

Long Abstract

Reconstructing Women's Fertility Histories through retrospective questions: is Sample Survey Data Reliable?

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Aim of the paper

During the last decades increasing importance has been given to the study of reproductive histories (and of the interrelation between fertility and other life domains) based on event history approaches. Data on reproductive life-course is collected either through longitudinal (prospective) surveys or -more frequently - through surveys which include retrospective questions. Given the increasing supply of survey data collected retrospectively and their wide use in scientific research, it is becoming crucial to assess their reliability. By comparing sample surveys with exhaustive sources, or different sample surveys with each other, several scholars have noticed that data collected from sample surveys with retrospective questions on reproductive histories tend to severely overestimate/underestimate fertility levels of selected subgroups of women (Kreyenfeld *et al.*, 2012; Kreyenfeld *et al.*, 2013; Murphy, 2009; Ní Bhrolcháin *et al.*, 2011; Sauer *et al.*, 2012).

Discrepancies in the fertility behaviour of selected cohorts that comes up by exploiting retrospective sample surveys has been attributed to multiple factors: (a) representativity of the sample due to non-response (mortality, migration, institutionalization, difficulties in reaching selected households, ...); (b) problems in reporting fertility histories using retrospective questions (recall bias, wording and placement of the questions, ...); (c) inaccurate registration of data and/or interviewer falsification.

This paper precisely aims to evaluate the reliability and accuracy of women reproductive histories collected with the Follow-up Survey on Births, by comparing self-reported information on childbearing histories with evidence that comes both from the Sample Survey on Births ("main survey") and from vital registers (list of all live-births from women resident in Italy for selected years). The present study does not focus on the representativeness of the sample¹, but on problems that relate to the "incorrect" registration of childbearing histories. Given that the birth of a child is a key-event in the woman's life-course, we assume that recall problems usually associated with data collected retrospectively should have a limited impact in the present study.

The approach used in this paper has its main strength in that the comparison of fertility histories from three different data sources (but referring to the same women) takes place at individual level. This comparison makes it possible not only to evaluate the Follow-up Survey's data quality, but also to correct its records in case of clear inconsistency.

¹ To overcome distortions due to nonresponse, the weighting system has been constructed considering several women's demographic characteristics, including fertility information.

Data and methods

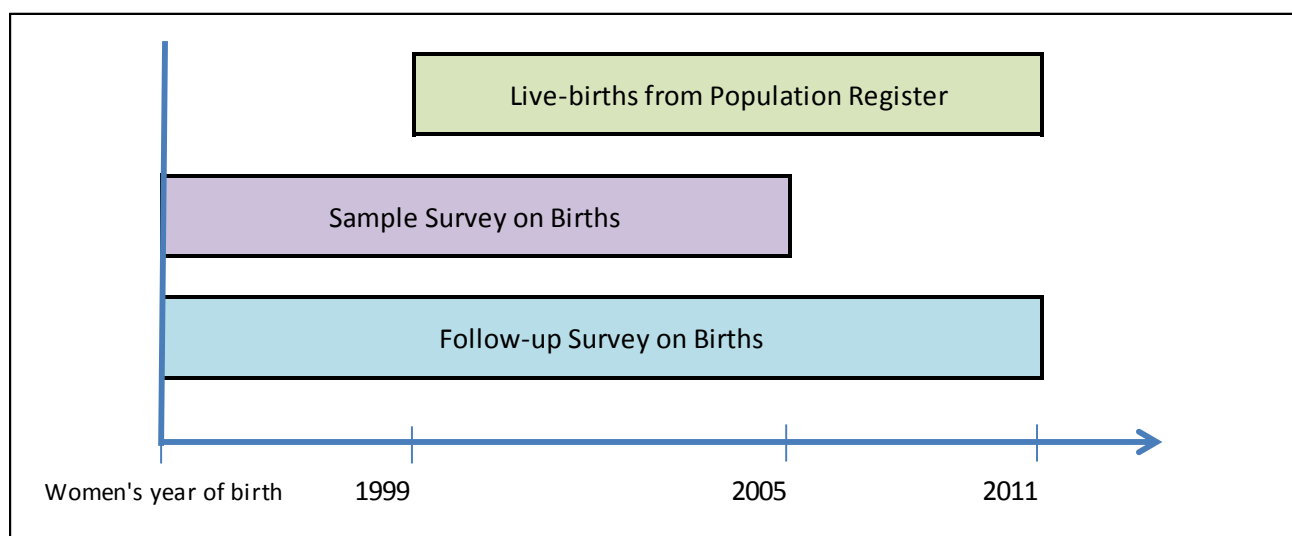
We compare reproductive histories referred to the same women that results from the analysis of three surveys conducted by the Italian National Institute of Statistics:

- 1) the Sample Survey on Births (2005 edition);
- 2) the Follow-up Survey on Births (2011);
- 3) Population registers (Live-births from 1999 to 2011).

