

Fertility Intentions Across Five Decades in Norway

Lars Dommermuth, Torkild Hovde Lyngstad, Kenneth Aarskaug Wiik

Abstract: Fertility intentions are strong predictors of future childbearing at both individual and aggregate levels, reflecting cultural norms and values around family formation and childbearing. Given the recent decline in fertility across Western industrialized societies, research on fertility intentions has become increasingly important. In particular, falling birth rates in the Nordic countries – traditionally held up as exemplars of modern family policies that balance work and parenthood – raise the question of whether women of childbearing age have experienced a shift in values related to family and childbearing. Using comparable survey data on Norwegian women aged 18 to 44 over five decades (1977, 1988, 2003, 2007, and 2020), we examine trends in fertility intentions. We consider short-term fertility intentions, defined as positive intentions to have a(nother) child within the next three to four years, as well as general fertility intentions, defined as positive intentions to have a(nother) child regardless of timing. We compare changes over the study period across demographic (age, parenthood, and partnership statuses) and socioeconomic (employment and education) groups. Our results reveal a gradual shift in short-term fertility intentions toward older age groups, reflecting changes in age-specific fertility rates and rising levels of childlessness. By 2020, both short-term and general fertility intentions had declined to their lowest levels over the study period – a trend that persisted even after controlling for key background characteristics. From 2007 to 2020, we observe a consistent decline in both types of fertility intentions across all sociodemographic groups. The decline in short-term fertility intentions began earlier among young women, childless women, women in education, and women without a co-residential partner – groups previously identified as experiencing sharper fertility declines after 2010 in the Nordic countries. The early and uniform downturn across key subgroups suggests that changing family values and life-course expectations may be driving the recent fertility decline.

Keywords: Fertility intentions • Desired family size • Fertility • Norway • Social change

1 Introduction

1.1 Background

Fertility intentions shape reproductive behavior and, ultimately, demographic trends (*Bachrach/Morgan* 2013; *Brehm/Schneider* 2019). Understanding how fertility intentions change over time is crucial for demographers and policymakers alike, since these intentions may both forecast future fertility levels and may reveal shifts in cultural norms and societal values surrounding childbearing. Analyzing them offers a window into evolving fertility norms, as childbearing decisions are always affected by a society's normative climate. In this context, fertility norms refer to prevailing societal beliefs regarding childbearing, including the circumstances under which having children is considered appropriate or desirable. Fertility intentions, in contrast, are defined as an individual's conscious commitment to achieving a childbearing-related goal, often in a specific timeframe (*Miller* 2011). Fertility intentions differ from fertility desires, which are broader reflections toward having children or a preferred number of children, without necessarily entailing a concrete plan or commitment to act (*Miller/Pasta* 1995).

Fertility intentions are among the strongest predictors of future childbearing, both at the individual and aggregate levels (*Bachrach/Morgan* 2013; *Harknett/Hartnett* 2014). Yet, in most contemporary societies, mean intended family size is higher than measured cohort fertility, a discrepancy known as the fertility gap (*Beaujouan/Berghammer* 2019). Conventional thinking has explained this gap with variation in societal norms, but critics have pointed out that this may be an ecological fallacy: It compares achieved cohort fertility with intended or ideal family sizes rather than with individual reproductive intentions and behavior (*Philipov/Bernardi* 2011). Nevertheless, studies linking fertility intentions with reproductive outcomes on the individual level find that intentions are not always realized (for an overview, see *Brehm/Schneider* 2019). A proportion of births occur without being intended, whether due to contraceptive failure or limited access to abortion. Conversely, not all positive fertility intentions lead to births, e.g., due to difficulties in finding (or keeping) a partner, difficulties in conceiving, or other obstacles.

Regarding different measures of fertility intentions, research also shows that negative fertility intentions are generally a strong predictor of not having (more) children on the individual level (*Kuhnt/Trappe* 2016). Positive fertility intentions, on the other hand, have a higher predictive power for subsequent childbirths when they are framed within a specified and reasonable timeframe (*Dommermuth et al.* 2015; *Miller/Pasta* 1995; *Philipov* 2009; *Schoen et al.* 1999). In this context, intentions to have a(nother) child within the next three to four years are defined as short-term fertility intentions (*Fahlén* 2013; *Kuhnt/Trappe* 2016; *Schoen et al.* 1999). Short-term fertility intentions differ from general fertility intentions, based on questions with a longer or undefined timeframe (e.g., lifetime fertility intentions). While general fertility intentions are less predictive, they nonetheless capture intentions about family size and prevailing family norms. By studying both short-term and general

fertility intentions, we can evaluate both the immediate readiness to become a parent and longer lifetime family aspirations shaping overall fertility trends.

Fertility intentions express individual aspirations and they change with societal conditions. Tracking their development over time can provide valuable insights into changing fertility norms. This is particularly important given the recent declines in fertility, which is also occurring in the Nordic countries despite long being recognized for maintaining high fertility alongside high female labor force participation rates and modern family policies (*Luci-Greulich/Thévenon* 2013). Economic and policy-related reasons cannot fully explain this ongoing fertility decline (*Ohlsson-Wijk/Andersson* 2022; *OECD* 2023). *Lutz* (2020) argues that decreasing total fertility and lower cohort fertility may be driven more by shifting attitudes toward family life and childbearing than by purely economic constraints. This includes broader cultural shifts toward individualism and self-realization, as described in theories of the Second Demographic Transition (*Lesthaeghe* 2010). Conventional measures of family values, such as ideal family size, may not fully capture these changes. In their comprehensive analysis of ideal family size in Europe from 1979 to 2012, *Sobotka/Beaujouan* (2014) found that the two-child ideal persisted even as fertility rates declined and completed fertility fell to around 1.6 children in some countries. Their results also show a rising share of respondents preferring childfree ideals – a trend that recent studies suggest has accelerated further (see *Luppi et al.* 2024 for Italy and *Pew Research Center* 2024 for the U.S.). Thus, fertility norms may evolve even as average stated child-number ideals remain stable.

To date, few studies have examined the link between changing fertility norms and declining fertility observed since the late 2000s. For example, *Riederer et al.* (2024) found a significant decline in Austrian women's fertility desires from 1986 to 2021 – measured by asking whether and how many children they desire to have at any point in their future life. Likewise, *Luppi et al.* (2024) reported that from 2012 to 2022 an increasing proportion of young Italian adults neither desired ("If you had no constraints or impediments of any kind, how many children would you want to have in total?") nor expected ("Realistically, how many children do you expect to have in your life?") to have children.

In the United States, *Hartnett/Gemmill* (2020) found a decline in the total intended number of children – based on questions in which respondents were asked whether they intended to have any more children and, if so, how many more – from 2.26 in 2006–2010 to 2.16 in 2013–2017. This parallels a decline in U.S. total fertility, from 2.12 in 2007 to 1.73 in 2018. More recent data indicate that a growing share of childless U.S. adults say they are unlikely to ever have children, with many simply stating, "I just don't want to have children" as their main reason (*Pew Research Center* 2024).

