Tied migration and subsequent employment: Evidence from couples in Britain

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ABSTRACT

We use unique information on migration behaviour and the reasons for migration to study the impact of tied migration on labour market outcomes among husbands and wives. We find that fewer than 2% of couples migrate for job-related reasons, and that the majority of these move for reasons associated with the husband's job. Estimates from dynamic random effects models indicate that husbands and wives in couples that migrated for job-related reasons suffer lower job retention rates than non-migrants. Furthermore we find that tied migration reduces the probability of subsequent employment for both husbands and wives. In particular, tied migration has a large negative impact on job retention rates among wives.

NON-TECHNICAL SUMMARY

Empirical evidence demonstrates that family migration has large negative effects on labour market outcomes for women. In contrast, there is evidence of positive returns to migration among men. It is typically assumed that these differences are the result of family moves being undertaken to fulfil the career aspirations of the husband at the expense of those of the wife. In this paper we directly address issues relating to how family ties that force residential mobility affect labour market outcomes for men and women in couple households in Britain. Although there have been a number of British studies on how family migration affects an individual's career, our approach is unique in explicitly identifying tied migrants and distinguishing them from lead migrants. We identify tied and lead migrants using information on reasons for migration reported after any move, and in particular distinguish between migrants who moved for reasons associated with their own job or employment and those who moved for reasons associated with their spouse's job or employment. Our contribution to the literature is to (1) quantify the proportion of husbands and wives that are tied and lead migrants; (2) identify the impact of tied and lead migration on subsequent labour market status; and (3) examine whether these impacts differ between husbands and wives. Using panel data covering the period 1991-2003 from the British Household Panel Survey, we are able to take into account unobserved time-invariant individual-specific factors that are likely to be correlated with both the propensity to migrate and labour market status.

Our results indicate that job-related migration is not common. Fewer than 2% of couples in the sample migrated for reasons related to either the husband's or the wife's job or employment, representing one in four migrants. More than one half migrated for reasons relating to the husband's job or employment. Such couples moved an average of 107 kilometres, compared with 63 kilometres for those migrating for reasons to do with the wife's job and 30 kilometres for other, non-job related moves. Multivariate analysis indicates that job-related migration reduces job retention rates of both husbands and wives, but the size of this effect is larger for wives. Tied migration in particular reduces the probability of employment. Among husbands, this effect is the result of a combination of lower job entry and job retention rates relative to non-migrants while among wives it is the result of lower job retention rates relative to non-migrants. These results are largely robust to controlling for potential selection effects.

Therefore we find that tied migration has similar impacts on employment propensities irrespective of gender, although these result from different dynamics. This highlights the importance of identifying reasons for migration in assessing the impact of migration on labour market outcomes. Although employment-related migration among couples is uncommon, wives remain twice as likely as husbands to be tied migrants. The lower job retention rates among tied migrant wives results in a more widespread loss of occupational status and the associated pension rights. These have a longer term impact on the economic well-being of women. These analyses may understate the true impact of tied migration. Even tied migrants that remain in employment may suffer in terms of job quality, particularly if the move required a change in job or employer. In such circumstances tied migrants, although remaining employed, may suffer a relative wage loss, a decline in job satisfaction, or an increase in commuting time. We leave this for future research.

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Introduction

Empirical evidence demonstrates that family migration has large negative effects on labour market outcomes for women in terms of their labour market participation and employment, weeks worked, hours worked, income and wages, and attitudes towards work (Boyle et al 1999; Boyle et al 2001; Lee and Roseman 1999; Lichter 1980, 1983; Maxwell 1988; Morrison and Lichter 1988). The probability of unemployment or economic inactivity is higher for migrating married women than any other migrant group (Boyle et al 1999; Boyle et al 2002). In contrast, there is evidence of positive returns to migration among men (Bartel 1979; Yankow 2003; Böheim and Taylor 2005). It is typically assumed that differences between men and women in the impact of migration on labour market outcomes are the result of family moves being undertaken to fulfil the career aspirations of the husband at the expense of those of the wife. Not only do wives suffer in terms of their immediate career prospects, but the cumulative negative effect of repeated moves may contribute to the difference in economic and occupational status between men and women. Ultimately this difference explains much of the gender differential in pension rights and financial well-being in retirement.

In this paper we directly address issues relating to how family ties that force residential mobility affect labour market outcomes for men and women in couple households in Britain. Although there have been a number of British studies that address how family migration affects an individual's career, our approach is unique in explicitly identifying tied migrants and distinguishing them from lead migrants. We identify tied and lead migrants using information on reasons for migration reported after any move, and in particular distinguish between migrants who moved for reasons associated with their own job or employment and those who moved for reasons associated with their spouse's job or employment. Our contribution to the literature is to (1) quantify the proportion of husbands and wives that are tied and lead migrants; (2) identify the impact of tied and lead migration on subsequent labour market status; and (3) examine whether these impacts differ between husbands and wives.

Economic theory regards migration as an investment in human capital from which the individual receives a return in terms of their income or employment prospects. The labour market position of the migrant should be improved by the move. However in the context of the household, moves often occur to fulfil the career aspirations of the main breadwinner at the expense of those of their partner (Boyle et al 2001). Dual-earner couples have to make decisions regarding whether or not the careers of both partners should be pursued equally and if not then whose career should take precedence. Such decisions inevitably involve bargaining and compromise. Research has shown that married persons move long distances less frequently than single people, while dual-earner households migrate least (Böheim and Taylor 2002; Nivalainen 2004; van Ommerren et al 1999).

Human capital theory argues that relative earnings power and potential returns to migration determine which spouse is leading and which is tied (Mincer 1978).[1] Historically women have had lower occupational status and earnings than their male partners, and consequently household migration has typically been viewed as improving the career prospects of the husband with less regard to those of the wife. Mincer (1978) and Sandell (1977) argue that the effect of migration on married women is to reduce their post-migration labour force participation and the quality of their employment compared to their pre-migration levels. However, there is evidence suggesting that even in couples where women have a higher status occupation than their male partner migration does not benefit the female's career (Boyle et al 1999). A potential explanation for this is the perception of gender roles within the family, and in particular which of the husband and wife is perceived to play the role of principal earner (Bielby and Bielby 1992; Bird and Bird 1985). The issue of tied migrants and their labour market outcomes is becoming increasingly important in Britain given the rise in the proportion of dual-earner couples and multi-earner households (Gregg and Wadsworth 1996; Gregg at al 2004). As the labour market participation and career attachment of women continues to grow, it becomes more likely that wives will initiate family moves with the husband following.

[1] Hardill et al (1997) shows that in important, infrequent lifestyle decisions such as the location of residence, one partner normally tales the lead. Research on how intra-family bargaining affects an individual's welfare within families suggests that who receives income is an important determinant of who this is (Browning et al 1994; Fortin and Lacroix 1997; Chiappori, Fortin and Lacroix 2002).

However, empirical research is hampered by data limitations. Typically only actual migration and not mobility preferences or reasons for migration are observed, making it difficult to accurately distinguish tied migrants from lead migrants. Therefore it is typically assumed that the wife (husband) is the tied (lead) migrant, and as women are most likely to use their influence to prevent migration, husbands are assumed to be tied stayers (Smits 2001). We instead use data that not only allow identification of migrants but also their reasons for migration. We can therefore explicitly identify tied migrants as those who migrate for reasons associated with the job or employment of their spouse, and lead migrants as those who migrate for reasons associated with their own job or employment. We restrict our analysis to men and women living in couple households, and explicitly focus on couples who move together. Using panel data covering the period 1991-2003 from the British Household Panel Survey, we take into account unobserved time-invariant individual-specific factors that are likely to be correlated with both the propensity to migrate and labour market status. We also address issues relating to migrant self-selection.

