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Partnership dynamics and entry into parenthood: Comparison of Finnish birth cohorts 1969–2000

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Abstract

During the past decade, the stability of close-to-replacement-level fertility ended in all Nordic countries, with the decline to the lowest level in Finland. Whether and how partnership dynamics have changed and whether they play a role in fertility developments is not clear. We focus on patterns of and associations between the formation and stability of co-residential partnerships and first birth, and whether and how they have changed across recent Finnish birth cohorts. We use total population register data on women and men born between 1969 and 2000 in Finland, and event history methods. The results indicate that half of the women formed their first co-residential partnership by the age of 22. Cohorts born in the early 1990s were the first to delay the formation of non-marital first partnerships. By contrast, first birth is increasingly postponed, and the proportion of women and men who ever become parents has declined across recent cohorts. Among men, we observe higher median ages for family formation events and a higher likelihood of not forming a family. As a result of the fertility decline and increase in partnership instability, the probability of separation among partnered women born in the 1990s is for the first time higher than the probability of first birth. Our findings show that at a behavioural level, the once close link between partnership formation and parenthood has progressively eroded across consecutive birth cohorts. Together with the ongoing tendency to delay first birth, decreasing partnership stability, and first indications of delaying partnership formation, the potential of witnessing a marked increase of fertility levels in the near future is delimited. The results contribute to a better understanding of the demographic mechanism behind the decline in fertility in Finland over the recent decade.

Keywords: partnership formation; first birth; partnership stability, register data, event history, Finland.

1. Introduction

Demographically advanced populations have gone through major changes in family patterns since the 1960s and are experiencing fertility declines to below replacement levels (Lesthaeghe, 2020; Sobotka & Toulemon, 2008). From a period perspective, fertility levels may also drop due to short-term fluctuations (Kohler et al., 2002; Sobotka, 2017a). In turn, declines in the ultimate number of children born to consecutive cohorts implies that fertility levels remain low in the long run. Such declines have been witnessed to varying degrees in most advanced societies (Frejka, 2017; Frejka & Calot, 2001; Hellstrand et al., 2021; Myrskylä et al., 2013). In low fertility settings, transitions to first and second birth are increasingly important contributors to cohort fertility levels (Zeman et al., 2018). Increasing lifetime childlessness, in particular, can push fertility to low levels (Hellstrand et al., 2020). In addition, the postponement of parenthood (Beaujouan, 2020; Sobotka, 2017a) has fuelled the fall in period fertility in many regions, while its impact on complete cohort fertility is not always straightforward (Beaujouan & Toulemon, 2021). The timing of first birth becomes an increasingly important factor that will shape contemporary fertility levels as the trend towards later parenthood continues.

Literature addressing the drivers of fertility change in advanced societies tackles a variety of factors that operate at an individual and couple level, but also different societal (macro-level) antecedents of changes in fertility rates (Balbo et al., 2013). Changing partnership patterns, particularly the increase in non-marital cohabitation and childbearing in cohabitations together with declining marriage rates and the increase in separation and divorce, are considered characteristic of a low fertility regime (Lesthaeghe, 2020). Although ample scholarly attention has been paid to the changing meanings of cohabitation and marriage in connection to childbearing (Heikel et al., 2014; Heuveline & Timberlake, 2004; Holland, 2017; Kiernan, 2004; Perelli-Harris et al., 2012), its link to low fertility is not straightforward. For instance, Billari and Kohler (2004) showed that higher aggregate levels of non-marital childbearing may relate to somewhat higher fertility. Having a partner is a strong predictor of entering parenthood (Baizan, 2003; Brien et al., 1999), while never partnering and partnership instability are associated with ultimate childlessness (Jalovaara & Fasang, 2017). Thus, in countries where the dominant mode of partnership has changed to non-marital cohabitation, it is increasingly relevant to address all co-residential partnerships, regardless of marital status, when investigating family dynamics.

In this study, we analyse cohort trends in the timing and incidence of partnerships, entry into (biological) parenthood, and the stability of co-residential partnerships among Finnish women and men. This study contributes to the literature in several ways. First, we complement previous research by analysing how trends in partnership formation and dissolution on one hand, and timing of first birth on the other hand, come together and produce shifts in previously strong links between partnership formation and parenthood. Second, our study covers trends among cohorts born since the mid-20th century. We compare family formation patterns among those born during the 1980s and the 1990s—whose behaviour with regard to family and fertility exerts an increasingly important influence on fertility trends during the 2020s—with those born in the 1970s. We review studies addressing cohort trends in the Nordic region to reflect, where possible, trends among preceding cohorts. Third, we focus on Finland, a Nordic country that is often considered a forerunner in changes in family dynamics, and a country where fertility has recently declined to even lower levels than other Nordic countries (Hellstrand et al., 2020; 2021) and where levels of lifetime childlessness are remarkably high (Jalovaara et al., 2019). Last, our analysis is based on exceptionally rich register data that enables a longitudinal, individual-level analysis of family dynamics, including entries into and exits from childless and non-marital cohabitations. Our analysis focuses on women, but to gain insight into how the extent of the timing of events varies by gender, we also report on the same information for men.

2. Theoretical perspectives

Theoretical literature has identified various drivers of fertility at a societal, individual, and couple level. At a societal level, the debate is whether, and how, the drop of sub-replacement fertility to very low levels may be bypassed with social policies and a supporting welfare regime (Andersson, 2000; Neyer, 2013; Wesolowski & Ferrarini, 2018). A related discussion focuses on how a normative setting and policies that support gender equality can promote fertility (Goldscheider et al., 2015; Rindfuss et al., 2016). To what extent fertility levels respond to economic cycles (Adsera, 2011; Comolli et al., 2021; Sobotka et al., 2011) or global uncertainty (Vignoli et al., 2020) are often addressed in the literature. Such structural factors have been conceptualised as ‘indirect determinants’ of fertility, whereas living in a stable sexual partnership and contraceptive behaviour within a partnership are regarded ‘proximate determinants’ of fertility (Bongaarts, 1978). Although some children are born to unpartnered mothers, for most women, having a partner is a prerequisite for childbearing.

Therefore, entering and remaining in a partnership are crucial components of the debate on childlessness and low fertility (Keizer et al., 2008).

A prominent theoretical framework that addresses partnership dynamics, living arrangements, and childbearing in connection to demographic change, is known as the *second demographic transition* (SDT) theory. The concept was formulated in the 1980s (Lesthaeghe & Van de Kaa, 1986; Van de Kaa, 1987) and developed during subsequent decades (see Lesthaeghe [2010, 2020] for state-of-the-art summaries). The SDT framework builds on the observation that after the mid-1960s, advanced industrialised societies experienced a major alteration in demographic patterns. The transformation was most explicit in the family domain, where a retreat from a pattern of almost universal marriage, trends towards later entry into parenthood, an increase in non-marital cohabitation and childbearing in cohabitations, rising levels of separation and divorce, as well as repartnering after partnership breakup, were among the changes that presented a clear contrast with the family dynamics characteristic to the previous period (Lesthaeghe & Lopez-Gay, 2013; Lesthaeghe & Neels, 2002). The theory predicts that these changes in the domains of childbearing and partnership introduce a new regime of sustained sub-replacement fertility (Lesthaeghe, 2010; Sobotka, 2008, 2017a). This prediction differs from the (first) demographic transition framework (Kirk, 1996) that foresaw fertility fluctuating at a replacement level as a characteristic of the new reproductive regime.

Nordic countries are recognised as forerunners in the new reproductive regime where the two main dimensions of the SDT—the increasing flexibility of partnership and family forms and a tendency to postpone family formation—have evolved earlier than in other regions of the world (e.g., Lesthaeghe, 2010). Over thirty years of empirical observations in various country contexts have helped to distinguish regional features of family change showing that the two dimensions of the SDT might be more independent than originally thought (Puur et al., 2012; Sobotka, 2008). Currently the simultaneous rise in non-marital cohabitation and fertility postponement is recognised as a specific feature of the SDT in Nordic countries rather than a universal pattern (Lesthaeghe, 2020). Interestingly, the recent decline in fertility in Nordic countries cannot be easily explained by socioeconomic changes or other structural factors (Comolli et al., 2021). This inspires one to search for possible alternative or complementary factors that may have contributed to fertility decline in the Nordic countries.

Life-course approach is a theoretical framework that complements SDT in that it examines links between demographic events by focusing specifically on the life histories of individuals.

From this perspective the question whether a person has (biological) children during their life or remains childless is linked to various demographic events, such as partnership formation and dissolution, that occur during their reproductive years (Buchmann & Kriesi, 2011). The approach highlights the timing, incidence, and sequencing of such events. Similar to the SDT framework, the life course approach seeks to understand whether and how the pattern changes over time or across cohorts and to what extent the process varies between societies and social groups (Van Winkle, 2017).

From a life course perspective, changes in partnership dynamics associated with SDT have consequences on the ways cohorts reaching adulthood in low fertility regime experience the processes of family formation (Billari & Liefbroer, 2010; Billari & Wilson, 2001; Brückner & Meier, 2005; Hofäcker & Chaloupková, 2014; Kuijsten, 1996). On one hand, life courses, and family formation patterns in particular, may become less similar as the likelihood of experiencing different life course events, as well as the variation in the age when events happen and the duration of life stages, increases (Brückner & Meier, 2005; Elzinga & Liefbroer, 2007). On the other hand, these variations might decrease once the shift away from the former standard pattern of family formation turns into majority behaviour (Hofäcker & Chaloupková, 2014). Within the SDT framework, a shift away from a former standard is conceptualised as a temporary phase of divergence caused by a variation in the onset of the transformation of family patterns. The decreasing variation in family patterns among more recent generations that has been witnessed in the Nordic context (Elzinga & Liefbroer, 2007; Hofäcker & Chaloupková, 2014; Van Winkle, 2020), possibly signals that these populations are approaching a new phase of behavioural convergence in the family domain. This possibility motivates us to monitor patterns in family formation among subsequent birth cohorts in Finland with the goal of identifying features of the new behavioural standard.

3. Review of recent empirical evidence

3.1. Timing and incidence of events

As a general trend, events marking the stages of family formation have been postponed to later ages in Europe and other advanced societies, but not all events are postponed to the same extent (Billari & Liefbroer, 2010; Kohler et al., 2002; Sobotka & Toulemon, 2008). In this section, we review the main empirical findings covering cohort trends in entry into parenthood, partnership formation, and stability of co-residential partnerships. When relevant

and feasible, we distinguish between the mode of partnership—marital or non-marital. We ask whether a change in the timing of an event can be associated with changes in its prevalence among women and men in their reproductive years. The focus is on Nordic countries.

