

# Divorce, Separation, and Housing Changes: A Multiprocess Analysis of Longitudinal Data from England and Wales

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**Abstract** This study investigates the effect of marital and nonmarital separation on individuals' residential and housing trajectories. Using rich data from the British Household Panel Survey (BHPS) and applying multilevel competing-risks event history models, we analyze the risk of a move of single, married, cohabiting, and separated men and women to different housing types. We distinguish moves due to separation from moves of separated people and account for unobserved codeterminants of moving and separation risks. Our analysis shows that many individuals move due to separation, as expected, but that the likelihood of moving is also relatively high among separated individuals. We find that separation has a long-term effect on individuals' residential careers. Separated women exhibit high moving risks regardless of whether they moved out of the joint home upon separation, whereas separated men who did not move out upon separation are less likely to move. Interestingly, separated women are most likely to move to terraced houses, whereas separated men are equally likely to move to flats (apartments) and terraced (row) houses, suggesting that family structure shapes moving patterns of separated individuals.

**Keywords** Separation · Long-term effect · Housing transitions · England and Wales · Multilevel event history analysis

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## Introduction

Over the past five to six decades, the traditional sequence of family formation became less prevalent as new life course events have emerged, including living alone, nonmarital cohabitation, union dissolution, divorce, and repartnering (Ermisch and Francesconi 2000; Kiernan 2001; Liefbroer 1999). These changes have resulted in increasingly fluid and diverse family life courses (Billari and Liefbroer 2010; Findlay et al. 2015; Liefbroer and Toulemon 2010; Thomson 2014), with implications for individuals' residential mobility and housing career (Coulter and Scott 2015; Coulter et al. 2016; Dieleman and Schouw 1989; Findlay et al. 2015). To reflect on these changes, a large body of literature has used the life course perspective to examine the relationship between partnership changes and residential mobility (Coulter et al. 2016; Elder 1975; Kulu and Milewski 2007; Mulder and Wagner 1993).

Partnership events, such as the start of cohabitation or marriage, usually trigger a move because they imply a change of residence for at least one of the partners (e.g., Clark 2013; Clark and Huang 2003; Clark et al. 1984, 1994; Courgeau 1985; Mulder 2006; Mulder and Lauster 2010; Mulder and Wagner 1998; Murphy and Sullivan 1985). Additionally, childbirth is likely to trigger a move to larger and more-expensive dwellings and to dwellings in family-friendly neighborhoods (e.g., Clark 2013; Kulu 2008; Kulu and Steele 2013; Kulu and Vikat 2007; Mulder and Wagner 1998). By contrast, moves related to union dissolution are usually urgent and financially restricted (Feijten and van Ham 2007). Therefore, following separation, individuals are likely to move to temporary accommodation, smaller dwellings, and dwellings of lower financial value and/or of lower quality (Feijten 2005; Gober 1992). Following separation, many individuals will have to make several adjustment moves before they find an appropriate place. Therefore, separation may have adverse consequences for individuals' well-being through increased residential instability, especially if separation has a long-lasting effect on individuals' residential and housing careers (Feijten and van Ham 2007).

Previous research has shown that separated individuals are more likely to move than those who are never partnered or in a relationship; they are likely to move out of homeownership, and from single-family to multifamily dwellings (e.g., Dewilde 2008; Dieleman et al. 1995; Feijten 2005; Feijten and van Ham 2007, 2010; Lersch and Vidal 2014; Sullivan 1986; Warner and Sharp 2016). Although recent longitudinal studies have advanced our understanding of housing changes related to separation, they suffer from a number of shortcomings. First, most previous studies (except Feijten 2005) have not empirically distinguished between moves due to separation (also called *event moves*) and moves of separated individuals (also referred to as *state moves*), although this distinction has been widely discussed in the literature. Studies that have distinguished the two empirically have excluded event moves from the analysis (e.g., Feijten and van Ham 2007). Analyzing both event moves and state moves is necessary to understand whether and how separation influences housing careers in the short and long term. Empirically distinguishing between these two types of moves and analyzing both is the first novelty of our study. Second, previous research on separation and moving has not accounted for possible unobserved selection effects; individuals who are more likely to move might also be more likely to separate because of unobserved characteristics. If so, we would overestimate the potential effect of separation on

moving. Previous studies have reported the presence of such unobserved characteristics in relation to childbearing and moving (Kulu and Steele 2013), and separation and tenure change (Lersch and Vidal 2014). Detecting and controlling for unobserved time-constant codeterminants of these two processes is the second novelty of this study. Third, we study the dwelling type to which individuals move upon and after separation. Most previous studies have either not investigated the destination of residential moves related to separation or have focused on moves out of homeownership, from single-family to multifamily dwellings, or on changes in tenure type and housing quality (e.g., Feijten and Mulder 2005; Feijten and van Ham 2010; Gram-Hanssen and Bech-Danielsen 2008; Lersch and Vidal 2014). However, dwelling type is an important indicator of housing size, layout, and location. Further, it reflects individuals' quality of life, socioeconomic status (SES), and psychological and physical well-being (Bratt 2002; Dunn 2000; Kemeny 2001). Thus, studying the type of dwelling to which separated individuals move provides an opportunity to better understand whether separation has a long-lasting negative influence on individuals' housing careers, which in turn influences their SES and well-being.

## Previous Research on Separation and Housing

Previous research has shown that a change in family size or family structure usually triggers a move to adjust housing conditions to the new circumstances (Clark and Huang 2003; Helderma et al. 2004; Kulu 2008; Mulder and Lauster 2010). Indeed, a large body of literature has shown that residential moves occur in relation to family events, such as union formation, marriage, or childbirth (Clark and Davies Withers 2009; Clark and Huang 2003; Clark et al. 1994; Davies Withers 1998; Deurloo et al. 1994; Feijten and Mulder 2002; Kulu 2008; Michielin and Mulder 2008; Rabe and Taylor 2010). Most studies have focused on changes in housing tenure, showing that marriage and first childbirth are associated with the transition to homeownership (Davies Withers 1998; Enström Öst 2012; Ermisch and Halpin 2004; Feijten and Mulder 2002; Kulu 2008; Michielin and Mulder 2008; Mulder and Wagner 1998, 2001). Recent studies have shown that many couples move when waiting for their child to be born (Kulu 2008; Kulu and Steele 2013).

Moves related to separation are different from moves due to family formation; these moves are urgent and financially restricted (Coulter 2013; Feijten and van Ham 2007).<sup>1</sup> By definition, upon separation, at least one of the partners has to move out of the joint home (Mulder and Wagner 2010). Separation leads to a lower household income, a decrease in resources due to loss of economies of scale, and a division of savings and assets (Feijten and van Ham 2007, 2010). Thus, individuals are likely to settle for any type of housing (often moving into parents' or friends' homes)—at least temporarily—even if it is of low quality and not in the preferred area.

Previous research on residential moves related to separation has investigated who moves out of the joint home upon separation and to where separated individuals move.

<sup>1</sup> Throughout this article, we use the term “separation” to denote the dissolution of both marital and nonmarital co-residential unions because even in the case of a divorce, usually the actual date of separation (and not the date of the legal divorce) implies a move out of the joint home for at least one of the partners (Feijten 2005).