A comparable trend has been observed in Finland, where cross-sectional surveys from 2007 to 2018 reveal a decline in personal ideal family size, largely driven by an increase in child-free ideals (*Golvina et al.* 2024). In Sweden, a comparison of short-term fertility intentions in 2012 and 2021 suggests that weaker intentions reflect a deeper shift in reproductive decision-making rather than a temporary reaction to economic uncertainty (*Neyer et al.* 2024).

While these national snapshots offer valuable insights into recent trends, only a longer observation period can show whether changes in fertility intentions reflect enduring changes in family norms or merely short-term reactions. For example, in the Nordic countries, total fertility was comparatively high until 2009 but then fell to historic lows over the next 15 years. Sweden's drop in short-term fertility intentions from 2012 to 2021 (*Neyer et al. 2024*) aligns with this decline, but without comparable data from earlier years it remains unclear whether intentions were unusually elevated in 2012 or were already on a downward path.

Moreover, the prevalence and strength of fertility intentions vary with age over the life course, fluctuating in relation to parity, education, employment, and partnership status. Positive fertility intentions tend to be associated with a younger age and lower parity, while negative intentions are often linked to having reached one's desired family size or facing social or economic constraints (*Fahlén 2013; Krapf et al. 2023; Llorente-Marrón et al. 2022; Mencarini et al. 2015*). Men and women in co-residential unions are more likely to hold positive fertility intentions than those without a co-residential partner (*Dommermuth et al. 2011; Régnier-Loilier/Vignoli 2011*). Because a stable and certain income is usually a prerequisite for starting a family, employment tends to be positively associated with fertility intentions – especially in welfare states that offer paid-parental leave to those employed prior to childbirth (*Dommermuth et al. 2011*). The link between employment and fertility intentions also varies by sex, parity, and level of education (*Fahlén 2013*). Even when these empirical studies are taken into account, we know little about how the prevalence of fertility intentions evolved within key sociodemographic subgroups over time.

1.2 Our contribution

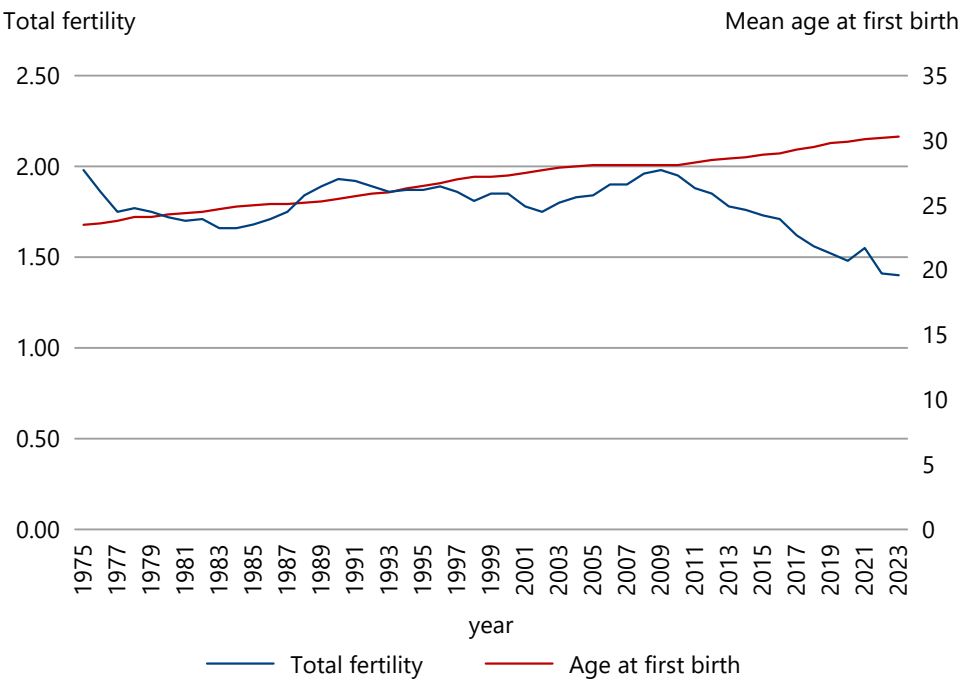
In this study, we examine changes in fertility intentions using comparable cross-sectional survey data on Norwegian women spanning five decades, which includes information on the time frame of those intentions. Against the backdrop of the fertility decline that began in Norway in 2010, our first goal is to chart trends in two measures of fertility intentions: short-term fertility intentions (within 3–4 years) and general fertility intentions. Our second goal is to compare how these fertility intentions have evolved from 1977 to 2020 across age groups, parenthood and partnership status, employment, and education. By focusing on both long-term trends and recent shifts across sociodemographic strata, we aim to deepen our understanding of the complex interplay between fertility intentions and demographic change, and how different groups have evolved over time. Using both general and short-term fertility intentions provides a more comprehensive view of fertility norms.

1.3 Fertility in Norway

In 1975, total fertility in Norway fell to 1.98 – dipping below replacement level for the first time – and continued to decline to 1.66 in 1984 (see Fig. 1). From the mid-1980s to 1990, total fertility rebounded to 1.93. Over the next two decades, Norwegian

fertility remained relatively stable compared to other European regions, ranging from 1.75 in 2002 to 1.98 in 2009. Since 2010, total fertility declined continuously until 2023 (with the exception of 2021, which is directly linked to the onset of the Covid-19 pandemic, see *Lappegård et al. 2024*), hitting new historic lows with 1.71 in 2016 and 1.40 in 2023. Figure 1 shows that women’s age at first birth increased from 23.5 years in 1975 to 30.3 years in 2023.

Fig. 1: Total fertility and mean age at first birth. Women, Norway, 1975-2023



Source: *Statistics Norway 2024a/b*.

2 Data, measures and methods

2.1 Data from five social surveys from Norway

We use data from five large surveys conducted in Norway: (i) the Fertility Survey 1977 (FS 1977) (*Statistics Norway 1977*), (ii) the Family and Fertility Survey (FFS 1988) (*Statistics Norway 1988*), (iii) the Survey on Future Plans, Family and Partnerships 2003 (FP 2003) (*Statistics Norway 2003*), (iv) the Generations and Gender Survey I 2007 (GGS-I 2007) (*Lappegård/Veenstra 2010*) and (v) the Generations and Gender Survey II 2020 (GGS-II 2020), which is based on a new sample drawn from the population register (*Dommermuth et al. 2021*). Across these five surveys, the conditions and methods for survey data collection have changed markedly. The surveys selected

for this study therefore differ somewhat in their sampling frames and survey modes, and they achieved varying response rates among female respondents (see Table A1 in the Appendix). In 1977 and 1988, data were collected through face-to-face interviews, with response rates of 82 percent and 81 percent, respectively. The FP 2003 was conducted as a self-administered postal survey, with a response rate of 69 percent. Data for the GGS-I 2007 were collected via telephone interviews (response rate: 78 percent). For the GGS-II 2020, respondents were invited via e-mail and text message to complete a web survey in November and December 2020, with a response rate of 41 percent.

