SCIENCE FOR POLICY BRIEF

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Low Fertility in the EU: A Review of Trends and Drivers

HIGHLIGHTS

- Fertility levels in EU countries have been low for half a century, below the level of 2.1 children per woman which is generally needed to maintain a stable population, and they are projected to remain low in the future.
- Drivers of low fertility can be related to socio-economic developments, low gender equality, longer and more complex education and professional career pathways, changes in partnering and social norms about family formation, and the postponement of parenthood.
- The lack of a comprehensive theory to explain low fertility makes it difficult to project the future course of fertility in the EU and to determine to what extent fertility policies can be effective.
- There is a need to invest further into comparative research with EU-wide coverage to better understand the causes of observed fertility levels across EU countries and the gaps between desired and realised family goals.
- Reducing such gaps and achieving higher birth rates in the EU above very low levels of 1.5 births per woman could help mitigate the challenges related to an ageing population.
- Yet, major policy efforts are needed now to adapt to the economic and social change in a low fertility, longevity society.

Joint Research Centre

THE INCREASING POLITICAL SALIENCE OF LOW FERTILITY

The consequences of ageing societies and stagnating or declining populations are increasingly felt across a wide range of socio-economic domains such as the labour force, public finances, social security, pension systems and health care provision. This has contributed to the discussion on Total Fertility Rates (TFR)[1] becoming increasingly prominent in the European Union (EU) and within its Member States.

Statements by some politicians such as the French President's recent speech on 'demographic rearmament' have been interpreted as making childbearing a civic obligation.

The policy space to contrast demographic decline is facing the trilemma of raising fertility, expanding migration or simply adapting social and economic systems to an ageing and shrinking population. The increasing salience of the issue is contrasted by a limited theoretical and empirical understanding of what drives low and very low levels of fertility.

This Science for Policy Brief describes the patterns and trends of historic low fertility in Europe and reviews some of the proposed drivers. It focuses on the role of economic and social development, female labour force participation, education, changes in household structure and postponement of childbearing. The brief concludes with a discussion of future perspectives and policy implications.

PATTERNS AND TRENDS OF LOW FERTILITY IN THE EU

All European countries have completed by now the demographic transition from high to low levels of both mortality and fertility. In most countries, the average number of births per woman fell below the level of 2.1, the generally assumed average number of births per woman needed to maintain a stable population size over time, in the late 1970s and has remained below it ever since.

The decline from high fertility to below replacement level mirrors shifts in societal and cultural values towards smaller families.[2] The drop in fertility has been linked to processes of modernisation and general human development including a decline in child mortality, increasing levels of education, urbanisation, advances in healthcare, especially reproductive health, and changing motivations for having children.[3]

With its long history of low fertility, Europe is at the forefront of the dynamics of population ageing and decline, but the rest of the world has followed suit. The global fertility rate is now just 2.3 births per woman and more than half of the global population lives in countries that experience fertility below the replacement level of 2.1 births per woman. The demographic transition in East Asia took place at a much faster pace than in Europe. South Korea today records the lowest level of fertility in the world with just 0.8 births per woman, Japan has the oldest population in the world, and China's population has started to decline. In South Asia, the fertility rates of India and Bangladesh have fallen to replacement levels. In Latin America, fertility rates have declined substantially in recent years and in some countries have fallen to very low levels of less than 1.5 births per woman. All African countries have at least started the transition to lower levels of fertility, with Tunisia the first country in Northern Africa falling to replacement level and fertility rates in sub-Saharan Africa as low as 2.3 births per woman in South Africa.

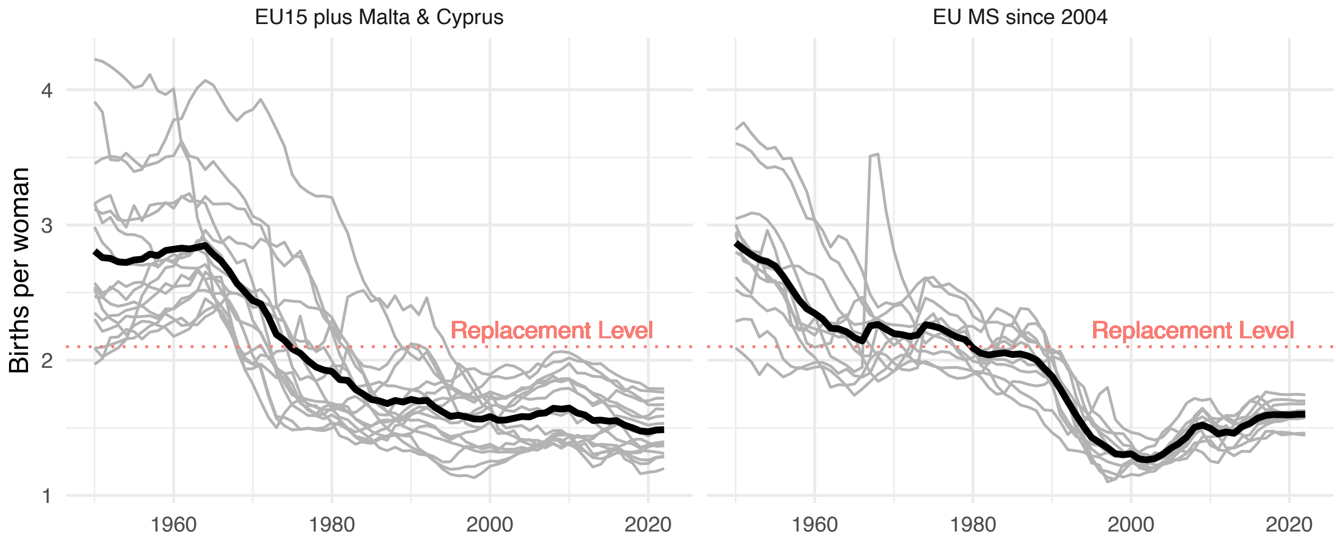
The low fertility trajectories of European countries over the last 50 years can be broadly divided into two groups: the old EU-15 plus Malta and Cyprus, and the Eastern European countries that joined the EU since 2004 **(Figure 1).** The decline in fertility has been more gradual in the old Member States. After the baby boom years, fertility declined steadily to an average of 1.5 births per woman in the 1990s. In the first decade of the 21st century, there was an upward trend in all countries, but since around the time of the economic crises in 2008, fertility rates have fallen to

1 The Total Fertility Rate is defined as the average number of children that are born to women in the population, assuming they maintain the current age-specific fertility rates until the end of their reproductive life

2 Cleland, J., & Wilson, C. (1987). Demand Theories of the Fertility Transition: an Iconoclastic View. *Population Studies*, 41(1), 5–30. *http://www.jstor.org/stable/2174324*

3 Bongaarts, J. (2017). Africa's Unique Fertility Transition. *Population and Development Review*, 43(S1), 39–58. *https://doi.org/10.1111/j.1728-4457.2016.00164.x*

Figure 1 – Total fertility Rate in EU Member States since 1950



Note: the black line shows the average across country groups, grey lines show individual countries

Source: Authors' elaborations of UNDESA data

the lowest average level ever recorded, just under 1.5 births per woman in 2020.