Our results indicate that 7% of couple households moved house each year. However, fewer than 2% moved for job-related reasons, the majority of which were associated with the husband's job. Multivariate analyses indicate that impact of tied migration is similar for husbands and wives in that it reduces the probability of subsequent employment. However, more detailed analysis reveals that tied migrant husbands have both lower job entry rates and lower job retention rates than non-migrants, while tied migration reduces retention rates among wives.

Data

Panel data are required to accurately assess the impact of migration on labour market outcomes as they allow a comparison of the pre- and post-move situation. By tracing how an individual's labour market status changes following migration, we are able to identify which of the partners benefit and which, if any, suffer. Our analyses use the first 13 years of the British Household Panel Survey (BHPS), covering the period 1991-2003 (the latest year of data currently available). This is a nationally representative sample of some 5,500 private households recruited in 1991, containing approximately 10,000 adults. These same adults are interviewed each successive year. If anyone splits from their original household to form a new household, then all adult members of the new household are also interviewed. Children in original households are interviewed when they reach the age of 16. The core questionnaire

elicits information on income and earnings, labour market status, housing tenure and conditions, household composition, education and health at each annual interview. As part of maintaining the panel sample, information is collected on the migration behaviour of BHPS respondents, identifying those that move house and attempting to follow all migrants who remain in Britain. Although attrition rates among migrants are higher than among non-migrants, Buck (2000) reports that almost 75% of actual movers between 1991 and 1992 were traced compared to an overall response rate of 90%. Over the thirteen years of available panel data, an interview was possible with at least one household member in almost 80% of moving households.

We identify migrants from responses to the question: "Can I just check, have you yourself been living in this (house/flat) for more than a year?" In addition these data contain information about an individual's reasons for migration. At each date of interview individuals who have lived at their current address for less than a year are asked "Did you move for reasons that were wholly or partly to do with your own job or employment opportunities?" From responses to these questions we can identify migrants and job-related migrants. By matching responses of husbands and wives, we can identify couples that moved for reasons associated with the husband's job, those that moved for reasons associated with the wife's job and those that migrated for reasons associated with both jobs.[2] We define tied migrants as husbands in couples that migrated for reasons associated with the wife's job and wives in couples that migrated for reasons associated with the husband's job. Our null hypothesis is that tied movers suffer welfare losses while those that migrate for reasons associated with their own job or employment experience welfare gains and that these should emerge for both husbands and wives. We attempt to measure these welfare gains and losses through labour market outcomes.

We focus explicitly on men and women in couples (both married and cohabiting), who we follow over time. In particular, we include in our sample couples in which both the husband and wife were aged 20 to 58 (inclusive), that were interviewed for at least two consecutive dates of interview and whose partnership remained intact with the same spouse at both dates

[2] In particular we identify couples that move for the husband's (wife's) job as those in which only the husband (wife) reported that the move was associated with their job.

of interview.[3] We exclude those that were employed in the armed services at any time over the sample period, and full-time students. We use an unbalanced panel in the sense that couples enter and leave our sample as they enter and leave the relevant age range, or form and dissolve partnerships over time. Removing couples in which either partner has missing information on any variables used in the analysis results in a sample size of 5094 couples that contribute 25572 couple-year observations.

Table 1 shows that 7% of couples in our sample moved house each year.[4] This table also indicates that 11% of migrating couples (0.7% of all couples) moved for reasons associated with only he husband's job, while 4% (0.3% of all couples) migrated for reasons associated with only the wife's job. In 5% of migrating couples (0.4% of all couples), both husband and wife reported that the move was associated with their employment.[5] Therefore these data indicate about 16% of couples moved for reasons at least partly associated with the husband's job, considerably lower than the 28% of all working age migrant men experiencing job-related migration reported in Böheim and Taylor (2005). This is prima facie evidence that married men have lower job-related migration rates than single men and are therefore more likely to be tied stayers.

This table also indicates that 53% of migrating wives were tied migrants in the sense that the move was related to only the husband's job, compared with 21% of migrating husbands. Therefore despite increasing equality between men and women in career attachment and

[3] We exclude couples where either partner were aged less than 20 because one or both may still be participating in education and any migration decision may not reflect expected labour market outcomes. We exclude those over the age of 58 because of the possibility that migration decisions may be based on retirement location preferences. Restricting the sample to couples that remained intact at two consecutive dates of interview may introduce some selection biases, with couples that disagree in their mobility preferences being more likely to separate. Ermisch (2003) finds that on average fewer than 3% of couples identified in the BHPS over the period 1991-2000 suffer a partnership break each year.

[4] This includes all changes of address, irrespective of the distance moved. The proportion of couple households that move is lower than the 10% average for the working age population as a whole reported in Böheim and Taylor (2002). This indicates that either it is more difficult for married than single men and women to migrate or that couples initially locate in areas more likely meet their longer term requirements. We also retain multiple moves in our sample. This is for two reasons. Firstly, the first observed moved observed in the data (i.e. since 1991) is unlikely to be the first move in the respondent's life and so discarding second or further moves is to some extent an artificial distinction. Secondly focusing on first observed move would reduce already small sample sizes even further. However focusing on first observed moves does not change our substantive results.

[5] Throughout we refer to the male partner in a couple as the husband and the female partner as the wife for simplicity, despite the fact that some couples were cohabiting rather than married. The BHPS data also contain information on migration preferences – identifying individuals who prefer to move from their current accommodation and those that prefer to stay. Analysis of these preferences shows that job-related migrants were less likely to report wanting to move than other migrants, which may indicate that job-related migration is largely unanticipated.

labour market experiences, wives are still twice more likely than husbands to be tied migrants. We also find that, on average, migrating couples moved a distance of 30 kilometres – indicating that many moves are of short-distance (see also Böheim and Taylor 2002).[6] However, job-related migrants move significantly further distances (an average of 96 kilometres). Couples who moved for reasons related to the husband's job moved an average of 107 kilometres, while those who moved for reasons related to their wife's job moved an average of 63 kilometres. This indicates that job-related moves are of substantially longer distance than other (mostly accommodation-related) moves.

We are interested in whether tied migrants were less likely than lead migrants and other individuals to be in employment post-move, and whether this differs between men and women. To examine this, we construct a variable that indicates whether or not the respondent was in full-time or part-time work during the week prior to interview and relate this to the couple's migrant status. Table 2 summarises husbands and wives employment status at t-1 (prior to any move) by migrant status between t-1 and t. This indicates that among husbands job-related migrants were more likely to be in both full-time and part-time work at t-1 than non-migrants (89% were in full-time work, compared with 86% of non-migrants, and 5% were in part-time compared with 3% of non-migrants).[7] Furthermore, a larger proportion of husbands that became lead migrants than became tied migrants were in full-time work, while tied migrants were more likely to be in part-time work.

A similar pattern emerges among wives. Wives in couples that migrated for job-related reasons were significantly more likely than non-migrants to be in full-time employment at t-1 (52% compared with 41%), but less likely to be in part-time employment (24% compared with 34%). Furthermore, we find that 72% of wives that became lead migrants were in full-time work at t-1, compared with 40% of those that became tied migrants. In contrast, 26% of those that became tied migrants were in part-time employment at t-1, compared with 21% of those that became lead migrants. This table therefore indicates that among both husbands and wives, full-time employment rates where higher among those that became lead migrants, and were lower among those that became tied migrants.

