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"Does Marriage Matter?" Revisited:

The stability, fertility and mortality of the Swedish 1989 Marriage Boom cohort

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Abstract: A common finding across studies of the association between family context and wellbeing is a positive correlation between marriage and a host of outcomes related to union quality and stability, mental and physical health, job prospects and economic wellbeing for spouses and their children. The magnitude of the marriage premium and whether it is purely driven by selection remains elusive. We situate our study in Sweden, a context where the legal and social value of marriage is not greatly differentiated from long-term cohabitation. We make use of a unique policy change that induced a three-fold increase in marriage rates in November and December 1989. Using administrative register data, we compare this marriage cohort with prior marriage cohorts, assessing whether selectivity into marriage helps explain union stability, any increased propensity of individuals to make couple-specific investments with respect to childbearing, and the reduced mortality typically associated with the marital status. We find evidence that union stability and mortality advantages of married couples may, to a large extent, be driven by the selectivity of couples that choose to marry. The evidence for childbearing is more mixed, largely reflecting situations where childbearing decisions take precedence over those related to marriage formation. Our study highlights that the possibilities for any beneficial impact of policies aiming at promoting marriage may be very limited.

Keywords: marriage, cohabitation, selectivity, Sweden

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Introduction

Living in a marital union is often positively correlated with a multitude of life course outcomes: relationship quality and union stability, childbearing, mental and physical health, wellbeing, job prospects and economic wellbeing (e.g. Waite and Gallagher 2000; Manzoli et al. 2007; Umberson 1987). But what are the mechanisms underpinning these associations? They may be due to the better health and well-being of those selected into marriage or the positive benefits of marriage itself. Marriage binds two individuals together into one legal partnership and introduces a level of permanency, as expressed explicitly in both religious and civil ceremonies, which differs from cohabiting or dating relationships. The marital contract allows individuals to more safely pool resources (Heimdal and Houseknecht 2003; Lyngstad, Noack and Tufte 2011), make joint investments, such as bearing and raising children (Hess 2004; Becker 1991; Waite and Gallagher 2000), and to plan for the future more generally (Waite and Gallagher 2000). States often provide greater legal protection for married couples if the union dissolves or one spouse dies (Perelli-Harris and Sánchez Gassen 2012). Marriage may be a higher status relationship, with spouses accruing symbolic capital from family, friends, employers and society at large (Bernhardt 2004; Cherlin 2009; Edin and Kefalas 2005; Wiik, Bernhardt and Noack 2010). As such, we might expect that marriage provides potential benefits to individuals.

In many countries marriage rates have declined with increasing numbers of couples opting instead for informal, cohabiting unions (Perelli-Harris et al. 2017; Holland 2017; Sobotka and Toulemon 2008). Cohabiting and married couples both benefit from companionship and social support, sexual and emotional intimacy, and economies of scale (Musick and Bumpass 2012; Perelli-Harris and Styrc 2015; Smock 2000; Bernhardt 2004). In many contexts, unmarried couples may have few incentives to marry and they may receive many of the same instrumental and emotional benefits as married couples. The magnitude of any remnant modern-day marriage premium and whether it is purely driven by selection remains elusive.

The current study is situated in Sweden, which experienced one of the earliest declines in marriage in Europe (van de Kaa 1987; Sobotka and Toulemon 2008). Because of the dramatic rate of decline in marriage rates and early and rapid increase in the number of non-marital cohabiting unions beginning in the 1960s, Sweden has often been considered a forerunner in new family behaviours, often called the Second Demographic Transition

(Sobotka and Toulemon 2008; Trost and Levin 2005; Ohlsson-Wijk et al. 2017). Yet after several decades of decline in marriage rates, Sweden experienced an unexpected, temporary and dramatic deviation in marriage trends. In the final months of 1989, prior to a change in Swedish widow's pension policies, thousands of couples rushed to marry. As a result, the annual marriage rate increased three-fold, with approximately 64,000 new marriages formed in December versus the 2,500 to 3,000 marriages in a typical December month (Hoem 1991). Women born before 1945 could retain their right to a widow's pension if they married. Younger women with children or step-children also gained access to transitional benefits if they married, although these benefits were marginal. For childless women born in 1945 or later, however, marriage brought no extra benefits under the policy change. Many of them married nevertheless. Swedish family scholars pointed to this 1989 marriage 'boom' as evidence of how "lightly Swedes… [take] the choice between cohabitation and marriage" (Hoem 1991, p. 132; Ohlsson-Wijk 2011). While the policy was only relevant for some couples, thousands of couples seemed to marry 'just in case.'

This policy intervention within a context of weak marriage norms, offers a unique natural experiment for investigating the consequences of marriage. Using high-quality, longitudinal administrative register data, we compare the 1989 'marriage boom' cohort (those marrying in November and December 1989) with marriage cohorts formed in the months and years immediately preceding the policy intervention in focus (January 1987 until October 1989). These data allow us to account for individuals' characteristics and co-residential union duration prior to marriage, and to follow individuals and couples for more than two decades after their marriages were formed. We examine whether the November and December 1989 marriages lasted as long, whether the couples had similar parity progression, and whether the spouses lived as long, as compared to those couples marrying in other years. We draw on the heterogeneity of the 1989 cohort. Given that the pension policy provided a real marriage incentive only for a relatively small population of older people who had been in long-term relationships with children, we focus on couples where the woman was aged 44 or less who seemed to marry 'just in case.' By comparing these couples with those who married under more normal circumstances, we can estimate the degree to which the benefits of marriage are due (at least in part) to selection on traits associated with relationship quality, fertility intentions, and health and well-being. In this manner, we can see to what extent marriages contracted under normal conditions differ from marriages that occur in response to a policy

that (inadvertently) promoted marriage and thus assigned the marriage status to people who otherwise may have remained unmarried.

Theoretical Framework

Benefits to marriage

Historically, the marital contract was essential for formalizing the relationship within couples, regulating property and inheritance, and providing financial protection to individuals (Coontz 2005). States often value the institution of marriage over and above other living arrangements, because the official registration of a marriage defines a couple's relationship and makes it easier for the state to require couples to support each other. With the rise of the welfare state, however, the importance of the legal contract began to change, and in Scandinavian countries many rights and benefits shifted to the individual rather than the couple (Bradley 2001; Morgan 2006; Knijn 2004). Nonetheless, for many years, the marital contract continued to perpetuate a legal, and to some degree social, system which privileged marriage over being single or living in a cohabiting relationship (Perelli-Harris and Gassen 2012). The contractual nature of marriage, between individuals and between couples and the state, may be a prerequisite for many of the benefits of marriage.