The first stream of studies has found that ex-partners who have custody of children (Gram-Hanssen and Bech-Danielsen 2008; Mulder and Wagner 2010), who are older (Mulder and Wagner 2010; Mulder et al. 2012), and those whose family members live nearby (Mulder and Malmberg 2011; Mulder and Wagner 2012) are less likely to move out of the joint home upon separation. Additionally, using data from the Netherlands, Mulder et al. (2012) showed that the woman was more likely to move out if the home was owner-occupied. At the same time, ex-partners who initiated the divorce and who were in a new partnership were more likely to move out (Mulder and Wagner 2010). Some evidence also suggests that financial resources influence who moves out of the joint home upon separation. Gram-Hanssen and Bech-Danielsen (2008) showed that employed ex-partners with higher relative income were less likely to move upon divorce than those with lower income. Mulder and Wagner (2010) found that women were less likely to move out of the joint home if they were the only employed partner. Further, Mulder et al. (2012) showed that relative income matters but only to a certain extent; women were more likely to move out if their share of household income was less than half (but not less likely when it was greater than half).

The second stream of studies has focused on where people move to upon separation. These studies have shown that moves after separation are usually from homeownership to renting, and from single-family to multiple-family dwellings (Booth and Amato 1993; Dieleman et al. 1995; Feijten 2005; Feijten and van Ham 2007; Gober 1992; Helderma 2007; Lersch and Vidal 2014). Comparing 12 European countries, Dewilde (2008) studied changes in homeownership after divorce. She found that for men, higher pre-divorce income and having children increased the risk of leaving homeownership. For women, higher pre-divorce relative income decreased their likelihood of moving to social housing, but having children was no guarantee for women to stay in owner-occupation.

The impact of separation on individuals' residential careers may be long-lasting. Because separation is usually unexpected, moves related to separation are urgent and financially restricted. By *urgent*, we mean that after the couple decides to separate, they will want to effectuate their decision as soon as possible, implying that at least one of the partners is likely to move out of the joint home on short notice (Feijten and van Ham 2007, 2010). Therefore, the housing situation right after separation is likely to be temporary, and it may take time and several adjustment moves before separated individuals acquire housing of similar quality, size, and type as before separation (Feijten and van Ham 2007; Warner and Sharp 2016). Additionally, those who remain in the matrimonial home upon separation might have to move later if they are unable to pay for housing costs, such as rent, mortgage, and maintenance (Feijten and Mulder 2010). Thus, separated people are expected to move more often than those who are in a relationship.

Previous research from the Netherlands has found that separated individuals (whether single or repartnered) are more likely to move than those who are never partnered and those in a union and that this relationship persists over time since separation, although the differences become smaller (Feijten and van Ham 2007). Similarly, Feijten and van Ham (2010) found that recently divorced and separated people in the UK had a much higher risk of moving than those who are in a relationship. Although their moving risk decreases over time, it remains higher than for partnered individuals. Thus, these studies conclude that separation has a long-term effect on housing careers.

However, these studies investigated only moves of separated people (state moves) and excluded moves due to separation (event moves).

A study by Feijten (2005) found that immediately after separation (0–3 months), individuals are most likely to move to shared dwellings, followed by rental accommodation. Feijten and Mulder (2010) also showed that separation has a long-term effect on housing, which was stronger for women than for men; 80 % of moves of men who had separated two or more years earlier were to single-family housing, whereas this figure was only 60 % among women. Additionally, their study showed that immediately after separation, women are better off in terms of housing type (usually remaining in the joint single-family home, especially if they have children), whereas men are better off in terms of housing tenure (residing in owner-occupied dwellings). One explanation for such gender differences is that women are usually left with fewer resources than men upon divorce because women earn less, and most women with children work part-time or do not work (Feijten 2005; Feijten and Mulder 2010). For men, a decline in resources can occur when they have to pay alimony. Interestingly, Lersch and Vidal (2014) found no gender differences in the risk of reentering homeownership after separation in Britain and in Germany.

To summarize, previous studies have shown that separated individuals have higher risks of moving than those who are single or are in a relationship and that they are more likely to move out of homeownership and single-family dwellings. Most previous studies have typically focused on housing tenure as an indicator of SES following separation, but they have not studied the destination of moves by dwelling type, with a few exceptions.<sup>2</sup> Additionally, although some studies have suggested that separation has a long-term effect on housing careers, they have not empirically distinguished between and analyzed both moves due to separation and moves of separated individuals. Furthermore, although some authors have suggested that the effect of separation on housing careers over time is different for men and women, others have found no gender differences. In addition, to our knowledge, no previous study has controlled for unobserved selection effects when studying the impact of separation on housing trajectories. Clearly, it is necessary to explicitly study the link between separation and housing changes to improve our understanding of this complex relationship.

## Separation and Housing Type

Housing is one of the main dimensions of social inequalities in contemporary industrialized countries (Dewilde 2008). The type of housing where individuals and families live is an important indicator of individuals' quality of life, SES, and psychological and physical well-being (Bratt 2002; Dunn 2000; Kemeny 2001). Additionally, housing type encompasses several dimensions, such as space, quality, layout, location (e.g., urban vs. rural area), and affordability (Bratt 2002; Mulder 2013). Individuals' housing needs and aspirations are defined by their resources (income); preferences (space,

<sup>2</sup> One exception is Feijten and van Ham (2010), who found that separated individuals in the UK are three times as likely as married individuals to move to a flat or shared accommodation, whereas those who are married mainly move to single-family dwellings.

location, housing type, duration or stability of residence); and certain constraints, such as the costs and availability of housing (Dunn 2000; Mulder 2013).

Most previous research on the residential mobility of separated or divorced individuals has focused on the division between homeowners and those who cannot get (back) on the property ownership ladder. In the literature, homeownership is often regarded as the most important element of housing not only because it is a financial investment (Davies Withers 1998) but also because it is associated with living in larger, better-quality dwellings situated in more-desirable neighborhoods (Dieleman et al. 1995; Feijten 2005). However, housing tenure is just one element of housing and is not necessarily the best measure of housing size, quality, layout, and location: for many households, homeownership in itself does not eliminate serious housing burdens, such as inadequate quality or high housing costs (Bratt 2002). Additionally, homeownership rates have decreased in the UK in the past decade, highlighting the changing role and meaning of homeownership especially for young adults. Further, in a country where more than 60 % of the housing stock is owner-occupied, dwelling type is an important indicator of social inequalities. Therefore, in this article, we focus on the type of dwelling (i.e., detached house, semidetached house, terraced (row) house, flat (apartment), and other types of accommodation) that individuals move to upon and following separation. In 2011, 31 % of all dwellings in England and Wales were semidetached houses, 25 % were terraced houses, and 23 % were detached houses. Just over 21 % of the dwellings were flats, and approximately 0.5 % represented other types of dwellings. The housing market was dominated by owner-occupied dwellings (61 %), while 17 % of the dwellings were socially rented,<sup>3</sup> and 16 % were privately rented (Office for National Statistics 2014).

