

Not so Low Fertility in Norway—A Result of Affluence, Liberal Values, Gender-Equality Ideals, and the Welfare State

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Abstract In Norway, the total fertility rate over the years 2000–2013 averaged 1.86 births per woman. Women born in 1968, which is the youngest cohort that has completed their reproductive period, had 2.03 children on average. Only 13 % of that cohort remained childless, and 83 % of those who became parents had at least two children. This chapter discusses possible reasons for this high fertility compared to that of most other rich countries. Norway's advantaged economic position is probably one ingredient. There is little income insecurity for individual families, and the state can afford to be generous with parents, not least with respect to daycare and parental leave. The willingness to prioritize such spending does not reflect concern about below-replacement fertility, but rather the social-liberal or social-democratic ideas about public responsibility for individual well-being that are strongly rooted in Nordic societies, accompanied by widely accepted ideals of gender equality. It is possible that these ideals also affect fertility positively by promoting men's involvement with children and in housework. Another explanation for Norway's high fertility may be that, although the retreat from marriage has been as least as pronounced as in most other rich countries, this has been counteracted by widespread cohabitation and a large number of births among cohabiting couples—probably reflecting in part their trust in the welfare state and liberal values. The chapter ends with a discussion of whether lower fertility would, in fact, be a problem for Norway.

Keywords Affluence • Norway • Fertility • Gender equality • Policies

Almost all “more developed countries” have a total fertility rate (TFR) below replacement level, which is 2.08 births per woman in populations with very low mortality. In the long run, below-replacement fertility leads to a shrinking population

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size in the absence of immigration. Furthermore, the proportion of elderly in the population will increase particularly rapidly when fertility is very low. The TFR is below 1.5 births per woman in several countries, as low as 1.1–1.2 in some, and even lower in a few countries consisting of only a large city. This very low fertility has led to concerns, primarily about the economic and welfare consequences of an aging population. On the other hand, among countries with below-replacement fertility, there is also a quite large group with TFR above 1.75. Norway is in this category, with a TFR of 1.78 in 2013—down from 1.90–1.98 in 2006–2009—and an average of 1.86 over the years 2000–2013 (Statistics Norway 2014). Norwegian women in the youngest birth cohort that has reached the end of the reproductive period (born in 1968) have had 2.03 children on average.

Additionally, Norway has for some years had very high net in-migration (43,700 annually as an average over the past five years, which is 0.9 % of the population size), so the annual population growth rate is currently about 1.3 %—slightly above the world average of 1.2 %. Immigrants from high-fertility countries and Norwegian-born individuals with parents from such countries still constitute only about 5 % of the country's population, however, and thus contribute little to the national TFR. In fact, if immigrants are excluded from the calculations, Norway's TFR is only 0.07 lower (Aase and Kaldager 2014). According to Statistics Norway's medium projection, which assumes that TFR will continue at about 1.8 and that net immigration will remain high for several years, the population size will increase from 5.1 million today to 5.9 in 2030, 6.6 in 2050, and 7.7 in 2100. The proportion above age 70 will increase from the current 11 % to 19 % in 2060 (Tønnessen et al. 2014).

The first part of this chapter gives a short description of Norway's fertility trends and patterns. Next, possible reasons for the country's relatively high fertility are discussed. Obviously, knowledge about the factors underlying the relatively high fertility in Norway and some other rich countries is potentially valuable to countries concerned about low fertility, as it may inform discussions about steps they could take to raise fertility. More specifically, some of the policies that have probably led to high fertility in Norway—although this was never the explicit intention—might be adopted with some revision by other countries. Other fertility-stimulating factors, however, are rather unique and may not be “transferable” to the same extent.

The chapter ends with a discussion of whether the concern about low fertility is actually justified—in other words whether it would have mattered if Norway's fertility had not been so high. While meeting the needs of an older population clearly presents challenges, there are also advantages from having a smaller and older population. It is also far from obvious how a small family size affects the well-being of the family members themselves—both parents and children as well as childless adults. These aspects of the low-fertility issue have not received much attention in the public debate.

Fertility in Norway in International Perspective

The TFR in Norway fell from about 4.5 births per woman in the late 19th century to 1.7 in the 1930s, increased to 3.0 as of 1965, and then fell again. Fertility reached a record low of 1.66 in 1984 and then increased. It has been above 1.80 every year since 1988 except 2001, 2002, and 2013, when it was 1.75–1.78. Indeed, Norway's TFR exceeded 1.9 in seven of the years since 1988. The average over the period 2000–2013 was 1.86.

Over the past quarter century, the Norwegian TFR has been higher than the Nordic average. In Denmark and Finland, TFR was about 0.1 below that of Norway throughout the period, while the Swedish TFR was below through most of the period, but above in the early 1990s and slightly above over the past few years (Fig. 1). Iceland's TFR has been consistently about 0.2 above the Norwegian level.

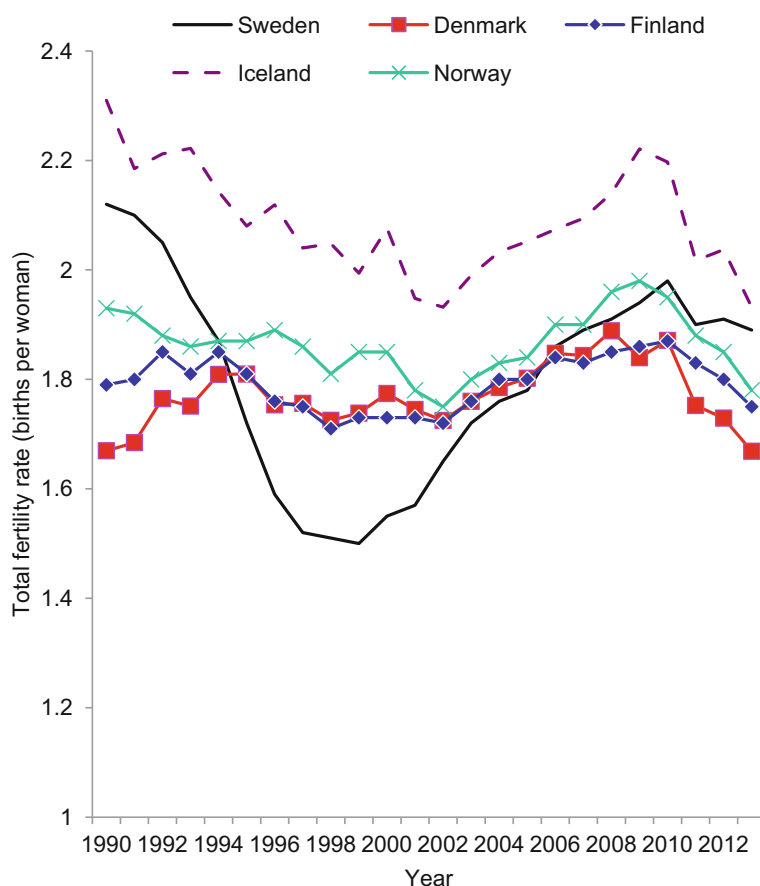


Fig. 1 Total fertility rates (TFR) in Nordic countries, 1990–2013 (Aase and Kaldager 2014)

Among other European countries, only France (TFR of 2.0), Ireland (2.0), and the United Kingdom (1.9) were above Norway in 2013 (Population Reference Bureau 2014). Fertility was also higher in two English-speaking countries outside Europe, New Zealand (2.0) and the United States (1.9), and in another more-developed country, Israel (3.0), where the situation is in many ways extraordinary. In comparison, the TFR is very low in some countries in Central Europe (Germany 1.4, Austria 1.4), Southern Europe (Portugal 1.2, Greece 1.3, Spain 1.3, Italy 1.4), and Eastern Europe (Poland 1.2, Hungary 1.3, Romania 1.3). Even lower levels are seen in East Asia (Taiwan 1.1, South Korea 1.2), and in the second-largest country in that region, Japan, the TFR is only 1.4.

In periods during which mother's average age at childbirth is increasing, the average number of children born to cohorts of women ("cohort fertility") of reproductive age is higher than the TFR (often also referred to as "period TFR" to avoid misunderstanding). The youngest cohort of Norwegian women that can be observed up to age 45—those born in 1968—have had, on average, 2.03 children. The women born in 1972 had 0.05 fewer children at age 40 than those born in 1968 (1.95 as opposed to 2.00). In comparison, Norwegian women born in the 1930s had 2.5 children.

