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The effect of moving on
union dissolution

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THE EFFECT OF MOVING ON UNION DISSOLUTION

ABSTRACT

This paper examines the effect of migration and residential mobility on union dissolution among married and cohabiting couples. While there is a large, multi-disciplinary literature looking at the determinants of union dissolution in Europe and North America, the possible impact of geographical mobility has received little attention. This is despite the fact that moving is a stressful life event and that numerous studies suggest that women's economic well-being and employment suffer from family moves which are usually stimulated by the man's career. We base our longitudinal analysis on retrospective event-history data from Austria and apply hazard regression. Our results show that couples who move frequently have a significantly higher risk of union dissolution. We argue that frequent moving increases couple stress and union instability through a variety of mechanisms.

Keywords: union dissolution, migration, residential mobility, event-history analysis, Austria

INTRODUCTION

Union dissolution is a common demographic feature in many developed societies including the United States and most of Europe where the trend for increased marital breakdown began in the north, but has since spread to the west and most of southern Europe. While a general trend of rising divorce during the 1980s and gradual decline during the 1990s has been experienced in some nations (Kiernan 2002), in Austria, which is the focus of this analysis, recent figures suggest that the steady rise has yet to stabilise. Figure 1 shows that the crude divorce rate has risen over the last few decades and a broadly similar trend is evident for divorces per 100 marriages; we will have to wait some years to determine whether the estimated fall in the most recent year (2002) is the beginning of a longer-term downwards trend, or whether it is simply a short-term decline as experienced in 1997–98. Even so, the crude divorce rate of 2.4 per 1,000 population in 2002 was considerably higher than the EU15 average of 1.9 per 1000 (Eurostat 2006). Andersson (2003) uses data from the US and 15 of the European countries who participated in the Fertility and Family Surveys (FFS) conducted between 1989 and 1997 and shows that in Austria 25% of all marriages end in dissolution within 15 years, compared to 28% in Sweden and 8% in Italy, for example. Much less is known about dissolution rates among cohabiting couples, as these are not formally recorded in vital events statistics (Bumpass and Raley 1995, Kiernan 2001). However, Andersson's (2003) analysis shows that there is considerable variation in union dissolution rates in Europe. In Austria, 40% of all unions end in dissolution within 15 years, which happens to match the European average, while the figures for Sweden and Italy were 54% and 4%, respectively.

A large, multi-disciplinary literature has examined the various factors which appear to be associated with union dissolution. Becker *et al.* (1977) considered the utility of marriage compared to the utility of separation. One implication of their argument was that women with higher wages will have less to gain from marriage and, as a result, may have higher divorce rates. With the closing of the gender wage and educational gaps this 'independence hypothesis' provides a plausible explanation for the rise in marital instability (Becker 1981, Chan and Halpin 2003), as more women feel able to support themselves outside a union, and more men feel able to leave a partnership if their partners are better able to support themselves. However, the evidence for this hypothesis remains mixed (Oppenheimer 1997) and some argue that this thesis fails to adequately acknowledge non-economic influences (Mason and Jensen 1995). Chan and Halpin's (2003) longitudinal study of women in their first marriage included variables which compare the relative educational, pay and hours worked status of partner's within a couple and their results were consistent with the independence hypothesis; separation was more common in relationships where the woman was

better educated, worked longer hours or earned more than her partner. On the other hand, Poortman and Kalmijn (2002) found that women's work was a significant factor for older marriage cohorts, but not for those married since the 1970s.

A second key theme is the presence of children. In Becker *et al.*'s (1977) terminology, children are 'marriage-specific capital' and should be expected to stabilise relationships. Thus, the presence of one's own children has commonly been shown to discourage both marriage dissolution (Berrington and Diamond 1999, Morgan and Rindfuss 1985, Waite and Lillard 1991) and cohabitation dissolution (Manning 2004). Perhaps surprisingly, however, Chan and Halpin's (2003) recent study shows that in Britain this relationship appears to have reversed in the 1980s as the presence of children actually increases the risk of union dissolution (see also Böheim and Ermisch 1999). Why this is the case is not clear, although they speculate that it could either be related to changes in the timing of fertility in interaction with the changing timing and nature of partnership, or to changes in British moral attitudes relating to children.

Gender roles have also been implicated in the union dissolution literature. Women with more egalitarian views may put greater emphasis on autonomy and, consequently, may have more faith in their abilities to establish independent households (Kalmijn *et al.* 2004), while they may also have fewer moral problems with the idea of relationship breakdown (Lye and Biblarz 1993). Significant differences in attitudes towards gender roles between partners will put additional stress on a relationship and women who feel they take undue responsibility for the majority of household tasks may be more likely to consider union dissolution. However, the findings in relation to these cultural aspects of gender roles are also mixed. Greenstein (1995), Kaufman (2000) and Sayer and Bianchi (2000) do not find that women with more progressive gender attitudes are more likely to divorce. Similarly, Chan and Halpin (2003) considered this, by comparing the views of both partners to women's roles and the share of domestic responsibilities, but they found little evidence that these factors influenced divorce. More recently, Kalmijn *et al.* (2004) showed that the protective effect of a traditional division of paid labour, where the man works and the women stays at home, is only present among couples in which the wives have traditional gender attitudes.

Adopting an explicitly life course perspective, some authors have also examined the transmission of behaviour between parents and their children (Kulik 2004). The assumption is that offspring who were exposed to poor parental models of interpersonal behaviour may have more difficulty establishing and maintaining intimate relationships in later life. Amato (1996), McLeod (1991) and Webster *et al.*

(1995) all show that those who came from happy, intact families themselves, were more likely to report low levels of conflict and instability in their own marriages. Others have looked explicitly at the risk of divorce; Amato (1996, 2000) showed that divorce was less likely in families where neither the husband nor wife experienced a parental divorce (see also Bumpass *et al.* 1991, Glenn and Kramer 1985, Kiernan and Cherlin 1999) and, of the various possible mediating effects for this result, the most important appears to be that people from divorced families of origin were more likely to exhibit behaviours that undermined relationship quality (Amato 1999).

