Birth cohort changes in fertility ideals: Evidence from repeated cross-sectional surveys in Finland

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Declarations

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Abstract

Fertility has declined in developed countries, but it is unknown whether a similar pattern is observed in the ideal number of children over birth cohorts. Using repeated cross-sectional survey data from the Finnish Family Barometers, we examined birth cohort changes in the ideal number of children among men and women from five birth cohorts (i.e., 1970–74, 1975–79, 1980–84, 1985–89, and 1990–94). We also examined whether income and education were related to the ideal number of children over and above the birth cohort differences, and whether there were any gender differences in these associations. We found that the ideal number of children was lower among more recent compared to earlier birth cohorts, which was driven by substantially higher childfree ideals among the recent cohorts. Income and education were associated with the ideal number of children among men but not women, yet birth cohort differences in the ideal number of children remained significant after controlling for these characteristics. This suggests that strong birth cohort differences in increased childfree ideals are not due to individual socio-economic circumstances of more recent birth cohorts. Rather, childbearing attitudes of Finns have likely changed and may contribute to the recent fertility decline.

Keywords: fertility, ideal number of children, childless, childfree, cohort change, education, income.

Introduction

Since the Great Recession, fertility has declined steeply in several high-income countries, including the Nordic countries. In Finland, the total fertility rate (TFR) decreased from 1.87 in 2010 to the all-time lowest of 1.35 children per woman in 2019 (Official Statistics of Finland (OSF), 2022). Similar trends have been observed in other Nordic countries, although with declines less pronounced than in Finland (Hellstrand et al., 2021). Finland is known for its generous family policies, gender equity, and high labour market involvement of women – factors which used to correlate with higher fertility in Europe (Frejka, Goldscheider and Lappegård, 2018; McDonald, 2000). The reasons for fertility decline remain widely discussed, but explanations related to socioeconomic position or lack of gender equity do not suffice to capture the latest changes in childbearing (Comolli et al., 2021; Hiilamo, 2020). What remains missing is evidence on whether fertility ideals and desires, known key predictors for childbearing behaviour (Bongaarts, 2001; Miller, 2011; Philipov and Bernardi, 2012), may have changed, either in parallel or prior to the fertility decline, and are in part fuelling this development.

Previous studies have documented a persistent two-child family ideal in many high income countries over the last three decades on the aggregate level (Hagewen and Morgan, 2005; Sobotka and Beaujouan, 2014), suggesting that the ideal number of children stabilized around the replacement level. Given that fertility rates are well below two in many of these countries (Sobotka, 2020), this macro-level disparity between average ideal and achieved family sizes has been named the ‘fertility gap’ (Philipov, 2009). However, there is competing evidence which indicates that fertility ideals have been declining as well (Goldstein, Lutz and Testa, 2003; Hagewen and Morgan, 2005; Hartnett and Gemmill, 2020; Testa, 2007). Goldstein and colleagues (2003) showed that the personal ideal number of children was below the replacement level in Germany and Austria using Eurobarometer surveys,

especially for younger adults aged 20–34 years. These findings were further corroborated by Testa (2007) using the Eurobarometer 2006 survey. Hagewen and Morgan (2005) have used US survey data to show that there might be a decline in the intended number of children for young women under 25 years compared to earlier cohorts of similar age. Likewise, Hartnett and Gemmill (2020) recently showed that the intended number of children has declined in the US from 2006 to 2017, and intentions of having no children have risen among younger people. This period was also characterized by unprecedented declines in TFR in the US (Rybińska, 2020).

Declining fertility ideals and spread of childlessⁱ lifestyles have been suggested as potential explanations for the fertility decline in Finland, along with overall changes in the culture concerning family formation, mismatches between women's work–family expectations and work–family policies, and increases in social exclusion of young men (i.e., rising numbers of low-educated and unemployed young men) (Hiilamo, 2020; Miettinen, 2015a; Rotkirch, 2020; Rotkirch, Tammissalo, Miettinen and Berg, 2017). Results from the Family Barometer surveys conducted by the Population Research Institute at Väestöliitto, the Family Federation of Finland, suggest that the average ideal number of children has declined over the last 20 years: from 2.3 and 2.5 children in the 1990s and early 2000s to 2.0 – 2.2 children in the 2010s (Miettinen, 2015a; Rotkirch et al., 2017). However, it remains unclear whether this change in fertility ideals represents period changes, which may have been triggered by social events like the Great Recession and affected all birth cohorts alike, or whether it captures a more deeply rooted ideational change across birth cohorts.

Our study addresses this question. The main aim is to examine whether there are birth cohort differences in the ideal number of children among people born between 1974 and 1994. To this end, we use repeated cross-sectional data from Finland from the Family Barometer surveys, collected between 2007 and 2018. Our central research question is: *Do*

individuals from more recent birth cohorts have lower fertility ideals compared to individuals born earlier when examined at the same age? A decline in fertility ideals among more recent birth cohorts can be assumed to reflect some broader cultural changes in Finland. Fertility has declined among women of all age groups and at all parities, but the decline of first-order births, especially among women under 30 years of age, made the largest contribution to the decline (Hellstrand, Nisén and Myrskylä, 2020). This suggests increases in childless life course periods among the cohorts born roughly after 1990. We, therefore, further examine the differences in the ideal number of children across birth cohorts separately among childless people and parents.

Alternatively, documented declines in the average ideal number of children in Finland can rather reflect period changes in fertility ideals, which may have accompanied the Great Recession and its recovery period. In this case, we would expect socio-economic indicators such as income and education to be associated with the ideal number of children, with negligible birth cohort differences. Therefore, our second aim is to study how income and education are associated with the ideal number of children over and above the birth cohort differences during the study period. Furthermore, prior research suggests that cost-benefit considerations affect men's childbearing desires more than women's (Liefbroer, 2005), which is why we also examine gender differences in the association between the socio-economic indicators and the ideal number of children. We ask the following research questions: *Do income and education predict the ideal number of children over and above the birth cohort differences in the ideal number of children? Does this association differ between men and women?* While period changes in ideal numbers of children can only be formally identified based on longitudinal survey data, which unfortunately do not exist in the Finnish context, strong associations between socio-economic factors and fertility ideals in the

absence of birth cohort differences would indicate an impact of the period related to the Great Recession, rather than birth cohort-changes in fertility ideals.

Our study contributes to the sociological literature on childbearing and fertility. To date, very few studies have examined birth cohort differences in fertility ideals. Previous studies of changes in fertility preferences have mainly focused on investigating changes over the life course (e.g., Gray et al., 2013; Heiland et al., 2008; Kuhnt et al., 2017) or time periods (Sobotka and Beaujouan, 2014). Moreover, by documenting the presence of birth cohort differences in fertility ideals, particularly in childfree ideals, we underscore the potential relevance of ideational change for the currently observed fertility declines. Although our study does not examine associations between changes in the ideal number of children and actual fertility rates in Finland, studying changes in fertility ideals *per se* is important, because they can serve as an indicator of broader cultural changes that affect family formation processes in Finland.