Entry into parenthood

Postponement of first birth is an ongoing trend in advanced societies (Billari, 2005; Frejka & Sardon, 2006; Kohler et al., 2002; Sobotka, 2017a) and one of the main characteristics of SDT. In Nordic countries, the systematic increase in the mean age at first birth started during the second half of the 1970s and is currently approaching the age of 30. Between 1975 and 2018, the increase ranged between five years in Sweden and six years in Norway (Human Fertility Database, 2021). Although period measures are readily available for comparative purposes, the drawback is that they summarise childbearing patterns of cohorts who are at different phases of their reproductive careers. During times of changing age patterns, a period view may not characterise properly the life course of consecutive birth cohorts. Andersson et al. (2009), who observed cohorts born in 1935–1969, showed that despite the overall similarity of fertility regimes in Nordic countries, there are variations in the onset of the fertility postponement. The postponement of first birth manifested first in Finland where the median age at first birth—the age at which 50% of a birth cohort have become mothers—had already started to increase in women born in the 1945s–1949s. In Norway, it started a decade later. Across all cohorts covered in the study, Finnish women had the highest median age of first birth, reaching age 28,8 among cohorts born in 1965–1969. The age-specific fertility rates reported by Hellstrand et al. (2021) suggest that postponement of first birth in Nordic countries continues in cohorts born after 1970, contrary to the earlier expectation that postponement might have reached a turning point (Andersson et al., 2009; Sobotka, 2017a).

Cumulative incidence of parenthood and ultimate childlessness

Postponement of parenthood may result in a decline in fertility in which case the biological reproductive window closes before (all) the intended children are born (Frejka & Sardon, 2006). At an individual level, biological, medical or social factors increase the risk of remaining childless for those who delay childbearing to higher reproductive ages (De Kat & Broekmans, 2018). At a population level, a higher proportion of those remaining childless does not necessarily correlate with delayed timing of first birth (see Beaujouan et al., 2017;

Nicoletti & Tanturri, 2008; Rowland, 2007; Sobotka, 2017b; Zeman et al., 2018). A long view on family patterns in Western countries reveals that high levels of childlessness are also characteristic to populations with earlier and higher reproductive schedules than the contemporary pattern (Kreyenfeld & Konietzka, 2017). Among cohorts born during the first two decades of the 20th century, for instance, it was common that up to quarter of women remained childless (Rowland, 2007). Finland, where 26% of women born in 1905–1909 were childless, fits this pattern. Cohorts born during the following three decades brought along a decline and later a stabilisation of childlessness at levels close to 14% or less in the Nordic countries (Sobotka, 2017b). Among post-war birth cohorts, the proportion of women who never bore children increased slightly, but the overall pattern stayed remarkably stable (Andersson et al., 2009). A marked increase in age at first birth did not bring about a similar increase in the level of childlessness in the cohorts born during the post-war period due to the successful recuperation of childbearing at older ages. Finland stands out in the Nordic comparison, because remaining childless has been more common. Still, in terms of trends, Finnish women followed the Nordic pattern until cohorts born in the 1960s and early 1970s. Among these cohorts, the level of childlessness started to increase in Finland, in contrast to the stability witnessed in other Nordic countries (Jalovaara et al., 2019; Sobotka, 2017b). A more detailed analysis has revealed that among cohorts born in the 1960s and 1970s in Finland, lifetime childlessness is more characteristic in men and women with low levels of education, but increases also among those with a medium level of education (Jalovaara et al., 2022).

Entry into partnership

One of the most remarkable changes is a shift in the mode of partnership. During this process, the share of partnerships starting as non-marital cohabitation increases, whereas the share of direct marriages, traditionally a more regulated and socially controlled form of partnership, decreases. The shift in the mode is also associated with the timing of partnerships, but the pattern varies across countries and sub-populations. In Nordic countries, the timing of non-marital cohabitation and the timing of marriage have moved in opposite directions. In cohorts born from the 1930s to the 1960s, the median age at first partnership formation and first marriage almost coincided at close to 23 years of age. Among cohorts born in the 1970s, first marriage was already delayed to ages over 30—nine years after entering their first partnership (Billari & Liefbroer, 2010). In a European comparison, women from the Nordic

countries born in the 1970s were among the youngest to enter first partnerships and among the oldest to marry. In European countries with lower incidences of cohabitation, the median age at first partnership has increased more rapidly among cohorts born in the 1960s and the 1970s and diverges less from the mean age at first marriage (Billari & Liefbroer, 2010; Prioux, 2006; Sobotka & Toulemon, 2008). In France, which together with the Nordic countries has been classified as the forerunner of SDT, the change in partnership patterns took place in two stages (Prioux, 2003). In the first stage, first marriage was postponed, whereas the first partnership was not. In the second stage, which starts with cohorts born at the end of the 1950s, the first partnership formation itself is delayed. Whether this two-stage pattern can also be found in a Nordic context remains to be clarified.

Cumulative incidence of partnership formation and ultimate singlehood

Several authors have characterised the change in partnership patterns as a retreat from marriage (Gibson-Davis et al., 2005; Sobotka & Toulemon, 2008). It refers to a situation where first marriage rates decline because entering marriage is postponed. Besides this change in timing, which represents a tempo effect on the marriage rates, it has become increasingly common to forego marriage, making a stronger case for a retreat from marriage. Based on Swedish register data, Holland (2013) demonstrated both tempo and quantum changes in marriage patterns among cohorts born between 1950 and 1977. Among younger cohorts, less than one third of women had married by the age of 30; among older cohorts, more than half had married by the same age and less than a quarter did not marry at all. Insights based on internationally comparative surveys confirm that the proportion of people who marry is also declining in other countries, although at a different rate (Holland, 2017; Prioux, 2006). In countries where the flexibility of partnership and family forms has increased to a significant extent, the retreat from marriage has not implied a retreat from partnership formation. For instance, in France the proportion of women who never formed any union continued to fluctuate between 5% and 7% in cohorts born in the 1930s to the 1970s (Prioux, 2003). Whether the long-term shifts in partnership formation have any impact on the share of never partnered in Nordic countries, especially among more recent birth cohorts, needs to be clarified.

Stability of partnerships

The declining prevalence of marriage and partnership might also occur when partnerships dissolve in separation and divorce at a higher rate. In a historical overview of the changing institutional context of marriage, Sandström and Garðarsdóttir (2018) demonstrated that in the Nordic countries the shift from a low to a high divorce rate occurred in two distinct stages (Sandström & Garðarsdóttir, 2018). The divorce rate per thousand married women reached its first peak just after the Second World War, and stabilised in the 1950s and early 1960s during the so-called *Golden Age of Marriage* (Goode 1963). A second, more rapid increase occurred in the 1960s and 1970s. It is the second increase in the divorce rate that is conceived as part of the retreat from marriage. While divorce rates in the Nordic countries have now stabilised (Eurostat, 2021; Sandström & Garðarsdóttir, 2018), the share of those who do experience partnership dissolution has not necessarily. As non-marital cohabitations tend to dissolve at a much higher rate than marriages (Jalovaara, 2013; Jalovaara & Kulu, 2018; Kailaheimo-Lönnqvist et al., 2021; Kiernan, 2001; Liefbroer & Dourleijn, 2006; Morosow et al., 2021; Perelli-Harris & Lyons-Amos, 2015), the high share of non-marital partnerships also boosts the rate of partnership dissolution. In Nordic countries, one third of partnerships dissolved within five years after initiation already among cohorts born in the 1960s (Liefbroer & Dourleijn, 2006). Partnerships started as cohabitation were driving the trend towards higher levels of union dissolution (Andersson, 2003; Andersson & Philipov, 2002; Andersson et al., 2017). A more detailed investigation reported particularly high separation risk during the first years of cohabitation followed by a significant decline in partnership duration, whereas break-up of marriage appeared less dependent on duration (Jalovaara & Kulu, 2018).

3.2. The association between partnership status and first birth

So far we have discussed changes in the timing and incidence of events related to family formation separately. From a life course perspective, it is also important to consider how the shifts in partnership formation, dissolution, and entry into parenthood come together and transform the linkages between partnership and fertility dynamics (Johnson et al., 2018; Perelli-Harris & Lyons-Amos, 2015; Winkler-Dworak et al., 2021).

Partnership formation and parenthood

Studies from Nordic countries and beyond have shown that partnership history of childless men and women tends to be specific in a sense that a majority of them either never partner, or

if they do, they partner for short episode(s) of cohabitation(s) rather than marriage (e.g., Keizer et al, 2008 [the Netherlands]; Hart, 2019 [Norway]; Raab & Struffolino, 2020 [Germany]; Jalovaara & Fasang, 2017 [Finland]; Saarelä & Skirbekk, 2020 [Finland]). Over time, changes in the timing and mode of partnership formation have created shifts in the pathways to parenthood (Guzzo & Hayford, 2020).

One of the changes that has attracted considerable attention is the ordering of life course events when it comes to marriage and parenthood (Eickmeyer et al., 2017; Hoem et al., 2013; Holland, 2013, 2017; Kiernan, 2004). The tendency that an increasing share of first births occur outside marriage is widely reported in European and American contexts (Baizan et al., 2003; Billari & Liefbroer, 2010; Kiernan, 2004; Klüsener et al., 2013). This pattern is well advanced in Nordic countries, particularly in Sweden, where one fourth of women in cohorts born during the 1940s became mothers without being married, while the share increased close to 60% in cohorts born in the 1970s (Billari & Liefbroer, 2010). In Finland, this pattern emerged somewhat later than in Sweden, but also there the proportion was already approaching 50% among cohorts born in the 1970s. Despite profound shifts in the ordering of events, a comparative study covering eleven countries in Europe during the period from 1970s to the early 2000s shows that the majority of women still married at some point around the birth of their first child (Perelli-Harris et al., 2012). Thus, even if marriage has been losing its role as a prerequisite for bearing children, it has maintained its role as a predominant context for rearing children and continues to be closely linked to initiating childbearing in many country contexts (Festy, 1980; Holland, 2017).

Although a majority of non-marital births occur within cohabitations (Perelli-Harris et al., 2012), the linkage between cohabitation and parenthood remains more ambiguous. This is primarily because cohabitation can mean different things in different countries, at different times, and for various sub-populations (Di Giulio et al., 2019; Heuveline & Timberlake, 2004; Hiekel et al., 2014; Hiekel & Castro-Martín, 2014; Kiernan, 2001; Koops et al., 2021; Vitali et al., 2015). Even in countries where cohabitation and childbearing within cohabitation are common, like in the Nordic countries, cohabitators still remain a heterogeneous group in terms of commitment and relationship satisfaction (Hiekel & Castro-Martín, 2014; Hoem et al., 2013; Wiik et al., 2009). The heterogeneity of cohabitators and the fact that some proceed to marriage shortly before entering parenthood affects the link between cohabitation and entering parenthood compared to the same association for

marriage. Still, both marital and non-marital cohabitation are informative when distinguishing those who do and those who do not share a home with a partner.

Partnerships without children

Although all partnerships are not biologically reproductive, the majority of childbearing decisions are made within a partnership. While only a small fraction of couples remains childless voluntarily without ever planning to have a child (McAllister & Clarke, 2000; Miettinen, 2010; Toulemon, 1996), couples do postpone parenthood for various reasons (Duvander et al., 2020). Thus, childlessness within a partnership may be understood as a stage in the reproductive life course, while both partners may still have a positive intention to have a child eventually (Berrington, 2017). Failure to realise fertility intentions, however, leads to involuntary childlessness. In Nordic countries, men and women tend to spend more time in childless partnerships compared to other Western countries (Andersson & Philippov, 2002). An increase in childlessness within partnerships is also reported in the Finnish context (Rotkirch & Miettinen, 2017). A recent comparative study demonstrated that the extent to which childlessness within cohabiting partnerships results from intended childlessness, or relates to an involuntary childlessness that couples experience due the excessive postponing of childbearing, could vary across country contexts (Fiori et al., 2017).