[6] The distances are measured (in kilometres) between the full postcode of residence at date of interview at time t-1 and the full postcode of residence at date of interview at time t, rounded to the nearest 10 metres. Unfortunately these data are currently only available up to wave 12 of the data, and so we do not make further use of them in our analyses.

In Table 3 we summarise husbands and wives employment status at t (after any move) by migrant status between t-1 and t. This indicates that for husbands, full-time employment rates were highest for lead migrants (at 90%), and lowest for tied migrants (at 81%). Part-time employment rates were also highest for lead migrants (at 5%) and for husbands in couples that moved for both the husband's and wife's job (at 6%). A comparison with the results in Table 2 shows that among husbands full-time employment rates fell for all migrant groups, while part-time employment rates increased among lead migrants. For wives, lead migrants had the highest full-time employment rates at t (at 68%), while tied migrants had the lowest (33%). Part-time employment rates were highest for non-migrants (35%), and for tied migrants and wives in couples that migrated for reasons associated with both partners jobs (26%). They were lowest for lead migrants (21%). A comparison with Table 2 indicates that for wives full-time employment rates fell for job-related migrants (from 52% to 48%), and for both tied migrants (from 40% to 33%) and lead migrants (from 72% to 68%). Part-time employment rates did not change.

Table 4 focuses on employment inflow and outflow rates by migrant status.[8] The inflow rate is defined as the probability of employment (either full- or part-time time) at *t* conditional on non-employment at t-1. The outflow rate is defined as the probability of non-employment at t conditional on employment at t-1. Among husbands, 22% of non-migrants and 24% of migrants entered employment between t-1 and t, while 3% of each left employment. Job-related migrants had significantly higher inflow rates into work and outflow rates from work than non-migrants. Husbands that were lead migrants had the highest employment inflow rate (at 71%), while tied migrants had a higher than average probability of leaving work (9.4%). Therefore husbands that were tied migrants were three times more likely to leave work as non-migrants, while lead migrants were significantly more likely to enter work than non-migrants.

Migrating wives had higher exit rates from employment than non-migrating wives – 10% of migrants left work, compared with 6% of non-migrants. Job-related migrants had significantly higher employment inflow and outflow rates than non-migrants, at 31% and

[7] However these differences are not statistically significant.
[8] Unfortunately sample sizes are insufficient to allow detailed analysis of transitions by full- and part-time employment.

14%. Employment inflow rates were highest for wives in couples that migrated for reasons associated with both their own job and that of their husband (at 63%). Wives that were tied migrants had the highest outflow rates at 21%. Therefore wives who were tied migrants were four times more likely to leave work than non-migrants.

Table 5 presents migration rates between t-1 and t by the employment status of the couple at t-1. This indicates that couples in which neither the husband nor the wife was in employment had the greatest migration rates at 8%. Dual earner couples had the lowest migration rates at 6.3%. However, both single and dual earner couples were more likely to migrate for job-related reasons than jobless couples – about 1.3% of working couples migrated for job-related reasons compared with 0.4% of jobless couples. This may reflect labour market detachment among jobless couples. A larger proportion of single earner than dual earner couples migrated for reasons associated with the husband's job (1% compared with 0.6%).

These descriptive statistics indicate that (1) job-related migrants tend to move longer distances than other migrants; (2) a larger proportion of wives than husbands are tied migrants; (3) job-related migrants experience very different employment dynamics than other migrants; and (4) individuals who are tied movers in the sense that they move for their spouse's job suffer a labour market disadvantage relative to other migrant groups and non-migrants. In the remainder of the paper we examine the extent to which these patterns remain in a multivariate framework.

Estimation procedures and model specifications

Our modelling procedure focuses on the probability of an individual being in employment at a given date of interview, conditional on their labour market status one year ago and their migrant status. It is often argued that the returns to migration among married women may be underestimated because women who are more likely or more determined to succeed in the labour market are less likely to move for the benefit of their husband's career at a cost to their own. Through identifying both lead and tied migrants, we are able to examine this in detail. We use the panel nature of the data and panel data estimation techniques to allow for time-invariant unobserved individual-specific effects (such as motivation, career attachment etc.) that are potentially correlated with both migrant status and the labour market outcomes of interest.

We investigate the impact of the couple's migrant status on the probability of the husband and wife being employed. Our observed dependent variables, y_{ht} and y_{wt}, are binary, taking the value one if the husband (*h*)/wife (*w*) is in work (full-time, part-time or self-employment) at interview *t*, and zero otherwise.[9] We estimate separate models for both husbands and wives, and for moving for job reasons generally and for reasons related to the husband's and wife's job in particular. The models are specified as

$$y_{ht}^{*} = x_{ht}'\beta_h + \alpha_h M_t + \gamma_h y_{ht-1} + u_{ht} \quad [1]$$

$$y_{wt}^{*} = x_{wt}'\beta_w + \alpha_w M_t + \gamma_w y_{wt-1} + u_{wt} \quad [2]$$

$$y_{ht}^{*} = x_{ht}'\beta_h + \alpha_{ht} TM_{ht} + \alpha_{hl} LM_{ht} + \alpha_{hb} MB_{ht} + \gamma_h y_{ht-1} + u_{ht} \quad [3]$$

$$y_{wt}^{*} = x_{wt}'\beta_w + \alpha_{wt} TM_{wt} + \alpha_{wl} LM_{wt} + \alpha_{wb} MB_{wt} + \gamma_w y_{wt-1} + u_{wt} \quad [4]$$

where y_t^{*} denotes the unobservable propensity of the husband/wife to be employed at time *t*, *x* is a vector of observable characteristics that influence y^{*}. In specifications [1] and [2] *M* indicates whether or not the couple moved for job-related reasons. In specifications [3] and [4] *TM* indicates whether or not the individual was the tied migrant, *LM* indicates whether or not the individual was the lead migrant and *MB* indicates whether or not the couple moved for reasons associated with the jobs of both partners (note that these three indicators are mutually exclusive).[10] y_{t-1}^{*} is the employment status at the previous date of interview, β, α and γ are (vectors of) coefficients to be estimated and u_{it} is a random error.[11] An individual is observed to be in work when his/her propensity to be employed is greater than zero (i.e. $y_t^{*} > 0$). We model observed employment status at time t as a function of status in the previous period y_{t-1} to allow work experience at the previous interview to have a direct

[9] We have also estimated different types of models, including multinomial logits (where the dependent variable takes the value 0 if the respondent is in work, 1 if economically inactive and 2 if unemployed), and tobit models of labour supply where the dependent variable is the number of hours worked (censored at 0 for non-workers). The results from these models are consistent with those presented here. We have also estimated models where the dependent variable takes the value 1 if the individual is in full-time work and zero otherwise. Again the results from doing so are qualitatively similar to those presented here.

[10] Using this notation, the husband (wife) is a tied migrant if the couple moved for reasons associated with the wife's (husband's) job, and a lead migrant if they moved for reasons associated with the husband's (wife's) job.

