Marriage Duration and Divorce: The Seven-Year Itch or a Life-Long Itch?

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Abstract: Most studies show that the risk of divorce is low during the first months of a marriage; it then increases to reach a maximum and thereafter begins to decline. The reason for this rising-falling pattern of divorce risk, however, is far from clear. Classical psychological literature considers this pattern consistent with the notion of a *seven-year itch*. Married couples experience a gradual decline in marital quality after the first year of a marriage, suggesting that the short 'honeymoon period' of passion is followed by a longer 'post-honeymoon period' of strife. Other researchers argue that the rising-falling pattern of divorce risk is a consequence of misspecification of longitudinal models because of omitted covariates or *unobserved heterogeneity*. The aim of this study is to investigate the causes of the rising-falling pattern of divorce risk. We use register data from Finland and apply multilevel hazard models. We first study the hazard of divorce over the marriage duration with and without controlling for a set of demographic and socioeconomic characteristics of women and their partners. We then control for unobserved heterogeneity to detect any changes in the shape of baseline risk. We also examine the hazard of divorce over the marriage duration separately for both first and subsequent marriages as well as across cohorts to identify any changes over years.

Keywords: divorce, marriage, hazard models, multilevel analysis, Finland

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Introduction

An extensive amount of multi-disciplinary literature exists on the trends and patterns of divorce and separation in industrialized countries. One stream of research investigates demographic and socioeconomic predictors of divorce with a focus on patterns within countries (for recent review, see Amato 2010; Cherlin 2010; Lyngstad and Jalovaara 2010), while another examines the cross-country variation in divorce levels and patterns (Wagner and Weiss 2004; Härkönen Dronkers 2006; Liefbroer and Dorlejin 2006; Kalmijn 2007; Kneip and Bauer 2009). Recent research has also witnessed an increased interest in spatial and regional variation in divorce levels within countries (South 2001; Lyngstad 2011).

A natural part of longitudinal models on divorce is the marriage duration. Most studies show that the risk of separation is low during the first months of a marriage; it then increases, reaches a maximum and thereafter begins to decrease. This pattern has been reported by various studies on industrialized countries (Schoen 1975; Thornton and Rodgers 1987; Andersson 1995; Kiernan 1999). The reason for the rising-falling pattern of divorce risk over the marriage duration, however, has not been discussed much in demographic and sociological studies. Classical psychological literature and public discourse consider this pattern consistent with the notion of a *seven-year itch*. Most married couples experience a gradual but steady decline in marital quality after the first year of marriage, suggesting that the short ‘honeymoon period’ of passion is followed by a longer ‘post-honeymoon period’ of strife (Kurdek 1999). Tensions tend to culminate at the seventh year of marriage, and the result is an elevated risk of marital separation. Those couples who survive the seven-year itch adapt to each other and accept their partners as they are.

While the story of the seven-year itch is convincing, it is possible that the rising-falling pattern of divorce risk is simply produced by misspecification of longitudinal models on divorce and separation. It is a well-known fact that the baseline risk in hazard models is sensitive to model specification (Vaupel and Manton 1979; Vaupel and Yashin 1985; Hoem 1990; Galler and Poetter 1990). Omitting important covariates from the analysis or *unobserved heterogeneity* may significantly distort the ‘true’ shape of the baseline risk; the estimated (average) risk for a population can be quite different from the risks of its constituent subpopulations. The reason for this is that ‘disruption-prone’ individuals have the event first, leaving individuals with a low risk in the population. Therefore, as time passes, the population is increasingly composed of individuals with low risk levels. The rising-falling pattern of divorce risk can be produced, for example, if the risk increases over time for the high-risk group but decreases for the low-risk group (Vaupel and Yashin 1985). ‘Disruption-prone' individuals thus separate while 'family-prone' people stay married; thus, there is no 'seven-year itch' for individual couples.

The aim of this study is to investigate the causes of the rising-falling pattern of divorce risk over the marriage duration. There is literature that suggests that the former idea is true (Diekmann and Engelhardt 1999) and also studies that support the latter (Vaupel and Yashin 1985), but as of yet, no study has explicitly controlled for unobserved heterogeneity when examining the hazard of divorce over the marriage duration. We use a large longitudinal dataset from Finland and multilevel hazard regression models, which allow us to identify and control for unobserved heterogeneity. We will first study the hazard of divorce over the marriage duration with and without controlling for a set of demographic and socioeconomic characteristics of women and their partners. We will then identify and control for possible unobserved heterogeneity to detect any changes in the shape of baseline risk. In our further analysis, we will examine the hazard of divorce over the marriage duration separately for both first and subsequent marriages as well as across cohorts to identify any changes in the shape of baseline risk over years.