The importance of marital status has, of course, also been acknowledged in studies of union dissolution. Some regard cohabiting relationships as 'trial marriages' (Bennett *et al.* 1988) which involve relatively low investment and are therefore easier to terminate. This has been described as a 'weeding' process, where unsuccessful partnerships are 'weeded out', but the evidence for this effect is again mixed. While in virtually all studies cohabiting unions are indeed less likely to succeed than married unions (Brines and Joyner 1999, Diekmann and Engelhardt 1999, Hoem and Hoem 1992, Jensen and Clausen 2003, Kiernan 1999), perhaps surprisingly married couples who choose to cohabit prior to marrying are often less likely to succeed than couples who married without prior cohabitation (e.g. Balakrishnan *et al.* 1987, Berrington and Diamond 1999). It is usually assumed that this is a selection effect as cohabiters may have characteristics which make them more prone to separation, such as less conventional attitudes about marriage and, perhaps, higher expectations about the quality of unions (Bennett *et al.* 1988, Thomson and Colella 1992). Indeed, Lillard *et al.* (1995) have shown that in the US the differences in union dissolution between married couples who did and did not cohabit disappear once satisfactory controls are included. Also, Kiernan (2002) has shown that while an increased risk of union dissolution among former cohabiters does exist in some European countries, in others it does not; indeed, the variation is quite considerable suggesting that structural features may be influencing this pattern. The finding for Austria was that pre-marital cohabitation increased the risks of marital dissolution, but not significantly so, although this analysis only controlled for a small number of additional explanatory variables. However, similar results for Austria are presented in Dourleijn and Liefbroer (forthcoming, 2006), which included a wider range of potential confounders.

A range of other demographic and socio-economic factors expected to influence separation rates include: the duration of the union, which is expected to be negatively correlated with breakdown (Chan and Halpin 2003); the age at union formation, which is also expected to be negatively correlated with breakdown (Tzeng and Mare 1995); the age gap between the partners, with couples in which the man was younger

having higher risks of separation (Chan and Halpin 2003); the number of previous unions, as those who have experienced many previous unions are more likely to separate (Martin and Bumpass 1989, O'Connor *et al.* 1999); religion, with those identifying themselves as religious being less likely to divorce (Lehrer and Chiswick 1993); geographical location, with those living in, or growing up in, urban areas being more likely to separate than those in rural areas (Balakrishnan *et al.* 1987, Dieleman and Schouw 1989, Lillard *et al.* 1995, South *et al.* 1998, South 2001); and educational status, with the more educated being less likely to separate (Morgan and Rindfuss 1985, although see Hoem 1997a).

One factor that has received surprisingly little attention in the union dissolution literature, and which forms the focus of this analysis, is the role of residential mobility and migration. Of course, the very nature of union dissolution means that at least one partner will almost certainly move *after* the event, and some have examined this empirically (Asher and Bloom 1982, Flowerdew and Al-Hamad 2004, Flowerdew *et al.* 1999, Grundy 1985, 1992, Holmans *et al.* 1987, Sullivan 1986). There has also been some analysis of the effect that partnership dissolution has on the housing market (Dieleman and Schouw 1989, Feijten 2005). To date, however, we can find no studies which have modelled the influence of internal (within nation) migration and residential mobility on *subsequent* union dissolution.

Early ecological studies in Canada (Fenelon 1971, Trovato 1986) and the United States (Cannon and Gingles 1956, Makabe 1980, Wilkinson *et al.* 1983, Breault and Kposowa 1987), attempted to explain geographical variations in divorce. It was suggested that the higher divorce rates in the 'frontier' west compared to the east were related to higher rates of population turnover through migration (although some, such as Glenn and Supancic (1984) and Weed (1974), failed to confirm this relationship). These studies were ecological, comparing state, county or provincial divorce rates with measures of population turnover and, broadly, they tested the theory that rapid social change weakens the normative consensus among members of the community with regard to significant social activities. High population turnover was hypothesised to foster greater individualism and to weaken social control over the actions of individuals. Population turnover was thus indicative of lower 'social integration' and, consequently, lower 'social costs' attributable to divorce.

Because these ecological studies did not distinguish between migrants and non-migrants, they were unable to determine whether population turnover influences union dissolution because of changes in community-level cohesion, or because the migrants themselves were indeed more susceptible to separation. More recently, some studies have considered the stress related to international migration and how it

may impact upon union stability. Landale and Ogena (1995) show that Puerto Rican women in the US had considerably higher rates of union disruption than women in Puerto Rico and that, even controlling for other explanatory factors, union stability was strongly related to the individual's migration experience (Landale 1994). Frank and Wildsmith (2005) consider men from Mexico who are involved in circular migration to and from the US while their families remain at home. This arrangement provides these migrants with strong social capital, and avoids the legal barriers which may make familial migration difficult, but a major concern among wives left behind is abandonment (Salgado de Snyder 1993). Thus, Frank and Wildsmith (2005) demonstrate that US migration significantly increased the odds of union dissolution for individuals with extensive international migration experience.

To date, though, the causal relationship between internal (within nation) migration and residential mobility and union dissolution remains virtually unexplored. This is despite the extensive literature which shows that family migration is usually to the benefit of the man's career and that women's labour market status suffers in a number of ways (Mincer 1978, Sandell 1977). Women are less likely to be employed, have smaller incomes and work shorter hours following a family migration than other equivalent women (Morrison and Lichter 1988, Boyle *et al*. 2001, Cooke and Bailey 1999, Cooke 2001, Clark and Withers 2002, Shihadeh 1991, Spitze 1984, Jacobsen and Levin 1997, LeClere and McLaughlin 1997), even when motherhood status is controlled for (Boyle *et al*. 2003) and when the woman is the primary wage earner (Cooke 2004), or has a higher ranking occupation than her partner (Boyle *et al*. 1999). This body of research suggests that there is not a strong economic rationale to family migration outcomes; rather, family migration appears to be strongly influenced by traditional gender roles with individual women's economic well-being and employment generally suffering.