[11] A valid criticism of this procedure is it assumes the employment decisions of husbands and wives are independent. We have also estimated (pooled) bivariate probit models to allow labour market participation decisions of husband and wife to be jointly determined through correlation between the error terms. Although confirming this interdependence in the labour market participation decisions of husband and wife, the results from such models are qualitatively similar to those presented here, and are available from the author on request.

effect on the probability of working at the current interview.[12] This is likely to be important in the current context as we might expect migration status to be strongly correlated with labour market attachment. Husbands and wives who exhibit strong (weak) attachment to the labour market and are (not) committed to their careers will have a high (low) probability of employment at *t-1* and a low (high) probability of becoming a tied mover. Unless work experience at the previous date of interview is controlled for in the estimation procedure, the coefficients of main interest will be biased.

In our specifications we control for both observable and unobservable individual characteristics by decomposing the error terms u_t in the following way:

$$u_{ht} = \varepsilon_h + v_{ht}$$

$$u_{wt} = \varepsilon_w + v_{wt}$$

Where the ε denote the individual-specific unobservable effects and *v* are random error terms. We treat the ε as random and use the random effects probit model estimated under the common assumption that $v \sim IN\left(0, \sigma_v^2\right)$ and the *v* are independent of the other covariates.

This framework assumes that the time-invariant unobserved individual-specific effects (ε) are independent of the observable characteristics. This is quite unrealistic in our case as, for example, individuals who are less committed to their careers will be more likely to be a tied migrant, less likely to be a lead migrant, and less likely to be in employment. In this case the estimated coefficients of interest (α) will pick up some of the effects of the unobservable ε. To avoid this problem, we relax the assumption that the ε are independent of the observable time-varying characteristics. Following Chamberlain (1984), we model the dependence between ε and the observable characteristics by assuming that the regression functions of ε are linear in the means of all the time-varying covariates. Using equation [1] as an example, for husbands this can be written:

[12] Note that we do not attempt to provide a definitive interpretation of estimated coefficients on the lagged dependent variables. Positive coefficients may arise because (a) of genuine state dependence in employment, (b) of duration effects arising because the current employment spell is part of a single spell of work already in progress at the previous interview, (c) the observed characteristics of the individuals and the unobserved individual components do not adequately control for differences in individual employment propensities, or (d) of serial correlation in unobservables. As we are not concerned with the true causes of observed persistence in employment we do not attempt to disentangle these different effects.

$$\varepsilon_h = a_h + b_h'\bar{x}_h + c_h\overline{M} + \mu_h$$

An analogous formulation can be written for wives. We assume that the μ are independent of the x, M and u_t , a_0 is the intercept, $\bar{x}_h$ refers to the vector of means of the time varying covariates for husband h over time, and $\overline{M}$ refers to the vector of means of the migration indicators for husband h over time. The coefficients in b_h and c_h corresponding to the time-invariant variables are set equal to zero. Equations [1] and [2] therefore become:

$$y_{ht}^* = x_{ht}'\beta_h + \alpha_h M_t + \gamma_h y_{ht-1} + b_h'\bar{x}_h + c_h\overline{M} + \mu_h + v_{ht} \quad [5]$$

$$y_{wt}^* = x_{wt}'\beta_w + \alpha_w M_t + \gamma_w y_{wt-1} + b_w'\bar{x}_w + c_w\overline{M} + \mu_w + v_{wt} \quad [6]$$

$h, w=1,\ldots,N,\ t=1,...,T_i$, where we have absorbed the intercept into the β . This is equivalent to the random effects probit with additional regressors, $\bar{x}$ and $\overline{M}$.[13] Equations [3] and [4] are specified analogously. The correlation between two successive terms for the same individual is a constant, given by:

$$\rho = corr(u_{it}, u_{it-1}) = \frac{\sigma_\mu^2}{\sigma_\mu^2 + \sigma_v^2}$$

Model specifications

In our multivariate analyses we take into account lifecycle factors such as the birth of a child, a child's entry into primary or secondary school, or exit from the parental home, in modelling labour market outcomes. These are likely to have an impact both on migration decisions and on the labour market participation of particularly the wife. The decision to have a child and the ageing process of the child introduces complex issues and decisions involving the labour market participation of the mother and the level of satisfaction with the current place of residence. Other control variables are included to capture labour market attachment, job search intensity, job offer arrival rates and job retention rates. These include the employment status of the spouse at t-1, whether the couple are cohabiting (rather than married), their housing tenure, region of residence, age of the husband, highest educational qualification of the husband, ethnicity of the husband and the wife, the age difference between the husband

[13] Our specifications treat the initial conditions as exogenous. This might be unrealistic – the labour market status of husbands and wives when first observed in the data may be the result of previous migration decisions (unfortunately we have no information on migration histories). We have also estimated more complex models that endogenise the initial condition (following Heckman 1981; Arulampalam et al 2000; Arulampalam 2002). These specify a reduced form equation for the initial condition using pre-sample information as identifying restrictions. The results from doing so are consistent with those presented herein.

and wife, whether the wife had higher educational qualifications than the husband (all measured at time *t*) and the lagged dependent variable.[14]

Results

The results from the estimated models are presented in Tables 4 and 5. In each case, the reference group of interest is husbands/wives that did not migrate (couples that migrated for non-employment reasons have been excluded). Note that we have estimated two specifications. The first includes the variables indicating couples migrant status to examine its impact on husbands and wives propensity to be employed. The second also includes these indicator variables interacted with labour market status at the date of interview prior to migration, to examine whether employment entry and retention rates differ by migrant status.

Table 5 presents the results from dynamic random effects probit models with job-related migration as the explanatory variable of interest.[15] Focussing initially on the estimates for husbands, the first specification indicates that job-related migrants were less likely to subsequently be in employment than other husbands, all else equal. The coefficient is negative and statistically different from zero at conventional levels indicating that men in couples that migrated for job-related reasons were less likely than non-migrants to be subsequently employed. The second specification suggests that this negative relationship is caused primarily by lower employment stability among job-related migrants. The coefficient on the employed at t-1 and job-related migrant interaction term is negative and statistically significant with a point estimate of 0.202-0.625=-0.423 relative to a similar non-migrant. For wives, the estimates also indicate that job-related migrants were significantly less likely than non-migrants to be in employment at *t*. The negative coefficient is highly statistically significant. The second specification indicates that, as for husbands, this is caused by lower levels of job stability. Job-related migration increases the inflow rate into employment among wives (significant at the 11% level), but reduces job retention rates. The point estimate for job-related migrants in employment at t-1 can be calculated as 0.280-0.986=-0.706 relative to similar non-migrants. Furthermore, there is some evidence that job-related migration has a larger negative effect on job retention rates for wives than for husbands (a chi-squared test for

[14] We have also estimated less parsimonious models that include job characteristics of the husband and wife (if employed) at t-1. The inclusion of such variables has little impact on the coefficients of interest, but reduces the size and significance of the coefficient on the lagged dependent variables.

equality of coefficients yields a p-value of 0.0635), although employment entry rates are no different.

The coefficients on other variables indicate strong persistence in employment among both men and women, particularly for those in full-time work – the coefficients on the lagged dependent variables are very large and highly statistically significant, and similar in magnitude for husbands and wives. There is also evidence of interdependence in labour supply decisions of husbands and wives. Men and women with employed spouses are significantly more likely to be in work themselves. Coefficients on the education variables are consistent with human capital theory and positive assortative mating. A monotonic relationship emerges between the husband's level of education and his probability of employment with the most highly educated having the largest probability of being in work. The husbands level of education also has positive and statistically significant impacts on the employment probability of the wife. Wives of highly educated men have a higher probability of employment than those married to less qualified men. Furthermore, the probability of employment among wives is increased if they have a higher level of education than their husband. Husbands of prime working age (35-44) and wives of men of prime working age are more likely to be in work than men (and wives married to men) aged below 35. Also, the probability of the husband being employed falls with each year older he is than his wife.