Background

Terminology: Ideal number of children

In this study, fertility ideals are operationalized as ideal number of children (also referred to as ideal family size), which is usually conceptualized as the preferred number of children a person would have with perfect fertility control and absent constraints on fertility (Liu and Lummaa, 2019; Philipov and Bernardi, 2012). The ideal number of children can concern the population at large (e.g., ‘What would be an ideal number of children for a family?’) and in that case can be interpreted as societal norms (Philipov and Bernardi, 2012). In the present study, we focus on the *personal* ideal number of children, the concept which has often been used synonymously with fertility desires in previous studies (i.e., usually measured by asking how many children people wish to have) (see for example Philipov and

Bernardi, 2012; Testa, 2007). The personal ideal number of children has been shown to change over the life course alongside or following changes in attitudes and life circumstances (Philipov and Bernardi, 2012, Kuhnt et al., 2017).

Theories on fertility decision-making and behaviour, such as the traits-desires-intentions-behavior model (TDIB) (Miller, 2011), the theory of planned behavior (TPB) (Ajzen and Klobas, 2013), and the cognitive–social model of fertility intentions (Bachrach and Morgan, 2013), have highlighted the relevance of fertility ideals in fertility behaviour but not explicitly measure it. A recent study extends this framework, adding a three step model of reproductive decision-making where fertility ideals, along with fertility desires and intentions, take a more central role (Liu and Lummaa, 2019). According to this study, the ideal family size influences fertility desires, which, in turn, determine intentions of having children (i.e., represents actual plans regarding childbearing), which are realized within the constraints of life circumstances. Generally speaking, fertility ideals and desires are considered as more abstract concepts reflecting one's attitudes and wishes about having children, whereas fertility intentions are viewed as more concrete plans regarding childbearing (Liu and Lummaa, 2019; Miller, 2011; Philipov and Bernardi, 2012). Both motivational constructs are theorized, and have empirically been shown, to be pivotal factors associated with childbearing behaviours (Bongaarts, 2001; Miller, 2011; Philipov and Bernardi, 2012; Yeatman, Trinitapoli and Garver, 2020).

Theoretical explanations for changes in fertility ideals over birth cohorts

According to the second demographic transition theory (SDT), ideational factors and value changes play a crucial role in family formation in contemporary developed societies, since strict marital and social norms and economic necessities as determinants of childbearing have been replaced by individual freedom of choice (Lesthaeghe, 2010, 2014).

The spread of post-materialist or postmodern values, such as the need for individual autonomy, self-actualization, self-development, and consumption or leisure aspirations, is theorized to go hand in hand with a decreased importance of having children compared to other life goals (Lesthaeghe, 2014).

At the same time, the cost of childbearing in terms of financial resources and time investments has increased (Craig et al., 2014; Kornrich and Furstenberg, 2013). Due to the high expectations of good parenting (so-called intensive parenting), younger people might perceive childbearing as more demanding than their parents' generation (Craig et al., 2014). This may, in turn, trigger both increases in permanent childfree preferences among younger people (Rybińska, 2020), as well as the desire for longer childfree periods before entering parenthood, reflected in older ideal ages at first birth (Lebano and Jamieson, 2020; Melnikas and Romero, 2020).

A more recent societal change, namely the spread of social media, may have influenced attitudes regarding childbearing and family formation in addition. In Finland, over 90% of young adults own a smart phone and over 80% of Finns aged 20–44 report using social media several times a day or constantly (Tammissalo et al., 2020). In line with the time displacement hypothesis, increased screen time is related to lower relationship satisfaction (Tammissalo and Rotkirch, 2022), which, in turn, may influence fertility behaviour. Social media use may also directly affect fertility ideals by exposing users to lifestyles that often compete with traditional attitudes toward marriage and family, as well as reduce contacts between childless individuals and parents with small children (Hiilamo, 2020; Rotkirch et al., 2017). For example, a recent study from Finland showed that childless people who use social media frequently were more likely to postpone or even renounce childbearing due to reasons related to certain lifestyle preferences, compared to those who use social media less frequently (Savelieva, Jokela and Rotkirch, 2022). At the same time, social media use may

also foster stress and higher uncertainty in people's life by shaping people's narratives about how parenthood would affect their own prospects in life (Vignoli, Guetto, Bazzani, Pirani and Minello, 2020). This could lead to changes in family formation and shape the aspirations of young adults. In the same study from Finland, frequent social media users were more likely to report reasons to postpone or renounce childbearing due to uncertainty in life compared to less frequent users (Savelieva et al., 2022).

Another major societal shift occurring in recent decades is the spread of work-related attitudes, in particular the so-called 'workism' (DeRose and Stone, 2021; Hiilamo, 2020). It has been suggested that the rising importance of work as a source of value and meaning in life and fulfilling the need for self-realization and self-development, as outlined in the second demographic transition theory, is replacing the importance of family and children (DeRose and Stone, 2021). As a result, the ideal number of children may be declining, especially among young childless people. According to the preference theory (Hakim, 2002, 2006), women with a work-centred lifestyle are more likely to have lower fertility ideals compared to women with home-centred or adaptive lifestyles. Higher work-related attitudes have also been shown to be associated with a higher likelihood to postpone or forgo childbearing among both men and women in Finland (Savelieva et al., 2022).

Based on the SDT framework and these recent cultural and societal changes, it is, therefore, possible that fertility ideals have changed among more recent birth cohorts. We hypothesize that

Hypothesis 1 (H1): men and women born in more recent birth cohorts will have a lower ideal number of children and endorse childfree ideals more often compared to men and women born in earlier birth cohorts.

Socio-demographic factors in fertility ideals among men and women

Fertility ideals may have declined due to or in addition to other reasons than cultural or lifestyle changes, which we hypothesized are reflected primarily in birth cohort changes in fertility ideals. After the Great Recession, economic uncertainty was listed among one of the reasons to postpone or not to have (more) children in Finland (Savelieva et al., 2022). Although recession indicators do not fully explain the Finnish fertility decline (Comolli et al., 2021; Hiilamo, 2020), it has been suggested that *perceived* uncertainty about the future, which does not necessarily reflect own's financial or labour-market situation, plays an important and previously underestimated role in fertility decisions (Vignoli, Guetto, et al., 2020).