We aim to maximize comparability across survey years. First, we restricted our sample to women, as the FS 1977 only included women and the FFS 1988 only surveyed men from two individual birth cohorts. Second, we selected respondents aged 18 to 44 at the time of the interview, capturing the typical childbearing ages for women. Third, we applied post-stratification weights to all five surveys, based on the technical guidelines for the GGP-II (Gauthier *et al.* 2024). The weights adjust for population figures by age, gender, region, level of education, and marital status at the year of each survey, and were applied in all descriptive analyses. Fourth, we constructed three indicators for fertility intentions, as described in the following section.

2.2 Measures of fertility intentions

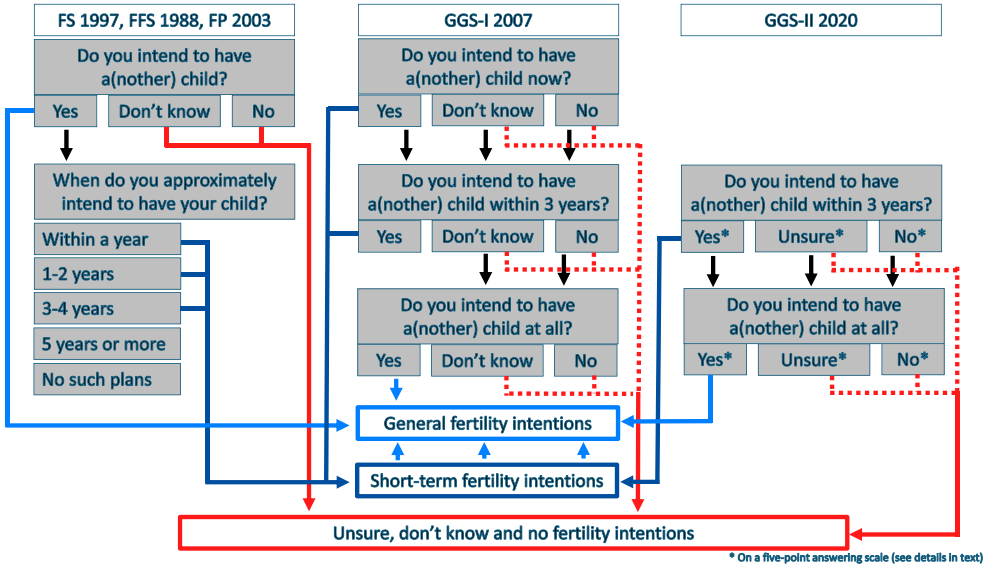
In all five surveys, respondents were asked comparable questions regarding their fertility intentions. Figure 2 displays the questions and response categories (grey boxes) in the order in which they appear in each survey. In the FS 1977, FFS 1988, and FP 2003, respondents were first asked the following question: *"Do you intend to have a(nother) child?"* Response categories were "yes," "no," or "don't know." Respondents who expressed positive fertility intentions (i.e., answered "yes") were thereafter routed to the follow-up question: *"When do you approximately intend to have your first/next child?"* with the following response categories: *"Within a year", "1-2 years", "3-4 years", "5 years or more", and "have not made such a plan"*. In the GGS-I 2007, respondents were first asked whether they *"intend to have a(nother) child now"* and then – regardless of their answer to the first question – whether they *"intend to have a(nother) child within the next three years."* Both questions offered three answering options ("yes", "don't know" and "no"). Those answering "no" or "don't know" to the second question were routed to a follow-up question: *"Supposing you do not have a(nother) child during the next three years, do you intend to have any (more) children at all?"* with similar response categories. In the GGS-II 2020, all respondents were first asked whether they *"intend to have a(nother) child within the next three years",* and immediately afterward, *"Supposing you do not have a(nother) child during the next three years, do you intend to have any (more) children at all?"* For both questions, respondents could answer using a five-point scale (*"definitely not", "probably not", "unsure", "probably yes," and "definitely yes"*) or alternatively choose *"don't know"*.

This variation in question order and response options may affect how fertility intentions and their timing are captured in these surveys. It should also be noted

that in the computer-assisted telephone interviews of the GGS-I 2007, interviewers were to offer only “yes” and “no” as response options, with “don’t know” used only when a respondent explicitly expressed uncertainty. As documented in Table A2 in the Appendix, this likely explains the lower proportion of respondents answering “don’t know” in the GGS-I 2007 (about 5 percent) compared to the other surveys (which ranged from 11 to 15 percent). To harmonize responses, we collapsed the answering categories “no” and “don’t know” and focus on positive fertility intentions versus the absence of positive intentions.

Next, we constructed two indicators of fertility intentions, each represented by a dummy variable (see the blue-framed boxes in Fig. 2). The first variable – *general fertility intentions* – captures any positive intention to have a child. In the first three surveys, anyone who answered positively to the initial question was coded 1, regardless of their later time-frame response. In the two later surveys, anyone who answered positively to one or more of the fertility-intention questions was coded 1 (see Fig. 2). The second variable – *short-term fertility intentions* – captures intentions to have a child within three to four years. In the first three surveys, this includes the first three response categories of the second question. In the GGS-I 2007, it comprises women who reported intending to have a(nother) child now and/or within three years (about 7 percent intended “now” but not “within three years”). In the GGS-II 2020, it includes anyone who answered positively to the question about having a child within three years (about 75 percent of these also answered positively to the subsequent question to intend to have a(nother) child at all).

Fig. 2: Questions on fertility intentions in the five surveys



Source: Authors' own visualization.

2.3 Control variables

As described above, the prevalence of fertility intentions varies across the life course, and previous results highlight the importance of age, parenthood status, time since the last birth, and union status (*Llorente-Marrón et al.* 2022). Education and employment status are further important factors affecting the development of fertility intentions (*Berrington/Pattaro* 2014; *Fahlén* 2013). Comparable measures for these characteristics are available in all five surveys, and we operationalized the following demographic variables: First, women's age in the survey year was grouped into four categories: 18-24, 25-29, 30-34, and 35-44 years. Second, we made a variable measuring parenthood status by combining the number of children and the age of the youngest child. This variable has the following five categories: childless; one child below 6 years; one child aged 6 years or older; two children, with the youngest below 6 years; and two children, both aged 6 years or older. Third, we included union status, distinguishing between women with no co-residential partner, those who were cohabiting, and those who were married. Finally, we included two variables measuring women's socioeconomic status at the time of each survey. The first captures their highest level of education, categorized as primary, secondary, or tertiary education. The second measures employment status based on the woman's main activity, distinguishing between those who were employed, in education, or in the "other" category (including early retiree/work-disabled, homemaker, unemployed, or other). Table A1 in the Appendix provides a descriptive overview over all measures and their distribution across the five surveys.

2.4 Analytical approach

The main goal of our study is to describe changes in the prevalence of fertility intentions among women of childbearing age in Norway over the past five decades. We also consider the time frame of fertility intentions, since theoretical frameworks and empirical evidence suggest that short-term intentions are more likely to be realized than general fertility intentions are.

First, we describe the proportion of women with general and short-term fertility intentions. Because age-specific fertility rates changed markedly over our study period, we split our data into four age groups to track how fertility intentions evolved over time.

