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Abstract

A uniform finding across studies of the association between family context and wellbeing is a positive correlation between marriage and a host of outcomes: mental health and wellbeing, physical health and mortality, job prospects and economic wellbeing for partners 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 1989. Using administrative register data, we compare the 1989 marriage cohort with marriage cohorts prior to and following the policy change, assessing whether marriage increases union stability, whether the contractual nature of marriage induces couples to make couple-specific investments with respect to childbearing, and whether marriage is associated with lower mortality.
Extended Abstract

Family is a central institution responsible for providing social, emotional and financial support for individuals. However, we know there are differential outcomes for adults and children depending on the composition of families: partnered individuals are found to have higher levels of wellbeing than the unpartnered (e.g. Dush and Amato 2005) and children and adolescents living with two biological parents tend to have better outcomes than their counterparts in single or blended families (e.g. Brown 2010; McLanahan and Percheski 2008). A uniform finding across studies of family contexts and wellbeing is a positive correlation between marriage and a host of outcomes: mental health and wellbeing, physical health and mortality, job prospects and economic wellbeing. The sources of these differential outcomes remain elusive, however. The nature of any actual “treatment” of marriage is generally left unspecified and few studies have been able to disentangle the influence of selection from any “treatment” effect.

Some have postulated that the “treatment” effect of marriage comes from the contractual nature of the marital union. The marital contract binds two individuals together into one partnership unit and introduces a level of permanency, explicit in both religious and civil ceremonies, that differs from cohabiting or dating relationships. Along with an expectation of permanency are implications for predictability and stability, essential for the other benefits (economic or otherwise) of marriage to be derived (Lyngstad, Noack and Tufte 2010; Treas 1993; Waite and Gallagher 2000). The marital contract may allow individuals to more safely pool their resources (Heimdal and Houseknecht 2003; Lyngstad, Noack and Tufte 2010) or risk (Hess 2004), to specialize (whether in a gendered or gender-neutral fashion), and to make investments at the individual- or couple-level (Becker 1991; Waite and Gallagher 2000). Should the union dissolve, marriage explicitly has protections in place for the weaker party that are not automatically in place for cohabiting couples, even if that couple has shared children (Björnberg 2001; Cherlin 2009; Noack 2001; Perelli-Harris and Gassen 2012).

At the same time, marriage is also a legal contract with the State, and in most contexts this contract privileges married couples over their cohabiting or single counterparts with respect to tax and transfer programs (Perelli-Harris and Gassen 2012). The motivation for the differential treatment of marriage is that the institution is of societal value in that it offers individuals social support, provides for the socialization and upbringing of children, and for the maintenance of the well-being of family members (Lyngstad, Noack and Tufte 2010; Parsons 1949; Parsons and Bales 1955; Thornton, Axinn and Xie 2007). Married couples are privileged with respect to parenting rights (parental authority, legal guardianship, and adoption), property rights, alimony, survivor’s pensions and inheritance, (lower) income and property tax obligations and obtaining residence or citizenship rights for foreign partners (Perelli-Harris and Gassen 2012). Taken together, the contractual nature of marriage, between individuals and between couples and the state, may be a necessary prerequisite for many of the benefits of marriage.

Beyond differential rights and responsibilities conferred to married couples, marriage may also result in the accrual of symbolic capital for individuals and couples to the extent that it is considered a higher status relationship (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 marital benefits accrued by husbands over and above wives: once married, men tend to take part in fewer risky behaviours, increase their working hours and productivity, and tend to receive higher wages, than their unmarried counterparts (Duncan, Wilkerson and England 2006; Nock 1998; Sampson, Laub and Wimer 2006; Waite and Gallagher...
Still, the degree to which marriage confers symbolic capital to couples may be culturally and contextually dependent.

While it is often left implicit rather than quantified in studies of the association between family context and wellbeing, it is clear that by and large the happiest, the healthiest and most successful are more likely to partner and subsequently marry. In Western contexts, marriage is increasingly the capstone of the transition to adulthood (Cherlin 2004; Edin and Kefalas 2005), 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), after a period of co-residence and (increasingly) after a couple has joint children (Holland 2013; Holland 2014). The problems of reverse causality and selection are endemic to the study of the consequences of union dynamics, although some have tried to reduce the influence of selection by identifying natural experiments (Frimmel, Halla and Winter-Ebmer 2014), employing IV or propensity score matching techniques (Perelli-Harris and Styrc 2015; Styrc et al. 2015).