Family effects also emerge, especially among wives. The results indicate that having one child increases the probability of employment among husbands relative to having no children, but has no impact on the probability of employment among wives. However, it is the timing and age structure of the family that has the largest impacts on the probability of employment among wives. In particular, having a pre-school age child reduces the probability of employment, and mothers of recently born first children have a much reduced probability of current employment than non-mothers and mothers of older children.

Table 6 shows the results from distinguishing between the impacts of tied and lead migration on the employment propensities of husbands and wives. Specification [1] indicates that husbands that were tied migrants were significantly less likely to be employed than non-

[15] Note that the estimated values for rho are 0.10 for men and women. This indicates that 10% of the variance in the dependent variable is explained by the individual-specific unobserved effect.

migrants – the estimated coefficient is negative and well-determined. Furthermore, chi-squared tests reveal that the estimated impact on the husband's employment status of being a tied migrant is significantly different from that of being a lead migrant (a p-value of 0.0561). Therefore husbands who were tied migrants suffer in terms of their own employment both relative to non-migrants and relative to those who were lead migrants.

Specification [2], which includes the interaction terms, suggests that husbands that were lead migrants had higher entry rates into employment than non-migrants, and similar job retention rates. However although the sizes of the coefficients are relatively large, they are at best on the margins of statistical significance. The coefficient on being a tied migrant is also large and negative (although not well determined) suggesting men in couples that moved to follow their wife's career suffered in terms of lower entry rates to employment. Chi-squared test statistics indicate that the coefficients on being a tied migrant and on being a lead migrant on job entry rates are significantly different (p-value=0.0720). From this we conclude that tied migration is harmful to a husband's labour market prospects relative to being the lead migrant. This highlights the importance of distinguishing the reasons behind migration in assessing its impact on subsequent labour market outcomes.

The estimates indicate that wives who were tied migrants suffered in terms of their subsequent employment – the coefficient is negative (-0.590) and well-determined (specification [1]). As for husbands, this indicates that tied migrant wives are less likely to be subsequently employed than non-migrants. Furthermore, the size of the effect is similar to that for husbands. Tied migration has a similar sized effect on the probability of employment for husbands and wives (a chi-squared test for the equality of α_{ht} and α_{wt} yields a p-value of 0.2686). It is not, however, significantly different from the impact on wives of being a lead migrant (a test that $\alpha_{wl}=\alpha_{wt}$ yields a p-value of 0.7381). The coefficient on the lead migrant indicator is also negative and statistically significant at the 10% level. Therefore tied migration and lead migration have similar impacts on subsequent employment among wives. Chi-squared tests of equality of coefficients across equations indicate that the impact on subsequent employment of lead migration among husbands differs from that of tied migration for wives (a test that $\alpha_{hl}=\alpha_{wt}$ yields a p-value of 0.0002).

The second specification for wives indicates that the negative impact on employment propensities of tied migration is due to significantly lower job retention rates – wives that were tied migrants were more likely than non-migrants to leave work. The coefficient on the tied migrant and employed at t-1 interaction term is negative and statistically significant. The point estimate can be calculated as 0.053-0.919=-0.866 relative to non-migrants. However, chi-squared tests indicate that we cannot reject the hypothesis that for wives, the coefficient on the tied migrant and employed at t-1 interaction term (-0.919) is equal to that on the lead migrant and employed at t-1 interaction term (-0.836), yielding a p-value of 0.9034. Therefore although wives that are tied migrants suffer in the labour market, we reject the hypothesis that they suffer more than those who are lead migrants. The results also indicate that wives in couples that moved to benefit both their own and their husbands' jobs had higher entry rates into employment than non-migrants (a coefficient of 1.207), and similar job retention rates (a point estimate of 1.207-1.598=-0.391).

Chi-squared tests comparing coefficients across equations indicate that the impact of lead migration on the probability of entering employment for husbands is significantly different from that of tied migration among wives – a test that $\alpha_{hl} = \alpha_{wt}$ yields a p-value of 0.0001. Furthermore, we find that tied migration has significantly different impacts on both employment inflow rates and job retention rates for husbands and wives. Chi-squared tests that $\alpha_{ht} = \alpha_{wt}$ yield p-values of 0.0047 and 0.0060. Tied migration reduces both the job entry and the job retention rates among husbands (although not significantly), but has a large, negative impact on job retention rates among wives (with little effect on entry rates).

The key results are summarised in Table 8. Job-related migration and tied migration in particular reduces employment stability rates among both husbands and wives. Differences emerge between husbands and wives in the impact of tied migration on job entry rates and job retention rates.

Addressing endogeneity and selection issues

When rational individuals decide whether or not to migrate, they choose the option that yields the greatest expected net utility gain. Positive selection into lead migration occurs if individuals who are more committed to their careers and who are more likely to be in employment are also more likely to move for reasons associated with their own job or

employment. Similarly, negative selection into tied migration occurs if individuals who are less committed to their careers and who are less likely to be in work are also more likely to move for reasons associated with their spouse's job or employment. Non-migrants expect to maximise their utility levels from staying at the same address. Our dynamic panel data model specifications which allow for time-invariant unobserved heterogeneity (correlated with observable characteristics) and the individual's labour market status prior to any migration minimise these selection effects. However, we now directly address some issues relating to endogeneity and self-selection in migrant status.

Firstly, we examine the labour market attachment prior to migration of husbands and wives in each migrant status. To do this, we focus on responses to the question:

> 'Thinking about the hours you work, assuming you would be paid the same amount per hour, would you prefer to work fewer hours, more hours, or continue to work the same number of hours?'

This question is asked of men and women in employment at each date of interview, and so these analyses necessarily focus on those in work at t-1. If individuals more attached to the labour market and to their career positively select into lead migration, we anticipate that a larger proportion of lead migrants will want to work more hours and a smaller proportion will want to reduce their work hours. If individuals who are less attached to the labour market and to their careers negatively select into tied migration, we anticipate those that become tied migrants will be more likely to want to reduce their working hours and less likely to want to increase their work hours. Table 9 displays the results from this exercise.

This table indicates that 40% of husbands wanted to reduce their work hours, 6% wanted to increase them and 54% wanted to continue to work the same hours. Husbands who were subsequently job-related migrants were more likely than average to want to work more hours – 8.6% reported wanting to do so (although this difference is not statistically significant). So there is some evidence that among husbands, job-related migrants were positively selected. However, the subsequent columns indicate that it was tied migrants who were most likely to report wanting to increase their hours of work (13% did so) while lead migrants were more likely than average to report wanting to reduce their hours of work (46% did so – again these differences are not statistically significant at conventional levels). We also find that husbands

that become lead migrants worked on average 3.5 hours more per week than those that became tied migrants, which is some evidence of self-selection into migrant status. However, evidence suggests that this difference in working hours is caused by hours constraints in the job rather than a lack of labour market attachment.

There is more convincing evidence of self-selection among wives. In particular, we find that wives that become tied migrants were less likely than average to report wanting to work more hours (5.7% compared with 7.1%), while those that became lead migrants were more likely than average to report wanting to work more hours (8.8% compared with 7.1% – again these differences were not statistically significant). Furthermore, we find that wives that became lead migrants were working more hours per week on average than those that became tied migrants (35 hours per week compared with 30 hours).

