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Occupational Characteristics, Occupational Sex-Segregation and Family Migration Decisions

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Occupational Characteristics, Occupational Sex-Segregation and Family Migration Decisions[1]

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Abstract

This article examines the effects of occupational characteristics on family migration within Britain. For the first time in the literature, we explicitly theorise and later test the impact of the sex-composition of husbands' and wives' occupations on mobility decisions. The empirical analysis consists of random effects panel regressions estimated on dyadic couple-level information from the British Household Panel Survey combined with occupational-level data from the UK Labour Force Survey. Results suggest that some occupational characteristics are significantly associated with family migration, while occupational sex-segregation has limited impact. Although working in female-dominated occupations is related to a lower propensity to become a lead mover and a higher propensity to become a tied mover, a majority of these associations is mediated by the socio-economic and occupational characteristics of the spouses.

Keywords: *occupation, sex-segregation, family migration, Britain*

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1 - Introduction

The increasing educational attainment of women has been accompanied by higher levels of female participation in the labour market (DiPrete, 2009), the development of a political climate promoting gender equality at work (Esping-Andersen, 2009), and a somewhat more egalitarian domestic division of labour (Gershuny and Fisher, 2000). However, despite steady falls in occupational sex-segregation during the 20th century, men and women differ widely in the types of occupations they hold (Jacobs, 1989; Hakim, 1994; Perales, 2010a). In addition, the sex-composition of occupations has important consequences for pecuniary outcomes, career prospects and working conditions, and workers in occupations in which women predominate are consistently disadvantaged in these and other labour market aspects (Glass, 1990; Rosenfeld, 1992; England et al, 1994; Perales, 2010b). Since an individual's labour market position is significantly entrenched with his social and family status, the consequences of the sex-segregation of occupations may extend to other settings (Preston, 1999), such as migration behaviour in the context of the family.

In the literature linking employment and migration emphasis has been placed on human capital aspects and career prospects (Blau and Duncan, 1967; Mulder, 1993; Van Ham, 2002; Huinink et al, 2010). However, little is known about the effects of occupations on the decision to move. In the case of family migration, evidence on the effect of investment-oriented characteristics of the spouses on geographic mobility is still inconclusive, and some authors have suggested that occupational characteristics may be important in promoting or deterring different types of migration. Recent research has started to explore the impact of occupational characteristics on household migration (e.g. Shauman and Noonan, 2007; Brandén, 2009; Shauman, 2010), but it has not yet considered the potential effects of the sex-compositions of occupations. This may be important if the different valuation within society of male and female-dominated lines of work enters the decision making process which precedes family migration.

This article adds to the existing literature by explicitly theorising and later testing the direct and indirect effects of occupational sex-segregation on couples' decisions to move. The addition of occupational characteristics to models of family migration is also a novelty among studies focusing on Britain. In our empirical analysis we use random effects models of family migration estimated using panel data for couples from the British Household Panel Survey (BHPS) merged with occupational-level information from the UK Labour Force Survey (LFS). Results suggest that a majority of the effects of occupational sex-segregation

on family migration is mediated by socio-economic and occupational characteristics of the spouses, while other occupational-level properties such as the potential for wage growth and career advancement are significantly related to different types of family moves.

2 - Literature review

2.1 - Motivation

Research linking family migration and occupational (sex-)segregation is scarce, although their potential interactions have been apparent in the literature for many years. The first article to hypothesise a relationship is Long (1974), one of the most widely referenced pieces of work in the migration literature. In his concluding paragraph the author states that:

> *"[i]t might even be argued that the husband's migration influences not only the career development of the wife but also the initial choice of occupation. Such occupations as elementary school teaching, nursing and secretarial work are traditional occupations for women. They are also fairly readily transferrable from one area to another and can be practiced in almost any part of the country* [US]. *It may be that the geographical transferability of these occupations has played a part in their perpetuation as favourite career choices for women"* (Long, 1974, p.348, brackets added)

Although the recent rise in women's educational and occupational achievement seriously questions whether their occupational choices depend on their perceptions of the future work-related mobility of their husbands, Long's assertion that occupations in which women predominate share characteristics which may affect migration deserves more attention. Later publications have regularly echoed this claim, placing occupational sex-segregation in the 'to do' list of migration research (e.g. Mincer, 1978; Morrison and Lichter, 1988; Hanson and Pratt, 1991, 1995; Halfacree, 1995; Gordon, 1995; Cooke, 2003; Cooke et al, 2009). Spitze (1984) makes a call to *"focus on more precise occupational […] histories for specific subgroups of women"* (p.34), while Bailey and Cooke (1998) suggest that families' post-migration employment experiences depend on previous work choices and that *"further research should address questions of […] occupational concentration"* (p.115). Similarly, in his comprehensive review Greenwood (1997) warns about how little research has focused on the characteristics of migrants' jobs before and after a move, especially in relation to non-

monetary aspects of employment, even though these have been shown to be important (Morrison and Lichter, 1988).

2.2 - Why do families move?

Family migration research has demonstrated a strong link between migration decisions within the family and the employment circumstances of the spouses. Two different sets of theories coexist within this literature: those which assume gender symmetry in family migration decisions and those which assume gender asymmetry. Gender symmetry takes place when career investments (e.g. education or experience) pay equally for husband and wife. Therefore, the decision to move does not depend on the sex of the advantaged spouse but on the extent of the difference in career investments between the spouses. Gender asymmetry occurs when women experience a reduced pay-off for the same conditions, thus explaining lower rates of lead migration among wives even when they enjoy a better labour market position than their husbands.

From a rational choice perspective, human capital theory (HCT) offers a persuasive explanation of family migration in which different bargaining power between spouses is attributable to differences in personal investments in productivity-related labour market capacities (e.g. education, training or experience). Migration decisions are the outcome of rational calculations and migration occurs when the expected economic returns exceed all costs (Sjaastad, 1962).[2] When extending migration to consider the family-household unit, returns are calculated as the perceived positive difference in family income between moving and staying (Polachek and Horvath, 1977; Mincer, 1978). Therefore, a geographic move would occur even when one spouse suffers personal losses, provided these are counterbalanced by the gains of the other spouse. Mincer (1978) coins the term 'tied migrant' to refer to the spouse that, at the expense of hindering her own occupational aspirations, follows the partner for the sake of the family. Conversely, the spouse with better prospects for advancement through migration becomes a 'tied stayer' when his gains cannot compensate for the losses of the disadvantaged partner and migration does not occur. Although this perspective assumes gender symmetry between spouses regarding family

[2] Simpson (1992) extends the human capital theory of migration to account for spatial issues. In his approach, workplace mobility plays a key role and is conceptualised as a means to achieve occupational advancement in response to a combination of poor accessibility to suitable jobs in the local area (the spatial mismatch hypothesis) and unaffordable commuting costs. When these conditions occur, individuals may either migrate or suffer from underemployment (see also Van Ham, 2002).

decisions, there is wide recognition that the model suitably matches women as tied migrants and other authors prefer to use gender-specific terms such as 'trailing wives' (Cooke, 2001).

Also along the lines of gender symmetry, the resource theory of conjugal power (RT) asserts that the spouse who provides more resources to the household single-handedly makes migration decisions on behalf of the family (Blood and Wolfe, 1960; Rodman, 1972). Due to their higher labour market participation and wages, husbands tend to be primary earners and decide on household economy matters, as labour income is generally considered the most valuable resource. Migration is not motivated by household wellbeing but for the career aspirations of the spouse which mainly supports the family income. Thus, RT departs from HCT insofar that family migration is justified even when household income is not maximized.

A third theoretical perspective casts doubts upon the gender symmetry assumption implicit in the above accounts and draws attention to the social roles attributed to men and women in contemporary societies. The gender-role theory (GRT) of family migration questions that husbands' and wives' careers are valued equally in the decision-making process. Based on sociological theories of gender relations, GRT maintains that decisions over family migration are gender-asymmetric, that husbands' career prospects dominate over wives' and that couples' gender-role attitudes towards the 'provider role' mediate the decision to move geographically. Empirical evidence supports these assertions showing that married women are less willing to move for their own occupational advancement than their husbands (Markham and Pleck, 1986); that families move in response to economic motivations on the part of the husband even when wives have higher educational or occupational attainment (Shihadeh, 1991); and that husbands with traditional views seem indifferent to wives' potential migration-related job losses (Bielby and Bielby, 1992).

The contradictions between these theoretical perspectives highlight the need to further explore the determinants and gender symmetry of family migration decisions. The structural explanation (StE) of household migration initiated by Shauman and Noonan (2007) rests on the fact that men and women work in different occupations, which needs to be considered when comparing their labour market situations. Therefore, analyses of family migration would be incomplete without taking this into account, since consistent differences in the occupational choices of men and women may explain why husbands and wives tend to be assigned different roles in family moves.

Taking the challenge posited by Long (1974) we complement previous research by focusing on the characteristics of the occupations held by husbands and wives to provide a holistic explanation of the family migration process, with an emphasis on the role of the sex-composition of occupations. The next section summarizes the limited body of empirical literature on the relationship between occupational sex-segregation, occupational characteristics and geographic mobility.

2.3 - Previous empirical literature

To our knowledge, few articles have tested the influence of occupational characteristics on migration empirically, and none has focused directly on the sex-composition of occupations.

Hanson and Pratt (1991) examine the relationship between occupational sex-composition and willingness to relocate over a long distance for occupational advancement. Using data from open-ended interviews on a sample of 526 households in Massachusetts (US), they find that 17% of coupled women working in female-dominated occupations are willing to relocate for their own career advancement, compared to 26% in integrated occupations and 35% in male-dominated occupations. However, these differences are not as great as those found between men (59%) and women (23%).

