

IS FERTILITY STILL CORRELATED TO THE NUMBER OF SIBLINGS? A CROSS-GENERATIONAL STUDY INCLUDING HALF SIBLINGS

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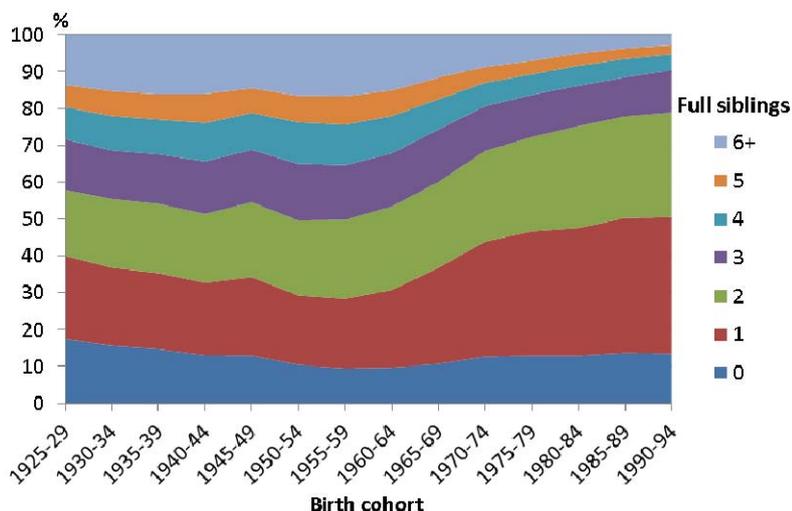
Long abstract

Research question

Research on the determinants of fertility and better knowledge of low fertility are still topical issues in developed countries. Among the numerous determinants described by the extensive literature, the size of the family of origin appears to be one of the most stable and persistent between countries (Murphy and Wang 2001). In general, the association between the number of siblings and the fertility that an individual will reach is positive. Reasons usually stated are socialisation—having grown up in a small/large family could raise preferences for this type of family—or biological effect (Kohler et al. 1999; Murphy and Knudsen 2002).

The changing context of fertility might have affected both the magnitude and the nature of this relationship. On the one hand, the average number of siblings has diminished considerably since the 70's. Family size has compressed, numerous families are thus less common and might appear more atypical than in the past (cf figure 1). On the other hand, with the development of step-families, and of the possibility to grow up with half-siblings, the siblings picture has to be extended to include half and step brothers and sisters.

Figure 1 Distribution of number of full siblings by women's birth cohorts



In this article, we explore whether the intergenerational relationship between parents' and children's fertility is becoming stronger or weaker over time. This original long run approach compares French birth cohorts born since 1925, including not only full-siblings but also half siblings. We ask notably whether the change in intergenerational correlation of family size appears the same for full or half siblings, emphasizing that growing-up with half- or full-siblings might lead to a different link. Finally, we study whether men and women are affected in the same way by their family of origin.

Background

The relationship between the fertility of parents and of their children is of great interest and is a long-lived topic (Murphy and Knudsen 2002) which has received large attention in demographic (Dahlberg 2013) and economic literature (Booth and Kee 2009). It recently renewed on the agenda for two main reasons. The first reason is that the magnitude of the decrease in fertility in most of developed countries has been unanticipated, despite forecasts and studies of population growth. Indeed, one scenario of the population projections assumes that the fertility remains stable and that the next generation will have the same fertility level as those of their parents. Then a deeper study of the contemporary change in the transmission of fertility behaviours could give some ideas of mechanisms behind the unexpected very low levels of fertility.

The second reason is methodological. With the growing complexity of econometric technics and the wish to obtain causal effects in social sciences, the necessity to find *exogenous* or *exclusion variable* variables¹ explaining fertility is more and more crucial. For instance, since fertility might be considered as usually endogenous to labour market outcomes, economists look for variables that can explain fertility without being linked to the situation on the labour market. Some famous *exclusion variables* are the twins variable, or the sex composition of the two first births, but they have drawbacks. The number of siblings, as exogenous determinant of fertility, is also frequently used in this framework. Then looking at the relationship between parents and children fertility levels across generations also brings knowledge on this type of instrument.