According to the Narrative Framework, people act according to or despite uncertainty, based on their own perceptions of their life prospects and their “narratives of the future” (Vignoli, Bazzani, Guetto, Minello and Pirani, 2020; Vignoli, Guetto, et al., 2020). In other words, fertility decisions under economic uncertainty are not only related to structural constraints, but also to personal narratives of the future (Vignoli, Guetto, et al., 2020). If that is the case, we will expect to see changes in the ideal number of children across all birth cohorts alike, in response to changing socio-economic conditions, instead of being clustered in more recent birth cohorts. Moreover, we will expect lower education or income to be associated with lower fertility ideals, even though objective socio-economic measures can only serve as proxies for perceived uncertainty.

Based on the uncertainty perspective, we formulate the second hypothesis as follows:

H2: lower levels of education and income will be associated with lower fertility ideals in all birth cohorts due to increased period insecurity during the study years (controlling for age, parenthood status, and partnership status).

Gender differences in fertility ideals among men and women

We also expect to see gender differences in these associations, given that the motivations associated with the desire to have children appear to differ between men and women (Mynarska and Rytel, 2020). For instance, men's desire for parenthood is in contemporary Europe more often tied to the support for traditional values of children, such as the view that children can stabilize a marriage, or to positive cost benefit considerations with regards to having children, whereas women more often named emotional aspects, especially those related to pregnancy and infancy, as main motivational factors for having children (Mynarska and Rytel, 2020). Previous studies have also shown that education matters for fertility decision making of women: more highly educated women prefer to have larger families compared to less educated women (Kuhnt et al., 2017; Morgan and Rackin, 2010). Therefore, we suggest that

H2a: income will be strongly related to the ideal number of children among men but not women over the study period across all birth cohorts (controlling for age, parenthood status, and partnership status).

H2b: higher education will be related to a higher ideal number of children among women across all birth cohorts (controlling for age, parenthood status, and partnership status).

Previous studies investigating life course changes in the ideal or desired number of children suggest that fertility ideals and desires decline with age, especially among women (Gray et al., 2013; Heiland et al., 2008; Kuhnt et al., 2017). It is, therefore, pivotal to control for age when assessing factors associated with fertility desires, and to compare individuals from the same age groups when assessing birth cohort changes.

The Finnish context

Finland and other Nordic countries (Sweden, Norway, Denmark, and Iceland) have been known for relatively high and stable fertility with similar period and cohort fertility patterns prior to the Great Recession (Andersson et al., 2009), albeit Finland has had higher proportions of childless men and women (Jalovaara et al., 2019). All Nordic countries pay universal child allowance to all parents (except Iceland where benefits are means tested to income), as well as have other types of family benefits (Eydal, Rostgaard and Hiilamo, 2018). In Finland, family policy is based on universal child allowance (for every child below the age of 17), paid maternal, parental, and paternal leave periods, and child home-care allowance (for children under the age of three who do not visit child day care services) (Ministry of Social Affairs and Health, 2013). Such generous family policies, combined with high female employment rates and gender equality have been suggested to have positive impacts on fertility (Frejka et al., 2018; McDonald, 2000). Therefore, the steep fertility declines in the Nordic countries over the last decade came unexpected to many researchers.

After a rapid fertility decline during the 1960s, Finland maintained comparatively high fertility in the late 1970s – 1980s before the advent of two severe economic crises (TFR ranging from 1.59 to 1.79 during this period). In 1991-1994, when the earliest birth cohort in this study entered their 20s, Finland experienced a deep economic recession with unemployment rates increasing to almost 20% (Haataja, 2005). Fertility did not immediately decline during the economic recession of the 1990s: instead, the TFR first increased to 1.85 in 1994 and then declined to 1.71 in 1998 (Hiilamo, 2017). Prior to the crisis, Finland introduced a home-care allowance for children under the age of three who were not in day care, so that employed parents could take childcare leave and then securely return to their job. During the recession, home-care allowance offerings increased by 30% and parental leave for mothers and fathers was extended, which might help to reduce the negative effects of unemployment on fertility during the economic recession (Haataja, 2005; Hiilamo, 2017).

However, home-care allowance was significantly cut in 1996, and eligibility for it and parental leave were tightened (Haataja, 2005).

In the late 1990s – early 2000s, when the 1980–84 birth cohorts entered their 20s, Finland experienced rapid economic growth, and birth rates also increased. Following the Great Recession in 2008, however, the Finnish economy stagnated for about a decade, and only in early 2017 did the first signs of robust economic growth appear. Also this time, the TFR did not immediately decline but reached 1.87 in 2010. Then fertility declined rapidly until 2019, when TFR was 1.35, after which it has recovered to 1.46 in 2021 (Official Statistics of Finland (OSF), 2022). The tempo-adjusted TFR has also been decreasing in Finland during the last decade, indicating that the fall in TFR is not fully explained by postponement of childbearing to later ages (Hellstrand et al., 2020). Birth order decompositions showed that decreasing first births accounted for more than 75% of the decline in period fertility, followed by 21% decline in second and third births (Hellstrand et al., 2020).

Data and Methods

Sample

Data came from six waves of the repeated cross-sectional Family Barometer surveys (2007–2018), conducted by Väestöliitto, the Finnish Family Federation, to study various topics related to family life and childbearing in Finland (Lainiala et al., 2014; Miettinen, 2015b; Miettinen and Rotkirch, 2008a, 2010). The surveys in 2007 and 2008 were conducted as postal surveys by the Population Research Institute at Väestöliitto, and the surveys in 2010, 2014, 2015, and 2018 were conducted as online surveys by KANTAR TNS Gallup Oyj. The response rates for postal surveys were 52% in 2007 and 44% for 2008, whereas the response rates for online surveys cannot be determined. The participants for the online

surveys were recruited by KANTAR TNS Gallup Oyj from the panel of participants of approximately 50,000 households, which represent Finnish population (excluding the Åland islands). The sample size for the online surveys was predetermined, and the data collection was finished once the sample size was reached.

The total sample comprised 14,667 participants (1,560–3,180 participants per survey year; **Supplementary Table 1**). For this study, we included only men and women aged 20–45 born in 1970–1994 who reported their ideal number of children. Thus, the analytical sample included 7,344 participants with 482–2,041 participants per survey year (**Supplementary Table 1**). Compared to the Finnish population, people aged 20–24 were underrepresented in all survey years; whereas highly educated participants (having at least lower tertiary education) were overrepresented across all survey years (**Supplementary Table 2**). Therefore, all analyses were weighted for age and education, and gender was treated as strata.

Measures

The ideal number of children was self-reported in all surveys and coded as 0, 1, 2, 3, 4, 5, 6+ children. It was asked with the following questions: “The ideal number of children in my own family would be ...” in survey 2007; “The ideal number of children for yourself would be...” in survey 2008; and “What is or would have been your own ideal number of children?” in surveys 2010–2018. Birth cohorts were the following: 1970–74, 1975–79, 1980–84, 1985–89, 1990–94. Age was used as a continuous variable and centred at 30 years to facilitate the interpretation of the results. Gender was coded as 0 = male and 1 = female. Parenthood status was coded as 0 = childless and 1 = one or more children. Partnership status was coded as 1 = single, 2 = divorced/separated or widowed, 3 = married, cohabiting, or being in a registered partnership. Education was coded as 0 = basic, 1 = secondary, 2 = lower

tertiary, and 3 = upper tertiary. Income was reported as personal monthly income in 2007 and 2008, and as annual income in 2010-2018. We recoded income into quartiles with 1 = the lowest quartile and 4 = the highest quartile for all survey years.

