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Childbearing after separation:

Do second unions make up for earlier missing births? Evidence from France

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Summary : Today, the fertility process is no longer included in one unique union but has to be analysed in terms of a succession of family steps since more and more people experience several partnerships in their life. This article aims to study fertility behaviour after the first union in terms of total fertility and also the timing of this fertility, by taking into account the fact that individuals in second unions may be racing against the biological clock since they form their union later. Using a French "one-percent" survey of Family History in 1999, results show that the completed fertility in case of separation is generally reduced by 0.1 children for men and 0.15 for women, but not in the event of repartnering. Furthermore, men's fertility is less affected than women's because they repartner more and have more children in second unions. Growing sterility with age seems to affect step-fertility especially for women, who tend to accelerate first childbearing in the new union.

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1. Introduction

Today, in France, the fertility process is affected by major family changes. With a high total divorce rate – 45% of the marriages beginning in 2004 (Prioux, 2007)–, and an even higher separation rate among cohabiting couples, the number of first union dissolutions is increasing, as is the number of second unions. For example, one quarter of first unions were disrupted by separation after ten years in the 1985-1994 partnering cohort. Among individuals separated between 1985 and 1994, around 45% were repartnered 5 years later (French GGS dataset, 2005). The fertility process is no longer included in one unique union but has to be analysed in terms of a succession of family steps. Linked to the increasing number of separations, more and more people repartner and have children in second unions. Indeed, in three out of four disrupted unions, the separation happened before age 35, when the individual is still apt to form a new union and have children.

Different studies have already focused on childbearing after a first union, mainly in northern Europe (Buber and Fürnkranz-Prskawetz, 2000; Thomson et al., 2002; Toulemon and Knudsen, 2006). They analysed mainly the determinants of second union fertility. Thomson et alii, distinguished three main reasons for having children in a second partnership : a 'commitment effect', induced by a wish for shared children, a 'sibling effect', due to people wishing to give their child a full sibling, and a 'parental status effect', i.e. the individual desire to have at least one child. To measure the relative importance of each effect, they test the relation between births in second unions and previous births of children, which are closely linked. They found that stepfamily fertility is supported by two main factors: the 'commitment effect' and the 'sibling effect'. However, it becomes insignificant if one of the partners already has a child. Toulemon and Knudsen's research discards the 'sibling effect', but confirms the 'commitment effect. Vikat et alii (2003) also show that, at constant parity, couples are more fertile if the children are from a previous union. All these studies emphasize the importance of previous children. Various characteristics are tested: number of children from the previous union, age of the youngest, parent who has custody (mother, father), their place of residence. Moreover, the fertility of stepfamilies is higher when the previous children do not cohabit or are the father's offspring.

This article aims to go further by taking into account the fact that individuals in second unions may be racing against the biological clock. The possible wish to have children after a separation is conditioned by the fecundability of the second union. Second relationships form later in life. Indeed, when they enter a second union, women's mean age is already 36 years, and men's mean age is 38 years, and fecundity declines

sharply with age, especially for women (Leridon, 2008). Thus people who want to have children in a second union have to face this unfavourable biological effect.

In the demographic literature, considerable attention has been paid to a potential link between delay in first union formation and fertility decrease. At the beginning of the second demographic revolution, some advanced that the postponement of union formation observed in many European countries (due partly to the lengthening of education and delayed entry into the labour market, and to housing conditions) may be partly responsible for the permanent situation of low fertility (Billari and Kohler, 2004; Bongaarts, 1998). But some counter-examples, like France, challenge this explanation (Thevenon 2008). This author argues that even though France exhibits most of these delaying behaviours (longer studies, postponed entry into the labour market, delay in leaving parental home) the fertility level is maintained at a relative high level in comparison with other European countries, approaching the replacement level (1.98 in 2006).

However, the debate could reopen with the spread of second unions. This article aims to analyse the possible impact of biological limits in the context of second unions. The dissolution of a first union sometimes interrupts the childbearing process, and more especially, a higher dissolution rate shortens the length of unions, with less time to have children. The first main question addressed here is: Is there a greater likelihood for individuals who experienced a separation to reach the same fertility level –or to overtake it– than for their fellows who did not? The change of partner implies a period of single life, and also a waiting period within the new union before becoming sufficiently confident with the new partner to decide to have a child together. Do people forming a second union have enough time to realise their childbearing desires or are they subject to a "time-squeeze"? If so, do they accelerate the fertility process?

We proceed in two steps. First, we examine whether total fertility is higher when people enter into several unions. What observations can we make on the completed fertility of people having formed two unions, and more precisely on the distribution of births between the unions? Secondly, we detail the probability of childbearing in second unions. After controlling for many covariates, and after introducing a fertility control variable, we examine whether timing of births is accelerated or slowed down and if , more particularly, the biological clock may be responsible for fewer children. In particular, it allows us to see the "pure" effect of age on second union fertility.

2. Data : two French surveys

Our results are based on a survey conducted in 1999 linked to the General Population Census called Study of Family History ("Enquête sur les Histoires Familiales" EHF, Ined-Insee, 1999), it encompasses 380 000 individuals (one percent) aged 18 and over. The questionnaire includes questions on first and last partnership, childbearing. Information on own children and also stepchildren (children from a spouse or a partner) is available. The huge number of respondents makes this survey the only one currently available in France to analyse some quite rare events with a sufficient sample size. Our descriptive analysis also uses the French generation and gender survey (GGS, Ined-Insee, 2005), which is more precise on certain questions and more recent, but with a smaller sample (10,000 individuals).