Second, we use the two fertility intention indicators as dependent variables in logistic regression models. Our main models test whether the prevalence of general and short-term fertility intentions shifts significantly over time, controlling for all covariates. We then add interaction terms between survey year and each covariate to assess subgroup-specific trends. From these interactions, we derive predicted probabilities, which we plot by survey year to highlight changes over time and to facilitate interpretation.

3 Results

3.1 A descriptive overview of fertility intentions 1977-2020

Overall, 46 percent of women across the five surveys reported general fertility intentions (see Table A2 in the Appendix). This proportion varies across surveys, ranging from around 41 percent in 2003 to over 51 percent in 2007, without a clear trend. Overall, about 30 percent of respondents reported short-term fertility intentions, peaking at 34 percent in 1988 followed by a stepwise decline to 24 percent in 2020.

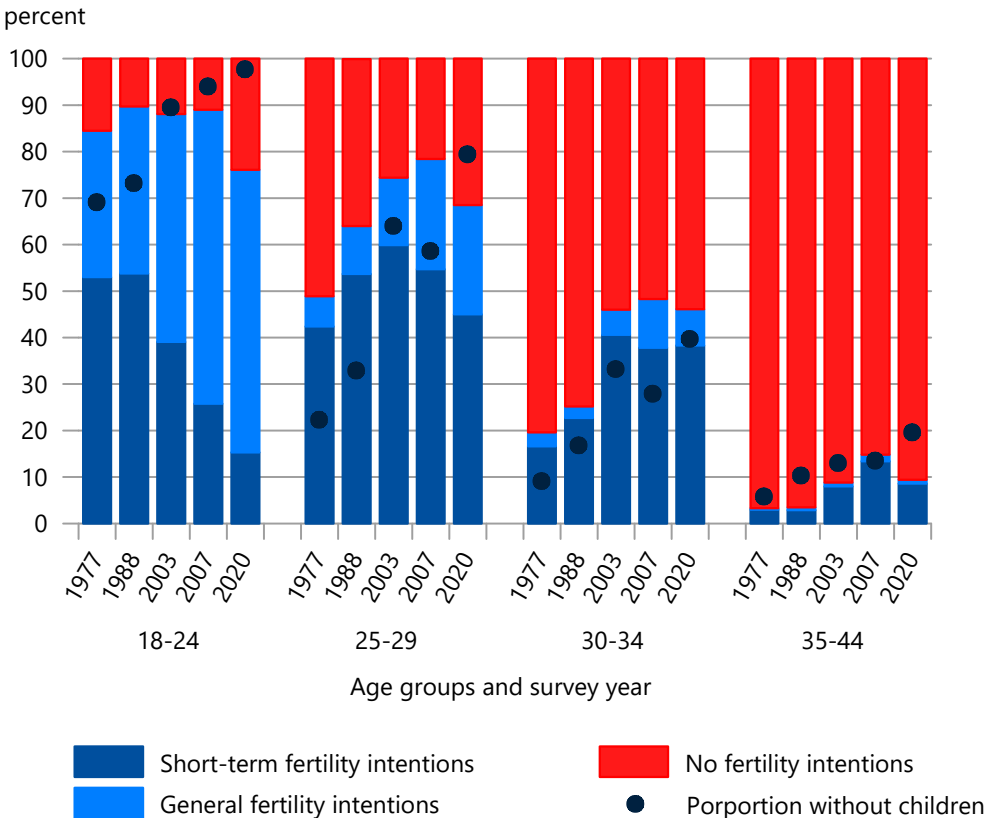
Rising mean age at first birth (see Fig. 1 in Section 1.3) and the corresponding changes in age-specific birth rates characterize childbearing during our observation period. Thus, Figure 3 displays the prevalence of general and short-term fertility intentions and the absence thereof by age group in each survey. The upper red part shows women without positive fertility intentions, while the entire blue block (dark and light blue) encompasses women with general fertility intentions. Within that block, dark blue indicates short-term fertility intentions, and light blue indicates fertility intentions with a longer or unspecified timeframe. The figure also shows the proportion of childless female respondents within each age group (black dots).

The prevalence of positive fertility intentions is highest among the youngest women (18-24). In the first four surveys, almost 9 out of 10 women aged 18-24 intended to have a child. This share fell to about 75 percent in 2020. Short-time intentions began to decline even earlier in this young age group. Over 50 percent of young women held short-term fertility intentions in 1977 and 1988, but this dropped by more than 10 percentage points in each subsequent survey, to under 16 percent in 2020.

Among women aged 25-29, short-term fertility intentions rose from 42 percent in 1977 to 60 percent in 2003, while general fertility intentions (with a longer or no specified time frame) increased throughout the study period. However, as the prevalence of short-term intentions decreased after 2003 in this age group, the proportion of women with general fertility intentions in 2020 is lower than in the two preceding surveys.

Among women aged 30 years or older, relatively few held general or short-term fertility intentions in 1977 and 1988. This is not surprising, given that most of them were by then mothers and may already have achieved their fertility goals by the time they turned 30 or 35. In the surveys conducted after the turn of the millennium, the proportion of childless women in the two older age groups increased. We also find a higher proportion of women holding fertility intentions, especially short-term fertility intentions. This indicates that not only age-specific fertility rates, but also fertility plans, have shifted from younger to older age groups. Although the proportion of childless women was highest in 2020 across all age groups (including nearly 80 percent among women aged 25-29 and 19 percent among those aged 35-44), we do not observe a corresponding increase in fertility intentions. Instead, there was a decline in general and short-term fertility intentions in 2020 compared to 2007.

Fig. 3: Fertility intentions and childless respondents by age groups and survey year, in percent



Source: Authors' own calculations.

3.2 Regression results for fertility intentions from 1977-2020

We then tested whether shifts in the prevalence of fertility intentions remain significant after adjusting for age, parenthood and partnership status, highest level of education, and main activity. Full model results for the two outcomes, general fertility intentions (M1) and short-term fertility intentions (M2), are presented in Table 1. To aid interpretation, we calculated predicted probabilities based on these models. Figure 4 displays these results for general fertility intentions (lefthand panel), and short-term fertility intentions (righthand panel) by survey years, while holding all covariates constant.

Overall, the probability of general fertility intentions was significantly lower in 1977 and 2020 than in the other survey years, with the lowest level in 2020 (see the lefthand panel of Fig. 4). The likelihood for short-term fertility intentions was also at its lowest in 2020 (see the righthand panel of Fig. 4). The prevalence of such intentions remained largely stable in the years prior to 2020.

