

Generational fertility convergence in England and Wales: Assessing the own-child method

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Short Abstract

Research on migrant fertility frequently makes use of the own-child method to measure fertility (e.g. Cho et al. 1970, Abbasi-Shavazi and McDonald 2000, Adsera and Ferrer 2010), but it remains uncertain whether results are substantially affected by own-child measurement error (e.g. Abbasi-Shavazi 1997). This research tests the reliability of the own-child method using data from the Office for National Statistics Longitudinal Study (LS),¹ a one per cent sample of the England and Wales population. This unique data source links individual-level 2001 Census data to births registered in England and Wales. As expected, fertility is underestimated using the own-child method, but it nevertheless appears to be a reliable measure of fertility for studying generational fertility convergence in England and Wales. Evidence of generational fertility convergence is found, particularly for women with South Asian origins. This conclusion does not change when births missed by the own-child method are included in the analysis.

Extended Abstract

There is a stated need for more research on the fertility of second and third generation migrants living in Europe (Sobotka 2008), especially those living in England and Wales (ONS 2007). In particular, it remains to be shown whether migrant fertility converges with native fertility over different generations (Sobotka 2008). In order to redress this situation, one of the crucial decisions for future research is how to estimate fertility (and minimise measurement error). Migrant fertility is inherently difficult to measure, largely because the children of migrants are more likely to be born overseas, and because the timing of immigrant births is often associated with the act of migration (Toulemon 2006).

Research on migrant fertility can be placed into three broad categories according to the type of source used to derive information on births. Fertility may be estimated using retrospective birth history questions in surveys or censuses, including short questions on children ever born (e.g. Parrado and Phillip Morgan 2008). Alternatively, vital event registration can be used, in some cases linked to population register data (e.g. Alders 2000). Finally, fertility can be estimated using indirect techniques like the own-child method (e.g. Coleman and Dubuc

¹ The permission of the Office for National Statistics to use the Longitudinal Study (LS) is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: RES-348-25-0004). The clearance (and project) number for the LS data shown here is 30135. Census output is Crown copyright and is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. Copyright of the statistical results may not be assigned, and publishers of this data must have or obtain a licence from HMSO. The author alone is responsible for the interpretation of LS data.

2010). The latter is frequently chosen in order to exploit datasets that do not otherwise include information on births, and this is often considered appropriate because aggregate comparisons with vital events data suggest that own-child estimates are reliable (given certain assumptions and constraints) (Abbasi-Shavazi 1997, Dubuc 2009). Nevertheless, it remains unclear whether the own-child method is accurate when compared with direct individual-level estimates of fertility. This is investigated here in the context of research on generational fertility convergence.

The generational fertility convergence hypothesis

A review of the literature suggests that there are three overlapping types of migrant fertility convergence. The first concerns individual migrants, whose life-course behaviour may converge with the norms of their destination country, dependent upon duration of residence (e.g. Blau 1991, Abbasi-Shavazi and McDonald 2000, Alders 2000, Østby 2002, Andersson 2004, Bélanger and Gilbert 2006, Toulemon 2006, Milewski 2007). The second is less frequently studied, and compares migrants (and their ancestors) at a given destination with those ‘left behind’ in their country of origin (Coleman 1994, Frank and Heuveline 2005). The third type of fertility convergence, and the type that is studied here, concerns different migrant generations, where the behaviour of higher order generations (e.g. the second generation), may be more likely to converge with the ‘native’ norm (Kahn 1994, Alders 2000, Frank and Heuveline 2005, Bélanger and Gilbert 2006, Parrado and Phillip Morgan 2008).

Table 1: Generational groups

Detailed Generation	Aggregate generation	Place of birth	Age at migration	Parent’s place of birth
Ancestral natives	Third	Native-born		Both native-born
Generation 2.5	Second	Native-born		One foreign-born
2nd generation	Second	Native-born		Both foreign-born
Child migrants	First	Foreign-born	Child (0-16)	
Adult migrants	First	Foreign-born	Adult (>16)	

Note: Child migrants are often referred to as generation 1.5

As shown in Table 1, migrant generations are typically ranked according to the proximity that they have to their arrival (at destination), or (for native-born generations) the arrival of their first ancestor (Østby 2002, Andersson 2004, Bélanger and Gilbert 2006). In a sense, the order reflects the amount of ‘exposure to destination’ that each generation has experienced. It is therefore hypothesised that the number of children born to women who are resident in England and Wales can be ordered according to the migrant generations shown in Table 1.

Testing this hypothesis requires large samples, and one of the few adequate datasets for England and Wales is the Office for National Statistics Longitudinal Study (LS), a one per cent sample of the population. Unlike most census-based data sources however, the LS links census data to information on births registered in England and Wales (Hattersley and Creeser 1995). This means that own-child estimates from the 2001 Census can be compared with vital statistics at an individual level, and it is therefore possible to estimate children that are ‘missed’ (by either method). Furthermore, it can be explored whether the inclusion of children that are missed by the own-child method will make a difference to hypothesis tests of generational fertility convergence. The result of this exploration has implications for future research activity, (including data collection, measurement methods, and choice of data sources for analysis).

Initial results

For a sample of women aged 16 to 45-years-old, descriptive statistics and multinomial regression are used to show that, as expected, fertility is underestimated using the own-child method (Table 2). Considering generational order, the generations closer to ancestral natives are less likely to have missing children, although except for adult migrants, the predicted probabilities are similar for missing children using the own-child method. Interestingly child migrants are clearly distinct from those who arrived as adults, suggesting the importance of age at migration for missing births. Further analysis shows that the effect of child mortality on own-child estimates is relatively small, and that most children are missed by the own-child method because they do not live with their mother. This result accords with previous research using aggregate comparisons with vital events (Abbasi-Shavazi 1997, Dubuc 2009).

Table 2: Multinomial regression predicted probabilities: generation

Generation	No missing Children	Some missing using own-child method	Some missing using registered births
Ancestral native	70%	23%	7%
Generation 2.5	69%	23%	8%
Second generation	65%	27%	8%
Child migrants	61%	25%	15%
Adult migrants	54%	12%	34%

Note: The analysis controls for age, partnership, foreign partners, student status, education, region, and urban/rural (see Appendix Table A.9 for full results). Predicted probabilities are based on women who are aged 41-45, married or cohabiting with a native-born partner, with qualifications at less than degree level, not studying full-time, and living in urban North England. Source: ONS (author's calculations)

Poisson regression models are then applied, using the different fertility measures, in order to test whether migrant fertility converges with native fertility over different generations. Poisson regression is preferred as a reliable method for modelling count data (Long and Freese 2006), and has been used in a number of recent studies of fertility (Winkelmann and Zimmermann 2000). In particular, through the inclusion of an offset term and the presentation of incidence risk ratios, Poisson models are particularly suited to modelling comparative birth risks (Adsera and Ferrer 2010).

Using the own-child method, evidence of generational fertility convergence is found, and the fertility of second generation migrants (in aggregate) tends to be more similar to that of ancestral natives compared with the first generation. However, convergence is more evident for particular migrants, especially those with South Asian origins, a result which aligns with the results of previous research for the UK (Coleman and Dubuc 2010). Importantly, there is no material change to these conclusions when the own-child method is compared with a measure that includes missing births (i.e. the maximum number of births for each woman using both own children and registered births). The results therefore indicate that the own-child method is a reliable measure for use in future research on migrant fertility.

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