Different types of dwellings are associated with different size, layout, and location, and they represent different housing quality and value (Kulu and Vikat 2007). Detached and semidetached houses are generally larger than terraced houses and flats, and they normally have a privately owned green space (garden or yard). Additionally, unlike flats, detached and semidetached houses are located in attractive, safe, and child-friendly areas (Kulu and Vikat 2007). Detached houses are the ideal type of housing that many individuals aim to achieve because they provide even larger living space and more privacy compared with semidetached houses. Other types of accommodation (such as sharing with family or friends) are usually the least desirable and are often temporary solutions (Feijten 2005).

The type of housing that individuals move to following separation is a crucial indicator of separated individuals' socioeconomic position and well-being. The concept of the "housing ladder" is frequently used in the demographic and sociological literature to predict the direction of moves related to family change. For example, moves related to union and family formation are considered to be upward moves on the housing ladder: each subsequent dwelling is assumed to meet the housing needs of a household better than the previous one (Clark et al. 2003; Dieleman et al. 1995; Feijten 2005). By contrast, moves related to separation are argued to be associated with downward moves on the housing ladder (Feijten 2005; Gober 1992).

However, most empirical studies in the demographic and sociological literature have used the concept of the housing ladder without operationalizing it or explaining what

<sup>3</sup> In the UK, social housing is provided by local councils or housing associations for those who are in need.

constitutes an upward or downward move. An exception is a study by Morrow-Jones and Wenning (2005), who defined an upward move on the housing ladder in terms of the price of the property: a new dwelling that is more expensive than the previous one indicates that individuals are moving up on the housing ladder (and vice versa). Additionally, Bolt and van Kempen (2002) conceptualized the housing ladder in terms of quality and accessibility of housing. At the bottom of the ladder are lower-quality, more-accessible homes, and on the top of the ladder are dwellings of better quality, which are less accessible. In most demographic studies, an implicit assumption is that an upward move on the housing ladder is a move to a better or larger home, a single-family home, or homeownership; by contrast, a downward move is one to a smaller or lower-quality home, a flat, a socially rented dwelling, or another type of dwelling.

The concept of the housing ladder also carries a normative element; it presumes a desired hierarchy of housing and represents a cultural model that prescribes the ideal type of housing individuals should aim to achieve (Perin 1977). Therefore, any movement away from such normative upward trajectories is likely to have negative consequences for individuals' subjective well-being. Building on these ideas, detached and semidetached houses are situated at the top of the housing ladder, and flats and other types of dwellings are at the bottom—although these ideas, embedded in public perception, can be easily challenged. For example, the hierarchy may take different forms in different settlements: the housing stock in large cities mostly consists of terraced houses and flats. Additionally, housing type does not necessarily reflect housing quality, although it is normally a good proxy for housing size and layout.

Separation is an example of a move away from the normative upward trajectory both in terms of family life experiences and residential mobility. By definition, upon separation, at least one ex-partner will have to move out of the joint home. Additionally, separating couples have to divide their assets and no longer benefit from economies of scale, which implies a decrease in separated individuals' financial resources (Feijten and Mulder 2005). Therefore, moves related to union dissolution are usually urgent and financially restricted (Feijten and van Ham 2007). Upon separation, individuals' housing choices are likely to be shaped by certain constraints (e.g., financial or temporal) rather than by their attitudes, perceptions, needs, and aspirations. Thus, separated individuals are likely to move to smaller, poorer quality, and suboptimal dwellings and/or to temporary accommodation. Even if moving to a smaller property (e.g., flat) fulfills separated individuals' housing needs (i.e., smaller household size following separation), it may not align with their aspirations. Hence, moving to smaller dwellings (such as flats and other types of dwellings) represents a downward move on the housing ladder. All in all, separated individuals may end up in dwellings that are suboptimal for them based on their needs and/or aspirations. Thus, moves related to union dissolution are likely to negatively influence individuals' well-being not only because they are forced to move to potentially suboptimal dwellings but also because they cannot fulfill the normative desire of upward life trajectories. Individuals' dwelling type right after separation might not be that important if this potentially suboptimal situation is temporary, and individuals manage to recover their position on the housing market sometime after separation. Remaining in a temporary or suboptimal dwelling and/or remaining highly mobile for a longer time period might have serious negative consequences for individuals' lives.

## Hypotheses

Based on the aforementioned arguments and previous research, we develop the following hypotheses. First, we expect that separated men and women are more likely to move than those who are single or who are in a coresidential partnership (*elevated mobility hypothesis*).

Second, we expect that separated individuals will be more likely to move to smaller dwellings—such as flats, shared accommodation, or terraced houses—compared with their single counterparts, and particularly compared with those in a steady relationship (*downward-moving hypothesis*). We expect this pattern to hold especially immediately after separation (*short-term effect hypothesis*). Given that separated individuals make adjustment moves later on after separation, we expect that separated individuals will display high moving risks not only upon separation but also after separation (*long-term effect hypothesis*). We expect that individuals will be more likely to move to a detached or semidetached house sometime after separation than they were immediately after separation.

Third, we expect that the effect of separation will be similar for men's and women's residential careers (*gender similarity hypothesis*). In Britain, most women with children return to the labor market after a short period of maternity leave, which may leave them with more resources upon divorce compared with, for example, women in the Netherlands or Germany (Andreß et al. 2006; Kilkey and Bradshaw 1999). Additionally, in Britain, housing benefits and social housing are available for single mothers, which may help them acquire a better position on the housing market than they would have achieved otherwise.

Finally, we also expect to detect unobserved time-constant codeterminants of separation and moving (*unobserved selection hypothesis*). However, an interesting question is how much they moderate the effect of separation on housing trajectories.

## Data and Methods

We use data from 18 waves of the British Household Panel Survey (BHPS), a nationally representative sample of 5,000 households and approximately 10,000 individuals (Institute for Social and Economic Research 2010, 2014; Taylor et al. 2010). Between 1991 and 2008, the same sample of adults was interviewed each year. If the composition of a household changes, the survey follows original household members and interviews new household members. In our analyses, we use information on original sample members and two additional subsamples (the European Community Household Panel and the Wales Extension Sample). We exclude Scotland and Northern Ireland because the sample design and some control variables (e.g., area type) differ from the England and Wales sample. Individuals are observed from age 16 or from the date of entry into the study (if later) until age 50, widowhood, or the end of observation, whichever happens first. After deleting episodes in which individuals had missing values on any of the covariates, we have a sample of 4,671 men and 4,912 women. For studying residential moves, panel attrition might be an issue because individuals with high spatial mobility are more likely to be lost to follow-up than those with low mobility (Uhlig 2008). However, Rabe and Taylor (2010) and Washbrook et al.

(2014) found that attrition in the BHPS is not related to mobility rates, and thus it does not influence analyses related to moving risks.