Tab. 1: Logistic regression coefficients and standard errors for two measures of fertility intentions

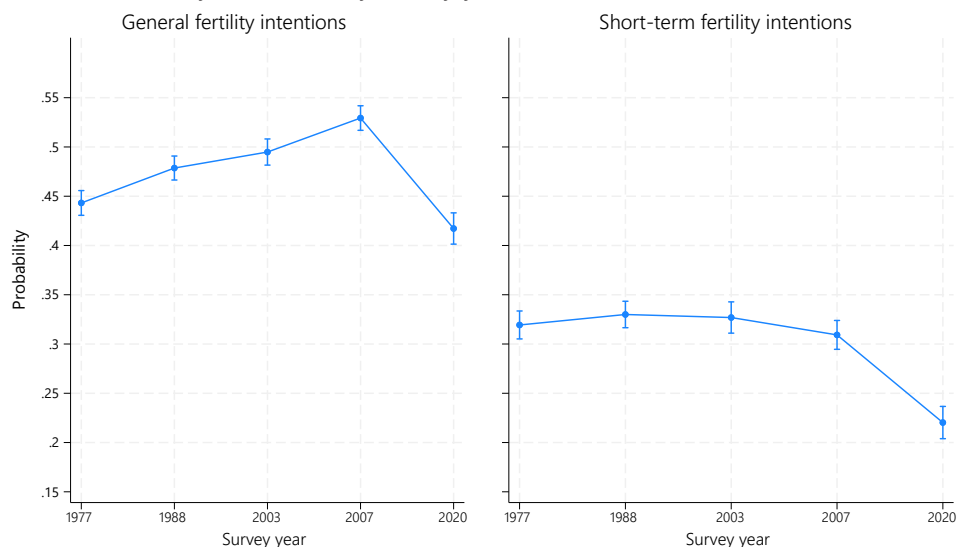
	General fertility intentions (M1)		Short-term fertility intentions (M2)	
	Estimate	SE	Estimate	SE
<i>Survey year (ref. 1977)</i>				
1988	0.31***	0.07	0.07	0.06
2003	0.45***	0.08	0.05	0.08
2007	0.76***	0.08	-0.07	0.07
2020	-0.22*	0.09	-0.71***	0.09
<i>Age at interview (ref 18-24 years)</i>				
25-29 years	-0.96***	0.08	0.25***	0.06
30-34 years	-1.85***	0.09	-0.26**	0.08
35-44 years	-3.49***	0.10	-1.61***	0.09
<i>Parenthood status (ref. no children)</i>				
One child, <6 years	0.24**	0.09	0.65***	0.07
One child, 6+ years	-1.09***	0.11	-0.89***	0.11
Two or more children, youngest <6 years	-2.16***	0.08	-1.93***	0.08
Two or more children, youngest 6+ years	-2.74***	0.12	-2.76***	0.12
<i>Union status (ref. not in a co-residential union)</i>				
Cohabiting	0.59***	0.07	1.20***	0.06
Married	0.45***	0.08	1.15***	0.07
<i>Main activity (ref. employed)</i>				
In education	-0.11	0.08	-0.71***	0.06
Other	-0.19**	0.07	-0.22**	0.07
<i>Highest education (ref. primary education)</i>				
Secondary education	0.11	0.07	0.09	0.06
Tertiary education	0.44***	0.08	0.46***	0.07
<i>Intercept</i>	1.65	0.09	-0.51	0.08
<i>Pseudo R²</i>	0.46		0.27	
<i>N</i>	14,159		14,159	

Note: †p < .10. *p < .05. **p < .01. ***p < .001.

Source: Authors' own calculations.

3.3 The changing importance of age and parenthood status

We then investigated the impact of the independent variables on both measures of fertility intentions and the degree to which their influence varied over time. The latter was achieved by including an interaction term between each control variable and the survey year in the models predicting general and short-term intentions, respectively. The results from these two interaction models are presented as predicted probabilities in Figure 5 (age × year and parenthood status × year) and

Fig. 4: Predicted probabilities of general fertility intentions and short-term fertility intentions by survey year

Note: Both models were adjusted for age, parenthood status, partnership status, main activity, and highest level of education.

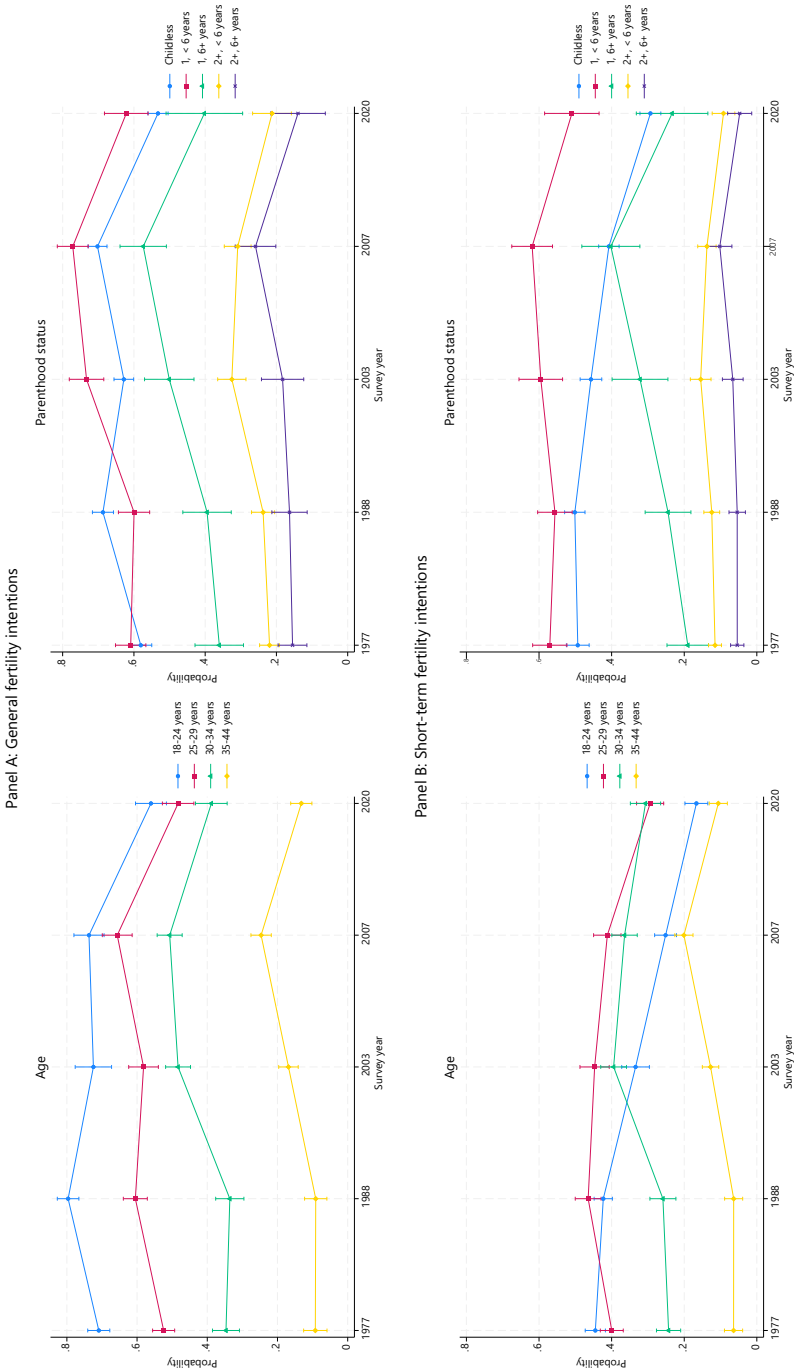
Source: Authors' own calculations.

Figure 6 (union status \times year, employments status \times year, and education level \times year). Main effects for the independent variables are shown in Model 1 (general fertility intentions) and Model 2 (short-term fertility intentions) of Table 1.