Research on childlessness increasingly recognises that remaining childless is a process that is embedded into the life course (Jalovaara & Fasang, 2017; Keizer et al., 2008; Mynarska et al., 2015). Among other life course events, separation or divorce increasingly interfere with reproductive careers. A steady increase in divorce risk, particularly among childless women, has been observed in Sweden since 1971 (Andersson & Kolk, 2015). Similarly, a Finnish study has reported the highest separation risk among women with no children (Jalovaara, 2013). The study also showed that the younger partners were during partnership formation, the higher the separation risk. On one hand, younger age at separation might smoothen the possible disruptive effect of separation on parenthood prospects as there is more time to find a new partner. On the other hand, works addressing serial cohabitators demonstrate that multiple partnerships during the early life course do not lead to successful reproductive careers (Andersson et al., 2022; Eickmeyer & Manning, 2018; Jalovaara and Fasang, 2017).

3.3. Research aim and expectations

In this study, we focus on patterns of and associations between the formation and stability of co-residential partnerships and first birth, and whether and how they have changed across cohorts born in Finland between 1969 and 2000. Women and men born in the 1970s are now very near to the end of their reproductive life course. The youngest cohorts born in the 1990s, in turn, are still at the beginning of their reproductive careers, but their early adult life courses can already be compared with those of earlier cohorts. Drawing from the SDT and the life course frameworks, and based on previous empirical findings, we formulated the following expectations.

Regarding timing and incidence of family formation events, we expect to observe:

(1) *Asynchronous age schedule*: The typical age for forming a first co-residential partnership, first marriage, and first birth differ markedly. Entry into first co-residential partnership occurs at a younger age than first birth, but it is not clear to what extent the timing of first marriage differs from the timing of first birth.

(2) *Differences in the cumulative incidence of events*: A comparison of the share of women who experience family formation events during their reproductive life course shows that marriage is the least common event, whereas forming co-residential partnerships is the most common. The cumulative incidence of first birth falls between the above two events.

(3) *Cohort trends*: Retreat from marriage (in terms of postponement and declining incidence) continues, but may show signs of stabilisation. The more recent cohorts continue to delay first birth, but additional postponement in these cohorts is likely to be modest, because cohorts born in the 1970s already have a relatively late first birth schedule. Recent trends in partnership dynamics are the least explored in previous research. We expect to see a stable age pattern across cohorts, but it is also possible that delays in experiencing other family formation events are coupled with the postponement of co-residential partnerships among more recent cohorts. It is also not clear whether the large asynchronicity of age schedules of family formation events persists among more recent cohorts or shows signs of decrease.

Regarding family dynamics within partnerships, we expect to observe:

(4) *Entry into parenthood within partnership*: The interval between partnership formation and first birth increases among the more recent cohorts. The delay of first births within partnerships is mainly a characteristic of first co-residential partnerships.

(5) *Separation risks*: Separation risks are likely to be higher among the more recent cohorts resulting in more short-lived partnerships. Partnerships increasingly dissolve before first birth, and the share of first partnerships remaining non-reproductive increases.

4. Data and method

4.1. Data

We use high quality individual level register data covering the total population of Finland since 1970 compiled at Statistics Finland (TK-53-731-16). The data include childbearing and partnership histories at a monthly precision level.

Finnish register data are exceptional in that they include (since 1987) information on not only marital but also non-marital partnerships. Finnish registers contain information on the place of residence down to the specific dwelling, thereby enabling the linkage of individuals to co-residential different sex couples. A co-residential couple is defined as a man and a woman who are registered as domiciled in the same dwelling for over 90 days, who are not close relatives, such as siblings or a parent and a child, and whose age difference is no more than 20 years or who have shared children. Non-cohabiting partnerships or same-sex unions be captured. For more details on inference of co-residential partnerships, refer to the work of Jalovaara and Kulu (2018).

In our analysis of partnership dissolution, we considered a cohabiting couple being separated from the date of moving apart and a married couple being separated from the date of moving apart or judicial divorce, whichever came first. In cases where co-residential couples experienced short breaks when partners did not appear to live at the same address in the register, but continued living together afterwards (without living with another partner in between), we considered this partnership to be continuous despite this ‘technical’ break.

The 1969 birth cohort is the first one for which we have full histories of co-residential partnerships since the age of 18. Therefore, we focused on women and men born in 1969–2000 who were observed between 1986 and 2018. We excluded data on those born outside Finland. By focusing on native-born individuals, the study follows the logic of a true birth cohort analysis; that is, the idea that cohorts of individuals born in a certain region are followed throughout their adult lives. To detect gender differences in timing and incidence of family formation events we analysed women and men separately. When presenting empirical

results we focus on women, and the results for men are presented in the supplementary material.

4.2. Method and analytical approach

This study employs an event history analysis, where individuals are followed from the time they become at risk of experiencing an event of interest until the event occurs or until censoring, whichever comes first. The complexity of patterns in contemporary life course with its variety of family formation trajectories challenges the method that conventionally focuses primarily on one event at a time. One way to increase methodological flexibility is to analyse competing risk situations with several pathways out of the original state (Coviello & Boggess, 2004). Other analytical solutions combine different life course events into the analysis or vary the risk sets of a specific event. For instance, first birth risks can be calculated for all childless women or, to gain better insight into family dynamics within partnerships, risks can be calculated specifically for those who are partnered. A detailed summary of the events and risk sets applied in various steps of this analysis is provided in the Results section. Descriptive information on the number of subjects, events, and exposure times are presented in Table 1. The same information disaggregated by birth cohorts is included in the supplementary material (Table S1).

Table 1. Exposure time, number of subjects, and events in the risk populations: Finnish women born in 1969–2000 and observed in 1988–2018.

| Risk population | Exposure time, person years | Subjects | Event(s) | |
|------------------------------|--------------------------------|----------|---------------------------|-------------------------|
| Childless* | 10,789,803 | 990,799 | 1st birth 467,539 | |
| Never married* | 11,504,711 | 991,182 | 1st marriage 387,019 | |
| Never partnered* | 6,851,419 | 988,363 | Direct marriage 65,672 | Cohabitation 631,874 |
| 1st partnership, childless** | 2,396,707 | 613,603 | 1st birth 318,825 | Separation 202,721 |
| 2nd partnership, childless** | 337,299 | 96,101 | 1st birth 48,855 | Separation 29,353 |

* Censor at age 42; ** Censor after 15 years since partnership formation; only partnerships that were formed between ages 18–28.

The analysis is divided into two steps. First, we study the formation of first co-residential partnership and first marriage, and first birth. We compare age-specific rates of these events across birth cohorts to see to what extent the age patterns of events differ. We also present cumulative incidences for each event to examine changes in the tempo and quantum of partnership formation, first marriage, and entry into parenthood.

Second, we focus on the dynamics within childless partnerships. Starting with first partnerships, we explore the timing and incidence of two competing events: first birth and partnership dissolution. The analysis is repeated for women who are still childless when forming a second co-residential partnership to ascertain whether the observed cohort trends are similar in higher order partnerships. Last, we model first birth and separation jointly, as competing risks deriving the technical solution presented by Wolbers et al. (2014). Joint modelling allows us to compare the risks of first birth and separation directly to have a better understanding of how the risks of either event change relative to each other.

The results are reported for five-year birth cohorts, except for the first and last cohort, which are six-year cohorts: 1969–1974, 1975–1979, 1980–1984, 1985–1989, 1990–1994, and 1995–2000. During our observation period, which is 1988–2018, the youngest cohorts, particularly the ones born in the 1990s, are still at the beginning of their reproductive careers. In general this is not considered a problem in event history analysis, because the method is well adjusted for situations where the observation is terminated at different intervals for different subjects (i.e., right censoring). However, the results of the second analytical step in our study—where we address dynamics within partnerships—might be affected if first partnerships formed at early reproductive ages are qualitatively different from first partnerships that are formed later in life. This is plausible because childless couples who start cohabiting in their early twenties can postpone partnership several years without contradicting the prevailing age norms of first parenthood, whereas couples who start partnership after the age of 30 have less time to make reproductive decisions. Previous studies have also reported a negative association between age at partnership formation and partnership stability (Lutz et al., 1991; Lehrer, 2008; Lyngstad & Jalovaara, 2010). In order to account for the fact that for the more recent cohorts only partnerships formed at younger ages can be observed, we limited the comparative analysis of family dynamics within the partnership only to those first partnerships that were also formed before the age of 28. Although our main analytical focus was on family dynamics during early adulthood, we performed additional robustness checks for earlier cohorts where all first partnerships, despite the age at partnership formation, were included.