According to figures for the 1972 cohort, based on forecasting for ages above 40, the other Nordic countries have a completed cohort fertility similar to that of Norway or somewhat lower. It is 1.99 in Denmark, 1.97 in Sweden, and 1.90 in Finland (Vienna Institute of Demography 2014; for trends over time, see Max Planck Institute for Demographic Research 2013). Only Iceland has higher cohort fertility, at 2.31. Among the other Western European countries, Ireland is highest at 2.1, followed by France at 2.0 and the United Kingdom at 1.9. Within Eastern Europe, where very low period fertility is a rather recent phenomenon, some countries have cohort fertility above 1.8, but there are also some that are below 1.6. In many of these countries, cohort fertility is on its way down. The lowest figures are found in Germany (1.5), Italy (1.5), and Spain (1.4). Among the large more-developed countries outside Europe, cohort fertility in the United States is 2.2, and it is also above 2.0 in New Zealand and Australia, while it is well below 2.0 in Canada and only 1.4 in Japan (see also Max Planck Institute for Demographic Research 2013).

The decline of Norwegian cohort fertility from 2.5 for those born in the 1930s to the current level slightly below replacement has to a great extent been the result of a larger proportion of women stopping childbearing after having two children. The proportion childless has only increased a few percentage points. In the 1968 cohort, 13 % were childless at age 45. Among those in that cohort who had a first child, 83 % also had a second child, and among those who had a second child, 43 % proceeded to have a third child. Thus, 31 % ended up with at least three children. Eight percent had at least four.

Figure 2 shows parity-specific birth rates relative to those in 1976 (see note to Fig. 2 for a more detailed explanation). The decline in second- and higher-order birth rates started in the mid-1960s and lasted for about one decade, after which the rates stabilized or increased, except for a small decline in 2000–2002 and a

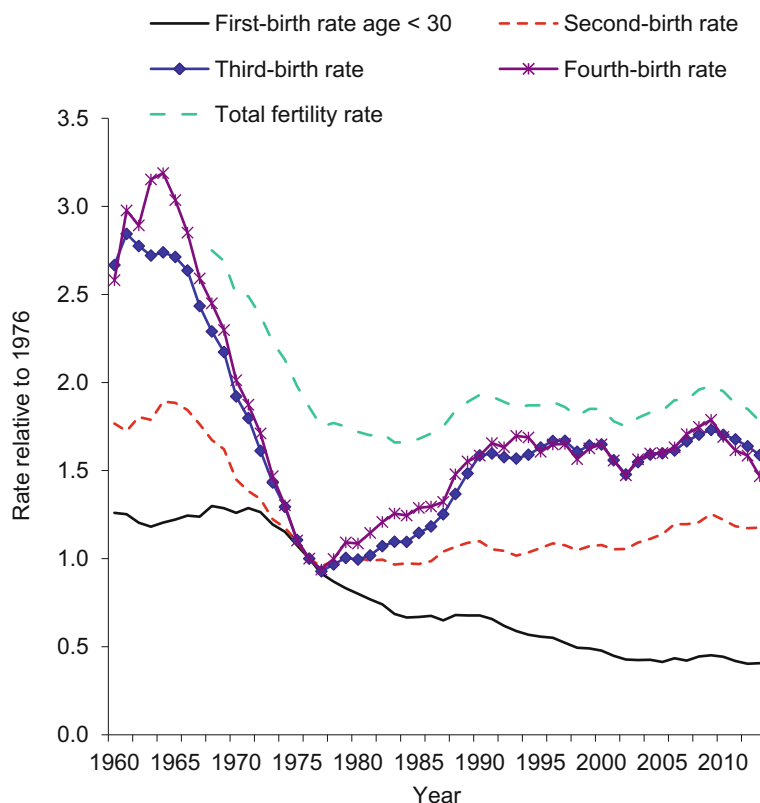


Fig. 2 Period effects on parity-specific birth rates, controlling for age and time since last birth, and total fertility rate. *Note* Discrete-time hazard models were estimated from register data including all Norwegian women and extracted by Astri Syse of Statistics Norway. In the analysis of first-birth rates, childless women were followed from age 17 (but not before 1960) until they reached age 29, emigrated, died, or had a first child, or the end of the observation period was reached (2013), whichever occurred first. The models included age and period. In the analysis of second-birth rates, one-child mothers were followed from first birth (but not before 1960) until they reached age 39, emigrated, died, or had a second child, or the end of the observation period was reached. The models included age, time since previous (i.e., first) birth, and period. Similar models were estimated for third- and fourth-birth rates. The graph shows the period effects in these models, using 1976 as the reference year. In other words, for each parity transition and each year, the rate relative to the corresponding rate (i.e., for that particular transition) in 1976 is shown. Results were very similar when the foreign-born were excluded or when individuals were left out during periods of temporary residence outside Norway between 1986 and 2013

somewhat sharper decline after 2009. First-birth rates below age 30 started to fall in the early 1970s, giving period TFR an extra push downward above and beyond the effect of the lower cohort fertility (which was closely related to a stronger inclination to stop after two children). The first-birth rates below age 30 were stable during the last half of the 1980s, went down slightly in the 1990s and the first years

of the new millennium (so that cohort fertility was still higher than period TFR), went slightly up over the years 2005–2009, followed by yet another dip downward. First-births rates at ages above 30 (not shown in Fig. 2) have increased, which of course accords well with the fact that there has been only a modest increase in the proportion remaining childless.

Other Nordic countries have also seen an increase in second- and higher-order birth rates from the mid-1970s or early 1980s, although in Sweden the rates fell again in the first part of the 1990s (Andersson 2004). Similar measures are not available for other countries, but according to studies of parity progression ratios from a cohort perspective (which blurs any sharp period turning points), there were increases across cohorts from the 1950s in the proportion of one-child mothers having a second child in France and increases in the proportion of two-child mothers having a third child in France, the Netherlands, and the UK (Frejka 2008). A French analysis taking a period perspective showed that progression ratios to the higher parities increased a little or were stable after the mid-1970s (Toulemon et al. 2008), in spite of higher average age at first birth, which means that with controls for age as in the Nordic analyses, there would have been a sharper increase in the progression ratios.

The overall conclusion is that a relatively large proportion of Norwegians have at least one child, although figures are even higher in some Eastern European countries. Childlessness is more widespread in the other Nordic countries, except Iceland (Andersson et al. 2009). In addition, it is more common for parents with one child to have a second child in Norway than in most other rich countries (Frejka 2008). Similarly, a larger proportion of Norwegian women move on to higher parities, although transitions beyond the third child matter little for differences in total fertility because so few women have this many children.

The average age at first birth is lower in Norway than in many other rich countries, but higher than in many Eastern European countries (Thévenon 2011). In 2013, it was 28.6 years for women. This relatively low age at first birth contributes to Norway's relatively high cohort fertility, because at the individual level, a later first birth reduces the likelihood of having a second or third birth (although in Norway, there appears to be a pronounced effect only when the age at first birth exceeds about 30 years (Kravdal 2001)). The discussion below will therefore deal both with factors affecting quantum (completed fertility) directly and with timing determinants of fertility.

A Theoretical Framework

This section reviews briefly the kind of factors that determine a woman's chance of having a child, with inspiration from the Easterlin and Crimmins (1985) framework. In subsequent sections, the discussion will turn to similarities and differences between Norway and other countries with respect to each of these main determinants of fertility.

Obviously, in order to have a child, the woman must be *sexually active and physiologically able to conceive*, as must her partner, and also be able to bring the pregnancy to term. The chance of being sexually active depends, of course, on whether the woman is involved in a *relationship*, which also—along with the *type* of relationship—has implications for other main fertility determinants. The chance of entering into and remaining in a relationship, and the type of relationship it is, in turn, depend on individual economic potentials, other factors that make a person attractive, values, and how easy it is to meet potential partners. Making this even more complex, actual fertility or childbearing plans may be involved in building and maintaining a partnership, thus producing a two-way association between partnership and fertility.

Assuming that the woman lives in a partnership, the couple's *childbearing desire* depends partly on their *purchasing power* and the expected *costs of childbearing*. The latter include foregone income if a parent stays at home with the child (still largely the mother) and more "direct" costs of, for examples, clothes and food, plus childcare expenses if a parent does not stay at home to care for the child. Another determinant of fertility desire is the couple's "*preferences*," i.e., their ideas about the emotional benefits from having and rearing children compared with the satisfaction one might derive from an alternative use of time and money. In reality, there is, of course, more complexity involved. Recent literature deals with how desires are formed and lead to intentions, how they change over time, and possible discrepancies in desires and intentions between partners (e.g., Bachrach and Morgan 2013). From the comparative perspective of this paper, however, these issues may not be very important, and only the possibility of different desires between partners is touched on briefly.