It seems reasonable to suppose, therefore, that migration may lead to union dissolution, particularly in those cases where one partner (usually the woman) 'suffers' from the event. Following Becker *et al*. (1977), Mincer (1978) argued that couples marry, and stay married, because the utility from marriage exceeds the sum of the utilities when separated. However, the gain from staying married can be affected by migration. If an individual is a tied migrant or a tied stayer the relative utility of staying married or being single may change. At some point, if the personal loss to moving, for a tied migrant, or to staying, for a tied stayer, exceeds the gains from the marriage then we might expect that the marriage will dissolve. Mincer (1978) addressed this briefly with a simple analysis, comparing marriage breakdowns for those who moved with the total married population and the results seemed to support this hypothesis:

> "In this sample, less than 2 percent of the marriages dissolved by separation or divorce in an average year. However, in a 12-month period bracketing a geographic move (interstate) of the respondent (husband), 5 percent of the families broke up." (Mincer 1978: 769)

However, this approach did not distinguish between moves that stimulate separation and separations that stimulate migration; a longitudinal analysis is required to disentangle these effects.

Of course, there are other mechanisms, in addition to the negative labour market impacts that migration may have for 'trailing spouses', through which residential mobility may influence union dissolution. First, a change in residence requires a significant change in a person's routines, roles and identities (Brett 1982) and may therefore be a stressful life event (McCollum 1990). Holmes and Rahe (1967) derived social readjustment ratings for a wide range of life events and, among these, the death of a spouse rated 100, divorce 73, marital separation 65 and a change in residence 20. The rate for a change in residence was broadly similar to a son or daughter leaving home (29), trouble with your boss (23) or having a considerable mortgage or loan (17). Thus, even apparently desirable life events may cause stress, because they require adaptive or coping behaviour:

> "Buying a first home and the subsequent relocation can be an extremely stressful event in the life cycle of a family. This is hypothesized to be particularly true since the media and popular culture characterize these events as joyful and relatively stress-free. Most families, therefore, are not prepared for the widespread disruption to their everyday rituals and lives." Meyer (1987: 198)

For some couples, a move, and the stresses associated with it, may be 'the straw that breaks the camel's back', precipitating a separation that may have happened at a later date, or which may never have happened. Even short distance changes in residence have been found to impact significantly on psychological well-being and depression, particularly among women who are often expected to cope with the practicalities of moving house (Brett 1980, Makowsky *et al.* 1988, Weissman and Paykel 1972). These include arranging for the movement of household possessions, acquiring new household items and, for those with children, organising child care and other child-centred activities (Magdol 2002). Arguably, the impact of long-distance migration should be even greater, because migration may lead to the disruption of local ties and Magdol (2000) found that people who had moved longer distances had more

dispersed social networks than local movers (see also Sluzki 1992). A number of studies have also shown that geographic relocation can have negative impacts on children, influencing a number of outcomes including school dropout rates (Astone and McLanahan 1994), attainment (Ingersoll *et al.* 1989), delinquent behaviour (Adam and Chase-Lansdale 2002), and substance abuse (DeWit 1988). It seems probable that these kinds of stresses will put strain on the parents of these children. In addition, it seems logical to assume that frequent moves would be more stressful for couples than irregular movement as the cumulative effect of these stressors accrues (Fitchen 1994).

Second, various factors relate to the origin. Moving to a new location may also free people from the social networks which may have constrained their past behaviour. For example, union dissolution may be difficult in locations where friends are more likely to be both longstanding and common to both partners. We might speculate that the longer a couple has resided in a particular place, the less likely union dissolution will be. Also, moving somewhere new may leave a person missing aspects of the place they left. Women are more likely than men to be 'kinkeepers' (Rosenthal 1985) and moves which separate them from extended family members may be particularly stressful for them.

Third, the characteristics of the destination may also be influential. New locations offer different opportunities and one direct effect is that migrants may come into contact with potential new partners following moves (South *et al.* 2001, Trent and South 2003), perhaps putting strain on current relationships. More indirectly, migrants may become exposed to new environments where separation may be more common and more socially acceptable. Hirsch (2003) noted a feeling of anonymity among Mexican migrant women in the US, for example, which allowed them to break free from some of the gender norms prevalent in their home communities; those who became more socially integrated into US culture were more likely to alter their union behaviour. Perhaps most obviously, though, if one partner is less enthusiastic about the destination than the other this is liable to put strain on the relationship (Flowerdew and Al-Hamad 2004) and moves that result in the geographical separation of partners for a significant period are particularly likely to have such negative effects (Green and Canny 2003).

Our analysis therefore contributes to the union dissolution literature in a number of ways. Using retrospective event-history data, we study the effects of both internal migration (defined here as a longer-distance residential change crossing the border of an administrative district, or *Politischer Bezirk*) and residential mobility (defined as moves within a district) on union dissolution (divorce or separation, rather than

widowhood). We also examine whether frequent movers are more prone to separation than others by distinguishing between couples that make a single move, which is expected to be a common event which affirms the independence of the union, and those that make two or more moves, which are expected to put pressure on the partnership for the reasons outlined above. Further, we study the geography of movement to test whether flows between and within urban and rural settings are more or less likely to influence union dissolution. It is possible that those moving into areas where dissolution is more common (urban areas) are more likely to separate. It is also possible that women who move over long distances because of their partner's career may be 'family-oriented' and thus less prone to separation and divorce; on the other hand, frequent movers may be people (families) who are not satisfied with their circumstances generally and thus are also more prone to end their relationships. We consider these possible (unobserved) selection effects by fitting a simultaneous-equations model to estimate jointly an equation for union dissolution and mobility.