Statistical analysis

We pooled the data from six survey years to examine the birth cohort changes in fertility ideals. Given that the intraclass coefficient was low (ICC = 0.03, 95% CI 0.00, 0.07), linear regression analysis was used. First, we examined the overall birth cohort changes in the ideal number of children in the total sample for men and women. In this model, age was modelled with linear (age) and quadratic (age x age) terms to account for non-linearity. Birth cohort was used as a categorical variable, and the two-way interaction term between age and birth cohort was included in the model. The model was also adjusted for the number of children. The three-way interaction with gender (age x cohort x gender) was not significant ($P > 0.05$) and dropped. The model was written as follows and applied to men and women separately:

$$Y_i = \beta_0 + \beta_1 AGE_i + \beta_2 AGE_i AGE_i + \beta_3 COHORT_i + \beta_4 COHORT_i AGE_i + \beta_5 NUMBER_OF_CHILDREN_i + \varepsilon_i$$

To illustrate the birth cohort changes in the ideal number of children, we plotted adjusted predictions of the mean ideal number of children at different ages for each birth cohort.

We then examined birth cohort changes separately for childless people and parents, due to changes between cohorts in age at first birth and in the proportion of people remaining childless. The models were adjusted for gender, and the model for parents was additionally adjusted for the number of children. The models were written as follows:

$$Y_{i\text{childless}} = \beta_0 + \beta_1 AGE_i + \beta_2 AGE_i AGE_i + \beta_3 COHORT_i + \beta_4 COHORT_i AGE_i + \beta_5 GENDER_i + \varepsilon_i$$

$$Y_{iparents} = \beta_0 + \beta_1 AGE_i + \beta_2 AGE_i AGE_i + \beta_3 COHORT_i + \beta_4 COHORT_i AGE_i + \beta_5 GENDER_i + \beta_6 NUMBER_OF_CHILDREN_i + \varepsilon_i$$

Given that the decline of first-order births has made the largest contribution to the decline in TFR in Finland (Hellstrand et al., 2020), we focused on childless people to examine the probability of their childfree ideals (i.e., desiring 0 children) and the mean ideal number of children among those who want to have children (ideal number of children > 0). We applied the two-part model using *twopm* command in Stata 15.1 to jointly examine these associations (Belotti, Deb, Manning, & Norton, 2015). The probability of childfree ideals was modelled using logistic regression in the first part of the model and the mean ideal number of children above 0 was conducted using ordinary least squares regression in the second part of the model. As was the case with the total sample, the two-part model also included linear and quadratic terms for age, and the interaction term between age and birth cohort. The model was conducted separately for men and women.

Finally, the associations between education and income with the ideal number of children independent of birth cohorts were examined separately for men and women using linear regression analysis. The models were adjusted for linear and quadratic terms for age, the number of children, and partnership status. To aid the interpretation of the coefficients, age was divided by 5, so that a one-unit increase in age on ideal number of children corresponds to 5 years when reporting the unstandardized regression coefficients.

All statistical analyses were weighted for age and education and conducted in Stata 15.1 (StataCorp, 2017).

Results

Characteristics of the sample

Table 1 shows the characteristics of the analytical sample separately for men (n = 2,948, 40.1%) and women (n = 4,396, 59.9%). The mean age of participants was 31.1 years.

About half of the sample were childless (60.4% for men and 55.0% for women); the proportion of childless people versus parents by birth cohorts and age groups is shown in **Supplementary Table 3**. Women were more often in a steady relationship compared to men (66.6% vs. 59.5%, $P < 0.001$) and were more educated (e.g., 15.8% vs. 11.4% for higher tertiary education, $P < 0.001$), but men had higher income (e.g., 16.5% vs. 6.5% for the highest quartile, $P < 0.001$). There were no differences in the mean ideal number of children between men and women ($P = 0.093$). Almost half of the participants had an ideal of two children (49.6% for men and 43.4% for women), 20.9% had an ideal of three children (18.9% for men and 22.9% for women), followed by 15.8% having childfree ideals (16.4% for men and 15.1% for women), and finally 10.1% listed one child as an ideal (9.9% for men and 10.4% for women).

[ADD TABLE 1 HERE]

Changes in ideal number of children across birth cohorts

Figure 1 shows the mean ideal number of children at different ages for birth cohorts separately for men and women. The more recent cohorts have a lower ideal number of children compared to the earlier cohorts. These associations were more pronounced among women (**Supplementary Table 4**). For example, at age 30, the mean ideal number of children for women born in 1980–84 and 1985–89 was 1.9 and significantly lower than the mean ideal of 2.4 and 2.2 for women born in 1970–74 and 1975–79, respectively. The differences in the mean ideal number of children were the largest until age 30 and then decreased gradually. The results were similar for men (**Supplementary Table 4**). In the combined sample of men and women, the results were similar to those for women only (see **Supplementary Fig. 1**), and the three-way interactions between age, cohort, and gender were

nonsignificant (all P -values > 0.295), suggesting that birth cohort effects did not differ between men and women.

[ADD FIGURE 1 HERE]

We further examined birth cohort effects in the ideal number of children among childless people and parents (**Figure 2**). The trend was similar between childless participants and parents: the more recent cohorts reported a lower ideal number of children compared to the earlier cohorts. Compared to the total sample, the associations between age and ideal number of children by birth cohort were attenuated by about a half when examined only among parents, and the ideal number of children did not drop below two (**Figure 2, Supplementary Table 5**). For childless participants, the associations were more similar to the total sample, and the ideal number of children decreased below two for more recent birth cohorts. Similar to the total sample, the differences in the mean ideal number of children were largest until age 30 and then decreased gradually (**Figure 2**).

[ADD FIGURE 2 HERE]

Changes in childfree ideals across birth cohorts in the childless sample

We then examined whether the decline in the ideal number of children among younger birth cohorts was driven by an increase in childfree ideals or by decreases in the average ideal number of children among those who desired to have at least one child. When analysing childfree ideals, we focused on childless people, because the proportion of parents who stated childfree ideals was very low in all birth cohorts (0–2.3%; except for male parents from the 1990–94 birth – 11.6%; **Supplementary Table 6**). There were significant main effects of birth cohort, as well as interactions between age and birth cohort on the probability of childfree ideals: younger childless men and women in more recent cohorts had a higher probability of childfree preferences compared to earlier cohorts (**Figure 3A, Supplementary**

Table 7). In contrast, there were no main effects of birth cohort on the ideal number of children, and no interactions between age and birth cohort on the ideal number of children among people who wanted to have children (**Figure 3B, Supplementary Table 7**). Overall, these findings suggest that increases in childfree ideals among more recent birth cohorts compared to earlier ones seem to drive the overall decline in average fertility ideals across cohorts.