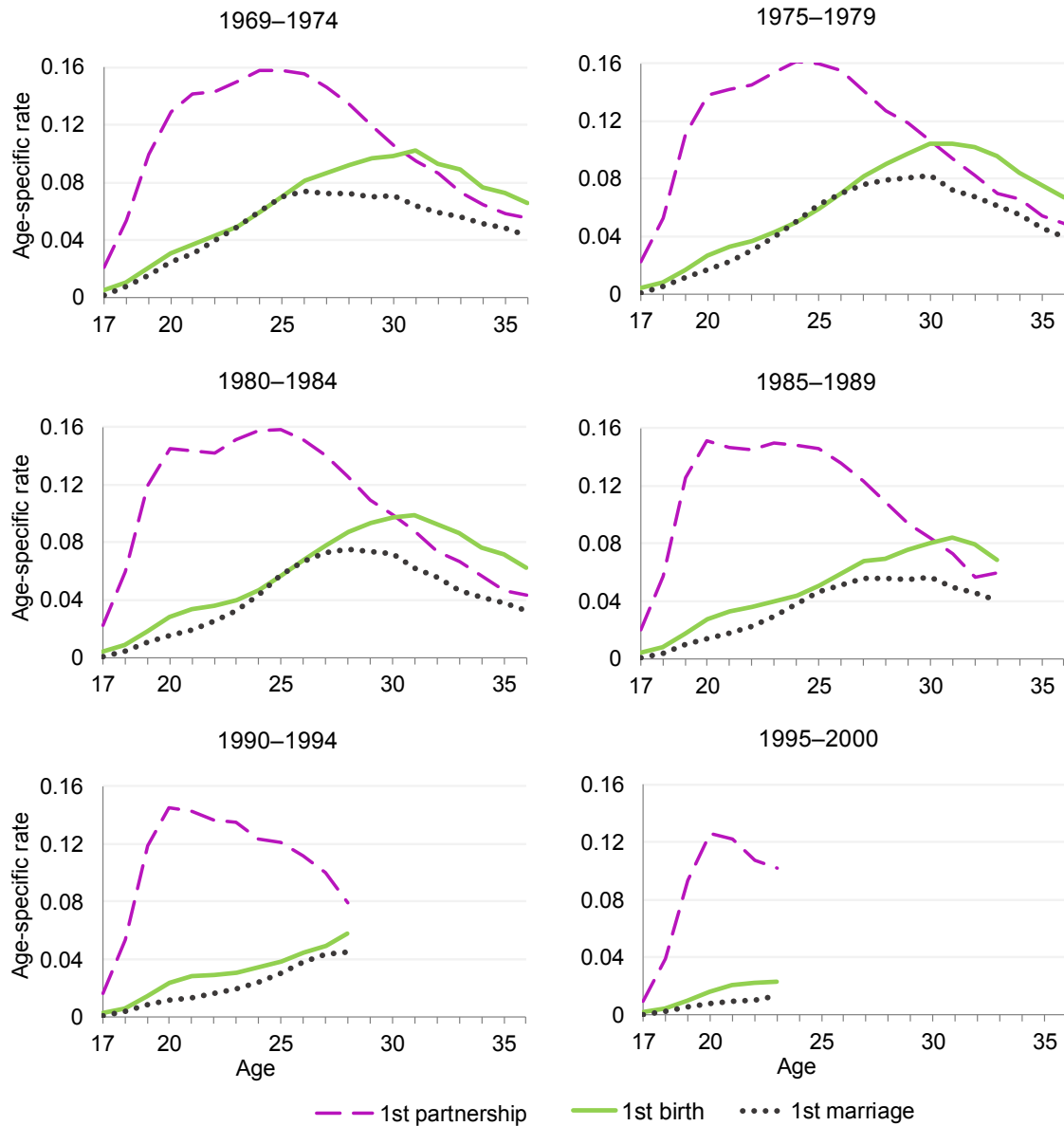
5. Results

5.1. Timing and incidence of the family formation events

As a first step in the analysis, we examined age-specific rates for three events: the formation of first co-residential partnership, the formation of first marriage, and first birth. The rates were calculated separately for each event and birth cohort. Figure 1 visualises how the intensity of each event of interest varies by age. The age patterns of first co-residential partnership and first birth are asynchronous. Finnish women form their first co-residential partnerships at a high rate throughout their twenties with a peak in their early- or mid-twenties. By contrast, the intensity of first birth peaks close to age thirty, it is more dispersed, and stays at lower levels compared to the formation of first partnerships. Age schedules of first marriage and first birth are more similar, particularly at younger ages; after the age of around 25 marriage rates appear systematically lower compared to first birth rates. This reflects the common practice of non-marital childbearing and childrearing in these age groups. The asynchronicity of age patterns of first partnership formation on the one hand, and marriage and first birth on the other hand, is clearly visible in all birth cohorts, even if the most recent cohorts are only at the beginning of their reproductive careers.

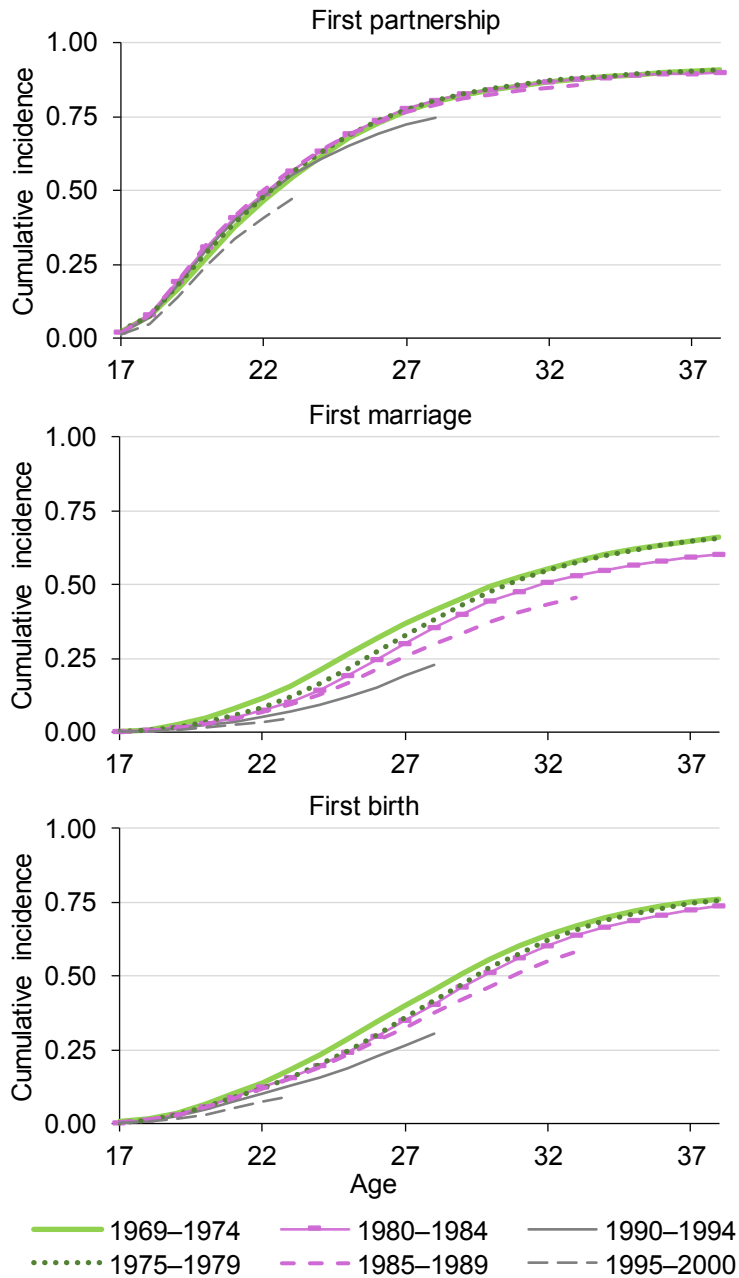
We next investigated the occurrence of each event of interest using cumulative incidence. This measure shows the proportion of persons who have ever experienced the event by certain age. As seen in Figure 2, more than 90% of women who have reached or are approaching the end of their reproductive careers, have formed a co-residential partnerships. The proportion of those who have given birth to at least one child is approximately ten percentage points lower, while the proportion ever marrying remains even lower (around 70%) among women who were observed until the end of their reproductive careers.

Figure 1. Age-specific rates of family formation events: Formation of first partnership and first marriage, and first birth by birth cohorts, Finnish women born in 1969–2000 and observed in 1988–2018.



Source: Finnish register data, authors' calculations.

Figure 2. Cumulative incidence of family formation events: Formation of first partnership and first marriage, and first birth, Finnish women born in 1969–2000 and observed in 1988–2018.



Note: Risk set for first partnership and first marriage is defined as women who were single at age 17; risk set for first birth included women who were childless at age 17. Women were observed until a respective event or censored at the end of the observation period, age 42, emigration, or death, whichever came first. See supplementary Table S2 for numeric data on women and men.

Source: Finnish register data, authors' calculations.

Next, we examined whether, and to what extent, the cumulative incidence of events had changed across birth cohorts (Figure 2). The results reveal considerable stability in partnership formation among Finnish women born in the 1970s and 1980s. The lines for these cohorts are clustered and follow a similar pattern. In accordance with the age pattern discussed above, by the age of 22 to 23 half of the women have already entered their first co-residential partnership. Thus forming a co-residential partnership clearly belongs to the early life course. Although at a slower pace, the cumulative incidence of partnership formation continues to increase throughout their twenties and early thirties and gradually levels off after their mid-thirties.

Against this background, women born in the 1990s present a somewhat different pattern. The 1990–1994 birth cohort is the first cohort that clearly lags behind its predecessors in the progression to first partnership. This lag relative to their peers born in the late 1980s, becomes visible around age 23 and increases with each year. Among women born in the late 1990s, the lag starts to emerge at an earlier age. The changes are seemingly small, but they deserve attention, as they suggest that women born after 1990 might be new trendsetters who have started to delay partnership formation.

To gain additional insight into partnership formation we ran an analysis distinguishing non-marital cohabitation and direct marriage as competing pathways to first co-residential partnership (Figure S1 in the supplementary material). Although the incidence of direct marriage (marrying without living together first) was rather low already among women born in the early 1970s (a quarter of women married their first co-residential partner without living together first), the results show that more recent cohorts of Finnish women have become less likely to start their first co-residential partnership as direct marriage. Under the surface of a relatively stable partnership formation pattern, birth cohorts experienced a continuous shift from direct marriage to cohabitation, with a decrease in the incidence of direct marriage being compensated by a parallel increase in the incidence of non-marital cohabitation. Our results suggest that women born in the 1990s are the first for whom the declining incidence of direct marriage was no longer compensated with non-marital cohabitation. This result also indicates that the decrease in the incidence of partnership formation among cohorts born after 1990 cannot be explained solely by changes in the mode of partnership.

Cohort trends in the cumulative incidence of first marriage are markedly different from those of first partnership (Figure 2). The incidence of marriage has continued to decline throughout with no sign of an emerging stabilisation. On the contrary, the decrease seems to have

accelerated among women born after the mid-1980s. In cohorts born during the 1970s, approximately half of the women had married by the age of 30. Among women born in the early 1990s, who were observed until the age 28 in our data, less than a quarter had married. Cohort trends in the cumulative incidence of first births bear a resemblance to first marriage, particularly in younger age groups (Figure 2). Although Finnish women born in the 1970s already had a relatively late first birth schedule, the incidence of first birth continued to decline among proceeding cohorts. The proportion of those who had become mothers by the age of 30 decreased from 56% among those born in the early 1970s to 47% among women born between 1985 and 1989. The most recent cohorts introduced a further decline between the ages of 20 to 28. From a life course perspective, this tendency implies that—in contrast to partnership formation—it is increasingly less common to start a reproductive career when in their twenties.

Last, we also studied timing and incidence of the family formation events among Finnish men (see supplementary material, Table S2). Compared to women, men's median ages are higher at first partnership formation and first birth. The difference between age at first marriage increases by up to six years in cohorts born between 1980 and 1984 (age 38 for men and 32 for women). In addition, men have a slightly higher chance of not forming a family. For instance, among older cohorts, the share of men who, by the age of 42, have never partnered is 14% while the share of those who are childless is 30%, in women, it is 8% and 22%, respectively. Despite these differences, the asynchronous age patterns of forming a first partnership and of becoming a biological father for the first time are observable in both men and women. In terms of cohort trends, we also observed similar delays in first marriage and first parenthood in more recent cohorts, starting from men born in the 1980s, whereas, unlike women, no clear cut cohort trend emerges for the timing of first partnership formation among men.

5.2. First birth within partnerships

As a second step, we investigated family dynamics after partnership formation. Our goal was to clarify whether the observation that a relatively modest change in the age schedule of first partnership formation, accompanied with a clear shift towards delaying first birth, implies that among the more recent cohorts, couples wait increasingly longer until they proceed to parenthood.