Arguments with respect to purchasing power and costs vary depending on whether it is the number of children or the timing of the (first) birth that is considered. In addition, fertility desires and the way they are influenced by expected childrearing costs and the couple's purchasing power likely depend on whether the partners are married or only cohabiting. Cohabiting partners are perhaps more likely to anticipate that the relationship might be disrupted, after which there may be less involvement and economic contribution from the father. A single woman is typically less likely to want a child than a woman who is married or cohabiting, and it would obviously only be relevant for her to take her own resources into account in her economic considerations.

Furthermore, people may feel some social pressure, if they are married, to have at least one and preferably two children. Conversely, many of those who are not married may feel subjected to expectations about avoiding childbearing, especially, of course, if they are not even cohabitants. One may consider such norms about the number of children—or about the appropriate timing of childbearing—to be another determinant of childbearing desires, or they could be considered a separate additional factor. (In addition, there are normative influences on important determinants of fertility desires, such as mothers' work activity, and other factors of importance for fertility.) Norms reflect to some extent current actual behavior. Thus, in countries where it is common to have few children, it may also be more accepted to

remain childless or have only one child. The low “ideal fertility” in Central Europe has been interpreted as an indication of such a mechanism (Goldstein et al. 2003). Other authors have described European countries as being caught in a “low-fertility trap” (Lutz and Skirbekk 2005). Conversely, one could argue that the rather high fertility level in Norway tends to further promote high fertility.¹

Finally, another main determinant of the chance of having a child is the *access to and acceptance of abortion and various types of contraception*.

Fecundity and Partnership

There is no evidence to suggest that sub- or infecundity is less common in Norway than in other rich countries, thus contributing to the relatively high fertility level. In principle, it is possible that widely accessible infertility treatment through Norway’s public healthcare system could contribute positively to fertility. This is not likely to matter very much, however. It has been estimated that assisted-reproduction technology was involved in 3 % of births in Norway in 2009, while the contribution from intrauterine inseminations was very small (Ferraretti et al. 2013). More careful estimation based on Danish data showed a similar contribution from assisted-reproductive technology (Sobotka et al. 2008). Some figures indicate that this technology is only one-half as commonly used in some other European countries (Ferraretti et al. 2013), but such a difference would only correspond to about 0.03 births per woman.

Is the high fertility in Norway a result of a relatively large proportion marrying and remaining married? No, on the contrary, Norway has experienced a massive retreat from marriage: There has been a sharp increase in the proportion who never marry, those who marry do so at a later age, and divorce rates are higher than ever—changes that probably are driven not least by women’s economic independence, a generous welfare system, and generally liberal values (as well as a snow-ball effect in the sense that further changes in these directions may be produced by an increasing proportion unmarried). Crude marriage rates are not particularly high in Norway by European standards, and crude divorce rates are not particularly low (Eurostat 2014a). Thus, the proportion married at any given age is probably not relatively high either. This situation is compensated for by informal cohabitation to a larger extent than elsewhere, however, and many cohabitants have children. Indeed, out-of-wedlock fertility is very high, as in the other Nordic countries.

¹In principle, a preference for having at least one boy will increase fertility in settings with generally low or moderate fertility and where the alternatives to achieving such a goal—sex-specific abortion or excess female mortality—are deemed unacceptable. However, sex preferences are typically weak in rich countries outside Asia (Andersson et al. 2006). Also, the “insurance effect,” “replacement effect,” and other effects of mortality on fertility that are important in many parts of the world have little relevance in more-developed countries, given their very low infant and child mortality.

In 2014, cohabiting mothers accounted for 44 % of all births in Norway, and single mothers for 13 %.

The relatively high fertility among Norwegian cohabitants reflects, of course, the same factors that generally stimulate fertility in the population. In addition, it is possible that factors that tend to depress fertility among cohabitants compared to the married are weaker in Norway than in many other countries. There is probably a weaker normative pressure to restrict childbearing to formal marriages, given the generally liberal values, and women may not fear to the same extent being left alone with many of the economic and emotional burdens of childrearing. Even if a relationship is dissolved, the father may contribute substantially through shared custody or child-support payments (see Skevik 2004 for a discussion of the demands placed on fathers and the rights they have). Besides, Norwegian women have good earning potential, and there is a welfare state to rely on (NAV 2014).

In addition to the normal annual allowance of 11,600 NOK (equivalent to US \$1535 as of 16 January 2015) per child, a single parent in Norway is entitled to an extra 11,600 NOK per year. Single parents also receive a child allowance supplement for infants of 6700 NOK (US\$887) per year and special tax benefits corresponding to about 15,000 NOK (US\$1985) per year. In addition, two-thirds of childcare costs are covered, corresponding to up to 17,600 NOK (US\$2329) per year for the youngest children. At the lowest ages, this adds up to about 10 % of the average earnings of a full-time worker age 30–34 and should cover a substantial part of the costs of having a young child. In addition, a special allowance is given to single parents who work or study at least half-time. It is 195,000 NOK (US\$25,805) per year, for 2–6 years, for those who have earnings below 45,000 NOK (US \$5955) per year. The amount is reduced proportionally as an individual's income exceeds this level. Some of these entitlements are generous even by Nordic standards (Rønsen and Skrede 2008). Finally, children with a single parent are not likely to feel especially stigmatized—nor are their parents—in Norway's liberal society, particularly as the situation is so common. Some of the factors that may affect fertility among cohabiting couples may also contribute to the relatively high fertility of single women, of course, and they could, in principle, have a positive impact on the fertility of married couples concerned about the quality of their relationship and the possibility of divorce.

The issue has so far to a large extent been seen from the woman's perspective. Another question is why men agree to have children in relationships that they should realize are potentially unstable, so that they run quite a high risk of having little contact with their child. The discussion will return briefly to this issue below.

This discussion of fertility among cohabitants builds on the assumption that such relationships are more unstable than marriages, and that those involved are conscious of this relative instability and take it into consideration in their decision-making. Indeed, the lack of stability in consensual unions is well documented in Norway as in other countries (Manning et al. 2004). Cohabitants with children have much higher disruption rates than parents who are married (Jensen and Clausen 2003; Texmon 1999), presumably reflecting a combination of a more tenuous relationship (Wiik et al. 2009) and lower practical and normative burdens

associated with disruption. If such disruptions or the underlying parental discord are harmful to children—contrary to what the parents who decide to have a child in such a relationship perhaps believe—then this aspect of Norway’s high fertility may be seen as constituting a potential child-welfare problem. Such concerns are voiced in, for example, the United States, where more of the out-of-wedlock births are to single mothers and the chance of falling into poverty is high (Sigle-Rushton and McLanahan 2002), but they are rarely heard in Norway.

Effects of Earnings and Earning Potentials

Earnings and earning potentials are not only key determinants of the (potential) purchasing power of prospective parents, but also influence their costs of raising children. In the discussion of these factors, a quantum perspective will be taken first, and it will be assumed that the woman is the primary caregiver.

A reasonable starting point is that, with a high income for the man, the couple can afford more children, given the costs of childrearing. If the man’s income is high, however, the couple may also feel that they should spend a lot on each child, and they may attach more value to the material luxuries that compete with the costs of childrearing. Thus, those with a stable high income do not necessarily have more children than those with a stable low income. However, a sharp *decline* in income, for example as a result of unemployment, is likely to depress fertility, because the couple’s material aspirations may reflect the higher income they enjoyed in earlier years and they may need time to adjust to a lower income level (Kravdal 2002a). In other words, the low unemployment rates among men in Norway, and the low *fear* of unemployment or of an income drop for other reasons, may have contributed to Norway’s relatively high fertility. To elaborate, Norway’s per capita gross domestic product (GDP) is one of the highest in the world, there is low income inequality, very few are considered poor, and the overall unemployment rate has not exceeded 4 % during most of the period since the Second World War. Oil revenues have been used to build up a fund corresponding to three times the annual GDP, and prospects for the future also look good for many other reasons (Olsen 2013).

If a *woman’s* earning potential is high, similar mechanisms may operate. There is an additional effect, however. High wage potential for her means that more is foregone (i.e., higher opportunity costs) for each time unit she spends at home caring for a child. These higher costs of childrearing may prompt a woman and her partner to want fewer children. Possibly, it is not the woman’s wage potential in an absolute sense, but rather her wage potential relative to the man’s income that matters in such considerations. In Norway, this type of argument has become less relevant over time, however, as women with young children tend to spend less time out of the labor market without payment because they are entitled to a fully paid one-year maternity leave and because they are making greater use of childcare outside the home (as described below). Indeed, the employment rate for Norwegian

women aged 15–64 is higher than in almost all other European countries and close to the rate for men (Eurostat 2014b).