In the new Member States that joined the EU since 2004, the average number of children per woman fell to just above the replacement level already in the early 1960s, and remained at that level in the 1970s, before falling just below in the 1980s. During the period of transition to a market economy following the end of state socialism, fertility rates in all countries declined rapidly to very low levels before recovering to 1.5 births per woman. After a small dip in the years immediately following the economic crises of 2008, the average fertility rate rose to around 1.6 children per woman, climbing above the level in the old EU Member States.

Future projections of fertility levels in the EU from Eurostat and the UN assume that fertility will stay well below replacement level. Their medium trajectory implies a convergence across all Member States towards a level of around 1.6 births per woman throughout the century.

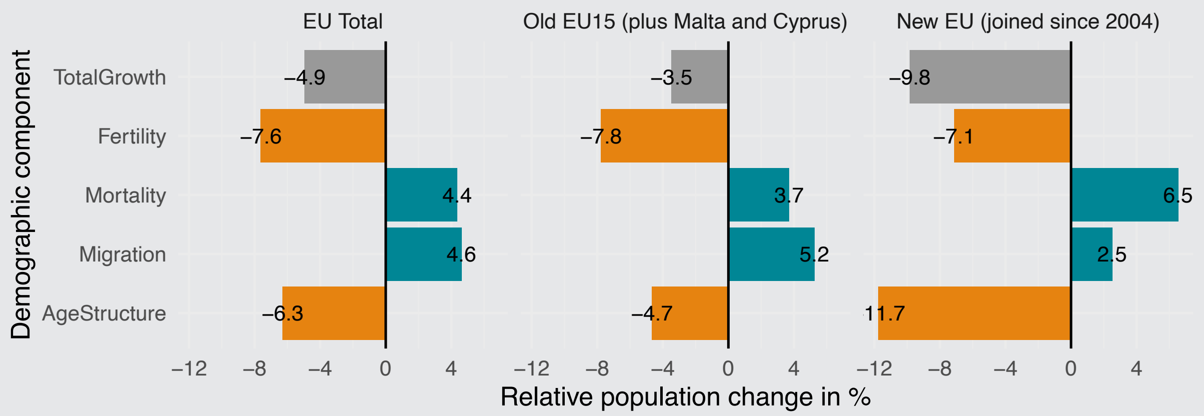
Box 1: Persistent low fertility has created negative population momentum making it difficult to reverse population decline in the future

The fact that the EU population has continued to increase until now despite below-replacement fertility over the last 40 to 50 years is explained by the interplay of fertility with other demographic dynamics. While fertility declined, EU countries have experienced decreases in mortality leading to a continuously expanding life expectancy. Migration has contributed to population growth predominantly in the old EU15 Member States, while it has been a negative factor for many of the Member States that joined since 2004, which have experienced emigration directed towards the old Member States.

A less discussed factor in public debates, and more difficult to observe and understand, is the effect of the age structure of the population on future population size (momentum). This effect is slow-moving and materialises with a lagged-effect of several decades. In the past, the age structure in European Member States still experienced positive demographic momentum as the generations of children that aged into adult ages were still larger than previous generations, offsetting their lower levels of fertility.

This demographic momentum has swung from a positive effect on population change to a negative effect, meaning that in the coming decades, further population decline is pre-set in the current age structure.[4] A decomposition analysis[5] of the contribution of the different demographic components shows that low fertility and the negative momentum resulting from the current age structure contribute equally to the projected decline in the EU population by 22 million by 2050 **(Figure 2).** In fact, in the absence of further improvements in life expectancy and positive net migration, the projected decline of the EU population would not just be by 5% but by 14%, with a population of 383 million in 2050.

Figure 2 – Contribution of demographic components to population change in the EU



Note: The EU population is expected to decline by 4.9% from 2022 to 2050. Low fertility leads to a decline of 7.6% and the old age structure of the EU to an additional decline of 6.3%. If fertility was at replacement level and in the absence of negative momentum, the EU population would grow with improvements in mortality adding 4.4% and positive net migration 4.6%.
Source: Authors' elaborations based on UNDESA World Population Prospects 2022.

With the already negative momentum and ever-smaller cohorts of women reaching reproductive years, the absolute number of newborns would continue to decline even if fertility rates remain the same or slightly increase. In simple words, not only are children missing, but also parents. Demographic models can project this trend with relatively high certainty over the next decades as women who could have children in twenty or thirty years are already born in the present. The EU should anticipate a likely future decline in population and somewhat detach this discussion from levels of fertility.

Box 2: Migration can only temporarily and partially compensate for low fertility

With fertility rates at low levels, migration has become a significant driver of demographic change in the EU and a sensitive topic in public debates. Concerns about population decline, ageing society and labour force shortages are often used by politicians to argue in favour of (regular) immigration. Concerns about changes in the ethnic composition of a population are used as counterarguments.

Demographic research has comprehensively demonstrated that migration cannot realistically prevent population ageing by keeping support ratios stable.[6] Migrants become part of an ageing society and tend to adapt to the fertility regimes of that society over time. What migration can do is partially and temporarily compensate for, but also accelerate, the decline in the size of a population.

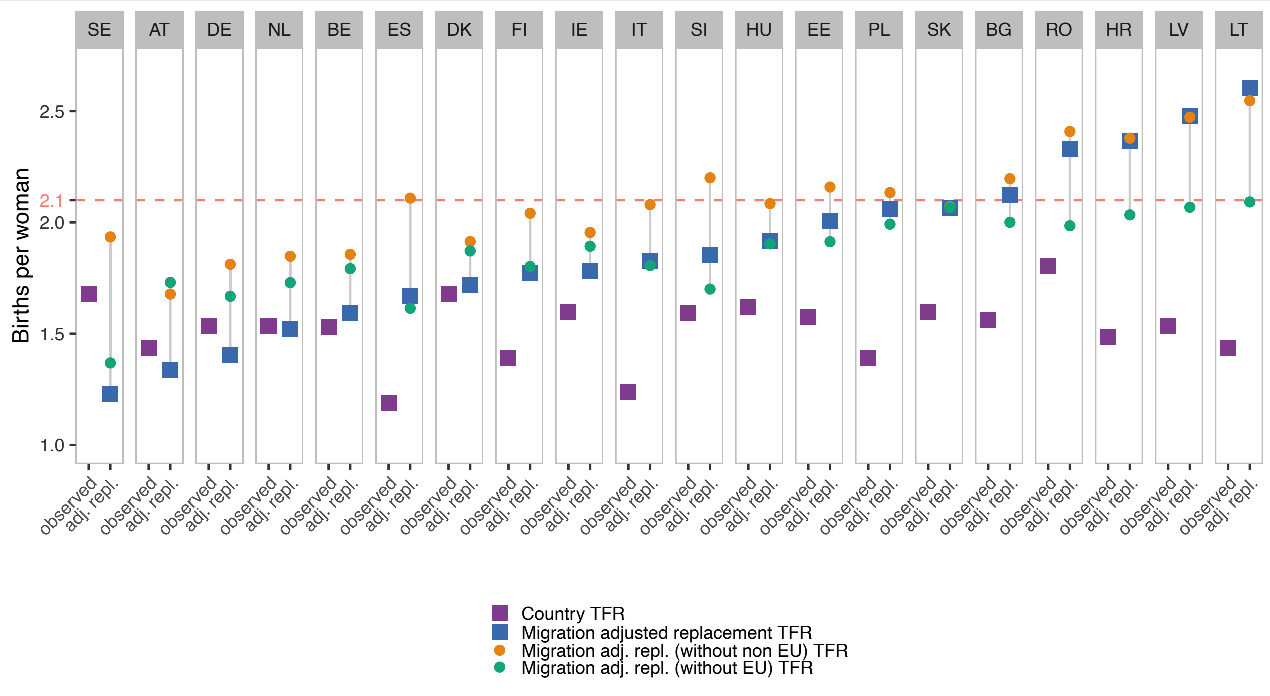
4 The number of women of reproductive age is shrinking and, hence, fewer births are to be expected.

