

Semi-formalized cohabitation and subsequent marital stability in Iceland, 1995-2013

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ÚTDRÁTTUR: Fyrri rannsóknaniðurstöður gefa oftast en ekki til kynna að tengsl séu á milli sambúðar fyrir hjónaband og aukinnar hættu á skilnaði síðar meir. Á Íslandi geta þör skráð sambúð sína sem hefur í för með sér að þau öðlast ákveðin réttindi og taka á sig ákveðnar skyldur. Með því að nota gögn um skráða sambúð, í stað óopinberrar sambúðar, má rannsaka fyrrgreind tengsl frá öðrum sjónarhóli en tíðkast hefur, ásamt því að afla þekkingar um tengsl þessa hálf-formlega sambúðarforms og hættu á hjónaskilnaði meðal þeirra para sem ganga síðar í hjónaband. Með þeim hætti er einblínt á þör sem ætla sér að stofna fjölskyldu, samtímis því að þör sem einungis búa í óformlegri sambúð eru síuð út. Notast er við örgögn frá Hagstofu Íslands í öllum útreikningum en þau innihalda upplýsingar um barneigna-, sambúðar- og hjúskaparsögu allra kvenna sem fæddust á Íslandi á árunum 1962–1997. Gögnin eru greind með atburðaferlagreiningu (e. event history analysis) og niðurstöður birtar sem hlutfallsleg áhætta á skilnaði. Niðurstöður benda til þess að ef fólk skráir sambúð fyrir hjónaband sé það í minni hættu á hjónaskilnaði síðar meir, samanborið við þör sem ekki skrá sambúð, að teknu tilliti til annarra breyta sem stýrt er fyrir. Þá er ekki að sjá að breytingar hafi orðið á sambandinu yfir rannsóknartímabilið (1995–2013). Við túlkum niðurstöðurnar sem svo að það megi líta á skráða sambúð sem nokkurs konar tilraunar hjónaband sem grisjar út brothættustu samböndin.

LYKILORÐ: Hjónaskilnaðir – Skráð sambúð – Barneignir

ABSTRACT: Research findings usually suggest that premarital cohabitation is associated with increased risk of marital dissolution. In Iceland, cohabitation has been semi-formalized and if people register cohabitation, they acquire certain rights and undertake some obligations. Using data on registered cohabitation enables us to investigate the proposed association from a somewhat different perspective and to explore any association between a well-established, yet informal policy of registered cohabitation and subsequent risks of marital dissolution. The data allow us to focus on couples that intend to live together while weeding out couples that merely

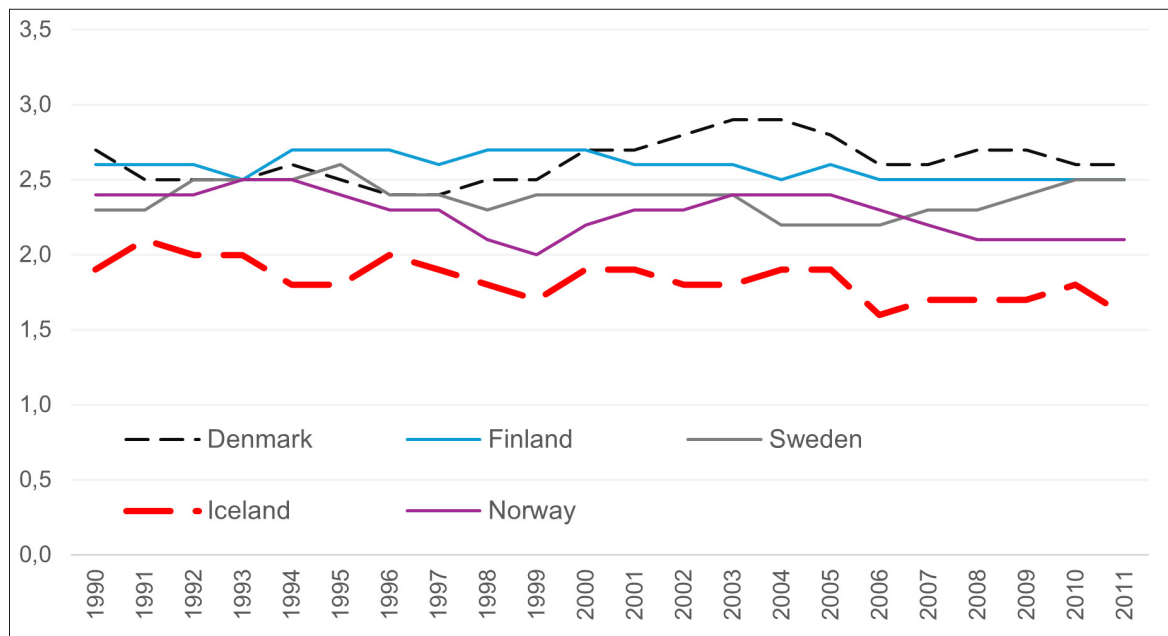
“drift” into coresidential unions. We use register data in our calculations covering all women born in Iceland during 1962–1997, their childbearing and union histories. We analyze the data by means of event history techniques and present the results as relative risks of union dissolution. Our estimates indicate that registered cohabitation in Iceland is associated with lower risk of marital break-ups, and that this finding is robust. We do not detect any changes in the relationship during the study period (1995–2013). We interpret the context-specific findings in support of arguments such as those posed by the trial marriage hypothesis, suggesting that semi-formalized cohabitation results in lower risks of divorce.

KEYWORDS: Divorce risks – Premarital cohabitation – Children

Introduction

Throughout most of Europe we have witnessed an increase in divorce since the 1960s, in tandem with decreased popularity of marriage, and increased prevalence of premarital births and nonmarital cohabitation (Sobotka and Toulemon, 2008). With few exceptions, findings usually suggest that premarital cohabitation is associated with increased risks of marital dissolution (Thomson and Colella, 1992; Hoem and Hoem, 1992; Wagner and Weiss, 2006; Kerrigan and Bailey, 2021); and that women who had a child prior to first-marriage formation are more inclined to dissolve their union than women who had their first child within the realm of marriage (Kravdal, 1988; Waite and Lillard, 1991; Andersson, 1997; Liu, 2002). Combined, these observations might seem alarming to those who advocate for marriage and the longevity of marital unions.

Figure 1. Crude divorce rates in the Nordic countries, 1990–2011



Source: Eurostat, 2024 (figures pertaining to 2012 onwards for Iceland are not available).

