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Descriptive Finding

**Late motherhood, late fatherhood, and
permanent childlessness: Trends by educational
level and cohorts (1950–1970) in France**

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Contents

1	Introduction	330
2	Data	331
3	Timing of first births and permanent childlessness: Age patterns by education	333
4	First birth catch-up at late ages from a cohort perspective	336
5	Discussion	339
6	Acknowledgments	340
	References	341

Late motherhood, late fatherhood, and permanent childlessness: Trends by educational level and cohorts (1950–1970) in France

Marie-Caroline Compans¹

Abstract

BACKGROUND

Postponement of first births and an increase in childlessness are significant trends across European countries. While educational differentials for motherhood are well documented, this is less true for fatherhood.

OBJECTIVE

To compare late first birth and childlessness trends in men and women, across cohorts and by education.

METHODS

The analysis relies on French administrative data from the 2016 Permanent Demographic Sample (EDP). Ages at first birth and shares of childlessness are computed by educational levels and between cohorts from 1950 to 1970.

RESULTS

Across cohorts, higher-educated women tend to “catch up” after delaying first births, while lower-educated women more often remain childless. For men, there is a slight catch-up among the higher-educated group, especially in the most recent cohorts, but not enough yet to offset the increase in childlessness. Childlessness also remains particularly high among the lower-educated group of men.

CONCLUSION

Catching up after a delayed first birth is more frequent among men and especially women with more economic and social resources. While women are more biologically age-constrained than men are, social barriers may also prevent individuals from entering motherhood and fatherhood at late reproductive ages.

CONTRIBUTION

The contribution of this paper is twofold. Firstly, it considers first births at late ages as an indicator of catching up following postponement of transition to parenthood.

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Secondly, the comparison of educational differences in men and women at late reproductive ages informs the discussion on gendered and social constraints on parenthood.

1. Introduction

Since the 1980s, age at first birth has been increasing in Western European countries. Late births, generally considered those at age 35+ or 40+, are also on the rise and are more often first births (Beaujouan and Sobotka 2017). In France, for instance, 13% of births over the maternal age of 35 were first births in the 1980s, and this proportion rose to 20% in the 1990s (Prioux 2005). Moreover, the trend towards the postponement of first births runs in parallel with an increase in permanent childlessness (Beaujouan, Brzozowska, and Zeman 2015; Köppen, Mazuy, and Toulemon 2017). While age at first birth reflects the fertility tempo, permanent childlessness is an indicator of the level of fertility (quantum).

Studies aiming to link the timing and the level of fertility often investigate whether women transition to a second or third birth after postponement of the first child (Kreyenfeld 2002) or focus on completed fertility (Tomkinson 2019). The focus is often on whether women “catch up” after delaying first births from a cohort perspective – i.e., whether they have as many children as previous generations did (Andersson et al. 2009; Berrington, Stone, and Beaujouan 2015; Castro 2015).

Despite the significance of becoming a parent in the life course, little research focuses on catch-up behaviours in relation to transition to a first birth. There are, however, some papers that examine the extent to which women enrolled in education postpone the birth of a first child before catching up, which can be indicated by a shorter time before entering motherhood after graduating (Buber 2001). As shown for France and Britain, women who left education at age 22 or above had a first birth sooner after completing their education than those who completed education before age 18: 6.4 versus 7.1 years for women who had their first child in 1995–1999 in France (Ní Bhrolcháin and Beaujouan 2012).

This paper proposes another approach to catching up with respect to first birth by focusing on entering parenthood at late ages instead of remaining childless and on how such behaviours vary across cohorts. It also examines how these behaviours vary with education. There is an extensive literature on persistent educational differentials in women’s fertility. Age at first birth increases together with both educational level and age at completion of education (Davie and Mazuy 2010). Those with a high level of education are also more often childless at the end of their reproductive lives (Köppen,

Mazuy, and Toulemon 2017). However, educational differences in childlessness levels have been narrowing, particularly since childlessness has increased among less educated women (Beaujouan, Brzozowska, and Zeman 2015).