To conclude, it is not obvious how unemployment or fear of unemployment among women should be expected to affect fertility. On the one hand, there is an effect similar to that of men's unemployment, though with a little twist: If there is a risk of unemployment, the woman may not be able to find or return to a job after the intense childcare period, and this lack of contribution to the family income may reduce the chance of wanting a(nother) child. On the other hand, there is a woman-specific argument that is of diminishing relevance: Unemployment reduces opportunity costs and thus increases fertility. To spell out this argument in more detail, a couple may find it particularly attractive to have a child, after which the woman may have to stay at home for some time after the maternity leave, if the woman would not have been able to work during this period anyway. In a Norwegian study, a weak positive association between women's recent unemployment experience and their first-birth rate appeared, while other relationships between fertility and women's or men's unemployment were negative (Kravdal 2002a). For similar reasons, it is hard to predict the fertility implications of high wages for women relative to men. Anyway, the gender wage gap in Norway is not particularly high or low. Rather, it is close to the European Union (EU) average (Eurostat 2014c).

Special arguments pertain to the timing of a birth and are thus particularly relevant for a discussion of the chance of having a first child, which to a large extent is a matter of when rather than whether to give birth. A fundamental idea (see, e.g., Happel et al. 1984) is that if childbearing costs are independent of the timing of the birth and of the parents' wages, and if borrowing money is costly, then it would make sense for a couple to postpone the first birth until their purchasing power has increased and the reduced consumption of other goods because of childrearing expenses therefore matters less (given a diminishing marginal utility of consumption). This strategy would be particularly relevant if childrearing costs are high or if the couple's income is currently low (in absolute terms or relative to earlier levels that may be of importance for material expectations).

In reality, however, the situation is more complex. First, there are typically opportunity costs of childrearing, which are linked especially to the mother's wage, although, as mentioned, the argument has become less relevant in Norway. If the mother's opportunity costs are high, there would be a particularly strong motive for postponing childbearing—provided that these costs will not be even higher later. On the other hand, there are direct costs of having a child that go far beyond the time when the woman might be losing income because she is staying at home with the child, and the higher her earnings, the weaker the reason for postponing childbearing because of these costs. An additional complication is that wages *do* tend to increase, so that the opportunity costs become higher if the couple waits to have a child. Thus, the conclusion would be similar to that obtained from a quantum perspective: Low unemployment for men probably contributes positively to first birth rates, while the effects of low unemployment (or high relative wages) for women are less obvious.

A second fundamental idea in the literature on first-birth timing is that childrearing costs are likely to depend on the timing of the birth not only because wages increase over time. In particular, having a child while still a student may increase the risk of never completing one's education, with economic and other long-term consequences (see elaboration on that argument in the next section). Also, to the extent that there are long-term wage penalties for leaving the workforce for a period to care for a child, it is possibly that these penalties depend on whether the period out of the workforce comes early in a woman's career or after she has become more established (or on what the couple making a decision about fertility anticipates in terms of long-term wage penalties). In other words, it is possible that some work experience would increase the likelihood of having a child sooner rather than later. An additional argument for such an effect, which indeed has been seen in Norway (Kravdal 1994), is that a woman with some work experience may have been able to save, thus making it less necessary to wait for a higher income before having a child. Accumulated income and work experience may be relatively high among young people in Norway, at least among those who have completed their education, because of the country's low youth unemployment rate—reflecting not only a generally low unemployment rate, but also the fact that the educational system prepares students reasonably well for vocations (Rindfuss and Brauner-Otto 2008).

The country's economically advantaged position not only prevents individual families from being hit by unemployment and feeling economic insecurity; it also makes possible the government's generous policies and welfare arrangements, which probably affect fertility positively. A much poorer country would find it problematic to finance these arrangements.

Other Factors Affecting Childbearing Costs

The next step is to discuss factors that affect the costs of raising children more specifically. These costs probably vary widely across rich countries (DiPrete et al. 2003), which likely contributes a great deal to the observed differences in fertility. This discussion implicitly builds on two fundamental ideas already mentioned. First, when costs are high people may not want so many children, and it makes particularly good sense to have the next child later rather than sooner. Second, the costs may depend on the timing of the birth.

Factors affecting childrearing costs are grouped into three categories: (1) Factors that make it easier to resume employment or otherwise maintain an income after childbearing, thus reducing opportunity costs, which have indeed been shown to be low in Norway compared to other countries (Sigle-Rushton and Waldfogel 2007); (2) Factors affecting the short- and long-term economic implications of having a child while studying, which have special relevance for the timing of first births; and (3) Other types of factors. The first and last categories are relevant both for the quantum and timing of fertility.

It should be noted that none of the policies that have probably influenced these factors has been implemented specifically in response to concerns about low fertility. Rather, the main motivations have been to improve the well-being of families, strengthen women's position in society, and add to the country's supply of labor—by reducing the conflicts experienced by working mothers. In addition, it is also often argued that being in a daycare center benefits children socially and intellectually, except perhaps the very youngest.

Factors Reducing the Loss of Income Due to Childrearing

The parental leave in Norway has been gradually extended from 12 weeks in 1956 to 20 weeks in 1987 and 42 in 1993. It currently stands at 49 weeks with full wage compensation or 59 weeks with 80 % compensation (NAV 2014). A minimum of 10 weeks is reserved for the father and 10 for the mother. This parental leave period is longer than in most other countries. For example, the average among members of the Organization for Economic Cooperation and Development (OECD) in 2007 was the equivalent of 32 weeks with full compensation (Thévenon 2011). In Norway, those who have not become entitled to parental leave by having earned an income during 6 of the 10 months before the birth receive a modest cash amount, currently about 39,000 NOK (US\$5159), which is close to the average monthly earnings for women aged 30–34 who work full-time. Not surprisingly, some studies—including one from Norway (Rønsen 2004)—have suggested positive effects of parental leave on fertility, but on the whole the evidence for such effects is not very strong (Kalwij 2010).

Norwegians also have relatively good access to part-time work (Kalleberg 2000), which means that those who for various reasons cannot or do not wish to work full time when they have young children can earn at least some income. This also has implications for later wages, as these are influenced by accumulated work experience and the signals of work commitment that are shown. About 40 % of Norwegian women age 15–64 work part-time, which is higher than the European average. Only a handful of countries are at the same level, and only Switzerland and the Netherlands are higher (Eurostat 2014a).

Furthermore, employees are allowed to stay home with a sick child under 12 years old for up to 10–15 days per year with full wages (Barne, likestillings, og inkluderingsdepartementet 2012). The relatively few women who work full time with a child under one year old are also entitled to one hour of fully paid time off each day to breastfeed. These rights may make it more attractive to go back to paid work quite soon after giving birth.

Access to high-quality childcare also helps parents resume work after completing parental leave. In Norway, 80 % of children age 1–2 and 97 % of children age 3–5 are in public or private daycare centers, which are open during usual working hours every day. In contrast, almost no children age 0–6 were in daycare in the mid-1970s, and only about 40 % were in daycare in the late 1990s. Daycare is

subsidized directly by keeping prices low and indirectly through tax deductions. According to a comparison made in 2010, the proportion of children younger than three who were enrolled in formal daycare on a full-time basis was higher in Norway than in almost any other European country (European Commission 2014). (Such comparisons are difficult, however, because the parental leave period, when daycare centers are not needed, differs among countries.) Norway was also well above average for daycare use among older children. The implications for fertility have been assessed by Rindfuss et al. (2010), who compared birth rates in Norwegian municipalities with high and low daycare coverage and concluded that without the expansion of daycare since the early 1970s, the country's fertility would have been one-fourth child lower.

Some parents also make use of other childcare services. Most commonly, they may pay a neighbor to look after the child, or there may be family members who can assist. Very few employ an *au-pair*. The price of these services may well be approximately the same as for a daycare center, but there is often less flexibility in terms of "open hours," the service may not be available when the caregiver is ill, and the adults providing care may be less qualified than a daycare worker.²

Since 1998, a cash-for-care benefit of 72,000 NOK (US\$9395) per year has been offered to those who have a child age 13–23 months and who cannot find or do not want a place in institutional daycare. This amount is about twice the average monthly earnings for women age 30–34 who work full time. On the whole, this benefit reduces the cost of childrearing. For those who do not wish to work while their child is young (and therefore have opportunity costs not incurred by those who work and have a child in daycare), the cash benefit simply constitutes an additional subsidy. For those who use other childcare options, such as a neighbor or grandparent, the benefit also constitutes a subsidy. A third group of women may switch from daycare to using other types of childcare or may even stop working in order to receive the benefit, and they presumably do this because they think they are better off (although some might argue that this strategy is not really in their own economic interest in the long term). Finally, such a switch may free up slots in daycare for others, as there still is excess demand in some municipalities. In other words, another option that many would consider better is opened up for other parents. A positive association between taking up the cash benefit and subsequent fertility has been observed (Aassve and Lappegård 2009; Vikat 2004), but interpretation is difficult as it is not obvious what such an indicator really captures.