The Sample Survey on Births (main survey) was run in 2005, interviewing a representative sample of resident women that had a live-birth in 2003. The subsequent follow-up survey (based on a smaller sample) took place in 2011. Both in the main survey and in the follow-up, women were asked to report the main information on their complete childbearing history (number of pregnancy, number of live-births, exact date of birth of each child, ...). The reproductive histories derived from those two surveys are therefore fully comparable. Moreover, in order to exploit information contained in population registers, deterministic record linkage techniques have been applied to link women participating in the follow-up survey with live-births from resident women occurred between 1999 and 2011. In Italy no unique national identity number can be used as matching key. We therefore use a combination of variables present in both surveys concerning women's characteristics such as complete name, surname, exact date and place of birth and a number of control variables. We do not consider the live-births occurred before 1999 because the on-going exhaustive survey on live-births from resident women was put in force in January of that year only. It follows that no comparison can be made between vital statistics and sample surveys for the part of women's reproductive histories prior 1999. However, following from the sample identification, all women interviewed during the Follow-up survey must have had a live-child in 2003. Furthermore, for more than a half of these women, it was their first child, so that an exhaustive comparison survey/register data can be made. Concerning women with higher parity at 2003, it must be considered that the intergenetic interval is approximately two years and the births of third or higher order are rare. Therefore only for a very small number of women the comparison survey/register data can be regarded as partial (Figure 1).

As a result, for every woman who took part to the follow-up survey we have three childbearing histories collected independently (Figure 2) which can be compared among them.

Figure 1



Selected results

The comparison of the women's fertility histories highlighted a high level of consistency between the three data sources for a large number of the records.

Several variables recorded during the follow-up survey have been controlled:

- total number of children born over women's lifetime (variable declared);
- parity declared vs. sum of the number of children registered in the household roster;
- date of birth of each live-birth;
- sex of each live-birth;
- number of twin births.

The discrepancies concerning the total number of children a woman had over her life-course are marginal and the same can be said when analysing the date of birth of each child. The inconsistencies between children's date of birth are often due frequently to clerical errors. In most of the cases the lack of correspondence is due to a misreporting during the follow-up survey of one only of the following information: day, month and year of birth of the child. In those cases (and when dealing with missing dates), discrepancies have been corrected.

Parity declared during the follow-up has been compared to the sum of woman's biological children leaving in the same household or in a different one. The eventual inconsistency between the declared parity and the number of biological children of the woman (living in the same household or in a different one) is technically possible because of the questionnaire's structure. In the follow-up survey – where data were collected using C.A.T.I. technique – the section devoted to children was repeated as many times as the number of children living in the household registered in the household roster (loops). A distinct section was devoted to woman's children living in a different household. The choice of linking the number of loops with the one of children living in the household and not to declared parity is two-fold. In this way it was possible: (a) to collect information also about eventual woman's non-biological children living in the household (adopted and step-children); (b) to avoid asking questions about an eventual live-child who have died at a later stage.