Note: The crude divorce rate shows the number of divorces per 1,000 persons in the population

A quick glance over official statistics nevertheless indicate that the crude divorce rates have stabilized or decreased in many countries, including all of the Nordic countries: Denmark, Finland, Iceland, Norway, and Sweden (Figure 1), where the lion’s share of women cohabit before any first marriage, and premarital childbearing is more common than not (Andersson and Pilipov, 2002;

Andersson et al., 2017). In particular, Iceland is an interesting case in this regard, as the Icelandic crude divorce rate is lower than that of the other Nordics, while the Icelandic nonmarital-birth rate is higher. While crude rates, displaying the number of events per 1000 persons in the population, are not without shortcomings, the crude divorce rate has been found to correlate with other more sophisticated measures (Amato, 2010). Regarding nonmarital cohabitation and nonmarital childbearing, Iceland has ‘progressed’ furthest among all European countries where about 70 percent of all births are to unwed mothers, as are 83% of all first births (Jónsson, 2021). The frequency of out-of-wedlock births in Iceland is likely associated with a semi-formalized version of nonmarital cohabitation. If couples register their cohabitation, they acquire certain rights and undertake some obligations, mainly in terms of childbearing, but the union is easily dissolvable, and the registration of the union does not involve any additional investment by either cohabitant (see Jónsson, 2021 for a detailed discussion). About 80% of Icelandic-born women register cohabitation before any first-marriage formation or age 46 (Jónsson, 2021), and in majority of instances a registered cohabitation is later transformed into marriage (ibid). However, any associations between registered cohabitation – a well-established, yet informal family policy – and marital dissolution have not been studied before.

Registered cohabitation is a semi-formalized union type that provides couples with official union status without them getting married. Couples that register their cohabitation are presumably more committed than people that merely share a residence, and as such, data on registered cohabitation allow us to approach any potential association between premarital cohabitation and marital dissolution from a somewhat different perspective than that in most literature. The process of registering cohabitation may be seen as a symbol, the first formal declaration of the couple demonstrating that they indeed intend to be life partners. The registration of the union appears to be closely associated with first childbirth (Jónsson, 2021), but by no means is childbearing a universal premise for couples to register their cohabitation. Couples that register their cohabitation may be considered to have passed a first phase of a screening process, elaborated on below, and as such are not merely individuals that have drifted into a coresidential union, but couples that indeed intend to develop their lives together. The other side of the same coin is that, as registered cohabitation has official status in various legislation in Iceland, it could also mask the volume of union dissolution in the country, which could partially explain the lower divorce rate of Iceland, compared to the other Nordic countries.

The main objectives of the study are to i) provide additional fragments of knowledge to our understanding of the association between premarital cohabitation and later risk of marital disruption; ii) provide novel insights into the role this semi-formalized union type plays in the later-in-life stability of marriage; and iii) to investigate whether any relationship we find have changed over time. Our main research question is thus as follows: Is registered cohabitation prior to marriage associated with a later risk of marital dissolution, and if so, has the association changed over time? To get a comprehensive picture, we also, but to a lesser extent, explore how several other demographic related factors – ones that we also control for in our analysis – may be associated with marital disruption in Iceland. These relate to any potential impact children (premarital childbearing, parity, and age of youngest child) may have on marital dissolution risks; how the separation risk corresponds to the duration of marital unions; how age at marriage may be associated with subsequent propensity to separate; and finally, take into an account any potential period effects in the marital disruption risks of Icelandic-born women during 1995–2013.

In order to fulfil our objectives, we rely on event history techniques – Kaplan-Meier cumulative probability estimates and piecewise constant exponential models – and present the estimates stemming from the latter as relative risks of marital disruption. This procedure of indirect standardization (see Hoem (1993) for details) allows us to remove any compositional effects stemming from the aforementioned demographic covariates, regardless of if they are time varying or time constant, which facilitates us to get a better idea about any potential association between our main event of interest and separation risks of Icelandic women. Also, it allows us to investigate whether the un-

derlying behaviour in terms of marital dissolution may have changed over time. We use longitudinal administrative register data in our calculations, which include the total female population that was born in Iceland during 1962–1997. We follow the 1994–2013 marriage cohorts and calculate the separation risks based on these marriages for the years 1995–2013, by the factors discussed above.

We begin with a review of the literature. As our focus is on registered cohabitation, priority is given to theoretical arguments concerning the potential impact (informal) cohabitation may have on separation risks in general. Subsequently we give a detailed description of the data and method. Finally, we present the results and conclusions.

Premarital cohabitation and marital dissolution

Two somewhat conflicting theoretical explanations concerning the impact of premarital cohabitation on marital dissolution are to be found in the trial marriage theory and a selectivity rationale. The first expects nonmarital cohabitation to act as an experimental marriage that weeds out unions of poorer qualities before any first-marriage formation (Lillard et al., 1995; Liefbroer and Dourleijn, 2006). For couples, nonmarital cohabitation usually entails less investments by the partners involved, and the union is easier to dissolve than marriage. During which time couples share a residence, it is expected that the partners acquire the information needed to decide whether the other cohabitant is the ‘significant other’ (Kulu and Boyle, 2010). As poor matches are presumed to be weeded out during this process, couples that eventually get married are considered to be more committed to their unions, and that their unions will be of better quality (Teachman et al., 1991). Hence, cohabitation prior to marriage is expected to result in lower marital dissolution risks.

Findings are nonetheless not straightforward and, with few exceptions, most of the literature does not yield support to the trial marriage theory. More common than not, results suggest that couples that cohabit before marriage are more likely to experience marital break-ups than those who do not (Hoem and Hoem, 1992; Wagner and Weiss, 2006). While some studies suggest a short-term protective effects of premarital cohabitation on marital stability, a study from the US finds that premarital cohabitation has a longer-term cost resulting in an overall negative association (Rosenfeld and Roesler, 2019). This lack of evidence in favour of the trial marriage theory is often explained by selection effects: cohabiters, compared to those who marry without previous cohabitation, are expected, in general, to be more liberal, less religious, and to be more inclined to consider marital dissolution if they are not satisfied in the relationship (Axinn and Thornton, 1992; Lye and Waldron, 1997). Furthermore, those who cohabit before marriage may be less committed to the union to begin with and/or have inferior relationship skills compared to those who marry directly (Thomson and Colella, 1992). In support of the selection-effects hypothesis, research has shown that when many of these, often unobserved, characteristics have been controlled for, the increased risk of marital dissolution among former cohabiters decreases (Kerigan and Bailey, 2021); disappears (Lillard et al., 1995; Woods and Emery, 2002); or even finds that premarital cohabitation decreases the risk of marital break-ups (Svarer, 2004; Kulu and Boyle, 2010).

