Union Formation and Marriage Formation in Times of Fertility Decline: The Case of Sweden in the 21st Century

Stefano Cantalini, Sofi Ohlsson-Wijk and Gunnar Andersson

Stockholm University Demography Unit

Abstract

Sweden has experienced a decade-long period of falling birth rates. Analyses of Swedish register data reveal that the decline was confined to first births of women and men in co-residential unions, but that the fertility decline was otherwise strikingly similar across socio-demographic groups. At the same time, rates of marriage formation have also declined. In the current study, we take a deeper look into patterns in union formation in Sweden during the 2010s and their relation to the decline in first-birth rates. We show that the propensities to form cohabiting unions did not decline, and that the declines in marriage formation and the propensity to become a parent hold independently of each other. We conclude that cohabiting women and men refrain from elevating their union status to a more committed level, as manifested by marriage or parenthood. These trends cannot be linked to any structural changes occurring in Sweden, such as those related to the business cycle or changes in social policies. In our concluding discussion, we discuss our findings including the more recent trend changes in union formation that occurred during the Covid-19 pandemic in 2020-21.

Keywords: union formation, cohabitation, marriage, marriage formation, Sweden

1. Introduction

Trends in union formation have undergone several well-documented changes in developed societies since a common historical benchmark of the 1950s. These changes have been theoretically debated in relation to family change in a broader sense, and Sweden has often been seen as a forerunner in such change, not least regarding the general decline in marriage (Lesthaeghe 2010; Goldscheider et al. 2015; Ohlsson-Wijk, Turunen and Andersson 2020). Since the 1960s, Sweden was among the first countries to experience a steady decrease in marriage rates, which continued into the 1990s (Andersson 1998; Andersson and Kolk 2015). This long-term decline in marriage propensities was coupled with a gradual increase in the prevalence of cohabitation (Heuveline and Timberlake 2004). However, it was subsequently followed by a marriage-trend reversal in the opposite direction during the early 2000s (Ohlsson-Wijk 2011). For the next decade, however, there is limited information about union formation in Sweden, as the searchlight among family-demographers has mainly been directed towards the structure of the fertility declines that occurred during the 2010s (Ohlsson-Wijk and Andersson 2022). These declines, which also comprised its Nordic neighbors (Comolli et al. 2021; Hellstrand et al. 2021), occurred 'unexpectedly', despite a policy setting that still supports a sound work-family balance and continuously high levels of gender equity within couples – factors previously connected to non-depressed fertility levels (McDonald 2000; Esping-Andersen 2009).

Thus, the question is whether the decade-long decline in fertility – which scholars have attributed to increasing perceptions of uncertainty about the future (Guetto et al. 2020; Vignoli et al. 2020; Neyer et al. 2022) – also means less family and intimate relationships in other dimensions, for example in terms of less cohabitations and marriages. Recent studies suggested that the 2010s fertility fall in Sweden (Neyer et al. 2022) – as well as in Finland (Hellstrand et al. 2022) – was not due to changes in partnership dynamics, rather it was mainly driven by declining fertility within cohabiting unions. In this study, we aim at looking closer into this issue, by investigating the most recent trends in marriage and cohabitation formation in Sweden. We thus ask if the formation of marriages and cohabitations have decreased in tandem with first-birth rates, which have been the main driver of the fertility decline (Ohlsson-Wijk and Andersson 2022) in the 2010s, and we follow the same trends through the Covid-19 pandemic in 2020-2021.

Moreover, we aim at studying whether recent trends and trend changes have depended on changes in the socio-demographic composition of men and women during the 2010s, as defined by birth parity, labor market status and migration background, or are characterized by different behaviors across subgroups of the population thus investigating possible inequalities in union formation. In this respect, previous studies on fertility change during the same period showed that the declining trends in first-birth rates were not produced by any negative compositional changes across social groups (Ohlsson-Wijk and Andersson 2022). In this study, we ask whether similar conclusions can be drawn for patterns in union and marriage formation.

With this work we extend the previous literature in three directions. First, we update the trends of marriage formation in Sweden up to 2021, focusing on both women and men, thus providing new evidence on marriage propensities during the recent period of fertility decline and during the Covid-19 pandemic. (The most recent study on marriage formation trends in Sweden covered years up to 2012 and focused only on the female population; cf. Andersson and Kolk 2015). Second, we provide further insight into the relationship between union and marriage formation and childbearing during the 2010s. Changes in union formation can indeed be important in explaining fertility change and, in turn, be affected by such change. In this study, we first investigate this issue by studying the extent to which trends in marriage formation can be explained by changes in the parity composition of women and men at family formation ages and if they differ across parity groups. Finally, for the first time in Sweden, we are able to rely on administrative register data to study total population trends in cohabitation formation. Sweden has previously lacked all-encompassing data of such nature. This is of general interest as the country is known as a forerunner in the normalization of cohabitation and as marriage and childbearing in this context are almost always preceded by cohabitation (Andersson, Thomson and Duntava 2017). Any decline in the rates of cohabitation formation would thus help explain related declines in marriage formation and becoming a parent.

2. Background

2.1. Marriage trends in Sweden

From the 1960s to the 1990s, Sweden experienced a steady decline in marriage rates, which primarily involved childless and never-married women (Andersson 1998). This decline can be explained by a general decrease in the popularity of marriage as the only institution for family life, in favor of unmarried cohabitation, which was already prevalent in Sweden in the early 1970s and which increased further in the next decades (Heuveline and Timberlake 2004). Moreover, the decline in marriage rates was driven by a general postponement of the age at marriage, parallel to the postponement of childbearing. Taken together, the increase of informal unions and the postponement of marriage and childbearing paved the way for a typical pattern of family formation that was characterized by entry into cohabitation and followed by the birth of children and, in some cases, by marriage (Andersson 1998; Holland 2013). In fact, slightly more than half of all children and two thirds of first-born children are currently born to unmarried parents (Thomson 2023), suggesting that marriage is no longer seen as a prerequisite for childbearing. However, there is still a connection between the two events, as marriage is strongly linked to childbearing and often considered a way of formalizing a commitment that has already been strengthened by having children (Duvander 1999; Moors and Bernhardt 2009; Lappegård and Noack 2015).

The secular decline in marriage rates in Sweden had only two deviations, presumably linked to changes in legislation. A first small increase in marriage rates occurred during 1974-1976, as a result of the liberalization of divorce laws, which made divorce quicker and easier to obtain. These legislative changes, which also included a simplification of the procedures for marriage formation, led a body of newly divorced individuals to re-enter the marriage market and may also have increased the popularity of marriage as a more modern contemporary institution (Andersson 1998, Agell 1981). A second large peak in marriage rates occurred in 1989, in response to the near-abolition of the widows' pensions for women that were not married as of January 1990. A large number of cohabiting couples thus married in 1989 as they perceived that it could secure a better future pension in the event of a partner's death (Hoem 1991).