Starting with age, we found that the likelihood for general fertility intentions decreased with increased age (see Model 1 in Table 1). As shown in Panel A of Figure 5, this pattern remained stable across time, but with decreasing differences among those under age 35. In the three surveys after the turn of the millennium, the predicted probabilities of holding general fertility intentions declined stepwise for the youngest age group, while they increased for the two older age groups. Across all age groups, we found significantly lower levels of general fertility intentions in 2020 compared to 2007.

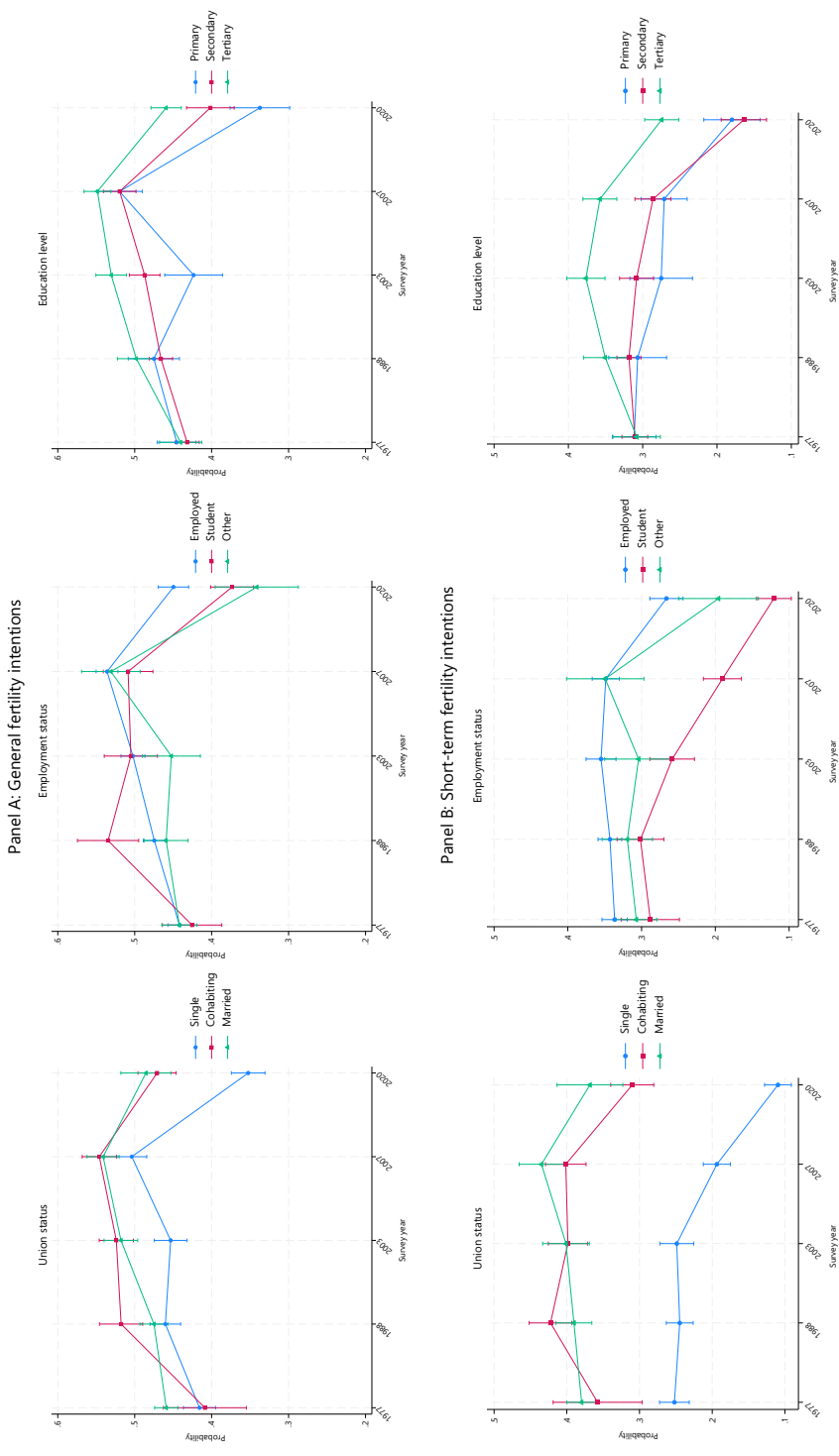
Turning to the variance of short-term fertility intentions by age, those aged 25–29 years were overall more likely to hold such intentions compared to the other age groups (see Model 2, Table 1). Regarding changes over time (see Panel B of Fig. 5), short-term fertility intentions have continuously declined in the youngest age group, which had the highest levels in 1977. They were surpassed by those aged 25–29 from 1988 onward and by those aged 30–34 from 2003 onward. Until 2007, short-term fertility intentions increased most among women aged 30 and older. From 2007 to 2020, short-term fertility intentions decreased across all age groups, with the decline not being statistically significant at the 5 percent level among those aged 30–34.

Fig. 5: Predicted probabilities for two measures of fertility intentions, by age and parenthood status. 95% confidence intervals



Source: Authors' own calculations.

Fig. 6: Predicted probabilities for two measures of fertility intentions, by union status, employment status and education level



Source: Authors' own calculations.

Next, we assess the impact of parenthood status, including the number of children and the age of the youngest child. As shown in Table 1, parenthood status had a similar main effect on both measures of fertility intentions: Women with one young child below school age were significantly more likely to hold general and short-term fertility intentions than childless women (reference group). In contrast, all further categories of mothers were less likely than childless women to express general (Model 1) and short-term fertility intentions (Model 2). Despite this overall similarity, we found differences over time in the association between parenthood status and our two measures of fertility intentions. First, from 1977 to 2007, general fertility intentions increased among one-child mothers and, to some extent, among mothers with several children, while no clear trend was observed among childless women (see Panel A in Fig. 5). Next, the likelihood of holding general fertility intentions declined across all categories of parenthood status from 2007 to 2020. Regarding short-term fertility intentions, Panel B in Figure 5 shows a decline in probabilities from 1988 onwards among childless women, while they increased among women with one older child until 2007, before declining significantly in 2020. Among women with one younger child and mothers with at least two children, short-term fertility intentions remained relatively stable across the entire observation period, with only a non-significant decrease in 2020 compared to 2007.

3.4 The roles of union status, employment, and education

As shown in Table 1, cohabiting and married women were significantly more likely to hold both types of fertility intentions compared to women without a co-residential partner. However, the predicted probabilities for union status by survey year in Figure 6 show no significant changes over time in fertility intentions between cohabiting and married women in the Norwegian context. Those without a co-residential partner were specifically less likely to hold short-term fertility intentions (Panel B in Fig. 6), while the difference was less pronounced (though still significant in most survey years) when general fertility intentions served as the outcome variable (Panel A in Fig. 6). For both dependent variables, fertility intentions were lower in 2020 than in 2007, with this decline being significant across all union status categories, except for married women regarding short-term fertility intentions.

