

Extended abstract

**The End of a European Exception?
The First Signs of a Durable Decline in French Fertility**

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Short Abstract

Having long represented an exception in the context of European fertility, France has recently witnessed a decline in its ‘high’ fertility. We aim to understand this trend by focusing upon the two specific characteristics of French fertility – low levels of childlessness and high progression to third births. Using data from the Insee Permanent Demographic Sample (EDP), we demonstrate how a renewed postponement of entry into motherhood amongst lower educated women and a changing composition of age at first birth have resulted in a falling progression to both first and third births. We argue that the latter trend is likely to lead to a durable decline in French fertility – as women continue to delay childbearing, fewer women will progress to a third birth and thus a falling contribution of third order fertility rates will impact upon the total fertility rate.

Keywords: Fertility decline, France, Parity progression, Childbearing postponement, Education, Europe.

Context

For decades, France has represented an exception in the context of European fertility with regard to its comparatively high level of fertility, both in terms of period (total fertility rate, TFR) and cohort (completed cohort fertility, CFR) measures. The French exception of completed cohort fertility close to replacement level is due to two factors: low levels of childlessness (high progression to first birth, PPR01 \approx 0.85) and a high proportion of families with 3 children or more (PPR23 \approx 0.40) (Breton and Prioux, 2005, 2009; Frejka, 2008; Toulemon *et al.*, 2008; Beaujouan *et al.*, 2017).

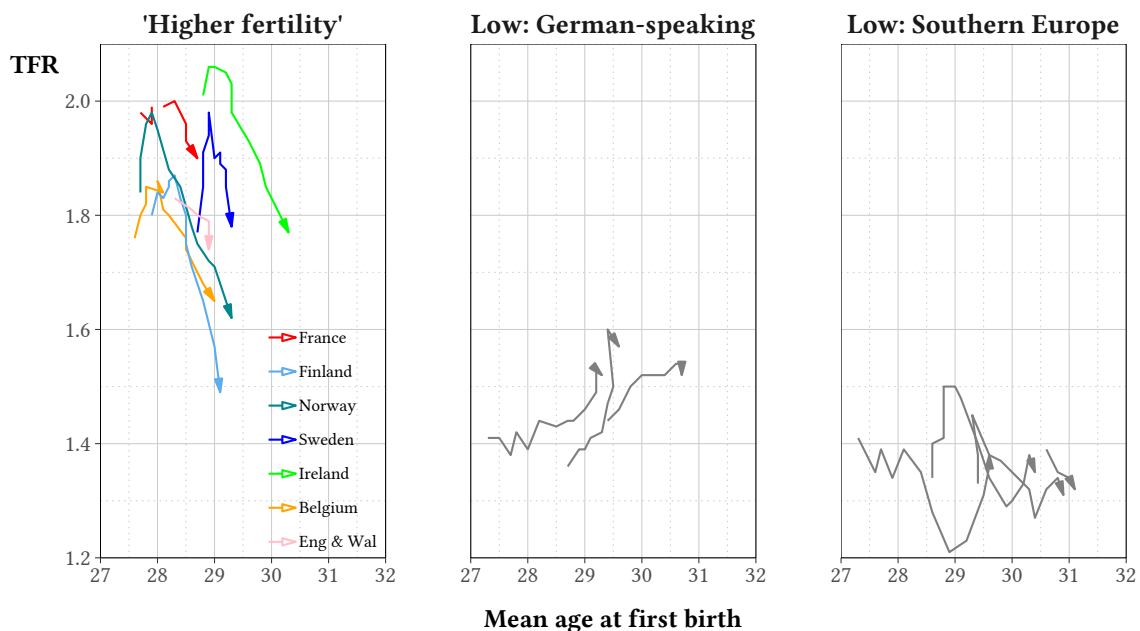
The TFR in France has decreased continuously since a peak of 2.03 children per woman in 2010, and rapidly since 2014, to reach 1.87 children per woman in 2018 (Papon and Beaumel, 2019).