After a long period of marriage decline, only temporarily halted in 1974 and 1989, Sweden experienced a marriage "revival" in the 2000s (Ohlsson-Wijk 2011). A substantial peak in marriages occurred in 2000, perhaps because of some digital preferences of people to marry in that year (Ohlsson-Wijk 2014), which was followed by a slight dip in 2001, but after that the long-term downward trend in marriage rates was replaced by a continuous and steady upward trend over the first decade of the 2000s (Andersson and Kolk 2015). This increase can partly be attributed to a 'recuperation' of postponed marriages at higher ages. It may also be explained by three other factors as spelled out by Ohlsson-Wijk (2011). First, part of the reversal was explained by changes in the composition of the population in terms of increasing proportions of individuals with a solid labor market attachment as well as by increasing fertility trends during the same decade – factors that positively affect the propensity to marry in Sweden. Second, it is possible that a higher prevalence of cohabitating unions in those years could have stimulated marriage rates through a larger number of couples who eventually transformed their informal union into marriage. Finally, in contrast to what happened in the previous decades, the popularity of marriage seemed to have increased in the first years of the 2000s.

Theoretically, the long-term decrease in marriage rates could be interpreted within the framework of the Second Demographic Transition. According to this framework a shift towards 'post-materialist' values related to secularization, individualization and autonomy increasingly affects family dynamics (Lesthaeghe and van de Kaa 1986; van de Kaa 2002). This approach seemed to fit family changes in Sweden in the second half of the 1900s better than other concurrent ideas. For instance, studies found little support for Becker's argument (1991) according to which the decrease in the popularity of marriage was related to women's higher labor market participation and related economic independence (e.g., Andersson 2000). Oppenheimer's (1994) proposition that the fall in marriage rates in the USA could be linked to young men's deteriorating labor market conditions did also not apply to Sweden, since the labor market prospects for Swedish men did not worsen dramatically until the 1990s (Andersson 2000).

More recently, theorists of gender equality and the gender revolution have argued that the decline in family formation, including marriage, during the second half of the 1900s may be due to a decreasing willingness to commit to a partner. This is primarily seen as

driven by the growing burden on women, as they increasingly took part in the labor market and at the same time still carried the main responsibility for housework and childcare, but also as driven by unclear norms and expectations regarding the roles within couples (Goldscheider et al. 2015). Accordingly, the willingness to commit to a partner will increase when men's involvement in the family sphere increases, potentially reversing any declining trends of marriage formation. This perspective could potentially be applied to explaining not only the Swedish marriage decline from the 1960s onwards, but also the Swedish marriage "reversal" in the early 2000s, when the country in many respects had experienced growing gender equality in the family – especially compared to other developed societies (Esping-Andersen and Billari 2015; Goldscheider et al. 2015).

2.2. Marriage and cohabitation in Sweden

Before 2011, unmarried cohabitation could be detected in Swedish population-register data only if a couple had a common child through which the two partners could be linked to a common property, making it difficult to study patterns in non-marital cohabitation at the population level. However, studies based on survey data have provided valuable insights into cohabitation in Sweden. For instance, unmarried cohabitation was already prevalent in the 1970s and is nowadays widely considered a common precursor to marriage, making it rare to marry without cohabiting first (Andersson and Philipov 2002; Heuveline and Timberlake 2004). This is reflected in statistics on family formation based on survey data that show that at age 35, for the period 2007-2013, 89-91% of Swedes had started a first union as a cohabitation and only 3% as a marriage; the remaining fraction had not entered a co-residential union at all (Andersson et al. 2017). Moreover, the median age at first union formation was 23-24 years, whereas the median age at first marriage formation was 35-37 years (ibid.), suggesting that marriage is almost always preceded by long periods of cohabitation (Holland 2013). In general, however, the majority of Swedes eventually still marry sometime during their lives (Ohlsson-Wijk 2011). For example, in the period 2007-2013, around 70% of them had formed a marriage before age 50 (Andersson et al. 2017).

In addition, legal and institutional differences between cohabitation and marriage in Sweden are very limited, with similar rights for cohabitors and married couples in many policy areas (Perelli-Harris and Sánchez Gassen 2012). For instance, the provision of

different welfare-state schemes is often targeted at the individual rather than the (married) couple and, in case of parental union dissolution, both married and cohabiting parents are granted the same rights of child custody (Schiratzki 2008). However, some differences between the two forms of union still exist in terms of inheritance in the event of a partner's death and in relation to pensions, making marriage slightly more beneficial than cohabitation (Perelli-Harris and Sánchez Gassen 2012).

Considering the large diffusion of cohabitations and small legal differences towards marriage, some scholars have argued that the decision among Swedish couples to marry is mainly driven by practical and pragmatic reasons (Heuveline and Timberlake 2004), whereas others argue that marriage primarily has a symbolic meaning, for example as offering a more definite and committed relationship (Perelli-Harris et al. 2014; Ohlsson-Wijk et al. 2022). In this respect, studies have indicated that cohabitation may emerge as a particularly preferred family form in times of increasing economic and social uncertainties (Perelli-Harris et al. 2014), as in the aftermath of the Great Recession and during the Covid-19 pandemic (Guetto et al. 2020). It has been argued that increasing uncertainties associated with prior experiences (referred to as "shadows of the past") as well as future prospects ("shadows of the future"; cf. Bernardi et al. 2019) have contributed to the fertility declines in the 2010s (Comolli et al. 2020). The same factors may also have driven couples to choose cohabitation over marriage due to its lower level of commitment.

3. Data and methods

3.1. Data, study population and events

Our analyses are based on Swedish population and administrative registers, gathered and organized at Statistics Sweden. Swedish registers allow us to reconstruct longitudinal information on family-demographic histories and socioeconomic information for the full resident population. In our work, we also take advantage of a new register on apartments and households, enabling us for the first time to study cohabitation trends in Sweden at the population level.

We analyze two main family-formation events, namely the risk of first marriage formation and the risk of entry into cohabitation. We only consider opposite-sex family

formation. The gender-equal opportunity for same-sex marriage only became available in 2009 (Andersson and Noack 2010), and non-marital cohabitation can only be measured for opposite-sex couples (see below). As for the first marriage risk, we restrict our analysis to never-married Swedish-born men and women aged 18 to 55 during 1991-2021, focusing on cohorts born between 1946 and 2003. Age 18 is set as the lowest age since this is the minimum legal age for marriage in Sweden. In order to put the marriage trends during the 2010s in context, we also include years from 1991 in our analysis, covering both the previous period of marriage decline in the 1990s and the period of marriage revival in the first decade of the 2000s (Ohlsson-Wijk 2011; Andersson and Kolk 2015). The total study population includes 2,151,799 never-married women and 2,400,824 never-married men, observed during 31,276,754 and 36,948,563 person-months of non-married exposure, respectively.

As for the cohabitation formation, we exploit the definition of a cohabiting couple given by Statistics Sweden. According to this definition, persons in a cohabiting couple are persons in an unmarried relationship who have a common child and are registered in the same dwelling (apartment or single-family-house); or unmarried persons who do *not* have a common child and are registered in the same dwelling, but in the latter case only if i) both are aged 18+, ii) they are of opposite sex, iii) the age difference between them is less than 15 years, and iv) they are no relatives. In this case, only one cohabiting couple can be identified within the same household. Therefore, in our study the transition into the status of a cohabiting person according to this definition is considered as an entry into cohabitation. We limit our analysis to never-married Swedish-born men and women who were not cohabiting in 2011, as data on cohabitations in unique apartments are only available from that year.[1] We follow their risk of cohabitation formation from 2012 to 2021, focusing on cohorts born from 1966 to 2003, being aged 18 to 55. The total study population includes 1,079,235 non-cohabiting women and 1,344,413 non-cohabiting men, observed during 5,109,195 and 6,861,910 person-years of non-cohabiting exposure, respectively.

