

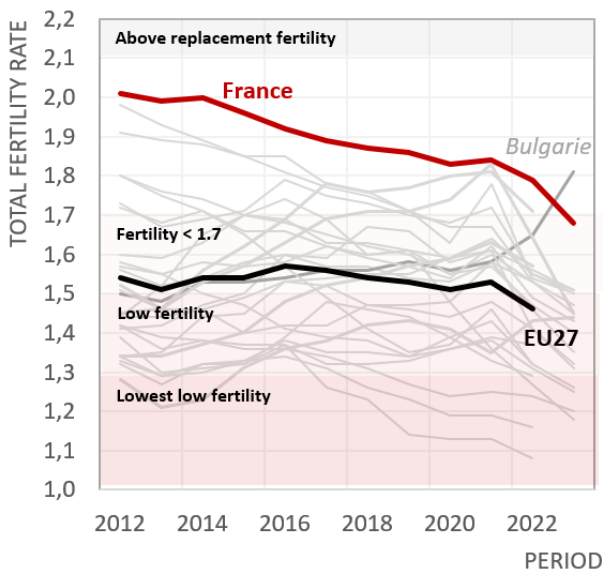
Fertility Decline in Europe: A Turning Point in French Fertility

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1. Background: Fertility Decline in France within the European Context

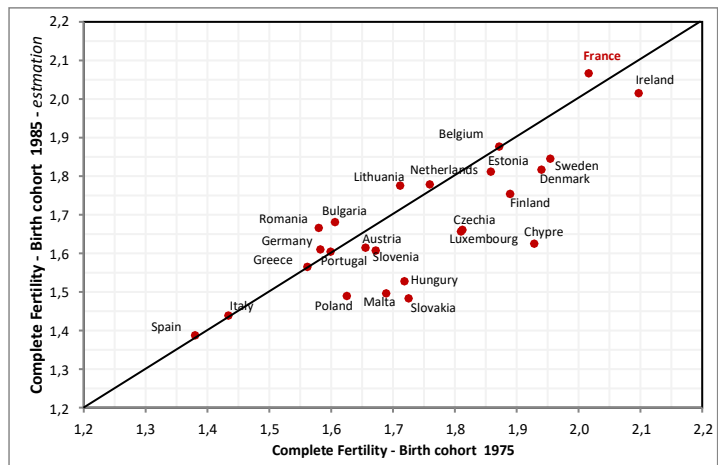
In France, 663,000 children were born in 2024, almost 170,000 fewer than in 2010 (-20%). This steady decline in the birth rate over the last 15 years is causing a shrinkage of the base of the population pyramid, which is taking on a shape increasingly similar to that of its European neighbours (Solaz et al., 2024). While in the beginning, this fertility decline was explained by an age-structure effect (fewer women of childbearing age), this is no longer the case since 2018 (Breton et al., 2020). The drop in the number of births is solely the result of the decline in fertility, which has fallen from 2.03 children per woman in 2010 to 1.62 in 2024 (Insee, 2025). This has been accompanied by a steady increase in the age at entry into motherhood. The French exception of relatively high fertility is less and less evident, and since 2023 France is no longer the most fertile country in the EU27 (Figure 1). France is now one of the countries with a relatively high fertility rate on the EU27 scale, but well below the population replacement threshold.

Fig. 1. Total Fertility Rate, EU27 countries 2012 to 2023



Universe: European Union EU27.
Source: Eurostat, National Statistics Institutes, various countries.

Fig. 2. Completed Fertility for Cohorts Born in 1975 and 1985 (estimation), EU-27 countries



Interpretation: French cohorts born in 1985 will have at the end of their reproductive lives 2.07 children on average, compared with 2.02 for those born in 1975
Universe: Europe 27 - excl. Latvia and Croatia. Author's calculations

Sources: Eurostat - authors' calculations

Things were a little different when we look at completed cohort fertility (CFR). The CFR in France remained close to 2.0 children per woman for the 1985 birth cohort, representing an exception alongside Ireland in this respect (Figure 2). However, while French demographers initially interpreted the drop in TFR as a postponement effect, as was observed in the 1990s, it now seems quite clear that the current fall in fertility will be

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reflected in future completed cohort fertility rates, given the continuous rise in the age at childbirth, particularly at first birth, and lower parity progression ratios (PPR) to higher order births (Breton & Tomkinson, 2021). Socioeconomic factors that have been associated with the postponement and the decline of fertility include the expansion of female education, female employment, divorce and separation, the postponement of union formation, economic uncertainty, changes in family aspirations, among others (Lesthaeghe, 1995; Sobotka, 2017). Other reasons include changes in values, public policies and repeated economic crises (Brée and Breton, 2023).