Data

Our data come from the Finnish Longitudinal Fertility Register, which is a database developed by Statistics Finland that contains linked individual-level information from different administrative registers (see Vikat 2004). We had access to full marital records for ten percent of the Finnish women born between 1931 and 1983. (A random sample stratified by single-year birth cohort was drawn from the records of all women born between 1931 and 1983 who had ever received a personal identification number in Finland). The data also included full educational and fertility histories of women and their demographic characteristics (date and place of birth, native language). In total, 109,017 Finnish women were included in the analysis excluding foreign-born women (three percent). We linked to women's data records of their husbands; we had information on the men's educational histories and their demographic characteristics.

We included in the analysis all marriages for women that were formed between 1948 and 2000. In total, there were 116,877 marriages: 109,017 first, 7,333 second and 527 third or higher-order marriages (Table 1). We investigated the risk of divorce over the marriage duration. Our data contained the date of a marriage or divorce. The date of divorce does not naturally correspond to the date when a couple decided to separate. In Finland, the process of divorce usually lasts a year because of a required period of reconsideration after the submission of an application for divorce (Statistics Finland). Further, before 1987, the partners who had considered divorce first had to live separately a year before their application for divorce was approved. There is thus a period of a year or so between the timing of a decision to divorce and the date of divorce recorded in statistics. In our data, the number of divorces was 24,656: 22,758 for first, 1,749 for second and 149 for third and subsequent marriages.

Methods and modeling strategy

We used a continuous-time event history model to investigate the hazard of marriage dissolution (Hoem 1987; 1993; Blossfeld and Rohwer 1995). The model was specified as follows:

$$\ln h_{ij}(t) = \ln h_0(t) + \sum_k \beta_k x_{ijk}(t) + \varepsilon_i \qquad (4)$$

where $h_{ij}(t)$ denotes the hazard of separation of *j*th marriage for woman *i*. $\ln h_0(t)$ denotes the baseline log-hazard, which we specified as a piecewise linear spline. We used the piecewise linear specification instead of a parametric specification (e.g., a Weibull-distributed baseline) to pick up the baseline log-hazard because the piecewise specification allows us to easily capture any shape of the baseline hazard. This was critical for our study, in which the shape of the baseline hazard was of the main interest. The value of the linear spline function between the points (t_n, y_n) and (t_{n+1}, y_{n+1}) was calculated as follows: $y(t) = y_n + s_{n+1}(t - t_n)$ for n = 0, 1, 2, …, where s_{n+1} is the slope of the linear spline over the interval $[t_n, t_{n+1}]$. To calculate the linear spline function, we thus defined nodes and estimated from the data constant y_0 and slope parameters s_1, s_2, … .

The model also included time-constant and time-varying covariates denoted by $x_{ijk}(t)$, with parameters β_k measuring their effect. We also included a woman-level residual (or random effect) to control for the time-invariant unmeasured characteristics of a woman (or unobserved heterogeneity) that influenced the hazard of divorce for any of her marriages. We assumed the woman-level residuals to follow a normal distribution:

$$(\varepsilon_i) \sim N(0, \sigma_\varepsilon^2) \qquad (5)$$

The identification of the model was attained through within-person replication. Some women had experienced more than one marriage episode; this was sufficient for the identification of the model with a woman-level random effect or 'shared frailty' for marriage episodes (Hoem 1990; Aalen 1994; Hougaard 1995). We thus used a multilevel event history model to control for unobserved heterogeneity, a strategy which has become common in demographic studies (see Lillard 1993; Lillard *et al.* 1995; Brien *et al.* 1999; Kulu 2005; Steele *et al.* 2006).

The multilevel event history model used in this study thus had the following features. First, we used a piecewise specification of the baseline log-hazard to provide a flexible measurement of the risk of divorce over the marriage duration. Second, we included the woman-level residuals in the hazard model to measure and control for the effect of a normally distributed (unmeasured) continuous variable. The random effect (or unobserved heterogeneity) entered in our hazard model (in multiplicative form) as a multiplicative factor z_i, where $z_i=\exp(\varepsilon_i)$. Third, the multilevel hazard model was thus a proportional hazards model in which all women were exposed to similar risk patterns over the marriage duration, but their risk levels varied depending on their observed and unobserved characteristics. The proportionality assumption used was consistent with the argument that all couples face an increased risk of divorce after the 'honeymoon period.'

Results

To be completed.

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