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France is not the only European country with 'higher fertility' (those having recently had a TFR greater than 1.8 children per woman¹) to experience a recent decline. In these countries, rising age at first birth has been accompanied by a fall in TFR since 2009/2010 to such an extent that, as of 2017, France remains the sole country with a TFR above 1.8 children per woman (Figure 1). Conversely, among countries where fertility is low, in German-speaking countries TFR has increased in parallel with age at first birth whereas in Southern Europe, TFR has fluctuated but remains low.

For the higher fertility countries most advanced along this process of a reversal in TFR – Belgium, Ireland, and the Scandinavian countries –, TFR has fallen by at least 0.2 children per woman in under a decade, and by almost 0.4 children in Finland. In other terms, fertility has decreased in these countries by between 0.2 (Belgium, Ireland) and 0.5 children per woman (Sweden) per year of postponement of first birth.

Figure 1 – Evolution of TFR and mean age at first birth, 2005-2017, selected European countries



Source: France – Davie, 2012; Volant, 2017; Eurostat; other European countries – Eurostat.

Note: The following periods are covered by the data – France, 2006-2008 and 2012-2017; Finland, Norway, Sweden and Belgium, 2005-2017; Ireland, 2007-2017; England and Wales, 2013-2017.

In France, is this a temporary, such as was observed thirty years ago (between the end of the 1980s and mid-1990s), or durable decline in fertility? Our hypothesis is one of a durable decline, fuel-

¹ These countries are France, Finland, Norway, Sweden, Ireland, Belgium, and England and Wales.

led by a changing French context. Today, two important elements differ from the situation observed three decades ago:

- (i) The decrease in TFR between 1986 and 1993 was associated with a difficult labour market (increasing unemployment rates), notably for young people. If unemployment in France remains high, unemployment rates have been falling since 2015.
- (ii) There exists today less support for parents from family policies. Significantly reduced, especially during the Hollande presidency, the amount of family allowance available is now means-tested whilst tax breaks for larger families have decreased. In addition, at a time when the reorganisation of primary education has increased the need for childcare, financial help for childcare has also been reduced. These family policies are unlikely to encourage a recovery of the TFR.

Objectives

We aim in this paper to understand the recent decline in French fertility by focusing upon the two specific characteristics, emblematic of the sustained intensity of fertility observed in France – the high progressions to both first and third births (PPR01 and PPR23). These two factors are also, in part, those which distinguish France from the five theoretical models of combinations of parity progression ratios leading to a CFR of 1.6 children per woman, which characterise the majority of European countries today (Zeman *et al.*, 2018).

We also aim to understand if these two characteristics vary among subgroups of women, notably whether there exists a differential between highly educated women and those with a low/medium level of educational attainment. In Europe, cohort parity progression varies widely amongst women with differing levels of education (Wood *et al.*, 2014; Beaujouan *et al.*, 2016). In France however, if fertility is higher and has an earlier schedule among the least educated women, childlessness does not seem to depend upon educational attainment (Davie and Mazuy, 2010). Is the current fertility decline linked to a postponement of first birth irrespective of education level, or only amongst women either highly or lowly educated?

Data and methods

French birth registration data has several well-known flaws. Importantly, data upon birth order is of poor quality (Toulemon and Mazuy, 2001; Breton and Prioux, 2009). In addition, as is the case in many countries, little socioeconomic information is collected upon the mother of the child. Notably, the mother's level of education is absent from birth registration data. For these reasons, dif-

ferential analysis of fertility by birth order and/or educational attainment is impossible using birth registration data. To answer our research questions, the use of an alternative data source is therefore necessary: we thus use the Insee Permanent Demographic Sample (EDP).

The EDP follows a sample of the French population by linking census, vital registration and administrative data. Birth order of children can therefore be attained by ordering an individual's matched birth registration entries by the date of birth of the children – the earliest corresponds to a birth of order one, the second to a birth order of two, etc. Furthermore, from matched census records we are able to obtain information upon the level of education of individuals. We use a representative 0.5% sample of women born between 1950 and 2002 ($N \approx 75,000$) to examine the recent decline in French fertility by concentrating upon recent evolutions in both annual and cohort parity progression ratios.

Preliminary results

(1) A reduction in all annual parity progression ratios.