For men, age at first birth also increases with educational level, and higher-educated men have the lowest levels of childlessness (Trimarchi and Van Bavel 2017). Compared to women, men tend to have a first birth later (Mazuy et al. 2015) and have higher levels of childlessness (Jalovaara 2012; Köppen, Mazuy, and Toulemon 2017). However, the age patterns of transitions to fatherhood (Nisén et al. 2014) and their relationship with the quantum of male fertility have received little attention – a gap this paper aims to fill.

More specifically, I address the comparison between male and female fertility behaviours, particularly at late ages. Women’s reproductive capabilities decrease once they have passed their mid-30s, making them less likely to achieve pregnancy and carry it to term (Leridon 2004). Even though an age-related decline in fecundity occurs in men upon entering their 40s, they are less constrained in conception by age than are women (La Rochebrochard, McElreavey, and Thonneau 2003). Beyond these biological factors, social constraints on parenthood may also play a role. On the one hand, social norms define an age limit for parenthood, which in Europe is on average age 40 for women and age 45 for men (Billari et al. 2011). For these reasons, one can expect men to become parents at late ages more often than women. On the other hand, economic and professional stability is expected to start a family. This is especially the case for men in contexts where traditional gender roles persist (Oppenheimer 2003), such as France. I focus on this country, in which becoming a parent is also a strong norm (Toulemon, Pailhé, and Rossier 2008).

2. Data

This analysis relies on the Permanent Demographic Sample (Échantillon démographique permanent, EDP), which is a large-scale panel constructed by the French National Institute of Statistics and Economic Studies (INSEE). It combines information gathered from various administrative data at an individual level. The information is retrieved from the exhaustive censuses of 1968, 1975, 1982, 1990, and 1999; from annual censuses on a rotating sample since 2004; and from registrations of births, marriages, and deaths from 1968 to 2016 (the most recent database available at the time of this analysis). The data include people based on their birth dates, which were historically the first four days of October (until EDP began including additional birth dates in 2004, although without retrospective data). For the years 1982 to 1997, no data were collected for people born on October 2 and 3. Therefore fertility histories for these individuals are incomplete, which consequently restricts the analytic sample to people born on October 1 and 4. As

the data collection for these birth dates is exhaustive, the analysis needs no weights. However, the information quality is better for people born in the French mainland territory because births in overseas territories were not recorded in the EDP before 2004. The analysis is therefore restricted to the metropolitan-born population. People who have migrated are also excluded to avoid missing a birth that occurred abroad. I focus on people who were no more than 18 years old at the first available civil register, in 1968, and who were followed up on until age 45. First births over age 45 are very rare (Prioux 2005). Among those who had attained age 50 in 2016, 1.0% of men and less than 0.1% of women became parents over the age of 45. Taking these restrictions into account, adoptions are very rare at any age (less than 0.1%) and are not included. The final analytic sample consists of people born between 1950 and 1970 ($n = 30,821$ women and $n = 29,217$ men).

While the fertility behaviours of these cohorts have already been studied for France (Köppen, Mazuy, and Toulemon 2017), the advantage of these data is that the large representative sample size allows for a quantitative analysis of educational differentials on a statistically rare phenomenon such as late first births. Moreover, fertility measures are based on birth registration data from the EDP. While children are automatically related to their mothers, the birth is automatically related to the father when parents are married, otherwise a man has to acknowledge the birth. Therefore, with these data, men are considered fathers when they do so. Despite this difference in the measurement of men's and women's fertility, the EDP draws on better information than that produced by fertility surveys, providing fertility histories without relying on people's memories (Rendall et al. 1999). Fertility can also be measured using censuses, through the own-child method, based on information about children living in the respondent's household (Davie and Mazuy 2010). However, this method can miss children who do not share their father's household – which is more likely than not living with one's mother (Régnier-Loilier 2014). Therefore, the EDP offers more reliable information on men's fertility than other types of data.

