Firm employs <25 workers	-0.032	-0.031	-0.059	-0.059
	(2.62)	*(2.59)*	*(5.02)*	*(5.04)*
SOC2	-0.011	-0.011	-0.019	-0.019
	(0.49)	*(0.48)*	*(0.64)*	*(0.64)*
SOC3	-0.016	-0.016	-0.021	-0.021
	(0.75)	*(0.75)*	*(0.86)*	*(0.85)*
SOC4	-0.054	-0.054	-0.026	-0.026
	(2.34)	*(2.30)*	*(1.26)*	*(1.26)*
SOC5	-0.032	-0.032	-0.148	-0.146
	(1.04)	*(1.02)*	*(2.62)*	*(2.59)*
SOC6	-0.064	-0.062	-0.195	-0.195
	(1.72)	*(1.67)*	*(4.90)*	*(4.89)*
SOC7	-0.074	-0.073	-0.157	-0.156
	(2.69)	*(2.66)*	*(5.84)*	*(5.82)*

Continued over

Appendix Table 2 (cont).

SOC8	-0.048	-0.046	-0.028	-0.026
	(1.51)	*(1.44)*	*(0.53)*	*(0.51)*
SOC9	-0.085	-0.084	-0.242	-0.242
	(2.27)	*(2.23)*	*(5.36)*	*(5.34)*
Works morning	-0.085	-0.084	-0.028	-0.028
	(1.98)	*(1.96)*	*(1.58)*	*(1.55)*
Works afternoons	-0.145	-0.146	-0.081	-0.081
	(1.94)	*(1.95)*	*(2.26)*	*(2.24)*
Works evenings	-0.107	-0.111	-0.045	-0.045
	(1.35)	*(1.40)*	*(1.32)*	*(1.33)*
Works shifts	-0.012	-0.012	0.077	0.078
	(0.66)	*(0.67)*	*(3.60)*	*(3.61)*
Works other times	-0.005	-0.006	0.000	0.001
	(0.31)	*(0.35)*	*(0.03)*	*(0.06)*
Changed job	-0.007	-0.005	-0.004	-0.003
	(0.69)	*(0.54)*	*(0.41)*	*(0.34)*
Spouse employed	0.016	0.015	0.060	0.060
	(1.13)	*(1.01)*	*(3.27)*	*(3.26)*
Spouse changed job	-0.003	-0.003	-0.008	-0.008
	(0.11)	*(0.13)*	*(0.59)*	*(0.60)*
Travel to work time	0.006	0.006	0.009	0.009
	(1.78)	*(1.76)*	*(2.02)*	*(2.02)*
Regional unemployment rate	-1.426	-1.424	-1.222	-1.222
	(5.64)	*(5.64)*	*(4.87)*	*(4.88)*
Regional house price index	0.065	0.065	0.080	0.078
	(1.26)	*(1.26)*	*(1.57)*	*(1.54)*
Constant	5.006	5.007	3.855	3.859
	(39.96)	*(39.99)*	*(30.69)*	*(30.71)*

Notes: See notes for Table 8. Dependent variable is log weekly labour income. Note that time invariant individual characteristics such as ethnicity, education and age are removed by differencing. Regression also includes migration variables shown in Table 7.