In 2018, Zeman et al. (2018) proposed 5 different combinations of parity fertility rates associated with a cohort fertility rate of 1.60 children per woman or less: (1) a benchmark model, (2) the high childlessness model, (3) the one-child model, (4) the two-children family model, and (5) a polarized model with high childlessness and families with 3 or more children. While most European countries can be classified in one of these models, this is not (yet) the case in France, due to a relatively low proportion of childless women, that is, a high parity progression ratio from 0 to 1 (PPR01) and a relatively high probability of transition from 2 to 3 children (PPR23) (Breton and Prioux 2005; 2009). But, is this the case in more recent cohorts?

This paper aims to investigate whether the decline in French period fertility is the result of increased postponement and/or a reduction in higher order fertility. We will also explore whether these changes are a result of structural and/or behavioral changes.

2. Data and methods

We use individual microdata from the 2011, 2016 and 2022 French censuses. This data covers the time period of falling TFR in France. Use of census data is a “needs-must” solution to study fertility in France. Obtaining data on birth order from vital registration is impossible due to the extremely poor quality of the collection of these data. Survey data is available sporadically, once every ten to fifteen years; the last major family survey for which data are available dates from 2011 (the “Family and housing” survey)⁴. Thus, we use census data and apply the Own Children method (Cho, 1986) to estimate women’s parity. The method links women to their cohabiting children identified from a household roster question. The total number of linked children gives the parity of the women at time of enumeration.

We run multivariate regression using Hurdle Models to predict number of children. Hurdle models assume that there are two processes at work, one that generates zeros (childlessness) with some probability, and the other that generates positive counts (number of children). The model combines logistic regression predicting the probability of entering motherhood relative to remaining childless, and a zero-truncated Poisson model predicting positive counts conditional on having entered motherhood. We use Oaxaca-blinder decomposition predicting the probability of remaining childless among women aged 30-34 to decompose the changes in means (structure of the population) and coefficients (behaviours) over time, from 2011 to 2016, and from 2016 to 2022.

3. Findings

3.1. Postponement of childbearing is at the root of falling period fertility

Our analyses revealed an increase in childlessness at peak reproductive ages, 25-34. Yet, amongst women having entered into motherhood, the distribution of the number of children has remained relatively stable. Among women aged 30, the proportion without children increased by 10 percentage points from 39% in 2011 to 49% in 2022. Among 34 years-old women, 24% remained childless in 2011 compared to 28% in 2022.

Figure 3 presents the results of a hurdle regression model, supporting these findings. As Fig. 3 shows, women aged 30-34 were more likely have entered motherhood in 2011 versus 2016 (OR of 1.08), and less likely to be mothers in 2022 compared to 2016 (odds ratio of 0.81). Meanwhile, the results of the second part of the model show no evidence of changing progression to higher order births at these ages over the observed period.

⁴ The most recent “Families” survey was held in January 2025.