We also examine various other factors that influence union dissolution, focusing particularly on the key themes identified above. We test whether: women who are working and women who are better educated than their partner (Chan and Halpin's 2003) are more likely to separate; the presence of one's own children discourages union dissolution (Berrington and Diamond 1999); women with more traditional views are less likely to separate (Kalmijn *et al.* 2004); parental divorce influences subsequent divorce among children (Kiernan and Cherlin 1999); cohabiting unions are less likely to succeed than married unions; and married couples who chose to cohabit prior to marrying are less likely to succeed than couples who married without prior cohabitation (Balakrishnan *et al.* 1987).

DATA

Of particular importance in this study is the ability to determine the relative timing of life-course events, as it is important to distinguish moves that lead to and follow separations. Our data come from the Austrian Family and Fertility Survey (FFS), conducted in 1995–96 as part of a sweep of surveys in a number of European nations and Canada, New Zealand the United States. Each survey differed slightly, although an advantage of the Austrian survey was the inclusion of detailed retrospective partnership and residential histories, recorded to the accuracy of one month. Austria is an interesting case study, with about average rates of union dissolution (Andersson 2003) and cohabitation (Kiernan 2004) compared to the rest of the EU. It also has a mix of urban and rural areas: 67% lived in urban and 33% in rural areas in 2000 (UN 2002: 166–167).

The survey interviewed 4,581 women and 1,539 men born between 1941 and 1976. The response rate for the survey was 72%, which is impressive for a study of this type in present-day Austria (Hoem *et al*. 2001: 252). This analysis considers only female respondents, excluding those born outside Austria, those living abroad at age 15 and those for whom significant parts of the data were incomplete. This left 3,804 women, of whom 3,118 who had been in union (at least once) during their life were included in our analysis. We built a multi-episode data-set for union dissolutions where individuals are at risk from union formation and followed until union dissolution or until interview (if not separated). Those cases where a partnership ended due to the death of a spouse were also censored. There were 3,118 first, 397 second, 62 third and 10 fourth unions, while the number of union dissolutions was 669, 103, 22 and 1, respectively. Separations outside Austria and after return to Austria were excluded (in total 22 events). Similar to other studies (Berrington and Diamond 1999), women were treated as being in a union based on co-residence (and an intimate relationship) with a male partner; 'living apart together' couples were impossible to identify in the dataset and hence were treated as separated but this was likely to be a small number (we observed only a small number of cases where a woman had more than one union with the same partner, suggesting that the number of couples who lived apart and then cohabited again was rare). If at least one of the partners was a weekly commuter the couple was treated in the survey as a couple who were living together.

We included in the analysis a number of time-varying and time-constant explanatory variables, which were identified from the literature reviewed above. We distinguish broadly between three types of variables relating to: demographic and socio-economic characteristics; women's independence and attitudes; and place of residence, migration and mobility characteristics.

One particular interest was whether the couple changed residence prior to separation and whether the couple moved frequently over the period of their union. If a move and a separation occurred in the same month, which was often the case as the definition of union was based on co-residence, we made the assumption that the separation preceded the move[i]. We also distinguished between long-distance migration and short-distance residential mobility based on moves between and within urban and rural areas. Urban areas were defined as those Austrian districts/counties where the population of the largest settlement exceeded 50,000 people. The smaller towns and rural settlements were thus considered as rural areas. We expected

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[i] We also checked whether the risk of dissolution was stable following migration, and there was no evidence of a higher risk in the few months following migration; this suggests that our definition was reasonable.

dissolution rates to be higher for those moving to urban areas for a number of reasons, including: the wider opportunities for women's work, making it financially feasible for women to consider separation; the more liberal social norms associated with divorce and separation in urban areas (Table 1 illustrates that among this sample views about marriage and divorce were more conservative in rural Austria and more liberal in the larger urban centres); and the fact that opportunities to meet other partners through wider social networks may also be greater in urban centres. Table 2 provides the distribution of union dissolutions and the time that individuals were under risk across various residential and moving categories.

In total, there were 533 migrations (401 to urban destinations and 132 to rural destinations) and 1,816 residential moves in the dataset. Frequent movers were identified by recording the number of (union-specific) moves prior to the separation. Residential episodes outside Austria were excluded from the analysis, as the focus here was on internal migration and residential mobility.

METHODS

We aimed to test whether migration and residential mobility influence union dissolution, controlling for a range of other factors using hazard regression (Allison 1984, Blossfeld and Rohwer 1995, Hoem 1987, 1993). Essentially, we modelled the time from union formation to dissolution. Our first two (or basic) models can be specified in a general form as follows:

$$\ln \mu_{id}(t) = y(t) + \sum_k z_k(u_{idk} + t) + \sum_j \alpha_j x_{idj} + \sum_l \beta_l w_{idl}(t) + \varepsilon_i ,$$ (1)

where $\mu_{id}(t)$ denotes the hazard of the dth union dissolution for individual i and $y(t)$ denotes a piecewise linear spline that captures the impact of baseline (i.e. union) duration on the hazard[ii]. The parameter $z_k(u_{idk} + t)$ denotes the spline representation of the effect of a time-varying variable that is a continuous function of t with origin u_{idk} (e.g. a woman's age). The parameter x_{idj} represents the values of a time-constant variable (e.g. parental divorce) and $w_{idl}(t)$ represents a time-varying variable whose values can change only at discrete times (e.g. activity status). We also assigned to the equation a person-specific residual ε_i to simultaneously control for the clustering of

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[ii] We used a piecewise linear spline specification (instead of the widely used piecewise constant approach) to pick up the baseline log-hazard and the effect of (other) time-varying variables that change continuously. Parameter estimates are thus slopes for linear splines over user-defined time periods. With sufficient nodes (bend points) piecewise linear-specification can efficiently capture any log-hazard pattern in the data.

events within individuals and possible unobserved determinants of union dissolution. We assumed person-level random residuals to be independent and identically distributed according to a normal distribution:

$$\varepsilon_i \sim N\left(0, \sigma_\varepsilon^2\right) \qquad (2)$$

We further investigated the possible role of unobserved selectivity accounting for the differences in the dissolution hazards between movers and stayers. We built a simultaneous-equations model to estimate jointly an equation for union dissolution, two equations for migration (distinguishing between urban and rural destinations) and an equation for residential moves. We assigned a person-specific heterogeneity term for the dissolution equation and a person-specific residual for the two migration and residential mobility equations, allowing us to test for a correlation between these residual terms. The aim was to identify possible endogeneity of moving in the union dissolution process and to control for unobserved selectivity of movers when analysing the impact of spatial mobility on union dissolution (cf. Lillard 1993, Lillard *et al.* 1995).