[ADD FIGURE 3 HERE]

Associations of socio-demographic variables with the ideal number of children independent of birth cohorts

Finally, we examined associations between education and income with the ideal number of children. After controlling for age, number of children, partnership status, and birth cohort we detected associations only among men, but not women (**Table 2**). Compared to men with basic education, higher educated men had a higher ideal number of children. However, men with higher income had a lower ideal number of children compared to men with lower income. In the same model, birth cohorts were still strongly associated with the ideal number of children in a dose-response manner: men from more recent birth cohorts desired less children than men from earlier birth cohorts regardless of their income and education. For women, similar associations between birth cohorts with the ideal number of children were observed (**Table 2**). These findings suggest strong birth cohort effects on the decline in fertility ideals. Additional analyses revealed that the income effects were present only in the 1980s birth cohorts, indicating that birth cohort change toward a lower ideal number of children was exacerbated among men with the highest income (**Supplementary Figure 2 and Supplementary Tables 8–9**).

[ADD TABLE 2 HERE]

Discussion

This study examined birth cohort differences in the ideal number of children among men and women born in 1970–1994 using repeated cross-sectional survey data from Finland. In line with our first hypothesis, we found that more recent birth cohorts had a lower mean ideal number of children compared to earlier birth cohorts. For instance, compared to survey participants born in 1970–75, those born in 1985–89 desired on average 0.57 children less at age 30. This finding is not explained by declines in the average ideal family size among Finns who wanted to become parents, since there were no birth cohort differences for the ideal number of children among them. Instead, the decline in average ideal number of children is explained by the spread of childfree ideals in more recent birth cohorts. Furthermore, this increase in childfree ideals was driven by childless individuals born after 1985 (25% and 26% of men aged 25 and born in 1985–89 and 1990–94, respectively, said their ideal number of children was zero compared to 4% and 5% for men aged 25 and born in 1975–79 and 1980–84, respectively; the corresponding percentages for women were 22% and 21% compared to 2% and 9%).

Our results thus corroborate earlier studies showing that the personal ideal number of children have fallen below the replacement level for more recent birth cohorts in Germany and Austria (Goldstein et al., 2003; Testa, 2007). This accumulative evidence contrasts with Sobotka and Beaujouan's (2014) main results concerning the persistence of the two-child norm in most European countries over the last three decades. However, they also documented an increasing proportion of women with an ideal of 0 or 1 children, which is in line with our findings. It should also be noted that Sobotka and Beaujouan (2014) examined changes in the ideal number of children reported *in general* and over time periods, whereas we focused on changes in *personal* ideal number of children and over birth cohorts. This is an important distinction especially related to childlessness: while there can be many and different reasons

to believe no children is best for oneself, it is harder to argue that having no children at all would be ideal for society at large.

Our second hypothesis stated that lower fertility ideals could be related to individual socio-economic position, measured as education and income, and equally distributed across all birth cohorts. If so, strong associations between socio-economic factors and fertility ideals would -- in the absence of birth cohort differences -- provide support for period-related changes in fertility ideals among all individuals of childbearing age, due to the Great Recession in Finland. However, this hypothesis was not supported: while income and education were associated with the ideal number of children among men, this was not true for women, and cohort differences in the ideal number of children also remained strongly significant. Moreover, fertility ideals were the lowest among men with the highest income. High-income men desire fewer children, while low-income men desire more children but are likely to face more economic constraints in having them. This variation between men may represent an additional negative effect on birth rates, in addition to the potential decline due to cohort changes in fertility ideals.

Overall, our results did not support the hypothesis that economic uncertainty was related to lower fertility ideals in the ten years following the Great Recession in Finland. Instead, fertility decline appears to be part of a broader cultural change, as reflected in the increased of childfree ideals among people born after the mid 1980s. Although the birth cohort perspective has been little used to examine changes in fertility ideals, it is a promising tool for grasping ideational changes. Given that the recent societal changes, such as a spread of social media and increased workism, have framed the socialization of people born after the mid 1980s in developed countries (DeRose and Stone, 2021; Tammisalo et al., 2020), studying changes in fertility ideals and behaviour over these birth cohorts can highlight reasons for fertility decline during the last decade.

Expected gender differences in the associations between socio-economic indicators and fertility ideals were partly confirmed. In line with previous studies, which demonstrate gender differences in cost-benefit assessments for fertility motivation (e.g., Mynarska and Rytel, 2020), we found that income was related to the ideal number of children only in men but not in women. More specifically, higher income predicted lower ideal number of children among men. In contrast to previous results suggesting that more highly educated women have a higher ideal number of children compared to less educated women (Kuhnt et al., 2017; Morgan and Rackin, 2010), we found no associations between education and the ideal number of children among women in our study. Our findings also invite questions regarding couple-level reproductive decision making that should be addressed by future research.

In sum, our findings suggest that the attitudes towards parenthood have changed in Finland, creating a new cultural landscape surrounding childbearing (Rotkirch, 2020). Lutz (2020) suggested that some broader cultural changes may occur in the Nordic countries, which led to lower ideal family sizes among younger cohorts and have likely caused at least part of the decline in birth rates. While we cannot confirm this hypothesis, future studies are needed to address the reasons underlying this change. For example, life goals other than childbearing may have become more important among young adults, as more people chose to postpone or renounce childbearing to pursue other life goals than parenting (Miettinen, 2015a; Rotkirch et al., 2017). During the 2010s, factors related to lifestyle and became more important in postponement of childbearing compared to economic factors or the lack of a suitable partner (Miettinen, 2015a; Rotkirch et al., 2017; Savelieva et al., 2022). This is in line with the second demographic transition theory, which emphasizes the rise of individualist attitudes as one of the reasons for falling fertility (Lesthaeghe, 2014). Such changes may also underlie the increased ideal age at first birth among Finns: from 25.6 in 2007 for women (27.4 for men) to 26.7 in 2015 (28.5 for men) (Miettinen, 2015a; Miettinen

and Rotkirch, 2008b). It would be useful to know whether these attitudinal changes constitute the desire for longer childfree life spans during early adulthood or a childfree lifestyle that is permanent throughout life, and whether these attitudinal changes persist in new generations.