We apply multilevel event history models with a piecewise linear baseline hazard to study the risk of a move by partnership status for men and women. We estimate multilevel models because of the hierarchical nature of our data; each individual can experience several moves. Individuals can move as single, in union (cohabiting or married), or separated. Those who experience a new partnership following separation reenter the “in union” state.<sup>4</sup> The risk of a move is expressed by

$$\ln\mu_{im}(t) = \ln\mu_0(t) + \sum_j a_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + \varepsilon_i, \tag{1}$$

where  $\mu_{im}(t)$  denotes the hazard of a move of order  $m$  (first or higher-order) for individual  $i$ ; and  $\ln\mu_0(t)$  denotes the baseline log-hazard, which is specified as piecewise linear. For first moves, the baseline is an individual’s age in months; for second and higher-order moves, it is time since previous move;  $x_{ijm}$  represents time-constant variables, and  $w_{ilm}(t)$  denotes time-varying variables. We also include an individual-level random effect,  $\varepsilon_i$ , to control for unmeasured time-constant characteristics that influence individuals’ moving propensities.

We then estimate a joint model of residential changes and separations to detect and control for individual-level unobserved factors, which may simultaneously influence both processes. The model is as follows:

$$\begin{aligned} \ln\mu_{im}(t) &= \ln\mu_0(t) + \sum_j a_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + \varepsilon_i \\ \ln h_{im}(t) &= \ln h_0(t) + \sum_j a_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + u_i, \end{aligned} \tag{2}$$

where  $h_{im}(t)$  denotes the hazard of separation of the  $m$ th (first or higher-order) union (cohabitation or marriage) for individual  $i$ , and  $u_i$  is an individual-level random effect to control for unmeasured time-constant characteristics that influence individuals’ likelihood of separation. We assume that the residuals of the two equations (Eq. (2)) follow a joint bivariate normal distribution:

$$\begin{pmatrix} \varepsilon_i \\ u_i \end{pmatrix} \sim N \left( \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_\varepsilon^2 & \rho_{\varepsilon u} \\ \rho_{\varepsilon u} & \sigma_u^2 \end{pmatrix} \right), \tag{3}$$

where  $\sigma_\varepsilon^2$  and  $\sigma_u^2$  denote the variances of the person-specific residuals of the two processes, and  $\rho_{\varepsilon u}$  is the correlation between the residuals. Such simultaneous-equations hazard models are increasingly applied in social science research when an explanatory variable (e.g., partnership status being separated) is suspected to be jointly

<sup>4</sup> Additional analyses (not shown) revealed that mobility rates among repartnered cohabiting and repartnered married individuals are similar to those of men and women in first cohabiting and marital unions. Additionally, repartnered cohabiting women (and to a lesser extent, men) are less likely to move to flats and more likely to move to detached houses than those who are in a first cohabiting union. Remarried men are more likely to move to detached houses and terraced houses than those who are in a first marriage. These patterns are likely to be related to moving in with a partner who already lives in a semidetached or terraced house. To summarize, it seems that repartnering has a positive impact on separated men’s and women’s housing careers, thus potentially reducing or eliminating the long-term effect of separation on individuals’ housing careers.

determined with the outcome of interest (Brien et al. 1999; Kulu 2005, 2006; Lillard and Waite 1993; Lillard et al. 1995; Steele et al. 2005; Steele et al. 2006). The identification of the model is attained through within-person replication: many individuals have moved several times, and some have experienced several partnership dissolutions. All models are estimated via maximum likelihood using the aML software (Lillard and Panis 2003).

Finally, we estimate multilevel competing-risks event history models to calculate the risk of a move to different dwelling types by partnership status. We extend the conventional competing-risks model by conducting simultaneous analysis of moving to different housing types (Hoem and Kostova 2008; Putter et al. 2007). The model is as follows:

$$\begin{aligned}\ln\mu_{im}^k(t) &= \ln\mu_0(t) + \sum_j a_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + \gamma z_{im} + \varepsilon_i \\ \ln h_{im}(t) &= \ln h_0(t) + \sum_j a_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + u_i,\end{aligned}\quad (4)$$

where  $\mu_{im}^k$  is the risk of moving to housing type  $k$ ,  $z_{im}$  denotes an interaction term of partnership status and the destination housing type, and  $\gamma$  is the parameter to measure its effect. The model assumes a common baseline for transitions to all housing types and the same effect of covariates, but the mobility levels by destination housing can vary by partnership status. These models (Eq. (4)) are fitted using extended data in which each individual has  $k$  records, where  $k$  corresponds to the number of categories in the housing type at destination variable (Cleves et al. 2016).

We estimate four sets of models. First, we focus on the relationship between partnership status and moves with and without accounting for unobserved time-constant codeterminants of the risk of moving and the risk of separation (Models 1a and 1b, respectively). Second, to distinguish moves due to separation from moves of separated individuals, we split the category of separated individuals by time since separation. Event moves are represented by moves that occur within the first four months following separation (0–4 months). State moves are divided into the following categories: 5–11 months, 12–35 months, and 36 or more months after separation<sup>5</sup> (Model 2). This enables us to study whether the effect of separation on individuals' residential careers is long-lasting. Third, we analyze moves of separated individuals by order of move (Model 3). Preliminary analysis showed that in the first four months following separation, most individuals move only once; we therefore study only those moves by order of move that happened five or more months after separation. Finally, we include information on previous residential history to further investigate whether separation has a long-term effect on moving risks (Model 4). To ensure that we have a sufficient number of events, in Models 3 and 4, we use the category "5 or more months after separation" to denote the long-term effect of separation on individuals' moving risks. Last, Models 2–4 account for the unobserved time-constant codeterminants of moving and separation risks.

<sup>5</sup> The cutoff point between these categories is based on the distribution of moving risks over time since separation: the risk of a move remains high until four months after separation and somewhat decreases thereafter. Additionally, we experimented with other specifications, but the results remained robust to different specifications.

The sample includes men and women from the same household, thus implying that their partnership and residential histories are not independent. Therefore, we analyze men and women separately. Analyzing them within the same model would violate the independence assumption and would lead to biased estimates of parameters and standard errors.

## Variables

The BHPS contains rich information on many important individual characteristics, such as partnership and family events, educational level, educational enrollment, household composition, housing tenure, housing type, and housing conditions. At each interview, respondents were asked whether they changed residence since the previous interview and if so, what was the year and month of this residential change. If more than one move happened between two waves, only the most recent one will be recorded. This may lead to an underestimation of residential mobility if short-term moves are present. In our case, this could mean that we underestimate mobility rates 0–4 months after separation. Thus, our estimates will be conservative. Additionally, because retrospective information on residential mobility is not available, when we mention a first or second move, we refer to a first or second *observed* move. Nonetheless, mobility rates are in line with what we know from previous studies. Respondents' *partnership status* is created using combined retrospective and prospective information<sup>6</sup> on the year and month of the formation and dissolution of up to 10 unions (both cohabitations and marriages) from the Consolidated Marital, Cohabitation, and Fertility Histories data set (Pronzato 2011), and it is categorized as single, married, cohabiting, or separated.<sup>7</sup> When we study long-term effects of separation, we replace the variable "separated" with time since separation (i.e., 0–4 months, 5–11 months, 12–35 months, and 36 or more months). Respondents' *age* is measured in five-year age groups: 16–19 (reference), 20–24, 25–29, 30–34, 35–39, 40–44, and 45–49. Current *housing type* (i.e., housing type before the move) is measured with a categorical variable: detached house, semidetached house (reference), terraced house, flat, and other. *Housing tenure* is measured as homeownership (owned outright or with mortgage) (reference), social renting (from local authority, housing association, or employer), and private renting (furnished or unfurnished). Respondents' *educational level* is categorized as high (university degree or teaching qualification), medium (A level) (reference category), and low (O levels, CSE, none). *Employment status* is categorized as self-employed, full-time employee (reference), part-time employee, student, unemployed, and other. Additionally, we distinguish between six *types of area of residence* based on the size

