

Family Formation in France: Individual Preferences and Subsequent Outcomes

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Abstract

In France, as in all European countries, the birth of a first child has been increasingly delayed over time, but the reasons why individuals decide to postpone the time to become a parent still remain to be deeply investigated at the micro level. In this prospective study we analyse fertility preferences and subsequent reproductive behaviour of childless people, and implement a model that uses desires, or intentions, with their related timing, as key covariates. Results show that desired and intended fertility are a strong predictor of subsequent family formation, even after controlling for the effects of other relevant variables, and people become more realistic about their short-term childbearing plans when asked to assess their personal chance to have a future birth. Moreover, highly educated people anticipate their own transition to parenthood more precisely, as compared to low educated people. Age is the most crucial factor determining the probability to remain involuntarily childless in the interval between the surveys, while persistent childlessness is mostly associated with the lack of a partner if it is a consequence of a deliberate choice to postpone childbearing.

1 Introduction

The event of forming a family has been largely postponed in France as in many other western European countries in the last decades. The mean age at first birth changed from 23.9 years in 1970 to 27.4 years in 2000 (INSEE 2006). Fertility is declining at young ages and increasing at older ages when other events characterizing the transition to adulthood, i.e., leaving the parental home and entering a first union, have been already gone through.

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The reasons of childbearing postponement are usually found in objective structural constraints linked to increased educational levels and improved employment opportunities of women as well as in changed subjective beliefs concerning values and the desirability of having children.

The phenomenon has been widely investigated at the macro level, but studies on delaying family building at the micro level are relatively scarce. We analyse childbearing postponement at individual level, particularly its role in the translation of fertility intentions into subsequent behaviours. Since fertility intentions are a relevant component in the decision-making process, our approach is very useful to see whether the delay in starting a family is a consequence of a decision-making strategy where such intentions play a major role. Here we implicitly see postponement as a behavioural process (Ní Bhrolcháin and Toulemon 2005) and assume that the decision not to have a child in a given year is taken with the commitment to have one some time later.

We use a longitudinal study, which considers fertility intentions within a time frame of five years and follows up respondents in the next five years monitoring their childbearing outcomes as well as their fertility intentions over the whole period.

We examine the relationship between fertility intentions and behaviours among childless people to assess the predictive value of the wish to start a family.¹ On the other hand, looking at people who remain childless in the whole interval between the surveys, we try to figure out whether the intent to postpone childbearing is the main reason of remaining childless.

We could expect a high congruence between childbearing intentions and subsequent behaviour in developed countries due to the availability of both family planning (Thomson and Brandreth 1995) and recent assisted reproductive technologies. However, consistency between intentions and behaviours does not always prevail, and the reasons for the persistent gap between the two as well as the factors associated with a higher accuracy of the predictions of future fertility are examined in the paper. Moreover, we combine the analysis of intentions and related behaviours with that of intentions to postpone childbearing in order to distinguish those who are voluntarily delaying their choice to become a parent (*voluntary postponers*) from those who fail to meet their positive fertility target and then forced to delay their transition to parenthood (*involuntary postponers*).

Distinguishing childless people between those who consciously delay their childbearing and those who are forced to delay it by adverse circumstances is very relevant in order to understand the nature of the current childlessness, and in particular whether it is a voluntary or an endured phenomenon. Such a difference is full of implications in terms of policy measures, which are often based on the assumption that couples would rather have more children if external constraints or

¹ We assume in this paper that family formation starts with the birth of a first child, even though it may otherwise just mean marriage or union formation.

difficulties were absent. While it may be relatively easy² to adopt policies that would reduce the effects of impeding obstacles to childbearing, once those are clearly identified, it may not be so easy to implement a policy that would make childless people change their minds and push them to reconsider their wish to remain childless.

Our research questions are as follows:

(1) Are fertility desires and intentions good predictors of subsequent reproductive behaviour among childless people?

(2) Does their predictive value improve by using more refined wording in the related questions?

(3) Does their predictive power vary significantly across social groups?

(4) Are people who remain childless at the end of the follow-up period voluntarily postponing their parenthood?

During the observation period considered (1998-2003) the total fertility rate was slightly increasing in France, which gives us the opportunity to investigate the predictive power of intentions in a privileged position. Indeed, if intentions mainly reflect prevailing norms and trends around the time of the interview, the amount of overestimation may be smaller in periods of increasing fertility than in periods of decreasing fertility, as has been stated in the literature (Noack and Østby 2002) and proved by some authors (Hendershot and Placek 1981, Rindfuss et al. 1988).

The rest of the paper is organised as follows: we first give a theoretical framework and review the literature on the relationship between intentions and subsequent behaviour, next we present the longitudinal data and the models, and then we illustrate our major findings before some concluding remarks are given at the end.

2 How do Fertility Intentions Contribute to Predict and Understand Fertility?

2.1 Theoretical Framework

Fertility intentions are the salience of purposive human behaviour (Schoen et al. 1999) and therefore crucial elements in the analysis of fertility trends and changes (Bongaarts 2001). This is particularly true in modern societies where the normative pressure to follow socially prescribed models decreases while the relevance of individual choices increases. However, since intentions reflect “decisions made but not yet executed” (Miller 2004), they do not always result in

² Here we are not making any assumption on the possible effects of the implementation of policy measures.

consistent behaviour, and the reasons for this incongruence has been individuated in several factors.

The theory of Planned Behaviour (Ajzen 1985, 1991)³ provides a comprehensive framework to explain the process that leads to the formation of a certain intention and, subsequently, to its potential correspondence with subsequent outcome. The approach has been discussed and applied to the study of fertility by Schoen et al. (1999), Bracher and Santow (1991), and Billari and Philipov (2005). According to this theory, an intention to perform a behaviour is accounted for by a combination of three sets of factors: *attitudes*, i.e., statements concerning the plausibility that a specific behaviour will provoke a series of consequences; *subjective norms*, i.e., the perceived approval or disapproval that may come from relevant others concerning that behaviour; and *perceived behavioural control*, i.e., perceived constraints and/or opportunities with regard to the behaviour. Furthermore, intentions, together with behavioural control, would account for a considerable proportion of variance in behaviour, while the possible inconsistencies are explained by two sets of intervening variables: the strength of the performance attempt, and the degree of control over the behaviour which in turn includes external (i.e., life course events) and internal (i.e., fecundity) constraints (Ajzen 1985, 1991).

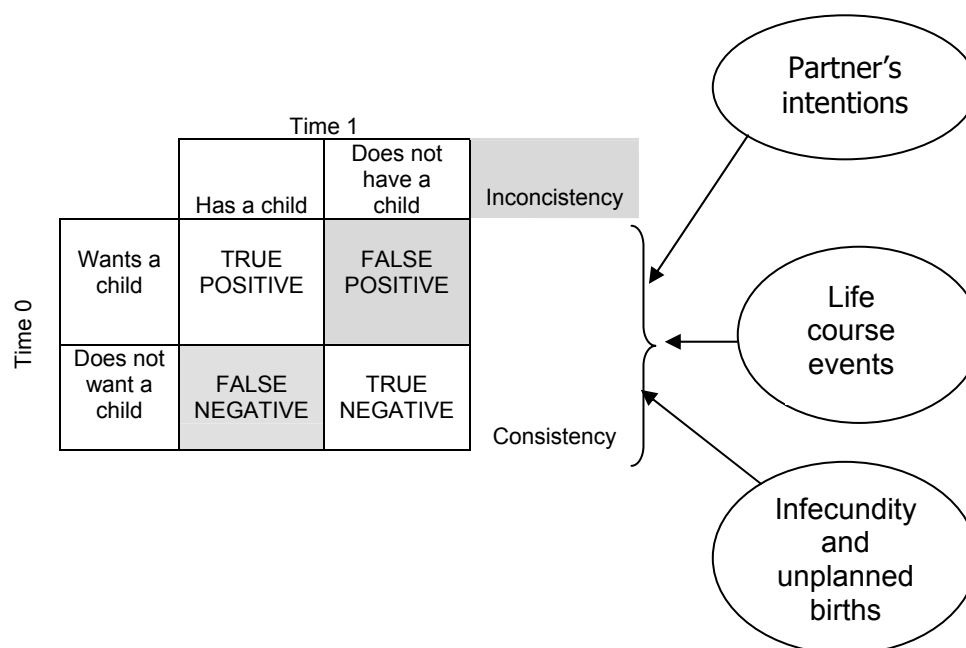
The most carefully theorised model of the relationship between fertility intentions and behaviour is due to Miller and Pasta (1995a). They propose a behavioural sequence in which motivations, desires, and intentions affect childbearing decisions and thus reproduction. At the beginning of this sequence there are motivations, defined as traits or dispositions to feel, think, and act in ways that affect childbearing. These are translated into desires, which represent wishes for certain results and feelings about possible goals. Childbearing desires are specified in child number and child timing, they are emotional and they can be counterfactual (i.e., an infertile woman can wish to bear a child), they are translated in intentions through the appraisal of reality and the formation of a personal commitment to act; this is the decision-making step in the sequence. Intentions represent what someone actually plans to do. They are implemented through instrumental behaviours—the action step—which may be proceptive, aimed at achieving conception, or contraceptive, aimed at avoiding conception. Unlike in the theory of planned behaviour, desires are posed as intermediate variables between attitudes and intentions, while norms act directly on intentions. The variables that may explain why people fail to realise their fertility plans, are grouped—according to the authors—in three categories: partner's intentions, life course factors, and reproduction-related changes.