Using UK LFS data, Gordon (1995) includes the ratio of female to male workers in the job (not the occupation) as an explanatory variable in models of (a) experiencing work-related residential mobility, (b) becoming a 'sponsored' mover and (c) becoming an 'unsponsored' mover ('sponsorship' is defined as working for the same employer after migration). He finds that job feminization is positively associated with the probability of becoming a tied mover and a unsponsored job-related mover, while it has no relation with the propensity to become a sponsored mover. These findings are interpreted as suggesting that female-dominated jobs are often found in secondary labour markets in which vacancies tend to be filled through local hiring practices. However, the gender composition of the job had a relatively small impact on the propensities to undertake each type of move relative to other individual-level factors such as gender.

More recently, Brandén (2009) analyses the determinants of internal migration in Sweden controlling for detailed occupational divisions. Controlling for occupation in detail allows her to successfully identify the individual effect of each occupational grouping on the probability of migrating while also estimating more accurately the effect of other factors such as

education. However, this modelling strategy cannot tell us what these different occupations have in common (for example their sex-composition) and how this affects the probability that an individual experiences a geographic move. Her results show that women's mobility is more influenced by husbands' occupations than the reverse and that, even after controlling for occupational differences, it is the man's and not the woman's education that increases mobility.

Finally, Shauman (2010) explores gender symmetry in household migration in the US. She identifies four occupational characteristics which may explain the predominance of husband-led moves. These are the prevalence of migration in the occupation, its potential for earnings growth, its geographic ubiquity and its specific unemployment rate. Although Shauman's main results show that occupational-level characteristics cannot explain gender differences in the determinants of family migration, several of the occupational indicators are statistically significant, which is consistent with the StE. However, given her interest in gender differences, it is surprising that the proportion of females in the occupation is not used to explore the effect of occupational feminization on migration directly.

2.4 - The effects of occupational sex-segregation on family migration

In this section we use past literature to formulate testable hypotheses on the conditions under which occupational sex-segregation could affect the migration behaviour of couples. We separate these effects into two types. 'Indirect' or 'mediated' effects are driven by occupational and individual characteristics asymmetrically distributed across different occupational sex-types or by the selection of certain women into female-dominated occupations. 'Direct' or 'causal' effects are intrinsic to the sex-composition of the occupation and a product of distinct treatment of individuals working in different occupational sex-types in the intra-couple negotiation preceding migration. We also derive a hypothesis about the relative weight attached to the occupational characteristics of the husband and the wife.

Occupational sex-segregation may have a causal effect on family migration if the femininity of the work itself has an effect on family migration decisions. Sociologists have long discussed the existence of a sex-bias in the social construction of the value of work, which is vastly influenced by the traditional patriarchal order of modern industrialized societies. Higher subjective value is attributed to 'male' activities, skills, occupations, etc. while traditionally 'female' lines of work are consistently undervalued. Discrimination does

not [only] take place against individuals but against certain types of jobs defined primarily by the demographic characteristics of their incumbents (Maume, 1999). The empirical literature on comparable worth has found penalties for those employed in female-dominated occupations in both pecuniary and non-pecuniary employment outcomes net of objective measures of occupational worth (e.g. Glass, 1990; England et al, 1994). Similarly, experimental research has shown that both men and women assign more worth and prestige to equal work when done by men (Bose and Rossi, 1983; Deaux, 1985; McArthur, 1985) and that men and women differ in their sense of personal entitlement (Major et al, 1984). We propose that the sex-composition of occupations may be considered the macro-level counterpart of 'sex' for GRT in the context of family migration and that it directly affects migration after controlling for potentially confounding factors. If the work commonly performed by women is undervalued with respect to the work commonly performed by men, individuals working in female-dominated may have less power in the bargaining process which precedes household migration *ceteris paribus*. This leads us to hypothesise that the sex-segregation of occupations has a net effect on family migration so that:

> *H1: Individuals working in female-dominated occupations are less likely to be lead migrants and more likely to be tied migrants, all else being equal.*

However, there are three sets of factors other than the devaluation of female-dominated lines of work which may explain any observed impacts of the sex-composition of occupations on family migration. We discuss these in turn.

First, the effects of occupational sex-segregation on migration could be explained by occupations with different sex-compositions having particular characteristics which promote or deter job mobility as a means for occupational achievement and facilitate or impede job relocation as a tied migrant. Female-dominated occupations have been argued to be easily transferrable geographically and to have flatter wage-tenure profiles (Long, 1974; Mincer, 1978; Spitze, 1984; Gordon, 1995; Cooke, 2003). Therefore, there are few incentives for workers in these occupations to move geographically, as the probability of benefiting from doing so is low.[3] Also, the job costs associated with tied migration are lower for people in

[3] However, moves may be prompted by the opportunity to leave work in a female-dominated occupation at origin and to obtain a job in a more rewarding sector at destination. In this case, female-dominated occupations

these occupations, as such occupations are easy to retain after migration. Consequently, individuals working in occupations with different sex-segregation would exhibit different patterns of geographic mobility, but occupational feminization would only capture other occupational properties influencing migration.

Second, the literature illustrates that individuals working in occupations with different sex-compositions tend to have different socio-economic characteristics. Although the associates of occupational feminization are contested, the latter has been shown to be negatively correlated with factors known to promote lead migration and to deter tied migration, such as wages (England et al, 1994), education (Polachek, 1981), labour market experience (Duncan and Hoffman, 1979), job specialization and on-the-job training (Tam, 1997), or full-time work (Beller, 1982). Therefore, it is possible that any effects of the sex-segregation of occupations on family migration are compositional, and a product of the distribution of demographic traits and work-related characteristics across workers in different occupational sex-types.

Third, empirical research has found that migrants are a selected sample of the population (Borjas et al, 1992; Cooke and Bailey, 1996) and that long-distance migration is often the result of extended job search and a desire for upward social mobility (Sjaastad, 1962; Mincer, 1978). Consequently, less committed, motivated and career-oriented individuals are less likely to initiate a geographic move, and also more likely to become tied migrants, since their low job attachment will not prevent moves which only benefit the partner's career. Besides, such individuals are most often found either out of employment or in occupations requiring lower investments.[4] It has been argued that female-dominated occupations offer more flexible work arrangements (Filer, 1989), better opportunities to reconcile domestic and paid work (Polachek, 1981), and require shorter commuting distances (Hanson and Pratt, 1995). Thus, it is possible that working wives with unobserved characteristics which make them less committed towards their careers select into female-dominated occupations. If so, the choice to work in these occupations would be endogenous in the family migration decision and

should simultaneously elicit migration and occupational change towards less feminized occupations. The latter will only hold in cases of underemployment (i.e. when the worker's education, experience and/or skills are superior to those required in her current occupation).

[4] Some studies have analysed the effects of the selection of women into employment in the context of family migration and suggested that these do not explain why families are more likely to move long distances when the wife is not employed (Cooke and Bailey, 1999). However, previous research has not accounted for the type of employment which partnered women take up.

selection mechanisms would explain any effects of the sex-segregation of occupations on family migration.

Considering these alternative explanations of the effect of occupational feminization on family migration, we now formulate a hypothesis which stands in direct contrast to Hypothesis 1:

H2: Individuals working in female-dominated occupations are as likely as those in other types of occupations to be tied or lead migrants, controlling for socio-economic and occupational characteristics and for the selection of women with little career prospects into female-dominated occupations.

So far, we have assumed that the potential effects of occupational sex-segregation and occupational characteristics on family migration are gender-symmetric. This is consistent with gender-neutral theories which argue that comparative occupational advantage enhances the probability of being a lead migrant regardless of the sex of the advantaged spouse. Using GRT we argue that effects may in fact be gender-asymmetric, since husbands and wives often hold the 'breadwinner' and 'homemaker' roles within the family and expect husbands to have an inherent advantage over wives. Formally, we propose that:

H3: The effect of occupational sex-segregation and occupational characteristics on family migration varies by sex, and wives are more likely than husbands to be tied migrants and less likely to be lead migrants ceteris paribus.

3 - Data

We use two different nationally representative datasets: the British Household Panel Survey (BHPS) and the Labour Force Survey (LFS). Our main analysis is based on data from the BHPS, while information about the characteristics of occupations is derived from the LFS.

The BHPS is a panel survey in which the same respondents have been interviewed on an annual basis every autumn since 1991, with data up to 2007 currently available. The first

wave of the panel consisted of around 10,000 respondents from nationally representative randomly selected households across Britain. The BHPS offers advantages for the study of occupational sex-segregation: it is representative of the British population and up-to-date, it collects a wide range of contextual information and includes detailed information on the occupation of employment of respondents. Its longitudinal nature and time span are necessary to study events such as residential mobility which have an inherent time element (Buck, 2000), making the BHPS a better choice than other large-scale datasets such as the UK Census or the LFS. In addition the BHPS contains information that is particularly important in studying migration, such as distance moved, reported reasons for the move and migration preferences.[5]

Our multivariate analyses are based on a sample of dual-earner married or cohabitating heterosexual couples in which both spouses are of working age (18 to 64 for men and 18 to 59 for women)[6]. We restrict the sample to observations from couples which remain together and share a common residence for at least 2 years (see Rabe, 2006) and exclude those experiencing transitions to separate primary residences (i.e. living apart together) or whose partnership dissolves after the move, as these are processes competing with family migration (Boyle et al, 2008). Couples with either spouse in full-time education, in self-employment, retired, permanently sick, disabled or in the armed forces are excluded.[7] We utilize seventeen waves of the BHPS covering the period 1991-2007 which provide a sample size of around 2,500 couples and just over 14,000 couple-year observations.[8] We use dyadic couple-year observations as the unit of analysis because doing so avoids using duplicate information in the analysis and more accurately captures the effect of spousal differences in investment-oriented characteristics (Boyle et al, 2001; Shauman, 2010).