<sup>6</sup> Combining retrospective and prospective data provides information on the partnership status of individuals at the start of the observation period. Thus, if individuals enter the study as separated, we also know how long they have been separated. However, because no retrospective data are collected on residential moves, we do not have information on residential moves of separated individuals that took place before the start of the observation, which may result in an underestimation of mobility risks for separated individuals. Although this could be an issue, additional analyses showed that our results are robust to removing such episodes from the data.

<sup>7</sup> We do not distinguish between separation from cohabitation and separation from marriage because additional analyses (not shown) revealed that modeling separation from cohabitation and from marriage separately produces very similar results.

and population density of the local authority district: the capital city of London, large cities with a population of more than 400,000 (reference), medium cities (200,000–400,000 inhabitants), towns (fewer than 200,000 inhabitants but a population density of at least 1,000 individuals per km<sup>2</sup>), small towns (fewer than 200,000 inhabitants and a population density of 250–1,000 individuals per km<sup>2</sup>), and rural areas (fewer than 200,000 inhabitants and fewer than 250 individuals per km<sup>2</sup>) (see Kulu and Washbrook 2014).

We control for *order of move* and *order of union*. Additionally, to control for *period* effects in the risk of residential moves, we distinguish four periods: 1991–1994 (reference), 1995–1999, 2000–2004, and 2005–2008. We also control for whether the woman was *pregnant* in a given month, and the number of children (one, and two or more children). Last, the separation equation also includes information on whether separation was from cohabitation or marriage. Table S1 (in Online Resource 1) reports the number and proportion of person-months and residential moves in each category of the variables used in the multivariate analyses.

## Results

In total, women and men experienced 5,176 and 4,675 residential moves, respectively (Table S2 in Online Resource 1). For both genders, most of these moves (29 % for women, 28 % for men) were directed toward terraced houses, followed by detached houses (26 % for women, 25 % for men), flats (21 % for women, 23 % for men), semidetached houses (18 % for women as well as for men), and other types of housing (7 % for both women and men).

We show the results of five event history models (Models 1a–4) of the risk of a residential move by partnership status. Tables S3 and S4 in Online Resource 1 report log-relative hazards for all variables in the models for women and men, respectively. To facilitate interpretation, Tables 1 and 2 show relative risks for the key variables of interest.

The first model (Model 1) is estimated twice; Model 1a is a multilevel event history model of the risk of a residential move, and Model 1b jointly models the risk of a residential move and separation. We find a strong positive correlation between the residuals of the two equations for both women and men, suggesting that unobserved factors influence both processes (Model 1b, Tables S3 and S4 in Online Resource 1). Comparing the results of the two models reveals that controlling for unobserved codeterminants reduces the estimated risk of a residential move among separated women and men by approximately 9 % (Tables 1 and 2). In other words, the effect of separation on the risk of a residential move is overestimated (although slightly) without accounting for unobserved codeterminants of these two processes. Therefore, we control for these factors in all remaining models (Models 2–4). The results of the separation equation are presented in Online Resource 1 (Tables S5 and S6).

Even after we account for unobserved codeterminants of residential moves and separation, the risk of a residential move remains 77 % higher among separated women and 97 % higher among separated men compared with those who are married (Model

**Table 1** Relative risks of a residential move by partnership experiences, women

	Model 1a	Model 1b	Model 2	Model 3	Model 4
<b>Partnership Status</b>					
Single	1.237**	1.214**	1.267**	1.249**	1.246**
Married (ref.)	1	1	1	1	1
Cohabiting	1.040	1.048	1.073	1.059	1.059
Separated	1.916**	1.766**			
<b>Time Since Separation</b>					
0–4 months			2.768**	2.737**	2.729**
5–11 months			2.277**		
12–35 months			1.354**		
36+ months			1.214**		
<b>Long-term Effect (separated 5+ months ago)</b>					
No moves				1.406**	
One move				1.540**	
Two or more moves				1.175	
<b>Residential History</b>					
No moves					1.406**
First move 0–4 months after separation					1.276*
First move 5+ months after separation					1.449**

*Note:* All models identical to results displayed as log-relative risks in Table S3 in Online Resource 1.

*Source:* Authors' calculations based on data from the British Household Panel Survey, 1991–2008.

\* $p < .05$ ; \*\* $p < .01$

1b, Tables 1 and 2). This is in line with what we expected based on previous studies. Additionally, compared with married individuals, single women and men have a higher risk of moving. Cohabiting men are more likely to move than married men, but we find no differences for women.

Figure 1 presents the risk of a residential move to different housing types by partnership status for women and men, respectively, with unobserved selection into separation controlled for. Across all competing-risks models, the reference category is married women (panel a) or married men (panel b) moving to a semidetached house. Single individuals are most likely to move to a flat or terraced house, cohabiting individuals mainly move to terraced and semidetached houses, and those who are married have the highest moving risks to detached and semidetached houses. Separated women are most likely to move to a terraced house, followed by a semidetached house and a flat; separated men are equally likely to move to a flat, terraced house, or semidetached house.

In Model 2, we distinguish between moves due to separation and moves of separated individuals by replacing the category of separated individuals with a variable showing time since separation. The analysis reveals that the risk of a residential move is 2.8 and 3.1 times larger in the first four months following separation than for married women and men, respectively (Tables 1 and 2). This finding suggests that many men and women move due to separation, which corresponds to expectations. Although the risk

**Table 2** Relative risks of a residential move by partnership experiences, men

	Model 1a	Model 1b	Model 2	Model 3	Model 4
Partnership Status					
Single	1.309**	1.280**	1.306**	1.294**	1.293**
Married (ref.)	1	1	1	1	1
Cohabiting	1.204**	1.201**	1.210**	1.204**	1.203**
Separated	2.160**	1.974**			
Time Since Separation					
0–4 months			3.117**	3.121**	3.114**
5–11 months			1.718**		
12–35 months			1.629**		
36+ months			1.148		
Long-term Effect (separated 5+ months ago)					
No moves				1.257*	
One move				1.657**	
Two or more moves				1.471**	
Residential History					
No moves					1.256*
First move 0–4 months after separation					1.486**
First move 5+ months after separation					1.632**

*Note:* All models identical to results displayed as log-relative risks in Table S4 in Online Resource 1.