These three groups of factors are supposed to explain the results, consistent (true positive and true negative cases) or inconsistent (false positive and false

³ An earlier version of this is the theory of reasoned action proposed by Ajzen and Fishbein (1980) where the relationship between intentions and subsequent behaviour was treated as relatively unproblematic, and the impact of perceived behavioural control was not considered.

negative cases), coming from the combination of childbearing intentions with behaviours (see the schematic representation proposed in Figure 1).

Figure 1:
Schematic representation of possible results from the combination of childbearing intentions and subsequent behaviour



Postponement may also intervene between reproductive preferences and outcomes through each of the factors depicted in Figure 1, by contributing to a false positive result—late childbearing as a rule being positively correlated with having fewer children than intended (Quesnel-Vallée and Morgan 2003).

In the low-fertility contexts, false positive are usually more common than false negative cases due to a mechanism of “inertia”, delaying fertility is a normatively acceptable life course strategy, while having a baby has immediate and permanent implications for individuals (Rindfuss et al. 1988). However, a greater correspondence between intentions and behaviours may be achieved when the time span in which people want to initiate childbearing is considered in the stated fertility intentions. Miller and Pasta (1995a) have underlined this point by calling attention to the importance of time as an intervening variable between preferences and outcomes. Following their suggestion, we consider only those childbearing preferences as positive ones, which are framed within a five-year period. Without such a time specification the desire for children would be a rather vague notion in the people’s mind and most individuals would tend to answer in a positive way, “Yes, I want a child”, without really intending to become a parent

but just not to close the door to any future childbearing, a decision that may be source of distress (White and McQuillan 2006). Moreover, by omitting the timing of child desires we would cause an inflation of false positive cases in Figure 1: many would like to have children at some point in life, but only relatively few would actually reach the desired family size.

The evaluation of the relationship between intentions and behaviour is clearly tied to the presence of longitudinal and prospective data, since retrospective information on intended births may be rather problematic to handle and interpret (Williams et al. 1999; Poole et al. 2000; Santelli et al. 2003).

We will therefore adopt a prospective view, but before presenting our empirical analysis we will review some of the literature using a similar approach.

2.2 Empirical Work

Common to all the different questions on fertility intentions is the assumption that individuals are able to make rational choices about if and when they would like to have children. A considerable literature has debated whether this is likely to be the case, and part of this literature is based on longitudinal surveys.

In Europe there have been few such studies comparing desired fertility with later behaviour. This is due to the lack of adequate panel data, which require research designs that are highly expensive, time-consuming and entail constant drop-out problems.

The extensive work based on a record linkage between the Norwegian fertility surveys conducted in 1977 and 1988 and the individual birth histories from the Central Population Register (Noack and Østby 2002), shows that both short-term and long-term expectations overestimate childbearing in later years and that background variables such as the educational level do not have any significant effect on the ability of individuals to estimate their future fertility behaviour. In contrast, such ability is well explained by the standard demographic variables, such as age, parity, and cohabitation status (Noack and Østby 2002). This study avoids the high panel attrition intrinsic in longitudinal surveys, since it is based on a record linkage, but reports fertility expectations without any reference to a specific time, with the consequence that respondents were not really committed to the answers given, as the authors recognise.

Several analyses have emphasised the high level of consistency between negative fertility plans and subsequent behaviour (Symeonidou 2000; Menniti 2001).

A longitudinal survey conducted in the Athens area in 1983-1997 (Symeonidou 2000) suggests that the proportions of consistent respondents is higher among those who did not want and did not have a child (true negative) as compared to those reporting a positive intention (true positive). Moreover, higher congruence is achieved by women who improved their economic and housing conditions in the years between the two surveys. Similar results are coming from

the Italian Observatory on Fertility, a survey with interviews repeated every second year and monitoring short-term fertility intentions and subsequent outcomes (Menniti 2001). In this study as well, most of the correspondence observed between preferences and outcomes is due to people not intending and not having a child, while, on average, intentions overestimate childbearing in later years. The consistency rate improves with better economic perspectives but, as in Noack and Østby's work, does not vary with educational level. In their analysis, intentions are framed in a time window of two years, a period that may appear too short for a consistent development of reproductive plans, and therefore possible inconsistencies should be interpreted in light of the fact that there might have been a temporal shift in the realisation of desired fertility.

Some authors have drawn attention to the possibility that the number of children a person wants may be constantly under reconsideration in response to changes in economic prospects and other important factors (Williams et al. 1999), such as marital relationship and the disagreement between partners' preferences (Thomson 1997; Voas 2003), and consequently, measures of fertility preferences should be able to capture these changes.⁴ Even without any external event, people might revise their preferences, upwards or downwards (Heaton et al. 1999), and a discrepancy between intention and outcome therefore does not necessarily mean that there is an unmet demand for children (Smallwood and Jefferies 2003).

Studies controlling for changing intentions evidence a close relationship between intended childbearing and probability of having a child (Schoen et al. 1999; Qu et al. 2000; Berrington 2004). Schoen et al. (1999) suggest that pregnancy intentions are the most immediate determinant of fertility and related behaviours, and knowledge on intentions brings new information that is not contained in other predictor variables. In the Australian Family Formation Survey—a ten-year follow-up carried out between 1981 and 1991—positive fertility intentions showed to be fairly reliable and persistent over time among childless people: those who intended to have a child either fulfilled their desires, or maintained their intentions if they did not realise their wishes (Qu et al. 2000). Similar findings come from the British Household Panel Survey, which reveals that women, especially childless women, tend to overestimate their future fertility, but birth intentions still have the greatest power in predicting who will actually have a birth (Berrington 2004).

A critical factor influencing the consistency between childbearing intentions and related behaviour is the initial intended parity: people wanting two children are more successful in meeting the wished target, as shown by Quesnel-Vallée and Morgan (2003). The authors use the 1979 National Longitudinal Survey of Youth to compare fertility intentions with fertility of the 1957 to 1961 birth cohorts of U.S. women and men. They provide evidence that people have fewer

⁴ In a longitudinal study comparing fertility intentions with subsequent behaviour Lutz (1985) uses a new measure, called marginal desired family size, that captures the changes in intentions by keeping separated the number of children actually born from those only desired.

children than intended and highly educated women, or unmarried people, are most likely to have fewer children than they wanted.

The current actual parity is also a very influential variable conditioning the predictive strength of birth intentions. Therefore a parity-specific approach is needed when contrasting reproductive preference with subsequent behaviour, as argued by Monnier (1987). His work—based on a huge French longitudinal study on young mothers conducted in the 1970s—documented a high consistency of fertility intentions with subsequent outcomes as well as a systematic overestimation of future fertility coming from the preferences. The discrepancy is explained with the attitude of respondents to put in their answers only a vague possibility of future fertility plans, rather than a carefully planned reproductive strategy.

As evidenced in the literature reviewed, intentions usually exceed actual subsequent fertility, which is why there is a general reluctance to use them in forecasting future childbearing (van Hoorn and Keilman 1997). Forecasts implementing preferences, if any, should be based on negative intentions since they prove to be more reliable, especially for the lowest parities (Westoff and Ryder 1977; Monnier 1987; Rindfuss et al. 1988; Westoff 1990; Rovi 1994; Noack and Østby 2002).