In this paper we seek to understand whether and how marriage improves the wellbeing of individuals. In order to do this, we will situate our study in Sweden. This is a particularly unique and useful context for our purposes, allowing us to better isolate the importance of the contract between two individuals from any benefits accrued as a result of the contract between the couple and the State and as a result of social norms privileging marriage. Furthermore, making use of a unique policy change that induced a three-fold increase in marriage rates in 1989, we can indirectly estimate the magnitude of the effect of selection. The study makes use of high-quality, longitudinal administrative register data, allowing us to account for individuals’ characteristics prior to marriage and to follow individuals and couples for more than two decades after marriage.

The Swedish Context

Over the course of the last half century entitlements to social benefits in Western countries have been increasingly individualized, with drawing rights based on one’s own work history rather than family relationships (Knijn 2004; Morgan 2006). This trend has been most dramatic in Sweden, where there is the highest degree of disconnection between union status and the welfare state, with respect to taxation, child benefits, public child care and parental leave arrangements (Baizán, Aassve and Billari 2004; Duvander 1999; Ohlsson-Wijk 2011).

The symbolic meaning of marriage conditions the degree to which individuals either change their behaviours or accrue social benefits (over and above contractual benefits) relative to their non-married counterparts. While marriage be a highly aspirational, privileged relationship status in the United States (Cherlin 2009), this is less the case in Nordic contexts, where marriage and long-term cohabitation may be perceived as equivalent or, at least, that any differences are irrelevant (Heuveline and Timberlake 2004; Hoem 1991; Lappegård and Noack 2015). As such, social norms and differential treatment by family, friends, and employers which might privilege the married over their unmarried peers will play a smaller role in producing differential outcomes in Sweden.

Finally, a policy change to Swedish pension law presents us with a unique natural experiment to differentiate the role of selection in producing improved outcomes among the married. In 1989, the Swedish government moved to abolish a widow’s pension (Andersson 1998; Hoem 1991). Previous to the reform, all married women were given a widow’s pension upon the death of their husband, regardless of their own income and in addition to a General Supplementary Pension, based on their
husband’s earnings. After the reform, a gender-neutral survivor’s benefits would be dependent upon the survivor’s means; the new benefit system was no longer an unconditional right.

This pension reform produced an 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 had no incentive to marry.

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 marriage in November and more than 20-times as many marriages in December (approximately 64,000 marriages versus 2,500-3,000 marriages in a typical year), immediately before the new pension policy would go into effect (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).

As a result 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). Most importantly for this study, the responsiveness of childless Swedes under the age of 45 to this policy reform (individuals who derived no transitional benefits, who seemed to “marry just in case” (Hoem 1991)) suggests that the difference between cohabitation and marriage was negligible, and thus the decision to marry was somewhat arbitrary (Hoem 1991; Ohlsson-Wijk 2011). Taken as a whole, it is likely that the December 1989 marriage cohort is much less selected on attributes that might explain the improved wellbeing of married couples, as compared to those marrying in a ‘normal’ year. While some individuals might have married in December regardless, they constitute a only a marginal share of the total marriages taking place in December 1989. By comparing this cohort to marriage cohorts in the years prior to and following the reform, we can indirectly estimate the magnitude of the effect of selection.

Are all marriages equal?

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 created 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 (H0). However, if couples selecting into marriage are more advantaged than their unmarried counterparts, we would expect to observe poorer outcomes for ‘marginal marriers,’ i.e. those marrying in November and December 1989, who had no marriage plans and received no transitional benefits related to the pension reform who would
otherwise remain in dating or (more likely) cohabiting unions (the vast majority of those marrying in November and December 1989, see Figure 1) \( (H_\lambda) \). We will consider this hypothesis with regard to a range of outcomes previously identified as being stratified by union status.