Yet another factor that helps parents combine childrearing and employment is the fact that children are kept in school during lunch breaks—rather than being sent

²Some parents might have returned to work immediately after the leave period regardless of the right to breastfeed or stay home with a sick child and regardless of whether they found a slot for their child in a daycare center or had to make use of other childcare services. In other words, they would have had no opportunity costs of childbearing even with a less generous system. However, such parents might see the generous policies and good access to high-quality daycare as making childrearing more convenient, thus strengthening their childbearing preferences (to be discussed further below).

home to eat as in many other countries—and after-school care is offered to the youngest (typically, 1st to 4th grade). Furthermore, one might speculate that Norwegians might be more comfortable than parents in other countries in allowing their young children to go home from school alone, to be alone at home, or to spend time in parks or other places outside the home without adult supervision (Rindfuss and Brauner-Otto 2008). The country has a low crime rate, and while the proportion living in urban areas is as large as in other rich countries, the cities tend to be smaller, with less intense traffic and good access to green areas.

It is possible that the generally family-friendly environment in Norway has contributed to diminishing the socio-economic differences in fertility. In particular, when childcare is available at a price that depends little on family income, the opportunity costs—which traditionally have been highest among the better-educated and others with a high wage potential—are substituted with direct costs that vary much less. Put differently, the efforts to help parents resume work quickly after birth have probably made Norwegian fertility higher than it would otherwise have been, and especially among the better educated.

The arguments above are implicitly based on the assumptions that most women would want to work if they did not have a young child (otherwise, there would be no opportunity cost) and that those who have a young child would want to work if other qualified persons were available to take care of the child. These assumptions should be reasonable enough. As already mentioned, Norwegian women have a generally high employment rate, and it is also widely accepted that children may be cared for by persons outside the family. In fact, there is hardly any European country where this is more accepted (European Commission 2014). One of the reasons for this attitude may be that the average work week in Norway—at 37.5 h—is quite short, implying that parents who work are still able to spend considerable time with their children.

Factors Improving the Compatibility Between Enrolment in Tertiary Education and Childrearing

A large proportion of young Norwegians are enrolled in college or university. In fact, the proportion of young adults expected to complete tertiary education is somewhat higher than the OECD average (OECD 2013). It may be relatively easy for female (and male) students in Norway to complete their education even if they have a child, thus weakening their incentive to postpone childbearing. One reason is that Norway has a flexible educational system that allows students to leave and re-enter schooling. Furthermore, students have quite good access to daycare, so they are less compelled to quit school to care for a child. Also, it may be relative easy for Norwegian students to finance their studies in spite of direct and other costs of childrearing because there are no tuition fees, except in a few private schools,

and educational loans are available.³ On the other hand, a woman must have worked 6 out of the previous 10 months before giving birth in order to be entitled to Norway's generous maternity leave, and except at the Ph.D. level, students often do not meet this qualification. This policy could have the effect of discouraging students from having children.

If the first mechanisms dominate, the effects of school enrollment on fertility may be weaker in Norway than in most other countries. This could contribute to relatively early first births and therefore high cohort fertility. If the increase in the number of years at school in Norway has not led to the same increase in the age at first birth as elsewhere, the gap between period TFR and cohort fertility (which is determined by *changes* in women's age at birth) would not be so large either.

Other Reasons for Relatively Low Childrearing Costs

In Norway, childrearing is subsidized through child allowances that are not related to income (NAV 2014). One would expect such a cost reduction to increase fertility, and indeed some studies (Gauthier and Hatzius 1997; Milligan 2005), but not all (Kalwij 2010), have shown fertility effects of child allowances. The amount received (11,600 NOK equivalent to US\$1535, per year per child) until a child attains age 18 corresponds to about one-fifth of childrearing costs up to that age (see "standard budget" published by SIFO 2013). Child allowances are smaller in most other rich countries, but several countries also offer more generous tax benefits to parents, which closes a substantial part of the gap (Bradshaw and Finch 2002).

Housing prices are another relevant issue, because when a couple has a first or an additional child they may wish to have a larger house or apartment (e.g., Clark 2012). Statistics from the Federal Reserve Bank of Dallas (2013) show that housing prices, measured relative to personal consumption expenditure, are higher in Norway than in any other OECD country. It is possible to borrow up to 85 % of the purchase price of a house, however (i.e., a down payment of only 15 % is required), while some other countries require down payments of up to 50 % (Rindfuss and Brauner-Otto 2008). Also, mortgage interest (at a current rate of about 3 %) can be deducted from income, which essentially means that 28 % of the interest is paid by the state.

Finally, there is one component of the costs of childrearing—very broadly defined—that is lower in Norway than in most other rich countries: High-quality tertiary education is largely free. Many (especially well-educated) parents in countries such as the United States plan to help their children with college costs,

³In addition, students who do not live with their parents receive about US\$500 per month as a housing subsidy. While this may not be seen as reducing the costs of childrearing in situations where a union has been formed, it facilitates the formation of a union among young students who otherwise would have lived with their parents.

and they may take these anticipated costs into account in decision-making about fertility. Free university education may also be one reason why the educational gradient in fertility is relatively small in Norway.

Preferences and Gender Equity in the Family

Is it possible that Norwegians have stronger preferences between countries than others in favor of having children in the sense that, given the costs of childrearing, they tend to prefer having children rather than spending their resources on alternative sources of satisfaction? This would have implications both for the quantum and timing of fertility. Do Norwegians, for example, have more tolerance than others for seeing the house messed up with toys or being kept awake at night by babies who cry? Does responsibility for children to a lesser extent than in other countries reduce the time parents have available for their own leisure activities (without children)? Or are Norwegian parents less distressed about having to forego some of their own leisure activities because of children? Such questions are very difficult to answer, but time-use surveys provide some indications. For example, Norwegian men, but not women, are *above* average in Europe when it comes to allocation of time to children (Gauthier and DeGusti 2012). On the other hand, the loss of leisure time as a result of childrearing is perhaps seen as a relatively serious disadvantage because Norwegians (in a broad age group), to a larger extent than people in other countries, reported in the World Values Surveys (2014) that leisure is “very important.” Such results are problematic to interpret, however, because there is always doubt about the extent to which time with children is seen as “leisure time.” Obviously, more explicit information about the pleasures derived from family life, compared with alternative sources of satisfaction, would be very welcome. While such studies have been undertaken in some countries (Crimmins et al. 1991), multi-country studies based on comparable data are lacking.

Fathers’ involvement in childcare and housework is a relevant issue when discussing possible differences in childbearing preferences, in addition to having implications for other fertility determinants. To start with the latter, if men’s contribution to work at home is relatively large, it is possible that the parents may be able to work more in total and thus incur lower opportunity costs. If a man makes a larger contribution at home, it is also possible that the couple will forego more of his earnings (while he is at home or works reduced hours plus a possible long-term penalty) and less of hers. The total costs may not necessarily be different, and as long as the union is intact and the partners have a joint economy, it is the total costs that matter. However, the distribution of earnings between a couple becomes an issue if the union is disrupted and could therefore have implications for whether and how fertility desires differ between the partners (in addition to any differences that may arise because they simply evaluate any given economic situation differently). These types of considerations are at the heart of much of the fertility literature on gender equality, such as McDonald’s (2000) paper on how lack of equality in the

family sphere may lead to very low fertility in settings where there is high equity in “individual-oriented institutions,” so that paid work to a large extent is seen as an option for women.

Returning to the issue of preferences, fathers’ involvement probably affects both partners’ ideas about the non-economic benefits and burdens of childrearing, and also *reflects* especially the father’s attitudes in these matters and his values more generally, depending on the extent to which his involvement is freely chosen. To spell this out in more detail, fathers who are strongly involved in housework and childcare and are happy about it may be inclined to want more children than fathers who are not so involved. It is also likely that the partners of such men have relatively positive attitudes toward childrearing. They may be pleased about sharing the joys and concerns of parenthood with the father as well as getting more leisure time because they can spend less time than they otherwise would on childcare and the additional housework that typically follows from having children.

If, on the other hand, the father is involved but *reluctantly*—having been pushed by modern norms about active fatherhood or requirements from his partner—the implications for fertility desires are less obvious. The father may well have relatively little desire for more children, given childbearing costs and purchasing power, while the mother may have a more positive attitude, and the balance could tip either way.