To explore educational differences, I use the level of education reported in the last available census. Following the 2011 ISCED classification, I distinguish three educational groups: those with either no education, a primary education, or a lower secondary education; those with an upper secondary to a short-cycle tertiary education; and those with a university degree. In the following, these groups are referred to as lower, medium, and higher educated. Table 1 outlines the increases in men's and women's educational attainment between the 1950–1954, 1955–1959, 1960–1964, and 1965–1970 cohorts.

Table 1: Distribution of educational levels (in %) by sex and cohorts (1950–1970)

	Men				Women			
	1950–1954	1955–1959	1960–1964	1965–1970	1950–1954	1955–1959	1960–1964	1965–1970
Lower educated	31.2	26.2	22.5	16.4	40.0	32.2	24.5	16.7
Medium educated	52.0	55.4	57.7	57.3	42.7	46.6	51.0	52.1
Higher educated	16.8	18.4	19.8	26.3	17.3	21.2	24.5	31.2
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	6,895	7,136	7,304	7,882	7,462	7,483	7,693	8,183

Source: 2016 Insee Permanent Demographic Sample.

3. Timing of first births and permanent childlessness: Age patterns by education

Before examining fertility trends across cohorts, this section focuses on patterns of entry into parenthood by age to understand disparities in shares of late first births and childlessness between educational groups. Cumulative percentages of first fatherhood (Figure 1) and first motherhood (Figure 2) depict both the timing of first births and the shares of permanent childlessness by education. Age patterns are the same between cohorts, only differing in terms of proportions. In all cohorts, lower- and medium-educated men show early timing of first births, with the curves for these educational groups being high in their 20s. However, men with lower education are more likely to end up permanently childless (from 22% to 33% between the 1950–1954 and 1965–1970 cohorts; Figure 1). In contrast, higher-educated men have lower fertility at young ages, but this pattern reverses from their 30s onwards, and they eventually become fathers in similar proportions to medium-educated men (from 13% to 20% remain childless, depending on the cohort).

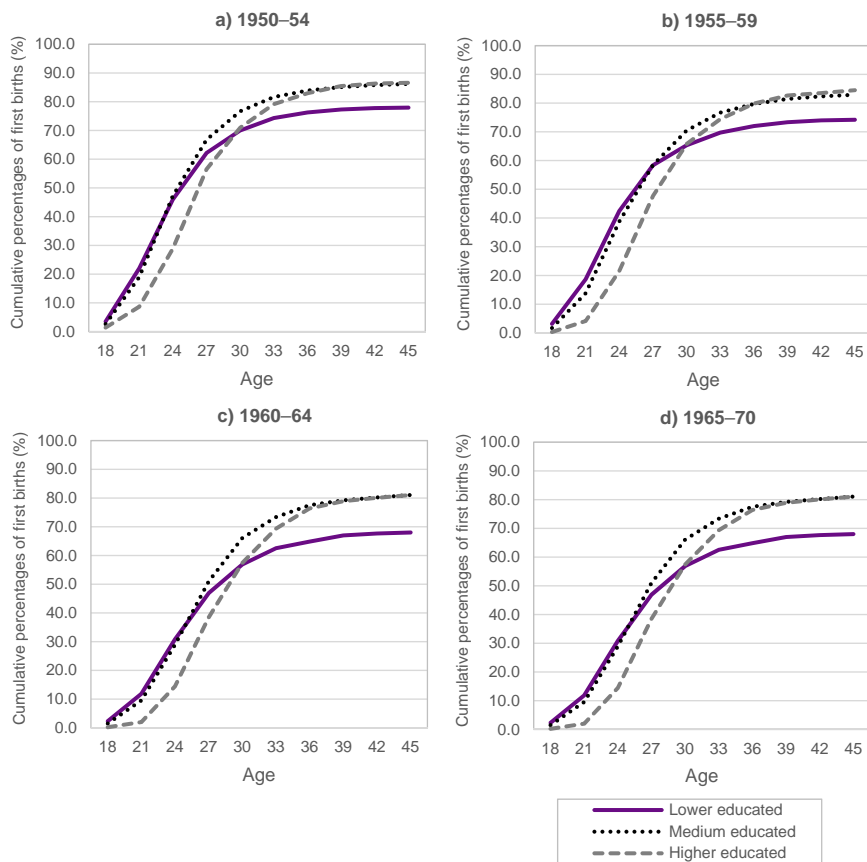
Among women, the educational gap in the timing of first births is greater, but at the end of their reproductive lives, shares of childlessness are more analogous than among men. Lower-educated women are more likely to become mothers (e.g., in the 1955–1959 cohort, only 11% remain childless, versus 16% of higher-educated women), particularly at early ages. At age 27, almost 82% of lower-educated women in the 1955–1959 cohort had a first child, compared with only 55% of women with a university degree (Figure 2b). The medium-educated group has an intermediate position in terms of the timing of first births and has shares of childlessness similar to those of the lower-educated women.