To examine the impact of self-selection on our results, we have estimated two-stage selection correction models that explicitly control for non-random selection into each migrant group (see, for example, Lee and Roseman 1999). The first stage in these models is to estimate the propensity of couples to be in each of the migrant groups. The inverse Mill's ratios calculated from these migration equations are then used as additional regressors in the employment models to control for non-random selection. Identification of the variables in the employment models rely on including at least one variable in the selection models but not in the second stage employment regressions. In other words, it depends on having variables that determine the probability of couples migrating to follow the husband's or the wife's job but not the probability of employment conditional on migration. We use information collected at each date of interview on individuals migration preferences. In particular, each individual in the sample is asked at each date of interview whether or not they would prefer to move house or to stay in their current accommodation. If they would prefer to move, they are then asked the main reason for wanting to move. From these questions at the date of interview prior to any migration we identify in which couples the husband wanted to move for job reasons, the wife wanted to move for job reasons, and in which both husband and wife wanted to move for job reasons. We use these indicators as identifying variables in the migration models.[16] We estimate separate models for couples migrating for job reasons, for reasons relating to the

[16] These variables prove to be both individually and jointly insignificant when included in employment equations for the husband (p-value of 0.8387) and the wife (p-value of 0.8050).

husband's job, for reasons relating to the wife's job, and for reasons relating to both jobs and use these to generate the inverse Mill's ratios that are then used as regressors in the employment models.

The results from the migration equations are shown in Table 10. These indicate that the identifying variables are individually and jointly highly significant in each equation – wanting to move for job-related reasons at t-1 is a strong predictor of subsequent migration behaviour. Other significant determinants of migration status include the employment status of the wife (couples in which the wife was employed were more likely to move for reasons related to the wife's employment), the husband's education level (migration rates increase with education, and the probability of moving for reasons associated with the wife's job are increased if the wife is more highly educated than her husband), being a private tenant (which increases the migration propensity), and having pre-school age children in the household (which increases the propensity to move for job-related reasons and for reasons associated with the husbands job in particular). These are common findings in the literature (Böheim and Taylor 2002; Champion et al 1998; Clark and Dieleman 1996).

The results from the selectivity-corrected employment equations are shown in Table 11. The first panel indicates that controlling for potential selection effects has little impact on the estimates for husbands. For wives, the results suggests that there is some negative selection into job-related migration – the negative and statistically significant impact present in specification [1] of Table 6 disappears when allowing for selection effects. However, the negative and statistically coefficient on the job-related migrant and employed at t-1 term remains, indicating that wives that migrate for job-related reasons have lower levels of employment stability than otherwise similar non-migrants, even when controlling for potential selection effects.

Some evidence of selection effects also emerge in the second panel of Table 11. In particular, the negative impacts of being a tied mover apparent among both husbands and wives in the original models disappear when allowing for selection effects – husbands and wives were negatively selected into tied migration. However, the negative and statistically significant impact of tied migration on job retention rates among wives remains when allowing for selection effects – employed wives who were tied migrants are less likely than otherwise

similar non-migrants to remain in employment. These results are summarised in Table 12. The key results from the previous models remain – husbands and wives who migrate for job-related reasons, and tied migrant wives in particular – are significantly less likely to be subsequently employed than otherwise similar non-migrants.

Conclusions

In this paper we have investigated the labour market consequences of migration for men and women in couple households in Britain. Our contribution to this literature is to use unique information on reasons for moving to explicitly identify tied and lead migrants and to investigate the impact of such migration on the employment status of husbands and wives. BHPS data indicate that job-related migration was not common. Fewer than 2% of couples migrated for reasons related to either the husband's or the wife's job or employment, representing one in four migrants. More than one half of these migrated for reasons relating to the husband's job or employment. Such couples moved an average of 107 kilometres, compared with 63 kilometres for those migrating for reasons to do with the wife's job and 30 kilometres for other, non-job related moves.

Our analysis indicates that job-related migration reduces job retention rates of both husbands and wives, but the size of this effect is larger for wives. Tied migration significantly reduces the probability of employment for both husbands and wives, and the sizes of these effects are similar. Among husbands, this effect is the result of a combination of lower job entry and job retention rates relative to non-migrants while among wives it is the result of lower job retention rates relative to non-migrants. These results are largely robust to controlling for potential selection effects.

Therefore we find that tied migration has similar impacts on employment propensities irrespective of gender, although these result from different dynamics. This highlights the importance of the reasons for migration in assessing the impact of migration on labour market outcomes. Although employment-related migration among couples is uncommon, wives remain twice as likely as husbands to be tied migrants. The lower job retention rates among tied migrant wives results in a more widespread loss of occupational status and the associated pension rights. These have a longer term impact on the economic well-being of women. These analyses may understate the true impact of tied migration. Even tied migrants that

remain in employment may suffer in terms of job quality, particularly if the move required a change in job or employer. In such circumstances tied migrants, although remaining employed, may suffer a relative wage loss, a decline in job satisfaction, or an increase in commuting time. We leave this for future research.

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Table 1: Moving status t-1 to t: Couple households

Status	N	%	% movers	% job movers	Distance moved (kms)*
Non-mover	23893	93.4			
Moved	1679	6.6	100.0		29.9
Moved for job reasons	321	1.3	19.1	100.0	95.7
Moved for husband's job	*166*	*0.7*	*9.9*	*71.7*	*107.3*
Moved for wife's job	*72*	*0.3*	*4.3*	*22.4*	*63.1*
Moved for both jobs	*83*	*0.3*	*4.9*	*25.9*	*98.2*
Total	25572	100.0			

Notes: BHPS 1991-2003. Numbers are person-years. *Distance moved is kilometres between the full postcode of residence at wave t-1 and the full postcode of residence at wave t, rounded to the nearest 10 metres. This information is not available for the wave 13 data, and so focuses only on migrants in the first 12 years of data.

Table 2: Employment rates at t-1 by migrant status t-1 to t: Men and women in couple households

	Husbands		**Wives**	
	Full-time	Part-time	Full-time	Part-time
Non-migrants	85.7	3.4	41.0	34.2
Migrants	85.2	3.2	45.8*	25.8*
Job-related migrants	88.8	4.7	52.0*	24.0*
Lead migrant	92.2*	3.6	72.2*†	20.8*
Tied migrant	83.3	5.6	40.4†	25.9*
Moved for both jobs	86.8	6.0	57.8*	22.9*
Total	85.7	3.4	41.3	33.6

Notes: Employment rates. BHPS 1991-2003. * indicates employment rate significantly different from that for non-migrants at the 5% level. † indicates employment rate significantly different from that for job-related migrants at the 5% level.

Table 3: Employment rates at t by migrant status t-1 to t: Men and women in couple households

	Husbands		**Wives**	
	Full-time	Part-time	Full-time	Part-time
Non-migrants	84.6	3.3	40.3	34.7
Migrants	83.9	3.7	42.9*	26.9*
Job-related migrants	86.6	4.4	47.7*	24.6*
Lead migrant	90.4*	4.8	68.1*†	20.8*
Tied migrant	80.6	1.4	33.1†	25.9*
Moved for both jobs	84.3	6.0	59.0*	25.3
Total	84.6	3.3	40.3	34.2

Notes: Employment rates. BHPS 1991-2003. * indicates employment rate significantly different from that for non-migrants at the 5% level. † indicates employment rate significantly different from that for job-related migrants at the 5% level.