The decline in fertility since 2011, and at an even faster rate since 2014, is observed across all annual parity progression ratios (Figure 2). Parity progression to first birth (aPPR01), signifying the entry into motherhood, is comparatively 7 percentage points lower in 2017 than in 2011 (0.804 *versus* 0.863). Progression to a second birth (aPPR12) is down 6 points (0.755 in 2017 compared to 0.804 in 2011), whilst progression to a third birth (aPPR23) is respectively 17 points lower (0.341 *versus* 0.413).

The decreases in these two parity progression ratios are potentially the first signs of a durable decline in French fertility. But how do we interpret the decline in aPPR01 which could signify either a rise in childlessness among the younger generations, or an artefact of a “renewed” postponement of entry into motherhood?

(2) The “renewed” postponement of entry into motherhood is propelled by low and moderately educated women.

The recent decline in fertility is most pronounced among women younger than 25 years old (Breton *et al.*, 2018). This trend is a reflection of the decrease in aPPR01, the majority of births occurring at these ages being first order births.

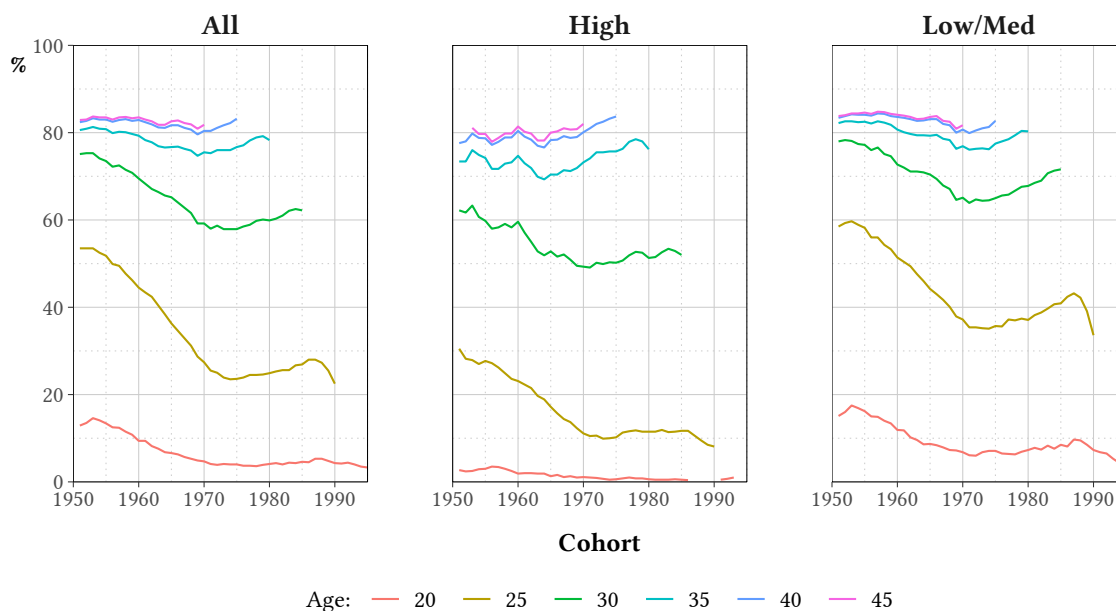
Figure 3 highlights the evolution of a decrease in the proportion of women having a first child before their 25th birthday among the youngest generations. For women born from 1974 (thus reaching age 25 in 1999) until 1986 (aged 25 in 2011), the proportion of women having at least one child

Figure 2 – Evolution of annual parity progression ratios to first, second, third and fourth births, 2005-2017 (2011 = 100 base)

Year	aPPR01	aPPR12	aPPR23
2005	95.1	98.1	98.5
2006	96.8	97.8	98.3
2007	96.2	97.0	99.2
2008	97.6	97.1	104.2
2009	98.7	98.1	99.4
2010	98.4	98.2	96.9
2011	100.0	100.0	100.0
2012	100.0	98.2	90.2
2013	95.8	97.2	92.3
2014	101.2	97.7	94.8
2015	94.7	95.8	89.8
2016	94.3	96.5	88.4
2017	93.2	93.9	82.6

Source: Authors' calculations on EDP data.