Beyond the differential rights and responsibilities conferred to married couples, if marriage is considered a higher status relationship it may also result in the accrual of symbolic capital for individuals and couples (Bernhardt 2004; Cherlin 2009; Edin and Kefalas 2005; Wiik, Bernhardt and Noack 2010). Marriage may change the way the social world treats individuals and couples, as well as the way individuals view themselves and their relationship (Waite and Gallagher 2000). This may be particularly important for explaining the extra benefits accrued by husbands over and above those of wives: once married, men tend to take part in fewer risky behaviours, increase their working hours and productivity, and receive higher wages, than their unmarried counterparts (Duncan, Wilkerson and England 2006; Nock 1998; Sampson, Laub and Wimer 2006; Waite and Gallagher 2000). Still, the degree to which marriage confers symbolic capital to couples may be culturally and contextually dependent.

The rise of cohabitation over the past half century raises questions about whether the value of the marital contract has declined. Cohabiting and married couples both benefit from companionship and social support, sexual and emotional intimacy, and economies of scale (Musick and Bumpass 2012; Perelli-Harris and Styrc 2015; Smock 2000; Bernhardt 2004). Nonetheless, marital unions are usually more stable than cohabiting unions (Andersson and Philipov 2002; Lyngstad and Jalovaara 2010; Andersson et al. 2017; Gałęzewska et al. 2017). The higher instability of cohabiting couples may be related to aspects of subjective well-being (Soons et al. 2009), relationship quality (Wiik et al. 2012) and social support (Brown et al. 2005).

Increasing levels of non-marital childbearing (Sobotka and Toulemon 2008), particularly within cohabiting unions (Perelli-Harris et al. 2012), also call into question whether the marital contract is indeed instrumental for relationship-specific investments. Sweden has been a forerunner in this trend, and since around the turn of the 21st century most first births have occurred within cohabiting unions in Sweden (Bernhardt 2004). Still, there is evidence that childbearing and union transitions may be endogenous (Baizán et al. 2004). Marriage and the transition to a first birth may be linked to each other, even if the ordering and timing of events is becoming more heterogeneous (Holland 2013; 2017), and second birth risks are higher in marital than in non-marital cohabiting unions (Perelli-Harris 2014). Investigating the fertility behaviour of couples marrying 'just in case' in 1989, as a result of the pension reform, can shed further light on the degree to which childbearing and union transition decisions may be linked.

Marriage may also confer health benefits to individuals, over and above the health benefits of being in a partnership. Married individuals, and married men in particular, report higher levels of self-rated health and have lower mortality risks, compared to their single and cohabiting counterparts (Waite 1995; Waite and Gallagher 2000; Wu and Hart 2002). This may, in part, be due to the unequal allocation of time and resources in couples—husbands tend to enjoy greater leisure time, while wives devote more time to caring for spouses and children. However, recent empirical work investigating the protective benefits of marriage for health and mortality within contexts where cohabitation is widespread has suggested that the composition of households matters more than the legal status of partners, with larger differentials when comparing the un-partnered with the partnered versus comparing the married with the cohabiting, and by socioeconomic status (Koskinen et al. 2007; Drefahl

2012). The sources of the health and mortality premium may be largely due to selection processes into marriage or cohabitation (Carr and Springer 2010).

Selection

Research has shown that the happiest, healthiest and most successful are more likely than others to partner and to marry – so-called selection effects. In Western contexts, marriage is often the capstone of the transition to adulthood (Cherlin 2004), once individuals have completed education (Glick et al. 2006; Thornton, Axinn and Xie 2007) and established themselves economically (Kravdal 1999; Oppenheimer, Kalmijn and Lim 1997; Schneider 2011), acquired stable housing (Holland 2012; Mulder 2006), pursued a period of co-residence, and (increasingly) after a couple has had joint children (Holland 2013; 2017). While some have tried to capture the influence of primary entry selection into and/or secondary exit selection from marriage by identifying natural experiments (Frimmel et al. 2014), employing IV or propensity score matching techniques (Perelli-Harris and Styrc 2015; Styrc et al. 2015), and using fixed-effects models (Musick and Bumpass 2012; Soons et al. 2009), isolating selection effects and detecting the role of unobserved heterogeneity is inherently difficult. Our case study is unique in that we investigate a 'natural experiement' in a context with weak norms concerning marriage and few social policies favoring the married. Unlike in Austria (Frimmel et al 2014; Berghammer et al. 2014) or the United States (Edin and Kefalas 2005; Cherlin 2009), where marriage is highly aspirational and where policy legacies favoring marriage remain, we may expect fewer benefits of marriage within the Swedish context. Identifying evidence of selection, i.e. differential outcomes when comparing the 'just in case' couples marrying during the 1989 marriage boom and couples marrying under more normal cirucmstances net of compositional differences between these cohorts, within this context provides greater insight into whether or not marriage plays a role in shaping the life-course outcomes of individuals and couples.

The Swedish Context

Given the rapid and pioneering decline in marriage during the 1960s and 1970s, Sweden is a particularly interesting context to investigate whether marriage matters. Many of the social norms privileging marriage, welfare state benefits reserved for married couples, and symbolic

reasons for marriage had largely disappeared by the late 1980s (Hoem 1991; Ohlsson-Wijk 2011). Total First Marriage Rates began declining in the mid-1960s, falling from just about 0.9 to reaching just over 0.5 in the mid-1980s–then one of the lowest marriage rates in the world (Sobotka & Toulemon 2008). At the same time, cohabitation became more common. Because of its long duration and common context for childbearing, Heuveline and Timberlake (2004) classified cohabitation in Sweden as "indistinguishable from marriage." While associated with higher levels of commitment within relationships, marriage is not perceived as an important part of the transition to adulthood or essential for childbearing (Trost 1978; Bernhardt 2004).

The legal benefits for marriage had been steadily eroding before the 1989 policy reform. Sweden was one of the earliest countries to legally recognize cohabiting couples (Trost and Levine 2005). From as early as the 1960s, Sweden shifted towards individualized entitlements to social benefits, with rights conferred based on one's own work history rather than family relationships (Knijn 2004; Morgan 2006). In particular, union status has progressively become irrelevant for taxation, child benefits, public child care, parental leave arrangements and pension rights (Baizán, Aassve and Billari 2004; Duvander 1999; Ohlsson-Wijk 2011).

Widow's Pension Reform

In 1989, the Swedish government moved to abolish the widow's pension as it was increasingly regarded an outdated social institution (Andersson 1998; Hoem 1991). Previous to the reform, all married women were granted a widow's pension upon the death of their husband, regardless of their own income and in addition to the General Supplementary Pension, based on their husband's earnings. After the reform, a gender-neutral survivor's benefit would depend on the survivor's means; the new benefit system was no longer an unconditional right. This pension reform produced a perceived incentive to marry because of transitional provisions designed to protect older and middle-aged women. Women born before 1944 who were married at the time of the change would keep the Basic Widow's Pension. As such, these women had a clear incentive to marry. Unmarried women born after 1944 with children (own children or with custody for a partner's children) could retain marginal benefits if they married. Unmarried women without children who were born after

1944 were not covered by the transitional scheme, and yet due to mass media coverage of the reform, many of them married 'just in case.'