Our third model can be formalised as follows:

$$
\begin{aligned}
\ln \mu_{id}^D(t) &= y^D(t) + \sum_k z_k^D(u_{idk}+t) + \sum_j \alpha_j^D x_{idj} + \sum_l \beta_l^D w_{idl}(t) + \varepsilon_i^D \\
\ln \mu_{im}^R(t) &= y^R(t) + \sum_k z_k^R(u_{imk}+t) + \sum_j \alpha_j^R x_{imj} + \sum_l \beta_l^R w_{iml}(t) + \varepsilon_i^M \\
\ln \mu_{im}^U(t) &= y^U(t) + \sum_k z_k^U(u_{imk}+t) + \sum_j \alpha_j^U x_{imj} + \sum_l \beta_l^U w_{iml}(t) + \varepsilon_i^M \\
\ln \mu_{in}^{RM}(t) &= y^{RM}(t) + \sum_k z_k^{RM}(u_{ink}+t) + \sum_j \alpha_j^{RM} x_{inj} + \sum_l \beta_l^{RM} w_{inl}(t) + \varepsilon_i^M
\end{aligned}
\qquad , \quad (3)
$$

where $\mu_{id}{}^D(t)$ denotes the hazard of the *d*th union dissolution, $\mu_{im}{}^R(t)$ and $\mu_{im}{}^U(t)$ represent the risk of the *m*th migration to rural and urban destinations in the competing risk framework, and $\mu_{in}{}^{RM}(t)$ denotes the hazard of the *n*th residential move. The parameters ε_i^D and ε_i^M are person-specific heterogeneity terms for the dissolution and spatial mobility equations, respectively. We assumed that the residuals would follow a joint bi-variate normal distribution:

$$
\begin{pmatrix} \varepsilon_i^D \\ \varepsilon_i^M \end{pmatrix} \sim N\left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{\varepsilon^D}^2 & \rho_{\varepsilon^M \varepsilon^D} \\ \rho_{\varepsilon^D \varepsilon^M} & \sigma_{\varepsilon^M}^2 \end{pmatrix} \right), \qquad (4)
$$

where $\sigma^2_{\varepsilon^D}$ and $\sigma^2_{\varepsilon^M}$ denote the variances of the person-specific residuals and $\rho_{\varepsilon^D \varepsilon^M}$ is the correlation between the residuals. The identification of our model was attained through within-person replication: some women had experienced several separations, and some women had moved several times with the same man (cf. Lillard et al. 1995: 446, see also Kulu 2005a: 62–63). Maximum likelihood estimates of the parameters were obtained using the statistical package aML (applied Maximum Likelihood) (Lillard and Panis 2003) and standard errors of the estimates were corrected using a Huber-type procedure (Huber 1967).

RESULTS

We present the results of the analysis mainly from two models of union dissolution, summarising the findings according to the three broad classes of explanatory variables discussed above.   The first of these models includes migration and residential mobility as explanatory variables, while the second distinguishes the origins and destinations of the migrations.   Finally, we discuss the results from the third, simultaneous equations, model.

Place of residence, migration and mobility

Model 1 shows that while first migration does not change the risk of union dissolution, changing the region of residence twice or more within a union increases the hazard of union disruption as much as 2.5 times, compared to those who moved only once[iii] (Table 3). The results for residential mobility are slightly different. The first residential move decreases the risk of union dissolution by 25%, whereas the second and subsequent moves raise the hazard by 76% (or by 32% compared to non-movers). Model 1 also shows that couples living in rural settlements are 37% less likely to experience union dissolution than those living in urban areas.

Model 2 disentangles the urban and rural origins and destinations of long-distance moves. Those who move long distances between urban origins and destinations are most likely to separate subsequently, while those who move from urban to rural areas are least likely. The former exhibit a higher level of union dissolution than non-migrants in urban areas, although the difference is not significant, whereas the latter have a significant 44% lower risk of union dissolution than non-migrants in urban

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[iii] The risk for two or more moves is calculated in relation to the estimate for those who moved once, which in this case happens to be very close to 1 at 1.03. The risk compared to those who did not move would be $\exp(\ln(2.53)+\ln(1.03)) = 2.61$.

areas. Thus, while the disruption levels of most (first time) migrants do not differ much from those of stayers, couples moving from cities to rural areas have very low levels of union dissolution. As in Model 1, migrating more than once also increases the risk of dissolution whatever the origin and destination of the move, as these effects are proportional.

Finally, we extended the analysis by fitting a simultaneous-equations model for union dissolution and three types of spatial mobility in an attempt to control for possible unobserved selectivity of movers. More formally, we tested whether partnered women who move have unobserved characteristics that make them more or less prone to union dissolution. The model included person-specific residuals in the dissolution and the migration / residential mobility equations, but there was no significant correlation between these residuals indicating no presence of unobserved selectivity (the correlation coefficient was positive (0.19), but not statistically significant (Table 3, Model 3)). We also tested the possibility that the dissolution risk varies over time following migration or residential mobility, but found that the disruption levels were stable.