3. Childbearing throughout relationships

3.1. Data details for the descriptive part

In our descriptive study, we limited the sample to the 45-60 age cohorts. This limited age range is chosen for two reasons. First, completed cohort fertility is defined as the number of children all the individuals in a cohort ever had during their fertile life divided by their number. In order to calculate this indicator, we decided to take 45 as an age limit for having children. This upper limit is fixed by looking at the share of total fertility reached at this age. According to studies on late fertility, in countries like France, 0.1% of children are born after age 45 for women and 4% for men (Prioux, 2005). These low rates at high ages are due both to biological constraints and social norms.

We also want our population to be as young as possible in order to capture the most recent behaviours. Massive separations are quite a recent process, and in 1999, significantly less people had already been in 2 unions than five years later. In these cohorts in EHF, around 14% of people had already been in at least two unions. The proportion was 22% five years later (French GGS). In addition to the behavioural change, we suspect there may be under-reporting of unions in the EHF self-administered questionnaires, leading to a lower number of people who report two unions (Mazuy and Toulemon, 2001).

In order to combine these two constraints, we decided to limit our results to the 45-60 year age group, even if for men we miss more late births. So 51,416 women and 33,610 men aged 45 to 60 were included in the descriptive review.

3.2. Different relationship-children combinations

Many factors may have an impact on childbearing, but one usually necessary condition is being in a relationship. The number of separations and unions experienced by an individual can then affect the total number of children by shortening the possible period at risk.

3.2.1. Few childless persons

Births do not always occur during a first union. Only 91.4% of women aged 45-60 today gave birth to at least one child in their first union. Those who remain childless in first unions are more likely to have children in a second one. Only 4.2 % of women and 3.9 % of men having had at least one union remained permanently childless.

Table 1: proportion of women/men having children born at each union order by number of unions

women	child in first union	child in second union	men	child in first union	child in second union
1 union	93.1	-	1 union	92.9	-
2 unions or more	79.4	34.6	2 unions or more	76.4	40.9
Total	91.4	4.4	Total	90.7	5.3

Table 2: Probability of having children during the second union depending on whether the first union was fertile or not.

| Fertile second union ?	women	men
no birth in first union	48.2	55.2
birth in first union	30.4	34.3
Total	34.3	39.4

Fewer first unions produce a child when the individual has been in two unions or more (Table 1). We notice a double causality, i.e.: there are no children because the union was disrupted, or the union was disrupted because there were no children born. But whatever the link, second unions that follow first sterile unions are always more likely to include a birth (Table 2). The difference is even higher for men. More men's second unions produce at least one child.

We can explain the higher fertility of men in second unions by the fact that men more frequently repartner with women who never lived in a union than is the case for

women with men (Bozon, 1990). Their new partner is also more often childless: in our population, 55% of men who form a new union before age 45 have a childless partner, versus 51% of women. Age difference between the partners is also higher, in favour of the man, in second than in first unions. So, women experience more fertile first unions than men, and the opposite for second unions.

3.2.2. Larger families for men with multiple unions

Figure 1: Detail of the final number of children by number of unions, for women and men
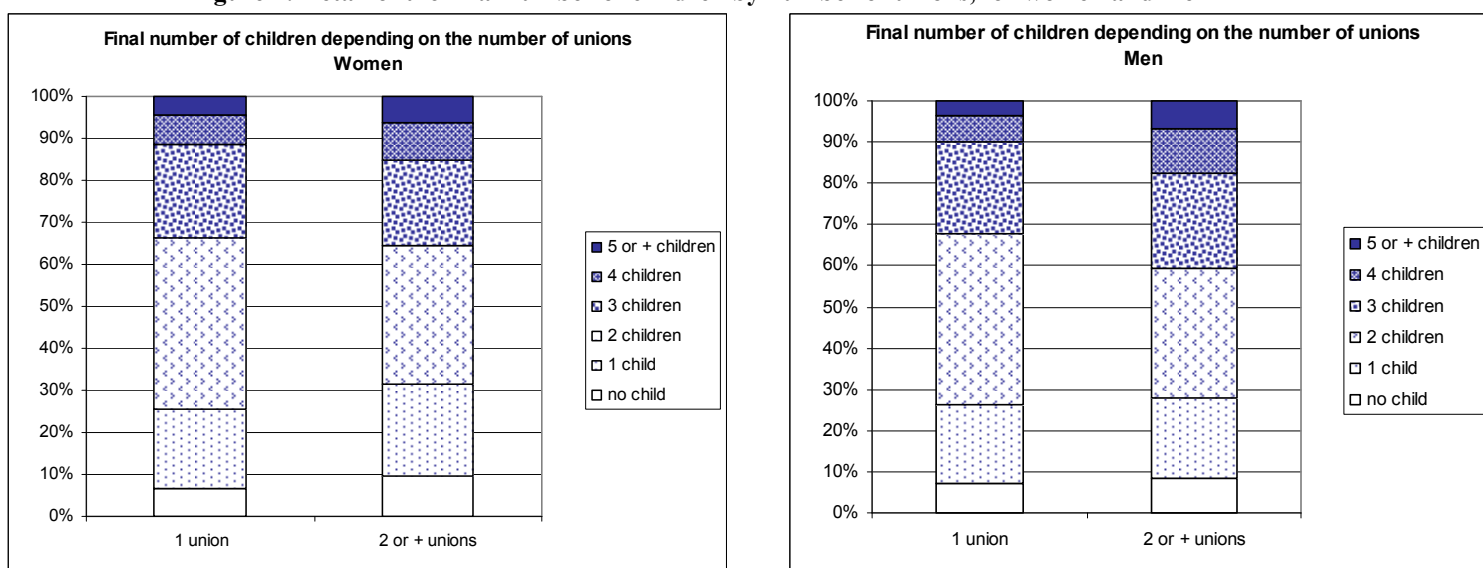
Childlessness is more frequent for people who had multiple unions before age 45, especially for women. Two explanations emerge: people who wanted children and could not manage to have them in the first union could separate to try again in a different union. It is a selection process. The additional possibility is that people who preferred not to have children were also more likely to have more than one union. The higher imbalance for women gives an advantage to the first hypothesis.