Due to the policy reform, the annual marriage rate in 1989 increased three-fold. Although the pattern of marriage in the first ten months of 1989 was the same as in 1988, there were twice as many marriages in November and more than 20-times as many new marriages in December (approximately 64,000 marriages versus 2,500-3,000 marriages in a typical year), immediately before the new pension policy went into effect in January 1990 (Hoem 1991). As would be expected, older women (who would retain the widow's pension), and previously married women with step-children and women in partnerships with shared children (who would benefit from the marginal transitional benefit) were more likely to marry. But notably, never-married women without children under the age of 45 were also more likely to marry: comparing 1988 to 1989, rates of marriage among never-married cohabiting women aged 25 increased from 12 to 80 per 1,000, from 14 to 200 per 1,000 among women aged 30, and from 12 to 240 per 1,000 among women aged 35 (Hoem 1991).

Because of the widow's pension reform, the 1989 marriage cohort is particularly unique. On the one hand, it included larger shares of older couples, higher-order partnerships, and long-term cohabiting couples with shared children. Undoubtedly, the reform also sped up the timing of marriages for couples who were already in committed cohabiting relationships with plans to marry in the following year (Andersson 1998; Hoem 1991). However, Hoem (1991) notes that while "there was some fall back in 1990… it was no more than 8 per cent compared to 1988" (p. 127). In addition, many Swedes under the age of 45 responded to this policy reform (individuals who derived no state benefits and seemed to "marry just in case" (Hoem 1991)), suggesting that the decision to marry was somewhat arbitrary (Hoem 1991; Ohlsson-Wijk 2011). It is likely that the December 1989 marriage cohort was different from those marrying in a 'normal' year. While some individuals might have married in December regardless, they constitute only a marginal share of the total marriages taking place in that month.

The cohabiting couples that were motivated to marry in Sweden in 1989 due to the (perceived) policy incentive in that year may have similar outcomes to those of other cohabitors; if so, they would be more likely than other spouses to dissolve their unions, have lower fertility, and worse health resulting in higher mortality. However, the commitment and

long-term thinking imbued in the marital contract may have helped improve relationship quality, which would lessen the effects of stress or conflict, and improve spouses' well-being (Brines and Joyner 1999; Nock 2000; Waite and Gallagher 2000; Wilcox and Nock 2006). Moreover, the higher financial and social costs of divorce as compared to those of union dissolution in general may act as a greater disincentive for dissolving marital unions (Perelli-Harris et al. 2017; Perelli-Harris et al. 2014), thereby increasing couple stability.

Are all marriages equal?

The association between marriage and a range of beneficial outcomes could be due to either selection or causal mechanisms or to both. In our case study, the pension reform induced marriage among cohabiting couples who may not have married otherwise (at least not at that time). If the key pathway for improved outcomes among married couples is via the contractual or symbolic nature of the union, we would expect that all marriages are equal: the outcomes of members of the November and December 1989 marriage cohort should not differ from those of earlier and later marriage cohorts, net of background characteristics (H_0). However, if couples who marry under normal circumstances are strongly selected on characteristics associated with advantage, such as higher relationship quality, more conventional values and better health, we would expect to observe differential outcomes for those marrying in November and December 1989 (H_A).

We apply this theoretical framework and set of hypotheses to the study of three demographic outcomes: union stability, fertility, and mortality. We give attention to the heterogeneity across marriage cohorts to better identify any differences in outcomes and behaviors of the November to December 1989 marriage cohort.

Analytical Framework, Data and Methods

Data for these analyses come from a collection of administrative registers named Sweden in Time: Activities and Relations (STAR).[2] This collection of register data contains information on births, deaths, immigration and emigration events, and civil status changes[3] (from 1968 onwards) for all persons residing in Sweden at any time from 1961 onwards. Our current data stretch until the end of 2012. Further information on educational attainment come from the Longitudinal Integrated Database for Health Insurance and Labor Market Studies (LISA), covering the population from 1990 to 2012. The registers also provide data on educational attainment for 1985-1989.

Drawing upon the civil status register, we identify all individuals marrying between January 1987 and December 1989 (N = 388,486). The population of all individuals marrying include two groups: a) those who married in 1987, 1988, and those who married in the months January to October 1989, when marriage rates were still quite similar to those in previous years; and b) those who married in November and December 1989, during the temporal shock in marriage rates. This latter group comprises: i) those who would have married in November and December, regardless of the policy intervention (if we compare with the years prior to 1989, we would have expected about 2,500-3,000 individuals to marry per month (Hoem 1991)), ii) those who would have married in subsequent years, but who sped up the timing of their marriages (Hoem (1991) estimates a no more than 8% decline in marriages in 1990, suggesting that this group may constitute at least 3,200 individuals), and iii) a group without or with only weak marriage plans who were incentivized to marry by the particular policy change (the residual group, estimated to include approximately 57,800 individuals) (Figure 1). It is likely that individuals who would anyway have married in November and December 1989 (i) or in subsequent years (ii) are positively selected on characteristics that predict union quality, fertility, and longevity. Still, they constitute only a small fraction of couples compared to those who were incentivized to marry by the policy intervention, and therefore the degree of positive selection will likely be substantially reduced for this marriage cohort.

[2] STAR was created by Statistics Sweden for a consortium of research projects at the Swedish Institute for Social Research (SOFI) and the Stockholm University Demography Unit (SUDA). The data collection is maintained at Statistics Sweden and available only by remote online access.
[3] The civil status register includes information on marriage and divorce, registered partnership formation and divorce (same-sex couples), and widowhood.

[Figure 1 about here]

Because women born prior to 1945 and individuals with stepchildren had the greatest incentive to marry prior to the pension reform, the 1989 marriage cohort was older (on average) and comprised a greater share of previously married individuals, compared to a typical marriage cohort. However, the characteristics and outcomes of those who benefited from transitional provisions of the pension reform may differ from those who married 'just in case.' To better identify this latter group, a group more similar to a typical marriage cohort with respect to age and family circumstances, we limit our analysis to those marrying couples where the female spouse was aged between 18 and 44 years, those with only shared or no children, and those entering a first marriage. Couples in which the woman was born after 1945 constitue the vast majority of couples that married in the period under observation (98% of couples marrying between 1987 and 1989), including during the last two months of 1989 (97% of couples marrying in November and December 1989). We also limit our analysis to individuals in partnerships where both spouses are Swedish-born and registered as residents of Sweden at the time of their marriage. Finally, we excluded a handful of marriages with incomplete or erroneous records: marriages in which both spouses appear to be of the same sex (same-sex marriage was not available in Sweden at the time); the civil status prior to first marriage was registered with a status other than never-married (e.g. widowed, divorced, married); and marriages where the personal identity number of one of the spouses is missing in the central register (in most cases, the missing spouse is born abroad and had not yet been registered in Sweden). Finally, we matched all individual records, creating a couple-level dataset. Our analysis sample includes 220,488 individuals that married between January 1987 and December 1989.