Table 4: Employment flows by migrant status: Men and women in couple households

	Husbands		Wives	
	Inflow rate	Outflow rate	Inflow rate	Outflow rate
Non-migrants	21.8	2.9	17.8	5.8
Migrants	24.2	3.4*	20.5	10.1*
Job-related migrants	47.6*	4.7*	31.2*	13.9*
Lead migrant	71.4*	2.5	40.0	7.5
Tied migrant	25.0	9.4*	21.4	20.9*
Moved for both jobs	50.0	5.2	62.5*†	9.0
Total	22.0	3.0	18.0	6.1

Notes: BHPS 1991-2003. Inflow rates defined as the probability of being in employment at time *t*, conditional on being out of work at *t-1*. Outflow rates defined as the probability of being out of work at time *t*, conditional on being in employment at *t-1*. * indicates flows significantly different from those for non-migrants at the 5% level. † indicates flows significantly different from that for job-related migrants at the 5% level.

Table 5: Migration rates by household employment status

	No earner couple	Single earner couple	Dual earner couple	Total
Migrants	8.0	6.9	6.3	6.6
Job migrants	0.4	1.4	1.3	1.3
Moved for husband's job	0.1	1.0	0.6	0.7
Moved for wife's job	0.1	0.2	0.3	0.3
Moved for both jobs	0.2	0.3	0.4	0.3
N	1583	6020	17969	25572

Notes: migration rates. BHPS 1991-2003.

Table 6: Probability of current employment

	Spec [1]		Spec [2]	
	Husbands	Wives	Husbands	Wives
Full-time employed t-1	2.358	2.569	2.366	2.589
	[55.73]	[68.10]	[55.69]	[68.25]
Part-time employed t-1	1.785	2.130	1.795	2.146
	[23.10]	[60.50]	[23.20]	[60.82]
Spouse full-time employed t-1	0.345	0.424	0.343	0.421
	[7.60]	[9.84]	[7.56]	[9.77]
Spouse part-time employed t-1	0.294	0.295	0.293	0.293
	[6.67]	[3.86]	[6.64]	[3.83]
Job-related migrant	-0.331	-0.414	0.202	0.280
	[2.15]	[3.64]	[0.64]	[1.62]
Employed t-1 and job-related migrant			-0.625	-0.986
			[1.90]	[5.07]
Husband's education				
Degree or above	0.364	0.131	0.362	0.135
	[5.23]	[2.53]	[5.21]	[2.61]
A-Levels or equivalent	0.209	0.120	0.209	0.119
	[4.59]	[3.08]	[4.58]	[3.05]
GCSEs or equivalent	0.175	0.051	0.174	0.052
	[3.22]	[1.14]	[3.20]	[1.16]
Other qualifications below GCSEs	0.110	-0.042	0.109	-0.043
	[1.57]	[0.72]	[1.56]	[0.73]
Wife more educated than husband	0.030	0.244	0.031	0.242
	[0.62]	[6.03]	[0.64]	[5.98]
Cohabiting couple	0.044	-0.020	0.042	-0.012
	[0.37]	[0.22]	[0.36]	[0.13]
Private tenant	0.046	-0.065	0.050	-0.074
	[0.28]	[0.48]	[0.31]	[0.55]
Home owner	-0.154	-0.049	-0.148	-0.055
	[1.25]	[0.49]	[1.21]	[0.55]
Husband's age				
Aged 35-44	0.195	0.103	0.195	0.103
	[4.44]	[3.09]	[4.44]	[3.09]
Aged 45-58	0.060	0.011	0.060	0.010
	[1.45]	[0.29]	[1.43]	[0.29]
Age husband – age wife	-0.018	0.005	-0.018	0.005
	[4.71]	[1.53]	[4.69]	[1.52]
One child	0.217	-0.025	0.218	-0.025
	[2.90]	[0.42]	[2.92]	[0.42]
Two children	0.060	-0.041	0.057	-0.036
	[0.70]	[0.62]	[0.67]	[0.56]
Three or more children	0.096	0.069	0.101	0.068
	[0.86]	[0.80]	[0.89]	[0.80]
Has child under 5	0.025	-0.118	0.026	-0.117
	[0.38]	[2.49]	[0.40]	[2.47]
New child t-1 to t	-0.067	-0.645	-0.065	-0.648
	[0.69]	[9.83]	[0.67]	[9.89]
First child born t-1 to t	0.213	-0.534	0.216	-0.528
	[1.16]	[4.94]	[1.17]	[4.88]
Child left home t-1 to t	-0.081	0.062	-0.081	0.073
	[0.58]	[0.49]	[0.58]	[0.57]
Rho	0.114	0.094	0.113	0.093
	[4.74]	[4.73]	[4.70]	[4.66]
Log likelihood	-3973	-6481	-3971	-6468
p-value(α_h=α_w)		0.4650		0.6513
p-value interaction(α_h=α_w)				0.0635
N person years (individuals)		24214 (5050)		

Notes: Dynamic random effects probit estimates. Dependent variable takes value 1 if individual is employed at *t* and zero otherwise. Controls also include year dummies, region of residence and means of time-varying covariates (see text for details).

Table 7: Probability of current employment

	Spec [1]		Spec [2]	
	Husbands	Wives	Husbands	Wives
Lead migrant	-0.056	-0.486	0.880	0.242
	[0.23]	[1.73]	[1.57]	[0.39]
Tied migrant	-0.750	-0.590	-0.559	0.053
	[2.79]	[4.09]	[0.98]	[0.25]
Moved both jobs	-0.279	0.180	0.365	1.207
	[1.13]	[0.83]	[0.66]	[3.49]
Employed t-1 and lead migrant			-1.117	-0.836
			[1.87]	[1.31]
Employed t-1 and tied migrant			-0.231	-0.919
			[0.39]	[3.67]
Employed t-1 and moved both jobs			-0.786	-1.598
			[1.30]	[3.86]
Rho	0.113	0.096	0.111	0.094
	[4.70]	[4.79]	[4.65]	[4.72]
Log likelihood	-3969	-6475	-3967	-6460
p-value (joint significance job moves)	0.0310	0.0001	0.2805	0.0064
p-value ($\alpha_{hl}=\alpha_{ht}$)	0.0561		0.0720	
p-value ($\alpha_{wt}=\alpha_{wl}$)		0.7381		0.7702
Cross-equation restrictions				
p-value ($\alpha_{hl}=\alpha_{wt}$)		0.0002		0.0001
p-value ($\alpha_{hl}=\alpha_{wl}$)		0.1251		0.3005
p-value ($\alpha_{ht}=\alpha_{wl}$)		0.3459		0.1931
p-value ($\alpha_{ht}=\alpha_{wt}$)		0.2686		0.0047
Interaction terms:				
p-value (joint significance job moves)			0.1482	0.0000
p-value ($\alpha_{hl}=\alpha_{ht}$)			0.2913	
p-value ($\alpha_{wt}=\alpha_{wl}$)				0.9034
Cross-equation restrictions				
p-value ($\alpha_{hl}=\alpha_{wt}$)				0.4291
p-value ($\alpha_{hl}=\alpha_{wl}$)				0.6594
p-value ($\alpha_{ht}=\alpha_{wl}$)				0.3413
p-value ($\alpha_{ht}=\alpha_{wt}$)				0.0060
N person years (individuals)	24214 (5050)			

Notes: see notes to Table 6.