Though less significant for women, men who have been in more than one union are more likely to have large families: 32% have three children or more in the first union, and 41% in higher order unions.

3.2.3. Fewer children for individuals who experienced a separation

> *Total completed cohort fertility*

Table 3: Women's completed fertility in each union depending on the number of unions, after age 45

	Child in U1		Child after U1		Total number of children	
	Mean	Standard error	Mean	Standard error	Mean	Standard error
U1 not parted	2.25	0.68%	0	0.00%	2.25	0.68%
U1 parted, no U2	1.89	1.80%	0.13	0.70%	2.02	1.80%
U1 parted, U2	1.47	1.60%	0.7	1.30%	2.17	1.90%
All	2.12	0.60%	0.1	0.20%	2.21	0.61%

Table 4: Men's completed fertility in each union depending on the number of unions, after age 45

	Child in U1		Child after U1		Total number of children	
	Mean	Standard error	Mean	Standard error	Mean	Standard error
U1 not parted	2.19	0.76%	0	0.00%	2.19	0.76%
U1 parted, no U2	1.66	2.80%	0.13	1.10%	1.8	2.90%
U1 parted, U2	1.4	2.10%	0.91	1.90%	2.31	2.50%
All	2.06	0.70%	0.12	0.28%	2.17	0.71%

If the first union was not dissolved before age 45, the average number of children for a woman having reached the end of her reproductive life is 2.25 (Table 3). If the first union was dissolved and not followed by another cohabiting partnership, the completed fertility is substantially lower, 2.02 children per woman. Finally, women who formed more than one union almost caught up the fertility rate of non-separated couples with 2.16 children. Among these children, one third were born during the second union.

Thus, in these cohorts, union dissolution lowers female completed fertility. Although childbearing in second union may make up for the deficit due to dissolution, a small gap still remains. This gap is greater for women who remain alone after separation.

Men's fertility increases when they have been in more than one union (Table 4). Second unions are also globally more fertile for men than for women. However, like for women, union dissolution has a negative impact on fertility if the man does not enter a second union: his completed fertility is then lower than if the first union was not dissolved before age 45.

If a man's first union was dissolved, his fertility in the first union is more affected than is the case for a woman. He was also slightly less likely than a woman to have children in this first union (Table 1). Moreover, the total completed fertility of people who separated is the same for men and women, it reaches 2.1 children per person. Thus it remains lower than the completed fertility of persons who did not separate.

➢ *Decomposition of fertility at each age by type of trajectory*

Figure 2: Women's cumulative fertility after separation, by age, depending on whether they repartner or not

Fertility reached at each age

in second unions, 1939-1954 cohorts
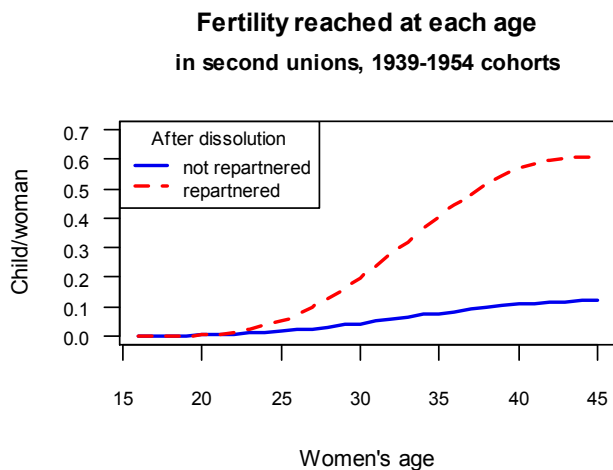
Figure 3: Women's total cumulative fertility by age, depending on partnership history

Fertility reached at each age

by partnership history, 1939-1954 cohorts
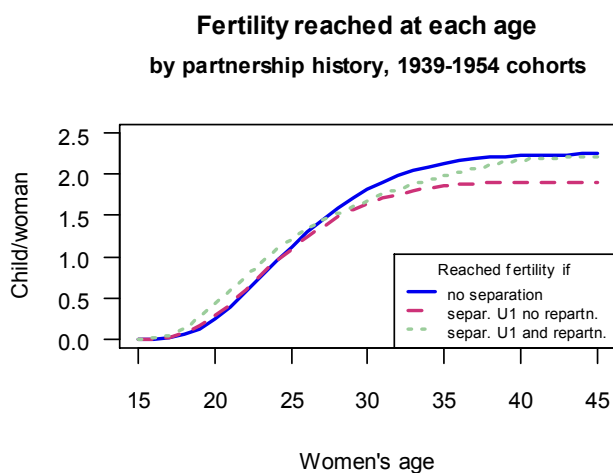
In second unions, women's cumulative fertility grows the fastest between ages 30 and 35 (Figure 2). They continue to give birth significantly until age 42. Among women who did not separate, fertility slows down rapidly from age 37 (Figure 3).

