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Ari Klængur Jónsson

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Stockholm
University

Demography Unit

Friends or foes: Semi-formalized cohabitation and subsequent marital stability in Iceland, 1995-2013

Ari Klængur Jónsson

Stockholm University

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 register cohabitation thus enables us to investigate the proposed association from a somewhat different perspective. 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 administrative population register data in our calculations covering all women born in Iceland during 1962–2013, their childbearing and union histories. We analyse the data by means of event history techniques and present the results as relative risks of union dissolution. Our estimates indicate that premarital registered cohabitation in Iceland is associated with lower risk of marital break-ups, and that this finding is quite robust. We do not detect any changes in the relationship during the study period (1995–2013). We interpret the Icelandic-specific findings in support of a trial marriage hypothesis, suggesting that semi-formalized cohabitation results in lower risks of divorce.

Keywords: Marital stability, divorce, premarital cohabitation, premarital childbearing, Iceland

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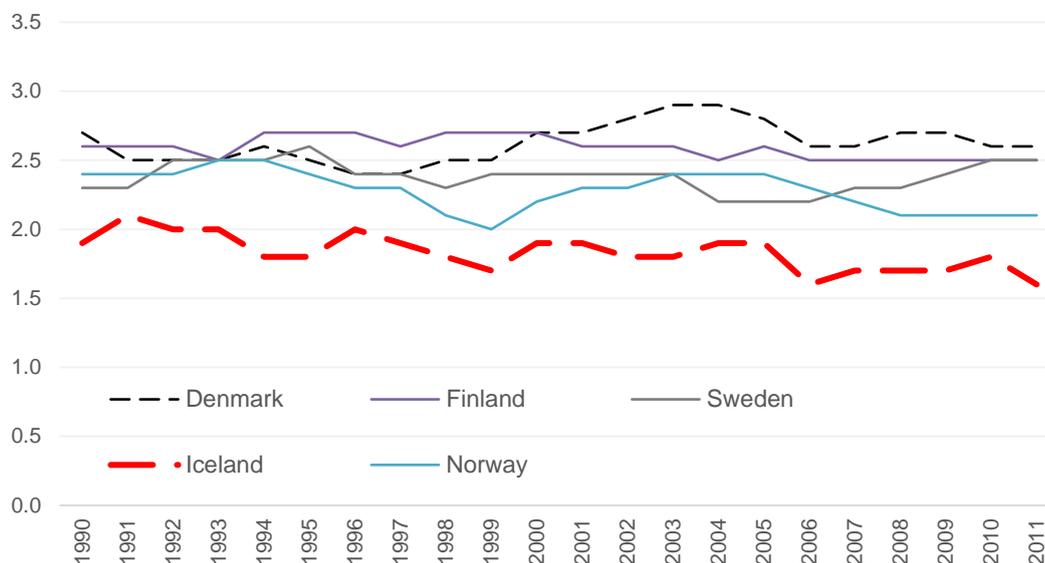


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Background

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); 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 (Andersson 1997; Liu 2002; Kravdal 1988; Waite and Lillard 1991). 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 2019 (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 rates¹ 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. With regard to nonmarital cohabitation and nonmarital childbearing, Iceland has 'progressed'

¹ 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).

furthest among all European countries where about 70 percent of all births are to unwed mothers, as are 83% of all first births (Eurostat 2020). 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 2019 for a detailed discussion). We believe that data on this union type, an enhanced version of informal cohabitation, provides us with an opportunity to explore and expand our knowledge about the (potential) association between nonmarital cohabitation as a potential trial marriage and subsequent marital dissolution. About 80% of Icelandic-born women register cohabitation before any first-marriage formation or age 46 (Jónsson 2019), and in majority of instances a registered cohabitation is later transformed into marriage (ibid).

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 the 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 childbirth (Jónsson 2019), 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. Our findings may thus provide some additional fragments of knowledge to our understanding of the association between premarital cohabitation and later risk of marital disruption.