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[1] This follows from changes in the registration of legal residence so that each individual is to be registered as living in a unique apartment rather than just a property that in many cases contains several apartments. For this purpose, a new dwelling register was created and the dwelling and population registers were linked to each other. With this change in practice, Sweden was able to produce proper household data and switch to a system with fully register-based censuses (Andersson et al. 2023).

3.2. Variables

The main independent variable of our study is *calendar year*, represented by single years of exposure from 1991 to 2021 for the analysis of marriage formation and from 2012 to 2021 for the analysis of cohabitation formation. A set of covariates representing various demographic and socio-economic control variables are also included in the models. *Age* – entered as yearly dummies – refers to the age at the end of each calendar year. *Parity* is a time-varying variable that is divided into four categories: no children, one child, two children, and three or more children. *Region of residence* allows us to control for differences in union formation in different types of settlement (see Duvander 1999 regarding marriage). The 290 Swedish municipalities are divided into three broad categories: large cities and the commuting municipalities near those cities (Stockholm, Gothenburg, Malmö); medium-sized towns and municipalities near those towns (commuting and non-commuting alike); and small towns, commuting municipalities near small towns, and rural areas. *Parents' country of birth* is a time-constant variable divided into four categories: both parents born in Sweden; at least one Nordic-born parent (i.e., both Nordic-born or one Nordic and one Swedish-born); at least one non-Nordic European-born parent (i.e., both non-Nordic European or one non-Nordic European and one Swedish/Nordic-born); at least one non-European parent (i.e., both non-European or one non-European and one Swedish/Nordic/European-born). *Educational attainment* is a time-varying variable consisting of four categories: primary; secondary or tertiary less than two years; tertiary 2-3 years; tertiary four or more years. Finally, *labor market activity* is an eight-category time-varying variable based on work-related earnings before tax, and unemployment and student benefits in the previous year (see Ohlsson-Wijk and Andersson 2022). Earnings cut-off points for five equally sized categories were determined based on the 2011 income distribution among Swedish men and women aged 18-65. These five categories (i.e., quintiles) range from an annual earnings level of 36,600 SEK (€4,333) and are adjusted for inflation annually.[2] The lower bound for each quintile is Q1: SEK36,600 (€4,333), Q2: SEK169,300 (€15,527), Q3: SEK260,400 (€23,882), Q4: SEK318,800 (€29,238), Q5: SEK399,500 (€36,639). The earnings quintiles are not sex-specific, allowing for objective comparisons over time and between the sexes. Three

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[2] This lower level refers to an administrative measure used to establish cut-off points for public transfers in Sweden and represents an income level that cannot sustain a basic livelihood.

additional categories include the unemployed (receiving unemployment benefits and earning less than the second earnings quantile), students (receiving student allowances and earning less than the second earnings quintile), and inactive individuals (earning less than the base level and not categorized as unemployed or a student).

3.3. Methods and analytical strategy

For our analyses, we rely on event-history techniques, in the form of piece-wise constant baseline intensity models, estimated separately for women and men. Entry into first marriage is analyzed with the accuracy of monthly precision. Time at risk for marriage formation starts at the month an individual turns 18 and ends at the month of any first marriage, first emigration, death, turning age 55, or December 2021, whichever occurs first. Entry into cohabitation is analyzed with the accuracy of yearly measurement, since monthly information on informal unions are not available in our register data. In this case, time at risk starts the year a person turns 18, and ends the year of entering cohabitation, first emigration, death, turning age 55, or 2021, whichever occurs first.

We proceed with our analytical strategy in two steps. The first part focuses on the main effects in marriage and cohabitation trends and investigates whether they are driven by compositional changes related to childbearing and socio-economic factors. We first estimate two models for each event of interest. The first standardizes the union formation trends – i.e., the association between calendar year and marriage/cohabitation formation – for the effect of age only (Model 1), whereas the second adds variables related to parity, region of residence, parents' country of birth, educational attainment, and labor market activity (Model 2). For cohabitation, our Models 1 and 2 are estimated separately by age group: 18-28 vs 29-55 years of age. As information on union order is not available in our data on cohabitation, we rely on this strategy to approximately distinguish those under risk of entering their first cohabitation (the younger age group) and those at risk of entering higher-order unions (the older group).[3]

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[3] We also restricted our cohabitation analyses to never-married individuals, thus limiting the bias driven by lack of information of union order. As a robustness check, we also restricted the sample to childless individuals in 2011, thus further reducing the incidence of previous cohabitations. Moreover, we estimated parallel analyses only on the cohorts born in 1993-2003, which do not suffer from this bias because they turned age 18 during the period under study (2011-2021), enabling us to observe their whole early life course. These sensitivity analyses confirm the results presented here for the younger group (age 18-28).

We present the main trends in union formation by providing time-series of relative risks of the propensity to form a first marriage or cohabiting union by each calendar year under risk, relative to a suitable baseline year (for previous examples of this approach in relation to marriage formation, see Andersson 1998; Ohlsson-Wijk 2011; Andersson and Kolk 2015).

In the second step of our analytical strategy, we focus on socio-demographic (in)equalities in the trends of union formation, analyzing whether the main trends differ between individuals with different characteristics. To this end, our Model 2 is estimated with an interaction between calendar year and each additional variable of interest (cf. Andersson 1998; Andersson and Kolk 2015; Ohlsson-Wijk and Andersson 2022), namely parity, parents' country of birth, and labor market activity. To not overly burden the text, we do not present results from models interacting calendar year with region of residence and education, respectively. However, additional analyses (available upon request) show results by region of residence that resemble those for parents' country of birth, while the analyses by educational attainment are comparable to those for labor market activity.

4. Empirical results

4.1. First-marriage trends

Before displaying the trends in marriage formation, Table 1 presents the relative risks of marriage formation across the various levels of parity, region of residence, parents' country of birth, educational attainment, and labor market activity, as estimated in our Model 2, without interactions and separately for women and men. The propensity to marry is substantially lower for childless individuals than for parents. More specifically, childless women and men have a marriage risk that is 48% ($RR_{parity0} = 0.52$) and 56% ($RR_{parity0} = 0.44$) lower than for parents of one child, respectively. Moreover, marriage propensities increase slightly with the number of children, especially for women, with mothers of two and three children being 20% and 31% more likely to marry than mothers of one child. Further, those living in small towns have slightly lower marriage-formation risks than those living in medium-sized towns and, especially, large cities. Moreover, men and women with Nordic and European-born parents have similar marriage risks to individuals with two Swedish-born parents, whereas those – especially women – with

non-European parents are more likely to enter marriage than others. Finally, there is a clear positive educational and-labor market attachment gradient, which looks similar as previously found for first-birth risks (Andersson 2000; Ohlsson-Wijk and Andersson 2022), with less advantaged men and women (e.g., low educated, unemployed, inactive and low-income earners) displaying lower marriage intensities than individuals with higher educational attainment or earnings.