Women whose first union was disrupted had their children before the others. This can be linked to the fact that the younger the adults at first union, the more likely they are to separate. If they entered a second union, they were even more likely to have begun their reproductive life sooner. Moreover, they had their last children later, since the curve continues to grow after the others.
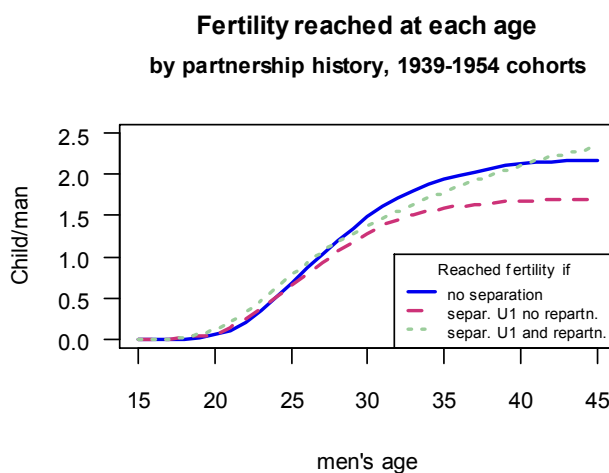
Fertility of separated women slows down after 25, mainly due to their separation. However, the ones who repartner almost totally compensate for their lower number of children in their 30s and 40s. We also remark that disrupted first unions not followed by a second one were more likely to be fertile. This may simply be due to a tempo effect: they dissolved later, so there was more time to have children, but less time to repartner before 45. It can also be related to the fact that women with children repartner more slowly, so we cannot observe them in a new union.

Figure 4: Men's cumulative fertility after separation by age, depending on whether they repartner or not

Fertility reached at each age

in second unions, 1939-1954 cohorts
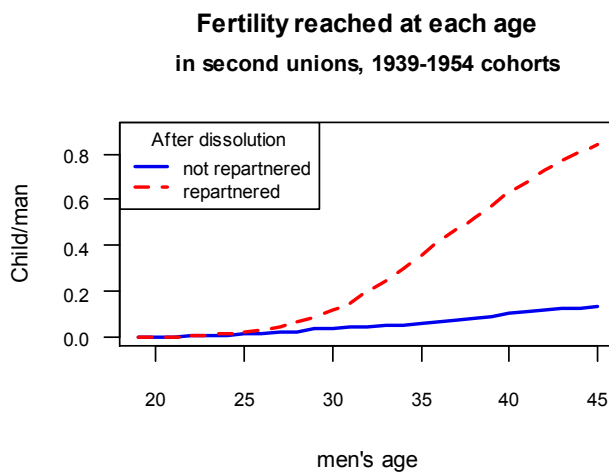
Figure 5: Men's total cumulative fertility, by age, depending on partnership course

Fertility reached at each age

by partnership history, 1939-1954 cohorts

Concerning men, the observation differs substantially. By age 45, fertility in second union has hardly begun to slow down (Figure 4). However, men who did not break up their first union had nearly completed their fertility at age 40 (Figure 5). While men not

repartnered after dissolution are less fertile from age 35 and their cumulative fertility level remains very inferior to that of non-disrupted unions, the cumulative fertility level of men who repartner reaches and exceeds (at age 41) that of not separated men.

Completed fertility in the event of separation is reduced by 0.1 children for men and 0.15 for women (4 to 7%) in the 1939-1954 cohorts. Men's fertility is less affected than women's because they repartner more and have more children in second unions. However, women have more children in their first unions than men. We have also shown that the completed fertility of men having several unions is higher than completed fertility of men having only one unbroken union, whereas the completed fertility of women is slightly lower in the second case. Men's fertility globally takes place later than for women, and they tend to form larger families.

## 4. Childbearing in second union and sterility

4.1. Less opportunity to have children after separation

We estimate that different factors can explain the chances of having children with the new partner, after forming a new couple. Notably, already having children, not wanting a child or being sterile are reasons for being selected in childless second unions.

Women after separation combine a double handicap. A substantial gender gap appears during this life period, especially a lower chance to form a new union for mothers (

Figure 6). Various studies show that repartnering is not a random process (de Graaf and Kalmijn, 2003; Lampard and Peggs, 1999). For instance, separated men are more likely to form a new couple than their female counterparts. One explanation advanced is that separated fathers less often have custody of children. It is also easier to form a new couple at a younger age and without (young) children (Cassan et al., 2001). Moreover, in the event of repartnering, women are less likely to have children (Figure 7).

Figure 6: Survival function: estimated proportion of persons who have not repartnered since first union dissolution

New partnering according to sex
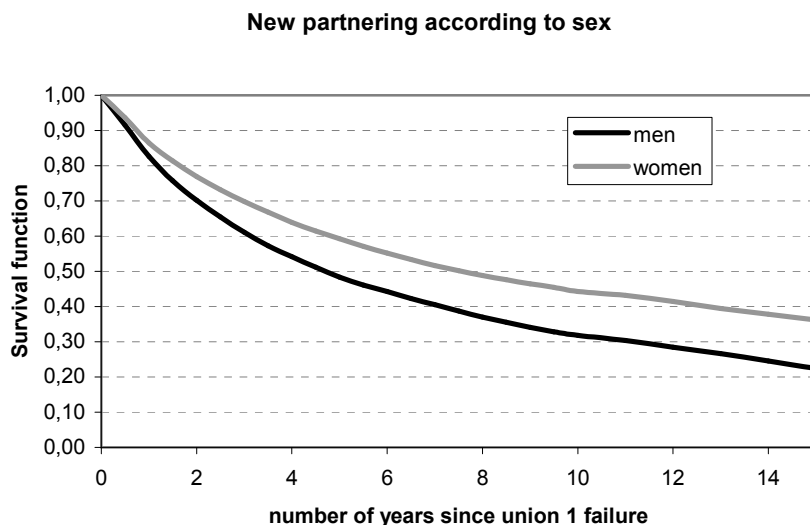
Figure 7: Survival function: estimated proportion of persons who did not have a child yet in the second union since union formation