Birth intentions failed to forecast reproductive behaviour both in the short run and in the long run, and at the aggregate level as well as at individual level, even though at the aggregate level, or during an entire lifetime at individual level, unintended and unachieved births may cancel out and more accurate predictions of fertility may be achieved (Toulemon and Leridon 1999). Indeed, the relatively high congruence between intended and achieved fertility in the US is not due to a majority of individuals meeting their reproductive targets, but rather to the presence of compensating errors, and particularly to a substantial proportion of overachievement of fertility due to unplanned births and comparatively young ages at first birth (Quesnel-Vallée and Morgan 2003).

Most of the studies mentioned above show a strong consistency between responses to fertility preference items and related outcomes, irrespective of how the questions are phrased. Nevertheless, considerable efforts should be made to refine the definition of desires and intentions and thus to improve their predictive accuracy (Santelli et al. 2003). Finding the best wording is one of the main challenges in any future research on this area (Thomson and Brandreth 1995), and the search for the most suitable concepts should recognise that the mechanism of translating intentions into behaviour becomes more complex in the presence of an increasing individualism which may erode all normative criteria in the decision-making process in favour of individual initiatives (Liefbroer 1999).

3 Data and Methods

3.1 Sample

We use data from a survey on fertility intentions “Enquête permanente sur les conditions de vies des ménages”, conducted by INSEE (*Institut National de la Statistique et des Études Économiques*) on request of INED (*Institut National d’Études Démographiques*) in 1998. The whole sample includes 2,624 men and women aged 20 to 45, representative of the French population in 1998. Respondents who were not infertile and accepted to participate in the follow-up study (65% of the total) were re-interviewed by post and by telephone in 2001 and 2003. 1,082 people returned the questionnaire in 2001 and 783 did so in 2003. We use mainly the 1998 and 2003 rounds and look at the intermediate wave 2001 only instrumentally, i.e., to monitor changes in desires, as well as in conjugal or employment status, that may have occurred in between. In principle, we could have used this wave as well to test the predictive power of intentions, but after only two years of observation we considered that the number of people who have realised their fertility desires might be too small.

Attrition was high, mainly due to refusals or one of the following reasons: respondents moved without leaving a follow-up address (242), they had died or could not be surveyed (12), they could not be contacted by phone after failing to return the questionnaire (133). Ongoing research (Mazuy et al. 2005) shows that sample attrition is higher among persons not living in a partnership and/or with low educational level, among older persons, and among those who did not want a child. Although the results are not very robust, due to the substantial sample attrition between the 1998 and 2003 surveys, the orders of magnitudes obtained may be considered as reliable.

The selected sub-sample includes 363 childless people. Women and men sterilised or infertile were not asked any questions on fertility intentions and consistently were not used for the follow-up. We chose only respondents without children and not pregnant (or whose partner was not pregnant) at the time of the initial interview.

We concentrate here on childless people only, while in a previous work (Toulemon and Testa 2005) we have investigated the complex relationship between intentions and behaviours among all individuals, considering parity as one covariate in the regression models. Focusing exclusively on childless people and using a small sample prohibits a more stratified analysis by age and gender—otherwise important dimensions of the phenomenon of interest. However, this analysis may be considered as part of a wider analysis, as we could compare the achievements of childless people to those of people at higher parities.

The special attention given to first child is explained by the particular meaning that a first birth has on people, implying an irreversible transition to parenthood (Hobcraft and Kiernan, 1995). Moreover, becoming a parent has a

remarkable importance on the entire reproductive process: a late start in the one's childbearing career may be associated with a lower progression probability after the first child (Kohler et al. 2002). In addition, several factors very closely related to the start of a family, such as completion of education, beginning of working career, and entry into a union, become less important at higher parities.

As the panel attrition is very high and linked with the probability of the intention to have a child (Mazuy et al. 2005), it is likely that our results are biased; we thus replicated their analysis for respondents who were childless at the first interview. We use the Beckett, Gould, Lillard and Welch test (Beckett et al. 1988) in order to check whether the higher attrition among respondents who did not want to have a child in the next five years is ignorable, in the sense that it did not significantly bias the results of our analyses. The test is based on the comparison of respondents who participated in the follow-up and the ones who could not be reached, in terms of wanting a child in the next five years, controlling for other covariates of interest. Due to the smaller sample size, the test is not very efficient; nevertheless, we find that the proportion of respondents wanting a child is upward biased ($p=0.02$), but that the other parameters (sex, age, education, conjugal situation, fecundity impairments, country of birth and place of residence) are not strongly biased by attrition ($p=0.12$ for 17 parameters). Three parameters appear to be significant: age 40 and more ($p=0.02$), not living as a couple ($p=0.04$), and living in a region where acceptance of the follow-up was low ($p=0.04$). In these three cases, attrition is higher among respondents who did not want to have any child within the next five years, "all other things being equal". The null hypothesis for the other parameters is accepted with probabilities between 0.21 and 0.96. Thus we may consider our analyses to be reliable; nevertheless, we present only results that can be considered as proven with a high degree of significance, in order to take into account the possible biases due to differential attrition.

3.2 Measures of Fertility Preferences and Outcomes

Two different concepts—the desires to have a child, and the likelihood to have a child—are used to measure fertility preferences. We expect that the second one would show a higher consistency with subsequent outcomes than the first one, which is supposed to be more general. Both items are specified in a temporal frame of five years to be consistent with the length of the follow-up but the second variable is defined also in terms of certainty.

We focus only on the child-timing preferences, disregarding any information related to the total number of children desired. Since people decide about children one at a time (Udry 1983) and may revise the total number of intended offspring after the birth of a child (Lee 1980; Miller and Pasta 1995b), the predictive strength of child-number desires appears to be relatively weak. Moreover, the length of longitudinal observation is too short to test the congruence between the

child-number preferences and the subsequent outcomes, i.e., the resultant consistency would be necessarily low among people desiring more than one child.

Child-timing desires. In the French Fertility Intentions Survey respondents aged 15 to 45 were asked whether they wanted to have a(nother) child, and—if they wanted one—when they wanted to have their (next) child and how firmly they wanted to have that child. The relative questions are specified as follows: “Do you want any (more) children, now or later, maybe also an adopted child?”, “When do you wish to have your next child?”,⁵ “Do you think you could change your mind and at some point not want to have a(nother) child any more?”.⁶ Responses to the three items were combined to form two composite variables: the *child-timing* desire measure and the *child-timing firm* desire measure. The *child-timing* desire measure is represented in the analysis by a four-category variable coded as: “I want a child, immediately”; “I want a child within the next five years”; “I want a child, but later than in five years”; “I do not want a child”.⁷ For the *child-timing firm* desire measure, respondents who wanted a child immediately, or within five years, were divided in two different groups depending on whether they thought they might change their mind or not (i.e., no longer want a child).⁸ The variable consists of four categories: “I firmly want a child within five years”, “I want a child within five years, but not firmly”, “I want a child, but later than in five years”, “I do not want a child”.

A threshold of five years is chosen in order to check the congruence of desires with behaviour at the end of the follow-up. Respondents with uncertain fertility desires (1.9%) are added to those who tend to leave their future open and plan childbearing for later on in life.⁹ The assumption is that “Don’t know” answers mean not soon, which is in accordance with previous literature (Rindfuss et al. 1988; Schoen et al. 1999).

The two fertility desire measures differ only in the category of those who wanted a child within the next five years: they are further divided into those wishing parenthood firmly and not so firmly in the *child-timing firm* desire

⁵ The response options to this question are phrased so as to establish a time interval, i.e., “not earlier and/or not later than two given points in time”, which are optional and specified in terms of both months and years.

⁶ See Table A1 in the Appendix for the original French wording of the questions on fertility preferences.

⁷ The *child-timing* desire variable does not rest on operationalisation from a theoretical framework, like the analogous measure proposed by Miller and Pasta (1995b) but with the data at hand we are not able to implement such a complex measure. However, the way the question on fertility preferences is phrased, we may be confident that it captures the timing component of childbearing desires.

⁸ We refrain from further dividing the already small group of those not wanting a child at all by firmness of this intention, while we consider the alternative ‘firm/not firm’ rather uninteresting among those who plan to become parents only in a more remote future.

⁹ Uncertain answers may have a specific meaning (Morgan 1981), but we do not treat these cases separately, since our sample included only a few childless people with uncertain fertility intentions.

indicator and into those wishing a family immediately and within the next five years in the child-timing desire measure. The two variables are given in one single table in the descriptive analysis and considered separately in the logistic regression models.