The LFS is a quarterly survey of individuals living at a random sample of about 60,000 private addresses in Britain. Its main purpose is to supply detailed information on individuals'

[5] Continued representativeness of the British population is ensured by following panel members wherever they move within Britain and by a comprehensive weighting system which accounts for non-random panel attrition. As an illustration of the degree of attrition in the BHPS, ten years after the beginning of the survey over 70% of eligible households still remained in the panel, with around 60% of them giving full interviews in each of the years (Lynn et al, 2006). Although attrition rates through non-contact are higher among 'movers' than among 'stayers' (Buck, 2000), previous studies have found that this is unlikely to bias results of models exploring the determinants of migration (Rabe, 2006; Rabe and Taylor, 2009).

[6] For simplicity, we refer to the male and female members of the couple as husband and wife respectively, although they may not be legally married.

[7] The self-employed are excluded because the relevance of the sex-composition of occupations and the categorization into employed and unemployed are less clear for them. Individuals working in the armed forces are dropped because their episodes of migration are frequent and most often a requirement of their jobs.

[8] We do not use information from the 'Scotland and Wales Extension Samples' introduced at wave 9 or from the 'Northern Ireland Household Panel Survey' introduced at wave 11.

labour market activity and employment and help to develop, manage, evaluate and report on labour market policies. We use this to construct occupational-level variables which are then matched to individuals in the BHPS by their SOC90/SOC2000 code and year.[9]

4 - Model specification

Our analysis is at the couple level. Some variables are defined in terms of characteristics of the female partner together with differences between the wife and the husband (age, education, gender-role attitudes and monthly wages),[10] while others are measured independently for either spouse (occupational characteristics) or are common for both spouses (house ownership and age of the children). Demographic variables are measured after migration (time t) in order to capture moves motivated by anticipated family situations such as having a baby, while education, house ownership and job- and occupation-related covariates are measured before migration (time t-1) to identify the bargaining conditions prevailing prior to the move. Gender-role attitudes are time-invariant by definition.

We identify three dependent variables in our models, following the prevailing traditions in the migration literature and exploiting the opportunities offered by the BHPS. First, we consider two types of job-related migration using information on the reason for moving: moves in which the wife is a tied mover (i.e. migration is exclusively driven by the husband's job) and (ii) 'wife-friendly' work-related moves (i.e. migration benefits the wife's job exclusively or the jobs of both spouses).[11] The first is a binary variable which takes the value 1 if the couple reports moving for reasons related to the husband's job but <u>not</u> for the wife's job and value 0 if the couple moves for reasons unrelated to labour or does not move at all. The second is a binary variable which takes the value 1 if the couple reports moving for reasons related to the wife's job <u>or</u> for reasons related to the jobs of both spouses and value 0

[9] The main advantage of the LFS is its large sample size, which allows for more accurate measurement of occupation-level variables than possible using the BHPS. Occupational characteristics are computed after excluding employees outside standard working age and the self-employed. Due to data availability this is done using 371 three-digit SOC90 codes from 1991 to 2000, and 353 four-digit SOC2000 codes from years 2001 to 2007. To boost the numbers in occupations with small sample sizes the quarterly LFS datasets are pooled into annual files.

[10] For instance, for a couple in which he is 38 years old and she is 37 years old, 'age' would be introduced as (i) age of the wife (37) and (ii) the difference in age within the couple with respect to the husband (38 – 37 = 1).

[11] This strategy follows that of Boyle et al (2009), which also use BHPS data. In the descriptive analyses, we look at moves motivated by the wife's job only and at moves motivated by the jobs of both spouses separately. Unfortunately, there are too few wife-led (n=43) and egalitarian (n=58) migration episodes to use these as separate dependent variables in regression models.

if the couple moves for reasons unrelated to labour or does not move.[12] We then follow a different approach and construct a third migration indicator based on the distance of the move. This is a binary variable which takes the value 1 if the household moves at least 50km. and value 0 if the household moves less than 50km. or does not move. Migration variables based on the reason behind the move are mutually exclusive but can overlap with the distance-based indicator.

Our analytical approach is to estimate nested models. Base models estimate the relationship between occupational feminization and migration without other controls. Subsequent models progressively add (i) occupational measures, (ii) socio-economic characteristics and (iii) a correction for the selection of wives into female-dominated occupations. Occupational feminization is measured before the move using variables that identify couples in which: (a) the wife works in a female-dominated occupation and the husband works in a male-dominated occupation; (b) the wife works in a female-dominated occupation and the husband works in an integrated occupation; (c) the wife works in any occupational sex-type and the husband works in a female-dominated occupation; and (d) neither spouse works in a female-dominated occupation. Male-dominated refers to occupations in which less than 35% of workers are female, female-dominated occupations are those in which more than 65% of workers are female, and integrated occupations refer to those which lay in between.

The second set of models adds occupational-level variables measured prior to the move. These variables match closely those in Shauman and Noonan (2007) and Shauman (2010) and are derived using information from working-age employees from the LFS (1992-2007).[13] Since the previous literature suggests that the occupational characteristics of the wife and the husband may have different impacts on migration (Shauman, 2010), we introduce the occupational measures of the wife and the husband rather than the occupational measures of the wife plus within-couple differences and test alternative specifications later on. We use six occupational characteristics in addition to the sex-segregation of occupations. The first

[12] The comparison group for our dependent variables includes all couples at risk of experiencing the event (i.e. work-related family migration). Therefore, Y=0 contains both non-moving couples and couples moving for reasons unrelated to labour. This strategy is similar to that in Boyle et al (2003), which also uses BHPS data. Results remain virtually unchanged if we re-estimate the models using dependent variables in which the comparison group is composed exclusively of 'movers' or exclusively of 'stayers' and when we drop all non-migration observations preceding work-related moves of a different type.

[13] The number of LFS quarters used to derive some of the variables is smaller, given that the LFS only includes some variables in certain years and in certain quarters each year. Since LFS data is pooled to obtain samples sizes large enough to derive indicators for each detailed occupation, the resulting variables are time-invariant and make the assumption that the aspects they measure are stable across time.

captures occupation-specific unemployment rates, as we expect workers in occupations with high unemployment rates to move speculatively less often to reduce the risk of becoming unemployed. This is operationalized as the number of individuals entering unemployment[14] from a given occupation as a proportion of the number of workers in that occupation. The second variable measures how the occupation is distributed across the 13 standard British regions. Workers in occupations which are more uniformly distributed should have fewer constraints to migrate for reasons related to their spouses' jobs, since it should be easier for them to find a similar job at destination. This indicator is based on the Duncan and Duncan (1955) index of dissimilarity, and ranges from 0 (absolute geographic concentration) to 1 (absolute geographic evenness). The third variable is a measure of occupation-specific migration rates, defined as the proportion of workers in the occupation who change residence across regional boundaries in the following 12 months. We expect workers in occupations with higher migration rates to have higher probabilities of all sorts of migration. The fourth and fifth occupational characteristics refer to different aspects of career advancement. We expect employees in occupations with greater scope for such progression to have more incentives for work-related lead migration. The occupation's potential for earnings growth is measured as the ratio of the 75th to the 25th percentile of the distribution of occupation-specific hourly wages. The measure of occupational advancement is the only occupational-level variable calculated from the BHPS (1991-2007) and is the proportion of individuals in each occupation who answer 'yes' to the following question: *"In your current job, do you have opportunities for promotion?"*. This variable was not used in previous studies, but captures the likelihood of a different type of career progression across rather than within occupations. Finally, we include a set of binary variables capturing occupational skill levels to allow for any correlation between the sex-composition and the skill requirements of an occupation.[15] In regression models, all the occupational characteristics, with the exceptions of sex-composition and skill requirements, are standardized to ease the interpretation of their associated coefficients.[16]

[14] We use the ILO definition of unemployment.

[15] This is based on aggregating the SOC90 and SOC2000 classifications into major skill groups, following Elias and McKnight (2001) and is similar to the job-level variable in van Ham et al (2001). Groups are defined in relation to the educational, labour market experience and on-the-job training requirements of the occupation.

[16] Standardizing a variable involves subtracting the sample mean from the value and dividing by the standard deviation for each case. The purpose is to prevent extremely large or small regression coefficients product of the small scale and the concentration within a narrow interval of the values for that variable.

The fully-specified set of models adds demographic and socio-economic characteristics.[17] Age is measured at t-1 and included as a continuous variable, used to proxy life-cycle effects and expected to be inversely related to migration (Courgeau, 1985). Education is measured at time t-1. We expect more educated individuals to lead moves more often because they accumulate and process information more efficiently, enjoy greater opportunities for career advancement and search for jobs in national rather than local labour markets (Van Ham, 2002). Gender-role attitudes have been identified as an important factor in determining the roles of husbands and wives in family moves (Bielby and Bielby, 1992). BHPS data allow us to control for these directly using a time-invariant constructed scale of traditionalism in individuals' attitudes towards the role of women in the family and the labour market.[18] The presence of pre-school and school-age children in the household at time t is also included. Following previous literature, this is expected to be inversely related to long-distance migration, since parents try to avoid disruptions to children's educational careers and social networks (Green, 1997; Fischer and Mallmberg, 2001). We also add a variable capturing whether the couple owns the family home prior to the move, which is expected to reduce migration as it increases the associated direct costs (Böheim and Taylor, 2002). Our variable on gross monthly wages is measured at time t-1 and constructed using monthly working hours and wages and therefore captures their joint effect, while wage differences between the husband and the wife approximate the domestic division of paid and unpaid labour.[19]

5 - Estimation

[17] Since our focus is on occupational-level characteristics, we build a parsimonious model which excludes several covariates which are common in migration research but which do not change the estimates on our variables of interest (e.g. household income or region of residence).