Turning to the variable assessing the impact of one's main activity on fertility intentions, women in the category "others" (which includes homemakers and the unemployed) were less likely to express general fertility intentions (Model 1 in Table 1) or short-term fertility intentions (Model 2 in Table 1) than the reference group of employed women. In addition, women in education were less likely to hold short-term fertility intentions than employed women. Among students, short-term fertility intentions declined continuously since 1988 (see Panel B in Fig. 6), and in 2020, students were also less likely to hold general fertility intentions (see Panel A in Fig. 6). Overall, we observe significantly lower levels for both types of fertility intentions across all subcategories of "main activity" in 2020 compared to 2007.

Regarding the highest level of education, women with a tertiary education were more likely to express both kinds of fertility intentions than those with secondary

or primary education, with no significant difference between the two latter groups (see Model 1 and Model 2 in Table 1). General fertility intentions (Panel A in Fig. 6) increased across all educational groups from 1977 to 2007, while for short-term fertility intentions this was only true for those with tertiary education, and only until 2003 (Panel B in Fig. 6). In addition, we observe a significant downward shift in 2020 compared to 2007 across all educational groups for both types of fertility intentions (Fig. 6).

3.5 Robustness checks

We conducted two main robustness checks. First, we included the constructed post-stratification weight in our regression models for both dependent variables, but this did not lead to any significant changes in our results (analyses available on request). Second, one may argue that an upper age limit of 44 years is too high when studying fertility intentions, as the possibility to conceive declines at the end of the reproductive period and relatively few women give birth after turning 40. Thus, we re-ran regressions on both types of fertility intentions using a restricted sample only with respondents younger than forty. This also did not lead to substantial differences in our results (analyses available on request).

4 Discussion

This study examined the prevalence of positive fertility intentions in Norway over the past fifty years. Drawing on comparable survey data from 1977, 1988, 2003, 2007, and 2020 covering a period with fertility rates fluctuating between 1.48 and 1.98, we document substantial changes in fertility intentions. At first glance, the proportion of women with general fertility intentions appears relatively stable, with over 40 percent of women aged 18–44 reporting that they intend to have a(nother) child at both the beginning and end of the observation period (i.e., 1977 and 2020). However, distinguishing general and short-term fertility intentions in our descriptive analysis reveals a more nuanced picture. In 1977, more than 8 in 10 young women (aged 18–24) expressed general fertility intentions and more than 5 in 10 reported short-term intentions. By 2020, the proportion with general fertility intentions was clearly below 80 percent for the first time and short-term fertility intentions had dropped to only 16 percent in this youngest age group. While the proportion of women with general fertility intentions increased in older age groups until 2007, we observed a shift in 2020 across all age groups, marking the lowest levels of fertility intentions observed in our study. This overall pattern was to be expected, as the fertility schedule has shifted markedly to higher ages over the nearly 50-year period we examine.

To unpack these trends, we estimated two sets of regression models – one for general fertility intentions and another for short-term fertility intentions. Our analysis focused on changes in the observation period and thus allowed the associations to vary over time. Results from our main model indicated no significant change

in short-term fertility intentions across the first four surveys. However, predicted probabilities of holding short-term fertility intentions were somewhat lower in 2007 compared to earlier surveys (1977, 1988, and 2003). More strikingly, early signs of a significant decline in short-term fertility intentions emerged among specific subgroups – particularly young women, childless women, women in education, and women without a co-residential partner – even as total fertility in Norway was increasing.

These patterns align with evidence that the fertility decline in Norway after 2009 stems from postponed or forgone first births (*Hellstrand et al.* 2021), and a steep decline in age-specific birth rates among younger women (*Hart et al.* 2015). The rising proportion of women in education (*Statistics Norway* 2024c) and the growing importance of employment stability for first birth transitions after 2009 in Norway (*Dommermuth/Lappegård* 2017) and Sweden (*Ohlsson-Wijk/Andersson* 2022) provide further context for our finding of lower fertility intentions among women in education. Partnership dynamics may also play a role. Previous research highlights that living in a co-residential union strongly predicts fertility intentions (*Balbo et al.* 2013). Additionally, evidence from Finland suggests that cohorts born in the 1990s or later have been delaying partnership formation (*Rahnu/Jalovaara* 2023). Over the study period, there has been a steady increase in the share of Norwegians living alone. Currently, one in five individuals lives alone, and more than one in four women in their 30s to mid-40s live without a partner (*Bergsvik/Wiik* 2025). Our results confirm that women without a co-residential partner were increasingly unlikely to hold short-term fertility intentions, suggesting that shifts in relationship formation patterns and union dynamics may contribute to the overall decline in such intentions.

One of the key motivations for this study was to see if changes in fertility intentions could signal changing fertility norms. Recent results point towards evolving fertility preferences, with a growing acceptance of child-free lifestyles (*Luppi et al.* 2024; *Pew Research Center* 2024) and increasing recognition of smaller or childless families as legitimate family forms, particularly in societies experiencing persistent fertility declines (*Aassve et al.* 2024). By comparing the prevalence of fertility intentions over a longer period, our study provides deeper insights into these evolving fertility norms: our findings reveal substantially lower levels of fertility intentions in 2020 compared to similar surveys in the 1970s, 1980s, and the first decade of the new millennium.

Short-term fertility intentions, compared to general fertility intentions, are more strongly tied to individual life circumstances and thus may respond to social and economic constraints more quickly. The decline in these intentions – especially among childless women and younger individuals – suggests a growing hesitation toward early parenthood. This aligns with the Second Demographic Transition theory, which emphasizes individualization and self-realization as key factors influencing childbearing, with Scandinavian countries as forerunners of this development (*Lesthaeghe* 2010). A recent study comparing how uncertainty and self-realization shape fertility intentions differently in Norway and Italy suggests that especially in Norway self-realization influences childbearing decisions (*Bazzani et al.* 2025).

Compared to short-term intentions, general fertility intentions are more strongly anchored in enduring cultural norms about childbearing. Despite variations in total fertility in Norway, our main model indicated an overall increase of general fertility intentions from 1977 to 2007. This may reflect the high value of children in Norwegian society. That we now observe a decline in both measures of fertility intentions in 2020 suggests a broader shift towards lower fertility norms in Norway. Taken together, our findings reinforce the idea that tracking fertility intentions over time can provide early signals of changing fertility norms – including variations across specific subgroups – before these shifts are reflected in actual birth rates or completed cohort fertility.