Demographic and socio-economic variables

The results for the other explanatory variables are also of interest and, broadly, they correspond with previous findings. They were also quite consistent between the models, and the discussion below refers to Model 2 (Table 3). As expected, the hazard of union dissolution increased rapidly during the first year following union formation (Erlangsen and Andersson 2001). The increase continued thereafter but more modestly, such that ten years after union formation the risk levels stabilised. The risk of separation decreased significantly with age, and dissolution levels increased significantly from the 1960s to the mid-1990s, as expected.

Marriages were significantly less likely to fail than cohabiting unions, although married couples who cohabited prior to marriage had no greater risk of dissolution than married couples who did not cohabit prior to marriage (the risk of union dissolution did not differ significantly for the two groups when we excluded cohabitation duration from the models, which is negatively correlated with disruption levels). This corresponds with previous findings for Austria (Kiernan 2002), but does not concur with the experience of the United States and many other EU countries.

In line with previous research (O'Connor *et al.* 1999), women in second and higher order unions had a higher risk of union dissolution. This is even the case when we controlled for the over-representation of disruption-prone women in second and

higher order unions; the value of the parameter estimate decreased significantly after the inclusion of the person-specific residual into the equation (Lillard *et al.* 1995: 451), but it remained significant.

The impact of children on disruption propensities varied over time. The risk of union dissolution decreased significantly during pregnancy, but increased immediately following the first birth reaching the same risk (or a little higher) as before the women became pregnant once the child was two years old. Similar patterns have also been reported elsewhere (Hoem 1997b, for Sweden; cf. Erlangsen and Andersson 2001). The effect of the second and subsequent children also varied over time, but the hazards were significantly lower, thus supporting the findings of previous studies that couples with their own children are less likely to experience union dissolution (Berrington and Diamond 1999, for the U.K.; Morgan and Rindfuss 1985, Waite and Lillard 1991, for the United States); our results from Austria do not match recent findings in Britain where the presence of children actually increases the risk of union dissolution (Chan and Halpin 2003). We also found that while the presence of stepchildren raised the risk of union dissolution, the result was not significant.

The characteristics of the women were also important. Like previous studies (Morgan and Rindfuss 1985), we found that better educated women are significantly less likely to separate. This corresponds to the findings of previous research although the negative correlation between divorce and education is a relatively new phenomena, characterising only recent generations (Hoem 1997a). Actually being in education increased the risk of union dissolution, but not significantly. And, as expected (Lehrer and Chiswick 1993), we also found that religious women (those who answered 'certainly yes' or 'rather yes' when asked if they were religious) exhibited lower risks of union disruption.

Finally, those who experienced a parental divorce in their childhood were more likely to separate than those who did not. This also corresponds to prior expectations (Diekmann and Engelhardt 1999, Kiernan and Cherlin 1999, Lehrer and Chiswick 1993).

Women's independence and attitudes

A considerable literature suggests that women's independence has a strong role to play in levels of union dissolution (Becker 1981; Chan and Halpin 2003). Our results support the 'independence hypothesis' as unions where the wife was better educated than the husband were slightly over 2.5 times more likely (in all three models) to dissolve than unions where the couple had similar levels of educational attainment. In

addition, employed women had a higher risk of union dissolution than those who were economically inactive or unemployed. The analysis also showed that unions where both partners were not employed at union formation had a higher risk of dissolution. At first, this would seem to imply that union stability is weakened if both partners are not able to find stable employment (South and Spitze 1986), but it is hard to judge whether this is true or not based on information on comparative employment status at the start of the union. In addition, couples where the man is younger than the woman are more likely to dissolve, which again corresponds to the findings of previous studies (Chan and Halpin 2003).

Finally, gender roles have a strong effect on union disruption, as expected (Kalmijn *et al.* 2004). Women with liberal gender views were more likely to separate and establish independent households than those with traditional gender attitudes. While this supports previous research, we need to be cautious about this result as a restriction of these data is that the women's attitudes concerning gender roles were reported at the time of survey and may have already been shaped by their partnership experiences (including possible union dissolution).

CONCLUSION AND DISCUSSION

This is the first study to our knowledge which examines in detail the relationship between internal migration, residential mobility and union dissolution. A number of earlier studies have suggested that such an effect may be present (e.g. Mincer 1978), but we can find no large-scale longitudinal analysis which has tested this hypothesis. Broadly, the results in these models relating to demographic and socio-economic variables and women's independence and attitudes confirm findings already demonstrated in the literature. This suggests that the factors influencing union dissolution in Austria match those demonstrated in a number of other developed countries. It is also comforting that the results from this retrospective survey appear to conform to our prior expectations, suggesting that the data are reliable. Of particular interest in this analysis, however, was the role of migration and residential mobility on union dissolution, and the findings are persuasive.

First, we show that the first long-distance migration that a couple undertakes has no effect on separation propensities. Such moves may be an exciting time for many couples, particularly in the early stages of the partnership and the working career, and this may balance the stress associated with such a decision. The first short-distance residential move actually decreases the risk of dissolution. The first residential move that a couple makes together therefore appears to be a positive experience which may

play a significant part in affirming the independence and strength of the union. Moving together may be a positive bonding experience for partners and, for most couples, such moves will improve their residential circumstances and provide exciting new opportunities which may outweigh any (temporary) moving-related stress.

Second, we show that moving twice or more, especially over long distances, raises the levels of union dissolution significantly. Migrating a long distance frequently is likely to be stressful, involving the disruption of local ties and social networks. There is growing evidence that couples are becoming less inclined to move long distances frequently within companies, presumably because they are unwilling to endure the various stresses that are involved (Green *et al.* 1999). Among our sample, couples that undertook such moves frequently did appear to suffer greater risk of separation as a result. Previous studies have also demonstrated that long-distance family migration impacts differentially on men and women. Women are less likely to be employed, have smaller incomes and work shorter hours following a family migration than other equivalent women and some have speculated that this may lead to higher rates of union dissolution (Mincer 1978). The evidence from these studies suggests that the gender-neutral stance of human capital models of family migration may not be correct, and gender-role theory has increasingly been adopted to help understand the implications of family migration. It is plausible that when participating in long distance family migration, many partnered women conform to traditional gender roles, and potentially sacrifice their (economic) well-being for the sake of the family's 'overall' well-being. As the number of moves made by a couple to support the man's career increases, the power imbalance between partners may increase, potentially contributing to rising levels of stress and dissatisfaction.