5 Andreev, K., Kantorová, V. & Bongaarts, J. (2013). *Demographic Components of Future Population Growth.* Technical report, Population Division, United Nations.

6 Bijak, J., Kupiszewska, D., & Kupiszewski, M. (2008). Replacement Migration Revisited: Simulations of the Effects of Selected Population and Labor Market Strategies for the Aging Europe, 2002–2052. *Population Research and Policy Review*, 27(3), 321–342. *https://doi.org/10.1007/s11113-007-9065-2*

The interconnected relationship between migration and sub-replacement fertility for population size can be illustrated using the measure of a migration-adjusted replacement level. It shows what level of fertility is necessary for a population not to decline in the long-term given the current migration and mortality patterns.

Figure 3 – Estimated migration-adjusted level of fertility necessary for a stable population



Source: Authors' elaborations based on estimates provided by Eurostat and UNDESA.

For almost all Member States, the migration-adjusted replacement level is lower than the generally assumed 2.1 births per woman **(Figure 3)**. Only in Romania, Croatia, Latvia and Lithuania, the level is above 2.1 births per woman due to high emigration, particularly to other EU Member States. For all countries, including these four, migration-adjusted replacement fertility would be below 2.1 children per woman if it was only about outside-EU (without-EU) migration. However, only in four Member States, the current fertility is above its migration-adjusted replacement level (Sweden, Austria, Germany and the Netherlands). The gap between current fertility and the level needed to maintain population size in the future is particularly large in Spain, Italy and Poland, where gains from international migration cannot compensate for very low fertility.

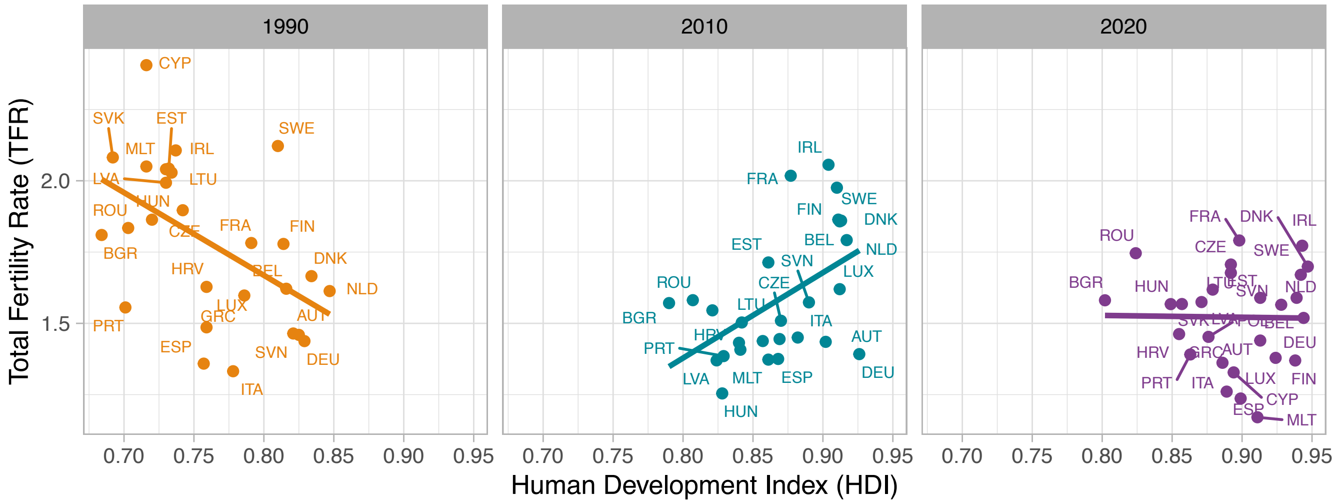
Looking at the trends and projected future levels of fertility in the EU, it can be concluded that migration cannot compensate for low fertility and it should not be coined as a possible solution to population ageing, shrinking labour forces and increasing old-age dependency.

DRIVERS OF LOW FERTILITY: A LACK OF EMPIRICAL AND THEORETICAL EXPLANATION

There is a large body of research that has looked into the drivers of low fertility, but it has not been possible yet to develop a comprehensive theoretical model that can explain the trajectory of a country's fertility rate once it has fallen below replacement level.[7] This lack of theory is particularly relevant for anticipating and informing policy about the possibility

7 Skirbekk, V. (2022). *Decline and Prosper! Changing Global Birth Rates and the Advantages of Fewer Children*. Springer International Publishing. *https://doi.org/10.1007/978-3-030-91611-4*

Figure 4 – Relationship of fertility and development in EU low-fertility countries



Source: Authors' elaborations based on UNDESA World Population Prospects 2022. The points represent the values of TFR and HDI for each country in one year, the line is the relation between the two variables..

of a future rebound in fertility. Its future course remains somewhat 'uncharted territory'. So far, the assumption of continuing low fertility in countries that have completed the demographic transition is mainly derived from empirical regularity rather than theoretical explanation.

Two concepts have been widely applied to examine the drivers for low fertility. One approach sees persistent low fertility as a Second Demographic Transition linked to social and cultural changes in postmodern societies transforming family structures, partnering, and social norms and values. It emphasises changing attitudes to family and childrearing, the decline of marriage, the expansion of secondary and tertiary education, changing gender roles, individual self-fulfilment, women's participation in the labour force and public sphere, post-materialistic values and the diversification of family histories.

A second approach stresses that fertility preferences have remained relatively stable and proposes that the decline in fertility is linked to structural factors which impede the realisation of ideal family size. Proposed limiting factors include uncertainties of the labour market and economic uncertainty of young adults, difficulties in reconciling family and work life, the cost of childrearing, housing costs and costs of living as well as biological and psychological factors.