In the Swedish context, and more broadly, it has been demonstrated that marital unions are more stable than cohabiting unions (Andersson and Philipov 2002; Lyngstad and Jalovaara 2010). On the one hand, it may be that commitment and long-term thinking imbued in the marital contract may improve relationship quality, lessen the effects of stress or conflict, and improve well-being (Brines and Joyner 1999; Nock 2000; Waite 2000; Wilcox and Nock 2006) and the higher financial and social costs of divorce may act as a greater disincentive for dissolving marital versus cohabiting unions (Perelli-Harris et al. 2015; Perelli-Harris et al. 2014). As such, with regard to union quality:

\[ H_{10} : \text{Union dissolution risks will be similar for all marriage cohorts.} \]

\[ H_{1A} : \text{The November and December 1989 marriage cohort will have higher rates of union dissolution overall, and will dissolve their unions more quickly than the 1987, 1988 and 1990 marriage cohorts.} \]

The contractual nature of marriage may also increase individuals’ propensity to make couple-specific investments, and chief among these investments is bearing and raising children. Childbearing in Sweden is certainly not confined to marital unions; the majority of first births occur to unmarried, co-resident parents (Andersson and Philipov 2002; Bernhardt 2004). Still, the majority of first marriages occur prior to a first birth (Holland 2013), and previous studies have show that married couples have higher fertility and higher parity progression rates than cohabiting couples (Berinde 1999; Oláh 1996).

\[ H_{20} : \text{Similar parity progression rates and levels of completed fertility will be observed for all marriage cohorts.} \]

\[ H_{2A} : \text{Parity progression rates and completed fertility will be lower for members of the November and December 1989 marriage cohort as compared to the 1987, 1988 and 1990 marriage cohorts.} \]

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,\(^2\) report higher levels of self-rated health and have lower mortality risks, as compared to their single and cohabiting counterparts (Waite 1995; Waite and Gallagher 2000; Wu and Hart 2002). The sources of the health and mortality premium may be a result of causal or selection processes. Due to data availability, we will operationalize the health advantage via mortality, and we hypothesize that:

\[ H_{30} : \text{We will observe similar age-specific mortality profiles for all marriage cohorts.} \]

\[ H_{3A} : \text{The November and December 1989 marriage cohort will experience a higher risk of mortality at all ages, as compared to the 1987, 1988 and 1990 marriage cohorts.} \]

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\(^2\) Previous empirical work has demonstrated that the health and well-being benefits of marriage may be gendered, with men enjoying a higher marriage health premium than women (Waite and Gallagher 2000). 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. Moreover, since the age profile of mortality risks differs for men and women, we will conduct analyses of the risk of mortality separately for men and women.
Contingent on data availability, we will also examine cause-specific mortality to assess differential risks for deaths by accident and suicide to further distinguish the possibility of differences in risky behaviour and mental health across marriage cohorts.

**Analytical Framework, Data and Methods**

Data for these analyses come from the administrative register database Sweden in Time: Activities and Relations (STAR). This database contains information on births, civil status changes\(^3\) (from 1968), education, employment and income, and foreign-born status for all persons residing in Sweden between 1947 and 2007.\(^4\)

![Figure 1. Stylized Categorization of Marriages 1987-1990, Sweden.](image)

First, we identify all individuals marrying between January 1987 and December 1990 (N = 470,078). The population of all individuals marrying include two differently “treated” groups: a) those who married in 1987, 1988, and 1990, and those who married in the months January to October 1989, when marriage rates were still quite similar to previous years; and b) those who married in November and December 1989, during the temporal shock in marriage rates, decidedly attributable to the policy intervention. We can further differentiate marriages in this latter group as: i) those who would have married in November and December, regardless of the policy intervention (approximately 2,500-3,000 individuals 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 constitutes approximately 3,200 individuals), and iii) a group without marriage plans who were incentivized to marry by the particular policy change (approximately 57,800 individuals) (Figure 1). It is likely that individuals who would have married in November and December 1989 (i) or in subsequent years (ii) are selected on characteristics that predict both marriage and union quality, fertility behaviour, and health and mortality well being. Still, they constitute a distinct minority compared to those who were

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\(^3\) The civil status register includes information on marriage and divorce, registered partnership formation and dissolution (same-sex couples), and widowhood.