Drawing on these two perspectives, Liefbroer and Dourleijn (2006) hypothesize that the impact of premarital cohabitation on separation risk depends on the diffusion of cohabitation within a country. According to their argument, in societies where cohabitation is uncommon (previous) cohabiters are a selective group of people, with higher risks of marital disruption than the majority of the population – as the group would mainly be composed of people that swim across the stream. And, vis á versa, in societies where cohabitation before any first marriage is the norm, those who marry without cohabiting first are a selective subpopulation which are expected to have lower separation risks than that of the rest of the population – for instance people who are “religious fundamentalists who view marriage as sacrosanct, thus rejecting both separation and sexual relationship outside marriage”

(Liefbroer and Dourleijn, 2006, 2006). In societies where the diffusion of cohabitation is somewhere in the middle of these two extremes, the authors assume that the differences in separation risks will be small among those who cohabit before marriage and those who marry straightaway. While selection would still play a role – resulting in decreased risk among those who marry without previous cohabitation – the weeding process among (previous) cohabiters would decrease the difference in risks (Liefbroer and Dourleijn, 2006). Hence, the relationship between premarital cohabitation and subsequent risks of marital disruption is expected to be U-shaped, depending on the diffusion of cohabitation within societies (*ibid*).

Based on Liefbroer and Dourleijn's (2006) hypothesis, in the case of Iceland we should expect to find that marital dissolution among those who do not cohabit before getting married is lower than among those who cohabit before marriage, considering that most Icelandic women register cohabitation before any first-marriage formation (Jónsson, 2021). Those who marry straightaway would thus be, according to the argument, a small and selective group of women, presumably having more conservative family values than that of the majority population.

Marital dissolution and other demographic correlates

In terms of other demographic correlates of separation risks, a protective barrier of children on marital stability has been well-established, but the relationship appears complex (Waite and Lillard, 1991). Couples that have a child are less inclined to divorce compared to those who remain childless (Härkönen, 2014), and at lower parities, the number of children is positively associated with marital stability (Andersson, 1997). Presumably, children can be perceived as a form of investment and thus increase the couple's commitment to the union (Lyngstad and Jalovaara, 2010, see also Becker et al., 1977). Also, parents may be concerned about divorce having adverse effects on their children, which might encourage the couple to postpone or even forgo a divorce they would otherwise have had (Härkönen, 2014). Not having children may also be a signal towards lower trust in the union to begin with (*ibid*).

Couples that have young children are less likely to separate than couples with older children. The protective impact has been found to be strongest during the child's preschool years (Cherlin, 1977), but the risk of separation increases with each year from birth of the child (Andersson, 1997). Such findings, pertaining to child's age and marital dissolution risks, have been associated with specialization within the marriage, and that when this specialization is at its most complete (strictly from a theoretical perspective: mothers at home with an infant) it is expected to have the strongest protective effects on marital stability (Waite and Lillard, 1991). Childbearing may also signal commitment to the relationship and as the child grows older this commitment gets weaker. Furthermore, as the time parents spend with their children decreases with age (parents have to compete over the child's time with school, social activities and so forth), separation when the child is older would entail less loss of contact with their children, compared to when they are younger (*ibid*).

Having a child prior to marriage on later risk of marital break-ups appear to have consequences of its own, and the empirical literature does not provide much optimism for couples who had a child before they got married. Findings from the Nordic countries generally indicate that premarital births increase the risk of marital disruption (Kravdal, 1988; Hoem and Hoem, 1992; Liu, 2002). For instance, in Sweden, a country like Iceland where premarital births and premarital cohabitation are the norm rather than exception, Andersson (1997) found that, after standardizing for parity and other demographic factors, women who had a child before marriage had more than double the risk of marital dissolution compared to women who were childless before getting married. Potential explanations for this range from biological factors to financial aspects. A child born out of wedlock may belong to only one of the partners and, from a theoretical perspective, this may result in a strain on the marital union as the child may symbolize and provide a connection to a previous relationship (Waite and

Lillard, 1991). Also, an unplanned birth of a child into an existing (or soon to be) union may force the couple into a more committed union than they would otherwise have opted for (Waite and Lillard, 1991; Härkönen, 2014). Furthermore, it has been suggested that a premature childbirth could emerge as an unexpected financial burden, acting as a source of conflict within the union (Waite and Lillard, 1991). The presence of a premature child could also hinder the couple in developing and establishing their relationship, resulting in increased risk of later marital break-up (Twenge et al., 2004). Lastly, the increase in separation risk among premarital mothers may be implicitly associated with the fact that couples that have a child before marriage will, on average, have older children than couples who had their first child within marriage. Hence, if the presence of children, including age of the youngest child, is taken into an account in the calculations, it should modify the risk of marital disruption, compared to when it is not (Andersson, 1997).

The age of the coresidential union itself appears to have implication of its own (Jalovaara and Kulu, 2018), as does the duration of the marriage: usually, the risk of separation increases continuously during the first 4–7 years of marriage, after which it begins to decrease (Härkönen, 2014; Andersson, 1997). Possibly, a form of a similar weeding process that has been suggested to take place within cohabitation operates during the early years in marriage, and those couples that are mismatched or ‘drift’ into marriage are more likely to separate early on. In addition to this potential selection effect, as marital unions become older, the partners’ cumulative investments in the union supposedly increase – in terms of financial responsibilities, social networking, extended family relationships – which is expected to reduce the incentive to leave the union (Stanley et al., 2006). Finally, age at marriage has also been found to be associated with the risk of marital disruption: the younger the couple is at the time of marriage the higher the separation risk. This effect has been associated with younger people having conducted insufficient search on the marriage market, and that young people tend to be less mature and experienced than those who are older, resulting in poorer relationship choices (Lyngstad and Jalovaara, 2010).

