

Fertility in Finland in the Coming Decades

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Finland has experienced an unexpected and rapid period fertility decline since 2010. The total fertility rate (TFR) in 2018 reached an all-time low of 1.41 children, while still in 2010 this estimate was 1.87 children (Official Statistics of Finland (OSF) 2018). Recent declines in period fertility have also been witnessed in other typically high fertility Nordic countries (Comolli et al. 2019; Hellstrand, Nisén, and Myrskylä 2019). In 2019 TFR in Finland is estimated to continue decreasing to levels below 1.4 (Official statistics of Finland (OSF) 2019). The recent period fertility decline in Finland is surprising given that Finland has been a country with relatively high fertility among the high-income countries. Cohort fertility in Finland, as well as in the other Nordic countries, has stayed relatively stable close to the replacement level. Women born in the early 1970s had on average 1.9 children (Zeman et al. 2018; Jalovaara et al. 2019). A particular feature of the ongoing fertility decline is the reversal of long-term increase in fertility in age groups above 30 (Official Statistics of Finland (OSF) 2018), challenging the pattern of strong fertility recuperation typical to the Nordic countries (Andersson et al. 2009). Cohort forecasts indicate indeed that the recent period fertility decline will most likely lead to cohort fertility decline in Finland (Hellstrand, Nisén, and Myrskylä 2019).

The decline in fertility in Finland as well as other Nordic countries has raised large attention both among researchers and the public. The causes of the fertility decline are currently poorly understood. Academically, given that Finland is not the only high fertility country now experiencing a period decline, we are witnessing a more general puzzle with regard to fertility developments among high-income countries. In the public discussion, concerns about individuals potentially not reaching their fertility desires and national economies facing long-run challenges due to accelerating population aging have been raised. It is therefore of large interest how fertility in Finland will develop in the future. This study aimed at 1) forecasting period total fertility (TFR) in the next two decades and 2) discussing factors that are likely to affect the development of fertility trends.

Given the recent unexpected changes in age-specific fertility, i.e. reversal of long-term increases in fertility in higher age groups, we based our forecast on minimum assumptions about the past trends. Instead we assessed the uncertainty of fertility staying at the current low level based on two alternative scenarios. Our primary scenario A was based on a demographically reasonable assumption that the ongoing fertility postponement would continue (Sobotka 2017), but gradually slow down and come to an end by 2040. This scenario is illustrated in Figure 1: TFR and tempo-adjusted TFR will converge by the end of the forecasting period due to decreasing tempo effect on the TFR (Bongaarts and Feeney 1998). The increase in the mean age at childbearing will gradually slow down and come to an end by the end of the period. Notably, this scenario needs to assume that decrease in age-specific fertility at ages above 30 remains a temporary phenomenon. A secondary scenario B was based on a technical assumption that future trends in age-specific fertility would not exhibit any trend. We built a probabilistic, random-walk based forecasting model around both assumptions. The primary scenario builds on a model including a drift stemming from the convergence of TFR and tempo-adjusted TFR. The model corresponding to the secondary scenario does not include any drift. The uncertainty of the forecast was calculated based on observed annual variation in the history of TFR in 1975–2018.

Our analysis was based on the data from the Human Fertility Database (Human Fertility Collection 2019) and for recent years from Statistics Finland (Tilastokeskus 2019). Figure 2 shows the TFR forecast for single years during the period, with widening confidence intervals towards the end of the period. As Table 1 shows, in our primary scenario, the average TFR in the period 2019–2040 would with a 95 % confidence be between 1.42 and 1.67, with a mean of 1.54 children. For single years, the uncertainty in TFR is larger, from 1.4 to 1.9 in 2040. In the secondary scenario, 95% confidence interval for the average TFR is 1.31 to 1.54. We view the scenario with the slowing down of fertility postponement a reasonable for Finland in the near future. We validated the method by applying it to the Swedish roller-coaster TFR history of the last decades, which provided further confidence in relying on scenario A.

Based on existing literature we identified developments in gender equality and family policies, economic cycles and economic uncertainty, as well as factors related to childbearing ideals and partner markets among central factors likely to influence the course of fertility in Finland. First, gender equality is considered amongst factors most critical to prevent fertility from declining to

very low levels or enabling them to recover from very low levels in high-income countries (Goldscheider, Bernhardt, and Lappegård 2015; Esping-Andersen and Billari 2015; McDonald 2000). Finland is considered a country with relatively high gender equality, but as compared to other Nordic countries it stands out with lower equality measures in some areas such as the care of small children. Care of small children is more home-based carried out mainly by mothers, leading to relatively long employment breaks for mothers (OECD 2019). Second, economic fluctuations (Sobotka, Skirbekk, and Philipov 2011) are considered important causes of variation in fertility particularly in the period perspective. As period fertility declines have been witnessed also since the end of the last recession, this has provoked discussion on the increased role of perceived economic uncertainty (Comolli et al. 2019; Matysiak, Vignoli, and Sobotka 2018). Third, culturally Finland has been recently characterized by particularly negative and narrow views towards life with small children among the young childless (Rotkirch et al. 2017) and rather traditional norms regarding the proper ways of carrying out care of small children (Hiilamo and Kangas 2009). Fourth, Finland stands out with high rates of ultimate childlessness (Tanturri et al. 2015) and most of those remaining childless have no history of long-term cohabiting or marital union (Jalovaara and Fasang 2017).