Economic and social development

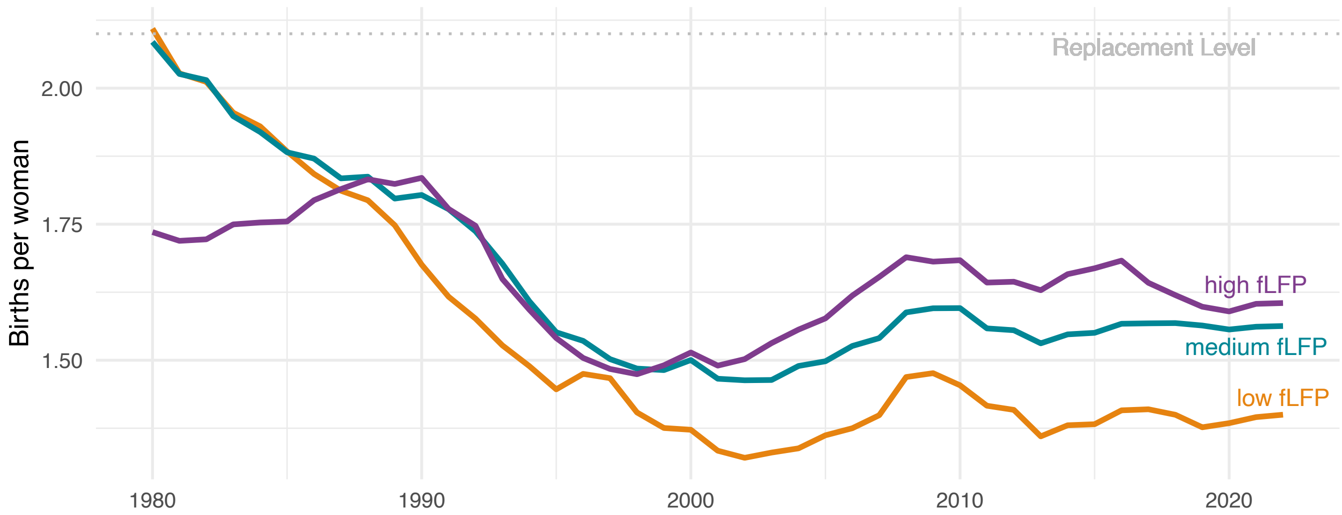
From a global perspective, social and economic development is strongly linked to lower levels of fertility. The theory of demographic transition postulates that as countries develop and urbanise, their fertility decreases. However, at very advanced levels the relationship appeared to reverse and become positive with fertility starting to trend back upwards.

Using data on the level of development and fertility in EU Member States, the reversal in the relationship between 1990 and 2010 can be observed, but it is absent for 2020 **(Figure 4).** This indicates that although fertility stopped falling with economic and social development, the notion that it rebounds at higher levels appears not to have become an empirical regularity.

On the economic side, beyond country-level economic development, factors such as labour market conditions, cost of housing, and economic inequalities have recently been emphasised as reasons for long-term alterations in low fertility. The influence of these factors varies according to individual characteristics such as gender, age or level of education. It may not only be the current situation in which people react. Narratives about the future, based on perceptions of economic conditions, can influence fertility decisions, especially in times of global uncertainty.[8]

8 Vignoli, D., Minello, A., Bazzani, G., Matera, C., & Rapallini, C. (2022). Narratives of the Future Affect Fertility: Evidence from a Laboratory Experiment. European Journal of Population, 38(1), 93–124. *https://doi.org/10.1007/s10680-021-09602-3*

Figure 5 – The link between female labour force participation and fertility over time



Note: The figure plots the average of the total fertility rate for countries grouped into low (<=65%), medium, and high (>=74%) female labour force participation (fLFP) of women aged 20-64 years old. Low: HUN, BEL, SVK, POL, MLT, ESP, ROU, HRV, ITA, GRC. Medium: CZE, AUT, PRT, SVN, CYP, BGR, IRL, FRA, LUX. High: SWE, LTU, DEU, EST, LVA, FIN, DNK, NLD.

Source: Authors' elaborations based on Eurostat and UNDESA

There is also a short-term pro-cyclical relationship between fertility and economic development with fertility responding negatively to economic downturns or war, but these declines are usually temporary and followed by a compensatory rise in fertility.[9]

Female labour force participation

In the Nordic countries of Denmark, Finland and Sweden as well as the non-EU countries of Norway and Iceland, stable levels of fertility just below replacement have been linked to changes in gender norms as well as social and institutional reforms that facilitate participation of women in the labour force and the reconciliation of work and family life. The fertility levels in Nordic countries have been contrasted with very low levels in Southern European countries where more traditional institutional arrangements and cultural norms have persisted. However, recent declines in fertility in Nordic countries have questioned their image as forerunners in demographic behaviour.[10]

Until the 1990s, EU countries with high participation rates had lower fertility levels than those with low or medium rates **(Figure 5).** After the reversal of the relationship, the gap in fertility levels widened to an average of about 0.25 more births per woman in countries with high female labour force participation than in countries with low female labour force participation, and about 0.1 more births per woman than in countries with medium female labour force participation. In recent years, this fertility gap has narrowed as fertility has slightly fallen in countries with high female participation rates.

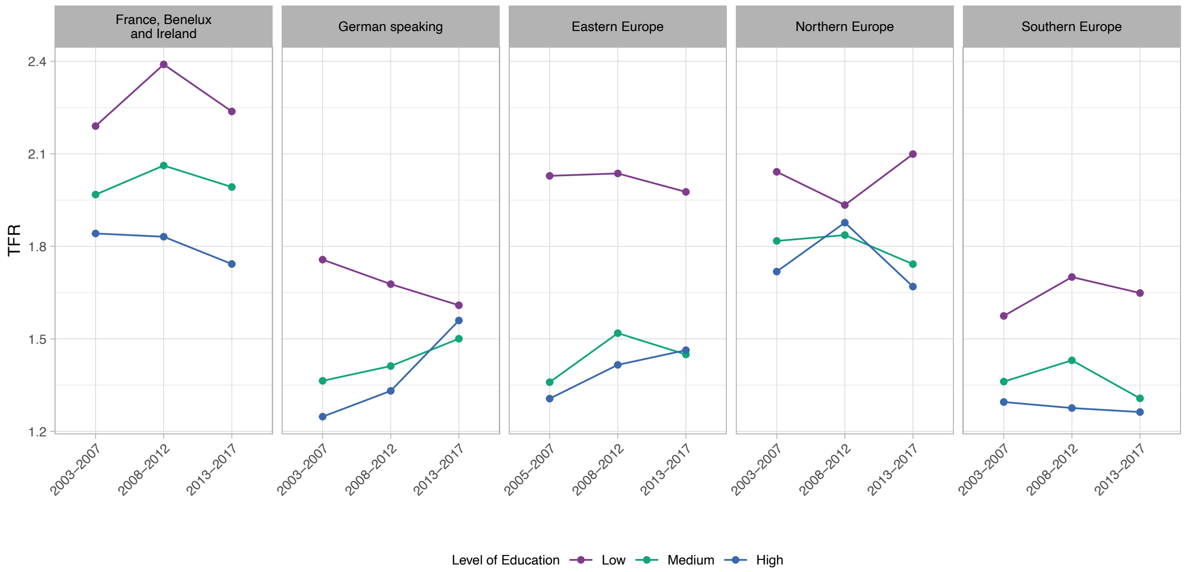
That is not to say that gender equality and female labour force participation are not key aspects for closing the gap between fertility intentions and outcomes. Countries with high participation rates still enjoy higher fertility rates than most other EU Member States. Recent research from Italy, the country with one of the lowest female labour force participation rates in the EU, also shows that employment of both parents is now generally perceived as a precondition for having children.[11] Furthermore, gender dynamics with conflicting and often contradictory expectations of women at home and work are reported as one of the main

9 Sobotka, T., Skirbekk, V., & Philipov, D. (2011). Economic Recession and Fertility in the Developed World. *Population and Development Review*, 37(2), 267–306. https://doi.org/10.1111/j.1728-4457.2011.00411.x