Our key outcomes of interest are: the stability of marriage, as measured by the timing and incidence of divorce; the timing and incidence of progression to parities one, two and three, which can be considered a measure of couple-specific investments; and the health benefits of marriage, as measured by the mortality of the male and female spouses. We model each of these outcomes using non-parametric and semi-parametric models, comparing the outcomes of the different marriage cohorts. We consider Kaplan-Meier estimates of observed time to event for each of the outcome variables (results not shown, but available upon request),

testing for the equality of each of the survivor functions across cohorts using the log-rank test.

We then conduct prospective event history analyses to investigate differences in outcomes across marriage cohorts net of individual and couple characteristics. We model the risk of divorce, first, second and third birth, and the death of each spouse in continuous time using Cox proportional hazards models (Blossfeld, Golsch and Rohwer 2006; Cox 1972). The generic model utilized takes the form of:

$$h_i(t) = h_0(t) \cdot e^{\boldsymbol{\beta}(\boldsymbol{MCohort}_i)+\boldsymbol{\gamma}\boldsymbol{X}_i}$$

In this model, h_0 is the baseline hazard function; no assumptions are made about the shape of the baseline hazard. *h(t)* is the hazard rate of each outcome for an individual *i* at time *t* (in months). Our central interest is the relationship between marriage cohort and the risk of the event of interest (***β***). Marriage cohort is specified as a vector of categorical variables (***MCohort***) corresponding to the marriage occurring in 1987 (reference), 1988, January to October 1989 and November or December 1989.

The nature of the baseline hazard varies depending on the outcome of interest. In models of divorce, time since marriage constitutes the baseline duration measure. Because the analysis of divorce is at the couple-level and our data are organized at the individual-level, we limit the analysis to the records of the male spouses, in order not to double count marriages (n = 110,972). Limiting the analysis to the records of the female spouses produced comparable results. For the model of divorce, couples are censored if either spouse emigrates from Sweden or dies during the observation spell.

We account for time-fixed and time-varying characteristics of individual spouses and the couple (vector ***X***). In models of divorce, the woman's age at marriage is specified continuously as first and second degree polynomials. We include a categorical measure of the age difference between the spouses: the man is more than two years younger than the woman; the man is between two years younger and five years older than the woman (reference); and the man is more than five years older than the woman. Duration of the co-residential union at marriage (time-fixed) is specified continuously as a first and second degree polynomial.

Because annual information on education in the LISA database is incomplete, we used this database to develop a measure of the highest level of education observed during the period 1985 to 2012. This time-fixed measure of education can be interpreted as a more general measure of socieoeconomic status. It is specified for both the husband and wife, with categories corresponding to compulsory (reference), secondary, tertiary education, or education level unknown (uncommon; sometimes recorded in the case of educational credentials obtained abroad). We include time-varying measures of the couple's parity and time since the previous birth, the latter specified continuously as first and second degree polynomials.

As with the model of divorce, parity progression is analyzed at the couple-level. We conduct separate models by parity at marriage: couples without children (n = 40,474), with one child (n = 32,469), and with two children (n = 30,656). For the risk of a first birth, the baseline duration measure is the age of the woman. In this model, we include measures of the age difference between spouses, the man's and woman's highest level of education, and a time-varying measure of co-residential union duration. For second and third birth, the baseline duration measure is the age of the youngest child, and we include measures of the age difference between spouses, the man's and woman's highest level of education, and time-varying measures of co-residential union duration. Additionally, we include a measure of the mother's age; however, to ensure that this measure is not collinear with union duration, we specify her age as time-fixed at the time of marriage (first and second degree polynomial). In each of the models of parity progression, couples are censored at divorce, or if either spouse emigrates from Sweden or dies during the observation period.

Finally, in individual-level models of men's (n = 110,965) and women's (n = 109,506) mortality the baseline duration measure is the individual's age. In each model, we account for the age difference between spouses, the man's and woman's highest level of education, and time-varying measures of the duration of the co-residential union, parity and the age of the youngest child. In models of mortality, individuals are censored if their marriage dissolves, if their spouse dies or if they or their spouse emigrates from Sweden.

Results

Descriptive and non-parametric analyses

Table 1 includes descriptive statistics disaggregated by marriage cohort. There are notable differences between the November and December 1989 'just in case' cohort, as compared to the other first-marriage cohorts. Men and women marrying in these months were considerably older compared to their peers: the mean ages of marriage were 34 and 32 for men and women, respectively, in the last months of 1989, while the mean ages were approximately 29 and 27 in the other cohorts. This holds even though the very oldest marriers (particularly over represented in the November and December 1989 cohort) have been excluded from our study. Even so, there was uniformity in the age difference between spouses across cohorts: in among three-quarters of couples the man was between two years younger and three years older than the woman; in less than 10 percent of couples was the man more than two years younger than the woman; and in about 17 to 20 percent of couples the man was more than five years older than the woman.

[Table 1 about here]

The November and December 1989 marriage cohort had notably different co-residential union histories, as compared to couples marrying in the months and years preceding. These unions were nearly twice as long, on average (8 years versus 4 years of co-residence). So too were these couples more likely to have children: only 8 percent of couples in this cohort had no children as compared to about half of couples in the preceding cohorts. A third of couples marrying at the end of 1989 had one child and almost half had two children. Comparing only those couples who had begun their childbearing at the time that they married, we find that the November and December 1989 cohort was also more like to have an older child; the age of the youngest child was nearly 4 years (47 months) for this cohort versus about 2 years (20 – 25 months) for the earlier cohorts. The marriage boom cohort was less educated than men and women in prior marriage cohorts: for example, 66% of men and 57% of women of this cohort had only a compulsory education as compared to 52% and about 40% for the earlier cohorts; 10% of men and 15% of women of the marriage boom cohort had tertiary education as compared with about 20% and 26% in the preceding cohorts.

Table 2 presents descriptive statistics about the incidence of each of the three key demographic events of interest among couples and individuals marrying between 1987 and 1989. There is evidence of a statistically significant lower propensity to divorce among the November and December 1989 marriage cohort: 31% of these marriages divorced during the time of follow-up as compared to about 36% in each of the earlier cohorts. However, divorcing couples who married in the last months of 1989 did so about one year earlier than those in the preceding marriage cohorts.