Table 1. Relative risk of first marriage formation, by parity, region of residence, parents' country of birth, education, and labor market activity. Piece-wise constant baseline intensity models for women and men separately

	Women	Men
Parity		
0	0.52	0.44
1	1	1
2	1.20	1.11
3	1.31	1.19
Region		
Large cities	1	1
Medium-sized towns	0.93	0.91
Small towns	0.87	0.83
Parents' country of birth		
Swedish-born	1	1
Nordic-born	0.99	0.93
Eur-born	1.07	1.02
Non-Eur-born	1.36	1.17
Education		
Primary	1	1
Secondary or tertiary < 2yrs	1.24	1.25
Tertiary 2-3yrs	1.81	1.74
Tertiary 4+yrs	2.37	2.18
Labour market condition		
Inactive	0.71	0.63
Student	0.73	0.86
Unemployed	0.90	0.83
Low income	1	1
Medium-low income	1.08	1.20
Medium income	1.22	1.38
Medium-high income	1.35	1.58
High income	1.55	1.88

Note: models also control for calendar year and age.
Source: Swedish register data, authors' own calculations.

Turning to the period trends in marriage formation, Figure 1 presents how the marriage intensities evolved for Swedish women and men during 1991-2021, with marriage

formation risks being presented relative to those in 2012 as the baseline year, and with the onset of the Covid-19 pandemic being marked with a dashed vertical line in our diagram. The solid lines present results from the model that standardizes the trends for only age (Model 1), which show a slow but gradually accelerating decline in first-marriage rates during the 2010s, followed by a sharp drop during the pandemic. The marriage risk declined by almost 30% from 2012 to 2019 ($RR_{women2019} = 0.72$; $RR_{men2019} = 0.73$) and by an additional dramatic 24-25% in the first year of the pandemic ($RR_{women2020} = 0.54$; $RR_{men2020} = 0.56$).[4] The marriage formation risk remained at a depressed level in the second year of the pandemic, in 2021. The trends during 2010-2019 resemble those previously found for first births (Ohlsson-Wijk and Andersson 2022; Neyer et al. 2022), but the drastic decline in marriage formation during the Covid-19 pandemic is specific for that life-course transition.

Figure 1. Relative risk of first marriage formation in Sweden, by calendar year. Piece-wise constant baseline intensity models for women and men separately
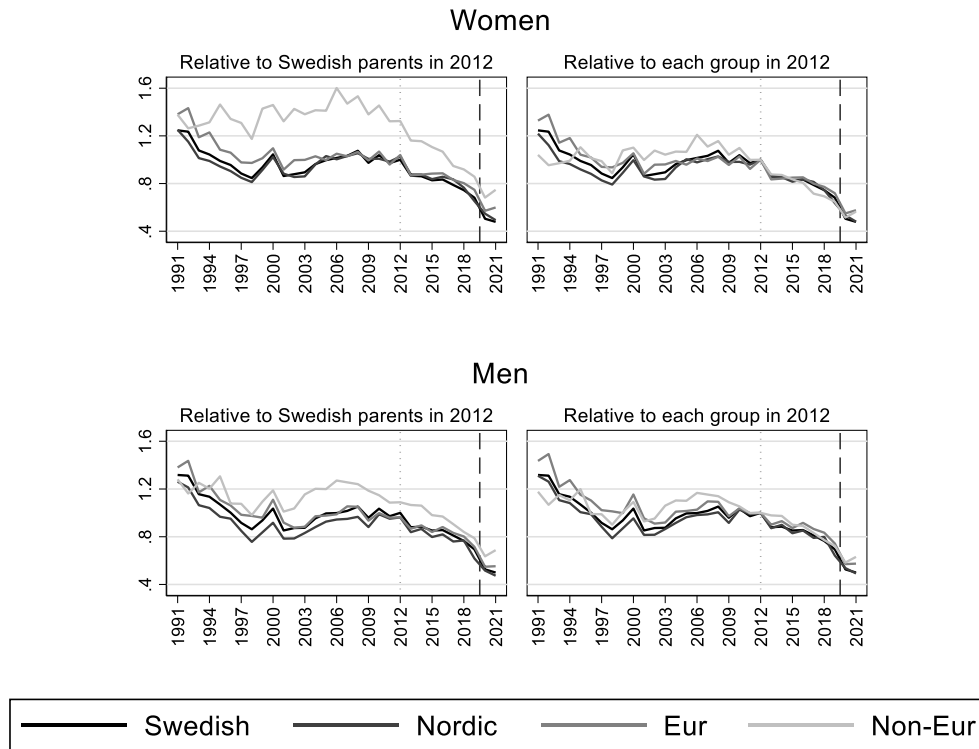

Notes: Rates relative to rates in 2012. Model 1 controls only for age; Model 2 also controls for parity, region of residence, parents' country of birth, educational attainment, and labor market activity.

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[4] The relative risk of marriage formation in 2020 compared to 2019 is equal to 0.75 (0.72/0.54) for women and 0.76 (0.73/0.56) for men, corresponding to the abovementioned decline of 24-25% in one year.

The dashed lines – corresponding to a model that includes controls for changes in parity, parents' country of birth, region of residence, educational attainment, and labor market activity (Model 2) – appear very similar to the solid ones, suggesting that the recent decline in first-marriage rates was not driven by compositional changes related to socio-demographic factors or by the parallel fertility decline and its related changes in the parity distribution of the never-married population. The small discrepancy between the two lines mainly depends on the inclusion of the variable on labor market activity in the model, which contributes to making the marriage decline in the last decades even more visible than without that control. The proportions of women and men usually more prone to enter marriage – i.e., those active in the labor market and with high earnings (see Table 1) – increased during the 2010s (Ohlsson-Wijk and Andersson 2022). Thus, the improving economic situation during this time period seems to partially counteract the decline in marriage propensities. On the contrary, the inclusion of the variable for parity – which controls for the increasing proportion of childless individuals over the last decade – makes the marriage decline somewhat less steep, but the differences between models with and without this control are negligible (results available on request).

Turning to the role of any inequalities in marriage formation trends, Figure 2 shows how trends differ according to the birth country of the never-married persons' parents. The left panel presents the marriage risks relative to individuals with Swedish-born parents in 2012, whereas the right panel presents the relative marriage risks within each group, using 2012 as the reference category for each group. A uniform decline appears across individuals of all migratory backgrounds during the 2010s, which accelerated during the pandemic, with a minor marriage reversal in 2021 only for men and women with at least one non-European parent and, to a lower extent, one European non-Nordic parent.