10 Hellstrand, J., Nisén, J., Miranda, V., Fallesen, P., Dommermuth, L., & Myrskylä, M. (2021). Not Just Later, but Fewer: Novel Trends in Cohort Fertility in the Nordic Countries. *Demography*, 58(4), 1373–1399. https://doi.org/10.1215/00703370-9373618

11 Guetto, R., Alderotti, G., & Vignoli, D. (2023). *Can Policy Reforms Enhance Fertility? An Ex-Ante Evaluation through Factorial Survey Experiments* (DISIA Working Paper 2023/08). https://labdisia.disia.unifi.it/wp_disia/2023/wp_disia_2023_08.pdf

Figure 6 – Total fertility rates by education



Note: The calculation of period-fertility rates is based on microdata from EU-SILC and follows the approach by Greulich and Toulemon (2023).[15] Fertility behavior of women between the age of 16 to 49 is observed. The fertility rates are adjusted to the country total fertility rates from UNPD. Education is measured as the highest level of education attained. The first period for Eastern Europe starts in 2005. Women of low education have consistently higher fertility rates, while there is less of a difference between women with medium and high educational attainment. For some country groups the gap declines in recent periods, whereas for others it remains stable over the 15-year period.

reasons for very low levels of fertility in other Regions, especially for Japan and South Korea with current fertility rates even lower than in EU countries. However, the recent fertility decline in EU countries with high female labour force participation highlights that there is no destined future of a rebound in fertility and poses a need to revisit the conceptualisation of a Nordic model of stable fertility just below replacement level.[12] With continuous societal change, new drivers emerge or become salient, such as a general weakening of parenthood as a life objective.[13]

Education

In developed Western countries, educational attainment has been a salient predictor of fertility behaviour. A negative relationship between education and fertility has been the norm, even though it appears to have weakened among recent cohorts of women and comes with large variations in countries' education-fertility differentials.[14]

The trade-off between family and work can disproportionally affect women with higher educational attainment. Having a higher level of education generally leads to better job prospects and a higher earning potential. It makes the associated foregone income from childrearing particularly high. Moreover, a longer time spent in education results in later first births and may shorten the number of reproductive years. Having a more rewarding job and focusing on career goals can further postpone or diminish the aspiration to have children. However, raising children entails direct costs, and households with women of higher education can be in a more favourable financial position.

A comparison across European countries and periods indicates that women of high education continue to have a lower fertility rate and that women of low education have the highest fertility rates **(Figure 6)**. The differential is stable over the 15 years for the group of France, Benelux countries and Ireland

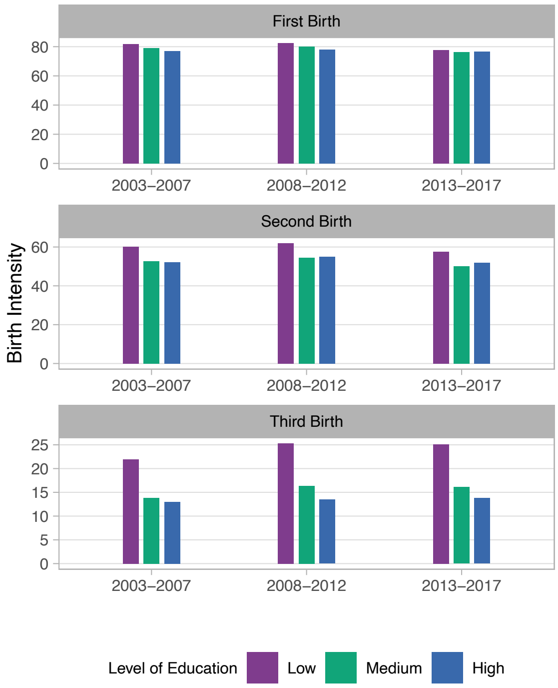
12 See note 9

13 Begall, K., & Hiekel, N. (2024). *Beyond the continuum: A micro-level analysis of the gender equality-fertility nexus in three Nordic countries* (WP-2024-004; 0 ed., p. WP-2024-004). Max Planck Institute for Demographic Research. *https://doi.org/10.4054/MPIDR-WP-2024-004*

14 Sobotka, Tomáš, Beaujouan, Éva, and Jan Van Bavel. (2017). Introduction: education and fertility in low-fertility settings, Vienna Yearbook of Population Research, Vienna Institute of Demography (VID) of the Austrian Academy of Sciences in Vienna, vol. 15(1), pp 001-16

15 Greulich, Angela, and Laurent Toulemon. (2023). Measuring the Educational Gradient of Period Fertility in 28 European Countries: A New Approach Based on Parity-Specific Fertility Estimates. Demographic Research, vol. 49, pp. 905–68

Figure 7 – Birth intensities by education



Note: Birth intensity is based on birth-order period fertility rates for women of childbearing age. It can be interpreted as the proportion of women having at least one, two or three children. Fertility behaviour of women between the ages of 16 to 49 is observed. The fertility rates are adjusted to the countries' total fertility rates from UNPD. First-birth intensities have equalized over time, while women of low education keep having higher second and third-birth intensities.

and in Southern Europe. In Eastern Europe, fertility rates from medium and highly-educated women have increased, albeit from low levels, while the educational groups in German-speaking countries almost converged. In the Nordic countries, fertility rates of highly educated women caught up in the period from 2008 to 2012, but have since diverged.

The differences in fertility by education are not large for the first birth but can be rather seen in second and third births. In 2003, a higher proportion of women with low education had at least one child compared to the other educational classes, but the rates have equalized in the most recent period **(Figure 7).** In contrast, the lower level of second and third-child births for women of medium and high education prevails over the three periods.

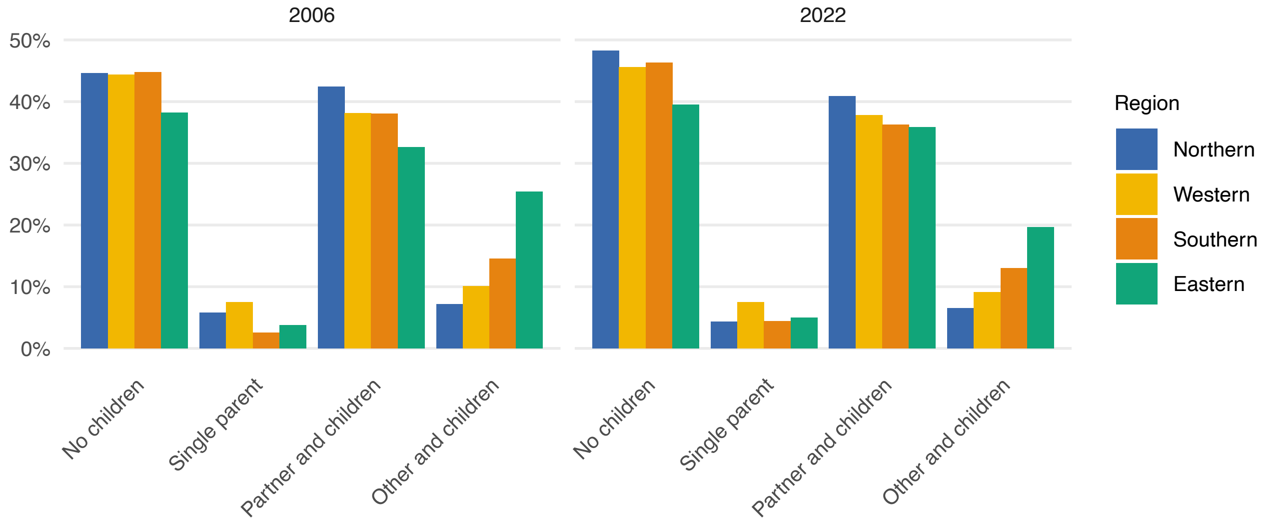
The trends in fertility by educational level show a persistence of the negative relationship between education and fertility in the EU, albeit not in all countries and with differences becoming smaller. This does not point to a reversal that has been suggested towards individuals with better education having higher fertility. However, convergence in fertility across educational levels observed in some countries might be partly explained by the increasing importance of having the means to afford children. Better educated tend to be wealthier, in more stable employment, have a higher rate of partnering and have better access to childcare provision which counteract the higher opportunity costs.