Our results have important implications for the family migration literature. Many cross-sectional and longitudinal studies of family migration consider only *intact couples* in their design, comparing various labour market outcomes for women who do or do not undertake long distance moves. Our findings suggest that such studies may be selective, as some couples will have separated as a result of family migration.

The fact that moving twice or more over short distances also significantly increases the risk of union disruption is perhaps more surprising. However, it has been recognised that moving even short distances (perhaps even if it does involve better housing) can be stressful and, again, there is good reason to suppose that women bear more of the burden for such moves, as they are more likely to be involved in arranging for the movement of household possessions, acquiring new household items and organising child care and other child-centred activities (Magdol 2002). Choosing to move frequently may also be an indication that the couple is not satisfied with their

circumstances generally (although note that our simultaneous model found no correlation between the residuals from the union dissolution and mobility models), while for other couples such moves may be forced upon them, perhaps because of difficult financial circumstances which may themselves contribute to increasing union instability.

Third, we also studied the effect of migration within and between urban and rural origins and destinations. The results showed that couples moving from urban to rural areas had particularly low levels of union dissolution, compared to other movers. Moving between different types of origin and destination may be expected to influence dissolution rates in a number of ways. The real and perceived norms about separation will vary between different types of places, and we might expect the rates among migrants to different places to fall between the rates in the origin and destination. This was true for rural to urban migrants for whom the risk of union dissolution was higher than that for rural non-migrants, but lower than that for urban non-migrants. However, those who moved in the opposite direction from urban to rural areas had the lowest risks of all. Moves from urban to rural areas will often lead to significant improvements in housing conditions and residential environment and, for some at least, will represent a successful transition into an (idyllic) environment which they may have been yearning for some time (Halfacree and Boyle 1998, Kulu 2005b).

Of course, this study is not without its limitations. We have not examined the reasons why a couple separated, nor who stimulated the decision, both of which would help us determine more directly whether our hypotheses relating to gender-roles and power-relations are supported. Unfortunately, to examine this properly, it would be necessary to have information on union quality gathered from both members of a couple (Frank and Wildsmith 2005) and this is not available here. However, unlike many previous studies, this longitudinal analysis of retrospective partnership and residential histories has allowed us to order moves and separations temporally enabling us to tease out the causal direction in the migration/union dissolution relationship. And, in line with our hypotheses, the results do show that moving frequently increases the likelihood of union dissolution. Clarification of the precise causes of this do, of course, require further research.

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Figure 1 Austrian divorce rates, 1960–2002
Source: Eurostat 2006
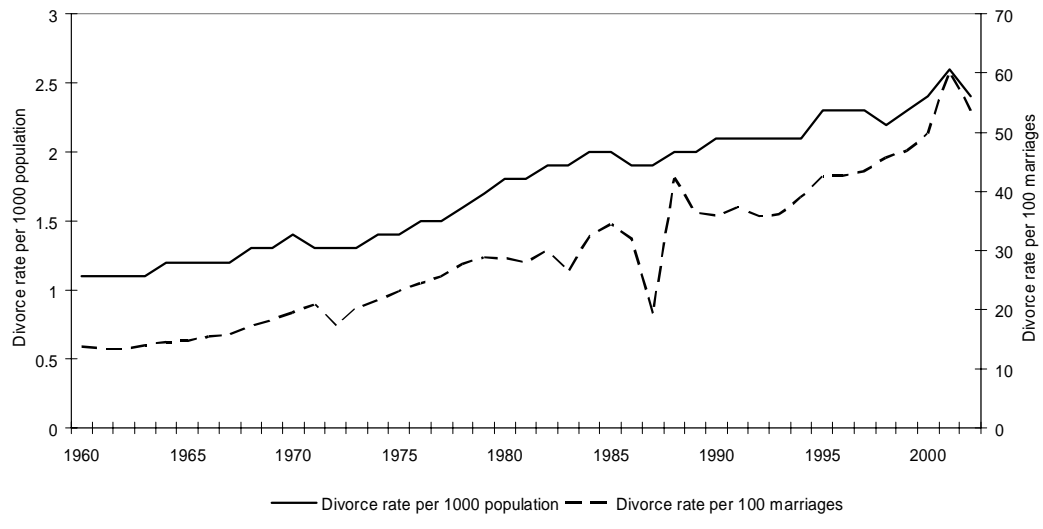
Table 1 Attitudes to marriage and divorce among 3804 women in the Austrian FFS (percentage agreeing with statement)

Attitude	Rural areas	Urban areas	Significance of difference
Unmarried couples should have the same rights and responsibilities as married couples.	70	76	***
If a woman wants to have a child as a single parent, and she does not want to have a stable relationship with a man, it should be accepted by society.	90	91	
Partners of the same sex should also have the possibility to marry.	48	59	***
Divorces of married couples with children should be made more difficult.	31	20	***
Would you agree that the division of household tasks is a sufficient reason for splitting up?	15	20	***

Significance: '*'=10%; '**'=5%; '***'=1%.