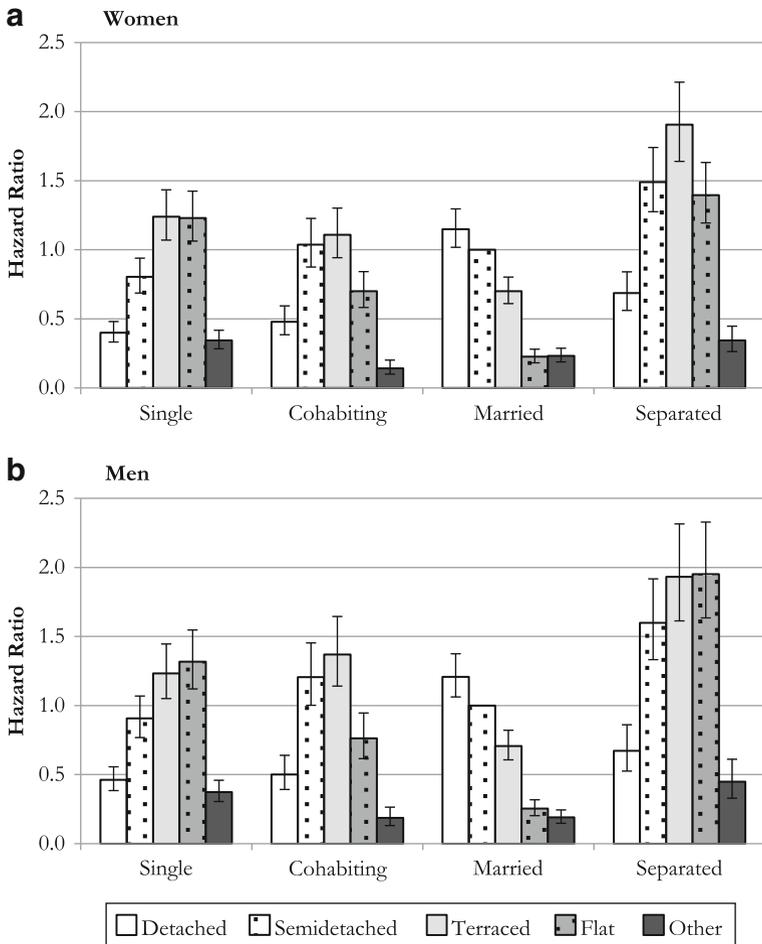
*Source:* Authors' calculations based on data from the British Household Panel Survey, 1991–2008.

\* $p < .05$ ; \*\* $p < .01$

of a move decreases as time since separation increases, it is still approximately 1.2 times higher 36 or more months after separation than among married individuals. Additional analyses (not shown) showed that for women, differences between the risk of a move 12–35 months and 36 or more months after separation are not significant. Thus, for women, the risk of a move remains high and decreases at a slower pace over time. For men, we observe a larger and significant decrease in the risk of a move between the first and second time period; the differences between the second and third time period are not statistically significant.

Figure 2 shows that immediately after separation as well as later, women are most likely to move to a terraced house (although the difference is not always significant). For men, there is a slight tendency to move to flats, which becomes more pronounced over time (although not significantly different from the risk of moving to a terraced house). This finding seems to suggest that separated men are more likely to move to smaller dwellings, whereas this may not necessarily be the case for women.

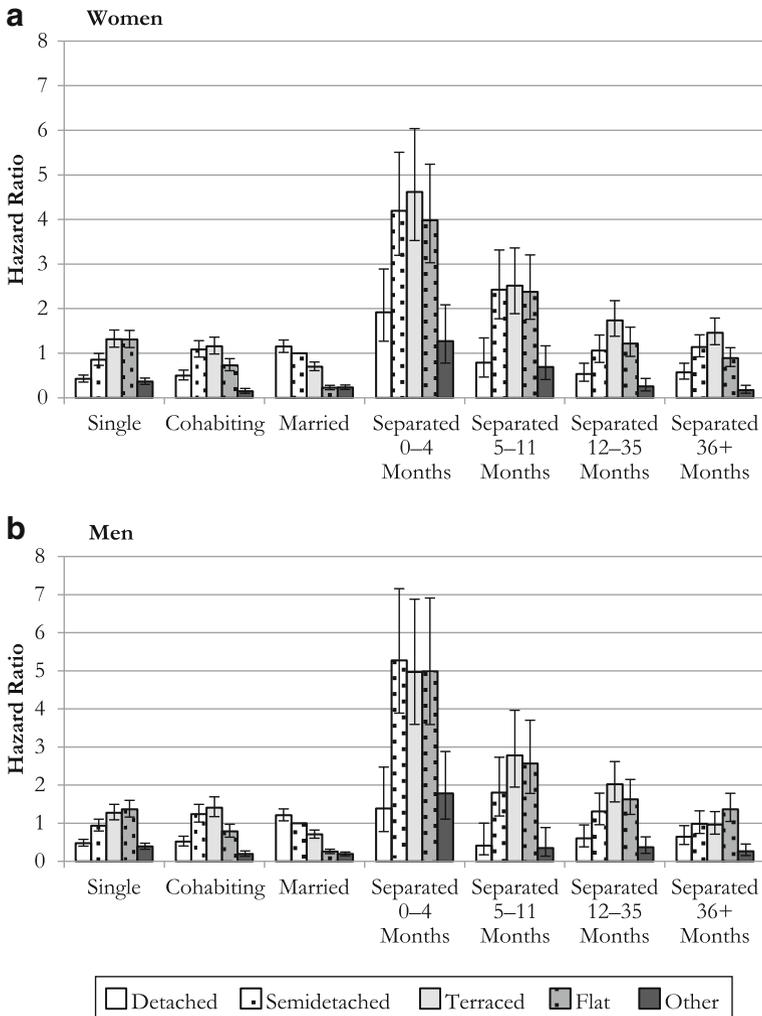
To gain a better understanding of whether separation has a long-term effect on individuals' residential and housing careers, Model 3 further distinguishes moves that occurred five or more months after separation by the order of residential moves. This enables us to understand how moving risks of separated women and men are influenced by the number of previous moves. We find that five or more months after separation,



**Fig. 1** Relative risks of moving to different types of housing by partnership status (Model 1) for women (panel a) and men (panel b). Whiskers indicate 95 % confidence intervals compared with the reference category (moves to semidetached house among married women (panel a) and men (panel b)). *Source:* Authors' calculations based on data from the British Household Panel Survey, 1991–2008

the risk of a move seems to be the highest for men and women who have already moved once during separation (Tables 1 and 2).<sup>8</sup> Separated women who moved once are 54 % more likely to move again compared with married women, and separated men are 66 % more likely to do so than married men. Interestingly, although all women have a high risk of moving five or more months after separation, among men, only those who have moved at least once exhibit a high risk of moving. This suggests that some men are less likely to move out upon separation and to move thereafter. Disaggregating these patterns by destination of move supports the notion that women tend to move to terraced houses, whereas men are most likely to move to flats and terraced