Fig. 3. Results from a hurdle regression model for women aged 30-34

Model part 1 (Logistic): Odds of entering motherhood

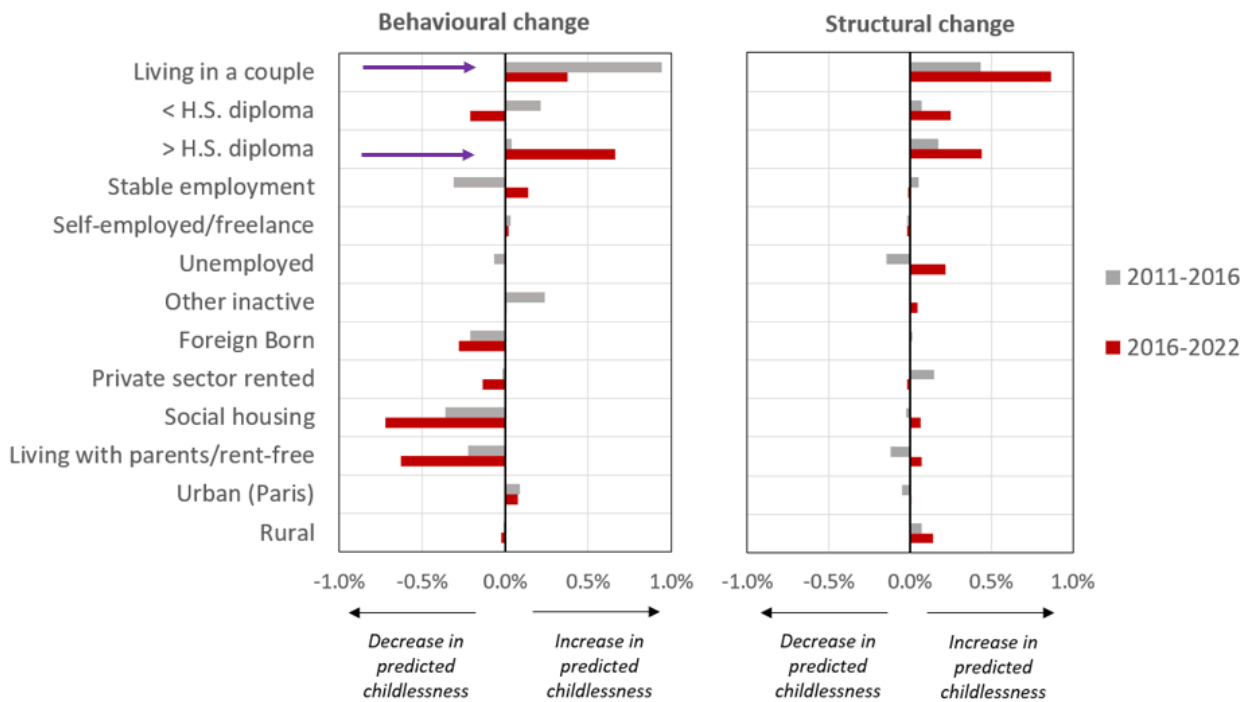
Model part 2 (Poisson): Number of children



Control variables: Age, place of birth, employment status, housing status, zone of residence.

Source: Insee, 2011, 2016 and 2022 censuses. Universe: Enumerated women aged 30-34 years old on 1st January of census year (unweighted N = 1,894,181). Model diagnostics: AIC = 15,523,336 ; Log likelihood = -7,761,632 (36 d.f.)

Fig. 4. Decomposition: Behavioural and structural contributions to changes in childlessness



3.2. Women in cohabiting couples and highly educated women are driving increases in childlessness

Using Oaxaca-Blinder decomposition, we find that changes in the population structure (changes in means) account for about one third of the increase in predicted childlessness over the periods 2011-2016 (+2% predicted childlessness) and 2016-2022 (+6%); whereas behavioural changes (changes in coefficients) account for nearly two thirds of this increase. The results are presented in Figure 4.

As Fig. 4 shows increases in childlessness among women living in a cohabiting couple is the major behavioural change in the first period, whilst increases in childlessness amongst women with tertiary education played a major role during the latter period. A major change in the population structure that has contributed to the

increase in childlessness is the decline in the proportion of women aged 30-34 in cohabiting couples, as being in a cohabiting union remains a “prerequisite” for entry in motherhood in France. The increase in the proportion of women with higher education also played a role, particularly in the latter period.

4. Discussion

In the light of the current trends in fertility postponement and increases in childlessness observed in France, to maintain a completed fertility level equivalent to that of previous generations, a recuperation of fertility at ages 35 and above must take place. However, age-specific fertility rates at ages 35 and over remain lower than those at younger ages. Given, social deadlines to childbearing and the risk of age-related infertility, continued postponement of fertility suggests that the proportion of permanently childless women may continue to rise among younger generations (Beaujouan, 2023; Billari et al., 2011). As the relatively high French fertility was until now the result of low childlessness and a moderately high transition to third births, continuing fertility postponement will contribute to a decline in higher order parity progression ratios and, thus, in overall cohort completed fertility (Breton & Tomkinson, 2021). A 2024 survey on fertility behaviors and intentions reveals a decline in the desired number of children among younger French generations, alongside a growing share of men and women who either express uncertainty about having children or explicitly state that they do not wish to have them (Bouchet-Valat & Toulemon, 2025). We thus argue that French fertility has reached a turning point, where completed cohort fertility of new generations will be henceforth lower than two children per woman.

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