Focusing on late reproductive ages, there is a decrease in the shares of women and men entering parenthood (where the curves bend), which happens later for the higher-educated groups. Although late births are more frequent among higher-educated groups,

the most qualified women are more likely than others to remain childless, while the same educational group of men has the highest proportion of fathers. These results suggest that women are more constrained by age than are men. Men, however, may meet more barriers to fatherhood due to expectations of economic and social resources, with lower-educated men likely to either have a first child early or remain childless.

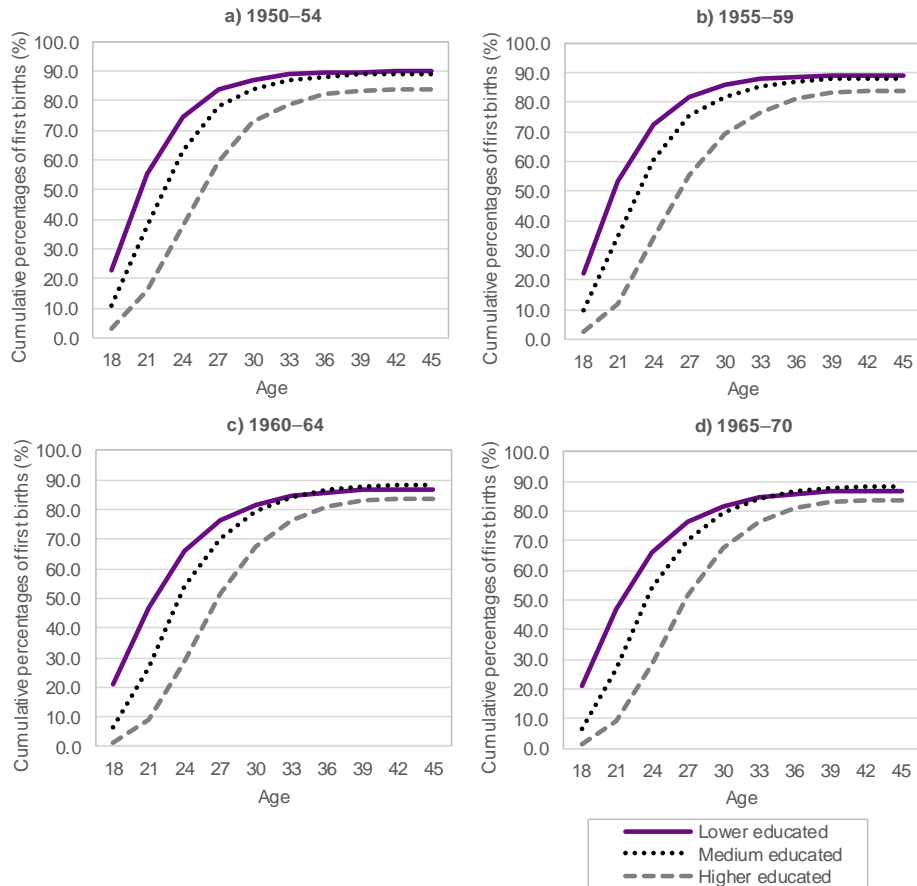
Finally, the curves shift to the right between one generation and the next, due to the postponement of first births. The next section describes more closely the evolution of late fertility between cohorts.