Perceived likelihood to have a child within the next five years. In the French questionnaire there are two consecutive questions on the subjective evaluation of respondents about the likelihood that they will have a child in a given temporal framework. They are worded as follows: “Do you think you will have a(nother) baby within the next two years?” and “Do you think you will have a(nother) baby within the next five years?” We assume that these two items provide a proxy of fertility intentions, because the likelihood to have a baby is normally associated with a previous behavioural intention. Moreover, in these questions individuals are supposed to judge both their intentions to experience a fertility behaviour—here we may talk about intentions and not desires because the questions implicitly refer to a purposive action, an element not present in desires (Miller 1994)—as well as the effective possibility to experience the intended behaviour. The related answers should be rather realistic because they contain both, the timing and the degree of certainty of the intentions, two dimensions of relevant impact on subsequent actual fertility (Thomson and Brandreth 1995; Schoen et al. 1999).

In the empirical analysis the two questions are integrated in one single variable, which refers to a time frame of five years and in case of missing values it is complemented with information related to a frame of two years, if available. The categories are: “Yes, very likely”, “Yes, probably”, “Maybe 50-50”, “No, probably not”, “No, certainly not”. This variable is quite new in the literature and does not reflect a general theoretical concept, like the child-timing desire as defined by Miller and Pasta (1995b), but it is supposed to give realistic fertility predictions for the above reasons, and to be less subject to divergent comprehension and interpretation by different respondents, which is a critical problem in asking people about their childbearing plans, intentions or wishes (Stanford et al. 2000).

Fertility outcomes. At the completion of the longitudinal study, as well as in the intermediate wave, all births that occurred in the previous two or five years were recorded. Women (or men whose partners were) pregnant in 2003 are treated as achievers, i.e., potential live births are counted as achieved children. Moreover, we consider as achievers all respondents who had at least one child, disregarding any information on the number of children actually born even if people had more than one child in the inter-survey period.

Fertility desires at the end of the follow-up. Questions on fertility desires were repeated in 2001 and 2003. They were phrased as follows: “Do you want any (more) children, now or later, maybe also an adopted child?” They come after a question formulated as follows “Are you currently trying to have or to adopt a child?” We compute a unique dummy variable, which is equal to 1 if respondents

are currently trying to have or adopt a child, or if they simply desire a child in the future, and 0 otherwise.

These fertility intention items, unlike in the 1998 questionnaire, are not complemented by a question related to the timing in which the desire might be realised.

3.3 Logistic Regression Models

We estimate several logistic models where the response variable is equal to 1 if respondents:

1. had a child in the five years following the initial survey;
2. wanted a child in more than five years at the initial survey, in 1998, did not have one during the years 1998-2003, and still want to have one at the end of the follow-up period (so-called *voluntary postponers*);
3. wanted a child within five years in 1998, did not have one in the period 1998-2003, and still want to have one in 2003 (so-called *involuntary postponers*).

3.4 Control Variables

Several exogenous explanatory variables collected in 1998 are included in the logistic regression models, namely: gender, age, marital and de facto conjugal status, duration of partnership, enrolment in school, educational level, employment status, household income, religiousness, fecundity impairments.

Age and household income of respondents are the only two variables treated as continuous. Both are centered, age at 30 years, and income at the average income category. The numerical variable “age 30” is equal to $(\text{age}-30)/10$, and the income variable takes 12 values from -1.5 to 1.25, the median value being set at 0.¹⁰

All other covariates are categorical and transformed into dummy variables.

The marital status is coded as: single, cohabiting, and married. The category “single” covers unmarried, separated, divorced, and widowed people. This group is further divided between respondents who remain single for the whole follow-up period and those who were single in 1998 but with a partner in 2003.¹¹ Changes in

¹⁰ The 12 categories of the household income variable (which refers to net income) correspond to the following annual income levels: 1=less than 3049 Euro; 2=from 3049 to 4573 Euro; 3=from 4573 to 6860 Euro; 4=from 6860 to 9147 Euro; 5=from 9147 to 12196 Euro; 6=from 12196 to 15245 Euro; 7=from 15245 to 18294 Euro; 8=from 18294 to 22867 Euro; 9=from 22867 to 27441 Euro; 10=from 27441 to 36588 Euro; 11= from 36588 to 45735 Euro; 12= 45735 Euro or more.

¹¹ We do not consider as living in a union in 2003 those respondents who entered the partnership in the inter-survey period, but after the conception of their child, because strictly speaking, we cannot assume that the new union is a ‘cause’ of a previous event, i.e., the birth of a child.

the relationship status may affect fertility preferences and outcomes as strongly as the initial partnership status (Qu et al. 2000; McDonald 2002).¹²

Union duration, measured in years, is included with a set of dummy variables: 0-2 years, 3-6 years, and 7 years or more, and is related only to those who were in a partnership at the time of the first wave, in 1998.

Education refers to the highest level of completed study and consists of three categories: low, medium, and high, which correspond to unfinished secondary education, completed secondary studies, and university degree, respectively. An additional covariate indicates those who were still enrolled in school and not receiving any paid remuneration, since in this last case they are classified according to their higher level of accomplished studies.

The employment status distinguishes those who are employed from those who are not active or seeking for a job.

Religiousness separates those who are practicing a religion, either regularly or occasionally, from those who profess only a religious feeling or are not religious at all.

Fecundity impairments measure difficulties in conceiving or fathering a child in the period before the first wave of the interview. This variable encompasses women (or men whenever applicable) who failed to achieve a desired pregnancy, or doubt about their ability to have children, or use medical methods to try to have a birth, or experienced a pregnancy without a live birth.

We omitted from the list of the explanatory variables the partner's intentions. Although these have been found to be important predictors of future childbearing (Thomson 1997), the way they are measured in the French Fertility Intentions Survey questionnaire is ambiguous, and consequently their treatment appears problematic.¹³

A description of the variables used in the regression models is reported in Table 1.

¹² In principle, a dynamic analysis of the partnership status would imply a control for those living in a couple but splitting up in the period between the three waves. Since there were only few married or cohabiting respondents at the initial wave, we preferred not to do so.

¹³ Respondent reported the partner's preferences, and consequently, the responses are biased by the respondent's view. Moreover, the question on the partner's intentions does not contain any temporal reference. As a result, if a respondent did not want to have a child within five years, in most of the cases partner did not want a child either. However, this does not necessarily mean that an agreement within the couple was more often reached if the respondent did not intend to become a parent. Since the respondent was not planning to have a child in the near future, she/he may not have a clear idea whether the partner wants or does not want a child, because she/he may simply never have asked the question. In order to avoid this problem, we have constructed a variable on partner's intentions only within the category of individuals wanting a child within five years, as contrasted by those wanting a child in more than five years. The effect of the related covariate—limited by such a construction—was never significant, and is therefore not shown here.

Table 1:
Description of variables appearing in the model

Variables	Description	Mean	Std. Dev.	Min	Max
AGE (in years)	(Age of respondents-30)/10	0	0.71	-1.5	1.5
GENDER					
Female	1=female	0.57	0.50	0	1
Male	1=male	0.43	0.50	0	1
CHILD-TIMING (FIRM) DESIRE					
Wants a child immediately	1=immediately	0.08	0.28	0	1
Wants a child within five years	1=in five years	0.32	0.47	0	1
Wants a child within five years, firmly	1=in five years firmly	0.30	0.46	0	1
Wants a child within five years, not firmly	1=in five years not firmly	0.10	0.30	0	1
Wants a child, but later	1=later than five years	0.55	0.50	0	1
Does not want a child	1=does not want a child	0.05	0.21	0	1
PERCEIVED LIKELIHOOD TO HAVE A CHILD IN THE NEXT FIVE YEARS					
Yes, certainly	1=certainly yes	0.28	0.45	0	1
Yes, probably	1=probably yes	0.14	0.35	0	1
May be	1=may be	0.30	0.46	0	1
No, probably not	1=probably not	0.11	0.32	0	1
No, certainly not	1=certainly not	0.16	0.37	0	1
MARITAL STATUS					
Married	1=married	0.10	0.31	0	1
Cohabiting	1=cohabiting	0.16	0.37	0	1
Single	1=single	0.74	0.44	0	1
Single in 1998, not in 2003 ^a	1=single in 1998	0.47	0.50	0	1
Single in the whole period ^b	1=single up to 2003	0.25	0.44	0	1
UNION DURATION					
Up to 2 years	1=0-2 years	0.12	0.32	0	1
3 to 6 years	1=3-6 years	0.09	0.29	0	1
7 years or more	1=7+ years	0.06	0.23	0	1
EDUCATION					
Low level	1=low	0.10	0.50	0	1
Medium level	1=medium	0.17	0.30	0	1
High level	1=high	0.28	0.38	0	1
Enrolled	1=enrolled	0.46	0.45	0	1
EMPLOYMENT					
Employed	1=employed	0.43	0.50	0	1
Not employed	1=unemployed	0.09	0.28	0	1
HOUSEHOLD INCOME					
Income	(centered continuous variable based on 12 fractiles)	0	0.69	-1.5	1.25
RELIGIOUSNESS					
Religious	1= religious	0.31	0.46	0	1
FECUNDITY IMPAIRMENTS					
Fecundity impairments	1= impairments	0.14	0.34	0	1

Notes: (a) Entering the union before the conception of the first child.