First child in second union according to sex
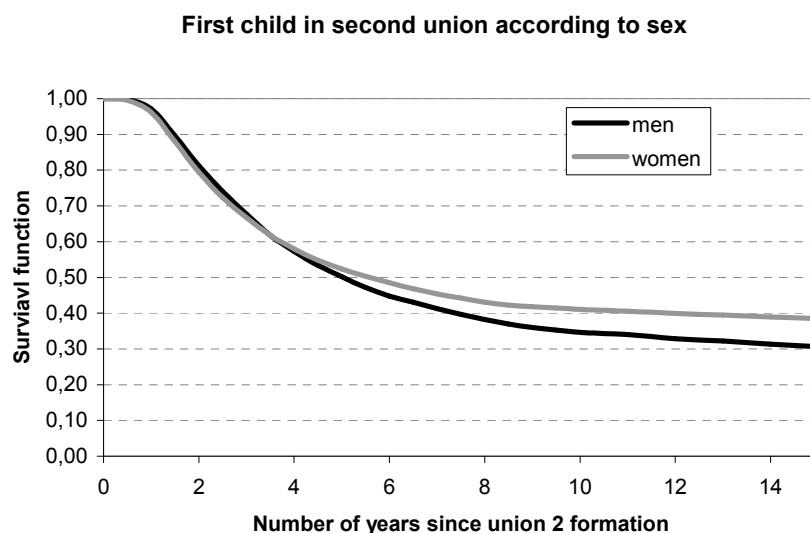
These results raise the question of the biological limit that individuals may encounter when they form a second union. Repartnering at later ages involves "having less time at one's disposal before reaching the biological limits of fertility". Such a time squeeze (as defined by Kreyenfeld (2002)) could accelerate fertility in second unions, first births and possibly following births. Having a child is the result of a combination of numerous desires and constraints. Among the various factors which could affect the decision to conceive, biological constraints may be an important one, rarely analysed in the literature

on second union fertility. Indeed, a person can anticipate sterility and decide to bring forward a pregnancy. The question is: what would be the effect of age on fertility in second unions after controlling for increased sterility ?

This part of the study estimates the risk of having children in a second union, and its determinants, after controlling for fertility decline. It uses a semi-parametric method of survival analysis, a Cox model (Courgeau and Lelièvre, 1989). The sample used for estimation is composed of all women and men with at least one union dissolved by separation, divorce or partner's death and still of childbearing age at this time (45 and under), i.e. 19,519 women and 8,984 men. The Cox model is completed with different variables of interest: type of first union (cohabitation or marriage), type of union termination (separation or widowhood), number and age of children from previous union. Other control variables like education, union cohort, interval between the end of first union and the new partnership are also introduced.

4.2. Specification of sterility

Sterility is a specific factor preventing childbearing. Surpassing social and psychological factors, it very strongly limits fertility after a certain age (Prioux, 2005). Under the hypothesis that people who desire children are fully aware of this limitation, they may decide to accelerate their fertility process just before the moment they think they could become sterile. One limit to this hypothesis is that it assumes that people apprehend the full complexity of sterility, especially the recent medical developments, when making their decision.

Sterility is not gender equal and occurs at different levels for men and women, in the sense that it is certain for women but not for men. So women can have anticipation behaviours depending directly on their age, which we would like to control for. Concerning men, it is a little bit more subtle, and we will assume that anticipation depends mainly on their partner's age. But usually, estimations of sterility are performed for couples and are a function of female age. We will use the equation of couples' sterility established by Leridon (2002).

$$ster\,(age) = 0.370\exp(0.109age)$$

Fertility is defined in this equation as not being able to have live children, even if they were conceived. That is what we consider as the perception couples could have of their remaining "fertile period".

To introduce the sterility equation into the men's model, the age of the partner was absolutely necessary. The date of birth was missing for around 8% of the partners, and we imputed it using a multiple imputation procedure[1].

A first model measures, for each sex, the risk of having children by considering total fertility of the couple. We control for fecundability, which is the reverse of sterility; this amounts to the same thing concerning the effect on the other covariates, but is more stable.

The probability of being fertile is given by $P_{fert}(age) = 1 - ster(age)/100$ where *age* is the current age of the woman.

To give an idea, under this constraint, fertile life expectancy for the average woman when she forms a new union (at age 36) is 7 years.

In a second model, we would like to detail, for women only, the risk of having a first child in a second union, depending on whether she already had children before or not. Indeed, if the woman already had a child, her hazard of being sterile is lower. New curves that detail the probability of being sterile by age of the last child are calculated using the incidence curves of overall sterility (Toulemon, 2002). The older her last child is, the more the sterility curve converges towards the overall curve (Figure 8).

Figure 8: Proportion of sterile women, for hundred women by age ("overall" curve) and for hundred women by age and age of their last child (other curves), in %

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[1] The variable "partner's date of birth" has a monotone missing pattern and we use a regression method for multiple imputations, with the respondent's date of birth and age at the beginning of the last union as control covariates.

Proportion of sterile women at each age depending on the duration since the last birth
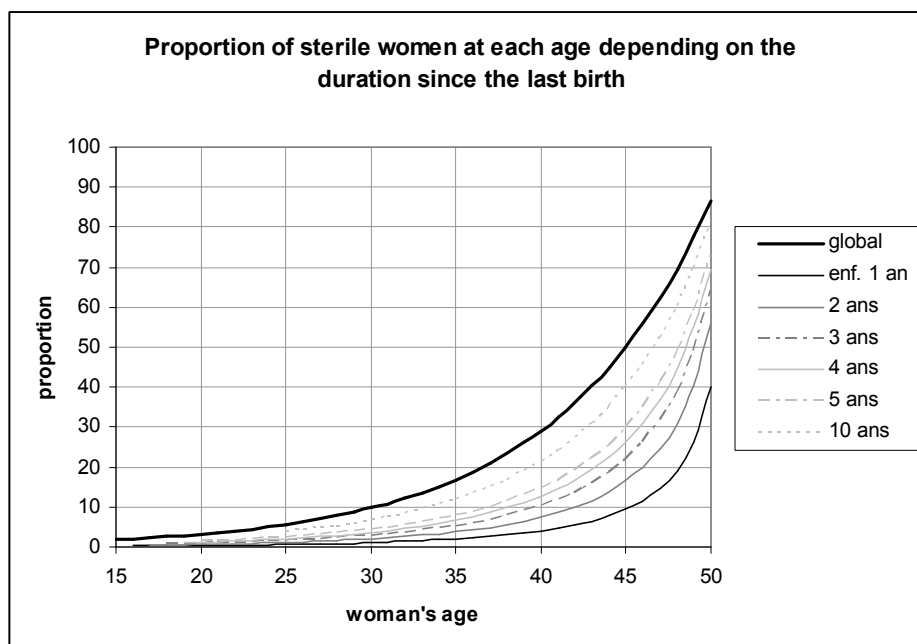
Source: Laurent Toulemon, 2002