[Table 2 about here]

We find evidence of a lower propensity for progression to first, second and third births for the November and December 1989 cohort. Of those who were childless at marriage, 69% of couples in this cohort had a first birth in the years that followed. The progression to a first birth is nearly 15% higher among couples in the other marriage cohorts (Table 2). Despite the lower incidence of first births, the relative timing of the progression to a first birth by age of woman is nearly identical across marriage cohorts, with the mean age of first birth at 28 years.

The difference between marriage cohorts in the propensity to have a second birth is similar to that of a first birth. Of those couples in the late 1989 marriage cohort with one child at marriage, about 65% had a second birth, as compared to nearly 85% of couples in the other cohorts. The gap in the hazard of birth between marriage cohorts widens considerably for third births. Of those in the late 1989 marriage cohort with two children at marriage, about 24% had a third birth, as compared to about 40% of couples in the other cohorts (Table 2). The different propensity to progress to higher parities across marriage cohorts was found statistically significant (log-rank). However, since the baseline duration for these Kaplan-Meier estimates is the age of the youngest child, some of these differences may be accounted for by the older ages of women in the late 1989 marriage cohort. We will address this issue in our multivariate analyses.

Finally, we compared mortality risks for men and women across each of the four marriage cohorts (Table 2). Overall mortality risks were low; this is unsurprising since our sample includes members of couples in which the female spouse was between the ages of 18 and 44. There is some evidence of a slightly higher incidence of mortality among the November and

December 1989 cohort, however this may be attributable to the fact that men and women marrying in late 1989 were four-and-a-half to five years older than those individuals marrying in the months and years prior. Because age is the baseline duration variable, Kaplan-Meier estimates account for these cross-marriage-cohort differences. While the overall risk of mortality is low, the higher relative risk of mortality among this cohort is found to be statistically significant (log-rank test).

While these non-parametric tests do suggest differences in the stability, fertility and mortality of the observed marriage cohorts, these differential outcomes may be attributable to compositional differences across marriage cohorts, unaccounted for in the bivariate analyses and Kaplan-Meier estimates. To account for these compositional differences, we conducted multivariate event history analysis of the processes under study.

Multivariate event history analysis: Divorce

Table 3 presents results from a Cox proportional hazards model of the risk of divorce among couples marrying between 1987 and 1989 in Sweden, accounting for the woman's age and age differences between spouses at marriage, union duration, parity, the age of youngest child, and the educational attainment of both spouses. Model 1 is equivalent to the Kaplan-Meier estimates analyzed above; Model 2 includes additional covariates. Once accounting for compositional differences between marriage cohorts, we find that the late 1989 marriage cohort had a 17% *higher* risk of divorce, as compared to the 1987 reference group. While the magnitude of the difference in the risk of divorce as compared to the other non-exposed marriage cohorts was lower, the risk observed for the policy-exposed November and December 1989 cohort is consistent and statistically significantly higher.

[Table 3 about here]

Multivariate event history analysis: Parity Progression

Table 4 presents results from Cox proportional hazards models of the risk of a first, second and third birth among Swedish couples marrying between 1987 and 1989. Once accounting for individual and couple characteristics (Model 2), childless couples of the late 1989 marriage cohort have a slightly lower risk of a first birth, although not all cohort differences

reach statistical significance. We find similar results for the transition to a second birth. This suggests that the differences found in the bivariate and non-parametric analyses were largely due to compositional differences between cohorts. Cross-cohort differences are considerably larger when considering the transition to a third birth; couples marrying in November and December 1989 have a 13% lower risk of a birth as compared to the 1987 cohort.

[Table 4 about here]

Multivariate event history analysis: Mortality

Table 5 presents results from Cox proportional hazards models of the mortality risks for men and women separately. Although the overall risk of mortality is low, we find a higher relative risk of mortality for the 'just in case' as compared to the 1987 cohort, net of individual and couple characteristics. The differences in mortality risk between this cohort and those marrying in 1988 and earlier in 1989 vary in size, and are not always statistically distinct. As such the choice of reference category contributes to the finding of a higher mortality for the 'just in case' cohort, although the elevated risk is consistent with selection driving at least some of the health advantage enjoyed by other marrying couples.

[Table 5 about here]

Discussion

In this study, we investigated the stability, fertility and mortality of the Swedish 1989 marriage boom cohort. This cohort, marrying in November and December of 1989, was incentivised to marry by a change in pension policy. Due to the eligibility requirements of the policy, few of these couples would have directly benefited from the policy; most married 'just in case.' We considered how the outcomes of these 'just in case' couples compared with their counterparts of similar age and without stepchildren, entering first marriages in the years and months immediately prior to the 1989 marriage boom. These couples, who would most likely not have married at the time, may be less positively selected on characteristics associated with union stability, (further) childbearing and health than those in other marriage cohorts. Comparing their outcomes and behaviors relative to those couples marrying in the prior months and years can shed light on whether the marriage contract is sufficient to allow

couples who married ‘just in case’ to make similar investments in their relationships or if differences between married and couples who would not have otherwised married are due (at least in part) to forces related to the selective entry into marriage.

When focusing on those entering first marriages, with no or only shared children, where the woman was aged 44 or younger (and therefore not eligible for any benefits under the new pension policy, i.e. those marrying ‘just in case’), we found that the November and December 1989 marriage cohort differed considerably from cohorts marrying in 1987, 1988, and between January and October 1989. Individuals marrying at the end of 1989 were about two years older than their peers, were in longer duration unions (approximately twice as long, on average), and were more likely to have shared children. Additionally, men and women in the marriage boom cohort were less educated than those in other cohorts. On the one hand, these differences may reflect selection processes into marriage—marriage in a normal year is more concentrated among younger, more highly educated couples without (or with fewer) shared children. In such a way, the November and December 1989 cohort may have more broadly reflected the composition of the majority of long-term cohabiting unions in Sweden at that time. On the other hand, individuals in the marriage boom cohort represent those that were more likely to respond to the policy change at hand and the related mass media coverage. Further, those with longer union durations might have been more likely to take the decision to marry “lightly” (Hoem 1991, p. 132). Those with children may have been more likely to believe that they stood to benefit from marrying. And the less educated may have been less informed about their eligibility for transitional benefits and thus more likely to marry ‘just in case.’

Even still, our comparative analyses of the patterns of stability, fertility, and mortality of those marrying between 1987 and 1989 provide insight into the nature of any differential outcomes experienced by married individuals. In our initial bivariate analysis, the 1989 marriage boom cohort had higher stability—but subsequent analyses showed this was due to their older ages at marriage and longer union durations. Here we might conclude that the length of a union and prior investments in that union may be more important than the marriage contract for promoting relationship stability, despite the costs (e.g. financial, social or wellbeing) associated with divorce. Once accounting for these (and other) differences in the composition of this cohort, we found that they rather had elevated divorce risks. These

findings suggest that simply entering into a marriage contract is not sufficient to imbue the relationship with the same commitment as deciding without an external incentive.