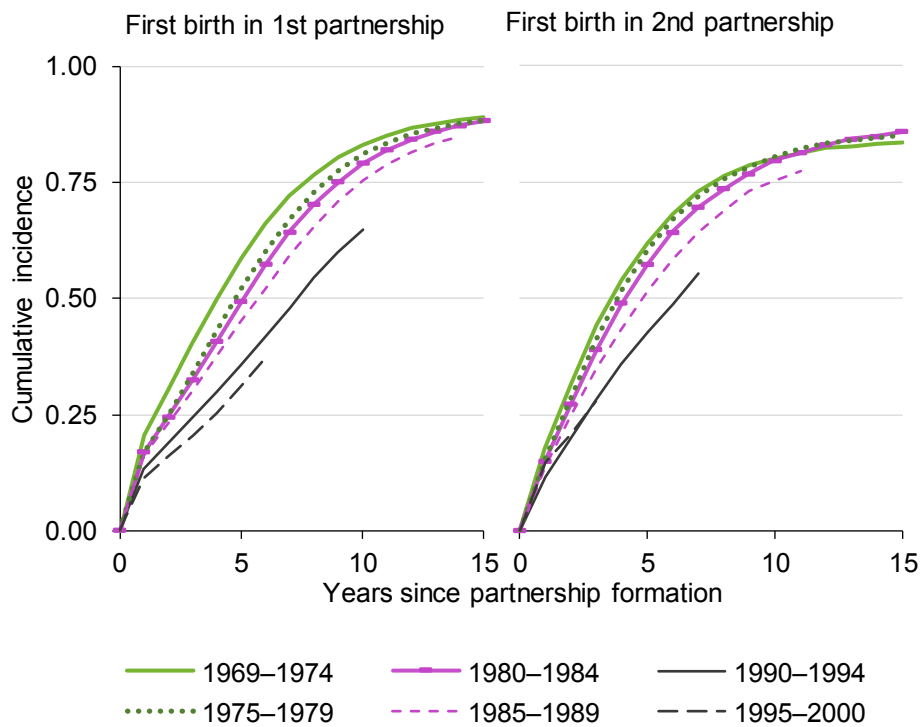
In our data, only partnerships formed at younger ages can be observed comparatively for both earlier and more recent cohorts. In order to account for this limitation, we analysed cumulative incidences of first births only in those first partnerships that were formed before the age of 28.¹

Figure 3 shows that couples increasingly delay parenthood within their first partnership. Albeit relatively moderate, this tendency can already be observed among cohorts born in the 1970s and 1980s. However, the result suggests that more recent cohorts—born in the 1990s—delay parenthood within first partnerships more than their predecessors. In addition, we also see that among cohorts born in the 1990s, the low levels of cumulative incidences of first birth persist at relatively long durations since their entry into partnerships. This suggests that the observed change may not be limited to postponement of childbearing, but may also be accompanied by an increase in the proportion of couples who do not opt for parenthood. Still, for cohorts born in the 1990s, this result must be interpreted with caution, as it is possible that in this group we underestimate the incidence of first births to some extent.²

¹ Among cohorts born in the 1970s and the 1980s about 75% of partnerships were formed before age 28 (Figure 2). The age schedules of partnership formation are quite similar between cohorts born in the 1970s, 1980s and 1990s which facilitates the comparison.

² For cohorts born in the 1970s and 1980s we repeated the calculation with partnerships that were formed at the age of 29 or later (results are available on request from the authors). The pattern of delaying childbearing within partnership was less explicit than the one we observed with partnerships formed at younger ages. Still, a cohort trend towards postponement was clearly visible. Thus, our results are robust in terms of the trend we observed.

Figure 3. Cumulative incidence of first birth within first and second partnerships, Finnish women born in 1969–2000 and observed in 1988–2018.



Note: Risk set was defined as childless women who formed first or second co-residential partnership. Women were observed from the formation of the respective partnership until first birth or censored at separation, the end of the observation period, emigration, or death of either of the partners, whichever came first. Only partnerships that were formed between ages 20–28 are observed.

Source: Finnish register data, authors' calculations.

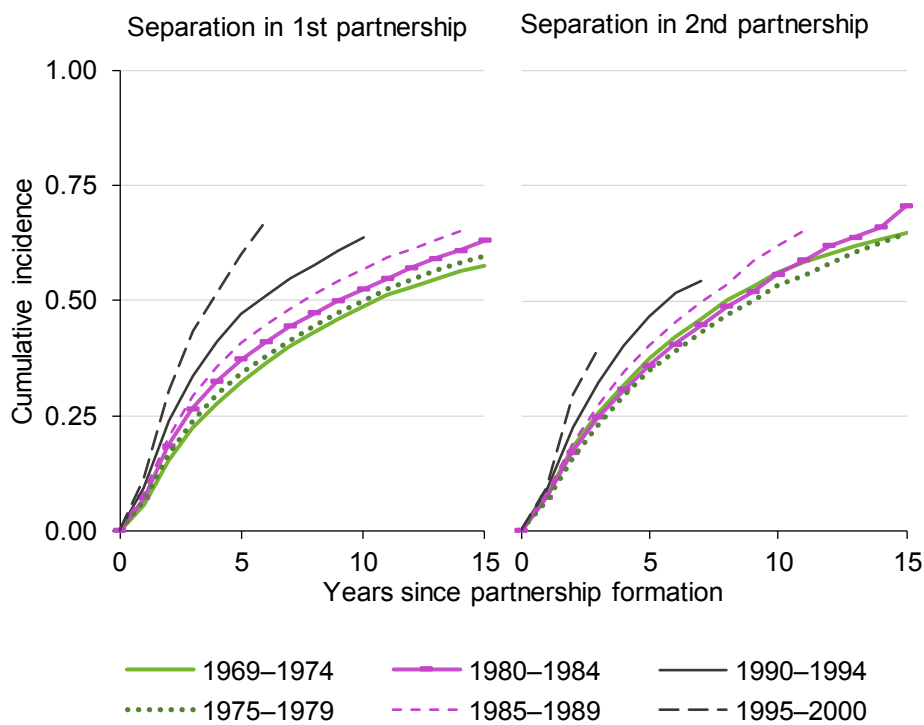
We also extend the observation to higher-order partnerships in order to see whether the changes only concern the first (and possibly brief) partnerships of young adults. The right-hand panel in Figure 3 shows the progression to first birth within the second partnership among women who were still childless at the time of partnership formation. Interestingly, for cohorts born in 1985–1989 and later, the tendency of delaying first birth within partnerships applies also for second partnerships. This corroborates the observation that among more recent cohorts, the association between partnership formation and entry into parenthood tends to weaken.

5.3. The role of partnership dissolution

One factor that affects a couple's ability to realise their reproductive goals is partnership stability. Although lower partnership stability can depress fertility in several ways, here we are interested in the likelihood of a partnership dissolving before first birth. As in the previous section, we focused on partnerships that were initiated before the age of 28. The purpose of employing this condition was to achieve a better comparability between earlier and more recent cohorts.

In Figure 4 we present the cumulative incidences of separation within first and second co-residential partnerships of childless women. The results in the left panel show that childless first partnerships among more recent cohorts are increasingly short-lived. The separation intensities are highest in the first years of partnership for all cohorts, whereas the proportion of childless partnerships surviving a longer period decreases in the more recent cohorts. In women born in the 1970s, half of the first partnerships that were formed in young adulthood are dissolved within ten years after partnership formation, and cohorts born in the 1980s needed a few years less to reach the same point. The trend towards lower stability in partnerships is even more pronounced in women born in the 1990s, although it is possible that separation risks are to some extent overestimated in this cohort. The right-hand panel of Figure 4 shows the cumulative incidence of separation for second partnerships. With regard to cohort trends, the overall pattern resembles trends for first partnerships except for a somewhat smaller variation among women born between the 1970s and early 1980s.

Figure 4. Cumulative incidence of separation in first and second childless partnerships, Finnish women born in 1969–2000 and observed in 1988–2018.



Note: Risk set includes childless women living in first or second co-residential partnerships. Women were observed from the formation of their respective partnership until separation. Censoring occurred at first birth, the end of the observation period, emigration, or death, whichever came first. Only partnerships that were formed between ages 18–28 were observed.

Source: Finnish register data, authors' calculations.

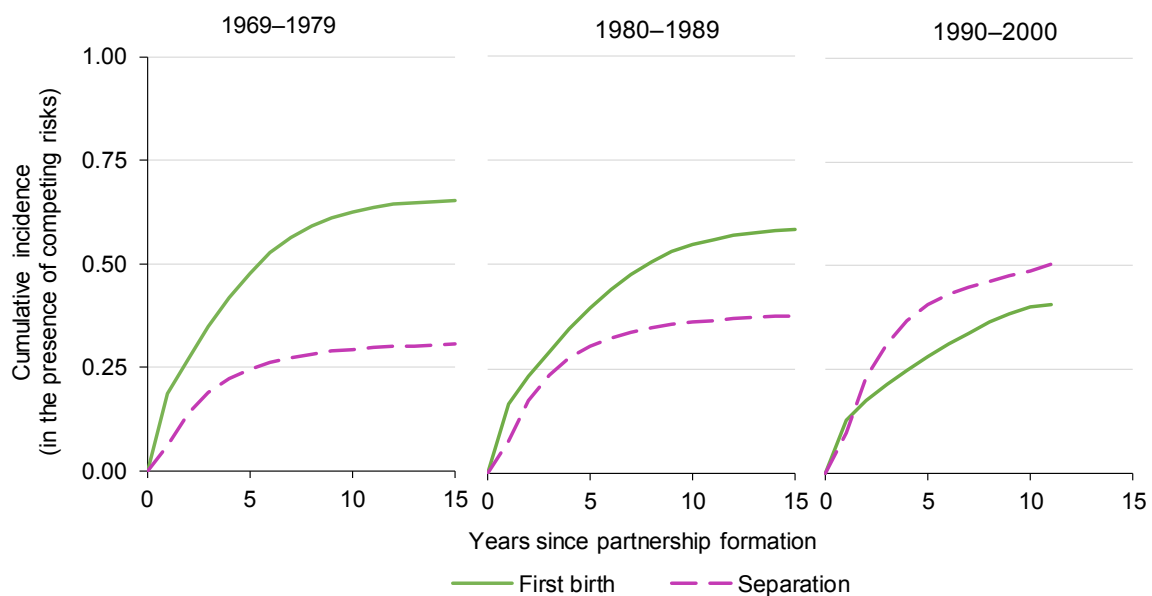
5.4. First births within partnerships and separation considered jointly

As a final step, we observed the changes in incidences of first births within partnerships and separation before having a child. The focus was on how both processes relate to each other and whether the pace of their change differed across cohorts.

Figure 5 presents the cumulative incidences of first birth and separation of first partnership calculated jointly as competing risks. For the sake of clarity, we compare cohorts born in 1969–1979, 1980–1989, and 1990–2000. The results show that among women born in the 1970s having a child within the five years of first partnerships is twice as common as separating before first birth. In the following decades the incidences of first birth and separation shifts in opposite directions: the incidence of first birth decreases whereas the

incidence of partnership dissolution increases.³ Women born in the 1990s shifted to a new pattern with separation without having a child becoming a more common scenario than having a child. This holds true at least for women born after 1990 who had formed their first partnerships in their early or mid-twenties.

Figure 5. Cumulative incidence of first birth and separation in first childless partnerships, modelled jointly as competing risks, Finnish women born in 1969–2000 and observed in 1988–2018.



Note: Risk set includes childless women living in first co-residential partnership. Women were observed from the formation of partnership until first birth or separation. Competing pathways are modelled jointly. Censoring occurred at the end of the observation period, emigration, or death, whichever came first. Only partnerships that were formed between ages 18–28 are observed.

Source: Finnish register data, authors' calculations.