We can write the probability of women being fertile that way, just changing age of the last child by age of the woman at birth of the last child:

Equation of probability of being fertile at a given age, depending on the age at birth of the last child:

$$P_{fert}(age, agebirth) = \frac{1 - ster\ (age)/100}{1 - ster\ (agebirth)/100}$$

Where *age* = current age, *agebirth* = age of the mother at birth of the last child

Concerning childless women, their probability of being sterile will be the same as the overall curve if they never tried to have a child, and higher if they already tried and did not have a child yet. Here we decided to take the overall curve also for childless women, which underestimates their sterility[2]. However for the model, if the underestimated sterility already controls for some age effect, then it is sufficient to use it, since controlling for the real sterility level of childless women would have an even stronger effect.

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[2] Childless women who already tried to have children are more likely to be sterile, and their proportion is higher in second unions. It would be possible to estimate the sterility of childless women only by estimating this selection.

4.3. Timing of births and effect of sterility

We focus first on the timing of childbearing in a second union since its beginning. Results are separated for men and women, and we introduce in each regression some partner characteristics and the other covariates commented below. In spite of the differences in structure of second unions for men and women, individual characteristics have very similar effects for both genders.

Controlling for all covariates except sterility, the age effect takes the form of a reverse U-curve for men and women (Figure 9). The likelihood of having a child in a second union decreases with age from 31 years old for men and 29 years old for women. The decrease is larger for women than for men since they become sterile at a younger age. However, when controlling for fecundability (or sterility), the likelihood of having a child in second union increases for women. The likelihood of having children in second union is then accelerated. We have here a proof that a time squeeze exists for women. The decrease observed was only due to fecundity process. For men, the decrease is much less pronounced after controlling for fecundability than before, but we still observe a decrease from age 37. The fertility of older men tends to diminish with a second partner, and this diminution has little to do with biological factors. And indeed, the fecundability variable (time varying with age) has a greater effect for women than for men (Table 5).

Figure 9: Log-hazard of the effect of age on the fact of living a first birth during the second union, with or without sterility control; estimates from the Cox model
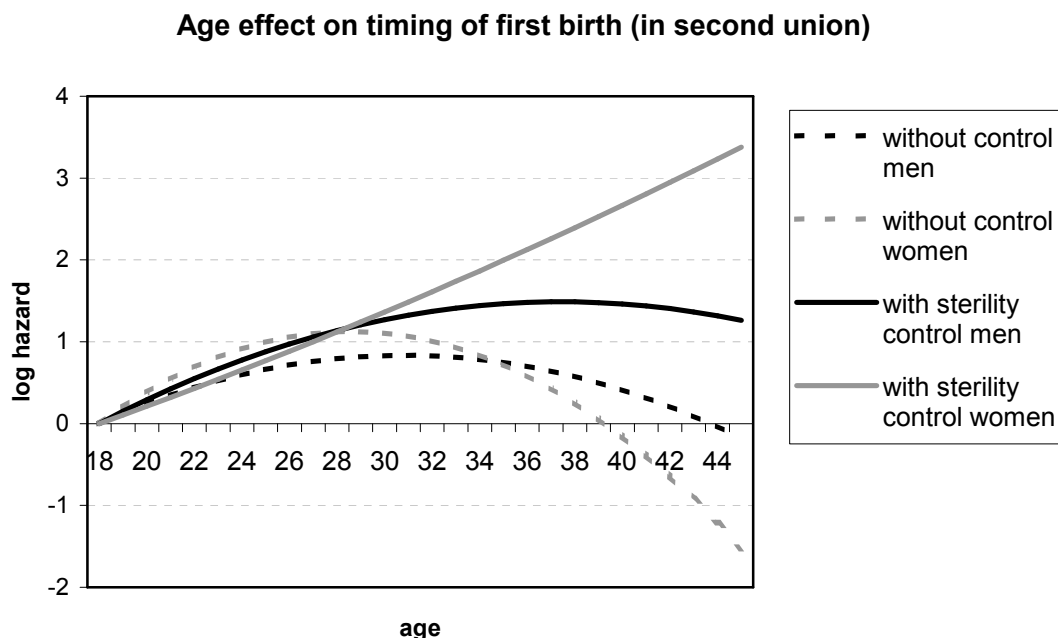
Age effect on timing of first birth (in second union)

We control for the age difference between partners, since age difference is more heterogeneous in second unions than in first ones. The mean is 2.7 years more for the man. We classified couples into three groups: similar ages (equal age or with a difference of three years maximum), those in which the woman is older (more than three years) and those in which the man is older. After controlling for fecundability, the results show that if the woman is much older; the couple increases its likelihood to have children, whereas the reverse situation (male older) decreases it. Here is maybe a supplementary proof of the gender aspect of the biological clock.

Results on others covariates introduced show that marital status of the second union (also time varying since it could change during the partnership) has an impact. Being married instead of cohabitant increases the likelihood of having children for both men and women.