We found minimal differences between the cohorts regarding their transition to a first and second birth, net of (observed) compositional differences. The differential finding for first and second versus third birth is particularly interesting considering other research suggesting that the transition to marriage and a first birth often is inter-linked (e.g. Holland 2013; 2017). This finding could be evidence of the possible endogeneity of union formalization through marriage and entry into parenthood—both marriage and a first birth may be part of a larger process of commitment where childbearing decisions drive those of marriage formation (Holland 2013). In this regard, it may be that couples without children or with only one child were more similar to those couples who would have married anyway, either in November and December 1989 or in the months following the policy change in 1990 (i.e., these couples might have sped up an already planned marriage). In fact, the number of childless among the cohort of interest were very few and thus dominated by couples who had married also under normal circumstances. In contrast, we found lower risks of a transition to a third birth for those who married in November-December 1989. As in the case of union stability, this may be related to the quality of these unions, which is largely unobserved in our analyses. The decision to proceed to a third or higher order birth may be 'discretionary,' and therefore more sensitive to other factors that shape childbearing preferences, unlike first and second births, which are more strongly associated with the transition to adulthood in general or the desire for a sibling for the firstborn child (e.g. Bulatao 1981). Evidently, similar factors may be at play in the processes that relate to union stability and third birth fertility. Further, if the 'just in case' couples are more similar to cohabiting couples, they may be less likely to have traditional, family-oriented attitudes and therefore have fewer children (Lesthaeghe and Surkyn 1988).

The marriage boom cohort also had elevated mortality risks as compared to men and women marrying in the preceding years and months, although some of this association can be attributed to the composition of the cohort. These men and women had lower levels of education, which can be taken as a proxy for their socioeconomic status, a key predictor of health and mortality. On the other hand, these spouses were more likely to have children, which is protective for health. Still, the residual higher level of mortality provides evidence that that selection is, in part, an important driver of any improved health outcomes of married

couples. Interestingly, the magnitude of the additional mortality risk for the marriage boom cohort was similar for men and women. Previous empirical work has demonstrated that health and well-being benefits of marriage is gendered, with men enjoying a higher marriage health premium than women (Waite 1995; Waite and Gallagher 2000; Wu and Hart 2002). It has been suggested that this may, in part, be due to the unequal allocation of time and resources in couples—husbands tend to enjoy greater leisure time, while wives devote more time to caring for spouses and children. Even if the health benefits of marriage are due to selection processes, it is interesting that these benefits are enjoyed equally by male and female spouses in Sweden, a context that is considered one of the most gender equal in the world. It is worth noting that, while individuals marrying during the 1989 marriage boom did experience higher relative risk of mortality, the overall absolute risk of mortality was still very low. Given the age restriction placed on the female spouse, the majority of our samples of men and women were relatively young when they married and during the 23 year follow-up period. It would be particularly useful to consider a broader range of health outcomes to further investigate the roles of marriage selection versus protection for the health and wellbeing of spouses.

In the end it is likely that our analyses underestimate the role and impact of additional selection processes associated with union formation. Many couples marrying in November and December 1989 had been partnered for quite some time. Although we accounted for union duration in our models, it is likely that further unmeasured selection processes operate as individuals enter romantic partnerships in the first place. Moreover, while our results provide evidence of positive self-selection into marriage, in terms of factors related to higher relationship stability, higher fertility and lower mortality, we cannot establish the mechanisms that drive these processes, be they related to health, values, commitment to the institution of marriage, relationship quality or something else.

Using population register data proved advantageous for our analysis. With these highly accurate and unique data we could identify all individuals marrying between 1987 and 1989 and follow them over a period of more than twenty years without any problems related to issues of non-response or attrition. However, some limitations of the data must be acknowledged. Many subjective characteristics of the spouses, such as their relationship quality, attitudes and values can never be observed in these kind of data.

Despite these limitations, our study helps provide insights into the nature of marriage within a country at the leading edge of the Second Demographic Transition. Couples marrying in normal months between 1987 and 1989 seem to have been selected on characteristics associated with advantage. The marriage contract alone is not sufficient for signalling intitial or inducing future investments into a relationship; the underlying reasons for marriage need to be more robust than simply marrying in response to a policy incentive. Such incentives, whether they be explicit marriage-promotion policies, or other policy interventions concerning rights to pensions, health insurance or visas, may indeed compel couples to marry. However, rather than a deliberation about commitment, relationship quality and the meaning of marriage, in these cases the decision to marry is a reaction to an exogenous effect, relating to the policy and the media and popular discourse surrounding it. Policy incentivized marriages may be another way in which couples slide into marriage rather than explicitly decide to marry (Stanley et al. 2006). Why couples chose to marry in the first place is likely inherently linked with the longer-term outcomes of that marriage. Indeed, as we have seen with respect to stability, fertility, and mortality of couples of the 1989 marriag boom cohort, not all marriages are equal.

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Tables and Figures

Table 1. Descriptive Statistics, couples marrying 1987 – 1989, Sweden[a]

	Marriage Cohort			
	1987	1988	Jan - Oct 1989	Nov - Dec 1989
Age at marriage (years)				
Male				
Mean	29.4	29.5	29.6	34.4
25th percentile	26.0	25.9	26.0	30.0
50th percentile	28.8	29.0	28.9	34.3
75th percentile	32.1	32.3	32.4	38.7
Female				
Mean	27.1	27.3	27.4	31.9
25th percentile	23.9	23.9	24.1	27.5
50th percentile	26.6	26.7	26.7	31.8
75th percentile	29.8	30.0	30.0	35.9
Age difference between spouses (%)				
Man 2 years younger to 5 years older	75.7	74.9	75.9	73.2
Man more than 2 years younger	7.3	7.9	7.5	7.1
Man more than 5 years older	17.1	17.2	16.6	19.7
Union duration at marriage (years)				
Mean	3.83	3.88	3.91	8.30
25th percentile	1.00	1.00	1.00	4.00
50th percentile	3.00	3.00	3.00	8.00
75th percentile	6.00	6.00	6.00	12.00
Number of shared children (%)				
0	54.2	53.7	53.1	7.8
1	26.8	27.0	26.6	33.7
2	16.2	16.3	17.1	46.4
3	2.5	2.7	2.9	10.5
4+	0.3	0.4	0.4	1.6
Age of youngest child at marriage (if any children; years)				
Mean	2.08	2.12	2.08	4.29
25th percentile	0.58	0.58	0.58	1.17
50th percentile	1.25	1.25	1.25	2.67
75th percentile	2.50	2.50	2.42	6.08
Man's highest level of education (%)				
Compulsory	52.5	52.6	52.2	65.6
Secondary	27.8	28.3	28.2	24.1
Tertiary	19.7	19.0	19.6	10.2
Unknown	0.1	0.1	0.1	0.1

Table 1. *Continued*

Woman's highest level of education (%)				
Compulsory	40.8	40.4	38.7	56.6
Secondary	33.4	33.7	34.7	28.1
Tertiary	25.7	25.9	26.6	15.3
Unknown	0.0	0.0	0.0	0.0
Total	22,451	24,028	23,122	41,371

Source: Swedish Population Register Data (STAR)

[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.