Figure 3 – Cumulative proportion of women having had at least one child by age x by cohort and education level



Source: Authors' calculations on EDP data.

Note: Moving average over 3 birth cohorts.

before their 25th birthday had increased from 23,5% to 28,0%. Among women of the following birth cohorts, reaching the age of 25 years old after 2011, this proportion has fallen rapidly – on average by more than 1% over consecutive cohorts – to 22,5% of women born in 1990. Whilst this trend is observed for all education levels, it is most evident among low and moderately educated women for who an earlier entry into motherhood is more common. A first birth before age 25 years old occurred for one third (33.6%) of women born in 1990 with low and medium educational attainment, compared to more than four in ten (42.4%) for those born in 1986.

(3) Progression to third birth is a function of age at first birth.

We have observed how, calculated annually, progression to third birth has decreased over recent years. However, calculating progression to third birth within cohorts of parity² (cPPR) reveals a picture of stability with little change in progression to both second and third births over cohorts having experienced their previous births during the periods from 1993-1995 to 2005-2007 (Figure 4). Even among more recent cohorts who have not yet reached a duration of ten years since the birth of their second child (2008-2010 and 2011-2013 cohorts), at comparable durations since second birth, progression to a third birth is very similar to that observed in previous cohorts. In addition, cohort parity progression ratios vary little across education levels all other things being equal.

What then is causing annual progression to third birth to decrease? Within cohorts of parity, progression to a third birth is a linear function of age at second birth with progression to second birth also being related to age at first birth. This latter relationship seems to be linked to a “critical” age at entry into motherhood. For mothers having had their first child before the age of 30 years old, only very slight differences in progression to a second birth are observed. For mothers aged 30 years or older at first birth, progression to a second birth decreases linearly and rapidly with age at first birth. It is thus likely that falling annual parity progression to third birth (aPPR23) is a result of the changing structure of age at first birth. As more and more women delay childbearing until their thirties, they experience a less frequent progression to second, and especially, third births. This has the effect of reducing both the intensity and overall contribution of higher order fertility – not only will fewer women be at risk of having a third child (due to fewer second births), but also fewer will progress to a third birth.

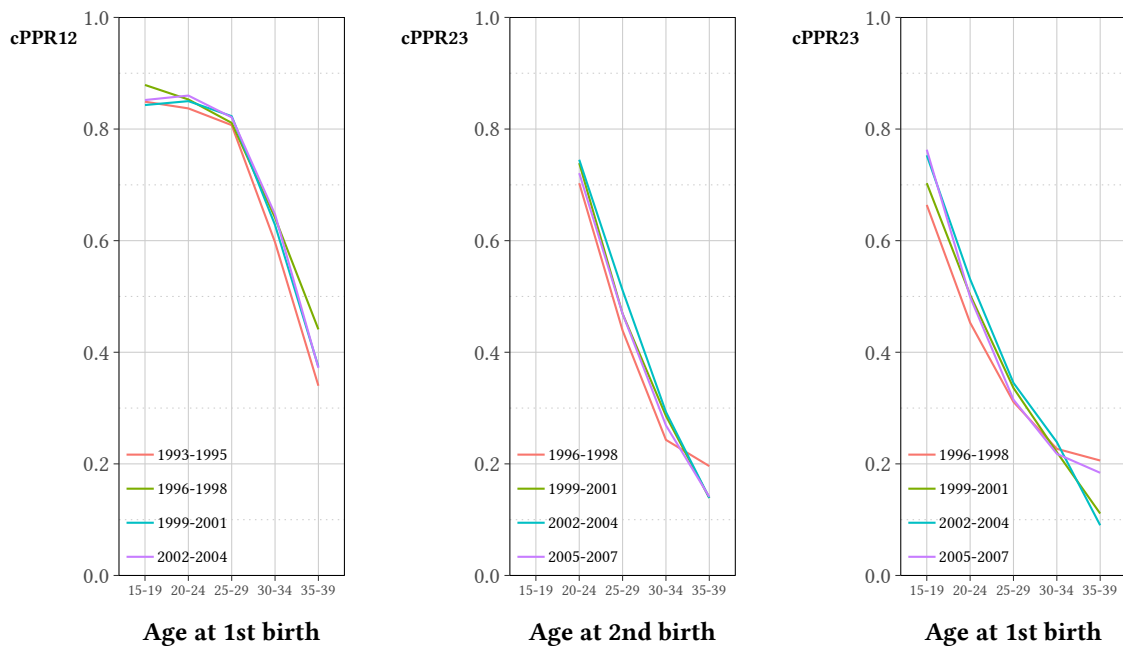
As TFR is a function of the product of parity progression ratios³, we argue that even if the observed reduction in aPPR01 is a temporary effect of a shifting age at first birth, that a compositional