Figure 1: Cumulative percentages of first births by age, educational level, and cohorts (1950–1970), men



Source: 2016 Insee Permanent Demographic Sample.

Figure 2: Cumulative percentages of first births by age, educational level, and cohorts (1950–1970), women



Source: 2016 Insee Permanent Demographic Sample.

4. First birth catch-up at late ages from a cohort perspective

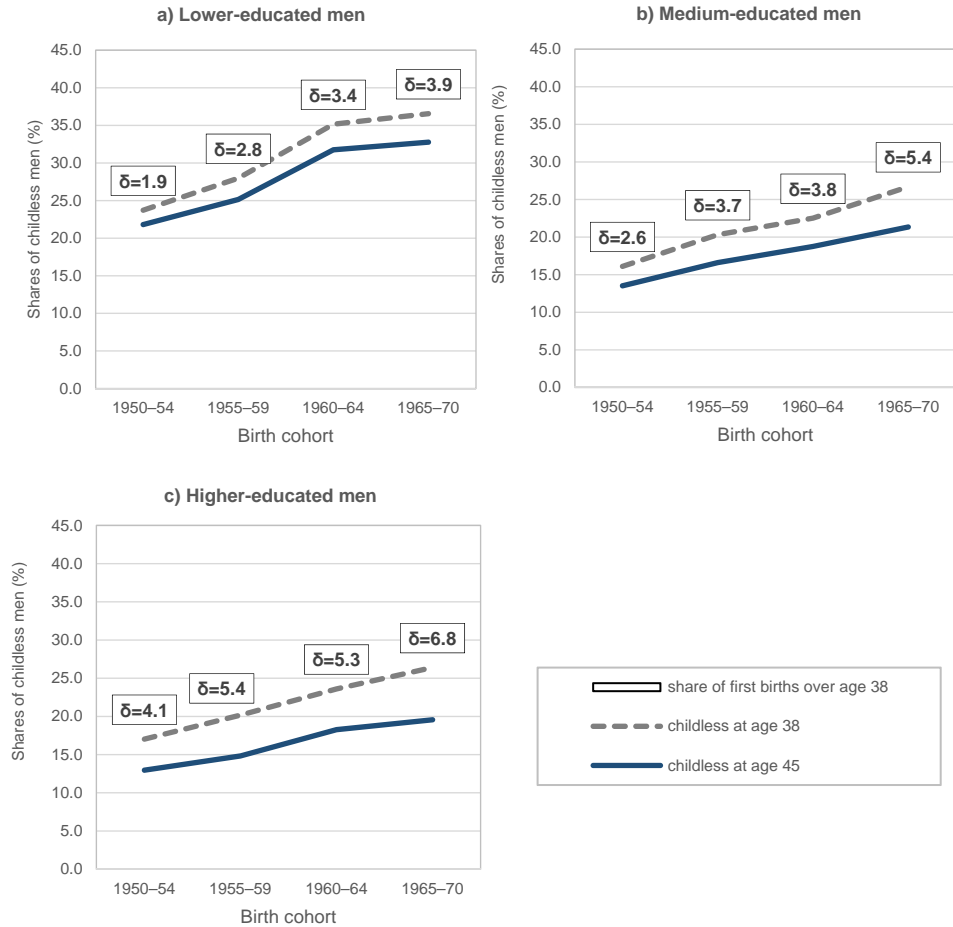
There is no consensus on how to define a birth as “late.” I use a statistical definition for comparing male and female fertility behaviours, based on the age after which 5% of men (and, respectively, women) in the analytic sample had their first child. By rounding up results among all cohorts and educational groups (Table 2), this approach produces threshold ages of 35 for women and 38 for men. Becoming a parent at any higher age indicates a deviation from a statistical norm.