Household structure

The decline in fertility rates in the course of the demographic transition is accompanied by a reduction in household size and a fundamental change in the living arrangements of individuals. With modernisation and cultural change, there is a nuclearisation of households towards small immediate family households and an increase in solo living as societies reach higher levels of development. Individuals or couples are delaying marriage or cohabitation, contributing to a shift in childbearing to older ages and to lower fertility rates. Changes in household structure, such as solo living or cohabiting without marriage, are also associated with greater reproductive autonomy and lower fertility.

While the shrinking of households in the course of development is an ongoing global trend, it appears

Figure 8 – Households including at least one woman age 20-49, by type and EU Region, 2006 and 2022



Note: Data is not available for all EU Member States. Northern (Finland, Sweden); Western (Austria, Belgium, Germany, France, Luxembourg, Ireland, Netherlands); Southern (Cyprus, Spain, Italy, Portugal); Eastern (Bulgaria, Croatia, Czechia, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia). The bars show the proportion of types of households to all households including at least one woman aged 20-49.

Source: LFS

to have been completed in Europe.[16] Zooming in on changes in household structure of women of reproductive age in the EU in the last two decades confirms an end to the nuclearisation trend in all regions except Eastern Europe. Between 2006 and 2022, the household structures for women of reproductive age have remained relatively unchanged. **Figure 8** shows a slightly higher percentage of households without children than of households with couples and children. Multigenerational households where women live with their adult children are more common than single-mother households. The higher share of multigenerational households in Eastern European countries is likely reflecting the tendency of young couples starting their family to stay with the parents of one of the partners.

In the Nordic countries, single living has been on the rise since 2006 and the overall share of households with children has been declining **(Figure 9)**. In North-Western European countries, an increase in single living is accompanied by a decrease in other types of living arrangements. In both regions, we observe an increase in the proportion of women aged 20-49 who are still living with their parents.

In Southern and, especially, Eastern European countries, other household arrangements with children have declined most sharply, while the proportion of single women households and households with couples has increased. As multigenerational families have historically been the norm in Eastern European countries, this suggests a convergence towards the Western family model.

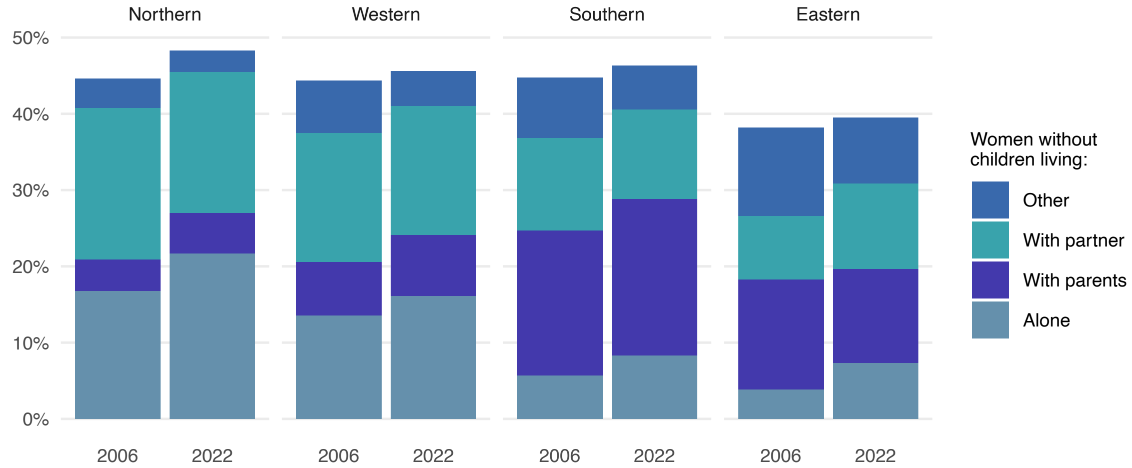
The trend to single living, continuing delayed home leaving in Southern European countries and, overall, less family formation and childbearing everywhere but in Eastern Europe are predominantly found for young women aged 20-34.

Nonetheless, women who were aged 20-34 in 2006 transitioned from living with their parents and single living to forming partnerships and having children as they approached the end of their reproductive years in 2022. A rising share of single-parent households and other living arrangements with and without children compared to previous cohorts reflects the "complexification" of family-life trajectories, including marital dissolution, re-partnering and diversification of family forms. This is true also in Southern European countries, where marital instability has historically been less prevalent.

In conclusion, the main household structures for women of reproductive age remain relatively

16 Esteve, A., & Reher, D. S. (2024). Trends in Living Arrangements Around the World. *Population and Development Review*, padr.12603. *https://doi.org/10.1111/padr.12603*

Figure 9 – Households of woman age 20-49 without children, by type and EU Region, 2006 and 2022



Note: Data not available for all EU Member States. Northern (Finland, Sweden); Western (Austria, Belgium, Germany, France, Luxembourg, Ireland, Netherlands); Southern (Cyprus, Spain, Italy, Portugal); Eastern (Bulgaria, Croatia, Czechia, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia). The shares of types of households are in proportion to all households including at least one woman aged 20-49, with and without children.

Source: LFS

unchanged, but we observe an increase in the share of households without children. This increase correlates with the increasing tendency of young women to live with their parents or alone rather than with a partner and, especially, a partner and children.

Postponement of childbearing

Besides changes in household structure, another process which is closely related to low fertility is the postponement of childbearing.

This relation can be explored by looking at the trends of the overall TFR and, by age, at the combined effects of education, income and employment on postponement and number of children.

The postponement of childbirth explains some of the puzzling drops to very low levels of TFR registered in several MS. This technical aspect is relevant for policies since these very low levels of the TFR often generate a sense of urgency for policy interventions aimed at contrasting population decline.[17]

It is well documented that countries in in the demographic stage characterized by low fertility rates also go through a common process of delayed parenthood. This process started in most Northern, Southern and Western European countries in the period 1970-80 and was followed by a similar trend in Eastern European countries since the 90s. In more recent years, the average age of first-time mothers across the entire EU continued to increase from 27.6 years in 2006 to 30.2 years in 2022.