[18] This scale is constructed from responses to a battery of nine questions from the BHPS in which individuals are asked, on a scale from 0 to 4, the extent to which they believe that: (a) a pre-school child suffers if the mother works; (b) the family suffers if the mother works full-time; (c) a woman and a family are happier if she works; (d) husband and wife should both contribute to the household income; (e) a full-time job makes a woman independent; (f) husbands should earn and wives stay at home; (g) children need their father as much as their mother; (h) employers should help with childcare; and (i) a single parent can bring up children as well as a couple. Responses to each question are in a Likert scale from 0 (strongly disagree) to 4 (strongly agree). When arranged and summed these form an index which ranges from 0 to 36 where higher values indicate more traditional/conservative sex-role views. These variables are only collected biannually in the BHPS. Therefore, we calculate the average score for each individual using the information for all the waves in which the response is observed, and treat individual beliefs towards work and the family as time-invariant. See Swaffield (2000) for a similar construct.

[19] Controlling for husband's and wife's wages is essential to capture their relative contribution to household resources. However, the literature shows that wages in female-dominated occupations are lower than in other occupations due to the devaluation of such lines of work (e.g. England et al, 2004). This implies that our wage variables may be absorbing part of the 'direct' effect of occupational sex-composition on family migration and that our estimates are downward-biased.

5.1 - Main models

We estimate models which consider each move occurring within our observation window, rather than using information on the first move only. We employ random effects (RE) panel data specifications to control for the effect of unobserved characteristics which may influence the propensity to migrate such as motivations, preferences, openness to new experiences or unmeasured productivity-related factors.[20] If not suitably allowed for, these can bias the coefficients of interest through omitted variable bias. We use the logistic distribution to account for the fact that our dependent variable has a non-linear binary nature, thus estimating RE logit models. Unlike the linear probability model, this method ensures that predicted probabilities lie between 0 and 1 and that the regression assumptions of normality and homoskedasticity are not violated. The full model can be expressed as:

$$\ln\left(\frac{\hat{M}_{t-1,t}}{1-\hat{M}_{t-1,t}}\right) = \beta_0 + \beta'_1 C_{tc}' + \beta_2 H_{t-1c} + \beta_3 G_f + \beta_4 (G_f - G_m) + \beta'_5 S_{tf-1}' + \beta'_6 (S_{ft-1}' - S_{mt-1}') + \beta'_7 O_{ft-1}' + \beta'_8 O_{mt-1}' + \upsilon_c + \varepsilon_{ct} \quad \textbf{(1)}$$

…where subscripts t, c, f and m designate time, couple, female partner and male partner; $\hat{M}$ is the underlying propensity that a binary migration indicator M takes value 1; C' is a vector of two variables capturing the presence of pre-school and school-age children in the household; H is an indicator of house ownership; G represents gender-role attitudes; S' and O' are vectors of observable socio-economic and occupational characteristics; υ is the couple-specific time-constant unobservable effect; and ε is the usual cross-sectional stochastic error term. β_0 is the model intercept and β_1-β_8 are coefficients or vectors of coefficients to be estimated.

5.1 - Selectivity analysis

[20] RE models are better suited than fixed-effects (FE) models to study migration because there is little variability in the dependent variable (i.e. couples rarely move more than once). As a drawback, RE models assume that the unobserved individual-specific effect is normally distributed with constant variance, and is independent of observables. It is now common practice to relax this assumption following Mundlak (1978) and Chamberlain (1984) by modelling the dependence between the unobserved individual-specific effects and the observables as a function of the means of the time-varying covariates (Taylor, 2007). However, as in Rabe and Taylor (2010), we refrain from using this technique in a migration framework as some of explanatory variables of interest (e.g. occupational sex-segregation) are expected to change precisely as a consequence of the move, introducing issues of endogeneity.

In our selectivity analyses we use simultaneous equations and jointly estimate a selection equation for the wife being employed in a female-dominated occupation and the family migration equation in a methodological framework similar to that in Lillard and Panis (1998). The benefit of a simultaneous equations set-up is that it exploits the properties of the multivariate normal distribution to determine the correlation between the two random terms and captures any unobserved heterogeneity affecting both outcomes (Manski et al, 1992; Lillard, 1993). For instance, unmeasured factors such as having lower labour market attachment are likely to influence the two outcomes, because women taking up female-dominated occupations are more likely to follow their partners to the cost of their own careers. Thus, we argue that the inclusion of the common unobserved heterogeneity term via the correlation across random effects allows us to identify more accurately the impact of occupational sex-composition on migration.

Identification is achieved through the exclusion of an instrumental variable from the structural equation. This instrument should satisfy two conditions: (i) it must be significantly associated with the endogenous regressor (i.e. working in a female-dominated occupation) and, (ii) it must not be significantly correlated with the outcome variable (i.e. migration). In our analyses the instrument is a dummy variable denoting whether the wife works in public administration. This fulfils the requirements above: it is significantly associated with working in a female-dominated occupation with a pairwise correlation of 0.21 statistically significant at the 1% level, and not significantly correlated with any of the migration indicators with pairwise correlations under 0.01 which are not significant at the 10% level in all cases. The two equations can be formally written as:

$$\ln\left(\frac{\hat{M}_{t-1,t}}{1-\hat{M}_{t-1,t}}\right) = \beta_0 + \beta'_1 C_{tc}' + \beta_2 H_{t-1c} + \beta_3 G_f + \beta_4 (G_f - G_m) + \beta'_5 S_{tf-1}' + \beta'_6 (S_{ft-1}' - S_{mt-1}') + \beta'_7 O_{ft-1}'$$

$$+ \beta'_8 O_{mt-1}' + \upsilon_{c1} + \varepsilon_{ct} \qquad \textbf{(2)}$$

$$\ln\left(\frac{\hat{F}_{t-1}}{1-\hat{F}_{t-1}}\right) = \beta_0 + \beta'_1 C_{tc}' + \beta_2 H_{t-1c} + \beta_3 G_f + \beta_4 (G_f - G_m) + \beta'_5 S_{tf-1}' + \beta'_6 (S_{ft-1}' - S_{mt-1}') + \beta'_7 O_{ft-1}' +$$

$$\beta'_8 O_{mt-1}' + \beta_9 P_{ft-1} + \upsilon_{c2} + \varepsilon_{ct} \qquad \textbf{(3)}$$

…where $\hat{F}$ is the underlying propensity for the wife to work in a female-dominated occupation; P is an instrumental binary variable indicating whether the wife works in public administration and β'_3 its associated coefficient; and the terms υ_1 and υ_2 are the couple-specific correlated random effects for the main and selection equation respectively.

The couple-specific residuals for each equation are drawn from a joint-bivariate normal distribution with mean 0. The estimated variance-covariance matrix contains the variance of the residual for each outcome in the diagonal and the covariance in the extremes:

$$\begin{pmatrix} v_1 \\ v_2 \end{pmatrix} \sim N\left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma^2_{v_1} & \rho_{v_1 v_2} \\ \rho_{v_2 v_1} & \sigma^2_{v_2} \end{pmatrix} \right) \quad \textbf{(4)}$$

6 - Analysis

6.1 - Descriptive analysis

Table 1 summarises the prevalence of different types of moves for dual-earner couples. In our sample, an average of 0.9% of couples move further than 50 km. each year, 0.8% move for reasons related to the husband's job, 0.4% for the jobs of both spouses and only 0.3% for the wife's job. In a given year, fewer than 2% of couples move over long distances or for work-related reasons. Over the sample period, 5.7% of couples in the sample moved further than 50km., 5.1% for the job of the husband, 2.5% for both jobs and just 1.5% for the wife's job. Around 90% of couples were never observed to move over long distances or for work-related reasons. These results highlight a predominance of work-related husband-led moves within dual-earner couples and a limited incidence of geographic mobility favouring the wife's job.

Table 2 shows the incidence of migration by the occupational sex-types of husbands and wives.[21] In almost half of the couple-year observations (49.74%) the wife works in a female-dominated occupation and the husband works in a male-dominated occupation (the 'traditional couple'). In a further 26% neither spouse works in a female-dominated occupation. The categories 'wife in a female-dominated occupation, husband in an integrated

[21] Descriptive evidence not presented here suggests that multiple migration over time is rare, which indicates that the number of moves in our sample is not disproportionately driven by a small number of couples moving repeatedly over the observation window.

occupation' and 'wife in any occupation, husband in a female-dominated occupation' have the smallest sample sizes (12.99% and 10.88% respectively).

When migration is defined as moving over 50km. (column 1) migration rates are lowest when the husband works in a female-dominated occupation (0.64%) and when the wife works in a female-dominated occupation and the husband works in a male-dominated occupation (0.65%). In contrast, couples move over long distances more frequently when the husband works in an integrated occupation and the wife works in a female-dominated occupation (1.13%) and when neither spouse works in a female-dominated occupation (1.30%). When considering egalitarian moves (column 2) couples in which at least one spouse works in a female-dominated occupation move less (rates from 0.25% to 0.27%) than couples in which neither spouse works in a female-dominated line of work (0.82%). Moves in which women are tied migrants (column 3) occur more often when the husband works in an integrated occupation and the wife works in a female-dominated occupation (1.24%), while moves which favour the wife's job only (column 4) occur more frequently when only the husband works in a female-dominated occupation (0.45%) and when neither spouse works in a female-dominated occupation (0.45%). Overall, spouses working in female-dominated occupations rarely lead or co-lead moves and tend to be tied movers. In contrast, when neither spouse is employed in a female-dominated occupation we observe relatively high rates of mobility, with the exception of moves which only benefit the husband's job. These results offer preliminary support for Hypothesis 1 by suggesting that working in a female-dominated occupation reduces the chances of being a lead migrant and increases the chances of being a tied migrant for both husbands and wives.[22]

Table 3 presents sample means of household characteristics by migrant status defined as ever having experienced a certain type of move, rather than as experiencing it in a given year.[23] A higher percentage of movers (24.3%-27.8%) than stayers (18.7%) has pre-school age children, with the exception of couples moving to benefit exclusively the wife's job (14%). In a similar fashion, statistically significant differences between movers and stayers for primary-school-age children only emerge between couples which never moved (26.7%) and couples experiencing wife-led migration (16.2%). Among movers, a smaller proportion

[22] These descriptive statistics do not provide evidence of whether there exist couples which feature egalitarian practices regarding migration roles by moving first for the wife's and later for the husband's job (or vice versa). However, separate analyses indicate that very few couples experience the latter pattern in our data.