Table 2. Key demographic outcomes by marriage cohort, couples marrying 1987 – 1989, Sweden[a]

	Marriage Cohort				
	1987	1988	Jan - Oct 1989	Nov - Dec 1989	
Total Marriages	22,451	24,028	23,122	41,371	
Divorce	8,037	8,646	8,242	12,783	***
Percent	35.8	36.0	35.6	30.9	
Mean years to divorce	11	11	11	10	
Death, male spouse	382	443	348	1,198	***
Percent	1.7	1.8	1.5	2.9	
Mean age at death	48	48	46	54	
Death, female spouse	253	266	222	718	***
Percent	1.1	1.1	1.0	1.8	
Mean age at death	46	45	44	50	
Marriages at parity 0	12,170	12,903	12,275	3,246	
First births	10,185	10,726	10,281	2,222	***
Percent	83.7	83.1	83.8	68.5	
Mean woman's age at first birth (years)	28	28	28	28	
Marriages at parity 1	6,010	6,482	6,153	13,931	
Second births	5,095	5,479	5,176	9,072	***
Percent	84.8	84.5	84.1	65.1	
Mean time since first birth (months)	39	38	37	43	
Marriages at parity 2	3,647	3,910	3,946	19,187	
Third births	1,508	1,538	1,586	4,546	***
Percent	41.3	39.3	40.2	23.7	
Mean time since second birth (months)	55	53	53	59	

Source: Swedish Population Register Data (STAR)

[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.

Note: Log-rank test for the equality of survivor functions: *** $p < 0.001$

Table 3. Cox Proportional Hazards Models Predicting Risk of Divorce, couples marrying 1987 – 1989, Sweden[a]

	Model 1			Model 2		
	Hazard Ratio		S.E.	Hazard Ratio		S.E.
Marriage Cohort						
1987	1			1		
1988	1.03	***	0.02	1.04	**	0.02
Jan - Oct 1989	1.04	***	0.02	1.06	***	0.02
Nov - Dec 1989	0.89	***	0.02	1.17	***	0.02
Woman's age at marriage				0.90	***	0.01
Woman's age at marriage^2				1.00		0.00
Age difference between spouses						
Man 2 years younger to 5 years older				1		
Man more than 2 years younger				1.41	***	0.03
Man more than 5 years older				1.03	*	0.01
Union duration at marriage				0.94	***	0.00
Union duration at marriage^2				1.00	***	0.00
Parity						
0				1		
1				0.24	***	0.01
2				0.20	***	0.01
3				0.23	***	0.01
4+				0.31	***	0.01
Age of youngest child (TV)				1.25	***	0.00
Age of youngest child^2 (TV)				0.99	***	0.00
Man's highest level of education						
Compulsory				1		
Secondary				0.92	***	0.01
Tertiary				0.87	***	0.02
Unknown				1.45	+	0.29
Woman's highest level of education						
Compulsory				1		
Secondary				0.95	***	0.01
Tertiary				0.91	***	0.01
Unknown				1.65	***	0.03
N (Marriages)	110,972			110,972		
N (Marriage-months	25,107,108			25,107,108		
Divorces	37,708			37,708		

Source: Swedish Population Register Data (STAR)
[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.
Note: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Baseline hazard: marriage duration.

Table 4. Cox Proportional Hazards Models Predicting Risk of Parity Progression, couples marrying 1987 – 1989, Sweden[a]

	First Birth Model 1			First Birth Model 2		
	Hazard Ratio		S.E.	Hazard Ratio		S.E.
Marriage Cohort						
1987	1			1		
1988	0.99		0.01	1.00		0.01
Jan - Oct 1989	1.01		0.01	1.01		0.01
Nov - Dec 1989	0.78	***	0.02	0.96		0.02
Woman's age at marriage				-		-
Woman's age at marriage^2				-		-
Age difference between spouses						
Man 2 years younger to 5 years older				1		
Man more than 2 years younger				0.82	***	0.02
Man more than 5 years older				0.95	***	0.01
Union duration at marriage				1.07	***	0.01
Union duration at marriage^2				1.00	***	0.00
Man's highest level of education						
Compulsory				1		
Secondary				0.98		0.01
Tertiary				0.96	**	0.02
Unknown				0.64		0.20
Woman's highest level of education						
Compulsory				1		
Secondary				1.07	***	0.02
Tertiary				1.06	***	0.02
Unknown				0.78	***	0.24
N (Marriages)	40,474			40,474		
N (Person-months)	1,402,967			1,402,967		
Birth	33,297			33,297		

Source: Swedish Population Register Data (STAR)

[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.

Note: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Baseline hazard: woman's age (months).

Table 4. *Continued*

	Second Birth Model 1			Second Birth Model 2		
	Hazard Ratio		S.E.	Hazard Ratio		S.E.
Marriage Cohort						
1987	1			1		
1988	1.00		0.02	1.00		0.02
Jan - Oct 1989	1.02		0.02	1.04	+	0.02
Nov - Dec 1989	0.66	***	0.01	0.97		0.02
Woman's age at marriage				1.40	***	0.02
Woman's age at marriage^2				0.99	***	0.00
Age difference between spouses						
Man 2 years younger to 5 years older				1		
Man more than 2 years younger				1.03		0.03
Man more than 5 years older				0.91	***	0.02
Union duration at marriage				1.16	***	0.01
Union duration at marriage^2				0.99	***	0.00
Man's highest level of education						
Compulsory				1		
Secondary				1.05	***	0.02
Tertiary				1.16	***	0.03
Unknown				1.50	+	0.35
Woman's highest level of education						
Compulsory				1		
Secondary				1.08	***	0.02
Tertiary				1.19	***	0.02
Unknown				0.43	***	0.01
N (Marriages)	32,469			32,469		
N (Person-months)	1,205,800			1,205,800		
Birth	24,719			24,719		

Source: Swedish Population Register Data (STAR)

[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.

Note: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Baseline hazard: time since first birth (months).