Several limitations merit attention. First, the GGS-II 2020 was conducted in November and December 2020, during the Covid-19 pandemic, which may have affected fertility intentions. We have no information on whether respondents changed their fertility intentions due to the Covid-19 pandemic, nor do we have data comparing intentions before and after the onset of the pandemic in Norway. In Moldova, the GGS-II was conducted partially before and partially after the outbreak of the pandemic, allowing *Emery/Koops* (2022) to rigorously test whether this led to significant changes in the prevalence of intentions of having a(nother) child in the next three years. Their results reveal no differences in such short-term fertility intentions of respondents pre- and post-outbreak. Retrospective studies from other European countries report no changes in family plans (*Buber-Ennser et al.* 2024 for Austria) or short-term fertility intentions (*Miaci et al.* 2024 for Italy) due to the pandemic. Regarding actual fertility, the first phase of the pandemic could even be linked to an increase in births in Norway (*Lappegård et al.* 2024), leading to a temporary increase in total fertility in 2021 (see Fig. 1). Thus, we conclude that the Covid-19 pandemic is unlikely to have biased our findings. Second, while the surveys used in this study provide valuable insights into long-term trends, differences in survey mode and response rates may introduce biases. Notably, the fifth survey (GGS-II 2020) had a lower response rate, with particularly low participation among individuals with lower educational attainment (*Dommermuth et al.* 2021). Since our results indicate that lower-educated women tend to have lower levels of fertility intentions, the decline in fertility intentions observed in 2020 may even be underestimated. Additionally, while we focus on positive fertility intentions, our dataset includes responses of “don’t know” (and “unsure” in the latest survey). The proportion of uncertain responses has varied over time, but due to some variances in survey mode and questions, these categories with uncertainty are not directly comparable across surveys. Future work should further explore shifts in reproductive uncertainty as a potential indicator of societal changes.

Despite these caveats, our study contributes to the debates on whether declining fertility is driven more strongly by structural constraints or changing norms. The decline in fertility intentions – particularly among younger women – suggests that fertility may remain low even if economic conditions improve, highlighting the role of broader socio-cultural factors – such as work-family compatibility and individual life course preferences. Policies and practices that improve work-family compatibility and diverse lifestyles may help younger people convert their family desires into more

concrete fertility intentions. Future research should assess whether the patterns found here replicate in other contexts, whether declining fertility intentions translate into further reductions in actual childbearing, and how partnership dynamics, work-family policies, and shifting gender norms interact with fertility intentions and their realization.

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Dr. Lars Dommermuth (✉), Dr. Kenneth Aarskaug Wiik. Statistics Norway. Oslo, Norway.
E-mail: lars.dommermuth@ssb.no; KennethAarskaug.Wiik@ssb.no
URL: <https://www.ssb.no/en/forskning/ansatte/lars-dommermuth>
<https://www.ssb.no/en/forskning/ansatte/kenneth-aarskaug-wiik>

Prof. Dr. Torkild Hovde Lyngstad. University of Oslo, Department of Sociology and Human Geography. Oslo, Norway.
E-mail: t.h.lyngstad@sosgeo.uio.no
URL: <https://www.sv.uio.no/iss/english/people/aca/torkild/>

Appendix

Tab. A1: Overview over the surveys

	Fertility Survey 1977 (FS 1977)*	Family and Occupation Survey 1988 (FFS 1988)*	Survey on Future Plans, Family and Partner- ships 2003 (FP 2003)*	Generations and Gender Survey I 2007 (GGs 2007)*	Generations and Gender Survey II 2020 (GGs 2020)*
Sampling frame and sampling procedure	Population register. Two-stage sampling procedure with 102 regional strata and random selection of women aged 18–44 within each stratum.	Population register. Two-stage sampling procedure with 102 regional strata and random selection among women born in 1945, 1950, 1955, 1960, 1968, and men born in 1945 and 1960 within each stratum.	Population register. Strata by sex. At least one of the respon- dents' parents was born in Norway. Random selection among women aged 20–44 years and men aged 23–47 years.	Population register and respondents to pre- vious survey for older age. Strata along gender, age, geogra- phical region, centrali- ty, women and men aged 18–79 years.	Population register. Random selection among women and men aged 18–54 years.
Survey mode	Face-to-face interviews.	Face-to-face interviews.	Self-administered postal survey.	Computer-assisted telephone interview.	Self-administered computer-assisted web interviews.
Gross sample	5,047 women	6,907 (4,933 women and 1,974 men) in the selected cohorts.	9,982 (4,852 women and 5,130 men).	24,830 (12,466 women and 12,364 men).	15,000 (7,296 women and 7,704 men).
Net sample	4,137	5,262 (4,019 women and 1,543 men).	6,317 (3,347 women and 2,970 men).	14,892 (7,547 women and 7,345 men).	5,374 (3,010 women and 2,364 men).
Response rate	82%	81% among women.	69% among women.	78% among women.	41% among women.
N women in selected age group (18–44 years)	4,137	4,019	3,347	3,637	2,141
N analytical sample**	3,463	3,202	2,710	2,963	1,821

* For further documentation see: *Statistics Norway* 1981 (FS 1977); *Statistics Norway* 1991 (FFS 1988), *Wiecek* 2003 (FP 2003); *Lappegård/Veenstra* 2010 (GGs 2007); *Dommermuth/Lappegård* 2021 (GGs 2020)

** Excluding the following respondents (i) pregnant at the time of the interview, (ii) respondents stating not to be able to have a(n)other child (iii) respondents with missing values for any of the included variables in the study (see Table 1).

Tab. A2: Descriptive statistics of the sample and measures, percentages (weighted results)

	FS 1977	FFS 1988	FP 2003	GGs-I 2007	GGs-II 2020	All
<i>Fertility intentions</i>						
General fertility intentions	43.0	48.1	41.3	51.3	46.6	46.1
<i>Short-term fertility intentions*</i>	30.7	33.7	29.5	29.1	23.2	29.9
No fertility intentions	57.0	51.9	58.7	48.8	53.4	53.9
<i>Don't know*</i>	15.6	11.2	14.2	5.1	14.8	11.9
<i>Age at interview</i>						
18-24 years	32.1	32.1	15.5	23.8	28.0	27.0
25-29 years	22.6	21.3	18.9	19.2	19.5	20.6
30-34 years	20.5	18.5	21.0	19.8	19.1	19.8
35-44 years	24.9	28.1	44.6	37.3	33.5	32.7
<i>Parenthood status</i>						
No children	30.6	36.5	38.9	44.3	57.0	39.5
One child, <6 years	13.1	13.6	9.8	10.1	8.0	11.4
One child, 6+ years	5.2	6.6	6.5	5.6	4.5	5.7
Two or more children, youngest <6 years	27.1	21.1	20.3	20.6	16.3	21.8
Two or more children, youngest 6+years	24.1	22.3	24.6	19.6	14.2	21.6
<i>Union status</i>						
Not in a co-residential union	30.6	31.3	32.8	41.1	42.5	34.9
Cohabiting	3.8	18.4	29.6	26.8	32.3	20.0
Married	65.6	50.3	37.5	32.1	25.3	45.2
<i>Main activity</i>						
Employed	64.0	73.7	69.5	71.5	65.2	69.0
In education	8.5	8.9	15.6	18.9	25.7	14.1
Other	27.5	17.4	14.9	9.6	9.1	16.9
<i>Highest level of education</i>						
Primary education	34.0	16.9	29.6	21.2	19.6	24.8
Secondary education	49.8	59.2	33.7	40.4	28.7	44.6
Tertiary education	16.3	23.9	36.7	38.5	51.7	30.6
<i>N (unweighted)</i>	3,463	3,202	2,710	2,963	1,821	14,159

* "Short-term fertility intentions" are part of "General fertility intentions", while "Don't know" is part of "No fertility intentions".

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