In summary, we consider a scenario with modest increase in the period total fertility rate, resulting in average levels between 1.42 and 1.67 children over the next two decades, as reasonable for Finland. We view developments in gender equality and family policies, economic cycles and economic uncertainty, as well as cultural and normative factors and partner markets among central factors likely to influence the course of fertility in Finland. However, it remains challenging to evaluate their relative importance in shaping the future fertility.

Table 1. The average estimate of the total fertility rate (TFR) with confidence intervals (CIs) for the period 2019–2040

		A scenario	B scenario
		TFR	TFR
97.5. percentile	(95% CI)	1.67	1.54
90. percentile	(80% CI)	1.63	1.50
Median		1.54	1.42
10. percentile	(80% CI)	1.46	1.34
2.5. percentile	(95% CI)	1.42	1.31

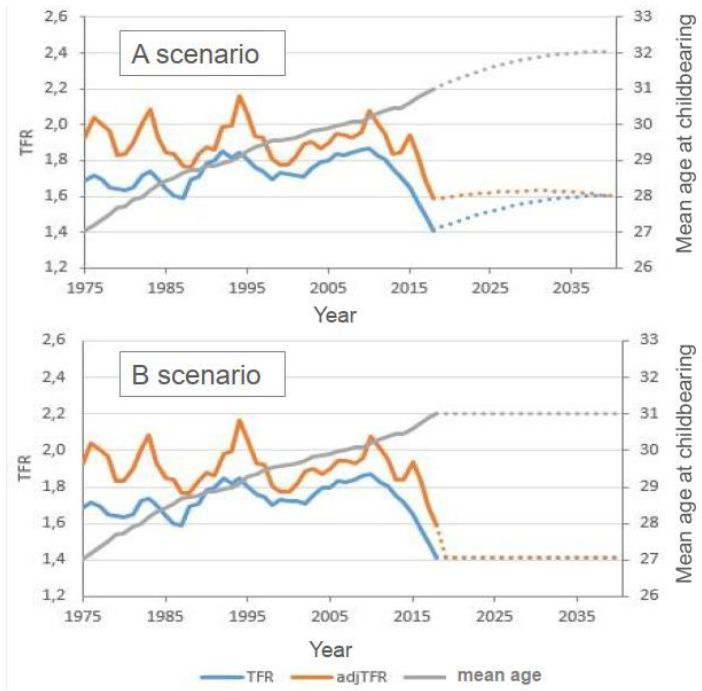


Figure 1. Illustration of A Scenario and B Scenario: total fertility rate (TFR), adjusted total fertility rate (adjTFR) and mean age at childbearing (mean age).

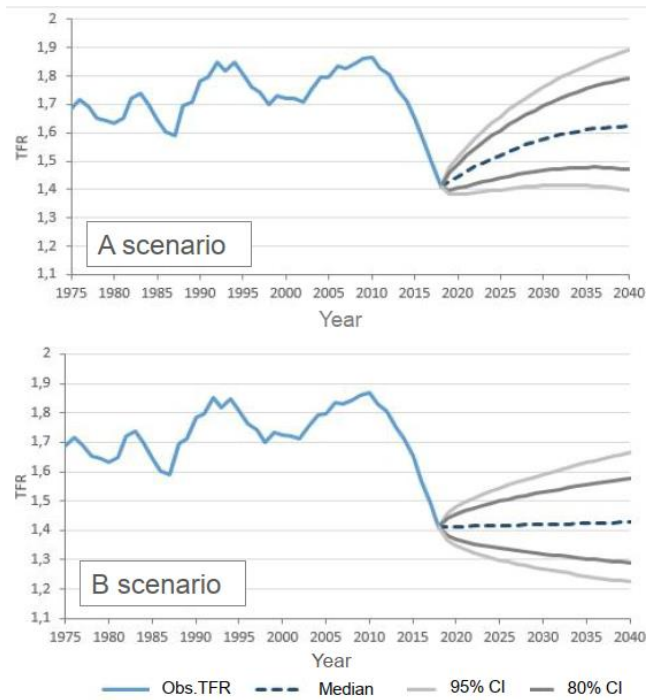


Figure 2. Observed (1975–2018) and forecasted (2019–2040) total fertility rate (TFR) in A Scenario and B Scenario.

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