² For women having given birth to their n-1th child at the same time (here a given period of three years), we calculate the probability of giving birth to a nth child within 10 years following the birth of their previous child.

³ $TFR = aPPR01 + aPPR01*aPPR02 + aPPR01*aPPR12*aPPR23 + \dots$

change in age at first birth will lead to a lasting decrease in PPR23 (and above) and thus a durable decline in French fertility. If we had observed no changes since 2011 in annual parity progression to both first and second births, TFR would still have fallen by 4% due solely to reduction in progression to higher parity (third and higher) births.

Figure 4 – Cohort parity progression to second and third births by age at previous birth, and parity progression to third birth by age at first birth



Source: Authors' calculations on EDP data.

Next steps... We will proceed to model of the risk of entry into motherhood and the risk of having a third birth for women in France and simulate fertility over the next few years under different scenarios of a continuing postponement of first birth.

References

- Beaujouan, Brzozowska, and Zeman, 2016. "The limited effect of increasing educational attainment on childlessness trends in twentieth-century Europe, women born 1916–65", *Population Studies*, 70(3), p. 275–291.
- Beaujouan, Sobotka, and Brzozowska, 2017. "Has childlessness peaked in Europe?", *Population and Societies*, n° 540, 4 p.

- Breton and Prioux, 2005. “Deux ou trois enfants : Influence de la politique familiale et de quelques facteurs sociodémographiques”, *Population*, 60(4), p. 489–522.
- Breton and Prioux, 2009. “The one-child family: France in the European context”, *Demographic research*, 20(27), p. 657–692.
- Breton, Barbieri, d’Albis, and Mazuy, 2018. “L’évolution démographique récente de la France. Naissances, décès, unions et migrations : à chacun sa saison.”, *Population*, 73(4), p. 623–692.
- Davie and Mazuy, 2010, “Women’s Fertility and Educational Level in France: Evidence from the Annual Census Surveys”, *Population*, 65(3), p. 415–449.
- Davie, 2012. “Un premier enfant à 28 ans”, *Insee première*, n° 1419, 4 p.
- Frejka, 2008. “Overview Chapter 2: Parity distribution and completed family size in Europe: Incipient decline of the two-child family model?”, *Demographic Research*, 19(4), p. 47–72.
- Papon and Beaumel, 2019. “Bilan démographique 2018 : La fécondité baisse depuis quatre ans”, *Insee première*, n° 1730, 4 p.
- Toulemon and Mazuy, 2001. “ Les naissances sont retardées mais la fécondité est stable”, *Population*, 56(4), p. 611–644.
- Toulemon, Pailhé, and Rossier, 2008. “France: High and stable fertility”, *Demographic Research*, 19(16), p. 503–556.
- Volant, 2017. “ Un premier enfant à 28,5 ans en 2015 : 4,5 ans plus tard qu’en 1974”, *Insee première*, n° 1642, 4 p.
- Wood, Neels, and Kil, 2014. “The educational gradient of childlessness and cohort parity progression in 14 low fertility countries”, *Demographic Research*, 31(46), p. 1365–1416.
- Zeman, Beaujouan, Brzozowska, and Sobotka, 2018. “Cohort fertility decline in low fertility countries: Decomposition using parity progression ratios”, *Demographic Research*, 38(25), p. 651–690.