In our regression models we include and control for these demographic covariates discussed (premarital childbearing, parity, and age of youngest child; duration of the marital union, and age at marriage) to get a more detailed account of the potential impact our main event of interest (registered cohabitation) has on marital disruption risks of Icelandic women. Additionally, we include calendar year in our calculations, and we present annual indices of the relative risks of marital dissolution in Iceland 1995–2013. This allows us to estimate whether there have been any behaviour changes over time during the study period. At least to an extent, dominating theories in the family-demographic literature expect union instability to increase over time, for example, because of increased individual autonomy (Lasthaeghe, 2010; Surkyn and Lesthaeghe, 2004). However, as Iceland appears to have progressed quite far in terms of the sociological parameters included in these frameworks (see e.g. Jónsson, 2021, 2020), we do not necessarily expect to find considerable increases in the propensity to separate over time in Iceland. If anything, considering that Iceland is supposedly well established in a second part of a proposed gender revolution (Goldscheider et al., 2015), we could anticipate finding reduced divorce risks over time as the gender perspective expects greater family stability as societies become more gender equal (Esping-Andersen and Billari, 2015). However, any inferences about the development during the last years of observations should be taken with a pinch of salt as in 2008, Iceland experienced a major economic crisis when the financial system collapsed. Unemployment increased seven-fold, and the exchange rate of the Icelandic currency was cut in half, resulting in a massive drop in the public purchasing power (Einarsson et al., 2015; Directorate of Labour, 2015; Statistics Iceland, 2024). As such economic turmoil could engender strains on marital unions through economic uncertainty and difficulties in fulfilling financial obligations (South 1985) we pay special attention to the developments at the time of the crisis; see Jónsson (2018, 2021) for a discussion about the economic crisis, and how it may have been associated with fertility decline, and a decrease in first-marriage intensities in Iceland, respectively.

Data and Methods

The data come from the administrative registers of the Icelandic National Registry. Statistics Iceland has provided us with a dataset derived from these registers, and that includes information about vital events for all women born in Iceland between 1962–1997 (i.e., month and year of birth of our subjects and their children, marriage, separation and/or divorce, any emigration and death, widowhood, and all registered cohabitation spells). Our data include life-event histories of 71,006 Icelandic women. In our analysis we follow women who formed their first marriage in 1994 onward and calculate the divorce risks of Icelandic women for the years 1995 – 2013. We exclude the year 1994 as any first marriages that were dissolved in that same year are of very brief durations. Marriages formed before 1994 are excluded from the analysis (left-censored). This gives us a total of 17,602 first-marriage formations, and 2,721 marital dissolutions to study between the years 1994 and 2013.

According to Icelandic law, the general procedure is that a six-month separation period is needed before a formal divorce is granted (Alþingi, 1993). In our calculations we rely on information about the month and year of separation (i.e., the date when couples move apart) rather than that of a formal divorce. The process of divorce can be a lengthy one and the date of union dissolution is more relevant to our investigation than the date when a formal divorce is granted. Only if no separation was registered do we use information about the date of divorce in the analysis (under certain circumstances, couples can get a divorce without any separation period preceding it (Alþingi, 1993)). As our data stem from population-based administrative registers we do not have to rely on the memory of our subjects and sampling biases are of no concern. Any limitations to the dataset are that it is restricted to women – we do not have any information about men – and we do not have any information about the socioeconomic status of our subjects or other related variables.

We use eight variables in our calculations, in addition to information used for censoring purposes – i.e. subject's age and calendar years, and if appropriate: time of death, emigration and widowhood. The first and main variable is premarital registered cohabitation, a time-fixed covariate categorized into two groups: Direct marriage that was not preceded by registered cohabitation; and a registered cohabitation that was later transformed into first marriage. The other premarital variable that we use in the calculations measures the presence of any premarital child(ren), a time-fixed covariate with two categories: premarital child(ren); and no premarital child. As we do not have information about fathers, we do not know if these children are biological children or stepchildren of the spouse. Consequently, we cannot provide any additional evidence either supporting or defusing the hypothesis that a stepparent and a biological parent are more inclined to divorce than two biological parents.

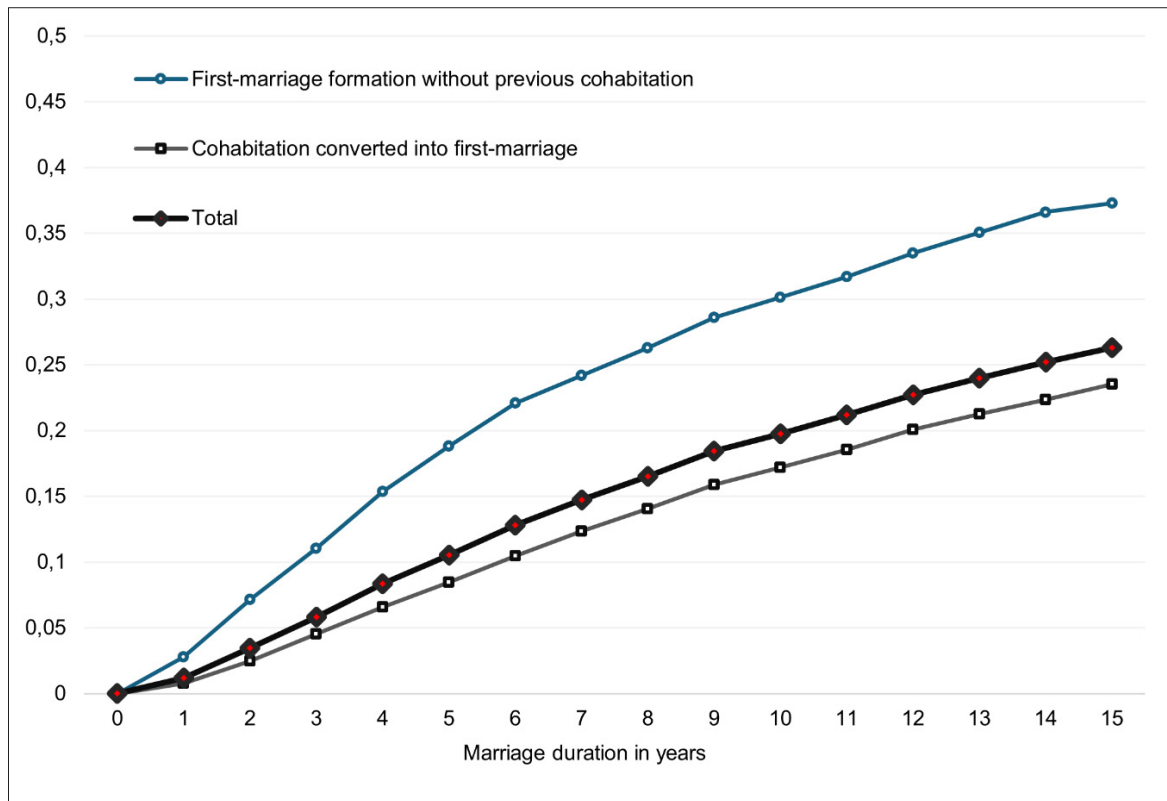
In terms of time-factors, duration of marriage is the main duration variable, split into eight groups of various length: The first three years are given in three single-year groups; the next six years are categorized into three groups of two years; and the last six years of observation are categorized into two groups of three years – a total of 15 years. Calendar year is included as a time-varying covariate categorized into 19 single-year groups (1995–2013). Age at marriage is a time-fixed covariate, categorised into five age groups: 16–20 years; 21–25 years; 26–30 years; 31–38 years; and 39–49 years. Parity is the first time-varying variable that we use to describe any variation in marital-dissolution risks in connection to the number of children. The covariate is divided into five categories, from parity 0 (no children) to parity 4+ (four children or more). Age of youngest child is the other time-varying child-factor of interest, categorised into eight groups: No child; pregnant; first year since birth; 1–2-year-old; 3–4-year-old; 5–6-year-old; 7–9-year-old; and 10-year-old or older. We start counting women as being pregnant seven months before they give birth. During the first weeks since conception, a woman (and her spouse) might not be aware of pregnancy. We thus allow for a two-month safety margin in the calculations.