Figure 2. Relative risk of first marriage formation in Sweden, by calendar year and parents' country of birth. Piece-wise constant baseline intensity models for women and men separately
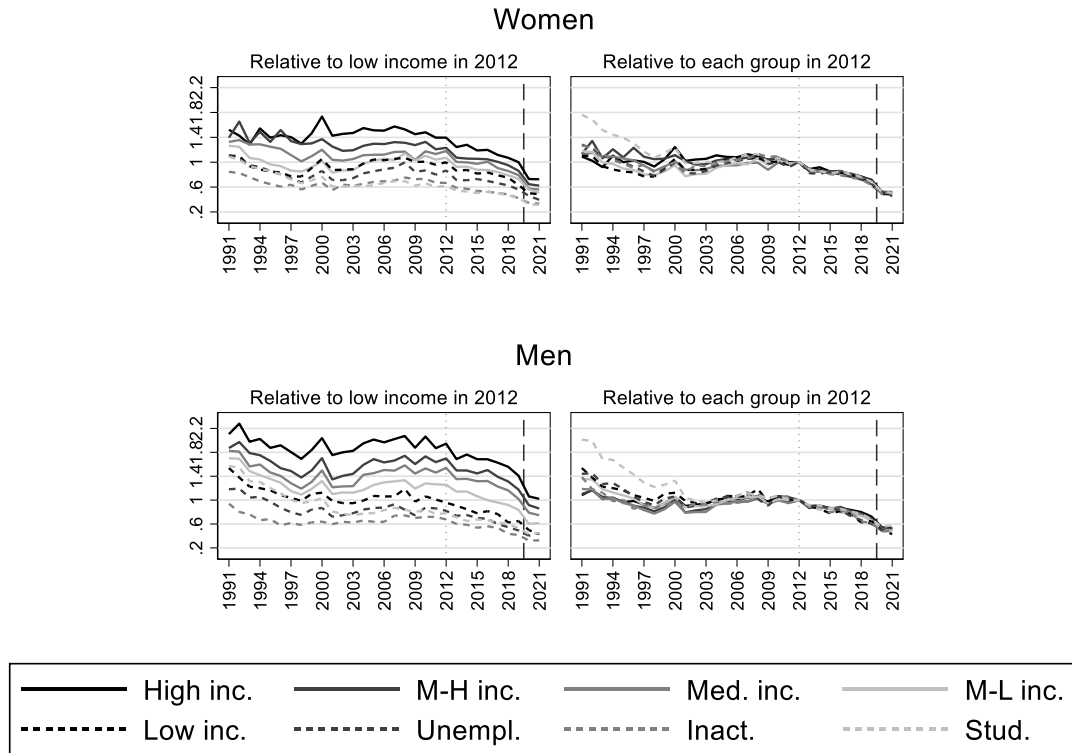

Notes: The left panel shows rates relative to those with Swedish-born parents in 2012; the right panel shows rates relative to those in 2012 for each category of parents' birth country. Models control for age, parity, region of residence, education, and labor market activity.

A similar pattern of relative equality in marriage formation trends according to never-married women and men's labor market status are presented in Figure 3. The panels of the graph can be interpreted in the same way as in Figure 2. Large absolute differences in marriage propensities are visible across labor market groups, with higher marriage risks the higher the earnings levels (see Table 1), but the relative decline in the 2010s occurs similarly for all groups, as well as the accelerated drop after the onset of the pandemic. The 2010s marriage decline is somewhat weaker among the high-income group than among the inactive and the low-income group, as was also the case for the first-birth decline in Sweden during this decade (Ohlsson-Wijk and Andersson 2022). For example, the marriage risk fell by 29% from 2012 to 2019 for women in the upper strata of the income distribution, whereas it fell by 37% for women in the lowest part of the income distribution. However, the marriage drop in 2020 was larger for the former than for the

latter group: the marriage risk decreased by 21% from 2019 to 2020 among women with low earnings and by 27% among women with high income.

Figure 3. Relative risk of first marriage formation in Sweden, by calendar year and labor market activity. Piece-wise constant baseline intensity models for women and men separately
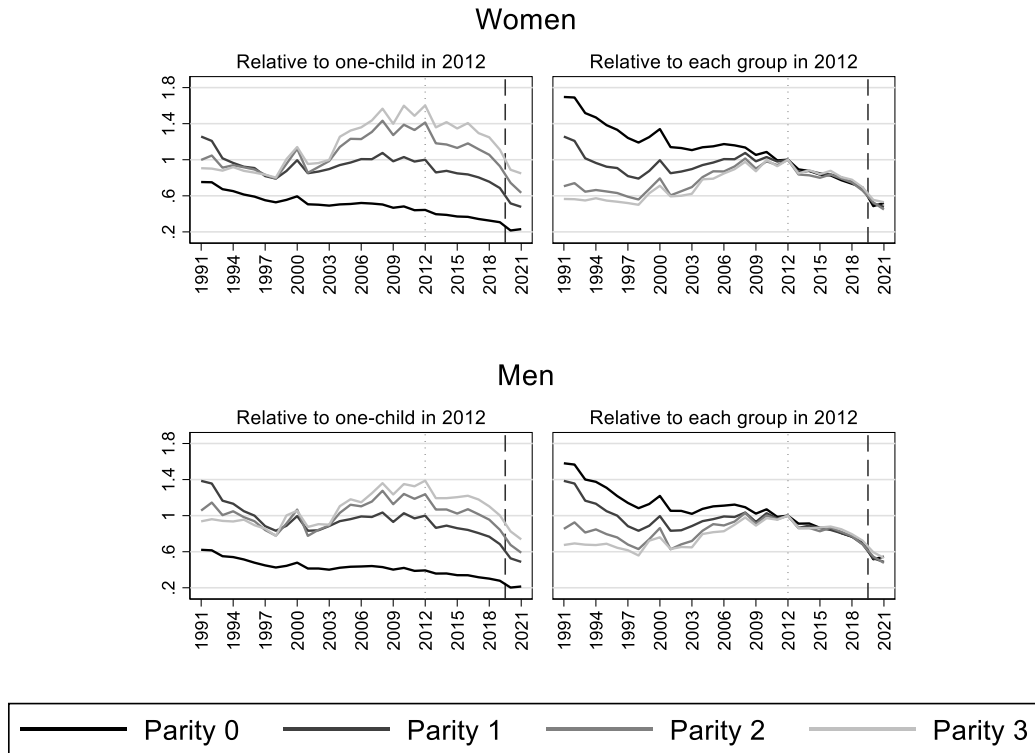

Notes: The left panel shows rates relative to those of low-income individuals in 2012; the right panel shows rates relative to those in 2012 for each category of labor market activity. Models control for age, parity, region of residence, parents' country of birth, and education.

Finally, Figure 4 – with a similar design as in Figures 2 and 3 – shows how the marriage-formation trends evolved for women and men with different numbers of children. Crucial for our purposes is that the relative marriage decline during the 2010s appeared very similar for all parity groups. It follows in the wake of a period of marriage increases during the first decade of the 2000s for women and men who were parents, and who continued to have higher marriage propensities than the childless during the decline period of the 2010s. For the childless, the recent decline is part of a more long-term development, with only a minor stabilization in their marriage-formation levels during the early 2000s. Marriage risks decreased drastically in the first year of the Covid-19

16

pandemic for all parity groups, but childless women and men seem to have halted this decline in 2021.

Figure 4. Relative risk of first marriage formation in Sweden, by calendar year and parity. Piece-wise constant baseline intensity models for women and men separately

Notes: The left panel shows rates relative to those of one-child mothers and fathers in 2012; the right panel shows rates relative to those in 2012 for each parity. Models control for age, region of residence, parents' country of birth, education, and labor market activity.

4.2. Cohabitation trends

Our findings on trends in marriage formation thus show that the marriage risks decreased gradually during the 2010s and then sharply during the entry of the pandemic, without any notable relative differences in trend changes across social groups or parity belonging. Moreover, the observed decline does not appear to be driven by changes in the composition of the population at marriage-formation ages.