Figures 3 and 4 display trends in childlessness shares both at ages 35 and 38 and at the end of reproductive life for women and men, respectively. The increase in late first births (which is the gap between these two shares) is also reported. As transitions to parenthood occur at progressively later ages, the shares of first births among those in their mid-30s and older have increased from one generation to the next. At the same time, permanent childlessness is also on the rise. Therefore, generations of men and women can be considered to catch up after delaying first births when the increase in late fertility offsets the upward trend of childlessness.

Among all educational groups of men, the slight increase in late first births does not offset the increase in permanent childlessness. This upward trend in childlessness is particularly high for lower-educated men between the 1950–1954 and 1960–1964 cohorts. This educational group is becoming smaller across the cohorts (Table 1). These men may constitute a selected group with characteristics (e.g., professional instability, health issues) that put them at a disadvantage in the family formation process. Among medium- and higher-educated groups, there are indications of a catch-up trend only for the more recent cohort. For instance, among medium-educated men, the late birth share increased from 3.8% to 5.4% between men born in the early 1960s and those born in 1965–1970 (Figure 3c).

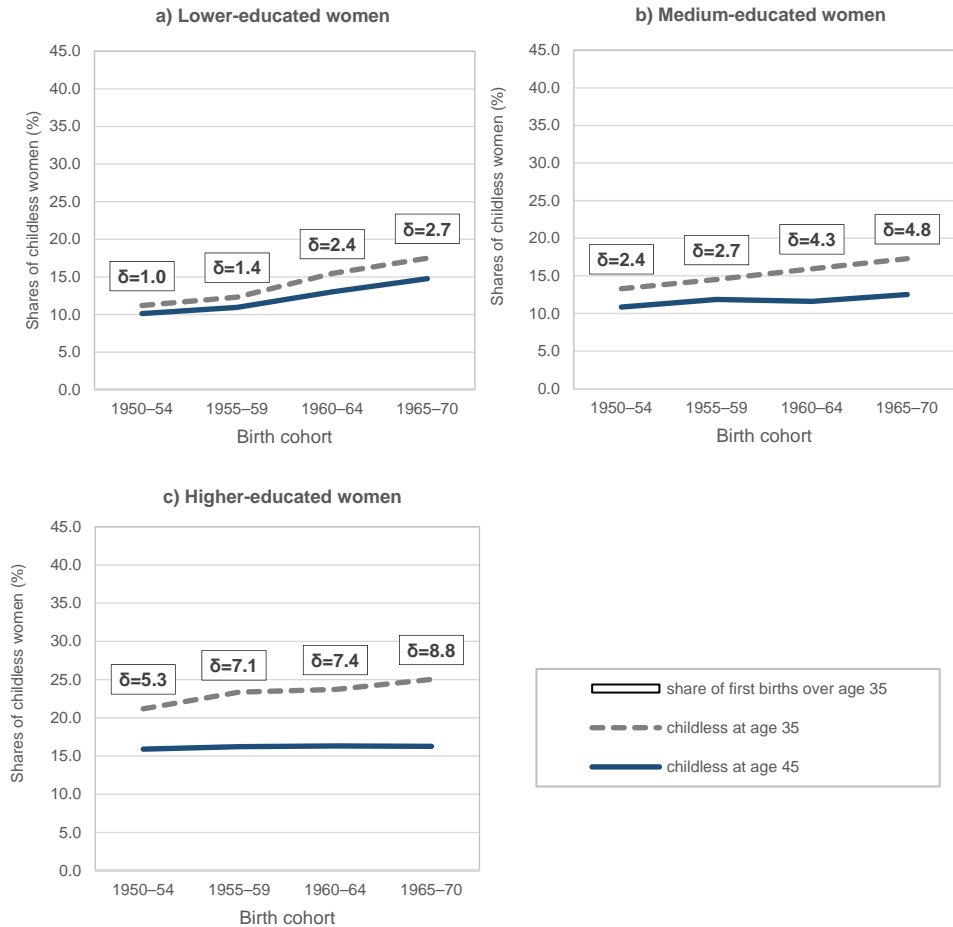
As with men, the increase in childlessness at late ages is not offset among women with low qualifications (Figure 4a). Medium- and especially higher-educated women are the only groups that show an increase in childlessness at age 35, while the permanent childlessness level remains constant (Figure 4b–c). Indeed, late first births are becoming more frequent (from 5.3% for the 1950–1954 cohort to 8.8% for the 1965–1970 cohort among higher-educated women), suggesting that these groups postpone entry into motherhood but tend to catch up from one generation to the next.