Table 5: Estimates of the model, risk of first birth during the second union, since union formation

Variable	Women			Men		
	Estimate	s.e		Estimate	s.e	
cohabitation (versus marriage)	-0,773	0,026	***	-0,836	0,033	***
fertility	0,128	0,022	***	0,059	0,003	***
age	0,104	0,022	***	0,153	0,018	***
age2	0,001	0,002		-0,004	0,001	***
women younger (ref= equal age)	-0,076	0,028	***	-0,217	0,045	***
women older	0,136	0,032	***	0,301	0,078	***
1 child (ref=0 child)	-0,224	0,038	***	-0,175	0,048	***
2 children	-0,265	0,045	***	-0,263	0,058	***
3 children	-0,196	0,056	***	-0,393	0,076	***
partner has previous children	-0,297	0,030	***	-0,138	0,040	***
last child is under 6	0,267	0,037	***	0,169	0,048	***
no diploma (ref=medium)	0,132	0,035	***	0,159	0,049	***
Secondary	-0,081	0,036	**	-0,035	0,047	
Higher than secondary	-0,087	0,032	***	-0,043	0,040	
duration between union 1 and 2	0,004	0,005		0,011	0,006	**
widowood	0,117	0,082		0,034	0,151	
union formed after 1990 (ref=before 1970)	0,266	0,041	***	0,186	0,061	***
union formed after 1980	0,259	0,041	***	0,211	0,061	***
union formed after 1970	-0,018	0,049		0,076	0,068	
N (event)	15193 (7396)			8364 (4204)		

Former children have a negative impact on second union fertility as many authors have already shown. The more children the man has[3], the lesser is his likelihood to have others. For women, there is a small threshold effect from the third children and more.

To illustrate more fully timing effects, we represent the age effect (after controlling for sterility) according to the number of previous children of the woman (Figure 10). Results show that the calendar is only accelerated with age for childless women and mothers of one child, but there is a decrease in the propensity to give birth in second unions for oldest women if they have already two or more children.

Figure 10: Log-hazard of the effect of age on the fact of having a first birth during the second union, women, control for sterility by number of children she already had; estimates from the Cox model

Pure age effect for women according previous children
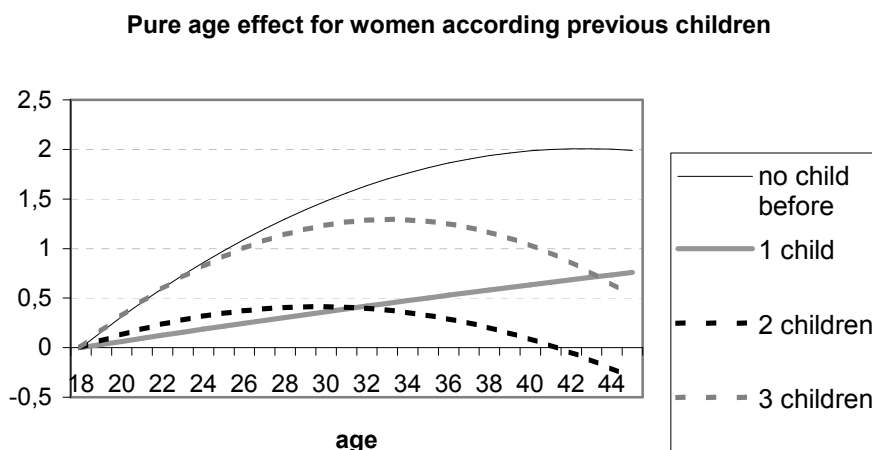
If the partner already has children, the probability of having a fecund second union diminishes. The effect is stronger for the man's children than for the woman's ones.

Moreover, the age of the last child is important. Indeed, having a child under six at the start of the second union increases the chance of having a child in the new union. One argument is the wish to give to one's children siblings of close age ("sibling effect").

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[3] the number is only available for the respondent, for the partner, we only know if he or she already has children

The level of education plays as expected. No diploma increases the risk of having other children for both men and women. Female high education (higher than secondary) diminishes it.

We also introduce a covariate indicating how long the person waits before repartnering (duration between the end of the first union and the formation of the new one). This covariate may be an indicator of the quality of this second matching and then such couples are more likely to have children . Many authors have shown that marital dissolution diminishes with the age at first partnership. They interpret it as a sign of a better match since the partner search was longer. For second unions, the best indicator of partner search time would be the interval between the two unions. Results show indeed that the probability of having children increases with this duration, others things being equal, but only for men. One explanation could be that the remarriage market is less constrained for men than for women since they have less often the custody of previous children, they can afford to be more selective. Those who take time to find their new partner are more likely to have children in this new union.

The type of first union end is not significant. First union ending with the partner's death instead of separation has no impact on the risk of having (other) children in the second union for both sexes. For widows, the first step could be in repartnering (women are less likely to repartner after the death of the partner), but the those who do repartner feel totally free to have children again.

 Recent second union cohorts decide more quickly to have children but we observe no difference since the 1980s. This may be explained by the democratisation of divorce at that time, thus more opportunities to form a new family and to have children in this one.

4.4. Second child timing

We model in this part the risk of second child birth since the birth of the first child in second union. We no longer find an age effect for both sexes, after controlling for sterility (Figure 11). Without controlling for sterility, the likelihood of having a second child within a short interval diminishes dramatically with age, strongly for women. When controlling for it, women have a slightly increasing probability with age. Couples do not accelerate their childbearing process for a second union. This result reinforces the commitment effect. People forming a second union want at least one common child, and

the calendar is accelerated for the first common child if women are reaching their fertility limit, but not for the second child.