[23] By doing this we avoid mixing migrants at time t with stayers at time t+1, although some couple-year observations (n=721) contribute information to more than one subgroup of migrants. We use the same rules for Table 3.

of those relocating for the job of the wife than of those relocating for other reasons or over long distances have children. Thus, we can conclude that couples which move to benefit the wife's job have distinct family compositions, insofar they are very unlikely to have dependent children. Consistent with our expectations, a larger share of couples which never moved (88.6%) compared to couples which moved (74.8%-83.9%) owns a house. Among movers, those which migrate for the husband's job have particularly low rates of house ownership (74.8%).

Table 4 describes the socio-economic and occupational characteristics of husbands and wives in the couples in our sample by type of migration. Non-movers are older than movers, while individuals in couples which move for both jobs are the youngest, with mean ages of 36.7 for wives and 38.6 for husbands. Movers are considerably more educated than non-movers. For example, 46.2% of non-moving wives and 36% of non-moving husbands have no formal qualifications, compared to around 25% of moving wives and 20% of moving husbands. Interesting gender patterns emerge between different types of movers. The most educated wives are those in couples which move for the jobs of both spouses (36.9% have a degree), while the most educated husbands are those in couples which move exclusively for the husband's job (39.6%). In contrast, the least educated wives are found in couples experiencing husband-led migration (only 27.8% have university qualifications), while the least educated husbands are those participating in wife-led moves (14.3%). These results suggest that wives migrate as tied movers when their husbands have higher educational qualifications, but only (co-)lead moves if their educational advantage is high. As expected, husbands and wives have more traditional gender-role attitudes in non-moving couples and in couples undertaking husband-led migration than husbands and wives in other subgroups. The least conservative husbands are those which migrate for the jobs of both spouses, while the least conservative wives are those which migrate for the job of the wife.

The proportion of wives employed in female-dominated occupations is higher for non-moving couples (72%) than for couples which move. Among movers, wives work more often in female-dominated occupations when migration benefits the husband's job (69%) and less often when migration benefits both jobs (54.4%). The proportion of husbands working in female-dominated occupations is relatively high when couples do not move (10.8%) and highest when they move for the wife's job (16.2%), while the proportion of husbands in integrated occupations is low among non-movers. This provides preliminary support for

Hypothesis 1, as the sex-composition of the spouses' occupations seems to be associated with different types of migration.

Among wives, non-movers have the lowest average wages (£578). For husbands, wages are lowest when they move for the wife's job (£675). Husbands and wives moving for the jobs of both spouses have the highest salaries (£827 and £825 respectively). Husbands earn more than wives except when couples undertake egalitarian or wife-led migration. This suggests that wives only (co)lead migration when their economic situation is well above the average and similar or higher than that of their husbands. Consistent with the StE, we see that husbands' occupations have characteristics which promote lead migration, such as higher skill requirements, potential for wage growth and potential for occupational advancement. In contrast, wives' occupations seem to have characteristics which promote tied migration, such as being more equally distributed geographically. This occupational geographic ubiquity does not differ substantially for subgroups of husbands (from 0.874 to 0.890) and is highest among tied-migrant wives (0.913), which is consistent with our expectations. The rates of occupation-specific migration are higher for wives than husbands in the non-moving (0.20 vs. 0.19), wife-led (25 vs. 20) and egalitarian migration (0.23 vs. 0.22) samples, but lower in the long-distance (0.23 vs. 0.25) and husband-led migration (0.23 vs. 0.26) samples. Since wife-led moves are rare, this may reflect a propensity for wives to be tied stayers *ceteris paribus*. Overall, most occupational characteristics are distributed across movers and stayers in the predicted manner, offering descriptive support for our expectations on their effect on migration behaviour.

Table 5 summarises work and occupational characteristics by sex and occupational sex-type. Average monthly wages for wives are considerably higher when they work away from female-dominated occupations, and are highest when they work in male-dominated occupations (£864). A similar pattern emerges for husbands, but they receive highest wages when working in integrated occupations (£748). The most skilled occupations are integrated (means of 3.16 and 3.22 for wives and husbands respectively), while the few husbands and wives working in occupations dominated by the opposite sex do relatively specialized work. Female-dominated occupations are the most equally distributed geographically for both wives and husbands (means of 0.923 and 0.918) and have the lowest occupation-specific unemployment rates (0.044 and 0.046). Rates of occupation-specific migration (0.024 and 0.025), potential for wage growth (1.636 and 1.688) and potential for career advancement

(0.571 and 0.555) are highest in integrated occupations. However, wives also have high values of the latter three aspects when working in male-dominated occupations.

Pairwise correlations between occupational characteristics and a continuous measure of occupational feminization are shown in the last two columns of Table 5. Wages and occupational skill requirements are strongly and negatively related to feminization for wives (correlations of -0.32 and -0.39), but not for husbands (-0.01 and -0.05). This may indicate that the relationship is non-linear for the latter. Opposite signs for wives and husbands in the migration (-0.16 and 0.18), wage growth (-0.41 and 0.07) and career advancement (-0.34 and 0.06) indicators reflect a predominance of these characteristics in occupations more integrated than the average for either sex.

Overall, results in table 5 indicate that occupational characteristics believed to influence migration are unequally distributed across occupations with different sex-compositions, and are least appealing in female-dominated lines of work. This is consistent with Hypothesis 2, which expects occupational characteristics to mediate any relationship between the sex-segregation of occupations and family migration.

6.2 - Regression models

We now test whether the relationships between occupational feminization and family migration that emerge in the raw data are direct or indirect using multivariate regression analysis. We use three different definitions of household migration: moving a long distance to analyse investment-oriented migration (D); moving for reasons related to the job of the wife or to the jobs of both spouses to capture wife-friendly family migration (W); and moving solely for the husbands' job to analyse episodes in which the wife is a tied mover (H). Table 6 shows estimates for RE logistic regressions for the propensity of a move occurring each year. For ease of interpretation, coefficients have been exponentiated and thus transformed into odds ratios. The latter give the change in the odds of an individual experiencing a geographic move for a one-unit increase in the explanatory variable *ceteris paribus*. For the standardized occupational variables, the change would be that associated to a one standard deviation increase in the explanatory variable. Odd ratios higher than one indicate that a given explanatory variable increases the odds of migrating while odds ratios lower than one indicate that it decreases the odds of migrating.

Estimates from base models which include only particular combinations of occupational sex-types for the husband and the wife are presented in columns (1). Couples in which the wife works in a female-dominated occupation and the husband works in a male-dominated occupation are most common, and are used as the reference category. In models of long-distance (D) and wife-friendly migration (W) the odds of moving for couples in which neither spouse works in a female-dominated occupation are around two times those of the traditional couple. This effect is not present in the model of moves which benefit the husband's job only (H). In long-distance (D) and wife-as-tied-mover models (H), couples in which the husband works in an integrated occupation and the wife works in a female-dominated occupation are significantly more likely than the traditional couple to move, with odds 69% and 64% higher respectively. However, the effect works in the opposite direction in wife-friendly models (W), in which the odds of moving for couples in which the husband works in an integrated occupation and the wife works in a female-dominated occupation are 46% of those for the traditional couple (although this effect is only marginally significant). Therefore, the raw data indicate that working in a female-dominated occupation reduces the probability of being a lead migrant, especially when it is the husband who works in such occupations, and increases the chances of being a tied migrant.

Specifications in columns (2) add occupational characteristics to base models. In these models, differences in family migration between couples with different combinations of occupational sex-types are no longer statistically significant. The exception are couples in which the husband works in an integrated occupation and the wife works in a female-dominated occupation, which move significantly less often to benefit the job of the wife or the jobs of both spouses (W) compared to the traditional couple (0.391). As predicted by StE, some of the occupational characteristics have a direct effect on family migration. For long-distance moves (D), the odds ratios on the occupation-specific migration rate (1.224), potential for wage growth (1.220) and potential for career advancement (1.262) are positive and statistically significant for the husband. For the wife, only the specific migration rate has a positive and statistically significant effect (1.169). These results suggest that investment-oriented migration occurs more often when the husband has opportunities for career advancement. In the wife-as-tied-mover model (H), the occupation-specific migration rates of both spouses have a positive and statistically significant impact, with associated odds ratios of 1.408 and 1.220 for husbands and wives respectively. In the wife-friendly model (W), the wife's occupation-specific migration rate affects geographic mobility positively (1.346),

while her occupation-specific unemployment rate decreases the odds of moving (0.684). The importance of working in an occupation in which individuals tend to move geographically is thus highlighted in all models. In relation to our hypotheses, these results indicate that, before controlling for socio-demographic and work-related factors, some occupational characteristics are significantly associated to migration, while occupational sex-segregation has only limited impacts. This contradicts Hypothesis 1, which predicted a direct effect of the sex-composition of occupations on family migration and provides support for Hypothesis 2, expecting no relationship after occupational controls are added.