\(^4\) 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 database is maintained at Statistics Sweden and is available only by remote online access.
incentivized to marry by the program, and therefore the degree of selection will be substantially reduced for this marriage cohort.

Because women born prior to 1944 and individuals with (step-)children 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, as compared to a typical annual marriage cohort. Moreover, individuals who benefited from transitional provisions of the pension reform may differ from ‘marginal marriers’ who did not benefit, either due to individual characteristics in 1989 or in their future behaviour. As such, we further limit our analysis sample to those individuals in partnerships where both partners are entering a first marriage, those with only shared children, and those where both partners are between the ages of 18 and 35. We also limit our analysis to individuals in partnerships where both spouses are Swedish-born. Our analysis sample includes 222,598 individuals marrying between January 1987 and December 1990.

The first stage of the analysis will compare the attributes of the November and December 1989 marriage cohort to those marrying in the years prior and following the policy reform. In particular, we will compare: age at marriage, union duration prior to marriage, number of children and the age of the youngest child, the highest level of education, and the economic circumstance of the couple (total household income and the relative income of spouses). Understanding the nature of compositional differences in the characteristics of the different marriage cohorts will be important for interpreting the results of subsequent prospective analyses of union stability, childbearing and mortality, and possible selection mechanisms.

Subsequently, we will conduct prospective event history analysis to test the hypotheses presented above. We will model the risk of divorce (H1), first, second and third birth (H2), and death (H3) in continuous time using Cox proportional hazards models (Blossfeld, Golsch and Rohwer 2006; Cox 1972). (Cox 1972; Blossfeld et al. 2006). The generic model utilized will take the form of:

\[ h(t) = h_0(t) \cdot e^{\beta(M_{\text{Cohort}}) + \gamma X} \]

In this model, \(h_0(t)\) 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 at time \(t\). Our central interest is the relationship between marriage cohort and the risk of the event of interest (\(\beta\)). Marriage cohort is specified as a vector of categorical variables (\(M_{\text{Cohort}}\)) corresponding to the marriage occurring in 1987, 1988, Nov/Dec 1989 (reference) or 1990.

In each model we will account for time-fixed and time-varying characteristics of individuals and their spouses (\(X\)): age at marriage, union duration at marriage, the highest level of education achieved by each spouse, and the economic circumstance of the couple (total household income and the relative income of spouse). In models of divorce and death, we will also include measures of parity and the age of the youngest child. Additionally, we will test for differences in the pace of divorce, parity progression and death by specifying interactions between marriage cohort and union duration.

**Preliminary Results**

Non-parametric exploratory (Kaplan-Meier) analysis of the risk of divorce among members of the 1987, 1988, (Jan – Dec) 1989 and 1990 marriage cohorts suggest an elevated risk of divorce among members of the complete 1989 marriage cohort (Figure 2: x-axis months since marriage; y-axis
hazard of divorce). Differences in divorce risk are most pronounced in short- to mid- durations, with divorce risks converging after about 15 years of marriage. Both log-rank and Wilcoxon signed-rank tests suggest statistically significant differences in the underlying survival function by marriage cohort. Interestingly, there is evidence of an elevated risk of divorce among members of the 1990 marriage cohort relative to the 1987 and 1988 cohorts. If those in high relationship-quality unions (possibly with marriage plans) sped up their marriages in order to benefit from the pension reform, while those in lower relationship-quality unions did not, this might explain the elevated divorce risks for those marrying in 1990. This increased marital tempo among high relationship-quality couples, shifting their marriages from 1990 to 1989, would not have a large impact on the overall divorce rate for the 1989 marriage cohort, since it is likely that they constitute only a minority of marriages in this cohort (see Figure 1 above). These descriptive analyses suggest that differential selection into marriage across these cohorts may play a role in the stability of marital unions, although it will be important to disentangle differential outcomes for only those marrying in November and December 1989 (vs. January to October 1989), as well as to account for compositional differences between marriage cohorts in subsequent parametric analyses.

![Smoothed hazard estimates](image)

*Figure 2. Kaplan Meier estimates of the hazard of divorce by marriage cohort.*
References


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