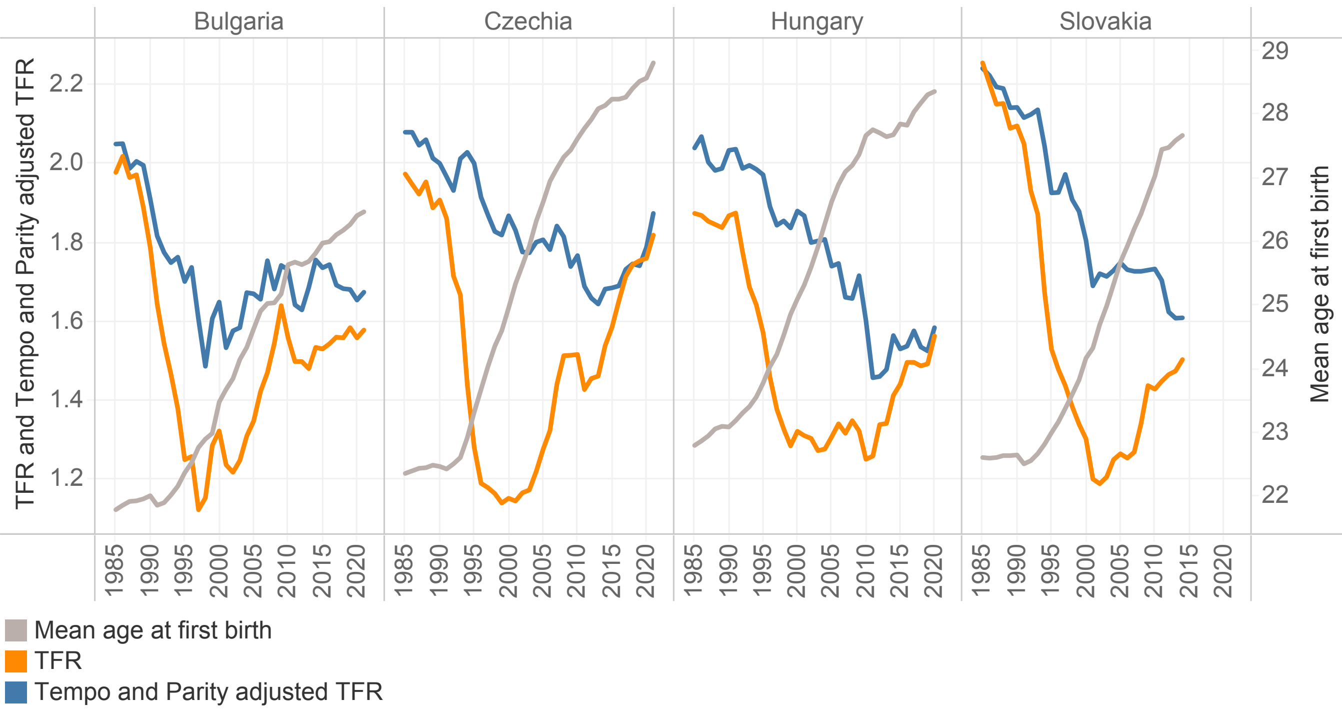
In this context of changing fertility towards delayed parenthood, fertility rates of younger cohorts are ‘shifted’ into the future and this may result in drops in the TFR. These changes are temporal adjustments (tempo effects) rather than structural declines to very low levels in fertility.

The importance of these tempo effects can be appreciated with the examples in **Figure 10** for Bulgaria, Czechia, Hungary and Slovakia.

In the initial phase of the so-called “postponement transition”, the increasing delay in parenthood coincides with decreases to very low levels of fertility, as in the case of Hungary during the period 1999-2011. In the second phase, while the postponement continues, the TFR remains at very low levels often with erratic behaviour (see period 1999-2011 in Hungary). In the final phase, the postponement is slowing down and the TFR is rising towards the higher level recorded by the adjusted TFR (see 2011-2019 in Hungary). These changes are not present in the adjusted TFR which is both higher and more stable over time.

17 Sobotka, Tomáš. (2017). Post-Transitional Fertility: the Role of Childbearing Postponement in Fueling the Shift to Low and Ustable Fertility Levels. *Journal of Biosocial Science* 49(S1): S20–45. doi:*10.1017/S0021932017000323*

Figure 10 – Mean age at first birth, TFR and Tempo and Parity adjusted Total Fertility Rate in selected countries.



Source: Calculations by Krystof Zeman with data from the Human Fertility Database 2024. The HFD is maintained by the Max Planck Institute for Demographic Research (Germany) and the Vienna Institute of Demography (Austria). Available at www.humanfertility.org data downloaded on 15 February 2024). The adjusted TFR neutralises temporary declines of the standard TFR which can be attributed to trends in postponement of childbearing.

Two takeaway messages can be drawn from the accounting of tempo effects:

1. during the postponement transition, the widely used TFR may overemphasize the seriousness of the issue of low fertility;
2. the decline in fertility to very low levels as observed in several MSs is just temporary rather than a sign of persisting conditions of very low fertility.

Differentiating postponement of first births by education, economic status and employment of women allows a more nuanced view of the relationship between the two parallel processes of low fertility and postponement **(Figure 11).**

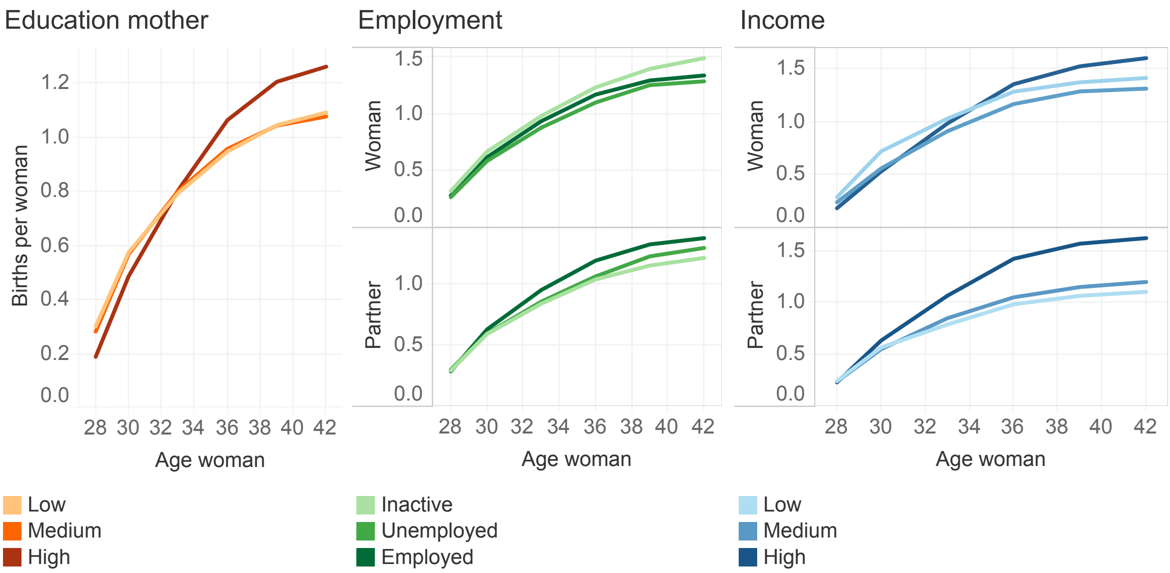
Focussing on fertility behaviour from the age of 28, women with higher education levels tend to have fewer children around their 30s. However, over the later years, they catch up and ultimately have overall more children between 28 and 42.[18]

High income for women is associated with a postponement, yet it also allows for a higher number of children in the long run. Employment for both the mother and her partner does not lead to postponement compared to unemployment and has a positive effect on the total number of children for both the mother and the partner. For the partner, low income and inactivity are related to low fertility, supporting the argument that economic deprivation contributes to low fertility rates. However, economic deprivation does not seem to play a role in postponement, except in the case of women.