Estimates in columns (3) are from fully-specified models which add socio-economic characteristics. Estimates on the occupational sex-composition variables remain qualitatively unchanged and mostly statistically insignificant. This is consistent with Hypothesis 2 and reaffirms the finding that occupational sex-segregation has very few direct effects on migration.[24] As before, the exception are the lower rates of wife-friendly migration across couples in which the wife works in a female-dominated occupation and the husband works in an integrated occupation. The magnitude and significance of the impacts of some occupational characteristics change in this set of models. The odds ratios on the occupation-specific migration rates are no longer well determined in the investment-oriented migration model (D), but those for the husband's potential for wage growth (1.236) and career advancement (1.304) remain positive and statistically significant. In the wife-friendly migration model (W), the geographic ubiquity (1.280) and potential for career advancement (1.251) of the occupation of the husband become positively and significantly related to this type of move. In the wife-as-tied-mover model (H), the positive odds ratio on the husband's potential for career advancement becomes statistically significant (1.274). The loss of statistical significance for parameters on occupational properties after controlling for socio-economic characteristics suggests that the effects of the former were a product of the distribution of personal characteristics across individuals who work in occupations with those properties. Conversely, for those occupational characteristics which remain statistically

[24] In separate analyses we added socio-economic variables to base models and found that the effects of occupational sex-segregation on migration tend to disappear, which is also consistent with Hypothesis 2. We also explored which individual variables suppress the statistically significant effects of occupational sex-segregation on family migration observed in base models in a step-wise fashion. In long-distance (D) and wife-as-tied-mover (H) models education and monthly wages are the most important demographic variables in explaining the impacts of the sex-segregation of occupations. Among occupational characteristics, migration rate, skill level and potential for wage growth also mediate the effect. Overall, these results suggest that the human capital assets and the current and prospective wages of the spouses are the principal mediators of the raw effects of occupational sex-segregation on family migration.

significant in the presence of such a comprehensive set of control variables, we have strong evidence that they have a net impact on the migration behaviour of couples.

The parameters on the socio-economic control variables are mostly consistent with expectations. Couples with more educated wives are more likely to move long distances, which may be part of the 'lead mover - tied mover' effect often found in the literature. Having pre-school age children significantly increases the odds of moving to benefit the job of the husband (H) by a factor of 1.702, while decreasing the likelihood that the couple takes into account the wife's job when moving (W) by a factor of 0.551. This suggests that a high proportion of tied-mover and tied-stayer wives tend to be primary carers. The odds of moving for couples which have children aged 5 to 11 are 0.560, 0.440 and 0.613 times those of couples which do not have children of such age in models D, W and H respectively, reflecting parents' reticence to disrupt the upbringing of the child through geographic mobility. Owning a house strongly deters all moves, with associated odds ratios of 0.340, 0.298 and 0.259 in D, W and H models. Consistent with GRT, traditional gender-role attitudes are positively associated with moves in which wives are tied migrants (H), as the odds of moving to benefit the husband job multiply by a factor of 1.089 for each one-unit increase in our 36-point attitudinal scale. Wives' wages have a positive and statistically significant impact on investment-oriented migration (D), reflecting the need for a high secondary income for couples to undertake long-distance moves.

Our main results indicate that the sex-composition of the occupations of husbands and wives does not have a direct effect on family migration, since the odds ratios on these variables are in almost all cases statistically insignificant after controlling for confounding factors. Table 7 shows results obtained when specifying occupational sex-segregation in several other ways.[25] This allows us to test the robustness of our findings and to assess other dimensions of occupational sex-composition (e.g. sex-differences or within-couple bargaining). In these specifications, sex-segregation is included as that in the wife's and the husband's occupations separately and as four different combinations. Results again suggest

[25] We also tried an alternative specification of occupational characteristics similar to that in Shauman (2010) in which each of these characteristics enters the migration model as (i) a variable denoting the absolute difference within the couple; (ii) a variable denoting whether the husband's value is higher; and (iii) an interaction term between these two variables. The first term captures how the characteristic influences bargaining within the couple; the second captures the role of the characteristic in making men lead migrants and women tied migrants; and the third captures the sex-difference in the returns to the characteristic and tests for gender symmetry. The resulting coefficients are significant less often than those in Table 7, which indicates that the effect of occupational characteristics on family migration varies by sex, and that these do not enter the couple's pre-migration bargaining. Alternatively, it can be argued that the latter models are too complex given the low incidence of migration episodes in our sample.

that (a) working in a female-dominated occupation is negatively associated with migration for both husbands and wives and (b) this effect is stronger when it is the husband who works in such occupations. However, the coefficients on the sex-segregation variables are mostly statistically insignificant in the fully-specified models, which supports our previous finding that occupational sex-composition has no direct effect on family migration.

We expected results to vary in models which control for the selection occurring if wives with little or no commitment to the labour market choose to work in female-dominated occupations. Results from the selectivity-corrected models are shown in Table 8. The validity of the instrumental variable (whether the wife works in public administration) is reinforced by its statistically significant and large odds ratios in the selection equations. Furthermore, including the instrument in the migration equations yielded statistically insignificant odds ratios for such variable in all cases (results not shown). In base models, the propensity to move for couples in which neither spouse works in a female-dominated occupation is not significantly different to that of the traditional couple in specifications D and W, while in the wife-as-tied-mover model (H) it is now larger and statistically significant, with an associated odds ratio of 1.636. For investment-oriented (D) and wife-friendly (W) migration models we observe negative and statistically significant correlations between the random effects in the structural and selection equations of -0.421 and -0.436 respectively. This implies that couples in which wives work in female-dominated occupations have unobserved characteristics which do not favour such moves. In contrast, there is a statistically significant correlation of 0.410 when migration is defined as moving exclusively for the husband's job (H), suggesting that couples in which wives work in female-dominated occupations have unobserved characteristics which predispose wives to be tied migrants. In fully specified models, selection mechanisms disappear and the significance of the correlations between the random terms of the main and the secondary equations fall. This indicates that the socio-economic and occupational controls capture the sources of selection (i.e. the sources of selection are observable rather than unobservable). The exception is the wife-friendly model (W), in which the correlation of the random effects is still negative and statistically significant with an associated coefficient of -0.408. This suggests that certain characteristics still not captured in the model predispose couples in which wives work in female-dominated occupations to avoid geographic moves which benefit the wife's job. Hence, we find only little evidence of selectivity, although the results from these models provide useful insights for a better understanding of the phenomena under consideration.

7 - Discussion

Our results initially suggest that individuals working in female-dominated occupations have lower propensities to move. In line with HCT, these individuals also lead moves less often, which can be explained by lower expected work-related returns through migration. Additionally, working in a female-dominated occupation makes wives more likely to be tied movers when matched to husbands working in integrated occupations. The inclusion of occupational and socio-economic characteristics to our models yields a more direct effect of the sex-composition of occupations on family migration and, in fact, makes most of its impacts disappear. This demonstrates that the sex-segregation of occupations only has an indirect effect on the migration behaviour of families.

In the literature, residential mobility is often viewed in conjunction with job mobility. Individuals with migration-friendly characteristics or in occupations with migration-friendly characteristics would be more likely to engage in geographic relocation in general and for their own career progression. We have shown that the characteristics of female-dominated occupations (e.g. lower opportunities for career growth or career advancement) and of individuals working in such lines of work (e.g. lower wages or skills) are less favourable to both job-related and long-distance migration than those of other workers and occupations. Therefore, the effect of occupational feminization as a catalyst for tied migration and a deterrent for lead migration observed originally seems to be the product of these tangible inequalities rather than of a process of structural devaluation of the work predominantly done by women. Individuals working in female-dominated lines of work do not benefit from migration less often because their occupations are deemed unimportant due to their 'femininity', but because such occupations have objective characteristics which make individuals working in them less likely to progress in their careers by means of geographic mobility. This finding can be read in a positive light, as it signals that the detrimental consequences of working in female-dominated occupations *per se* on labour market outcomes demonstrated in previous research do not extend to other areas of social life such as family migration.

In line with the StE, we find some evidence of an effect of other occupational characteristics on household migration. In this respect, our results show that the specific migration rates of the occupations of both spouses, the unemployment rate of the occupation

of the wife, and the geographic ubiquity, potential for wage growth and potential for career advancement of the occupation of the husband have independent effects on different types of household migration. Other occupational variables such as the geographic ubiquity of the wife's occupation and the specific unemployment rate and skill level of the husband's occupation remain close to the threshold of statistical significance or become statistically significant in alternative specifications.

Given that husbands are rarely tied migrants or the only spouse in a female-dominated occupation, it is difficult to make categorical judgements regarding gender (a)symmetry in the effect of occupational sex-segregation and occupational characteristics on migration (Hypothesis 3). For gender symmetry to occur, we would expect husband's characteristics to be more migration-friendly than those of wives, so this could explain their higher rates of lead migration. An inspection of the characteristics of husbands and wives indicates that the former are indeed better educated, have higher wages and more advantageous occupational characteristics than the latter when moving to benefit their jobs. However, in regression models in which wives are tied migrants, differences between husband and wife do not appear to be the most important drivers of migration. Instead, husband-led migration is more strongly predicted by traditional gender-role attitudes and the presence of pre-school age children. The fact that the potential for wage growth and for career advancement of the occupation only have a significant effect for husbands also hints at the existence of gender asymmetry in the impact of occupational characteristics on family moves, as it suggests that these migration-friendly characteristics only matter for males. Descriptive evidence indicates that in egalitarian and wife-led moves wives are more educated and earn more than their husbands. However, in multivariate analysis we observe that instead of these or other indicators of career progression, it is the lack of dependent children which more strongly predicts wife-friendly moves. In line with findings from studies of wage determination, we found the effect of having children to produce contrasting outcomes across sexes, as it promotes lead migration among husbands and tied migration among wives. Altogether, it seems that, when wives move for their own careers, it is important that they are considerably better positioned in the labour market than the average woman and than their husbands, and that they have a partner who also benefits from migration. At the structural level, the selectivity-corrected estimates suggest that there are unobserved characteristics which predispose couples in which the woman works in a female-dominated occupation not to move for their jobs or the jobs of both spouses.