We analyse the data by means of event history analysis. We employ two piecewise constant exponential models, each includes one of the time-varying child covariates described above but not the

other (i.e., parity and child-age). The models' estimates are presented as the relative risks of marital dissolution by each of the other five covariates discussed above, while holding the others constant. This allows us to investigate each factor without the interference of any of the others. Also, in terms of development in marital dissolution risks over time, the method allows us to account and control for any compositional effects that might influence the underlying behaviour between calendar-years periods, which enables us to present the dissolution risks as an annual index of the force of divorce and separation in Iceland during 1995–2013, relative to the risk in 2003. This is a well-established method, first proposed by Hoem (1991, 1993) and later extended by Andersson (1995; 1997; 1999) and Jónsson (2017; 2024). In our methodological approach we consider Andersson's (1997, p. 110) modelling of divorce risks as a frame of reference, in which paper he investigates the impact of children on divorce risks in Sweden.

Results

Figure 2. First-marital dissolution Kaplan-Meier cumulative probability estimates in Iceland, 1995–2013, by duration of marriage and premarital-cohabitation status



Source: Icelandic register data, author's calculations

The Kaplan-Meier nonparametric probability estimates, displayed in Figure 2, indicate that roughly one-in-four marriages in Iceland dissolve before the 15th wedding anniversary. Marital instability in Iceland thus appears to be similar to that of countries such as Sweden and France, but less pronounced than that of the USA and Russia (cf. Andersson and Philipov, 2002; Andersson et al., 2017). Furthermore, the estimates suggest that there is a vast difference between those women who marry without first registering cohabitation and those who convert registered cohabitation into first marriage. According to the estimates, around 23% of women who converted their registered cohabitation into marriage had separated fifteen years after first-marriage formation, compared to 37% of the first group of women (Figure 2). This is somewhat unexpected, considering research findings in different contexts, especially regarding how big the difference is in the two cumulative incidence

functions. Also, somewhat unexpected is that further analysis indicates that a smaller portion of women who had premarital child(ren) (26%) than women who remained childless at the start of their marriage (28%) had separated 15 years after first-marriage formation (Appendix, Figure A1). Hence, to a degree, the Icelandic patterns appear to deviate somewhat from established findings in other contexts and signal towards protective elements of registered cohabitation on subsequent marital stability. To get a better understanding of the association between registered cohabitation and later risk of marital disruption, we next present estimates derived from models where we control for demographic factors that may influence marital stability.

Relative risks of marital dissolution in Iceland, 1995–2013

In accordance to Figure 2, the estimates stemming from the first two models presented in Table 1 indicate that women who converted their cohabiting union into first marriage have lower propensities to separate than women who did not register cohabitation before first-marriage formation. Among this first group of women, the relative risk of marital dissolution is 51% of the risk of women who married directly (in other words: women who marry straightaway have almost twice the risk of separation than their cohabiting counterparts).

More detailed analysis (not shown) indicates that these findings are robust and hold over all our demographic covariates. After the inclusion of an interaction term into the models, allowing us to estimate the combined effects of registered cohabitation and premarital childbearing on later separation risks (Table 1, models 2), we find that women who remained childless but registered cohabitation before first-marriage formation have the lowest risk of marital dissolution, compared to other possible combinations displayed in Table 1. Relative to women who neither registered cohabitation nor gave birth prior to marriage, the estimated separation risk of this first group of women is around 70% of the separation risk of the latter, while women who gave birth prior to marriage but did not transform any registered cohabitation into first marriage are estimated to have about 2-3 times the risk of the reference group.

Table 1. Relative risks of marital dissolution for Icelandic women in their first marriage, 1995–2013, by calendar year, parity, age of youngest child, premarital-child status, premarital-cohabitation status, age at marriage, and marriage duration

	Parity model	Child-age model	Parity model 2	Child-age model 2
<i>Parity</i>				
0	1.96***		2.04***	
1	1 (ref)		1 (ref)	
2	0.79***		0.80***	
3	0.71***		0.71***	
4+	0.88		0.88	
<i>Age of youngest child</i>				
No child		1.39***		1.45***
Pregnant		0.27***		0.27***
First year		0.30***		0.30***
1-2-year-old		0.70***		0.70***
3-4-year-old		1 (ref)		1 (ref)
5-6-year-old		1.25***		1.24***
7-9-year-old		1.42***		1.41***
10-year-old and older		1.41***		1.38***

<i>Premarital child</i>				
No	1 (ref)	1 (ref)		
Yes	2.24***	1.49***		
<i>Premarital cohabitation</i>				
No	1 (ref)	1 (ref)		
Yes	0.51***	0.52***		
<i>Combination of premarital events</i>				
No premarital event			1 (ref)	1 (ref)
Premarital cohabitation, not birth			0.70***	0.71***
Premarital birth, not cohabitation			2.97***	2.01***
Premarital birth and cohabitation			1.27***	0.87*
<i>Age at marriage</i>				
16–20 years	3.26***	3.76***	3.37***	3.91***
21–25 years	1.74***	1.90***	1.74***	1.90***
26–30 years	1 (ref)	1 (ref)	1 (ref)	1 (ref)
31–38 years	0.72***	0.60***	0.71***	0.60***
39–49 years	0.44***	0.28***	0.43***	0.27***
<i>Duration of marriage</i>				
1–12 months	1 (ref)	1 (ref)	1 (ref)	1 (ref)
13–24 months	2.14***	2.11***	2.15***	2.12***
25–36 months	2.49***	2.27***	2.50***	2.28***
37–60 months	2.72***	2.23***	2.73***	2.25***
61–84 months	2.65***	1.89***	2.66***	1.90***
85–108 months	2.50***	1.56***	2.50***	1.57***
109–144 months	2.02***	1.10	2.02***	1.11
145–180 months	1.75***	0.84	1.75***	0.86
<i>Calendar year</i>	<i>See Figure A2</i>	<i>See Figure A2</i>	<i>See Figure A2</i>	<i>See Figure A2</i>

Source: Icelandic register data, author's calculations

Overall, premarital registered cohabitation thus appears to have stabilizing effects on marital unions in Iceland, suggesting that a more formalized form of cohabitation – perhaps somewhat of a formal version of a trial-marriage union – may reduce the risk of separation. At the very least, we find that couples that register cohabitation prior to first-marriage formation are less likely to experience marital disruption than couples that marry without registering their union first.