(b) Single at the first and at the third wave, or entering a union after the conception of the first child.

4 Results

4.1 'Crude' Consistency Between Wanting and Having a First Child

Child-timing desires. Table 2 shows quite a universal desire for children among childless respondents: 95% declared they want a birth—40% were planning a child within five years, and 55% postponed their fertility plans for later on in their life. The result is in line with earlier studies conducted in France (Toulemon 1996), or other countries (Weston et al. 2004).

Most of the individuals who had a child by 2003 (75%) had reported the desire to start a family at the beginning of the inter-survey period, in 1998. On the other hand, 25% of the births were mistimed: they occurred earlier than people had expected. No unwanted children were counted, but this result must be interpreted when taking into account the very small proportion of respondents expressing a negative desire for children (Table 2).

The overall consistency rate between child-timing desires and outcomes is high, 72%, but remarkable differences exist between positive and negative fertility plans. The desire for a child is translated in a subsequent birth for 61% of individuals who wanted a baby without delay—a category that may identify those who had already stopped contraception—and for 42% of those who planned a birth within five years.¹⁴ On the other hand, those who reported negative intentions achieve a perfect correspondence between preferences and subsequent behaviour and those who intended to postpone childbearing are mostly doing so in the subsequent five years (87%). The results are in line with earlier studies (Westoff and Ryder 1977; Rindfuss et al. 1988; Monnier 1987; Rovi 1994; Menniti 2001; Noack and Østby 2002) showing that intentions are more predictive of not having a birth than of having a birth.¹⁵

Postponement does not completely 'sterilise' people: 13% of postponers experience the transition to parenthood in the period observed, meaning that delaying childbearing is a rather flexible strategy and births may be anticipated if certain circumstances occur.

As expected, most of the inconsistency is due to false positive: people who reported a wish for a child but were unable to fulfil it, 39% of those with immediate fertility plans and 58% of those who wanted to become a parent within

¹⁴ Interestingly, the percentage of those fulfilling their fertility desires found in our analysis is very close to that documented in other studies, carried out in other countries, based on different groups of respondents, and using different definitions of fertility preferences (Lutz 1985; Qu et al. 2000; Noack and Østby 2002).

¹⁵ We should point out that any comparison between positive and negative intentions in terms of consistency with subsequent outcomes is limited by the fact that the sub-samples of respondents giving the two types of answers are of very different size, those saying "no" constituting only a marginal proportion of all childless respondents.

five years. However, the majority of respondents who missed their target maintained a positive intention at the end of the longitudinal study: 23% of those with an immediate child desire and 44% of those with five-year fertility plans. The percentage is lower among people who planned a child without delay, which might denote that the reproduction difficulties encountered by those people were more serious and insuperable.

Interestingly, mistimed births are not followed by a weaker desire to go ahead in the reproductive career, 12% of those who had a birth before the time planned for it declared to want another child in 2003.

Firmness of desire does matter in the chance to meet the stated fertility aims: 49% of those expressing the firm wish for a child in 1998 became parents five years later, as opposed to only 36% among those who said they might still change their mind (Table 2). Firm childbearing preferences are also more persistent over time if they are not realised in the period observed: only 12% of those who were very certain to want a baby in 1998 did no longer desire parenthood in 2003, against 20% of those reporting more uncertain reproductive preferences in 1998 (Table 2).

Table 2:
Childless people wanting a child in 1998 and having a child in 2003: consistency rates and discrepancy rates by child desire in 2003 (values in per cent)

Child-timing (firm) desire measure in 1998	Whole sample	People actually having a child in 2003	Consistency rates	Discrepancy rates	
				Wants a child in 2003	Does not want a child in 2003
(a) I want a child, immediately	8	21	61	23	16
(b) I want a child within five years	32	54	42	44	14
(c) I will not change my mind	30	61	49	39	12
(d) I may change my mind	10	14	36	44	20
(e) I want a child, but later on	55	25	87	12	1
(f) I do not want a child	5	0	100	-	-
Total N=363	100	100	72	22	6

Note: The proportions of those respondents who want a child either immediately, or within the next five years is further specified by asking about the firmness of that desire, i.e., $a+b=c+d$. In the last three columns all percentages have to be read by row, so that their sum by row is equal to 100.

Perceived likelihood to have a child within the next five years. Most of the respondents see a probability of becoming a parent in the close future: 28% consider it very likely, 14% probable, and 30% award a chance of 50-50 to this event (Table 3). Only 28% of childless people perceived it as unlikely that they would start childbearing within the next five years, including 17% who were very certain about their subjective forecast (Table 3).

Births that occurred between 1998 and 2003 were mainly to people who felt very confident about making the transition to parenthood five years earlier (60%) or considered it probable (20%). Another 18% came from uncertain respondents who tended to leave the future open and only attributed a 50-50 probability to first childbearing in a short-time horizon. The proportion of unforeseen births—i.e., births that occurred to people who considered parenthood unlikely within the subsequent five years—is very low at 2% (Table 3).

The overall consistency rate between intentions and behaviour is 68%, similar to the one reached by the child-timing desire measure. This total is the result of a lower proportion of true positive cases (positive consistency) and a higher proportion of true negative cases (negative consistency) in comparison with the desire measure. However, as seen for the desires, the level of correspondence is lower among positive intentions: indeed 53% of those who were very certain to become a parent within the next five years actually did so, and another 36% of those who perceived childbearing as likely went ahead and started a family within the next five years. The analogous proportions of consistent respondents among those who reported negative intentions were 99% and 98%, respectively (Table 3).

Assimilating those who harboured immediate fertility plans with those who were strongly determined to have a birth within five years, we could see that the latter group was in fact more persistent in their intent to become parents when they had not fulfilled their wish at the end of the follow-up: 39% of these inconsistent people showed positive childbearing intentions in 2003 (Table 3), while only 23% of those who had originally wanted to start a family without delay stuck their previous desire (Table 2).

Our a priori expectations suggest that the perceived likelihood to have a child may be a better predictor for who will actually become a parent than the child-timing desire measure. But the descriptive analysis does not show any clear results pointing in this direction. The overall consistency obtained by the likelihood variable is lower than the one reached with the desire measure.¹⁶ However, if we look at the births that occurred in the interval between the surveys, only a very tiny proportion of them were seen as unlikely by the respondents (2%), whereas 25% of them were merely mistimed according to the previously reported child-timing desires. This preliminary finding is further

¹⁶ This comparison is not based on the same samples though, since we excluded respondents answering 'maybe' from the consistency analysis of likelihood variable.

investigated in the next paragraph where we compare the predictive level of the two measures by controlling for the effect of relevant background variables.

Table 3:
Childless people seeing themselves as likely to have a child in 1998 and actually having one in 2003: consistency rates and discrepancy rates by child desire in 2003 (in per cent)

Perceived likelihood to have a child within the next five years, as measured in 1998	Whole sample	People actually having a child in 2003	Consistency rates	Discrepancy rates	
				Wants a child in 2003	Does not want a child in 2003
Yes, certainly	28	60	53	39	8
Yes, probably	14	20	36	40	24
Maybe, 50-50	30	18	-	-	-
No, probably not	11	1	98	0	2
No, certainly not	17	1	99	0	1
Total N=363	100	100	68	24	8

Note: Percentages in the last three columns have to be read by row. Respondents answering 'Maybe' are excluded from the computation of the overall consistency or discrepancy rates. 15% of these had a child within the next five years and 75% among those who remained childless reported a desire for a first child in 2003.

4.2 People Starting a Family Within Five Years after the Interview: the Role of Preferences

In Table 4 we report the odds ratios of having a first child as estimated in the logistic regression models, which include only fertility desires, or intentions, variables. Each of the three different measures considered in this paper has been estimated separately and a comparison of the results suggests that the "likelihood to have a child" is the most predictive variable for subsequent fertility behaviour. The model with only this covariate shows the best fit of the data, as suggested by Akaike's information criterion.¹⁷

If we control for the effects of relevant background variables (Table 5), we obtain similar results: the model containing the variable "likelihood to have a child" reveals the best fit of the data.