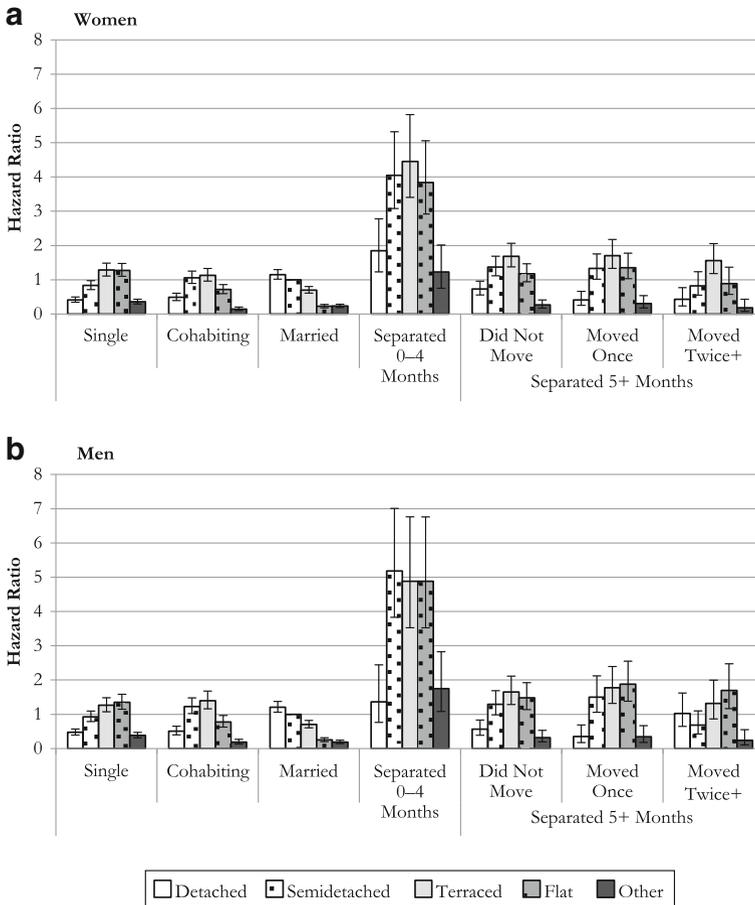
<sup>8</sup> For women, there are no statistically significant differences between the risks of those who did not move and those who moved once. Among men, there are no statistically significant differences between the risks of those who moved once and those who moved twice.



**Fig. 2** Relative risks of moving to different types of housing by partnership status distinguishing between moves due to separation (0–4 months after separation) and moves of separated individuals (5 or more months after separation) (Model 2) for women (panel a) and men (panel b). Whiskers indicate 95 % confidence intervals compared with the reference category (moves to semidetached house among married women (panel a) and men (panel b)). *Source:* Authors’ calculations based on data from the British Household Panel Survey, 1991–2008

houses, particularly among those men and women who have moved several times (Fig. 3).

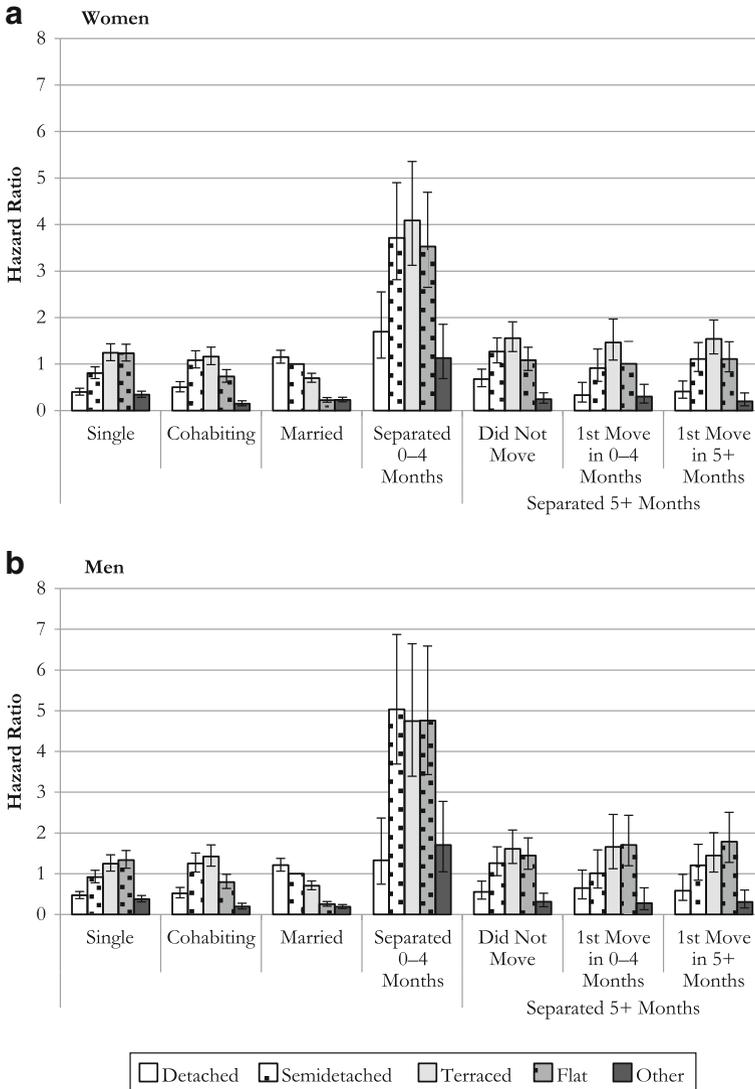
Finally, Model 4 introduces indicators of previous residential histories to further examine the potential long-term effect of separation on individuals’ residential careers. This model aims to disentangle *when* the first move occurred. More specifically, we examine whether the first move occurred due to separation (0–4 months) or later (5 or more months) by further disaggregating time since separation. A move in the period 0–4 months after separation indicates that the individual moved out of the joint home



**Fig. 3** Relative risks of moving to different types of housing by partnership status distinguishing between those who moved 5 or more months after separation by order of move (Model 3) for women (panel a) and men (panel b). Whiskers indicate 95 % confidence intervals compared with the reference category (moves to semidetached house among married women (panel a) and men (panel b)). *Source:* Authors’ calculations based on data from the British Household Panel Survey, 1991–2008

upon separation. Men and women who moved out upon separation (0–4 months) have a high likelihood of moving again later, but mobility levels are also high among those who moved first as separated individuals (5 or more months) (Tables 1 and 2). In fact, additional analyses (not shown) indicate that there are no statistically significant differences between the moving risks of those women and men who did not move, who first moved 0–4 months after separation, and who moved 5 or more months after separation. Thus, it does not matter for individuals’ moving risks whether they moved out of the joint home upon separation. Figure 4 supports the notion that women tend to move to terraced houses and men tend to move to flats and terraced houses.

Results for control variables in the models are consistent with the literature. In short, the risk of a residential move decreases with age and with time since previous move



**Fig. 4** Relative risks of moving to different types of housing by partnership status distinguishing between those who moved 5 or more months after separation by previous residential history (Model 4) for women (panel a) and men (panel b). Whiskers indicate 95 % confidence intervals compared with the reference category (moves to semidetached house among married women (panel a) and men (panel b)). *Source:* Authors' calculations based on data from the British Household Panel Survey, 1991–2008

(Tables S3 and S4). Living in a flat, in other dwelling types, or in privately or socially rented accommodations, as well as being more educated, are associated with an increased risk of a residential move. Additionally, the risk of moving is higher during pregnancy. We find gender differences in the effect of some control variables. For example, for women, part-time employment and self-employment decrease the risk of a move; for men, being a student and having children increase the risk of a move.