The main objectives of the study are to use the advanced Icelandic context and the semi-formalized version of cohabitation to explore the impact premarital cohabitation has on later relative risks of marital break-ups, and to investigate whether any relationship we find have changed over time. In order 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 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 underlying 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 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 main focus is on registered cohabitation, priority is given to theoretical arguments concerning the potential impact 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 trial marriage theory and 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 (Liefbroer and Dourleijn 2006; Lillard et al. 1995). 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 instead are more likely to experience marital break-ups than those who do not (Wagner and Weiss 2006; Hoem and Hoem 1992). 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 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 disappears (Lillard et al. 1995; Woods and Emery 2002); or even finds that premarital cohabitation decreases the risk of marital break-ups (Kulu and Boyle 2010; Svarer 2004).

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, 206). 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 the vast majority of Icelandic women register cohabitation before any first-marriage formation (Jónsson 2019). Those who marry straightaway would thus be, according to the argument, a 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 (Hoem and Hoem 1992; Kravdal 1988; Liu 2002). For instance, in Sweden, a country similar to 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 (Härkönen 2014; Waite and Lillard 1991). 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).

Finally, drawing on empirical evidence suggesting a protective effect of having children on marital stability, and that the potential effect is stronger as the child is younger, 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, in addition to different children's composition, than those 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 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 (premarital childbearing, parity, and age of youngest child; duration of the marital union, and age at marriage) in order 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. For a comprehensive overview of various correlates of divorce, see Lyngstad and Jalovaara (2010), Almato (2010), and Härkönen (2014). 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, as a consequence of increased individual autonomy (Lesthaeghe 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 2019), 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 to find reduced divorce risks over time as the gender perspective expects greater family stability as societies become more gender equal (Esping-Andersen and Billari 2015).

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 2019). 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 for a discussion about the economic crisis, and how it may have been associated with fertility decline (2018), and a decrease in first-marriage intensities in Iceland (2019).

Data and Method

Our 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 onwards, 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 (Act on Marriage 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 registered² do we use information about the date of divorce in the analysis. As our data stem from population-based administrative registers we do not have to worry too much about statistical power. We do also not have to rely on the recall 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 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

² Under certain circumstances, couples can get a divorce without any separation period preceding it (Act on marriages 1993).

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 step-children of the spouse. As a consequence, we cannot provide any additional evidence either supporting or defusing the hypothesis that a step-parent and a biological parent are more inclined to divorce than two biological parents. Nevertheless, the vast majority of children in our data are most likely biological children of their social fathers.