The validity of our results may be hindered by the limitations of the data available and by the choice of methods. First, dependencies between locations of work and residence are better understood as parallel processes. A change in the location of an individual's workplace frequently requires a change in his place of residence, as commuting costs become unaffordable, while the opposite is also true (Van Ham, 2002). Event history methods which capture both time-to-events and durations may be well suited to improve our understanding of the direction of causality between these two processes. We have not used these techniques because our sample is composed of relatively short duration intervals and because residential spells have unknown starting times and are therefore left-censored, which would increase the complexity of the analysis.

Second, despite using data from the largest panel dataset in the UK, the number of migration episodes is very low: 118 moves for the job of the husband, 43 for the job of the wife and 58 for the jobs of both, out of which 126 are over long distances.[26] The scarcity of such moves is hardly surprising, since dual-earner couples are known to have lower migration propensities than those couples in which one spouse is out of employment (Cooke, 2008). As a result, separate models analysing the determinants of moves motivated by the jobs of both spouses and of moves motivated exclusively by the wife's job could not be estimated. A comparison between the latter and models in which the move is motivated solely by the husband's career would have been helpful to explore gender (a)symmetry in more depth. More importantly, the small sample sizes often resulted in relative large (economically significant) but imprecisely estimated (statistically insignificant) parameters on the sex-composition and occupational-level variables.[27] This may suggest that these coefficients could have been statistically significant had the sample size and the power of the analyses been higher. The small sample sizes also prevented us from analysing the effects of all potential permutations of occupational sex-types within couples.

Third, new types of family situations which compete directly with family migration have developed and gained in importance in recent years (Boyle et al, 1999). For example, partnered people are now more likely to 'live apart together' (LAT), commute long distances

[26] Using datasets with larger sample sizes such as the UK Census or the LFS would involve a series of trade-offs. Most importantly, panel regressions over a relatively long period of time would be unfeasible and contextual information on some areas such as reasons behind the move, distance moved or gender-role attitudes would be lacking or absent. In the case of the Census, information on respondents prior to the move is not available.

[27] See McCloskey and Ziliak (1996) for a thorough discussion of the difference between economic and statistical significance and of common misconceptions about the role of the latter in economic analysis.

or share residence only partially (e.g. during weekends). This poses further challenges for the analysis of household migration. In this paper we exclude stable partners who have different regular residences and couples that dissolve after the move. However, these are not a random sample, and may be more likely to include individuals who move for their own careers or who hold certain attitudes. Ignoring this may bias our results to the extent these competing processes are now prevalent. For example, couples with high incentives to move in our sample may be more 'tolerant' than the excluded ones insofar they would be less likely to impose their occupational advantage and more likely to accept moving only when both spouses benefit, as reflected by the fact that they do not experience dissolution or temporary separation.

Fourth, it has been proposed that migration requires time-consuming preparation which is often delegated to the spouse with lower labour market attachment (Markham and Pleck, 1986; McCollum, 1990). If female-dominated occupations have low career prospects, individuals working in these occupations would be overrepresented among those who exit the labour market to organise the move. Thus, the absence of the predicted effect of working in a female-dominated occupation on family migration may be the product of the selection of individuals previously working in such occupations out of employment before the move. In this article, we controlled for the selection mechanism occurring if wives who are not career-oriented have *'negative'* unobserved characteristics which make them more likely to choose female-dominated occupations instead of other more demanding occupations and also to become tied movers. However, it is possible that wives who remain in female-dominated occupations rather than exiting paid employment altogether to organise the move may have *'positive'* unobserved characteristics which make them less likely to be tied movers. If so, our estimates on the effect of working in a female-dominated occupation on migration for the husband's job would be downward-biased, while those of moving at least partially for the wife's job would be upward-biased. Accounting for this in the present paper would have required a much more complex double-selection framework.[28]

8 - Conclusion

[28] First, the analysis would gain in complexity both empirically and theoretically by forcing us to mix employed and unemployed individuals. Second, this specification would require reliable event histories for all sample members. Ultimately, an analysis of these characteristics would involve estimating a third simultaneous equation for transition rates from female-dominated occupations to unemployment prior to a move, for which a suitable instrument would be needed.

Although the idea that the characteristics of men's and women's occupations may affect the family migration process has appeared repeatedly in academic articles on migration for the past three decades, few empirical analyses have tackled this issue. In this article we have explored the role of occupational characteristics and occupational sex-segregation as determinants of household migration explicitly, using a sample of dual-earner couples from the BHPS and occupational-level information from the LFS, and relying on a range of descriptive statistics and random effects panel data models. Key results show that the vast majority of the effects of the sex-segregation of the occupations of the wife and the husband on family migration are mediated by the socio-economic and occupational characteristics of the spouses. This suggests that the devaluation of female-dominated lines of work in the larger society does not play a part in the intra-couple bargaining preceding the geographic relocation of families. As for the US labour market, some occupational characteristics such as the occupation-specific migration rate and potential for wage growth and career advancement are significant predictors of household migration.

With regard to theory, the results of this paper stress the need to consider the characteristics of the occupations of the wife and the husband when comparing their roles in the family migration process. Recent policy concerns over geographic mobility in Western societies have concentrated on the progressive decrease in the observed levels of internal migration, which is argued to have detrimental effects for the larger economy, and on the lack of consideration of the career prospects of wives in family migration decisions. Our findings contribute to these debates by demonstrating that, in the face of a progressive labour market integration of wives reflected in wages and hours of work more similar to those of husbands, gender-roles are still embedded in the characteristics of male- and female-dominated occupations. We also show that, when wives and husbands occupy comparable positions in the labour market, families are more likely to migrate, but such moves still tend to favour husbands' careers. Therefore, beyond measures aimed at changing the distribution of men and women across occupations, family policies should promote even more strongly the centrality of both spouses' careers if gender equality at home and at work and higher levels of internal migration are real policy objectives.

Data-wise, future research on this area may wish to reproduce our analyses using a dataset which collects information from a higher number of movers. The recently released *Understanding Society* panel study, which interviews individuals living in over 40,000 households each year and which encompasses the BHPS sample, may be a useful source of

data once the number of waves available increases. Methodologically, the ideas in this article could be refined to be tested using event history models which take into account duration dependence. Theoretically, we find it necessary to analyse whether internal migration has an effect on the sex-composition of the occupations taken up by recent tied and lead migrants. This would complement the limited body of existing literature showing that tied migrants not only suffer from job losses and reduced earnings after episodes of mobility, but also experience further changes in their labour market situation and endure other forms of underemployment (see e.g. Morrison and Lichter, 1988).

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10 – Tables

Table 1. Prevalence of different types of moves for couples

	Each year	**All years**
Moved over 50km.	0.9%	5.7%
Moved for both spouses' jobs	0.4%	2.5%
Moved for husband's job	0.8%	5.1%
Moved for wife's job	0.3%	1.5%
Do not move	98.2%	90.1%
N	14251	2474

Notes: Couple-year observations. Percentages do not add up to 100 because moving over 50km. and moving for work-related reasons are not mutually exclusive.

Table 2. Number of moves by occupational sex-type combination

Category	**N**	**50km.**	**Both**	**Him**	**Her**
Wife in FD occ., husband in MD occ.	7088 (49.74%)	46 (0.65%)	18 (0.25%)	49 (0.69%)	19 (0.27%)
Wife in FD occ., husband in INT occ.	1851 (12.99%)	21 (1.13%)	5 (0.27%)	23 (1.24%)	0 (0.00%)
Wife in any occ., husband in FD occ.	1551 (10.88%)	10 (0.64%)	4 (0.26%)	11 (0.71%)	7 (0.45%)
Neither in FD occ.	3761 (26.39%)	49 (1.30%)	31 (0.82%)	35 (0.93%)	17 (0.45%)
Total	14251 (100%)	126 (0.88%)	58 (0.41%)	118 (0.83%)	43 (0.30%)
		(1)	(2)	(3)	(4)

Notes: Couple-year observations. NM = Never moved; 50km. = Ever moved long-distance; Both = Ever moved for both spouses' jobs; Him = Ever moved for husband's job, Her = Ever moved for wife's job. MD = Male-dominated; INT = Integrated; FD = Female-dominated.

Table 3. Means of selected household characteristics by migrant status

	NM	**50km.**	**Both**	**Him**	**Her**
Child aged 0-4	0.187	0.278*	0.243*	0.264*	0.140*
Child aged 5-11	0.267	0.229	0.225	0.263	0.162*
Owns house	0.886	0.830*	0.839*	0.748*	0.758*
N	12462	1036	502	972	265

Notes: Couple-year observations. NM = Never moved; 50km. = Ever moved long-distance; Both = Ever moved for both spouses' jobs; Him = Ever moved for husband's job, Her = Ever moved for wife's job. Significance of t-tests comparing each subgroup of movers against non-movers: * 0.05.