Figure 11: Log-hazard of the effect of age on the fact of having a first birth during the second union, with or without sterility control; estimates from the Cox model

Age effect on timing of second birth (in second union)
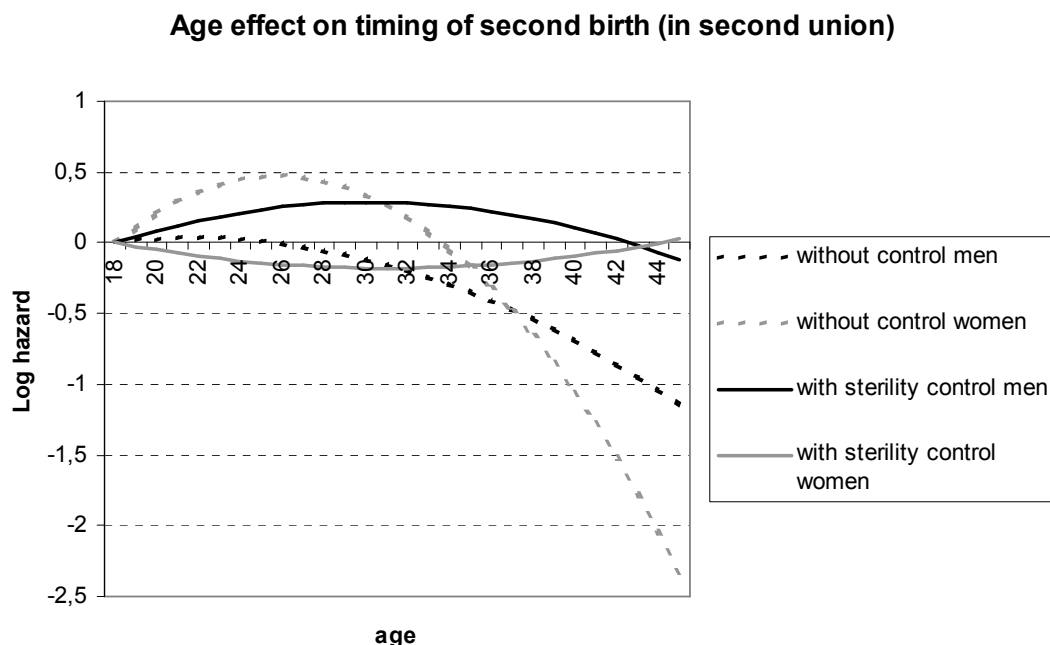
For the second child, we introduced another duration covariate (time between the union formation and the arrival of first child). The longer this duration, the lower the likelihood of having a second child (Table 6). This effect is only significant for women. This time effect shows again that each delay in second partnership, whether in age at union formation or age in first birth, diminishes fertility. But delaying the first child may also be a sign of couples with a lower desire of parenthood, especially for a second union, which explains they are less likely to have another child.

Table 6: Estimates of the model, risk of second birth during the second union, since birth of the first child

Variable	Women			Men		
	Estimate	s.e		Estimate	s.e	
cohabitation (versus marriage)	-0,155	0,041	***	-0,155	0,051	***
fertility	0,186	0,021	***	0,081	0,010	***
age	-0,028	0,027		0,047	0,031	
age2	0,001	0,001		-0,002	0,001	**
women younger (ref= equal age)	-0,026	0,044		-0,088	0,067	
women older	0,111	0,054	**	0,061	0,131	
1 child (ref=0 child)	-0,439	0,047		-0,364	0,058	***
2 children	-0,487	0,062	***	-0,271	0,073	***

3 children	-0,140	0,078	*	-0,253	0,105	**
partner has previous children	-0,260	0,050	***	-0,465	0,069	***
no diploma (ref=medium)	0,240	0,053	***	0,259	0,072	***
Secondary	-0,032	0,060		0,164	0,073	**
Higher than secondary	0,317	0,051	***	0,406	0,060	***
duration between union 2 and first child	-0,135	0,011	***	-0,022	0,018	
widowood	0,089	0,120		0,099	0,223	
union formed after 1990 (ref=before 1970)	-0,197	0,063	***	-0,044	0,088	
union formed after 1980	-0,243	0,059	***	-0,009	0,082	
union formed after 1970	-0,356	0,071	***	-0,209	0,094	
N (event)	7396 (2897)			4204 (1837)		

5. Conclusion and discussion

This article emphasizes the specific fertility process of second unions, in a context of new partnerships in which each characteristic of the partner plays a role (previous children, age), and in an environment possibly constrained by biological patterns. Results show that the completed fertility in the event of separation is generally reduced by 0.1 children for men and 0.15 for women, but not in the event of repartnering. Furthermore, men's fertility is less affected than women's because they repartner more and have more children in second unions. Growing sterility with age seems to affect step-fertility especially for women, who tend to accelerate first childbearing in the new union.

This article implicitly assumes the "commitment effect", i.e. that couples forming a couple would want a shared child. It is however possible that some couples do not have this desire, especially in a complex step-family with children coming from each former union. Secondly, it also assumes that an individual is able to evaluate his or her fertility decline with age. This hypothesis can be thrown back into question since the recent progress in the treatment of "non-permanent" ("natural marital fertility") sterility has led people to believe that they will be able to have children whatever their age. Moreover, there may be another influence of social age for maternity and paternity that discourages people from having children too late in life. As an illustration, in their conditions for adopting a child, some countries impose a maximum age gap of 45 years between the adoptive parent and the child adopted.

Finally, this important process is taking place in a context of major changes. More and more people enter a second union, and notably young people who did not have children yet. We find that recent second unions are more likely to produce children, at equivalent number of previous children. Could it be the democratisation of second unions and of reconstituted families that increases the occurrence of births in second

unions? And what can we expect for the future, with the transformation of the population entering second unions?

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