Table 4. *Continued*

	Third Birth Model 1			Third Birth Model 2		
	Hazard Ratio		S.E.	Hazard Ratio		S.E.
Marriage Cohort						
1987	1			1		
1988	0.95		0.04	0.97		0.04
Jan - Oct 1989	0.99		0.04	1.00		0.04
Nov - Dec 1989	0.55	***	0.02	0.86	***	0.03
Woman's age at marriage				1.09	**	0.04
Woman's age at marriage^2				1.00	***	0.00
Age difference between spouses						
Man 2 years younger to 5 years older				1		
Man more than 2 years younger				1.18	***	0.06
Man more than 5 years older				0.94	*	0.03
Union duration at marriage				1.17	***	0.02
Union duration at marriage^2				0.99	***	0.00
Man's highest level of education						
Compulsory				1		
Secondary				1.06	*	0.03
Tertiary				1.44	***	0.05
Unknown				0.65		0.38
Woman's highest level of education						
Compulsory				1		
Secondary				1.11	***	0.03
Tertiary				1.26	***	0.04
Unknown				0.82	**	0.05
N (Marriages)	30,656			30,656		
N (Person-months)	2,790,556			2,790,556		
Birth	9,149			9,149		

Source: Swedish Population Register Data (STAR)

[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.

Note: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Baseline hazard: time since second birth (months).

Table 5. Cox Proportional Hazards Models Predicting Risk of Mortality, couples marrying 1987 – 1989, Sweden[a]

	Men			
	Model 1		Model 2	
	Hazard Ratio	S.E.	Hazard Ratio	S.E.
Marriage Cohort				
1987	1		1	
1988	1.19 *	0.08	1.17 *	0.08
Jan - Oct 1989	1.05	0.08	1.04	0.08
Nov - Dec 1989	1.99 ***	0.12	1.23 **	0.08
Age difference between spouses				
Man 2 years younger to 5 years older			1	
Man more than 2 years younger			0.74 **	0.08
Man more than 5 years older			1.94 ***	0.09
Union duration (time varying)			1.02	0.02
Union duration^2 (time varying)			1.00 *	0.00
Parity				
0			1	
1			0.39 ***	0.05
2			0.32 ***	0.04
3			0.31 ***	0.03
4+			0.40 ***	0.05
Age of youngest child (time varying)			1.03 **	0.01
Age of youngest child^2 (time varying)			1.00	0.00
Man's highest level of education				
Compulsory			1	
Secondary			0.74 ***	0.04
Tertiary			0.73 ***	0.05
Unknown			8.04 ***	2.43
Woman's highest level of education				
Compulsory			1	
Secondary			0.85 ***	0.04
Tertiary			0.89 +	0.06
Unknown			1.37 ***	0.11
N (Marriages)	110,965		110,965	
N (Marriage-months	24,996,136		24,996,136	
Deaths	2,371		2,371	

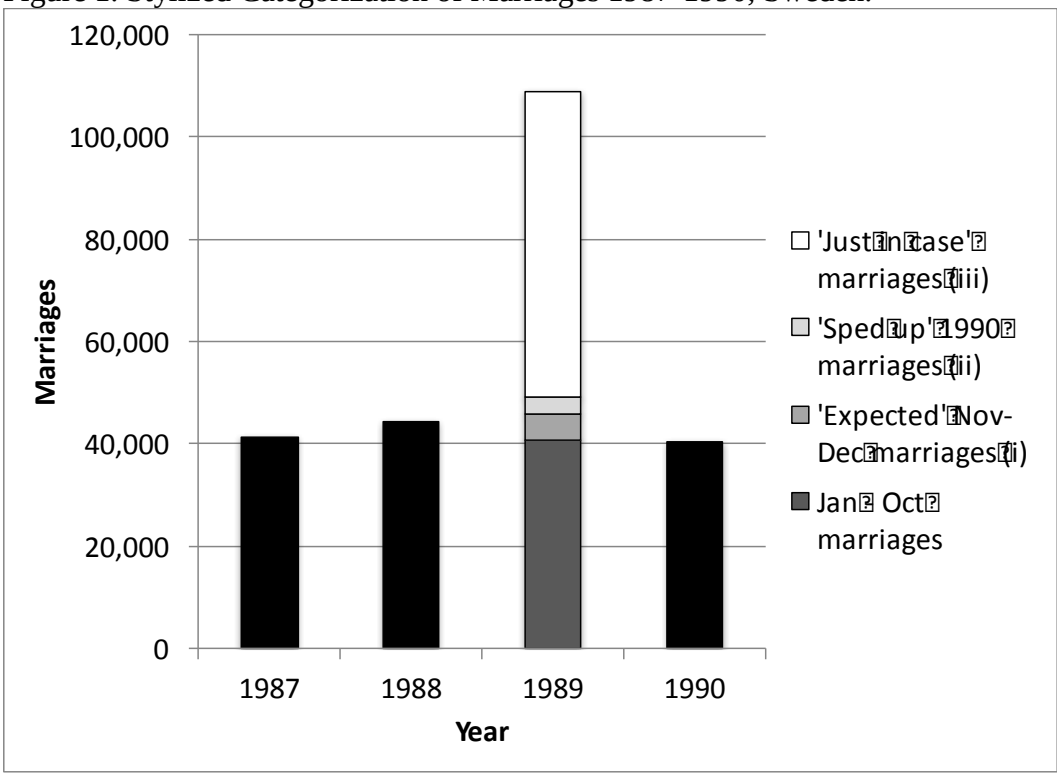
Table 5. *Continued*

	Women			
	Model 1		Model 2	
	Hazard Ratio	S.E.	Hazard Ratio	S.E.
Marriage Cohort				
1987	1		1	
1988	1.10	0.10	1.08	0.10
Jan - Oct 1989	1.01	0.10	1.00	0.10
Nov - Dec 1989	1.83 ***	0.14	1.23 *	0.10
Age difference between spouses				
Man 2 years younger to 5 years older			1	
Man more than 2 years younger			1.49 ***	0.15
Man more than 5 years older			0.97	0.07
Union duration (time varying)			1.09 ***	0.02
Union duration^2 (time varying)			1.00	0.00
Parity				
0			1	
1			0.48 ***	0.07
2			0.29 ***	0.04
3			0.27 ***	0.04
4+			0.29 ***	0.05
Age of youngest child (time varying)			1.00	0.01
Age of youngest child^2 (time varying)			1.00	0.00
Man's highest level of education				
Compulsory			1	
Secondary			1.21 **	0.08
Tertiary			1.31 **	0.12
Unknown			1.34 *	0.15
Woman's highest level of education				
Compulsory			1	
Secondary			0.72 ***	0.05
Tertiary			0.57 ***	0.05
Unknown			-	-
N (Marriages)	109,506		109,506	
N (Marriage-months	24,743,848		24,743,848	
Deaths	1,456		1,456	

Source: Swedish Population Register Data (STAR)

[a]The following sample restrictions were made: first marriages in 1987-1989; the woman was 18 to 45 years old at marriage; only shared or no children; both spouses Swedish-born and registered in Sweden at marriage; and complete civil status register records.
Note: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Baseline hazard: age (months)

Figure 1. Stylized Categorization of Marriages 1987-1990, Sweden.



Source: Estimates based on categorization by Hoem (1991).

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