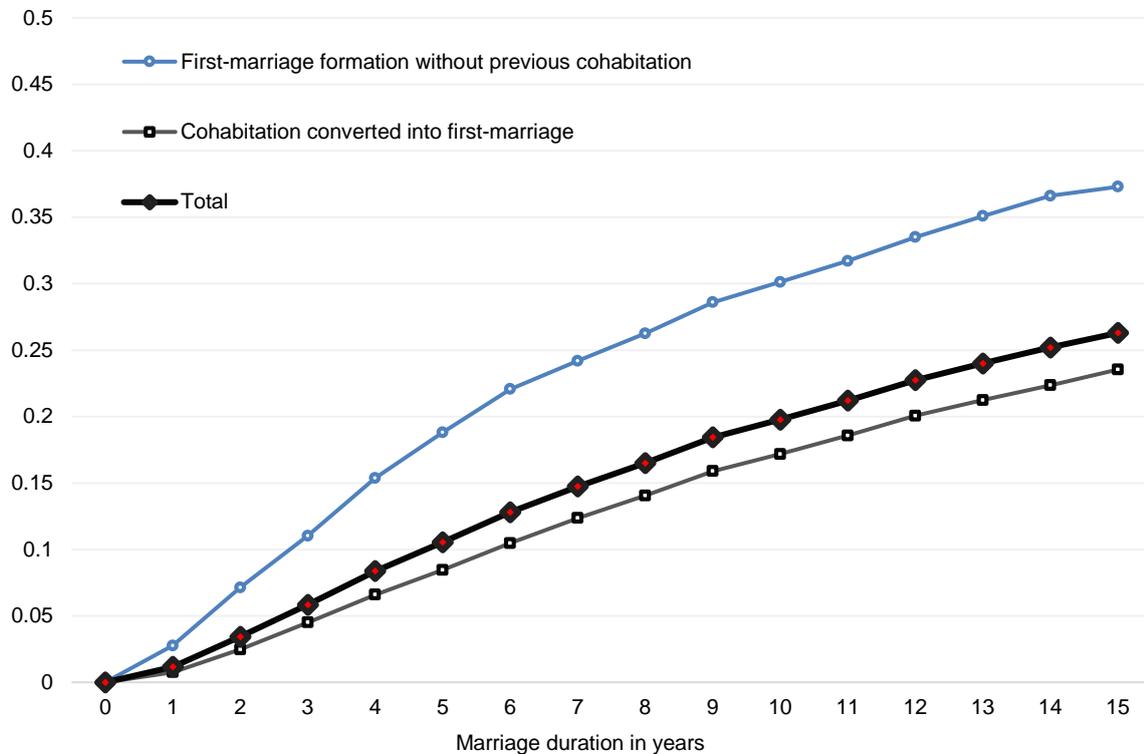
In terms of time-factor, duration of marriage is the main duration variable, split into eight groups of various length: The first three years are given in three single-year groups; the next six years are categorized into three groups of two years; and the last six years of observation are categorized 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 in order 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 birth³.

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) in a series of publications. 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 – a country that is similar to Iceland in terms of history, culture, and institutional settings.

³ 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.

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. 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 do deviate somewhat from the established findings in other contexts. In order to get a better understanding of the association between premarital 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

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
Parity				
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	
Age of youngest child				
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***
Premarital child				
No	1 (ref)	1 (ref)		
Yes	2.24***	1.49***		
Premarital cohabitation				
No	1 (ref)	1 (ref)		
Yes	0.51***	0.52***		
Combination of premarital events				
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*
Age at marriage				
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***
Duration of marriage				
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
Calendar year	<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

In accordance to Figure 2, the estimates stemming from the first two models presented in Table 1 indicate that women who converted their cohabitation 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) indicate that these findings are robust and hold over all of 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 or 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. Overall, premarital registered cohabitation thus appears to have stabilizing effects on marital unions in Iceland, suggesting that a more formalized form of cohabitation where people intend to live together – perhaps somewhat of a formal version of trial marriage – 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 2019), 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, author’s 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 the majority of 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 mainly is 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