Methodological issues

We have to take into account two strong technical aspects. First, the transmission of family size is not necessary linear, thus usual regressions on the mean are not satisfactory to study it. Also, the level of fertility has changed with time, implying a weakening of the contrasts in parity outcomes, and ask questions about comparability between birth cohorts. Instead of these regressions, we propose to use quantile indicators and regressions (Booth and Kee 2009), and Poisson regression (Murphy and Wang 2001). Second, the intergenerational correlation between parents' and children's fertility might be driven by other confounding intergenerational relationships (Anderton et al. 1987). For instance, children of divorced/separated parents are also more likely to divorce/separate, and separation then has an impact on the fertility level of both parent and children, particularly at high parity. Similarities between professional outcomes of mothers and daughters are also observed, which can be linked to their fertility levels. Different types of correlations including or not confounding factors (respectively adjusted or crude) are estimated in order to see whether the relationship is sensitive to them.

Data and method

The Enquête Famille et Logements 2011 (EFL, Ined-Insee) is a section of the French census oriented towards the family. We use the fertility history of the respondent. It provides extensive information about the last partnership of men and women, and the date of birth of all their children. The sample covers 360,000 men and women, aged 18 or more. Interestingly, we know for all respondents their

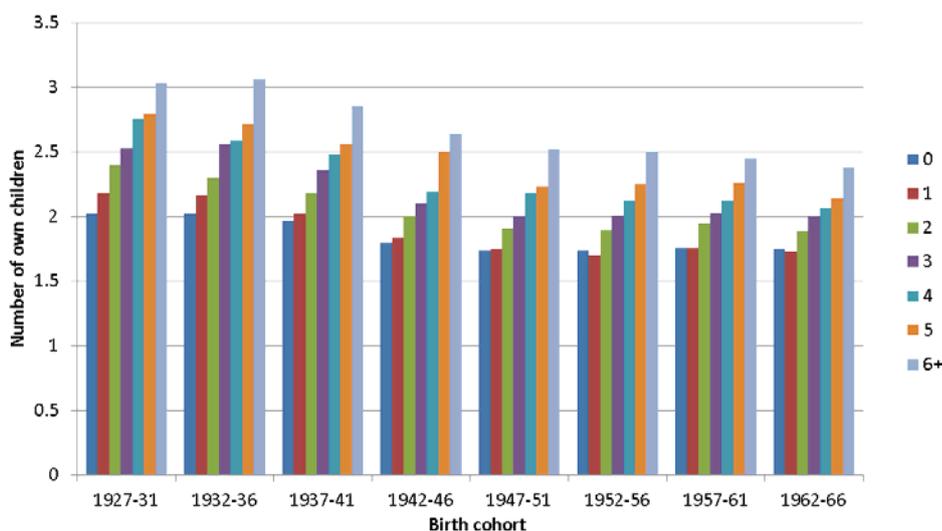
¹ These variables should explain the possible endogeneous variable and not be correlated with the outcome.

number of full- and half-siblings, and their number of children: all biological children, adopted children, whether they live elsewhere or not. We have information on the professional occupation of the respondent and of his two parents, as well as the level of education of the respondent, his marital status, his place of birth and place of birth of his parents.

First results

Our results are in line with most past results, in that the number of children ones has increases with the number of siblings and half siblings in the family of origin (Figure 2, same results are valid for men, graph not shown). Logically, as time passes the magnitude of the contrast between those with few children and those with many children diminishes strongly. In particular, nowadays only numerous families are drivers of the intergenerational relationship, whereas the fertility of only children and of one-sibling respondents still differed sixty years ago. It is also interesting to notice that (graph not shown here), as childlessness spreads, the proportion remaining childless grows much faster among those coming from small families, and particularly among only children.

Figure 2 Mean number of own children by total number of siblings, among women aged 45+ in 2011, by birth cohort.