These findings suggest that when considering the drivers of postponement and low fertility it is important to differentiate between the roles and characteristics of the mother and the partner.

18 The different results for the effects of education between Figure 11 and Figure 7 can be explained by differences in methodology. Figure 11 looks at fertility behaviour of completed cohorts who were born between 1972 and 1978. The measure can miss children who were born to a mother before the age of 28. Figure 7 calculates period-fertility rates based on fertility behaviour from women of all years of reproductive age in a specific year

Figure 11 – Cumulative fertility rates over the life course of cohorts of women of age 43 by education of women and employment status and income level of women and partners



Source: Authors' elaborations of LFS microdata covering EU27 and synthetic cohorts of women of age in the period 2015-2021. In younger ages, highly educated women have fewer children than low-educated ones. This gap is indicative of a postponement of childbearing linked to the education of the mother. After age 32, highly educated women recuperate this postponement and have a higher number of children than low-educated ones. The other curves allow us to appreciate the respective role of the characteristics of the women and the partner for postponement and overall fertility rates.

Postponement is primarily caused by investment in education and increasing income for women, however, this delayed timing is partly recovered in the long term. This indicates that policy measures aimed at increasing women's employment and labour productivity are not necessarily clashing with promoting fertility.

Conclusions

The EU has experienced more than half a century of low fertility, i.e. below the average number of children per woman of 2.1 needed to maintain a stable population without immigration. Persistent low fertility has created negative population momentum in the population age structure that will make it difficult to reverse population decline in the medium term even if fertility rates significantly rise again. Migration can only temporarily and partially compensate for low fertility and cannot prevent population ageing. Furthermore, intra-European migration that is softening the impact of low fertility in Northern and Western European countries is accelerating population decline in Eastern European countries.

Despite the unlikely rebound of fertility rates to above-replacement fertility, understanding the drivers of low fertility remains essential to inform evidence-based policymaking. The drivers of low fertility in Europe proposed in the literature include the postponement of childbearing, delayed partnering and changes in living arrangements, longer educational as well as less stable and more complex professional career pathways, changing family norms, economic constraints and uncertainties, cost of living or inadequate family support. These drivers are constantly evolving against the backdrop of broader socioeconomic and cultural changes in societies.

So far, we lack comprehensive theory and data to disentangle the importance of the individual drivers amid broader cultural, economic and societal changes. What can be observed from our review of selected drivers is the continuing postponement of childbearing to older ages, the continued higher level of fertility in countries with higher gender equality despite this relationship weakening, inequalities in fertility within countries along education lines, and the decrease in partnering and cohabitation. These drivers can be addressed through policy focussing on social and institutional arrangements. Beyond that, cultural shifts as well as biological and psychological factors have also been suggested to explain low fertility, especially the recent downturn in many EU countries.

Policy implications

To face the demographic challenges for public finances, social security, and pension systems, it makes a significant difference whether fertility declines to very low levels of 1.1 or 1.2 births per woman or is closer to the replacement level at 1.7 or 1.8 births per woman. While EU fertility is at 1.5 births per woman, the ideal of the two-child family has remained relatively unchanged, and the average number of children people across the EU aspire to have is about two children. This gap between fertility intentions and realised fertility indicates that people are not able to have the number of children they desire and is the main argument for policy intervention. While part of this gap is explained by the instability of fertility intentions over time as well as circumstance, it points to the potential for policy to better support individuals and couples who intend to start a family or have another child.[19]

Evidence about the extent to which policy can impact fertility is mixed and inconclusive as it is difficult to isolate the effect of policy from broader societal change happening simultaneously. Of the policies addressing low fertility, the financial support to low-income families, policies that facilitate the reconciliation of paid work and childcare, including the provision of flexible working arrangements and access to quality childcare, appear to be among the more impactful. The effectiveness of policies such as one-off financial incentives and paid parental leave tied to the period around the birth of a child has been less clear.[20] Restrictions on reproductive freedoms or cultural exhortations for women to have more children have been shown to be ineffective in raising fertility.[21] The impact of policies that may indirectly affect fertility by addressing the cost of housing or general labour market conditions is more difficult to evaluate.

Some policy areas targeted at specific age groups or social inequalities are suggested as potentially contributing to narrowing the gap between fertility intentions and outcomes. Policies could address barriers to fertility by:

- addressing the worsening economic position of young people;
- improving work-life balance not only for parents but also with a view to partnership formation;
- addressing social inequalities in access to assisted reproductive technologies;
- improving sexual education that not only informs about preventing pregnancy but also about overcoming potential barriers to achieving desired family goals.[22]

The importance of the drivers of low fertility changes over time and differs between regions. Policies that were effective at one time or in one country may not be effective in another setting. Tackling low fertility requires a comprehensive policy approach that supports the healthy growth and development of families.[23] The European Commission has proposed such a holistic approach, outlining a wide range of tools, including regulatory instruments, policy frameworks and funding available to Member States in its Demographic Toolbox Communication.[24]

Achieving higher birth rates in the EU above the current low levels of 1.5 births per woman can mitigate the challenges related to an ageing population. Yet, the major task remains to adapt to the economic and social change in a low-fertility society. As the region with the longest experience of low fertility, the EU could serve as a role model for

19 Philipov, D. (2009). Fertility Intentions and Outcomes: The Role of Policies to Close the Gap. European Journal of Population / Revue Européenne de Démographie, 25(4), 355–361. *https://doi.org/10.1007/s10680-009-9202-1*

20 Sobotka, T., Matysiak, A., & Brzozowska, Z. (2019). Policy responses to low fertility: *How effective are they?* (1; Working Paper). UNFPA, Technical Division, Population and Development Branch. *https://asiapacific.unfpa.org/sites/default/files/pub-pdf/policy_responses_to_low_fertility.pdf*

21 UNFPA. (2023). State of World Population 2023. *8 Billion Live, Infinite Possibilities. The Case for Rights and Choices*. United Nations Population Fund. *https://www.unfpa.org/swp2023*

22 Skirbekk, V. (2022). *Decline and Prosper! Changing Global Birth Rates and the Advantages of Fewer Children*. Springer International Publishing. *https://doi.org/10.1007/978-3-030-91611-4*

23 Gietel-Basten, S., Rotkirch, A., & Sobotka, T. (2022). Changing the perspective on low birth rates: Why simplistic solutions won't work. *BMJ*, e072670. *https://doi.org/10.1136/bmj-2022-072670*

24 Communication from the Commission to the Parliament, The Council, The European Economic and Social Committee and The Committee of the Region. *Demographic change in Europe: a toolbox for action*. Brussels 11.10.2023, COM(2023)577 Final. *https://commission.europa.eu/document/download/5efbf426-93f5-4b68-b650-1e37fdcb24ba_en?filename=COM_2023_577_1_EN.pdf*

countries and regions that are in the earlier stages of population ageing.

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