We now turn to our findings regarding trends in cohabitation formation, starting with Figure 5, which presents the main trends in the relative risks of entry into cohabitation by calendar year separately by age group. In these models we use 2016 as our baseline year for the calculation of relative risks. Results from our Model 1 – which standardizes the

period trends only for the age composition – show a minor decline in cohabitation formation until 2016 for the younger group of women and men, followed by a striking stability in union formation during the following years, including in the pandemic period. In contrast, a striking decline in cohabitation formation is observed for women and men at the higher ages. For example, cohabitation risks decreased by 14-16% from 2012 and 2016 for individuals aged 18-28 and by 34-40% for those aged 29-55. In the following five years these risks decreased by only 5-7% for the former group and by 26-29% for the latter. Based on our assumption that the findings for the younger group largely reflect entry into first cohabitation (see Section 3.3), these results suggest that the decline in first cohabitation formation has been very limited.

Figure 5. Relative risk of cohabitation formation in Sweden, by calendar year and age group. Piecewise constant baseline intensity models for women and men separately
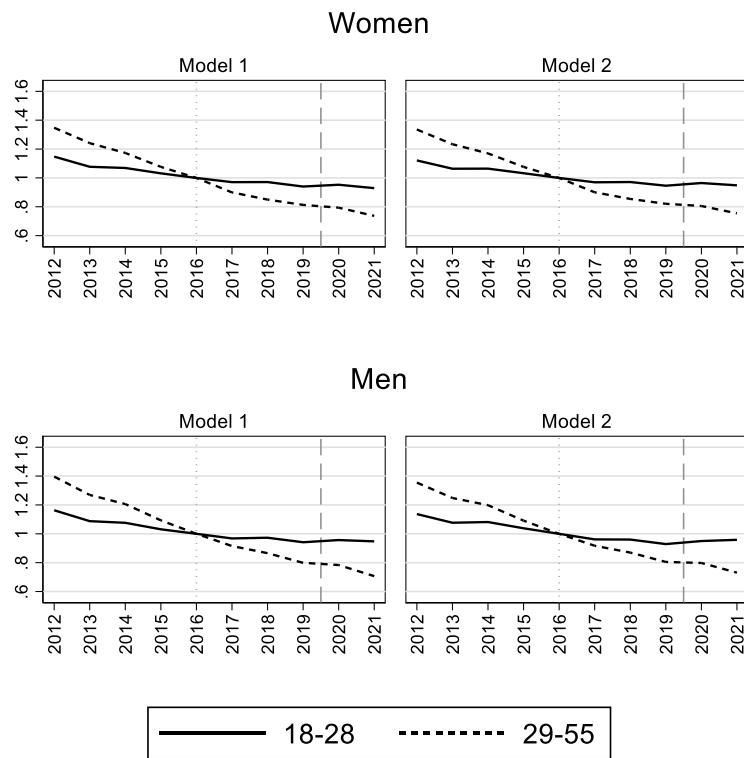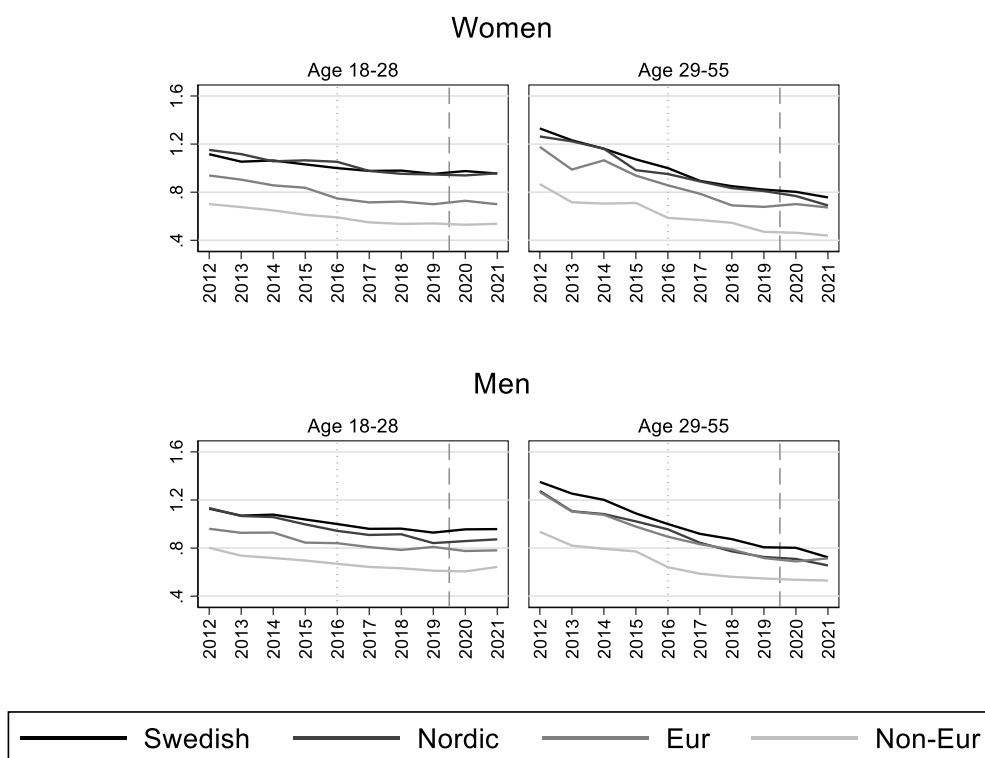

Notes: Rates relative to rates in 2016. Model 1 controls only for age; model 2 also controls for parity, region of residence, parents' country of birth, education, labor market activity.

As in the case for our analyses of marriage formation, these trends seem largely unaffected by any compositional changes in terms of socio-economic status, childbearing

and other measured characteristics: The results from our Model 2 in the right-hand panels of Figure 5 are very similar to those from the simpler Model 1.