Table 2 Person-years (exposures) and union dissolutions (occurrences) across residential and moving categories

Variable	Person-years	Union dissolutions
Current residence		
Urban area	12658.49	371
Rural area	30010.87	424
Migrant status		
Non-migrants in urban areas	11596.82	343
Non-migrants in rural areas	26644.62	361
Rural to rural migrants	1659.28	36
Rural to urban migrants	931.51	21
Urban to rural migrants	1706.97	27
Urban to urban migrants	130.15	7
Migrations		
No migrations	38241.44	704
One migration	3791.06	68
Two or more migrations	636.86	23
Residential moves		
No moves	28407.94	565
One move	11517.74	162
Two or more moves	2743.68	68

Table 3 The factors influencing union dissolution (relative risks for categorical variables and parameter estimates for continuous variables)

Variable	Model 1		Model 2		Model 3	
Constant (baseline)	-6.593	***	-6.544	***	-6.523	***
Place of residence, migration and mobility						
Current residence						
Urban area	1		-		-	
Rural area	0.63	***	-		-	
Migrant status						
Non-migrants in urban areas	-		1		1	
Non-migrants in rural areas	-		0.61	***	0.61	***
Rural to rural migrants	-		0.87		0.82	
Rural to urban migrants	-		0.76		0.72	
Urban to rural migrants	-		0.56	***	0.53	***
Urban to urban migrants	-		1.32		1.26	
Migrations						
No migrations	1		-		-	
One migration	1.03		-		-	
Frequency of migrations						
One migration	1		1		1	
Two or more migrations	2.53	***	2.44	***	2.34	***
Residential moves						
No moves	1		1		1	
One move	0.75	***	0.75	***	0.72	**
Frequency of residential moves						
One move	1		1		1	
Two or more moves	1.76	***	1.76	***	1.67	***
Demographic and socio-economic variables						
Union duration (baseline)[a]						
0–1 years (slope)	1.948	***	1.944	***	1.948	***
1–5 years (slope)	0.179	***	0.178	***	0.184	***
5–10 years (slope)	0.072	*	0.074	*	0.077	**
10+ years (slope)	0.008		0.009		0.010	
Age						
15–19 years (slope)	-0.231	**	-0.233	**	-0.231	**
20–24 years (slope)	-0.065	*	-0.065	*	-0.065	*
25–29 years (slope)	-0.158	***	-0.159	***	-0.160	***
30–34 years (slope)	-0.109	***	-0.110	***	-0.111	***
35+ years (slope)	-0.053	**	-0.053	**	-0.054	**
Year						
–1969 (slope)	0.079		0.078		0.076	
1970–79 (slope)	0.045	*	0.047	**	0.046	**
1980–89 (slope)	0.034	**	0.034	**	0.035	**
1990+ (slope)	0.059	**	0.058	**	0.059	**
Partnership status						
Cohabiting	1		1		1	
Married, directly	0.50	***	0.51	***	0.51	***
Married, after cohabitation	0.52	***	0.52	***	0.52	***
Cohabitation duration for married cohabitants						
Duration in years (slope)	-0.096	**	-0.095	**	-0.095	**
Union order						
First union	1		1		1	
Second or subsequent union	1.44	*	1.46	**	1.46	**

	Model 1		Model 2		Model 3	
Time since first / last conception[a,b]						
0–0.75 years (slope)	-1.181	***	-1.186	***	-1.186	***
0.75–2.75 years (slope)	0.581	***	0.580	***	0.581	***
2.75+ years (slope)	0.010		0.009		0.009	
Number of own children						
One child	1		1		1	
Two or more children	0.66	***	0.66	***	0.65	***
Number of stepchildren						
No stepchildren	1		1		1	
One or more stepchildren	1.16		1.17		1.17	
Educational level						
Basic	1		1		1	
Secondary	0.73	*	0.72	*	0.72	*
Higher	0.55	**	0.55	**	0.56	**
Educational enrolment						
Not enrolled	1		1		1	
Enrolled	1.14		1.12		1.11	
Religious						
No	1		1		1	
Yes	0.76	***	0.76	***	0.76	***
Parental divorce						
No	1		1		1	
Yes	1.56	***	1.54	***	1.54	***
Woman's independence						
Comparative education						
No difference	1		1		1	
Man better educated	0.98		0.98		0.97	
Woman better educated	2.53	***	2.51	***	2.51	***
Employment status						
Not employed	1		1		1	
Employed	1.49	***	1.49	***	1.48	***
Employment status (at start of union)						
Man employed, woman employed	1		1		1	
Man employed, woman not employed	1.04		1.04		1.04	
Man not employed, woman employed	0.96		0.96		0.95	
Man not employed, woman not employed	1.54	**	1.54	**	1.54	**
Relative ages of partners						
No difference	1		1		1	
Man younger	1.37	**	1.36	**	1.36	**
Man older	0.87		0.87		0.87	
Woman's attitudes						
Liberal (slope)[c]	0.335	***	0.335	***	0.334	***
Standard deviation of residuals						
Union dissolution	0.476	**	0.459	**	0.463	**
Migration and residential mobility	-		-		0.564	***
Correlation between the residuals						
Dissolution – spatial mobility	-		-		0.186	
Log-likelihood	-5585.1		-5582.3		-22926.0	
Sum of log-likelihoods [d]	-22929.0		-22926.2		-22926.0	

Significance: '*'=10%; '**'=5%; '***'=1%.

[a] – For linear splines we present slope estimates which show how the hazard increases or decreases over a certain time period. For example, during the pregnancy (see time since conception) the log-risk of dissolution decreases by -1.186 per year (Model 2), reaching a level of -0.89 (0.75×(-1.186)) by the time of birth. In relative terms, the risk is then 59% lower than prior to conception (exp(-0.89). The

log-hazard of union dissolution increases 0.58 per year during the first two years of the child's life, reaching a level of 0.27 (-0.89+(0.58×(2.75–0.75))) when the child is two, which is a 31% higher risk than prior to conception (exp(0.27)).

[b] – The reference category for the first conception is parity zero.

[c] – Women with liberal gender attitudes were identified based on their answers to the five questions shown in Table 2. The variable is continuous where a maximum score of 5 indicates women with the most liberal views and score of 0 for those with the most traditional views.

[d] – The sum of log-likelihoods relates to the union dissolution and spatial mobility equations estimated separately (Models 1 and 2) or simultaneously (Model 3). As our research focus is on union dissolution, we have only reported the sum of log-likelihoods, and not the parameter estimates for the spatial mobility equations.