In support of these ideas, a European study showed a positive association between fathers’ egalitarian attitudes about gender roles, the number of children they have, and the number they desire (Puur et al. 2008). Some studies of the association between fathers’ time use and fertility have also been carried out, although not knowing how satisfied the fathers (and mothers) really are about their time use makes it difficult to interpret the associations. Besides, a rather diffuse empirical picture has appeared in these time-use studies. For example, an American study by Torr and Short (2004) showed the highest second-birth rates among the most traditional couples (where the woman had the greatest responsibility for childcare and household tasks) as well as the most modern couples (who shared the tasks more equally). In an analysis based on Italian data, Mencarini and Tanturri (2004) found that the chance of having another child was relatively high if the father helped with childcare or housework, but the effects differed between one- and two-child couples. It is also difficult to draw clear conclusions from the fact that fathers’ share of the time spent on “physical” (Hook and Wolfe 2012) or “inter-active” (see review by Gauthier and Philipov 2008) childcare appears to be higher in Norway than in other European countries, and that Norway has smaller differences between women’s and men’s unpaid work than other OECD countries (World Economic Forum 2014). What we can say is that, if Norwegian fathers’ involvement indicates truly child-friendly attitudes, this could boost fertility, both because of their own childbearing preferences and because the mothers may see childrearing as more of a pleasure and less of a burden in such a situation. As pointed out earlier, fathers’ participation at home could also contribute positively to fertility by lowering the couples’ total opportunity costs of childrearing.

Given the high fertility among Norwegian cohabitants, men may be quite willing to have children in unions that they should realize have a large chance of being dissolved, after which they may have relatively little contact with their children. This may be seen as running counter to the idea that Norwegian men want a strong involvement with their children. However, many cohabitating men may not take such possible long-term consequences much into account in their considerations, and many children are also born to cohabitants without the fathers (or mothers) having definitely wanted a child.

In Norway, since 1993, some part of the parental leave (currently 10 weeks) has been reserved for fathers (i.e., not transferable to mothers), and many fathers have taken this leave (Haas and Rostgaard 2011). Some of the parental leave is also reserved for fathers in other Nordic countries. The intention has been to strengthen fathers' practical and emotional involvement with children, but it remains to be seen whether a few weeks alone (perhaps) with the child at this stage actually matters much in the long run. Attempts have been made to estimate the effect on fertility, but the higher fertility that has sometimes been observed among men who have used the "daddy leave" (Lappegård 2010; Olah 2003) could well be just a reflection of the general attitude of men in this category. In an econometrically more advanced study by Rege and Solli (2013), it was found that men who took the parental leave had lower incomes in the long run, which suggests that taking parental leave may have a lasting effect on men's participation at home, with further implications for their earnings.

Contraception, Abortion, and Unwanted Births

It is hard to imagine that Norway's high fertility can be attributed to a larger number of unwanted births than in most other countries because of poorer access to or acceptance of contraception or abortion. Many pregnancies in Norway are unintended, resulting in many abortions (245 abortions per 1000 births), and a large proportion of births are reported as "mistimed" or "unwanted" (about one-third among cohabitants according to a survey in 1996 (Kravdal 1997) and one-third of all births according to personal calculations from the 1988 Family and Occupation Survey (Statistics Norway 1991)). These proportions are probably not particularly high by European standards, however. The abortion rate is not far from the average for Western and Southern Europe (Sardon 2004), so unless a particularly small proportion of unintended pregnancies end in abortion, Norway's birth figures are not to a greater extent than elsewhere "blown up" by unwanted or mistimed births. Moreover, modern contraception is used by a larger proportion of women than in most other countries (United Nations 2012) in spite of apparently high fertility desires.

Summarizing the Fundamental Forces Behind Norway's High Fertility

To summarize, Norway is in an advantaged position economically, which probably contributes to the country's relatively high fertility. Individuals, including young adults, face a low risk of unemployment, and the state can afford to be generous with parents, not least with respect to daycare and parental leave. In addition, there is a political willingness to spend some of Norway's wealth on such policies, which is motivated by an intention to help families economically and strengthen women's position in the family and in society. This political willingness may stem from ideas about public responsibility for individual well-being that are strongly rooted in Nordic societies (Esping-Andersen 1999), accompanied by widely accepted ideals of gender equality. Indeed, the Nordic countries score at the highest level on a very broad gender-gap index developed by the World Economic Forum (2014). It is possible that Norway's gender-equality ideals also affect fertility positively through men's involvement with children and housework. Another explanation for Norway's high fertility may be that, although the retreat from marriage is at least as pronounced as in many other developed countries, this is counteracted by widespread cohabitation and a large number of births among cohabiting couples—probably reflecting in part their trust in the welfare state and liberal values.

Some Comments on Fertility Changes Over Time

This discussion has focused on possible reasons for Norway's generally high fertility level, but changes over time also deserve comment. Norway's fertility decline from the mid-1960s was probably driven by the same factors that were responsible for the decline in many other countries. First, the opportunity costs of childbearing were rising, reflecting the fact that women were increasingly likely to work and that they had the potential to earn higher wages than in the past. Second, there was a strong expansion of education, especially among women, which was responsible for women's wage increase and also contributed to delaying first births simply through the longer period of school enrolment. (A persistent desire to accumulate work experience before embarking on parenthood probably strengthened the fertility implications of the longer enrolment.) Third, there were later and fewer marriages and more divorces, driven not least by the development in education and other structural and ideational changes. Fourth, new contraceptive technologies were introduced. There may, of course, also have been a shift in preferences in favor of activities and goods that compete with childrearing and in norms with direct implications for fertility (Crimmins et al. 1991; Lesthaeghe and Surkyn 1988), although the evidence for this is not strong.

Reductions in the opportunity costs of childrearing—because of expansion of daycare and other increasingly generous family policies—may be an important

factor behind the levelling out and increase in second- and higher-order birth rates from the mid-1970s, which has also been seen in some other countries with similar policy changes (Andersson 2004; Toulemon et al. 2008). Furthermore, the contraceptive “revolution” had to a large extent run its course by then, and there are some indications in other countries that the movement towards more liberal family values had come to a halt (Lesthaeghe and Moors 1995). Finally, the positive trend in higher-order birth rates may be partly a result of a selection effect, as explained in Kravdal (2002b). More specifically, when estimating time trends in birth rates, it makes good sense to control for current age and time since previous birth, which essentially means that one compares among women who had their most recent birth at the same age. One reason why mothers who, for example, had their first child at age 25 in 1975 had lower second-birth rates than those who had their first child at age 25 in 1995 may be that first births tended to occur later in the more recent period, so that becoming a mother at the early age of 25 was more indicative of characteristics leading to generally high fertility. Similarly, having a first child at, for example, age 30 in 1975, when many entered parenthood in their early or mid-20s, may indicate characteristics leading to low fertility to a larger extent than would a first birth at age 30 in 1995.

The fact that first-birth rates began declining later than higher-order birth rates may be due to increased sexual activity among young people in the late 1960s and early 1970s. It is far from obvious, however, why the decline in first-birth rates continued through the 1970s and the first half of the 1980s, and a new decline began about 1990, while higher-order birth rates have been largely stable or increasing since the mid-1970s. Possibly, the opportunity-cost argument matters less for decisions on timing than it does for quantum decisions (also consistent with the fact that second-birth rates increased less than third-birth rates since the mid-1970s). Furthermore, the continued expansion of education is likely to have had a particularly strong effect on first births.

The fertility trends have probably not—at least until recently—been strongly influenced by economic cycles, which have been rather moderate in Norway. In the mid-1990s, the first-birth rate and to lesser extent the second-birth rate declined, and the upturn in the third-birth rate stopped. This could be partly a result of unemployment, which was high in those years by Norwegian standards.

From 2002 to 2007, the total fertility rate increased by 0.2, and it fell by just as much from 2009 to 2013. Similar trends are also seen in the parity-specific birth rates. This development is not easy to understand. In 2003, the annual growth rate of per capita GDP was relatively low and the unemployment rate relatively high, which was followed by three to four years of stabilization or improvement. This might have contributed to the fertility upturn. Furthermore, there was an unusually low (actually negative) growth rate in 2009, but not a particularly high unemployment rate, and economic growth *increased* over the next three years (Norway being much less influenced by the financial crisis than most other countries), while fertility *declined*.

With respect to the other factors discussed above, there has not been any documented change that could contribute to the upsurge and subsequent downturn of

fertility during the past 10 years. There has been considerable media attention on the busy lives of Norwegian women and men outside the work and family spheres, which in theory could contribute to a fertility decline. According to anecdotic evidence, young people are increasingly eager to spend time on physical exercise and sophisticated food-making, to be active with friends, and to have a nice home (and to document their success in these areas through social media). How widespread these attitudes really are, and whether there has been much of a *change* during the past half decade or so, remains to be seen. It would also be relevant to ask whether any such change—or other changes—have taken place in other Nordic countries, since they have all experienced a fertility decline recently (although it has not been quite as sharp in Sweden and Finland as in Norway, Denmark, and Iceland).