Next, Figure 6 shows the differences in the levels and trends in cohabitation formation according to parents' country of birth, estimated in a model with full controls. We present these rates relative to individuals with two Swedish-born parents in 2016. First, we note that these patterns can be nicely contrasted with those for marriage formation (Figure 2, left panel), which showed that individuals with parents born outside Europe had the highest marriage risks. Whereas men and women with Swedish- or Nordic-born parents have similar risks of cohabitation formation, those with non-Nordic European and especially non-European parents have a substantially lower propensity to enter cohabitation over the entire decade. Moreover, despite the differences in the levels of cohabitation formation across these groups, the trends show a remarkable similarity with stability at the earlier ages and large declines at the higher ages for all groups considered.
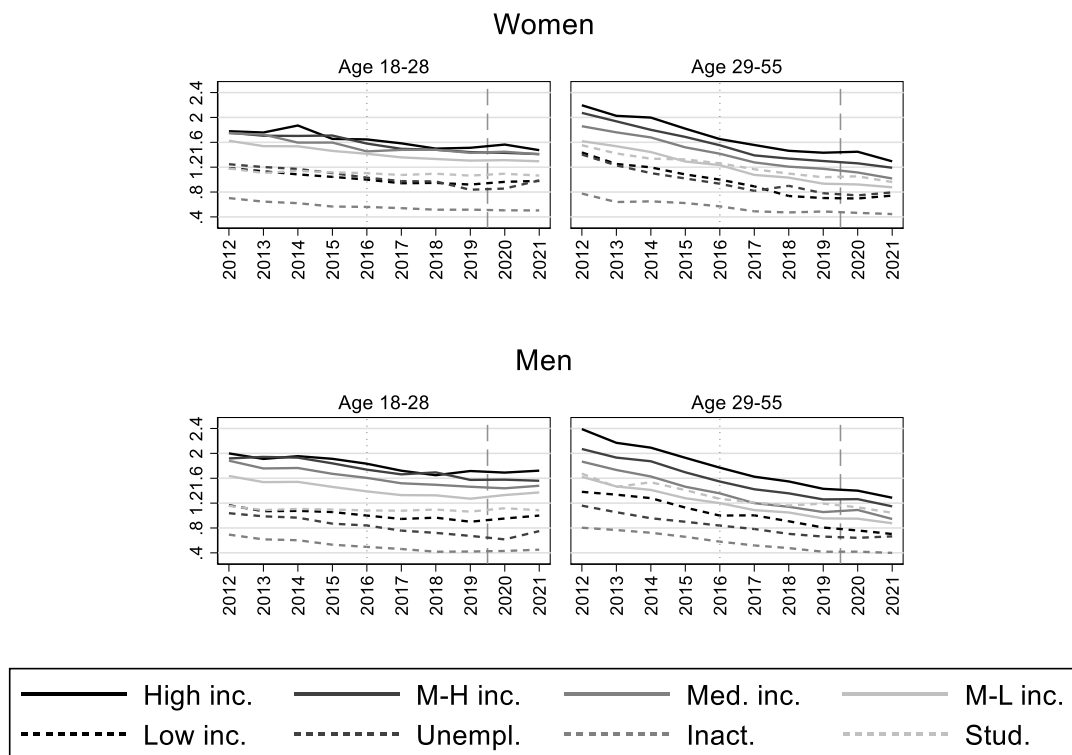
Figure 6. Relative risk of cohabitation formation in Sweden, by calendar year, age group and parents' country of birth. Piece-wise constant baseline intensity models for women and men separately

Notes: Rates relative to those with Swedish-born parents in 2016. Models control for age, parity, region of residence, education, and labor market activity.

The findings on differences in levels and trends across our labor market categories are presented in Figure 7. The findings on differences between groups in the levels of cohabitation formation correspond nicely with those observed for marriage formation (Figure 3, left panel) and also with previous findings for first-birth risks (Ohlsson-Wijk and Andersson 2022). Just as for marriage and becoming a parent, the high-income earners are more likely than low-income earners, unemployed and the inactive to form a cohabiting union. The only exception holds for the student group, with students having a higher cohabitation risk than the unemployed, inactive and, among individuals at higher ages, low-income earners. However, as in the case of differences by migratory background, the trends in cohabitation formation have been strikingly similar for the different labor market groups.

Figure 7. Relative risk of cohabitation formation in Sweden, by calendar year, age group and labor market activity. Piece-wise constant baseline intensity models for women and men separately

Notes: Rates relative to those of low-income individuals in 2016. Models control for age, parity, region of residence, parents' country of birth, and education.

Finally, Figure 8 shows how the relative risks of cohabitation entry have evolved for childless individuals and for individuals with children.[5] Childless people appear to have very stable rates of cohabitation formation over the whole decade, especially at younger ages. In contrast, parents decreased their cohabitation formation over the years, especially at the older ages. The general decline at higher ages is almost entirely driven by parents, who presumably had dissolved a previous parental union, but become less inclined to enter a new co-residential union. This supports our conclusion of a lack of decline in first union formation by means of entry into cohabiting partnerships. However, we detect a decline in cohabitation re-formation after the breakup of child families at the more advanced ages.

Figure 8. Relative risk of cohabitation formation in Sweden, by calendar year, age group and parity. Piece-wise constant baseline intensity models for women and men separately
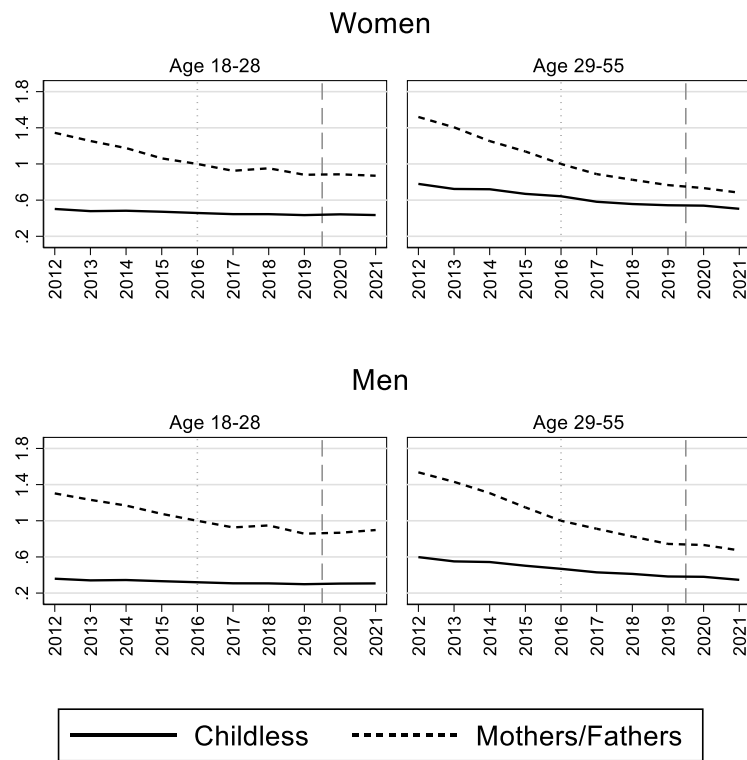
Notes: Rates relative to those of mothers and fathers in 2016. Models control for age, region of residence, parents' country of birth, education, and labor market activity.

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[5] For a more detailed presentation of differences across parity groups, see Figure A1 in the Appendix.

5. Conclusion

In this contribution, we studied recent trends in marriage and cohabitation formation in Sweden, focusing on the period during the 2010s and the subsequent Covid-19 pandemic. The 2010s were a period of declining first-birth rates and we were particularly interested in studying the extent to which the trends in union formation may have developed in tandem with those of birth rates, whether trends may have differed across different subgroups of the population, and whether they were driven by any changes in the composition of men and women at union formation ages. Our study reveals that Sweden experienced a slow but gradually accelerating decline in first-marriage rates during the 2010s, followed by a sharp drop in marriages during the pandemic. In contrast, there was very little change in the rates of cohabitation formation during the same period.

The gradual decline in first-marriage rates during the 2010s shows a striking similarity with the decline previously observed for first births (Ohlsson-Wijk and Andersson 2022), whereas the more drastic decline during the pandemic was decoupled from the corresponding development for fertility (Neyer et al. 2022). The accelerated decline in marriage formation during 2020 can rather be linked to characteristics that are specific to that life-course transition, such as the opportunity to host big celebrations with family and friends (Lappegård and Noack 2015), which was not possible during the restrictions that were applied during the first phases of the Covid-19 pandemic.

Moreover, we found that the decline in first marriage rates was not driven by compositional changes related to the socio-economic standing of Swedish women and men. In fact, the proportions of women and men usually more likely to enter marriage, such as those active in the labor market and with high earnings, increased during the 2010s (cf. Ohlsson-Wijk and Andersson 2022). Without such a compositional change there might have been an even steeper decline in first marriages. Crucially, the falling marriage rates seemed not to be linked directly to the fertility decline either as they were not driven by changes in the parity composition among Swedish women and men during the period we study. Indeed, changes in childbearing behavior during the 2010s, which produced increasing fractions of childless women and men, explained only a negligible portion of the first marriage fall.