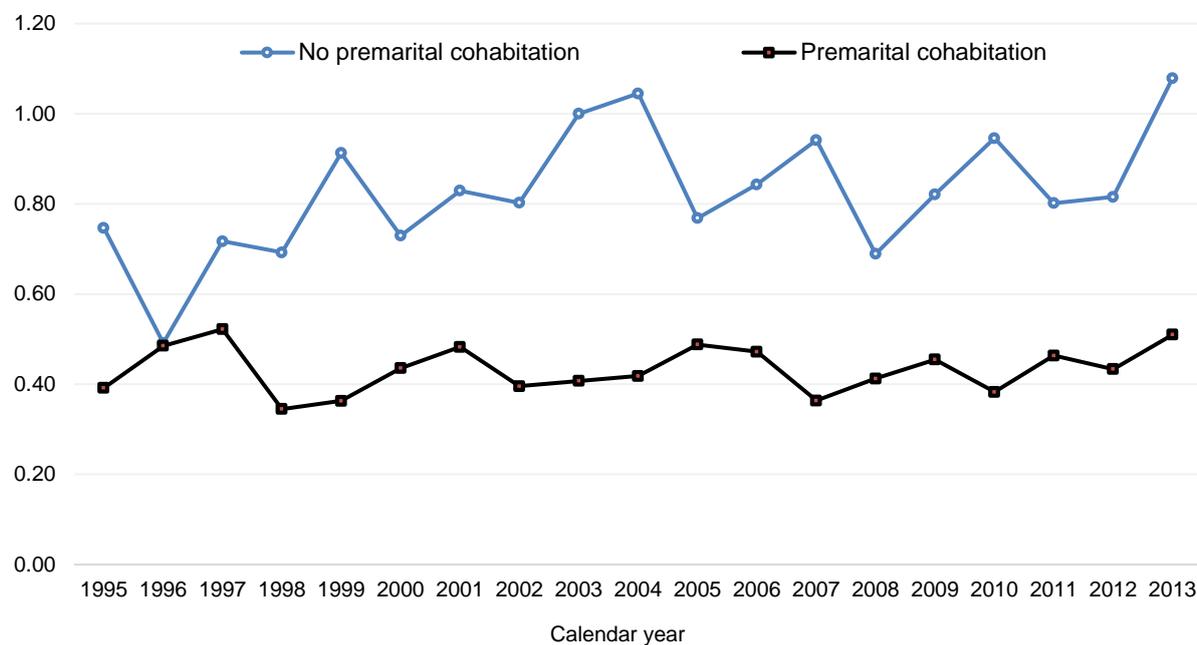
dissolution risks over the duration of marriage, compared to the model where we control for parity. After twelve years of marriage, the observed increase in the propensity to separate, established in the parity-model, has vanished and the dissolution risks for women in their first year of marriage appear 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).

Finally, in terms of age at first-marriage formation, our findings are also fairly 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

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

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. 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 when the crisis hit.

Conclusions, limitations and final remarks

In our calculations we used information about registered cohabitation, a semi-formalized union type, to explore the association between premarital cohabitation and subsequent separation risks among Icelandic-born women. Around four-in-five women register cohabitation before first-marriage formation or age 46 (Jónsson 2019), and this data source enables us to reflect on the suggested relationship from somewhat different perspective than has been done previously. 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”. 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 cohabitation) into the 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 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 risks 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 aforementioned combination factor yields a decline of around 30% in subsequent separation risks for childless women

who registered cohabitation, compared to childless women who married straightaway.

With the reservation that we did not provide any evidence for mechanisms at play, we interpret these findings in this specific context as supportive of the Trial Marriage Theory expectations, 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.

In Iceland, registered cohabitation appears to be the normative setting for (first) childbearing (Jónsson 2019), and it is 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 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.

We also investigated the association between premarital cohabitation and subsequent separation risks over calendar time to detect if there have been any changes in the patterns found. In short, we found scarce evidence of any such developments. The standardized separation rates remained relatively stable during the study period (1995–2013); we did also not detect any sudden changes during the economic crisis that hit Iceland in late 2008, and our premarital-cohabitation-specific subpopulation rates did not evolve much differently than that of the total population.

As we used information about a specific type of cohabitation, a semi-formalized union compared to informal cohabitation, we cannot generalize the findings beyond that of the Icelandic context, or exploit them as a prediction of what to expect in other societies. We do not know if the protective influence premarital cohabitation appears to have on marital stability in Iceland only applies to registered cohabitation or to cohabitation in general, and we cannot assert whether the association found is a recent development or if this semi-formalized type of union has been negatively associated with marital dissolution as long as it has existed in Iceland. Future studies could address these issues with different kinds of data, looking at the interplay of childbearing, informal cohabitation, registered cohabitation, first-marriage formation, and subsequent divorce risk.