Table 8: Summary of results

	Impact for husband	Impact for wife	Significant difference?
Job-related migrant	-*	-*	No
Job-related migrant, not working	+	+	No
Job-related migrant, working	-*	-*	Yes
Tied migrant	-*	-*	No
Tied migrant, not working	-	+	Yes
Tied migrant, working	-	-*	Yes
Lead migrant	-	-*	No
Lead migrant, not working	+	+	No
Lead migrant, working	-*	-	No

Notes: Summary of results presented in Tables 6 and 7. * Indicates statistically significant at the 10% level. Final column indicates whether impact for husband is significantly different from that for the wife.

Table 9: Work hours and work hour preferences at t-1 by migrant status t-1 to t

Husbands	All individuals	Move job reasons	Lead migrant	Tied migrant	Move both jobs
Wanted fewer hours	39.9	41.5	45.7	38.3	34.5
Wanted more hours	5.9	8.6	6.2	12.8	10.3
Wanted same hours	54.2	50.0	48.1	48.9	55.2
Weekly work hours	39.4	39.8	41.2	37.6	38.4
N	17752	234	129	47	58
Wives					
Wanted fewer hours	32.3	32.3	33.3	30.5	34.6
Wanted more hours	7.1	6.5	8.8	5.7	5.5
Wanted same hours	60.6	61.3	57.9	63.8	60.0
Weekly work hours	28.2	31.8	35.0	30.3	31.4
N	17499	217	57	105	55

Notes: BHPS 1992-2003.

Table 10: Probability of couples moving for job related reasons

	Job reasons	Husband's job	Wife's job	Both Jobs
Husband wanted to move for job reasons t-1	1.284	1.194	0.080	1.322
	[8.56]	[6.70]	[0.16]	[5.89]
Wife wanted to move for job reasons t-1	1.347	0.950	1.098	1.368
	[7.36]	[3.71]	[3.87]	[5.16]
Both wanted to move for job reasons t-1	2.171	1.425	1.623	2.094
	[8.56]	[4.35]	[4.49]	[6.40]
Husband employed full-time t-1	0.176	0.394	-0.154	0.023
	[1.52]	[2.34]	[0.89]	[0.12]
Husband employed part-time t-1	0.145	0.178	-0.030	0.196
	[0.82]	[0.71]	[0.11]	[0.69]
Wife employed full-time t-1	0.185	-0.070	0.767	0.311
	[2.30]	[0.71]	[3.82]	[2.16]
Wife employed part-time t-1	-0.038	-0.188	0.472	0.043
	[0.46]	[1.94]	[2.29]	[0.29]
Husband's education				
Degree or above	1.006	1.057	0.542	0.985
	[7.88]	[6.34]	[2.65]	[3.44]
A-Levels or equivalent	0.598	0.589	0.283	0.796
	[5.18]	[3.88]	[1.60]	[2.98]
GCSEs or equivalent	0.451	0.336	0.249	0.755
	[3.63]	[2.03]	[1.32]	[2.76]
Other qualifications below GCSEs	0.267	0.109	0.271	0.401
	[1.65]	[0.48]	[1.19]	[1.12]
Wife more educated than husband	0.197	0.187	0.303	-0.023
	[2.29]	[1.61]	[2.28]	[0.15]
Cohabiting couple	-0.015	-0.116	0.084	0.089
	[0.19]	[1.02]	[0.65]	[0.64]
Housing tenure				
Private tenant	0.809	0.768	0.525	0.689
	[7.01]	[5.45]	[2.66]	[3.12]
Home owner	-0.190	-0.263	-0.236	0.037
	[1.91]	[2.12]	[1.38]	[0.19]
Husband's age				
Aged 35-44	-0.032	-0.019	-0.086	-0.036
	[0.46]	[0.22]	[0.70]	[0.24]
Aged 45-58	-0.181	-0.220	-0.175	-0.092
	[2.21]	[2.02]	[1.27]	[0.64]
Age husband – age wife	0.017	0.016	0.002	0.025
	[2.51]	[1.93]	[0.21]	[2.21]
Children				
One child	0.013	0.156	-0.288	-0.003
	[0.15]	[1.48]	[1.74]	[0.02]
Two children	-0.008	0.057	-0.123	0.022
	[0.09]	[0.50]	[0.78]	[0.14]
Three or more children	0.148	0.258	-0.268	0.234
	[1.30]	[1.83]	[1.07]	[1.17]
Has child under 5	0.245	0.180	0.268	0.274
	[3.23]	[1.92]	[1.81]	[2.01]
Log likelihood	-1398	-814	-421	-450
Chi^2 (joint significance identifying variables)	182.79	72.50	31.62	80.01
Prob>chi^2	0.0000	0.0000	0.0000	0.0000
N person years (individuals)		24214 (5050)		

Notes: Random effects probit estimates. Dependent variable takes value 1 if couple move for the relevant reason and zero otherwise. Controls also include year dummies and region of residence.

Table 11: Selection corrected estimates of the probability of current employment

	Husbands	Wives	Husbands	Wives
Job-related migrant	-0.600	-0.074	-0.034	0.488
	[1.30]	[0.20]	[0.06]	[1.38]
Job-related migrant and employed t-1			-0.619	-0.977
			[1.88]	[5.02]
Mills ratio	-0.110	0.136	-0.094	0.086
	[0.62]	[0.99]	[0.54]	[0.67]
Log-likelihood	-3973	-6480	-3971	-6468
Lead migrant	-0.622	-0.869	0.642	0.320
	[0.64]	[0.71]	[0.56]	[0.23]
Tied migrant	-0.501	0.485	-0.406	0.533
	[0.42]	[0.86]	[0.34]	[1.01]
Moved both jobs	-1.097	-0.936	-0.346	0.774
	[1.10]	[0.94]	[0.31]	[0.79]
Lead migrant and employed t-1			-1.085	-0.925
			[1.79]	[1.42]
Tied migrant and employed t-1			-0.240	-0.870
			[0.40]	[3.33]
Moved both jobs and employed t-1			-0.742	-1.564
			[1.21]	[3.73]
Mills ratio moved husband job	-0.212	0.400	-0.079	0.191
	[0.60]	[1.96]	[0.23]	[0.95]
Mills ratio moved wife job	0.055	-0.236	0.020	-0.108
	[0.14]	[0.61]	[0.05]	[0.28]
Mills ratio moved both jobs	-0.286	-0.372	-0.235	-0.140
	[0.84]	[1.13]	[0.72]	[0.48]
Log-likelihood	-3969	-6475	-3966	-6462
N couple-years (couples)		24214 (5050)		

Notes: Selection-corrected estimates. Identifying variables are whether or not the husband wanted to move for job-related reasons at t-1, the wife wanted to move for job-related reasons at t-1, and both the husband and wife wanted to move for job-related reasons at t-1. (see Table 10 for details).

Table 12: Summary of results

	Impact for husband	Impact for wife	Significant difference?
Job-related migrant	-	-	No
Job-related migrant, not working	-	+	No
Job-related migrant, working	-*	-*	Yes
Tied migrant	-	+	Yes
Tied migrant, not working	-	+	Yes
Tied migrant, working	-	-*	No
Lead migrant	-	-	No
Lead migrant, not working	+	+	No
Lead migrant, working	-*	-	No

Notes: Summary of results presented in Table 11. * Indicates statistically significant at the 10% level. Final column indicates whether impact for husband is significantly different from that for the wife.