Should Norwegians Be Concerned if Fertility Were Much Lower?

There are two main reasons why one might be concerned about low fertility. The most widely discussed concern is that low fertility may have adverse consequences for society because it slows population growth or even makes it negative, and—more importantly—it increases the proportion of elderly people in the population. Another possible reason for concern is that adults who have no or few children could be disadvantaged in the long term, and children could experience adverse effects from growing up with no or few siblings.

Potential Adverse Effects of Low Fertility at the Aggregate Level

Particular attention has been devoted to the economic consequences of increasing old-age dependency ratios. For example, it has been argued that it may be difficult to sustain commonly used pay-as-you-go pension systems in populations with a large proportion of elderly (Blake and Mayhew 2006). A government may have to reduce pensions, increase taxes on workers, or take up loans abroad, with possibly increased dependence on other countries. In Norway, concern about the sustainability of the pension system has led to pension reform aimed at delaying retirement.

In addition, if a higher proportion of the population is elderly, health expenditures will be high (Dormont et al. 2006). This also may contribute to higher taxes or fiscal deficits, or there may be lower-quality medical care, which is not generally regulated by law to the same extent as pensions (Gerdtham et al. 2005). These concerns are, of course, relevant for Norway, and plans have been made to meet the

challenges, for example regarding cancer treatment and care (Norwegian Ministry of Health and Care Services 2013). With a relatively small proportion of the population in the working ages, even finding the workers to provide healthcare for the elderly may be difficult.

Another type of argument is that population aging may have consequences for the welfare system. On the one hand, young people may want to downsize the welfare state, given the increasing challenges of supporting the old members of the population. On the other hand, there will be a larger proportion of old voters, who may want to maintain the current system or at least the parts from which they benefit (Galasso and Profeta 2007).

Yet another issue is that an older workforce might have lower productivity. There is much uncertainty about this, however, as older workers probably have both characteristics that tend to reduce productivity and characteristics with the opposite effect (Tang and MacLeod 2006; Skirbekk 2008; Disney 1996; Van Dalen et al. 2010).

The impact of a possibly smaller total population size that may follow in the wake of low fertility has been much less analysed, perhaps partly because there are still so few countries that have actually experienced declining population numbers. One issue is that a country may have less military power and less international political influence if its population, and therefore the absolute size of its economy, is shrinking. This “nationalistic” argument is an old one. It motivated, for example, the early French pro-natalist policies, but it may still have some relevance today (Demeny 2003; Grebenik 1989; Jackson and Howe 2008). Another possibly harmful effect, relevant for some countries, is that reduction in the size of the population may make it difficult for some sparsely populated regions to survive because there are too few people to share the expenses of basic infrastructure (Felmington et al. 2002). Further, it is possible that a shrinking domestic market undermines entrepreneurial optimism and the willingness to take risks (Jackson and Howe 2008). The argument about populous countries having an advantage through possibilities for specialization and efficiencies of scale may be less relevant than in the past due to the globalized economy.

Certain steps can be taken to ameliorate some of the consequences of population aging. A government may, for example, increase the age at which workers become eligible for retirement pensions or initiate life-long learning programs to improve the productivity of older workers (who tend to be healthier than ever before). In many countries, efforts to increase women’s participation in paid work could also balance the decline of the working-age population, although in Norway there is limited scope for this approach because most women are already working. Furthermore, a government may try to prepare people to enter the workforce at younger ages through more efficient educational programs. Another alternative would be to admit more skilled, working-age immigrants (Cangiano 2014; Rand 2004; Blake and Mayhew 2006). Finally, it would be helpful to achieve cost savings in healthcare, but this is not a sector where it is easy to make large efficiency gains.

To the extent that population aging or decline actually has adverse social or economic effects and the mentioned possible remedies are seen as unsuitable or insufficient, attempts to raise fertility might be justified. Various schemes to subsidize childrearing would be natural ingredients. An obvious prerequisite, however, would be that the costs of such schemes do not exceed the gains. These gains include not only aggregate factors such as those mentioned, but also the advantages for individual families who, given positive incentives, presumably make child-bearing decisions that give them a higher level of well-being than they otherwise would have had. To put it differently, one could certainly convince many people of reproductive age to have another child if—very hypothetically—not only were most expenses covered, but they were actually *paid*, and even generously. But would it be worth it? It will always be hard to know whether a pro-natalist policy is economically sound, as both the costs of increasing fertility and the benefits for society are very difficult to assess.

Potentially Positive Effects of Low Fertility at the Aggregate Level

Low fertility may also have aggregate-level effects that are positive. If these are dominant, the motive for trying to increase fertility for externality reasons would be undermined.

One relevant issue is that low fertility contributes to reduce the proportion of children in a population. If the total allocations to education are fixed, fewer children means a larger educational investment in each child, which will increase laborforce productivity later. Under some conditions, this effect may more than outweigh the costs of supporting a larger elderly population, so that—at least within a certain band of fertility—the countries with lower fertility would be better off economically (Lee and Mason 2010).

Another possible advantage is that as the workforce shrinks, a lower saving rate is needed to maintain the same capital-labor ratio. A related issue is that a country with a stable or declining population size faces fewer challenges than a country with a growing population in terms of expansion of infrastructure (e.g., increasing transportation capacity).

Furthermore, a smaller population may cause less environmental damage. An over-simplified version of this argument is that, if all types of environmental imprints from each individual are fixed, fewer persons means less emission of greenhouse gases, less air pollution in general, less waste production, less deforestation, and less soil degradation due to food production (McNeill 2006). The reality is more complex, of course, because changes in population size may lead to changes in income-generating and leisure activities, in technology, and in policies, with implications for how each individual influences the environment. For example, should population decline somehow lead to higher average incomes, the outcome

may be an *increased* pressure on the environment. This seems a bit far-fetched, though. Just as environmental concerns are reckoned among the strongest arguments against high population growth in poor countries (Cleland et al. 2006)—though the exact effect certainly depends on a number of economic and political factors (e.g., Panayoutou 1994)—a population decline in rich countries should be welcome on environmental grounds. Population aging may also be beneficial from an environmental perspective because old people's consumption is probably less damaging to the environment than consumption by younger people (McDonald et al. 2006).

Finally, a crowded environment (which is not the same as environmental degradation) could have adverse psychological and health effects. There has not been much research on such crowding effects, although for some discussion and analysis of related issues, see Chaix et al. (2006) and Solari and Mare (2012). Arguments about environmental pressure and crowding are perhaps more relevant in countries that are more densely populated than Norway.

Individual-Level Effects of Fertility

Some of the consequences for parents of bearing and rearing children are broadly considered as positive, some may be seen as negative, and there may be widely different opinions about others. Moreover, some of the consequences can be foreseen and, therefore, presumably taken into account in decision-making about whether to have a child, while other consequences are unexpected. The different types of consequences are reviewed below. Next, the discussion touches on whether low fertility may be considered a “problem” for potential parents, which could be a rationale for policy interventions. Finally, the discussion moves to how the number of siblings may influence the well-being of children and whether there could be a low-fertility “problem” from that perspective.

Potentially Positive Social Effects for Adults Who Have Children

Researchers have described a number of positive benefits from having children (Eibach and Mock 2011; Nelson et al. 2013; White and Dolan 2009). Children may show affection, they may help their parents feel that life has a purpose, they may be seen as giving the parents adult status (relevant only for the youngest parents), parents may enjoy engaging in various activities with children, and it may be rewarding to see children develop. Children's contribution to family income is an important issue primarily in poor settings (Caldwell 1976), but it may also matter in some more-developed countries (Council of Europe 1996). In addition, financial support from adult children may be important to the poorest segments of the elderly population, especially in countries where public support systems are not well developed (Rendall and Bahchieva 1998). Adult children may also provide

practical assistance when parents are old or sick (Antonucci et al. 2003; Barefoot et al. 2005; Lusyne and Page 2008). Possibly, such financial or practical help from children may become more important in the future because of strains on public support systems in populations with an increasing proportion of old people.

Research has shown that parents tend to be less inclined to take risks than the childless (Wang et al. 2009), they tend to be subjected to stronger social control at home (Joutseneemi et al. 2007; Kendig et al. 2007), and they are often better socially integrated into the community (Knoster and Eggebeen 2006; Bühler 2008; Nomaguchi and Milkie 2004). While these consequences of parenthood may not necessarily be deemed particularly positive or negative in themselves, they probably contribute positively to parents' health.