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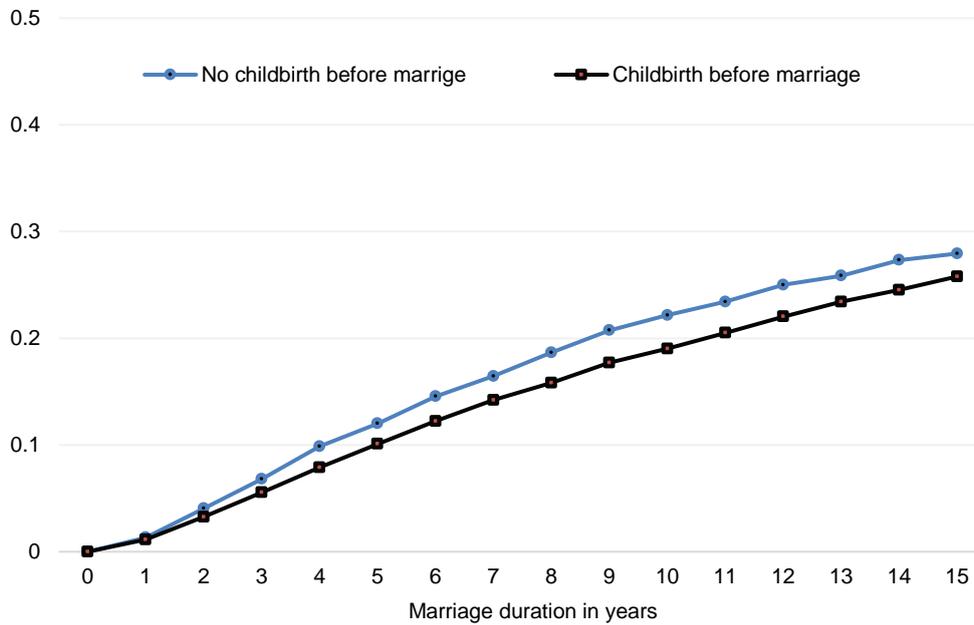
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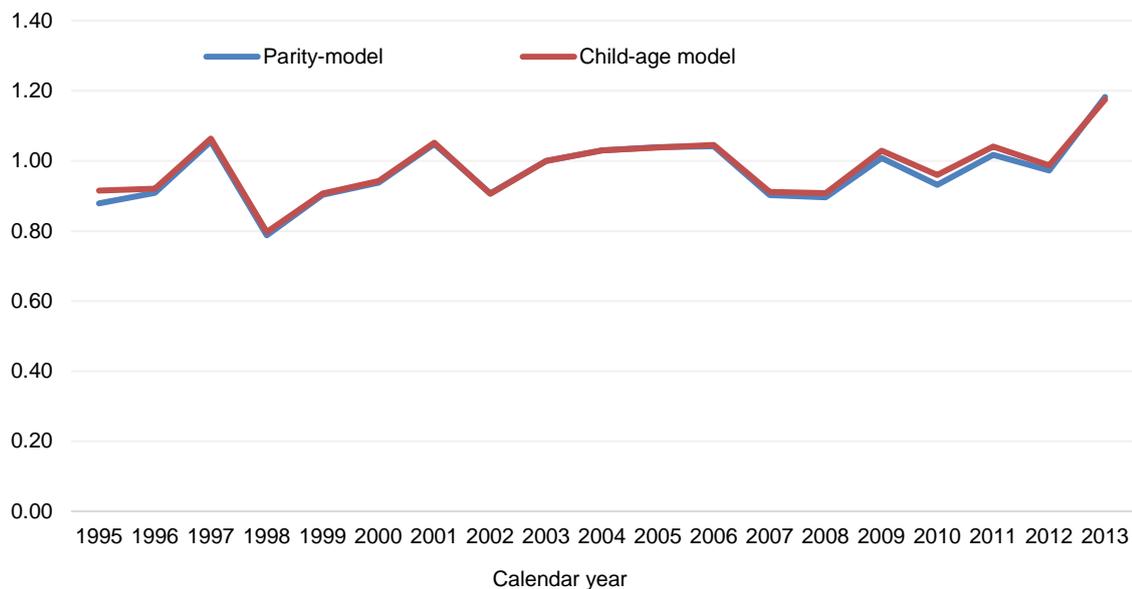
Appendix

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

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