Our study has some limitations. First, the phrasing of the questions regarding the ideal number of children differed slightly between the questionnaires used in 2007, 2008, and 2010–2018 surveys. Although all the questions asked about the *personal* ideal number of children, the different phrasing (e.g., “The ideal number of children *in my own family* would be...” versus “The ideal number of children *for yourself* would be...”) might cause different interpretations of this question. However, after repeating the analyses either without data from the 2007 survey or the 2008 survey, the results remained the same (available upon request from the corresponding author). Second, we lack data for people born in the earlier cohort (1970–1974) when they were in their 20s and could not directly compare them to the people from more recent cohorts. Third, it is possible that the selection of participants might differ between the postal surveys (2007 and 2008) and TNS Gallup’s online surveys (2010–2018) due to the differences in the data collection process, so that more family-oriented people may slightly dominate in the postal surveys.

In conclusion, using repeated cross-sectional surveys from Finland, our study demonstrates that the ideal number of children has decreased among more recent birth cohorts, a finding which is mainly driven by a sharp increase in childfree ideals. Attitudinal change is likely to be one major cause of the decline in birth rates. Since several European countries and the United States have experienced similar declines in fertility rates in the last decade, our findings suggest potential mechanisms that may be applicable to other countries as well. Future studies should examine whether this change is also occurring in other countries and whether it is more pronounced in Finland than elsewhere. Also, it is crucial to investigate the degree to which the currently observed unprecedented fertility decline in

Finland can be attributed to the changes in fertility ideals. Lastly, it would be important to study the reasons for which this change is occurring and whether it translates into actual fertility behaviour.

References

- Ajzen, I., & Klobas, J. (2013). Fertility intentions: An approach based on the Theory of Planned Behavior. *Demographic Research*, 29, 203–232.
- Andersson, G., Rønsen, M., Knudsen, L. B., Lappegård, T., Neyer, G., Skrede, K., ... Vikat, A. (2009). Cohort fertility patterns in the Nordic countries. *Demographic Research*, 20, 313–352.
- Baber, K. M., & Dreyer, A. S. (1986). Gender-role orientations in older child-free and expectant couples. *Sex Roles*, 14, 501–512.
- Bachrach, C. A., & Morgan, S. P. (2013). A cognitive-social model of fertility intentions. *Population and Development Review*, 39, 459–485.
- Belotti, F., Deb, P., Manning, W. G., & Norton, E. C. (2015). Twopm: two-part models. *The Stata Journal: Promoting Communications on Statistics and Stata*, 15, 3–20.
- Bongaarts, J. (2001). Fertility and reproductive preferences in post-transitional societies. *Population and Development Review*, 27, 260–281.
- Comolli, C. L., Neyer, G., Andersson, G., Dommermuth, L., Fallesen, P., Jalovaara, M., ... Lappegård, T. (2021). Beyond the economic gaze: Childbearing during and after recessions in the Nordic countries. *European Journal of Population*, 37, 473–520.
- Craig, L., Powell, A., & Smyth, C. (2014). Towards intensive parenting? Changes in the composition and determinants of mothers' and fathers' time with children 1992-2006. *The British Journal of Sociology*, 65, 555–579.
- DeRose, L., & Stone, L. (2021). *More Work, Fewer Babies: What Does Workism Have to Do with Falling Fertility?* Retrieved from <https://ifstudies.org/ifs-admin/resources/reports/ifs-workismreport-final-031721.pdf>
- Eydal, G. B., Rostgaard, T., & Hiilamo, H. (2018). Family policies in the Nordic countries: aiming at equality. In *Handbook of Family Policy* (pp. 195–208).

- Frejka, T., Goldscheider, F., & Lappegård, T. (2018). The two-part gender revolution, women's second shift and changing cohort fertility. *Comparative Population Studies*, 43, 99–130.
- Gillespie, R. (2000). When no means no: Disbelief, disregard and deviance as discourses of voluntary childlessness. *Women's Studies International Forum*, 23, 223–234.
- Goldstein, J., Lutz, W., & Testa, M. R. (2003). The emergence of sub-replacement family size ideals in Europe. *Population Research and Policy Review*, 22, 479–496.
- Gray, E., Evans, A., & Reimondos, A. (2013). Childbearing desires of childless men and women: When are goals adjusted? *Advances in Life Course Research*, 18, 141–149.
- Haataja, A. (2005). Outcomes of the two 1990s family policy reforms at the turn of the 2000s in Finland. *Finnish Yearbook of Population Research*, 41, 5–27.
- Hagewen, K. J., & Morgan, S. P. (2005). Intended and ideal family size in the United States, 1970-2002. *Population and Development Review*, 31, 507–527.
- Hakim, C. (2002). Lifestyle preferences as determinants of women's differentiated labor market careers. *Work and Occupations*, 29, 428–459.
- Hakim, C. (2006). Women, careers, and work-life preferences. *British Journal of Guidance & Counselling*, 34, 279–294.
- Hartnett, C. S., & Gemmill, A. (2020). Recent trends in U.S. childbearing intentions. *Demography*, 57, 2035–2045.
- Heiland, F., Prskawetz, A., & Sanderson, W. C. (2008). Are individuals' desired family sizes stable? Evidence from West German panel data. *European Journal of Population*, 24, 129–156.
- Hellstrand, J., Nisén, J., Miranda, V., Fallesen, P., Dommermuth, L., & Myrskylä, M. (2021). Not just later, but fewer: Novel trends in cohort fertility in the Nordic countries. *Demography*, 58, 1373–1399.

- Hellstrand, J., Nisén, J., & Myrskylä, M. (2020). All-time low period fertility in Finland: Demographic drivers, tempo effects, and cohort implications. *Population Studies*, 1–15.
- Hiilamo, H. (2017). Fertility response to economic recessions in Finland 1991–2015. *Finnish Yearbook of Population Research*, 52, 15–28.
- Hiilamo, P. H. (2020). Why fertility has been declining in Finland after the Global Recession? *Finnish Yearbook of Population Research*, 54, 29–51.
- Houseknecht, S. K. (1987). Voluntary childlessness. In *Handbook of Marriage and the Family* (pp. 369–395). Springer, Boston, MA.
- Jalovaara, M., Neyer, G., Andersson, G., Dahlberg, J., Dommermuth, L., Fallesen, P., & Lappegård, T. (2019). Education, gender, and cohort fertility in the Nordic countries. *European Journal of Population*, 35, 563–586.
- Kelly, M. (2009). Women’s voluntary childlessness: A radical rejection of motherhood? *Women’s Studies Quarterly*, 37, 157–72.
- Kornrich, S., & Furstenberg, F. (2013). Investing in children: Changes in parental spending on children, 1972–2007. *Demography*, 50, 1–23.
- Kreyenfeld, M., & Konietzka, D. (2017). Analyzing childlessness. In M. Kreyenfeld & D. Konietzka (Eds.), *Childlessness in Europe: Contexts, Causes, and Consequences* (pp. 3–15). Springer, Cham.
- Kuhnt, A.-K., Kreyenfeld, M., & Trappe, H. (2017). Fertility ideals of women and men across the life course. In Michaela Kreyenfeld & D. Konietzka (Eds.), *Childlessness in Europe: Contexts, Causes, and Consequences* (pp. 235–251).
- Lainiala, L., Miettinen, A., & Rotkirch, A. (2014). Family Barometer 2014: Family Policy in a Time of Crisis [dataset]. Version 1.0 (2015-04-14). Finnish Social Science Data Archive [distributor]. <http://urn.fi/urn:nbn:fi:fsd:T-FSD3005>.
- Lebano, A., & Jamieson, L. (2020). Childbearing in Italy and Spain: Postponement