## Conclusion and Discussion

This study investigated the effect of separation (from cohabitation or marriage) on men's and women's residential and housing careers. We offered new insights into the relationship between separation and residential mobility by extending previous literature in three ways. First, we explicitly distinguished between moves due to separation and moves of separated individuals. Second, we analyzed the risk of a move of separated men and women by housing type at destination (detached house, semidetached house, terraced house, flat, and other dwelling types). Finally, our analyses accounted for unobserved codeterminants of moving and separation propensities.

As expected, and in line with previous studies (e.g., Feijten 2005; Feijten and van Ham 2007), separated men and women are more likely to move than those who are single or are in a relationship (*elevated mobility hypothesis*). When distinguishing between moves due to separation (0–4 months after separation) and moves of separated individuals (5 or more months after separation), the analysis showed an elevated risk of a move in the period of 0–4 months after separation. This finding was largely expected; upon separation, at least one of the ex-partners will have to move to a new dwelling to adjust their living conditions to the new circumstances. Although the risk of a residential move decreases as time since separation increases, we found that for women, the risk of a move remains high even three years after separation and decreases at a slower pace over time compared with men. For men, we found a larger and significant decrease in the risk of a move between the first (0–4 months) and second (5–11 months) period. Nonetheless, even three or more years after separation, the risk of a residential move is still higher than that of partnered individuals although not much different from the levels of singles. This finding provides evidence for a potential long-term effect of separation on individuals' residential careers, thus supporting the *long-term effect hypothesis*.

Our analysis of the risk of a move of separated individuals by order of move and residential history showed that separated individuals have a higher risk to move than married individuals regardless of their residential histories. Additionally, all women have a high risk of moving five or more months after separation, whereas only those men exhibit a high risk of moving who have moved at least once five or more months after separation. This finding suggests that some men are less likely to move out of the joint home upon separation, and these men will also be able to maintain their position on the housing ladder thereafter. In contrast, women who stay in the joint home upon separation may not be able to stay there in the long run, possibly because they cannot afford to pay for the costs of the home alone. This finding is in line with previous studies from the Netherlands (Feijten and Mulder 2010; Mulder et al. 2012), although it is somewhat surprising in the context of England and Wales, where women have greater financial independence and extensive social support is available for single mothers. It is possible that (some) women who stay in the joint home upon separation move into social housing sometime after separation, which would lead to elevated moving risks in the long run. Future research could investigate whether this is indeed the case.

Additionally, we expected that separated individuals would be most likely to move to smaller dwelling types, such as flats, other types of dwellings, and terraced houses—especially shortly after separation (*downward-moving hypothesis*). We found that women's moves are mainly to terraced houses, whereas men are equally likely to move

to flats, terraced houses, and semidetached houses. For women, this pattern also held when we distinguished separated individuals by time since separation, whereas the results were less clear for men. After separation, men were equally likely to move to terraced houses, semidetached houses, and flats; however, five or more months after separation, the highest risk was observed for moves to flats and terraced houses. Further analysis showed that over time, women had a tendency to move to terraced houses, and men had a tendency to move to flats and terraced houses. Our explanation for this result is that because children usually stay with their mother upon separation, separated women need more living space than men. Indeed, additional analyses (not shown) revealed that women without children were more likely to move to flats than those with children. Additionally, men with children were less likely to move to a flat compared with the other dwelling types than men without children.<sup>9</sup>

Although the overall findings are similar for men and women, some of the results partially challenge the *gender similarity hypothesis*. We found gender differences in the long-term effect of separation on the risk of a residential move: women have a tendency to move to terraced houses, and men have a tendency to move to flats and terraced houses. Because these results come from separate models, future research could further test whether these gender differences are, indeed, significant.

Finally, our analysis supports the presence of time-constant unobserved individual characteristics (*unobserved selection hypothesis*), which shape individuals' partnership trajectories as well as residential trajectories. Although the main results still hold, this study suggests that caution is needed when interpreting the effect of various life events on individuals' residential and housing trajectories, even those that may seem self-evident at first. What are these unobserved codeterminants? We believe that these are related to individual values or personality traits that influence both relationship stability and the risk of a move. For example, individuals who are prone to making changes in their lives would be more likely to end their relationship and/or to move, regardless of their partnership status. Individuals whose relationships are normally less stable will be less likely to invest in moving to a larger, better, more-expensive dwelling, which can be associated with stability both in partnership histories and residential histories. Further research is needed to better understand what these codeterminants might be, for example, by distinguishing unobserved factors related to moves of separated individuals from moves due to separation or by investigating in detail the selection into separation. Nevertheless, our simultaneous event history models allowed us to detect and control for such factors when studying the effect of separation on individuals' housing careers.

We expected to find larger differences in the risks of moving to different housing types. It is possible that geographical variation in the availability and affordability of different housing types masks these differences; therefore, what we observe are average

<sup>9</sup> The idea of downward moves on the housing ladder assumes that the housing structure is the same (or at least similar) across different area types. However, larger dwellings (typically houses) are mainly situated in the suburbs and rural areas, whereas smaller dwellings (mainly flats) are located in urban settings. If the housing structure was the same across urban and rural areas, then a move within a rural/urban area from a detached house to a flat would be a downward move. However, moving from a rural detached house to an urban flat would not be considered a downward move. Theoretically, this could be problematic; however, in practice, the latter types of moves are rare. In our data set, more than 85 % of all moves among separated individuals take place within the same area type (i.e., from London to London, from urban area to urban area, or from rural area to rural area).

effects across different areas. To test this idea, we estimated separate models (not shown) by area type and found that the patterns remained largely consistent across different areas. However, as expected, both single and separated men and women in London were much more likely to move to flats, followed by other types of housing. Note that the availability and affordability of different housing types are likely to vary across different regions of England and Wales. Additionally, the distribution of different properties with respect to quality, size, and financial value is likely to vary within local housing markets—for example, between more-affluent and more-deprived areas. However, investigating this issue is not possible with the data at hand and is, therefore, outside the scope of this article. We call for future research to better understand the interplay between the characteristics of different housing markets and residential mobility of separated individuals.

Another plausible explanation could be that socioeconomic differences mediate the relationship between partnership experiences and moving to different types of housing. Again, additional analyses (not shown) by educational level did not support this hypothesis: the patterns remained very similar across educational levels.

To summarize, our study is the first to analyze moving risks of separated men and women to different dwelling types using simultaneous event history models and distinguishing between moves due to separation and moves of separated individuals. We have shown that in England and Wales, separation has a long-term effect on individuals' residential careers. Separated women exhibit high moving risks regardless of whether they moved out of the joint home upon separation, whereas separated men who did not move out upon separation are less likely to move. These findings highlight the importance of housing benefits and housing policies that help separated men and women to avoid undesired (downward) housing trajectories and to improve their housing situation following separation.

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