¹⁷ The AIC Akaike's (1973) information criterion is a measure assessing the fit of models that can be used to compare models across different samples or to compare non-nested models, like ours. A nested model is one that can be created by imposing constraints on the coefficients in the prior model. All else being equal, the model with the smaller AIC is considered the better fitting model. The measure is defined as: $AIC = \frac{-2 \ln \hat{L}(M_k) + 2P}{N}$ where $\hat{L}(M_k)$ is the likelihood of the model and P is the number of the parameters in the model (e.g., K+1 in the binary regression model where K is the number of the regressors).

Fertility preferences appear as the most important covariate explaining the transition to parenthood. When comparing the intentions-only models (Table 4) with the respective full models (Table 5), we see that the coefficients of fertility desires, or intentions, are much lower in the latter ones but still significant and with the highest levels among all the other explanatory variables. On the other hand, when comparing the backgrounds-only model (Model I, Table 5) with the full models (Models II, III, IV, Table 5), the effects of the socio-demographic covariates do not change substantially, both in terms of significance and magnitude. This evidence supports the argument that fertility intentions contain additional information on fertility-related behaviour and do not simply mediate the effects of other variables (Schoen et al. 1999), as union formation intentions do for the union formation behaviour (Liefbroer et al. 1994). Nonetheless, the same factors, which predict short-term childbearing intentions, are predicting also subsequent actual fertility (National Research Council 2001).

We can then answer our first research question by saying that desires and intentions are an important predictor of subsequent family formation. Correctness and precision of these predictions depend on how the relevant questions are addressed. In the logistic regression analysis, other than in the bivariate analysis (Tables 2 and 3), the item on the perceived likelihood of having a child indeed performs better than the child-timing desire questions, as we may argue from the better fit of the model that includes this covariate, which is evidenced by the AIC value (Table 5). Moreover, firmness and certainty of stated intentions also contribute some improvements to the predictive accuracy of intentions: the effect of wanting a first child within five years increases slightly if the wish is expressed in a firm way (odds ratio rises from 2.1 to 2.8 in model III, Table 5), while the effect of the subjective likelihood to have a first child is almost the same whether this likelihood is perceived as very certain or only probable by the respondents in the full models (Model IV in Table 5), but it is almost twice as high in the intentions-only models (Model III in Table 4).

The ability to foresee one's own future reproductive career in the short-term horizon increases in some social groups. For example, highly educated people are more successful in becoming parents if they consider themselves likely to start a family within five years (Table 6 part A and Table A2a). A similar interaction effect, although not significant, appears when desires—instead of the subjective likelihood—to have a child are considered. This result has to be seen with some caution, however, because it may be due to the fact that childless and more educated people are more fecund as compared to the lower educated counterparts: they tend to postpone childbearing more often than the others whose ongoing childlessness may imply that they have encountered difficulties. However, odds ratios estimated on the sample including all respondents, with and without children, reveal similar results (Table 6 part B and Table A2b) supporting our evidence that highly educated people give more accurate predictions when asked to evaluate their chance to have a child in the next future.

Short-term fertility preferences do not improve the explanatory power of the models estimating actual fertility in the following period (Table A3). This evidence supports earlier findings on the relative uselessness of intentions in forecasting fertility (van Hoorn and Keilman 1997). Indeed, error rates from the model which includes the subjective likelihood of having a first child as a covariate are not substantially different from error rates from the model that excludes such a covariate. In both cases the probability to predict a child when the actual outcome is no child is around 5%, while the probability to predict no child when the actual outcome is a child goes up to around 10%. The results do not change when the child-timing desire variables are used to measure fertility preferences (see Table A3).

The main background factors predicting who will actually have a birth in the follow-up period are: age, marital status, union duration, and employment status. Consistently with other studies (Schoen et al. 1999; Qu et al. 2000; McDonald 2002), marital status is the most relevant life course variable that influences the childbearing outcome. Being single decreases the chance of having a child, and this effect appears only slightly lower for respondents who found a partner in the inter-survey period which implies that a child is not very likely at the beginning of a new relationship—usually it takes some time to plan for starting a new family. Cohabitants have a child more often than married couples but the effects are not significant once controlling for union duration, even though more than half of all first children are born to unmarried couples in France.

Among married people the duration of their union does matter, the length of the relationship being negatively associated with the chance to form a family, consistently with previous research (Schoen et al. 1999).

Unemployment hinders the transition to parenthood, inducing a postponement of first childbearing. Rindfuss et al. (1988) found an interaction effect between this variable and gender: being unemployed reduces the risk of becoming a parent for men, while it causes an increase of this risk for women. Due to the limited sample size we cannot check whether a similar interaction effect exists in our case. However, a recent study conducted in France (Meron and Widmer 2002) suggests that young women living in a union tend to postpone their first child if they are unemployed.

Male respondents in our models appear less likely to have a child within the five years observed (Table 5). This result would require further investigation on the possible interaction effects between gender and the other explanatory variables, in order to see whether men have a completely different model of transition to parenthood as compared to women. However, we did not look into this aspect because the already small sample size would have questioned the significance of our results. Previous literature has shown that the predictive validity of men's and women's expectations appears very similar (Rindfuss et al. 1988; Quesnel-Vallée and Morgan 2003). Quesnel-Vallée and Morgan (2003) evidence an interesting interaction between education and gender, with highly

educated women being more likely to have fewer children than intended as compared to highly educated men; they explain this gender difference with the fact that for females postponement may be more biologically constraining and more difficult to combine with childbearing.

Table 4:
Odds ratios for having a child in the inter-survey period among childless respondents

	MODELS					
	I		II		III	
Respondents having a child in 2003: N and %	91	25%	91	25%	91	25%
<i>Child-timing desire in 1998</i>						
Wants a child immediately	13.1***					
Wants a child within the next five years	6.1***					
Wants a child later on	1					
<i>Child-timing firm desire in 1998</i>						
Wants a child within the next five years, firmly			8.1***			
Wants a child within the next five years, not firmly			4.6***			
Wants a child later on			1			
<i>Perceived likelihood to have a child within the next five years in 1998</i>						
Yes, certainly					96.7***	
Yes, probably					48.0***	
Maybe					14.7*	
No, probably not					1.7	
No, certainly not					1	
Constant	0.1***		0.1***		0.2***	
Log-L	-173		-174		-158	
AIC	353		354		325	
N	363		363		363	

* p<0.05; ** p<0.01; *** p<0.001

Note: The category 'Wants a child later on' includes also those who did not want a child at all. This group of people was too small to be considered in a separate category (see Table 2).

Table 5:
Odds ratios for having a child in the inter-survey period among childless respondents

	MODELS							
	I		II		III		IV	
Respondents having a child in 2003: N and %	91	25%	91	25%	91	25%	91	25%
<i>Child-timing desire in 1998</i>								
Wants a child immediately			2.9					
Wants a child within the next five years			2.6*					
Wants a child later on			1					
<i>Child-timing firm desire in 1998</i>								
Wants a child within the next five years, firmly					2.8*			
Wants a child within the next five years, not firmly					2.1			
Wants a child later on					1			
<i>Perceived likelihood to have a child within the next five years, in 1998</i>								
Yes, certainly							15.8 *	
Yes, probably							16.4 *	
Maybe							7.6	
No, probably not							0.7	
No, certainly not							1	
Female	1		1		1		1	
Male	0.5*		0.5*		0.5*		0.5*	
Age 30	0.5		0.5		0.5		0.5	
Age 30 squared	0.2***		0.2***		0.2***		0.4***	
Married	1		1		1		1	
Single in 1998	0.1***		0.2**		0.2**		0.2**	
Single in the whole period	0.1***		0.1**		0.1**		0.1**	
Cohabiting	1.4		1.2		1.2		1.2	
Union of 0-2 years	1		1		1		1	
Union of 3-6 years	0.4		0.6		0.6		0.6	
Union of 7+ years	0.2*		0.3		0.3		0.3	
Not enrolled	1		1		1		1	
Enrolled	0.5		0.5		0.5		0.5	
Low education	1		1		1		1	
Medium education	0.7		0.7		0.7		0.8	
High education	0.7		0.8		0.8		1.0	
Employed	1		1		1		1	
Unemployed	0.1**		0.1**		0.1*		0.1**	
Income mean	1.1		1.2		1.2		1.3	
Income mean squared	0.9		0.8		0.8		0.9	
Not religious	1		1		1		1	
Religious	1.8		1.7		1.7		1.7	
No fecundity impairments	1		1		1		1	
Fecundity impairments	2.2		1.7		1.7		2.0	
Constant	7.1*		2.7		2.7		0.3	
Log-L	-134		-131		-130		-125	
AIC	302		299		299		292	
N	363		363		363		363	

* p<0.05; ** p<0.01; *** p<0.001

Note: For the meaning of the category 'Wants a child later on', see note on Table 4.