The results obtained from joint modelling suggest that the weakening of the link between partnership formation and reproduction in cohorts born between 1969 and 2000 is driven by two parallel, plausibly related changes. The first driver is a tendency to increasingly postpone entry into parenthood in partnerships. The second driver is a further decline in the stability of childless partnerships.

³ We also examined the change in the pattern for second partnerships and observed a similar tendency (results are not shown and are available from the authors).

6. Discussion

This study focused on contemporary partnership dynamics, entry into parenthood, and the association between them. Of central interest was whether the patterns and associations have changed across recent birth cohorts in Finland. Our theoretical framework combined SDT theory and the life course approach. The motivation for this study comes from two sources. First, over the past decade, a marked decline in fertility levels, that had for a long time stayed close to the replacement level (Zeman et al., 2018), has been witnessed in Nordic countries (Hellstrand et al., 2021). Finland stands out among these countries with its higher rate of lifetime childlessness (Jalovaara et al., 2019) and a fall to the lowest (period) fertility levels in the past decade. Second, despite the Nordic countries being the forerunners of changing partnership dynamics, particularly concerning shifts towards more flexible forms of partnerships and family structures, relatively little research has been conducted on recent changes and the possible role of partnerships in the region's recent decline in fertility (Hellstrand et al., 2022). Our study contributes to filling this gap by analysing the patterns of, and linkages between, the formation and stability of co-residential partnerships and first birth among women and men born between 1969 and 2000 in Finland. Finland is a rare case where an observation of cohort trends in co-residential partnerships is possible within the total population over an extensive period.

The results supported our first expectation (1) that the age schedules of forming first co-residential partnership, entering first marriage, and becoming a parent differ markedly for men and women. First co-residential partnerships are formed considerably earlier, peaking in the early twenties. Marriages, in turn, tend to be formed at higher ages. The age schedule of first birth is similar to that of first marriage at the ages early to mid-twenties, but unlike marriage, the intensity continues to increase until the early thirties, when marriage rates are already in decline. This is in line with our second anticipation (2) that the proportion of those who form a partnership is much higher compared to those who become a parent, whereas marriage is by far the least common event. This pattern is most evident during young adulthood, but applies also for those who have reached or are approaching the end of their reproductive life span. Similar intensities of first marriage and first birth in young adulthood suggest that, in general, marriage has maintained a stronger connection to childbearing and childrearing than partnerships, whereas the increasing difference in the intensities in the early thirties reflects that marriage clearly is not (anymore) a prerequisite for parenthood.

Concerning cohort trends, we expected (3) a continuation of the postponement of parenthood and marriage, plausibly at a slower rate than previously. The results largely confirmed this assertion. The tendency of delaying first birth and first marriage has continued in cohorts born in the late 1980s and the 1990s. We found no evidence that the postponement would be slowing down in these cohorts. Our results regarding cohort trends in first partnership formation were mixed. Although the cumulative incidence and the age schedule of the first co-residential partnership were the most stable in earlier cohorts, we found clear signs of delaying partnership (marital and non-marital) among women in cohorts born in the 1990 or later. It is too early to say whether this tendency is limited to the timing of partnership formation or if there will be any substantial consequences for the share of never-partnered women and men in the coming decades.

Our results further indicate that the shift to delay in partnership formation among recent cohorts stems from a decrease in the incidence of non-marital partnerships that distinguishes these cohorts from their predecessors. Among women born between 1969 and 1974, around one fourth still married their first co-residential partner without living together first; this practice has practically vanished in more recent cohorts. Until recently, the decline in direct marriage was offset by a concurrent rise in non-marital cohabitation. Cohorts born in the 1990s are the first to delay the formation of non-marital first partnerships during young adulthood.

Another central focus in our study was family dynamics within partnerships. We anticipated delays in first birth within partnerships (expectation 4) and that first co-residential partnerships are increasingly short-lived (5). In tandem, these changes would lead to an increase in the incidence of non-reproductive first partnerships and possibly a shift where first birth is increasingly postponed to second and subsequent unions. The results largely confirmed these assertions. In more recent cohorts, especially among those born since 1990, partnered women become mothers at a lower rate, whereas the intensity of partnership dissolution has continued to increase. These changes are not limited to childless women in first partnerships but also occur in second partnerships.

The results obtained in our study contribute to a wider debate over the regional characteristics of SDT. In the latest update of the theory, Lesthaeghe (2020, 34) concluded that in order to explain recent falls in Nordic fertility, one needs to take into account a comprehensive package of structural and ideational factors. Our description of family dynamics among

recent birth cohorts in Finland highlights the need to also search for demographic mechanisms that may eventually push fertility down even in contexts where various contextual factors have previously helped to avoid fertility falling to its lowest low levels (Comolli et al., 2021; Goldscheider et al., 2015; Rindfuss et al., 2016).

In a Nordic context, the retreat from marriage has not been associated with very low levels of fertility as childbearing within non-marital partnerships has been widely accepted in society for several decades. Still, drawing from the recent developments in Finland, we see that already several generations have grown up under a regime of a widening gap between partnership formation and entry into parenthood. One consequence from a life course perspective is that younger cohorts have increasingly lived a stage or stages during early adulthood that includes living as a couple, but does not include childbearing. This implies that, at least at a behavioural level, the once close link between partnership formation and parenthood has progressively eroded. We are inclined to think that experiencing often short-lived (biologically) non-reproductive co-residential partnerships in young adulthood may eventually weaken the link between partnership formation and parenthood in all age groups. This observation is important because the eroding link between partnership formation and parenthood might lead to further delays in first birth. In a context where the mean age of first birth is around 30, it would be increasingly difficult to catch up on fertility schedules in a way that would lead to fertility levels closer to replacement levels.

The scale of change observed in the cohorts born in the 1990s indicates that the major changes in family dynamics and fertility that started in the Nordic countries in the late 1960s and early 1970s, which were later conceived as the SDT, are far from over. Therefore, the debate over the dominant patterns of family formation continues (Elzinga & Liefbroer, 2007; Kuijsten, 1996; Van Winkle, 2020). Delaying first birth has been a universal trend in countries undergoing the SDT (Frejka & Sardon, 2006), which leads to an extended period of childfree life in young adulthood (Andersson & Philipov, 2002; Billari & Liefbroer, 2010; Mogi et al., 2021); in contrast, postponing childbearing within partnerships is not a universal pattern. Living in biologically non-reproductive partnership(s) in young adulthood, which we observed in Finland, characterises only those countries where the relatively young age pattern of forming co-residential partnerships has persisted after the onset of a trend towards delayed parenthood. The long-term impact of the eroding link between partnership formation and parenthood during young adulthood on lifetime fertility levels remains to be seen within the coming decades. Whether similar shifts in family dynamics within partnerships emerge in

other regions cannot be answered within the framework of this study, but potentially these questions will remain on the radar when investigating trends in life course or developing the SDT thesis.

There are several ways our study could motivate future research. Further studies could investigate to what extent changes and linkages between family dynamics and childbearing vary depending on the stage of reproductive life. Future studies can also address whether childlessness is also on the rise among women born in the 1990s, who may form their partnerships at a higher reproductive age. Our observations regarding the eroding link between partnership formation and parenthood based on register data could be complemented with survey data on attitudes towards partnership and parenthood. This would allow us to study the extent to which the shifts in behaviour are paralleled with ideational change.

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Supplements: Tables

Table S1. Data characteristics by risk populations: Exposure time, number of subjects and events.

| a) Women | | | | | |
|----------------------------------|---------------|--------------------------------|----------|-----------------|--------------|
| Risk population | Birth cohorts | Exposure time, person years | Subjects | Events | |
| Childless * | | | | 1st birth | |
| | 1969–1974 | 2,439,689 | 174,518 | 131,319 | |
| | 1975–1979 | 2,245,194 | 155,680 | 114,745 | |
| | 1980–1984 | 2,107,489 | 156,269 | 105,556 | |
| | 1985–1989 | 1,779,047 | 149,207 | 72,919 | |
| | 1990–1994 | 1,433,656 | 157,956 | 35,166 | |
| | 1995–2000 | 784,728 | 197,169 | 7,834 | |
| | All cohorts | 10,789,803 | 990,799 | 467,539 | |
| Never married * | | | | 1st marriage | |
| | 1969–1974 | 2,676,585 | 174,806 | 116,726 | |
| | 1975–1979 | 2,422,517 | 155,773 | 99,726 | |
| | 1980–1984 | 2,260,947 | 156,290 | 85,932 | |
| | 1985–1989 | 1,877,439 | 149,256 | 57,083 | |
| | 1990–1994 | 1,476,854 | 157,905 | 23,769 | |
| | 1995–2000 | 790,369 | 197,152 | 3,783 | |
| | All cohorts | 11,504,711 | 991,182 | 387,019 | |
| Never partnered * | | | | Direct marriage | Cohabitation |
| | 1969–1974 | 1,442,187 | 172,481 | 22,363 | 130,519 |
| | 1975–1979 | 1,305,628 | 155,590 | 14,052 | 122,675 |
| | 1980–1984 | 1,246,079 | 156,199 | 11,716 | 123,250 |
| | 1985–1989 | 1,111,043 | 149,136 | 8,984 | 112,412 |
| | 1990–1994 | 1,034,046 | 157,842 | 6,230 | 98,849 |
| | 1995–2000 | 712,436 | 197,115 | 2,327 | 44,169 |
| | All cohorts | 6,851,419 | 988,363 | 65,672 | 631,874 |
| 1st partnership, childless ** | | | | 1st birth | Separation |
| | 1969–1974 | 546,661 | 131,161 | 87,017 | 37,357 |
| | 1975–1979 | 525,104 | 117,585 | 73,877 | 38,065 |
| | 1980–1984 | 516,779 | 118,514 | 70,074 | 41,469 |
| | 1985–1989 | 441,654 | 111,649 | 54,174 | 40,915 |
| | 1990–1994 | 301,418 | 99,686 | 28,111 | 34,938 |
| | 1995–2000 | 65,091 | 35,008 | 5,572 | 9,977 |
| | All cohorts | 2,396,707 | 613,603 | 318,825 | 202,721 |
| 2nd partnership, childless ** | | | | 1st birth | Separation |
| | 1969–1974 | 72,361 | 18,475 | 11,305 | 5,985 |
| | 1975–1979 | 78,565 | 19,190 | 12,004 | 6,011 |
| | 1980–1984 | 84,409 | 21,601 | 12,697 | 6,989 |
| | 1985–1989 | 70,610 | 22,151 | 9,470 | 6,795 |
| | 1990–1994 | 29,943 | 13,621 | 3,198 | 3,401 |
| | 1995–2000 | 1,411 | 1,063 | 181 | 172 |
| | All cohorts | 337,299 | 96,101 | 48,855 | 29,353 |