Shifting our focus to the other demographic correlates of separation risks included in our models, the estimates stemming from the parity-model presented in Table 1 show that premarital birth(s) are related to higher marital dissolution after controls are added for parity, registered cohabitation prior to first-marriage formation, calendar year, age at first-marriage formation, and duration of marriage. The risk of marital dissolution appears roughly twice as high for women with premarital child(ren), relative to women who did not have a child before first-marriage formation. This is an interesting finding, considering that roughly four-in-five first-born children in Iceland are born outside of marriage (Statistics Iceland, 2024), but not a surprising one with respect to the literature. The apparent controversy between the Kaplan-Meier cumulative probability estimates (see Appendix, Figure A1) and the multivariate model estimates are explained by higher probabilities of divorce at parity 0, which are by default removed from the premarital childbearing population. A further interaction demonstrates that for mothers at different parities, premarital childbearing is indeed associated with much higher divorce risks (Table 2).

Table 2. Relative risks of marital dissolution for Icelandic women in their first marriage, 1995–2013, by combination factor of parity and premarital birth. Standardized for calendar year, premarital-cohabitation status, age at marriage, and marriage duration

Combination factor of parity and premarital birth status			
Parity 0 (and no premarital birth)	1 (ref)		
Parity 1 and no premarital birth	0.47***	Parity 1 and premarital birth	1.19**
Parity 2 and no premarital birth	0.44***	Parity 2 and premarital birth	0.88
Parity 3 and no premarital birth	0.38***	Parity 3 and premarital birth	0.80***
Parity 4+ and no premarital birth	0.31*	Parity 4+ and premarital birth	1.01

Source: Icelandic register data, authors' calculations

Overall, the presence of children seems to decrease marital dissolution risks among Icelandic women, but this mainly holds for the minority of parents with no children born before first-marriage formation. Childless women have around double the dissolution risks of one-child mothers with no premarital birth (Table 2), and the propensities to separate continue to decrease with the next two children. For most parents who begin childbearing prior to marriage formation, the protective effects in terms of marital stability are much less pronounced.

The child-age-model estimates displayed in Table 1 indicate as well that dissolution risks are lowest among pregnant women and among mothers of children in their first year. The propensity to separate increases with the age of the youngest child, and when the youngest child turns five the dissolution risk has increased fourfold, relative to the risk when the child is under the age of one. With the inclusion of the interaction term between age of youngest child and premarital childbearing (Table 3) we demonstrate with more detail how the protective effect of having children is mainly confined to having a relatively newly born child. Again, we show that dissolution risks are higher when the event of becoming a parent precedes that of marriage formation, at comparable child ages. It also shows that the role of child age seems to be a stronger determinant of marital stability than both parity and the experience of having a premarital birth.

Table 3. Relative risks of marital dissolution for Icelandic women in their first marriage, 1995–2013, by combination factor of age of youngest child and premarital birth. Standardized for calendar year, premarital-cohabitation status, age at marriage, and marriage duration

Combination factor of age of youngest child and premarital birth status			
No child (no premarital birth)	1.22*		
Pregnant, no premarital birth	0.17***	Pregnant, premarital birth	0.41***
First year, no premarital birth	0.27***	First year, premarital birth	0.38***
1-2-year-old, no premarital birth	0.55***	1-2-year-old, premarital birth	0.95
3-4-year-old, no premarital birth	1 (ref)	3-4-year-old, premarital birth	1.28**
5-6-year-old, no premarital birth	1.35*	5-6-year-old, premarital birth	1.59***
7-9-year-old, no premarital birth	1.13	7-9-year-old, premarital birth	1.89***
10-year-old or older, no premarital birth	2.05**	10-year-old or older, premarital birth	1.84***

Source: Icelandic register data, author's calculations

After controlling for the age of woman's youngest child (Table 1), we observe a decrease in dissolution risks over the duration of marriage, compared to the model where we control for parity. After twelve years of marriage, the observed increase in the propensity to separate, established in the parity-model,

has vanished and the dissolution risks for women in their first year of marriage appear even higher than for those veterans who have been married for 13–15 years (and compared to 75% higher risks at this duration when we control for parity but not child's age). And, finally, in terms of age at first-marriage formation, our findings are also conventional: the younger women are at first-marriage formation, the higher the risks of marital break-ups. The propensity to separate among women who got married at ages 16–20 is 3–4 times higher than that of women aged 26–30, while women that got married in their forties have less than half of the separation risks of women in their late twenties.