- narratives. *Population and Development Review*, 46, 121–144.
- Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review*, 36, 211–251.
- Lesthaeghe, R. (2014). The second demographic transition: A concise overview of its development: Table 1. *Proceedings of the National Academy of Sciences*, 111, 18112–18115.
- Liefbroer, A. C. (2005). The impact of perceived costs and rewards of childbearing on entry into parenthood: Evidence from a panel study. *European Journal of Population*, 21, 367–391.
- Liu, J., & Lummaa, V. (2019). Whether to have a second child or not? An integrative approach to women’s reproductive decision-making in current China. *Evolution and Human Behavior*, 40, 194–203.
- Lutz, W. (2020). Fertility will be determined by the changing ideal family size and the empowerment to reach these targets. *Vienna Yearbook of Population Research*, 18, 1–8.
- McDonald, P. (2000). Gender equity, social institutions and the future of fertility. *Journal of the Australian Population Association*, 17, 1–16.
- Melnikas, A. J., & Romero, D. (2020). Ideal age at first birth and associated factors among young adults in Greater New York City: Findings from the Social Position and Family Formation Study. *Journal of Family Issues*, 41, 288–311.
- Miettinen, A. (2015a). Family Barometer 2015 [dataset]. Version 1.0 (2020-01-22). Finnish Social Science Data Archive [distributor]. <http://urn.fi/urn:nbn:fi:fsd:T-FSD3396>.
- Miettinen, A. (2015b). *Miksi syntyvyys laskee. Suomalaisten lastensaantiin liittyviä toiveita ja odotuksia. Perhebarometri 2015. Väestötutkimuslaitos, Katsauksia E49. Helsinki: Väestöliitto.*
- Miettinen, A., & Rotkirch, A. (2008a). Family Barometer 2008: Well-Being and Social

- Relationships [dataset]. Version 2.0 (2018-06-07). Finnish Social Science Data Archive [distributor]. <http://urn.fi/urn:nbn:fi:fsd:T-FSD2792>.
- Miettinen, A., & Rotkirch, A. (2008b). *Milloin on lapsen aika? Lastenhankinnan toiveet ja esteet. Helsinki: Väestöliitto. Väestöntutkimuslaitos. Katsauksia E 34/2008*.
- Miettinen, A., & Rotkirch, A. (2010). Family Barometer 2010: Family Policy [dataset]. Version 2.0 (2018-05-22). Finnish Social Science Data Archive [distributor]. <http://urn.fi/urn:nbn:fi:fsd:T-FSD2793>.
- Miller, W. B. (2011). Differences between fertility desires and intentions: implications for theory, research and policy. *Vienna Yearbook of Population Research*, 9, 75–98. <https://doi.org/10.1553/populationyearbook2011s75>
- Ministry of Social Affairs and Health. (2013). *Child and Family Policy in Finland*. Retrieved from <http://urn.fi/URN:ISBN:978-952-00-3378-1>
- Morgan, S. P., & Rackin, H. (2010). The correspondence between fertility intentions and behavior in the United States. *Population and Development Review*, 36, 91–118.
- Mynarska, M., & Rytel, J. (2020). Fertility desires of childless Poles: Which childbearing motives matter for men and women? *Journal of Family Issues*, 41, 7–32.
- Official Statistics of Finland (OSF): Births [online publication]. Reference period: 2021. ISSN=1798-2413. Helsinki: Statistics Finland [Referenced: 28.8.2022]. Access method: <https://www.stat.fi/en/publication/cku2ehapc8hl90c58br8mqkkj>
- Philipov, D. (2009). Fertility intentions and outcomes: The role of policies to close the gap. *European Journal of Population / Revue Européenne de Démographie*, 25, 355–361.
- Philipov, D., & Bernardi, L. (2012). Concepts and operationalisation of reproductive decisions implementation in Austria, Germany and Switzerland. *Comparative Population Studies*, 36, 495–530.
- Rotkirch, A. (2020). The wish for a child. *Vienna Yearbook of Population Research*, 18, 1–

13.

- Rotkirch, A., Tammisalo, K., Miettinen, A., & Berg, V. (2017). *Miksi vanhemmuutta lykätään? Nuorten aikuisten näkemyksiä lastensaannista [Why do young adults postpone parenthood? Young adults' views on having children]. Perhebarometri 2017. Väestötutkimuslaitos E51. Helsinki: Väestöliitto.*
- Rybińska, A. (2020). Trends in intentions to remain childless in the United States. *Population Research and Policy Review*. <https://doi.org/10.1007/s11113-020-09604-9>
- Savelieva, K., Jokela, M., & Rotkirch, A. (2022). Reasons to postpone childbearing during fertility decline in Finland. *Marriage & Family Review*, 1–24.
- Sobotka, T. (2020). Introduction: The relevance of studying fertility across time and space. *Vienna Yearbook of Population Research*, 18, 1–24.
- Sobotka, T., & Beaujouan, É. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review*, 40, 391–419.
- StataCorp. (2017). *Stata Statistical Software: Release 15*. College Station, TX: StataCorp LLC.
- Tammisalo, K., Rotkirch, A., Alanko, L., Danielsbacka, M., Honkanen, J., Hämäläinen, M., & Prusskij, C. (2020). *Digitaalinen hyvinvointi perheissä: Suomi hyvin käytetyn ajan mallimaaksi [Digital well-being in families: Finland as a model country for well-spent time]*.
- Tammisalo, K., & Rotkirch, A. (2022). Effects of information and communication technology on the quality of family relationships: A systematic review. *Journal of Social and Personal Relationships*, 39, 2724–2765.
- Tanturri, M. L., & Mencarini, L. (2008). Childless or childfree? Paths to voluntary childlessness in Italy. *Population and Development Review*, 34, 51–77.
- Testa, M. R. (2007). Childbearing preferences and family issues in Europe: Evidence from

- the Eurobarometer 2006 survey. *Vienna Yearbook of Population Research*, 357–379.
- Vignoli, D., Bazzani, G., Guetto, R., Minello, A., & Pirani, E. (2020). Uncertainty and Narratives of the Future: A Theoretical Framework for Contemporary Fertility. In R. Schoen (Ed.), *Analyzing Contemporary Fertility. The Springer Series on Demographic Methods and Population Analysis* (pp. 25–47).
- Vignoli, D., Guetto, R., Bazzani, G., Pirani, E., & Minello, A. (2020). A reflection on economic uncertainty and fertility in Europe: The Narrative Framework. *Genus*, 76, 28.
- Yeatman, S., Trinitapoli, J., & Garver, S. (2020). The enduring case for fertility desires. *Demography*, 57, 2047–2056.