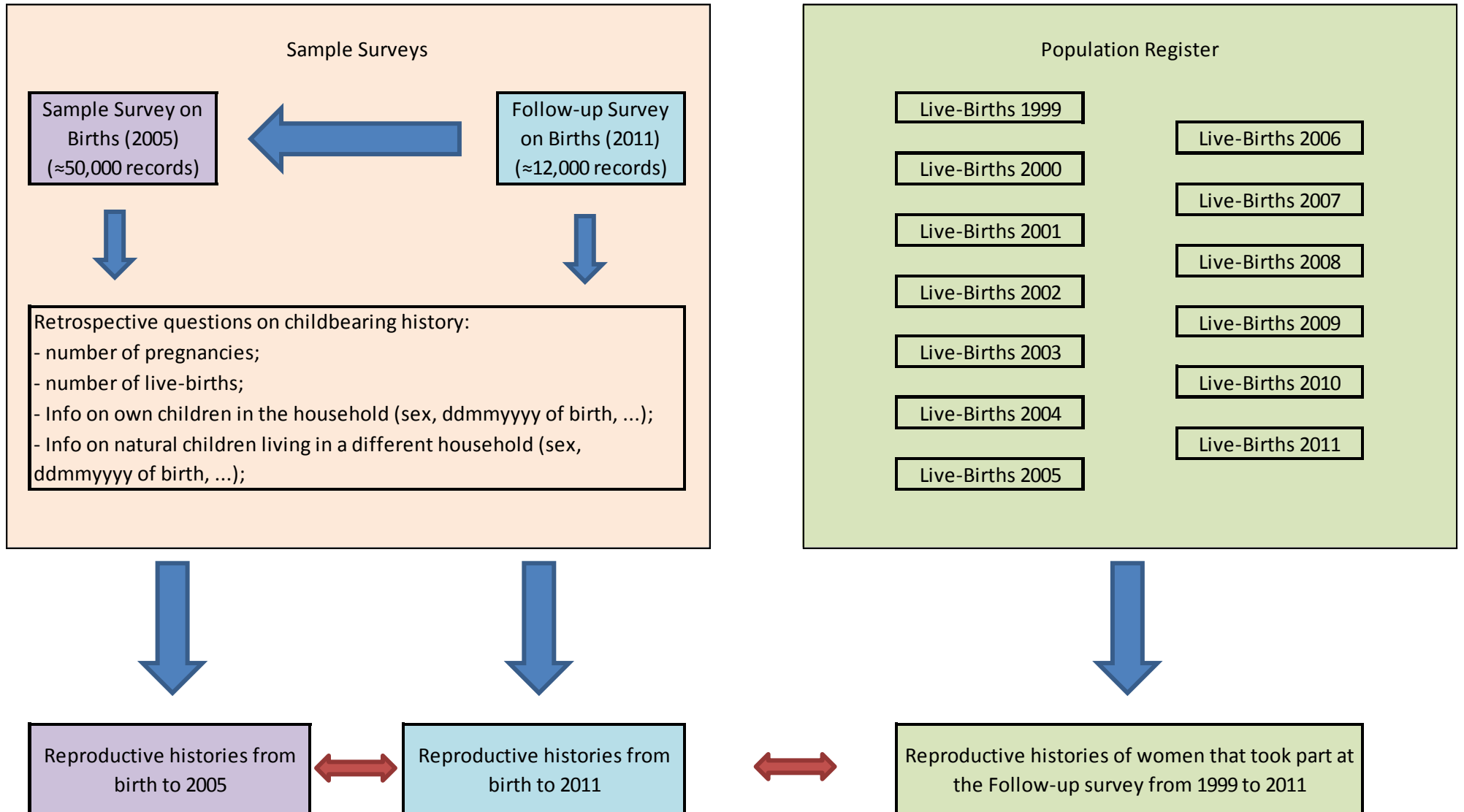
Given the low mortality risk among children, we expect a high correspondence between the parity declared during the follow-up and the sum of woman's biological children living in the same or in a different household. Again, in most cases the discrepancies are modest and sometimes due to a misreporting of the child paternity (there is perfect correspondence between the date of birth of the child within the two sample surveys and the population register but in the follow-up he/she has been erroneously registered as a step-child of the women and not as a biological one). In other cases the parity reported during the field results to be lower than the sum of woman biological children a woman had because of the presence of twin-births (the parity has been incorrectly put equal to the number of pregnancies a woman had).

For a few records, the number of children living in the household as registered in the household roster is greater than the declared parity (the latter being consistent with that reported from the other available data sources) but no adopted or step-children live in the household. In this situation, the interviewer has to pose an additional and unnecessary section on child characteristics which is often filled in with missing values or by repeating the information of another child in the household. In these cases the number of children living in the household has been corrected and the info on the "non-existing" child deleted. Lastly, we faced also the opposite situation where the number of biological living children is lower than the parity

declared. In those cases the section on the “missing child” characteristics do not opens and no information is collected. The correction of those few records is more problematic: even if the information of the exact date of birth is present in the other data sources available we do not know if he/she has died later on or not. In the first case by imputing the “missing child” ’s date of birth instead of correcting the record we will introduce an unnecessary source of distortion.

Lastly, we took into account if interviewer effects had a substantial impact in the follow-up data quality. It must be noticed that interviewers were paid per completed interview, regardless of its length. This may push some of the interviewers to misreport deliberately the number of children living in the household in order shorten the length of the interview. However, we found no significant interviewer effects.

Figure 2



References

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