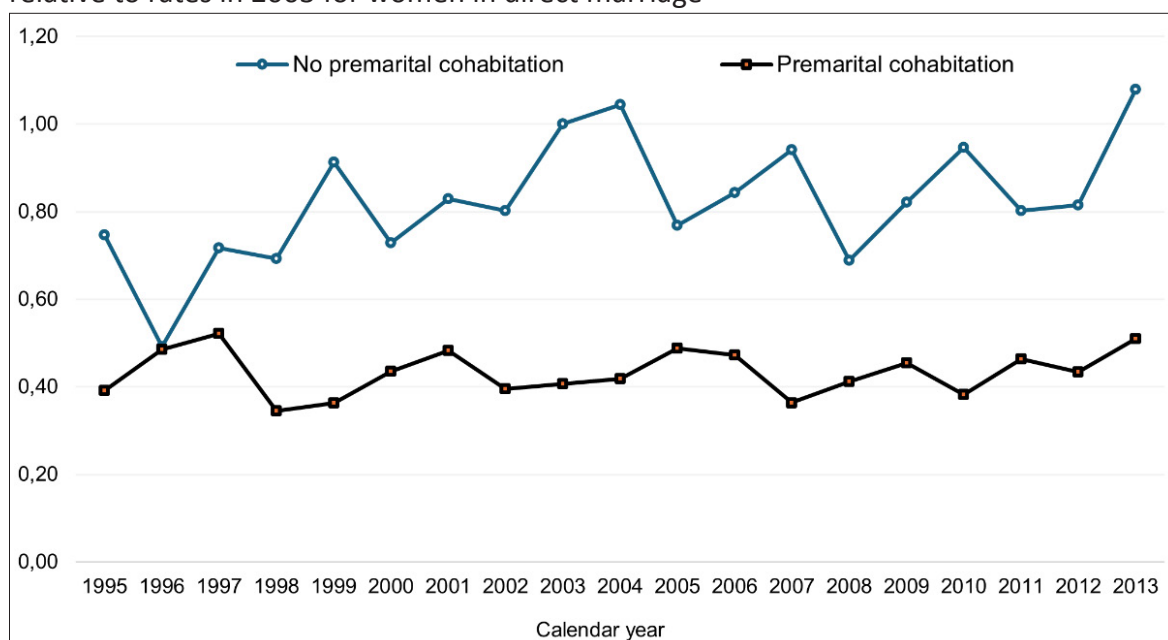
We conclude this section with an overview of the period trends in risks of marital dissolution and investigate whether the previously observed association between premarital cohabitation and marital-dissolution risks have changed over time.

Developments over time in marital-dissolution risks of Icelandic women

After controlling for our demographic covariates – age at marriage, duration of marriage, parity, and premarital childbearing – we observe considerable stability over time in the relative risk of separation among women who registered cohabitation before first-marriage formation (Figure 3). During 1995–2013 we observe some fluctuations in the standardized rates between calendar years, but no indications of any trends towards increased or decreased propensity to separate over time. Furthermore, we do not detect any significant changes in these dissolution risks during the economic crisis of 2008.

There is much more fluctuation in the relative risks of union dissolution among women that did not register cohabitation before first-marriage formation – partly due to smaller study population – and with some effort, one could interpret the rates as being slightly increasing over time, with somewhat of a small spike during the economic crisis. However, these observations may just as likely be linked to random variation in the rates over calendar years. These findings lead us to conclude that the behavior in terms of marital dissolution did not change to any considerable extent during the almost two decades of observation (1995–2013), and that we find scarce indications that the economic crisis influenced marital stability.

Figure 3. Relative risks of first-marital dissolution in Iceland 1995–2013, by premarital cohabitation history. Standardized for various demographic factors (see Table 1). Rates are relative to rates in 2003 for women in direct marriage



Source: Icelandic register data, author's calculations

Conclusions, study limitations, and final remarks

In our calculations we used information on registered cohabitation, a semi-formalized union type, to study for the first time the association between registered cohabitation and subsequent separation risks among Icelandic-born women. Presumably, couples that register their cohabitation intend to live together and are more committed to their union than people who merely share a residence. Hence, we assume that couples who register their cohabitation have already passed a first part of a potential screening process that possibly weeds out the least committed couples, allowing us to focus on couples that are more likely to conceive premarital cohabitation as a formal type of “trial marriage”. The registration of the union makes this possible as it provides couples with an official status without getting married.

As registered cohabitation has been found to be closely connected to first childbearing, this adds some complexities to our interpretation of the findings. However, after including a combination factor of these premarital events (childbirth and registered cohabitation) into the multivariate regression models, we demonstrate that our findings are robust.

Albeit the separation levels do not appear to be particularly low in Iceland, registered cohabitation seems to give birth to more stable marital unions: around 23% of women who convert premarital registered cohabitation into first marriage separate, compare to that of 37% of women who do not register cohabitation prior to first-marriage formation. Furthermore, after controlling for various demographic factors, the relative risk of marital dissolution among the latter group of women is almost double compared to that of their previously cohabiting counterparts. This is somewhat of an unconventional finding, especially considering the robustness of the association. The combination factor yields a decline of around 30% in subsequent separation risks for childless women who register cohabitation, compared to childless women who married straightaway. Hence, this informal policy of providing couples with an official status that is less formal than marriage appears to have (indirectly) lowered the official divorce rate of Iceland due to greater selection into marriage (see e.g., Kennedy and Ruggles, 2014). Considering the increasing popularity of cohabitation in most of the developed world, and that cohabitation has even become the normative way of starting a co-residential union in certain countries (Perelli-Harris et al., 2017), these findings may have consequences beyond the Icelandic context.

With the reservation that we did not provide any evidence for potential mechanisms at play, we interpret these findings as supportive of arguments such as the trial marriage hypothesis provides, suggesting that registered cohabitation helps to weed out couples of poor matches, and thus resulting in lower risks of marital break-ups. The increment in risks of marital dissolution among women who did not register cohabitation before getting married may be related to some kind of selection, but, considering the direction of the relationship, it does not appear to be connected to any conservative family values, as the hypothesis by Liefbroer and Dourleijn (2006) expects. Our findings suggest that in contexts such as the Icelandic one where premarital cohabitation is the norm, other considerations may be at play. Iceland is a highly secular country, and it is probable that a part of those who marry without registering cohabitation first deviate from the majority population in other ways than those related to religion or strong family values. Such deviations could instead be related to attitudes and general outlook on life: for instance, in terms of more spontaneous decision-making process and/or a less organized life-course schedules compared to those who register cohabitation prior to marriage. In Iceland, registered cohabitation appears to be the normative setting for (first) childbearing (Jónsson, 2021), and it is thus rather couples that have a child prior to marriage without first registering cohabitation that seem to deviate with a life course that may be less well planned than others. Also, for some people involuntary childlessness may matter. Couples not able to have a child may perhaps be less declined to register their cohabitation but instead decide to use marriage as a relationship solidifier in the absence of children. Under such circumstances unsuccessful fertility evaluations may lead to a higher likelihood of divorce (Kjaer et al., 2014). In our case, we leave

it to future research, with richer data that also include information on non-registered cohabitation, to investigate the validity of our inference and to explore any underlying cause-and-effect patterns behind the associations we observe.

As we used information about a specific type of cohabitation, a semi-formalized union compared to informal cohabitation that is commonly used in similar studies, we cannot generalize the findings beyond that of the Icelandic context. However, given the increased diffusion in cohabitation rates these findings may be relevant in terms of a prediction of what other societies can expect to experience: Providing people with a semi-formalized union-type, one that is not as formal and restrictive as marriage, might act as a bridge that could, implicitly, even have pro-natalist effects. If childless couples are less willing to make long-term commitments, such as marriage (Cantalini et al., 2023), but are provided with an opportunity to form a union that is protective in terms of the child but without many of the other restrictions marriage entails (see Jónsson, 2021), a union such as the Icelandic registered cohabitation could be used as a kind of blueprint.