Table 1. Characteristics of the sample (n = 7,344).

	Men (n = 2,948)		Women (n = 4,396)	
	% (unweighted)	% (weighted)	% (unweighted)	% (weighted)
Age				
20–24	8.7	19.8	11.5	19.7
25–29	28.0	24.8	28.5	24.3
30–34	23.0	23.4	26.4	23.5
35–39	21.5	19.6	19.2	20.3
40–45	18.9	12.5	14.4	12.1
Number of children				
0	56.3	60.4	53.5	55.0
1	24.8	21.2	26.4	22.7
2	13.6	13.1	13.5	13.9
3	4.4	4.4	5.4	6.3
4	0.6	0.6	0.8	1.1
5	0.2	0.1	0.3	0.6
6+	0.2	0.2	0.3	0.5
Partnership status*				
Single	29.0	35.3	23.2	27.3
Divorced/separated/widowed	6.1	5.2	7.3	6.1
Married/cohabiting	64.9	59.5	69.5	66.6
Income, quantiles**				
1 (lowest)	27.0	34.6	38.9	48.5
2	21.4	23.4	29.8	28.7
3	27.4	25.5	21.0	16.3
4 (highest)	24.2	16.5	10.3	6.5
Education				
Basic	8.2	15.4	3.4	9.1
Secondary	38.4	54.4	31.0	46.4
Lower tertiary	33.3	18.9	42.3	28.8
Higher tertiary	20.1	11.4	23.3	15.8
Cohort				
1970–74	27.3	20.6	22.8	20.8
1975–79	29.9	22.8	26.7	24.4
1980–84	21.3	26.5	25.0	24.8
1985–89	13.6	17.5	15.2	17.7
1990–94	8.0	12.6	10.4	12.2
Ideal number of children				
0	14.7	16.4	15.4	15.1
1	9.8	9.9	10.5	10.4
2	51.2	49.6	44.9	43.4
3	19.2	18.9	22.4	22.9
4	3.2	3.3	4.9	5.3
5	0.9	0.9	1.0	1.3
6+	1.1	1.0	1.0	1.6

Note. *The sample size for partnership status: n = 2,758 for men and n = 4,329 for women.

** The sample size for income: n = 2,622 for men and n = 3,749 for women.

Table 2. The associations between socio-demographic factors and birth cohorts with the ideal number of children for men and women.

	Men (n = 2,474)		Women (n = 3,713)	
	B (SE)	95% CI	B (SE)	95% CI
Age	-0.33 (0.05)	-0.42, -0.24	-0.43 (0.04)	-0.50, -0.35
Age ²	0.03 (0.02)	-0.01, 0.07	0.06 (0.02)	0.02, 0.09
Number of children	0.49 (0.03)	0.43, 0.56	0.69 (0.03)	0.64, 0.75
Partnership status				
Single	Reference	Reference	Reference	Reference
Divorced/separated/widowed	0.06 (0.13)	-0.19, 0.32	0.02 (0.13)	-0.23, 0.26
Married/cohabiting	0.09 (0.07)	-0.06, 0.23	0.07 (0.06)	-0.05, 0.19
Birth cohort				
1970–74	Reference	Reference	Reference	Reference
1975–79	-0.19 (0.07)	-0.33, -0.05	-0.01 (0.07)	-0.14, 0.11
1980–84	-0.25 (0.10)	-0.44, -0.07	-0.18 (0.08)	-0.33, -0.02
1985–89	-0.53 (0.12)	-0.76, -0.29	-0.25 (0.10)	-0.44, -0.06
1990–94	-0.74 (0.16)	-1.06, -0.42	-0.41 (0.13)	-0.66, -0.16
Education				
Basic	Reference	Reference	Reference	Reference
Secondary	0.22 (0.11)	-0.00, 0.44	-0.07 (0.12)	-0.31, 0.18
Lower tertiary	0.36 (0.11)	0.14, 0.59	0.06 (0.12)	-0.18, 0.30
Higher tertiary	0.36 (0.12)	0.13, 0.60	0.09 (0.12)	-0.15, 0.34
Income				
1 (lowest)	Reference	Reference	Reference	Reference
2	-0.33 (0.08)	-0.49, -0.17	0.07 (0.05)	-0.04, 0.17
3	-0.23 (0.08)	-0.38, -0.07	0.08 (0.06)	-0.03, 0.19
4 (highest)	-0.31 (0.10)	-0.50, -0.12	-0.03 (0.07)	-0.16, 0.10

Note. B = unstandardized beta coefficient; SE = standard error; CI = confidence interval.

Estimates in bold are significant at $p < 0.05$. Age is centred at 30 years; a one-unit change in age corresponds to 5 years.

Figure 1. Adjusted predictions of the mean ideal number of children by age and birth cohorts for men and women from linear regression models ($n = 7,344$). The models were weighted for age and education and adjusted for the number of children.

Figure 2. Adjusted predictions of the mean ideal number of children by age and birth cohorts for the combined sample of men and women separately for childless people and parents from the linear regression models ($n = 7,344$). The models were weighted for age and education and adjusted for gender; the model for parents was additionally adjusted for the number of children.

A. Childless adults: Probability of childfree ideals

B. Childless adults: Mean ideal number of children above 0

Figure 3. (A) Probability of childfree ideals by age and birth cohort among childless men and women (n = 4,010) and (B) mean ideal number of children by age and birth cohort among childless men and women who want to have children (n = 2,938).

ⁱ Unless otherwise stated, the term ‘childless’ in this study refers to temporary childlessness, that is being without children at a given time point (Houseknecht, 1987). It comprises both involuntary and voluntary factors, meaning that people may be childless due to various reasons, including fecundity impairments, unstable partnership or other life-course constraints, or personal preferences, to name just a few (Houseknecht, 1987; Kreyenfeld & Konietzka, 2017). In contrast, the term ‘childfree’ is used to highlight that childlessness is a deliberate choice not to have children (ideal number of children equals zero children) and is conceptually similar to the term ‘voluntary childlessness’ (Gillespie, 2000). Previous research has shown that childfree people form a distinct group in contrast to people who choose to become parents: they are more egalitarian, tend to reject traditional norms and adopt nonconformist behaviour (Baber & Dreyer, 1986; Kelly, 2009; Tanturri & Mencarini, 2008).