b) Men

| Risk population | Birth cohorts | Exposure time, person years | Subjects | Events | |
|----------------------------------|---------------|--------------------------------|-----------|-----------------|--------------|
| Childless * | | | | 1st birth | |
| | 1969–1974 | 3,017,255 | 183,134 | 123,811 | |
| | 1975–1979 | 2,702,121 | 162,832 | 107,268 | |
| | 1980–1984 | 2,474,937 | 163,645 | 92,394 | |
| | 1985–1989 | 2,018,790 | 155,849 | 55,945 | |
| | 1990–1994 | 1,557,097 | 164,333 | 22,286 | |
| | 1995–2000 | 830,023 | 206,065 | 3,707 | |
| | All cohorts | 12,600,223 | 1,035,858 | 405,411 | |
| Never married * | | | | 1st marriage | |
| | 1969–1974 | 3,205,030 | 183,231 | 111,374 | |
| | 1975–1979 | 2,870,131 | 162,887 | 92,964 | |
| | 1980–1984 | 2,620,438 | 163,693 | 74,204 | |
| | 1985–1989 | 2,095,810 | 155,918 | 43,007 | |
| | 1990–1994 | 1,584,727 | 164,380 | 14,674 | |
| | 1995–2000 | 832,944 | 206,127 | 1,909 | |
| | All cohorts | 13,209,080 | 1,036,236 | 338,132 | |
| Never partnered * | | | | Direct marriage | Cohabitation |
| | 1969–1974 | 2,032,995 | 182,789 | 20,356 | 132,152 |
| | 1975–1979 | 1,794,414 | 162,828 | 12,907 | 122,141 |
| | 1980–1984 | 1,693,429 | 163,654 | 10,876 | 119,113 |
| | 1985–1989 | 1,466,391 | 155,884 | 7,637 | 102,690 |
| | 1990–1994 | 1,277,101 | 164,355 | 4,631 | 79,674 |
| | 1995–2000 | 791,210 | 206,112 | 1,294 | 27,832 |
| | All cohorts | 9,055,540 | 1,035,622 | 57,701 | 583,602 |
| 1st partnership, childless ** | | | | 1st birth | Separation |
| | 1969–1974 | 466,213 | 103,305 | 61,851 | 34,496 |
| | 1975–1979 | 454,427 | 96,143 | 54,679 | 35,288 |
| | 1980–1984 | 434,299 | 95,674 | 50,588 | 37,165 |
| | 1985–1989 | 358,891 | 89,501 | 35,212 | 35,524 |
| | 1990–1994 | 214,759 | 74,072 | 14,586 | 26,927 |
| | 1995–2000 | 35,166 | 19,795 | 1,887 | 5,727 |
| | All cohorts | 1,963,755 | 478,490 | 218,803 | 175,127 |
| 2nd partnership, childless ** | | | | 1st birth | Separation |
| | 1969–1974 | 53,328 | 13,048 | 7,685 | 4,500 |
| | 1975–1979 | 59,003 | 14,122 | 8,525 | 4,703 |
| | 1980–1984 | 60,656 | 15,227 | 8,379 | 5,287 |
| | 1985–1989 | 48,984 | 15,596 | 5,548 | 4,869 |
| | 1990–1994 | 15,645 | 7,736 | 1,408 | 1,956 |
| | 1995–2000 | 420 | 330 | 40 | 58 |
| | All cohorts | 238,036 | 66,059 | 31,585 | 21,373 |

* Censor at age 42; ** Censor after 15 years since partnership formation. Only partnerships that were formed between ages 18–28.

Table S2. Cumulative incidences of family formation events: Formation of first partnership and first marriage, and first birth, Finnish women and men born in 1969–2000 and observed in 1988–2018.

a) First partnerships

| First partnership | Women Birth cohort | | | | | | Men Birth cohort | | | | | |
|-------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|---------------|---------------|---------------|
| | 1969– 1974 | 1975– 1979 | 1980– 1984 | 1985– 1989 | 1990– 1994 | 1995– 2000 | 1969– 1974 | 1975– 1979 | 1980– 1984 | 1985– 1989 | 1990– 1994 | 1995– 2000 |
| Age | | | | | | | | | | | | |
| 17 | 0.021 | 0.023 | 0.022 | 0.020 | 0.016 | 0.009 | 0.003 | 0.003 | 0.004 | 0.003 | 0.004 | 0.003 |
| 18 | 0.073 | 0.074 | 0.080 | 0.076 | 0.069 | 0.048 | 0.013 | 0.016 | 0.019 | 0.019 | 0.022 | 0.018 |
| 19 | 0.165 | 0.177 | 0.190 | 0.192 | 0.180 | 0.137 | 0.042 | 0.053 | 0.061 | 0.065 | 0.071 | 0.060 |
| 20 | 0.273 | 0.291 | 0.307 | 0.314 | 0.299 | 0.246 | 0.093 | 0.120 | 0.132 | 0.137 | 0.143 | 0.123 |
| 21 | 0.376 | 0.392 | 0.407 | 0.415 | 0.399 | 0.338 | 0.176 | 0.208 | 0.220 | 0.228 | 0.227 | 0.197 |
| 22 | 0.465 | 0.480 | 0.491 | 0.500 | 0.481 | 0.409 | 0.263 | 0.294 | 0.304 | 0.310 | 0.305 | 0.259 |
| 23 | 0.545 | 0.560 | 0.568 | 0.575 | 0.551 | 0.469 | 0.347 | 0.378 | 0.384 | 0.388 | 0.372 | 0.32 |
| 24 | 0.617 | 0.631 | 0.636 | 0.638 | 0.606 | | 0.426 | 0.456 | 0.459 | 0.460 | 0.432 | |
| 25 | 0.677 | 0.690 | 0.693 | 0.690 | 0.654 | | 0.501 | 0.529 | 0.529 | 0.523 | 0.486 | |
| 26 | 0.727 | 0.738 | 0.740 | 0.732 | 0.693 | | 0.565 | 0.591 | 0.588 | 0.578 | 0.532 | |
| 27 | 0.767 | 0.775 | 0.776 | 0.765 | 0.723 | | 0.623 | 0.643 | 0.638 | 0.623 | 0.569 | |
| 28 | 0.798 | 0.804 | 0.804 | 0.791 | 0.745 | | 0.668 | 0.685 | 0.678 | 0.659 | 0.597 | |
| 29 | 0.823 | 0.827 | 0.826 | 0.811 | | | 0.704 | 0.721 | 0.710 | 0.687 | | |
| 30 | 0.841 | 0.846 | 0.843 | 0.826 | | | 0.734 | 0.749 | 0.737 | 0.709 | | |
| 31 | 0.856 | 0.860 | 0.857 | 0.839 | | | 0.759 | 0.771 | 0.759 | 0.728 | | |
| 32 | 0.869 | 0.872 | 0.867 | 0.848 | | | 0.778 | 0.788 | 0.776 | 0.743 | | |
| 33 | 0.878 | 0.881 | 0.876 | 0.857 | | | 0.794 | 0.803 | 0.790 | 0.753 | | |
| 34 | 0.886 | 0.888 | 0.883 | | | | 0.808 | 0.814 | 0.800 | | | |
| 35 | 0.893 | 0.894 | 0.889 | | | | 0.819 | 0.824 | 0.810 | | | |
| 36 | 0.899 | 0.900 | 0.893 | | | | 0.827 | 0.832 | 0.817 | | | |
| 37 | 0.903 | 0.904 | 0.897 | | | | 0.835 | 0.838 | 0.822 | | | |
| 38 | 0.907 | 0.907 | 0.899 | | | | 0.841 | 0.843 | 0.827 | | | |
| 39 | 0.910 | 0.910 | | | | | 0.846 | 0.848 | | | | |
| 40 | 0.913 | 0.912 | | | | | 0.851 | 0.851 | | | | |
| 41 | 0.915 | 0.914 | | | | | 0.854 | 0.855 | | | | |
| 42 | 0.916 | 0.916 | | | | | 0.858 | 0.857 | | | | |

b) First marriage

| Age | Women Birth cohort | | | | | | Men Birth cohort | | | | | |
|-----|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|---------------|---------------|---------------|
| | 1969– 1974 | 1975– 1979 | 1980– 1984 | 1985– 1989 | 1990– 1994 | 1995– 2000 | 1969– 1974 | 1975– 1979 | 1980– 1984 | 1985– 1989 | 1990– 1994 | 1995– 2000 |
| 17 | 0.001 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | 0.009 | 0.006 | 0.005 | 0.005 | 0.004 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 19 | 0.025 | 0.018 | 0.015 | 0.014 | 0.012 | 0.007 | 0.005 | 0.004 | 0.004 | 0.004 | 0.004 | 0.002 |
| 20 | 0.049 | 0.034 | 0.030 | 0.028 | 0.023 | 0.015 | 0.013 | 0.010 | 0.011 | 0.011 | 0.009 | 0.006 |
| 21 | 0.078 | 0.055 | 0.049 | 0.045 | 0.036 | 0.025 | 0.027 | 0.021 | 0.020 | 0.019 | 0.016 | 0.012 |
| 22 | 0.114 | 0.084 | 0.073 | 0.066 | 0.051 | 0.035 | 0.045 | 0.036 | 0.033 | 0.031 | 0.025 | 0.018 |
| 23 | 0.157 | 0.120 | 0.103 | 0.093 | 0.069 | 0.048 | 0.069 | 0.056 | 0.050 | 0.047 | 0.035 | 0.02 |
| 24 | 0.208 | 0.165 | 0.141 | 0.128 | 0.092 | | 0.102 | 0.083 | 0.073 | 0.067 | 0.048 | |
| 25 | 0.263 | 0.216 | 0.191 | 0.168 | 0.119 | | 0.143 | 0.118 | 0.104 | 0.092 | 0.066 | |
| 26 | 0.318 | 0.271 | 0.245 | 0.211 | 0.153 | | 0.188 | 0.160 | 0.142 | 0.123 | 0.088 | |
| 27 | 0.367 | 0.327 | 0.300 | 0.255 | 0.190 | | 0.235 | 0.205 | 0.186 | 0.156 | 0.113 | |
| 28 | 0.413 | 0.380 | 0.352 | 0.296 | 0.226 | | 0.280 | 0.254 | 0.231 | 0.189 | 0.141 | |
| 29 | 0.454 | 0.430 | 0.400 | 0.335 | | | 0.324 | 0.303 | 0.275 | 0.224 | | |
| 30 | 0.493 | 0.477 | 0.443 | 0.373 | | | 0.367 | 0.350 | 0.317 | 0.258 | | |
| 31 | 0.525 | 0.515 | 0.477 | 0.404 | | | 0.406 | 0.393 | 0.353 | 0.289 | | |
| 32 | 0.553 | 0.548 | 0.506 | 0.431 | | | 0.440 | 0.432 | 0.386 | 0.318 | | |
| 33 | 0.578 | 0.575 | 0.529 | 0.454 | | | 0.471 | 0.467 | 0.414 | 0.342 | | |
| 34 | 0.600 | 0.599 | 0.548 | | | | 0.500 | 0.494 | 0.437 | | | |
| 35 | 0.619 | 0.617 | 0.565 | | | | 0.525 | 0.518 | 0.458 | | | |
| 36 | 0.636 | 0.632 | 0.579 | | | | 0.547 | 0.538 | 0.476 | | | |
| 37 | 0.649 | 0.645 | 0.591 | | | | 0.567 | 0.554 | 0.490 | | | |
| 38 | 0.662 | 0.655 | 0.600 | | | | 0.584 | 0.568 | 0.502 | | | |
| 39 | 0.672 | 0.664 | | | | | 0.598 | 0.579 | | | | |
| 40 | 0.683 | 0.673 | | | | | 0.611 | 0.591 | | | | |
| 41 | 0.689 | 0.679 | | | | | 0.621 | 0.599 | | | | |
| 42 | 0.695 | 0.685 | | | | | 0.630 | 0.607 | | | | |