Finally, we established that in terms of associations between marital stability on the one hand and childbearing and duration of marriage on the other, the Icelandic patterns appear similar to those of other countries. Nevertheless, as the role of the age of the youngest child appears to be a stronger determinant of marital stability in Iceland than both parity and the experience of having a premarital birth, it indicates that certain policy reforms in terms of support to families with young children might be warranted. As parents' divorce can have adverse effects on children (Guetto et al., 2022), as well as various intergenerational effects (Perelli-Harris et al., 2017), a more detailed investigation into the potential mechanisms at play would be insightful for future policy making.

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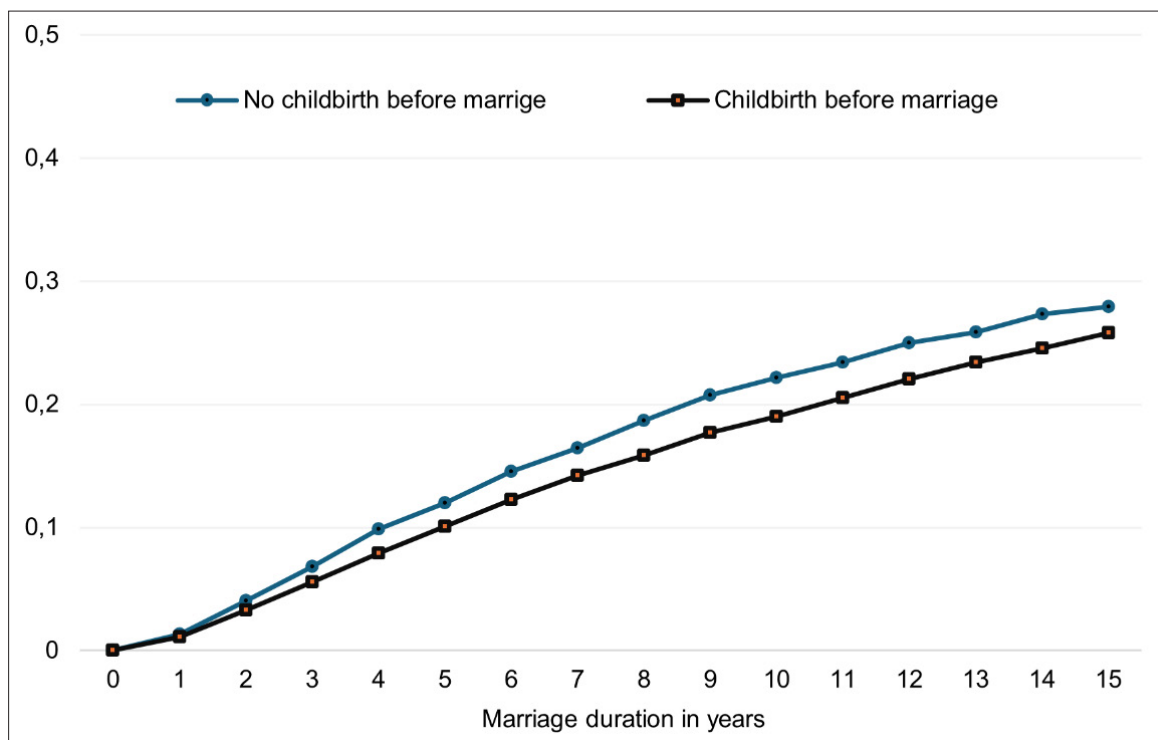
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Um höfund

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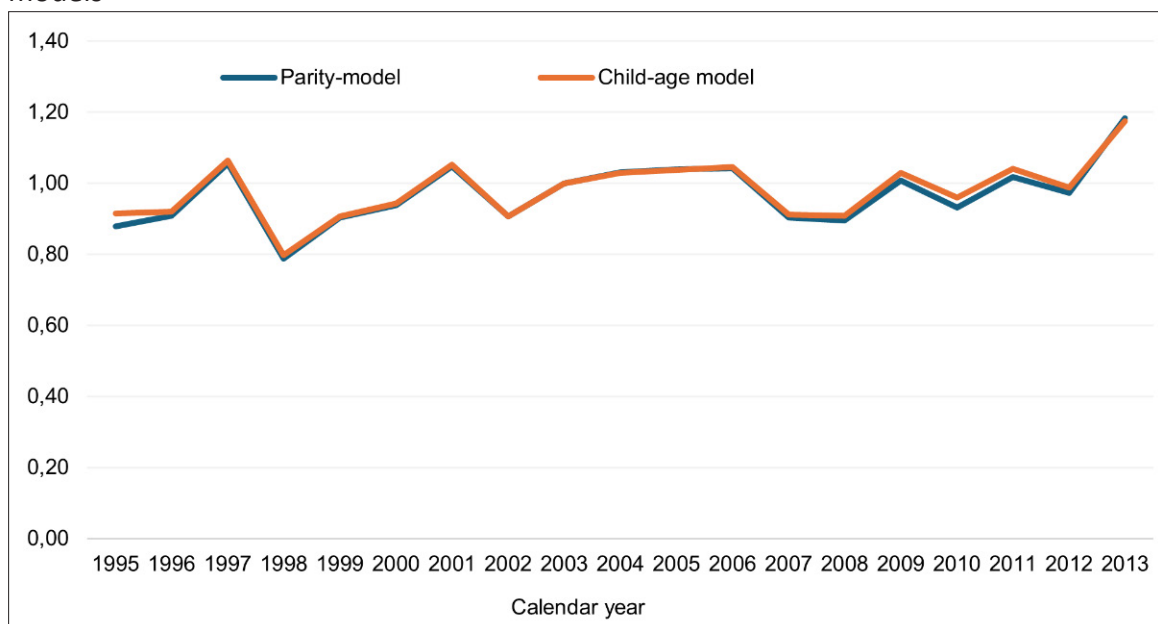
Appendix

Figure A1. First-marital dissolution Kaplan-Meier cumulative probability estimates in Iceland, 1995–2013, by duration of marriage and premarital-childbirth status



Source: Icelandic register data, author's calculations

Figure A2. Relative risks of first-marital dissolution in Iceland 1995–2013. Standardized for various demographic factors (see Table 1). Rates are relative to rates in 2003 in both models



Source: Icelandic register data, author's calculations