Figure 3: Shares of childless men at ages 38 and 45 and proportions of late first births (in %) by educational levels and cohorts (1950–1970)



Source: 2016 Insee Permanent Demographic Sample.

Figure 4: Shares of childless women at ages 35 and 45 and proportions of late first births (in %) by educational levels and cohorts (1950–1970)



Source: 2016 Insee Permanent Demographic Sample.

Norms can also be defined not at a societal level but relative to a group. This alternative perspective can be appreciated using Table 2, which shows changes in the 95th percentile of age at first birth by educational levels and cohorts. Like the results in the

previous section, the table shows a general trend towards postponing entry into parenthood to later ages, with educational differentials in the timings of first births. Moreover, while the educational gap remains high among women (from four to six years, depending on the cohort), this indicator converges towards ages 39–40 for all men. Such results suggest that even though men are less biologically and socially constrained by age than women are, the trend to postpone a first birth without catching up at a late age seems to result in more men being permanently childless.

Table 2: 95th percentile of the distribution of age at first birth (in years), by educational levels and cohorts (1950–1970), men and women

	Men					Women				
	1950– 1954	1955– 1959	1960– 1964	1965– 1970	All	1950– 1954	1955– 1959	1960– 1964	1965– 1970	All
Lower educated	34.9	36.4	38.0	38.4	37.1	29.9	30.6	33.1	33.1	32.7
Medium educated	35.3	37.3	37.7	39.0	38.2	32.5	33	34.7	35.1	35.1
Higher educated	37.6	39.3	38.7	39.8	39.0	35.4	36.6	36.7	37.0	36.8
All	35.5	37.2	38.0	39.2	37.8	32.4	33.6	35.0	35.4	34.5

Source: 2016 Insee Permanent Demographic Sample.

5. Discussion

In contexts where late first births and childlessness are more frequent, it is interesting to examine these trends together. Women tend to postpone entry into motherhood, with higher shares of childlessness at age 35, irrespective of educational group. However, only higher-educated women catch up after delaying a first birth, while lower-educated women are more often childless. For men, there is a parallel increase in shares of both late first births and childlessness, although the fertility behaviours of higher-educated men born in the late 1960s suggest catch-up behaviours. Data on more recent cohorts would provide more information on this trend.

All in all, lower-educated men and women more often remain childless. It is well known that in contexts where traditional gender roles persist, prerequisites of social status are higher for men, which may explain higher shares of childlessness among the least qualified men, while women from the same group are mainly mothers. However, the results raise questions about a potential convergence between genders. Reasons for postponing a birth or being childless have been widely studied for higher-educated women (Mills et al. 2011), but the determinants of childlessness among the minority of their lower-educated counterparts are rarely discussed. One might wonder what factors influence the postponement or forgoing of a first birth. If education is an indicator of higher income, the analysis suggests that having fewer economic resources may be a

constraint on parenthood at late ages. Lower-educated men also have lower probabilities of entering a partnership (Trimarchi and Van Bavel 2017). Moreover, there is evidence of higher rates of separation for women with low qualifications (Perelli-Harris and Bernardi 2015), which could suggest that they are more penalized on the partnership market than before, as was already the case for men. In addition, part of the explanation may be linked to difficulties conceiving that are not overcome through recourse to assisted reproductive technologies (ART). Recent research on the situation in France shows that women with few resources have less access to ART (Ben Messaoud 2020). Finally, individualistic values, preferences, and attitudes towards postponing a first birth or towards childlessness – which are usually discussed for higher-educated women (Berrington 2004) – may have spread among all educational groups. In these respects, groups with higher levels of education not only postpone entry into parenthood but may also have more economic and social resources to catch up after delaying a first birth.

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