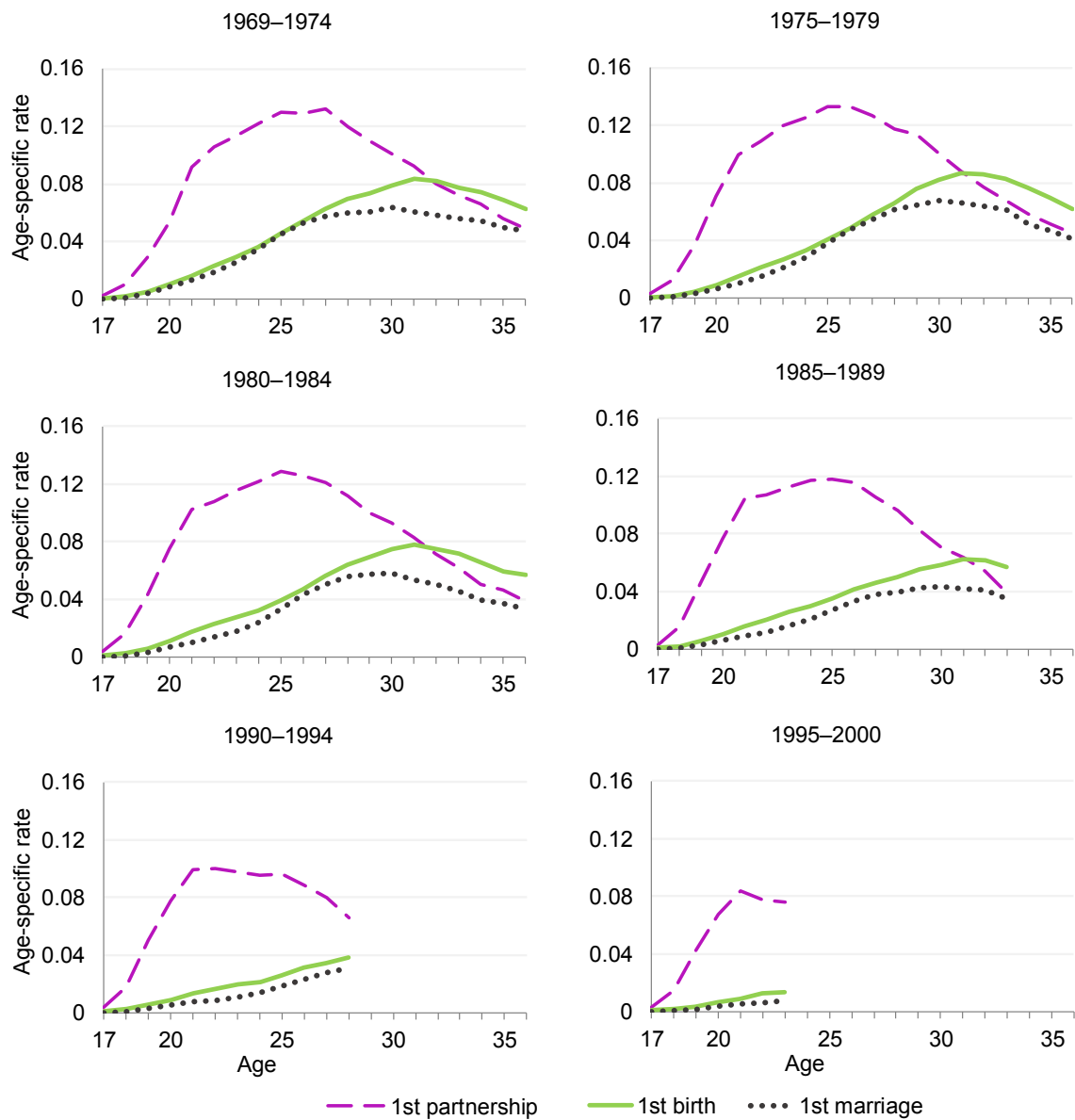
c) First birth

| Age | Women Birth cohort | | | | | | Men Birth cohort | | | | | |
|-----|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|---------------|---------------|---------------|
| | 1969– 1974 | 1975– 1979 | 1980– 1984 | 1985– 1989 | 1990– 1994 | 1995– 2000 | 1969– 1974 | 1975– 1979 | 1980– 1984 | 1985– 1989 | 1990– 1994 | 1995– 2000 |
| 17 | 0.005 | 0.004 | 0.004 | 0.004 | 0.003 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.000 |
| 18 | 0.016 | 0.012 | 0.013 | 0.012 | 0.009 | 0.006 | 0.003 | 0.002 | 0.003 | 0.003 | 0.003 | 0.001 |
| 19 | 0.036 | 0.028 | 0.030 | 0.029 | 0.023 | 0.016 | 0.008 | 0.007 | 0.009 | 0.009 | 0.008 | 0.002 |
| 20 | 0.066 | 0.055 | 0.058 | 0.056 | 0.046 | 0.031 | 0.018 | 0.016 | 0.020 | 0.019 | 0.017 | 0.006 |
| 21 | 0.101 | 0.086 | 0.090 | 0.087 | 0.073 | 0.052 | 0.033 | 0.031 | 0.036 | 0.034 | 0.029 | 0.012 |
| 22 | 0.140 | 0.120 | 0.122 | 0.119 | 0.100 | 0.073 | 0.056 | 0.052 | 0.058 | 0.054 | 0.046 | 0.018 |
| 23 | 0.182 | 0.158 | 0.158 | 0.154 | 0.127 | 0.094 | 0.083 | 0.077 | 0.083 | 0.078 | 0.065 | |
| 24 | 0.231 | 0.200 | 0.197 | 0.191 | 0.157 | | 0.116 | 0.108 | 0.113 | 0.106 | 0.085 | |
| 25 | 0.285 | 0.247 | 0.243 | 0.233 | 0.189 | | 0.156 | 0.145 | 0.147 | 0.138 | 0.108 | |
| 26 | 0.343 | 0.300 | 0.294 | 0.278 | 0.226 | | 0.202 | 0.187 | 0.187 | 0.173 | 0.136 | |
| 27 | 0.400 | 0.357 | 0.349 | 0.327 | 0.264 | | 0.252 | 0.234 | 0.233 | 0.212 | 0.166 | |
| 28 | 0.455 | 0.415 | 0.406 | 0.373 | 0.306 | | 0.304 | 0.284 | 0.282 | 0.251 | 0.198 | |
| 29 | 0.508 | 0.472 | 0.462 | 0.420 | | | 0.355 | 0.339 | 0.332 | 0.292 | | |
| 30 | 0.556 | 0.528 | 0.514 | 0.467 | | | 0.406 | 0.393 | 0.382 | 0.334 | | |
| 31 | 0.601 | 0.577 | 0.562 | 0.512 | | | 0.456 | 0.446 | 0.430 | 0.376 | | |
| 32 | 0.639 | 0.620 | 0.602 | 0.551 | | | 0.501 | 0.493 | 0.473 | 0.414 | | |
| 33 | 0.671 | 0.657 | 0.637 | 0.581 | | | 0.539 | 0.535 | 0.510 | 0.447 | | |
| 34 | 0.696 | 0.686 | 0.664 | | | | 0.573 | 0.571 | 0.542 | | | |
| 35 | 0.718 | 0.710 | 0.688 | | | | 0.603 | 0.601 | 0.570 | | | |
| 36 | 0.736 | 0.729 | 0.708 | | | | 0.628 | 0.625 | 0.594 | | | |
| 37 | 0.751 | 0.744 | 0.723 | | | | 0.648 | 0.645 | 0.613 | | | |
| 38 | 0.762 | 0.756 | 0.736 | | | | 0.665 | 0.662 | 0.628 | | | |
| 39 | 0.771 | 0.765 | | | | | 0.679 | 0.674 | | | | |
| 40 | 0.777 | 0.772 | | | | | 0.689 | 0.685 | | | | |
| 41 | 0.782 | 0.777 | | | | | 0.698 | 0.694 | | | | |
| 42 | 0.785 | 0.781 | | | | | 0.704 | 0.700 | | | | |

Source: Finnish register data, authors' calculations.

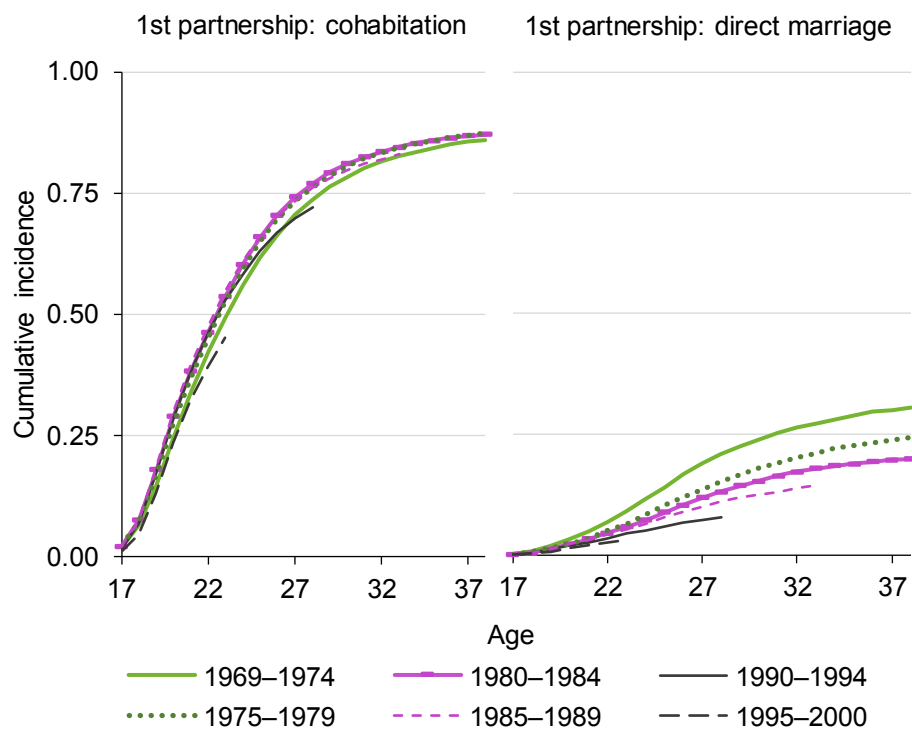
Supplements: Figures

Figure S1: Age-specific rates of family formation events: Formation of first partnership and first marriage, and first birth by birth cohorts, Finnish men born in 1969–2000 and observed in 1988–2018.



Source: Finnish register data, authors' calculations.

Figure S2: Competing pathways to first partnership formation: Cohabitation or direct marriage, Finnish women born in 1969–2000 and observed between 1988–2018.



Note: Risk set for first co-residential partnership is defined as women who were single at age 17. Women were censored at the end of the observation period, age 42, emigration, or death, whichever came first.

Source: Finnish register data, authors' calculations.