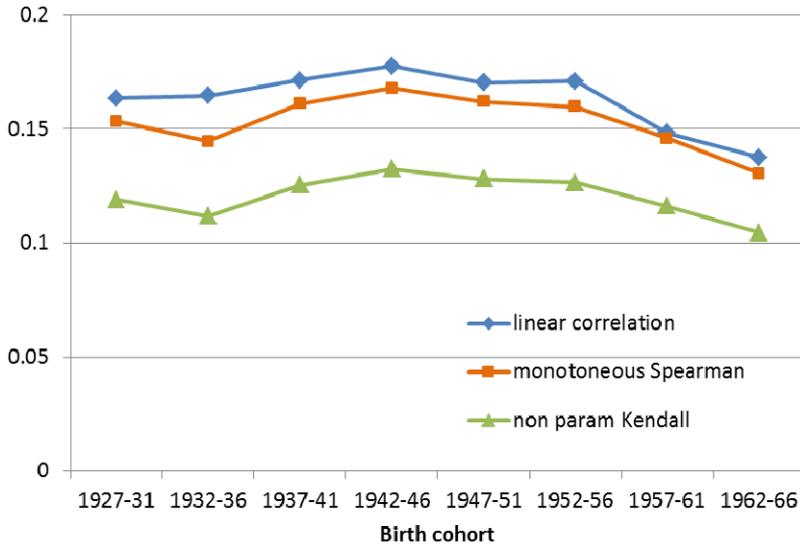


Sample: women aged 45+ at survey

Source: Enquête Famille et Logements 2011 (EFL, Ined-Insee)

Over time, the correlation between number of children and number of siblings has first risen (baby boom cohorts) and then decreased again (Figure 3). These correlations possibly mostly show the contrast in the overall family sizes in the two generations parents-children. We will calculate adjusted correlations in order to visualise the “net” change over time in the relationship between parents’ and children’s fertility.

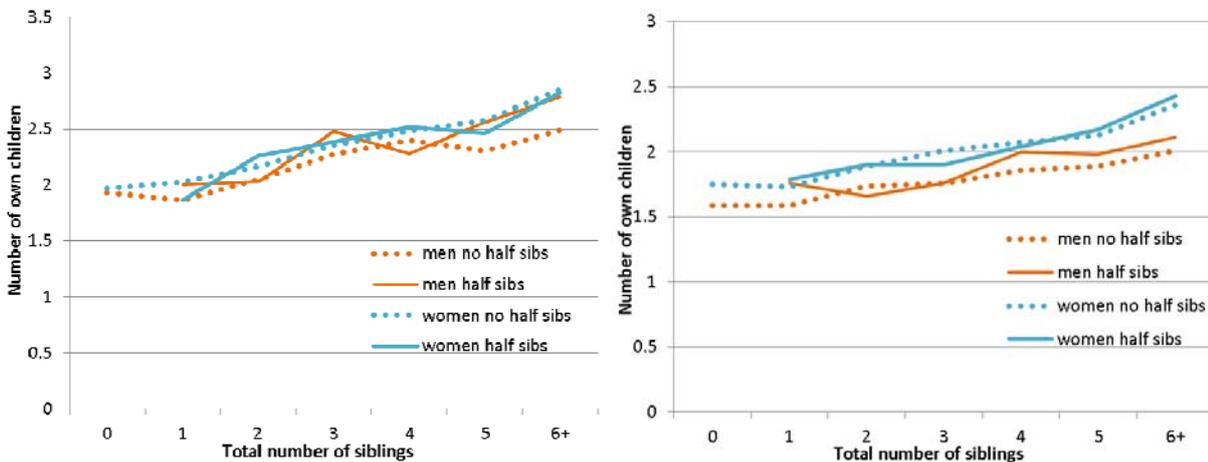
Figure 3 Three indicators of correlation of the number of children and siblings, over cohorts.



Sample: birth cohorts 1927-66, persons aged 45+ at survey
 Source: Enquête Famille et Logements 2011 (EFL, Ined-Insee)

Having full or step-siblings doesn't seem to affect much the childbearing outcome. Indeed, at constant total number of siblings, having had a step sibling or not does not seem to change strictly the overall number of own children (Figure 4), neither in the older cohorts, neither in the most recent. It is thus possible that more than having full-siblings, growing up with other children is determinant in the number of children one will have.

Figure 4 Mean number of children by total number of siblings and whether half sibs or not, (a) birth cohort 1937-41 (b) birth cohort 1962-66.



Sample: birth cohort 1937-41 and 1962-66, persons aged 45+ at survey
 Source: Enquête Famille et Logements 2011 (EFL, Ined-Insee)

First descriptive results thus show that the intergenerational relationship between fertility still exists but is lower in the most recent generations. This last result is certainly mostly due to the general decrease in the overall number of children over cohorts. It emphasises the importance of using quintiles rather than mean in studying the change in influence of the number of siblings. It also underlines the need for calculations of adjusted correlation.

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