Other Social Effects on Parents' Well-Being and Physiological Consequences

Obviously, parenting also brings expenses and burdens. A child needs food, clothes, and equipment for leisure activities. In addition, parents may forego some income because one of them (typically the mother) may withdraw from the laborforce to care for a young child, or they must pay others for childcare. One or both parents may be able to put in extra hours of gainful work to compensate, but the family may still end up with reduced financial resources (Aassve et al. 2006). Withdrawal from the labor market may be a loss not only economically, but also because of the possible satisfaction and social interaction enjoyed at the work place.

Furthermore, while the intense involvement with a young child is probably seen as rewarding by many parents, others may consider it largely as a burden (Poortman and van der Lippe 2009). There may be a period when parents get little sleep while a child is young (Dørheim et al. 2009), and there typically will be less time for adult leisure activities for many years. Some parents may see these issues as major disadvantages, while others may be less concerned (Bittman and Wajcman 2000). Also, parents may experience distress because of worries about a child's well-being.

The number of pregnancies—and the age at which the first occurs—may affect the mother's chance of developing cancer through hormonal changes or other physiological mechanisms (Salehi et al. 2008; Russo and Russo 2007). There may also be biological effects on the likelihood of a mother coming down with other diseases (Fletcher et al. 2002; Skilton et al. 2009).

The observed positive relationship between parity and health, and the corresponding negative relationship between parity and mortality (Grundy and Kravdal 2010), reflect a combination of the mentioned social advantages and disadvantages of having children plus the physiological effects, which are relevant only for women, of course. Additionally, the relationships reflect selective influences.

Can Low Fertility Be Considered a “Problem” for Adults?

To the extent that low fertility in a more-developed country is a result of sub- or infecundity among couples who want to have children, one could argue that attempts should be made to increase the couples’ well-being by supporting the relevant treatment. Yet there is always the possibility that the money could have more beneficial effects if used elsewhere. As argued above, however low fertility in rich countries probably largely reflects the fact that many people really *want* no or few children. They believe this is best for themselves—or perhaps for the children.

Obviously, the effects of having children cannot be perfectly foreseen by the parents. For example, couples (or individuals) may decide to have a child because they assume that the emotional rewards will more than outweigh the economic disadvantages and practical burdens associated with childrearing, and they may take into account other types of possible implications as well, but the child may for various reasons cause them much more worry than they expected, or their economic situation may be more strained than anticipated. Conversely, some people may, for example, be overly pessimistic about the care burdens in the first years of a child’s life or they may underestimate the long-term health benefits of having children as old-age support, or they may be unaware of the physiological advantages (for women) of having children.

It only makes sense to consider the fertility level as a “problem” for individual adults if the unexpected benefits and burdens of parenthood tend to go in one direction, so that, by and large, people do not make fertility decisions that are in their own best interest. In other words, low fertility would be a “problem” only if adults, on the whole, chose to have no or few children out of ignorance of the advantages they would have derived from having a larger family, given their actual circumstances. There is at present little evidence of such a situation, but the issue has not attracted much research interest. To the extent that such evidence is ever established—or if evidence suggesting that people would be better off with *fewer* children should materialize—information about it should, of course, be disseminated to the public.

In contrast, it can hardly be considered a “problem” if fertility desires fall short of the number of children people consider “ideal” or would, in theory, have liked to have if they were richer or healthier or had better access to childcare, as argued in some grey literature and policy reports (Commission of the European Communities 2006; Fahey and Spéder 2004), although less often in scholarly journals. As mentioned also by Lutz (2007), we all have unsatisfied dreams. Some people would have taken great pleasure in driving a Rolls Royce, but do not have the money to buy one, while others would ideally have wanted an annual eight-week vacation. The key issue must be whether the obstacles to childbearing are “avoidable” or “unreasonable,” in the sense that they could be removed without taking too much away from others. In principle, if there are laws, for example, that make it extremely inconvenient to have a second child, but that have no favourable impact on anything else, they may be abolished. This is far-fetched, however. More realistically, if there are economic or practical obstacles to having children, these most likely can

only be removed by using resources that could otherwise be used to help people in other ways.

Effects of Low Fertility on Children's Well-Being

The number of children in a family may also affect the *children's* well-being in a number of ways. In particular, it is widely believed that children benefit from having at least one sibling—a notion perhaps underlying the two-child norm that has probably affected fertility in rich countries for a long time (Blake 1968). In support of such a notion, several (but not all) studies have shown that children with siblings tend to have well-developed social skills (e.g., Downey and Condron 2004).

There are potentially negative effects of having (many) siblings as well, however. In particular, there may be fewer economic resources available to children in large families, both during childhood and later (Keister 2003), and they may get less attention from their parents. In part because of such effects, one might expect a negative association between sibship size and children's education, and this has indeed been shown in some Western countries (Booth and Kee 2009; Conley and Glauber 2006; Downey 1995; Goux and Maurin 2005; Jæger 2008; Kuo and Hauser 1997). On the other hand, many of the more recent investigations, some of which have used twin births to deal better with the selection problem, have reported little or no effect (Angrist et al. 2010; Åslund and Grönqvist 2010; Black et al. 2005; Cáceres-Delpiano 2006; De Haan 2010). In addition, low fertility has longer-term implications for kinship size. The children of parents who have no or few siblings will have no or few aunts, uncles, or cousins, and this might also have an effect on their well-being.

Parents are likely to take expectations about such implications for their own children's well-being into account in their fertility decision-making. They may, for example, want two children even though they expect that they would be happier themselves with only one, because they think it is good for a child to have a sibling. Alternatively, perhaps they have a single child because this is in their own best interests and they do not see a significant disadvantage for the child. To expand the idea mentioned earlier, a family-level low-fertility "problem" arises if the parents want and have, for example, one child while they and their child on the whole—and contrary to the parents' beliefs—would have been better off if more children had been born. That said, it is not obvious how one should summarize aspects of well-being across individuals and especially when some of them only exist potentially. A somewhat different issue is that parents, in principle, may make fertility decisions that are good for themselves, but bad for their children, because they do not care so much about their children's well-being. From society's point of view that could also be consider a "problem".⁴

⁴It was assumed above, for simplicity, that low fertility can affect the lifestyle and well-being of individual families and also have societal effects through population growth and structure.

Tying the Pieces Together

To conclude, Norway has higher fertility than most other rich countries, which probably is a result (though unintended) of a good economic situation, gender equality ideals that are deeply rooted in society, and generally liberal values. These factors are not easily transferable to other countries. Norwegian society is also characterized by strong political agreement about a public responsibility to support individual families—for example, through daycare services and other arrangements that reduce the costs and burdens of having children. Countries concerned about low fertility could, in principle, decide to give higher priority to these kinds of initiatives.

That said, it is not obvious that Norway's relatively high fertility is particularly enviable, except that it signals a favorable economic situation. Low fertility exacerbates population aging and exerts a downward pressure on population growth, which may cause certain societal-level disadvantages—for example related to the financing of pensions and healthcare for the elderly. Yet there may also be adverse societal consequences of relatively *high* fertility. In particular, a younger and more rapidly growing population (although admittedly, in Norway, primarily a result of massive immigration) will intensify pressure on the environment. This argument, which is even more relevant for countries that are poorer or have higher population densities, has not received much attention in the political debate. Obviously, childbearing also has effects at the individual level (with further implications for society), but we are not in a position to say whether relatively high fertility tends to be better for adults and children than low fertility. Stated differently, it is possible that families in Norway would have been just as well off if the parents—given their circumstances—instead had decided to have as few children as, say, the Italians. Besides, even if there are no clear individual-level advantages or disadvantages associated with the current fertility level, one might ask whether childbearing *in unstable relationships*—which is quite common in Norway and contributes to the country's high fertility—could have some adverse implications for those directly involved that they are not aware of or are not taking adequately into account.

(Footnote 4 continued)

However, there is another type of externality: The effects that a couple's fertility has on their own lives—for better or worse—may also have implications for others (which they are not likely to take into account in their decision-making). As mentioned, those with no or few children may, for example, be less integrated into the community, which may be acceptable to them (to the extent that it is foreseen), but there may be less positive implications for other people, one reason being the possible positive health effects of social cohesion (Islam et al. 2006). Another individual-level effect of low fertility is that the mothers will be more likely to have paid work. This will probably have important, and perhaps largely positive, societal implications. A related type of spill-over effect would be, for example, that the entire society may be influenced if it is the case that children without siblings tend to be less sociable than other children. Additionally, the distinction between the micro and the macro perspective is blurred because a couple's low fertility may contribute to or be partly a result of others' low fertility through learning and imitation effects (Goldstein et al. 2003; Montgomery and Casterline 1996).

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