Table 4. Means of selected socio-economic and occupational characteristics by sex and migrant status

	Wives					Husbands				
	NM	**50km.**	**Both**	**Him**	**Her**	**NM**	**50km.**	**Both**	**Him**	**Her**
Age	39.4	37.3*	36.7*	37.6*	36.7*	41.3	39.5*	38.6*	39.6*	39.0*
No qualifications	0.462	0.223*	0.205*	0.277*	0.347*	0.360	0.216*	0.189*	0.200*	0.381
A-Levels or equivalent	0.408	0.443	0.426	0.445*	0.351	0.487	0.435*	0.504	0.404*	0.475
University qualification	0.130	0.334*	0.369*	0.278*	0.302*	0.153	0.348*	0.307*	0.396*	0.143
Gender-role attitudes	13.64	13.04*	12.89*	13.61	12.27*	14.80	14.11*	13.22*	14.56*	14.40
Male-dominated occ.	0.094	0.147	0.167*	0.102*	0.166*	0.693	0.623*	0.618*	0.624*	0.615*
Integrated occupation	0.186	0.226*	0.289*	0.208	0.249*	0.199	0.276*	0.283*	0.267*	0.223
Female-dominated occ.	0.720	0.627*	0.544*	0.690*	0.585*	0.108	0.101	0.100	0.108	0.162*
Monthly wages	578	697*	827*	637*	786*	675	822*	825*	757*	668
Occ. skill level	2.422	2.763*	2.896*	2.739*	2.860*	2.862	3.280*	3.263*	3.243*	2.936
Occ. geographic ubiquity	0.911	0.907*	0.899*	0.913	0.896*	0.874	0.882*	0.878	0.880*	0.890*
Occ. unemployment rate	0.047	0.037*	0.034*	0.041*	0.035*	0.059	0.039*	0.040*	0.043*	0.044*
Occ. migration rate	0.020	0.023*	0.023*	0.023	0.025*	0.019	0.025*	0.022*	0.026*	0.020
Occ. potential wage growth	1.532	1.567*	1.565*	1.562*	1.583*	1.604	1.643*	1.634*	1.628*	1.595
Occ. potential career adv.	0.497	0.546*	0.556*	0.522*	0.536*	0.523	0.582*	0.586*	0.569*	0.612
N	12462	1036	502	972	265	12462	1036	502	972	265

Notes: Person-year observations. NM = Never moved; 50km. = Ever moved long-distance; Both = Ever moved for both spouses' jobs; Him = Ever moved for husband's job, Her = Ever moved for wife's job. Significance of t-tests comparing each subgroup of movers against non-movers: * 0.05.

Table 5. Means of work and occupational characteristics by sex and occupational sex-type

	Wives			Husbands			Corr. with %FEM	
	MD	**INT**	**FD**	**MD**	**INT**	**FD**	**Wives**	**Husbands**
Monthly wages	862	793	501	689	748	543	-0.3165*	-0.0115
Occ. Skill level	2.972	3.159	2.203	2.906	3.217	2.289	-0.3901*	-0.0486*
Occ. Geographic ubiquity	0.858	0.892	0.923	0.866	0.883	0.918	0.3328*	0.1886*
Occ. Unemployment rate	0.049	0.050	0.044	0.061	0.049	0.046	-0.1025*	-0.1810*
Occ. Migration rate	0.022	0.024	0.020	0.019	0.025	0.020	-0.1620*	0.1835*
Occ. Potential for wage growth	1.655	1.636	1.493	1.597	1.688	1.513	-0.4106*	0.0736*
Occ. Potential for career advancement	0.560	0.571	0.474	0.527	0.555	0.507	-0.3427*	0.0641*
N	1422	2739	10090	9766	2934	1551	14249	14251

Notes: Person-year observations. MD = Male-dominated; INT = Integrated; FD = Female-dominated. Significance level for pairwise correlations: * 0.05.

Table 6. Determinants of migration

	D (1)	D (2)	D (3)	W (1)	W (2)	W (3)	H (1)	H (2)	H (3)
Wife in FD occupation, husband in INT occupation	1.693*	1.233	1.133	0.463+	0.392*	0.356**	1.641*	1.299	1.193
Wife in any occupation, husband in FD occupation	0.988	1.166	1.013	1.328	1.147	0.947	0.988	1.121	1.036
Neither in FD occupation	2.007***	1.262	1.210	2.347***	1.677+	1.533+	1.289	0.954	0.932
Age			0.958***			0.946***			0.969**
Age difference			1.007			0.992			0.970
A-Level or equivalent			1.827**			0.956			1.430
Degree			2.972***			1.629			1.701
Difference in education			1.181+			1.086			1.220+
Gender-role attitudes			1.037			1.003			1.089**
Difference in attitudes			1.019			1.017			1.001
Child aged 0-4			1.066			0.562**			1.702**
Child aged 5-11			0.560*			0.440**			0.613*
Couple owns house			0.340***			0.292***			0.259***
Monthly wages (in hundreds)			1.034*			1.014			1.023
Difference in wages (in hundreds)			1.016+			1.007			1.007
Wife's occupation skill level		1.160	1.063		0.975	0.959		1.106	1.125
Wife's occupation geographic ubiquity		1.164+	1.206+		0.913	0.942		1.024	1.035
Wife's occupation unemployment rate		1.006	1.075		0.679**	0.668**		1.069	1.063
Wife's occupation migration rate		1.169*	1.109		1.412***	1.351***		1.220**	1.183*
Wife's occupation potential for wage growth		1.075	1.046		1.062	1.037		0.933	0.904
Wife's occupation potential for career advancement		1.071	1.032		1.031	1.015		0.942	0.943
Husband's occupation skill level		1.227+	1.172		1.124	1.132		1.083	1.077
Husband's occupation geographic ubiquity		0.989	1.026		1.258+	1.284*		0.950	0.965
Husband's occupation unemployment rate		0.780+	0.819		1.052	1.056		0.779+	0.803
Husband's occupation migration rate		1.224**	1.136+		0.941	0.879		1.408***	1.305***
Husband's occupation potential for wage growth		1.220*	1.236**		1.137	1.167		1.124	1.142
Husband's occupation potential for career advancement		1.262**	1.304**		1.187+	1.248*		1.193+	1.274**
N	14251	14251	14251	14133	14133	14133	14150	14150	14150
Log likelihood	-702	-674	-644	-577	-559	-529	-666	-640	-609
Rho	0.421	0.326	0.255	0.429	0.368	0.287	0.410	0.309	0.283

Notes: Random effects mode for all observed moves. Exponentiated coefficients (odds ratios). Couple-year observations. Dependent variables: D = Long-distance migration; W = Moved for wife's job or for the jobs of both spouses; H = Moved for husband's job. MD = Male-dominated; INT = Integrated; FD = Female-dominated. Reference category for occupational sex-segregation variable: Husband in MD occupation and wife in FD occupation. Significance levels: *** 0.01, ** 0.05, * 0.1, + 0.2.

Table 7. Determinants of migration (alternative specifications of occupational sex-segregation)

Segregation included…	**D (1)**	**D (3)**	**W (1)**	**W (3)**	**H (1)**	**H (3)**
…for both spouses separately	**Alternative specification 1**					
Wife works in male-dominated occupation	1.152	0.989	1.224	0.897	1.690^{+}	1.370
Wife works in female-dominated occupation	0.690^{+}	1.010	0.488***	0.692	1.148	1.351
Husband works in male-dominated occupation	0.608**	0.883	1.034	1.365	0.768	1.031
Husband works in female-dominated occupation	0.512*	0.849	1.099	1.117	0.685	1.037
…for both spouses combined (I)	**Alternative specification 2**					
Both spouses work in FD occupation	0.593^{+}	1.168	0.723	0.974	0.829	1.278
Only wife works in FD occupation	0.576**	0.924	0.377***	0.599^{+}	0.890	1.178
Only husband works in FD occupation	0.192^{+}	0.272	0.184^{+}	0.137*	0.549	0.788
…for both spouses combined (II)	**Alternative specification 3**					
Husband and wife work in different occupational sex-types	0.722^{+}	0.913	0.472***	0.634*	0.723^{+}	0.812
…for both spouses combined (III)	**Alternative specification 4**					
Husband works in more feminized occ. sex-type (FD>INT>MD)	0.794	0.734	1.026	0.594	0.266*	0.293^{+}
Wife works in more feminized occ. sex-type (FD>INT>MD)	0.656**	0.930	0.752	1.104	0.643**	0.840
…for both spouses combined (IV)	**Alternative specification 5**					
Absolute difference in proportion of women in the occupation (a)	0.297***	0.881	0.318***	0.923	0.308***	0.562^{+}
Husband has higher proportion of women in the occupation (b)	0.551	0.682	1.279	1.465	0.328*	0.410^{+}
Interaction (a) * (b)	3.552	1.399	0.457	0.043^{+}	7.029	5.823
N	14251	14251	14133	14133	14150	14150

Notes: Random effects models for all observed moves. Couple-year observations. Exponentiated coefficients (odds ratios). Covariates as in Table 6. Dependent variables: D = Long-distance migration; W = Moved for wife's job or for the jobs of both spouses; H = Moved for husband's job. MD = Male-dominated; INT = Integrated; FD = Female-dominated. N.E. = Could not be estimated. Significance levels: *** 0.01, ** 0.05, * 0.1, $^{+}$0.2.

Table 8. Selectivity corrected determinants of migration

	D (1)	**D (3)**	**W (1)**	**W (3)**	**H (1)**	**H (3)**
Main equation						
Wife in FD occ., husband in INT occ.	1.704**	1.137	0.490	0.356*	1.826***	1.195
Wife in any occ., husband in FD occ.	0.872	1.053	1.098	0.807	1.082	1.051
Neither in FD occ.	1.460	1.361	1.447	0.920	1.636*	1.021
Selection equation						
Public administration (instrument)	3.630***	4.723***	3.638***	4.722***	3.648***	4.732***
Residual correlation (rho1,2)	-0.421***	0.082	-0.436**	-0.408***	0.410***	0.0664
N	14251	14251	14133	14133	14150	14150

Notes: Random effects simultaneous equations models to correct for selection into female-dominated occupations. Couple-year observations. Exponentiated coefficients (odds ratios). Covariates as in Table 6. Dependent variables: D = Long-distance migration; W = Moved for wife's job or for the jobs of both spouses; H = Moved for husband's job. MD = Male-dominated; INT = Integrated; FD = Female-dominated. Reference category for occupational sex-segregation variable: Husband in MD occupation and wife in FD occupation. Significance levels: *** 0.01, ** 0.05, * 0.1, $^{+}$0.2.