Further, despite different *levels* of first-marriage intensities across social groups during the entire period (e.g., transition rates being higher for individuals with high earnings),

the relative decline in rates appeared strikingly homogeneous for women and men with different migration background, labor market status, and other socio-demographic belonging. Indeed, the first marriage decline in the 2010s was homogeneous also for women and men with different numbers of children, even though only parents had experienced the preceding marriage up-tick during the first decade of the 2000s. Marriage risks also dropped similarly for all parity groups during the pandemic.

By exploiting new register data on Swedish dwellings and households, we also analyzed patterns and trends in cohabitation formation at the population level for the first time. We showed that the rates in cohabitation formation had been strikingly stable for young women and men during the period we study. They declined somewhat during the first years from 2012 onwards, stabilized after 2016 and remained unchanged even during the course of the pandemic. In contrast, for higher ages, we find that cohabitation formation declined, a finding that we interpret in terms of decreases in the propensity to enter new higher-order unions after the dissolution of a first cohabiting union: The declines at the more advanced ages were driven almost entirely by declines of fathers and mothers to enter a new cohabiting union.

As for our findings for marriage formation, the trends in cohabitation formation were largely unaffected by compositional changes in the population across different socio-demographic groups. However, by differentiating trends according to parental status, we showed that the declines that did exist were almost entirely driven by parents, whereas childless men and women had very stable rates of cohabitation formation over the 2010s as well as during the Covid-19 period. We conclude that there has been no decline in the first-order couple formation of young adults in recent years, but that Sweden experienced a decline in union re-formation at higher ages, especially among separated parents.

Our findings underline that the fertility decline in the 2010s has not been produced by a decline in the formation of new cohabiting partnerships, but rather by a declining propensity among childless cohabiting people to become parents, as also indicated by previous studies (Neyer et al. 2022; for Finland, see Hellstrand et al. 2022). The fertility decline is a distinct development among childless cohabiting women and men; added to this picture is an equally distinct development among cohabiting people to become less prone to change their union status to that of a marital union.

The findings of our study, coupled with that of previous findings of declining first-birth rates, suggest that young Swedish adults are becoming increasingly hesitant to take the next steps in terms of further family commitments, both in terms of marriage and childbearing. As we have shown, they still enter cohabiting unions, but apparently have become less willing to proceed to elevate their relationship status by forming a marriage or becoming parents. In addition, those who have already had children and separated have become less likely to enter a new co-resident relationship.

To sum up, the Swedish fertility decline during the 2010s was joined by a parallel trend of declining marriage rates, but not of less (first) cohabitations. The trend of declining marriage rates was an independent development and not produced by changes in the parity composition of non-married people. However, marriage decisions are still strongly linked to childbearing decisions (Holland 2013; Lappegård and Noack 2015) and it is plausible that some of the factors that may have driven the fertility change have also contributed to the marriage decline. These factors are by no means verified but increases in uncertainties about the future and perceived uncertainties in people's lives resulting from globalization dynamics, changing labor-market structures, new information technologies, and related political and cultural polarization, may thus negatively affect not only fertility decisions (Vignoli et al. 2020; Neyer et al. 2022), but also marriage intentions. In contrast, forming a cohabitation union and remaining in a cohabiting state may be better compatible with a situation of perceived uncertainties, as cohabitations require less commitment than that required by marriage or parenthood (Guetto et al. 2021).

Our study made several contributions. Besides analyzing cohabitation trends in the Swedish population for the first time, it provided new evidence on first marriage trends, and new insight into the relationship between union dynamics and fertility development. However, it also poses new questions for future research. A focus on patterns and trends in the dissolution of cohabiting unions would produce more in-depth information on the changing dynamics in such unions (Jalovaara and Andersson 2023). The state of being in a childless cohabiting union is normally a very unstable and transient one (Andersson et al. 2017). However, if union dissolution rates have not increased drastically during the period we study it may well be that this state has become a new and more prominent family form in Swedish family dynamics. A more in-depth focus on the competing risks of leaving the status of being a childless cohabitee would add further insight into recent

family change. In this respect, future research could investigate which factors matter for couples in their decisions or possibilities to go forward with marriage and/or parenthood, compared to staying at *status quo* or dissolving their union.

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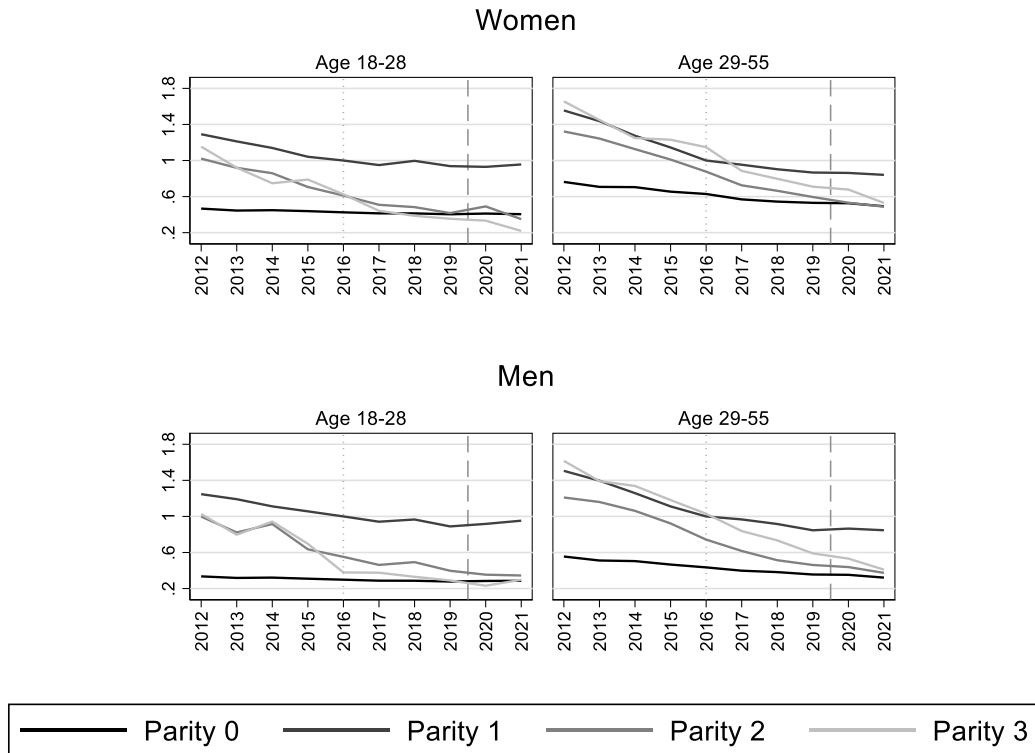
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Appendix

Figure A1. Relative risk of cohabitation formation in Sweden, by calendar year age group and parity. Piece-wise constant baseline intensity models for women and men separately

Notes: Rates relative to those of one-child mothers and fathers in 2016. Models control for age, region of residence, parents' country of birth, education, labor market activity.