Table 6:
Odds ratios for having a child in the inter-survey period. Interaction effects between education and child-timing desires or perceived likelihood to have a child

A. Childless respondents

	Wants a child within the next five years	Perceived likelihood to have a child within the next five years
Medium or low education	1.7	1.3
High education	2.8	11.8**
All respondents	2.6*	3.2**

B. All respondents

	Wants a child within the next five years	Perceived likelihood to have a child within the next five years
Medium or low education	2.7**	3.2**
High education	2.2	4.7**
All respondents	3.4***	4.9***

Note: Odds ratios from the full models. See Table A2 in Appendix for the effects of the other variables. Models on all respondents include also a covariate on parity. For the sake of simplicity the covariate “Child-timing desire” contrasts those who want a child within the next five years with those who wish to start a family later on, whereas the covariate “Likelihood to have a child” is represented by a dummy variable equal to 1 if respondents said that it was certain or at least probable that they would have a child in the next five years, and 0 otherwise.

4.3 People Remaining Childless in the whole Follow-up Period: the Role of Postponement

The models in Table 7 show the odds ratios for voluntary or involuntary postponement in the follow-up interval. We call “postponers” those respondents who wanted a child at the initial survey, did not have any child in the follow-up period and, 5 years later, still wanted to have one. Among them, “voluntary postponers” wanted a child in more than five years in 1998, while “involuntary postponers” wanted a child within five years in 1998 and did not achieve their intention. This distinction between the two groups of people who postpone childbearing is rather new in the literature; preliminary attempts in this direction may be found in Williams et al. (1999), Dariotis (2004), and Berrington (2004). Since our analysis is restricted to childless people, the nature of postponement also reflects the nature of—involuntary or, at least temporarily, voluntary—childlessness (Veevers 1980; Houseknecht 1987; Tanturri and Mencarini 2004).

The most relevant covariates influencing voluntary postponement are age and marital status, with older people less likely to abide by their childbearing plans over time and single respondents more likely to delay the transition to parenthood (Model I in Table 7). The estimated proportions of voluntary and involuntary postponers by age and income are shown in Figure 2.

Age is the most important factor determining involuntary postponement: those who failed to have a desired birth and still want to start a family five years later are probably those who cannot have a child due to their higher age and the resultant limited fecundity.

While the other covariates are not statistically significant, they clearly oppose two sets of postponers. Factors related to strong constraints, or low control, on fertility, are associated with involuntary postponement: low education, low income, unemployment, and strong religiousness. On the contrary, high education, high income, no religiousness, and absence of fecundity impairments are positively associated with voluntary postponement.

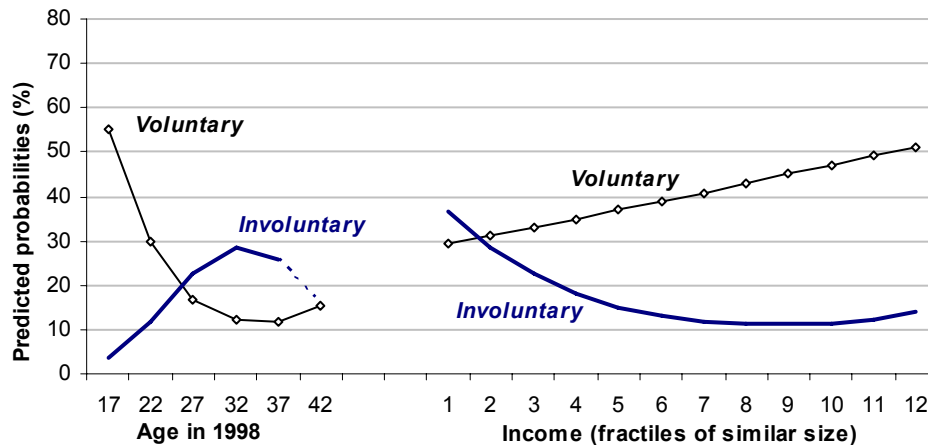
Table 7:
Odds ratios for persistent postponement of a first child, voluntary and involuntary

	MODELS	
	I – Voluntary	II – Involuntary
N and %	144 40%	58 16%
Female	1	1
Male	1.1	0.8
Age 30	0.5	1.7
Age 30 squared	2.0 *	0.4 *
Married	1	1
Single in 1998	18.0 **	1.2
Single in 1998 and 2003	24.6 *	2.8
Cohabiting	1.9	1.6
Union of 0-2 years	1	1
Union of 3-6 years		0.1 *
Union of 7+ years	5.3 * (a)	1.1
Not enrolled	1	1
Enrolled	1.4	0.5
Low education	1	1
Medium education	0.6	0.5
High education	1.3	0.4
Employed	1	1
Unemployed	0.3	1.5
Income mean	1.4	0.7
Income mean squared	1.0	1.5
Not religious	1	1
Religious	0.8	1.2
No fecundity impairments	1	1
Fecundity impairments	0.3	1.0
Constant	0.1 **	0.6
Log-L	-167.9	-136.2
N	363	363

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Note: (a) Due to estimations problems, respondents living in union for 7 or more years were grouped with those living in union for 3-6 years.

Figure 2:
Predicted probabilities of voluntary and involuntary postponement of first birth by age and by income among childless respondents in France



Note: The non-monotonicity of the curves by age is not significant for ages above 40.
 Curves of voluntary and involuntary postponers are plotted so that the estimated probabilities:
 - have the same weighted mean as the overall mean (40% and 16%, respectively)
 - are based on odds ratios that are direct functions of the parameters.

Of course, the limited information provided by our short longitudinal study cannot give a clear distinction between voluntary and involuntary postponement, but it may help to shed light on the process that leads individuals to repeatedly postpone their childbearing.

5 Discussion and Concluding Remarks

In this prospective analysis of family formation in France, we were specifically interested in childless people's reproductive preferences and their subsequent actual behaviour, so that comparisons could be drawn between the predictive strength of three different measures, namely child-timing desire, child-timing firm desire, and perceived likelihood to have a child within the next five years. On the other hand, we focused on people who remained childless at the end of the follow-up period to disentangle the reasons behind their persistent lack of children and to ask whether postponement played a major role in it.

Many of our results are consistent with those of previous studies. For example, we found that short-term fertility plans, as stated by childless respondents in 1998, tend to overestimate the number of actual births occurring in the period of 1998-2003, but have a relevant influence in predicting who will go on having a first child. Indeed, in the regression analysis, fertility desires and intentions exert the strongest effect among all covariates considered on the

probability of having a first child in the subsequent five-year period (Schoen et al. 1999).

Some of our findings are not consistent with those of earlier prospective analyses, however. Interestingly, our data reveal that childless people with high education who consider themselves likely to start a family within the five years following the interview were significantly more likely to experience the transition to parenthood than childless people with low or medium education who had similar positive intentions.

Moreover, we pointed out, as a rather new result, that the “perceived likelihood to have a child” measure predicts subsequent childbearing outcomes more precisely than the “child-timing (firm) desire” measure, and this is true for both childless people and those with children.

Finally, we found that being young and single are reasons for deliberately postponing childbearing, while age alone is also the most critical factor explaining the involuntary delay of starting a family, with old respondents being much more likely to remain childless due to involuntarily postponement. Here we can only speculate that people tend to replace intentions to delay parenthood with short-term fertility plans as they move through their reproductive life. Thus, the decision to become a parent in a short-term future is sometimes taken when the probability to miss the desired target has increased due to the limit imposed to human reproduction by the biological clock.¹⁸

We are aware that our findings have to be taken with some caution due to the limitations of our dataset. Indeed, the small sample size prevents us from running a more stratified analysis by age and gender, and implies that our conclusions should remain tentative. Moreover, we employ two simple measures to capture fertility preferences and neither of them is capable of reflecting the complex multidimensionality intrinsic to that concept. The use of multi-factorial models to understand the complex decision-making process that leads to the choice of becoming a parent would be a first priority in our agenda once sufficient data become available.

The large attrition at follow-up may be linked with several biases: the respondents still included in 2003 were, in 1998, younger, more educated, and more prone to wanting a child, than those who could not be followed up (Mazuy et al. 2005). This attrition implies that our estimates may be biased.¹⁹ We have run a test to control for the effects of the selectivity process, which showed that the

¹⁸ Further research would be needed to investigate the extent to which those who did not succeed in having a birth despite their intent were unable to do so for biological reasons as opposed to social or economic constraints.

¹⁹ For instance, if the participation in the last wave was positively linked with fertility among the less educated, while it was not so among more educated respondents, then fertility would be overestimated only for less educated, and the parameter associated with the level of education would be biased.

estimates are quite reliable. However, due to the small sample size, we had to limit ourselves to results of high magnitude and significance.

Nevertheless, our analysis updates the knowledge on the linkage between family formation intentions and related behaviour in France. In doing so, it should also encourage ongoing attempts at improving data quality. Future prospective studies that allow for analysis of larger samples and a construction of multidimensional measure of fertility preferences, which also contain more detailed information about the sequence of events will help to answer more clearly some of the questions raised here.

The evidence presented suggests that although many childless respondents are still without children at the end of the longitudinal study, only a very small proportion of them really intend to abandon the idea of having a family by definitively closing the door on future childbearing. How many of these people who are postponing births will actually be successful in achieving their fertility aims later in their life we will know by looking at the French fertility trends of the next decades.

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Appendix

Table A1:
Fertility preference items used in the analysis

Questions:	
1998 questionnaire	
Q71 Do you want any (more) children, now or later, maybe also an adopted child?	«Souhaitez-vous avoir (encore) des enfants un jour, maintenant ou plus tard, éventuellement un enfant adopté?» (en plus de celui que vous attendez)
Q74 When do you wish to have your next child?	«Dans combien de temps souhaitez-vous avoir votre (prochain) enfant?»
Q75 Do you think you could change your mind and at some point not want to have a(nother) child any more?	«Pensez-vous que vous pourriez changer d'avis, et finalement ne pas vouloir un (autre) enfant? »
Q90 Do you think you will have a(nother) baby within the next two years?	«Dans les <u>deux ans</u> qui viennent, pensez-vous que vous aurez un (autre) enfant (en plus de celui que vous attendez)?»
Q91 Do you think you will have a(nother) baby within the next five years?	«Dans les <u>cinq ans</u> qui viennent, pensez-vous que vous aurez un (autre) enfant (en plus de celui que vous attendez)?»
2003 questionnaire	
Q23 Are you currently trying to have or to adopt a child?	«Cherchez vous ACTUELLEMENT à avoir ou à adopter un enfant?»
Q24 Do you want any (more) children, now or later, maybe also an adopted child?	«Souhaitez-vous avoir (encore) des enfants un jour, maintenant ou plus tard, éventuellement un enfant adopté?»

Table A2a:
Odds ratios for having a child in the inter-survey period. Models with and without interactions between education and child-timing desires or perceived likelihood to have a child. Childless respondents

	MODELS							
	I		II		III		IV	
Respondents having a child in 2003: N and %	91	25%	91	25%	91	25%	91	25%
<i>Child-timing desire in 1998</i>								
Wants a child within the next five years	2.6*		1.7					
Wants a child later on	1		1					
<i>Perceived likelihood to have a child within the next five years in 1998</i>								
Yes, certainly or probably					3.2**		1.3	
Maybe, or not					1		1	
Female	1		1		1		1	
Male	0.5*		0.5*		0.6		0.5*	
Age 30	0.4		0.4		0.5		0.5	
Age 30 squared	0.2***		0.2***		0.3**		0.2**	
Married	1		1		1		1	
Single in 1998	0.2**		0.2**		0.2**		0.2**	
Single in the whole period	0.1**		0.1**		0.1**		0.1**	
Cohabiting	1.2		1.3		1.2		1.2	
Union of 0-2 years	1		1		1		1	
Union of 3-6 years	0.6		0.6		0.5		0.5	
Union of 7+ years	0.3*		0.3		0.2		0.2*	
Not enrolled	1		1		1		1	
Enrolled	0.5		0.5		0.5		0.5	
Low education	1		1		1		1	
Medium education	0.7		0.7		0.8		0.7	
High education	0.8		0.4		0.9		0.1*	
High education & wanting (or seeing as likely) to become a parent			2.8				11.8**	
Employed	1		1		1		1	
Unemployed	0.1**		0.1**		0.1**		0.1*	
Income mean	1.2		1.1		1.2		1.2	
Income mean squared	0.8		0.8		0.9		0.9	
Not religious	1		1		1		1	
Religious	1.7		1.7		1.7		1.5	
No fecundity impairments	1		1		1		1	
Fecundity impairments	1.7		1.8		2.1		2.2	
Constant	2.7		3.7		1.8		4.5	
Log-L	-131		-130		-129		-125	
AIC	297		297		295		288	
N	363		363		363		363	

* p<0.05; ** p<0.01; *** p<0.001

Table A2b:
Odds ratios for having a child in the inter-survey period. Models with and without interactions between education and child-timing desires or perceived likelihood to have a child. Respondents with children

	MODELS							
	I		II		III		IV	
Respondents having a child in 2003: N and %	186	24%	186	24%	186	24%	186	24%
<i>Child-timing desire in 1998</i>								
Wants a child within the next five years	3.4***		2.7**					
Wants a child later on	1		1					
<i>Perceived likelihood to have a child within the next five years in 1998</i>								
Yes, certainly or probably					4.9***		3.2**	
Maybe, or not					1		1	
Female	1		1		1		1	
Male	0.7		0.7		0.7		0.7	
Age 30	0.6		0.6		0.7		0.7	
Age 30 squared	0.3***		0.3***		0.4**		0.4**	
Parity 2+	1		1		1		1	
Parity 1	1.6		1.5		1.1		1.1	
Parity 0	1.3		1.3		1.4		1.3	
Married	1		1		1		1	
Single in 1998	0.4*		0.4**		0.4*		0.4*	
Single in the whole period	0.2**		0.2**		0.2**		0.2**	
Cohabiting	1.2		1.3		1.4		1.5	
Union of 0-2 years	1		1		1		1	
Union of 3-6 years	0.9		0.9		0.7		0.8	
Union of 7+ years	0.5*		0.5		0.4		0.4*	
Not enrolled	1		1		1		1	
Enrolled	0.9		0.9		0.9		0.9	
Low education	1		1		1		1	
Medium education	0.9		0.9		1.0		1.0	
High education	1.5		0.9		1.4		0.5	
High education & wanting (or seeing as likely) to have another child			2.2				4.7**	
Employed	1		1		1		1	
Unemployed	0.3**		0.3**		0.4*		0.4	
Income mean	0.9		0.9		0.9		1.0	
Income mean squared	0.7		0.7		0.7		0.8	
Not religious	1		1		1		1	
Religious	1.3		1.3		1.3		1.3	
No fecundity impairments	1		1		1		1	
Fecundity impairments	1.2		1.2		1.3		1.3	
Constant	0.7		0.7		0.5		0.6	
Log-L	-297		-295		-289		-284	
AIC	633		632		618		611	
N	765		765		765		765	

* p<0.05; ** p<0.01; *** p<0.001

Table A3:
Error rates from the estimated models with and without the variable on the perceived likelihood to have a child

Variables	Without intentions		With intentions		N
	Pr(yes no)	Pr(no yes)	Pr(yes no)	Pr(no yes)	
Married or Cohabiting	9.9	10.2	14.9	8.5	99
Single	0.3	11.1	2.0	10.2	264
Male	3.2	8.3	3.2	7.7	141
Females	7.2	12.8	7.0	11.2	222
Aged up to 29	4.9	9.8	4.4	8.8	280
Aged 30 or more	8.1	16.1	10.2	14.3	83
High Education	11.2	14.4	8.6	10.0	111
Low or Medium Education	6.0	11.5	8.2	12.6	100
Enrolled	2.2	8.7	2.3	8.1	152
Total	5.5	10.9	5.4	9.7	363

Note: The table presents the probabilities $\text{Pr}(\text{predicted}|\text{outcome})$, where predicted is the prediction of the models. Models I, and IV from Table 5 are used to estimate the error rates of the models without and with fertility intentions, respectively. No relevant differences are observed if child-timing desire measures are used as covariates.