Trends in First and Second Births in Brazil [1]

Adriana de Miranda-Ribeiro[2]
Tereza Bernardes[3]
Ricardo Alexandrino Garcia[4]

1 Introduction

Brazil reached the replacement level in about 40 years from the onset of the fertility transition. Fertility has dropped from 5.8 in the 1960s and in 2010 was about 1.9. The changes affected not only the level, but also the mean age at childbearing (MAC). The fertility decline in Brazil was largely accompanied by the decline in MAC. Until the mid-1990s, the decline reflected a drop in the percentage of 3+ birth orders. Since then, although the trend of concentration of births in the lower orders (1 and 2) remained, MAC has increased. In 2010, 1st and 2nd births represented 70% of all births. Fertility transition in Brazil was accompanied by a negative tempo effect, which inflated the observed fertility. From the mid-1990's, tempo effect in Brazil is positive and the observed fertility is depressed by births postponement (Miranda-Ribeiro et al, 2016; Rios-Neto et al, 2018).

Fertility postponement has immediate effects on population dynamics, as it deflates the number of births observed in each period. The effects on cohort fertility may be null, if delayed births are recovered throughout the reproductive life. This paper does not intend to discuss birth recovery, although we understand that the analysis of first and second births trends can bring important elements to this debate. This paper will focus fertility levels. What the trends in first and second births can tell us about future fertility levels in Brazil?

The main goal of this paper is to analyze trends in first and second birth orders in Brazil. We will analyze: (i) tempo effect; (ii) birth intervals; (iii) parity progression ratios.

2 Data

Data come from the birth histories reconstructed from 1991, 2000 and 2010 Demographic Censuses[5]. The birth histories reconstruction methodology based on the matching process aims to complete the birth histories of women between 15 and 64 years old, for the fifteen years prior to the census or survey used. In general terms, the process consists of looking for, in the complete birth histories, which most closely resembles an incomplete birth history, based on comparison of several variables. The complete birth history that has the strongest relationship to the incomplete birth history determines the variables that will be imputed to complete the incomplete birth history. Only the ages of the omitted children are imputed. The

[1] Extended abstract submitted to PAA2019.

[2] Professor, Demography Department and Cedeplar, Federal University of Minas Gerais, Brazil.

[3] PhD Student in Demography at Cedeplar, Federal University of Minas Gerais, Brazil and Fullbright Visiting Student at Population Studies Center at University of Pennsylvania.

[4] Professor, Geography Department, Federal University of Minas Gerais, Brazil.

[5] Miranda-Ribeiro, 2007; Miranda-Ribeiro, Rios-Neto and Carvalho, 2009.

procedure consists in: (a) allocate children to mothers within the household; (b) determine the complete and incomplete birth histories, building two sets of data; (c) match birth histories sets (complete and incomplete) and determine the best match; (d) impute the age of the omitted children. The final database of birth histories consists of all the women surveyed from 15 to 64 years of age – women without children, those who originally had complete birth histories, those who had their birth histories imputed, and those who did not have their birth histories imputed due to the lack of a match – in order that it is possible to calculate all the measures. The birth histories reconstructed cover the 1977 to 2010 period.

3 Evidences

3.1 Tempo effect

As it is observed to all birth orders, first births are also being postponed since the 1990s, according to KO Model results (positive tempo effect since middle 1990's). The tempo effect for second births had some fluctuations in the period (Figure 1).

3.2 Parity progression ratios (PPR)

A parity progression ratio (PPR) is the proportion of women who progress from one parity to the next. PPRs can be calculated for cohorts, defined by age. For cohorts that have finished childbearing, (and assuming there is no differential mortality by parity), these measures are fixed. Figures 2(a) and 2(b) show PPRs for 45-49 Brazilian women, from 1980 to 2010 (7 cohorts, borne from 1931-1935 to 1961-1965). Figure 2(a) show PPR for 1st birth order to the whole country and the five great regions. One can observe that fertility in Brazil and regions have different the percentage of women with at least 1 child is quite stable, although there is a little drop in the 2000's. The PPR to 2nd births dropped from the 1990's on.

3.3 Birth intervals

Figure 3 shows the proportion of women by interval (in years) to second birth, for women who had their first birth in 1970, 1980, 1991 and 2000, at the ages of 15 (2a), 20 (2b), 25 (2c), 30 (2d), 35 (2e) and 40 (2f) years. Figure 2 also shows the percentage of women who did not have the second birth within the 10 years subsequent interval. Although there is a greater proportion in the 2-year interval, cohort and period differences are evident.

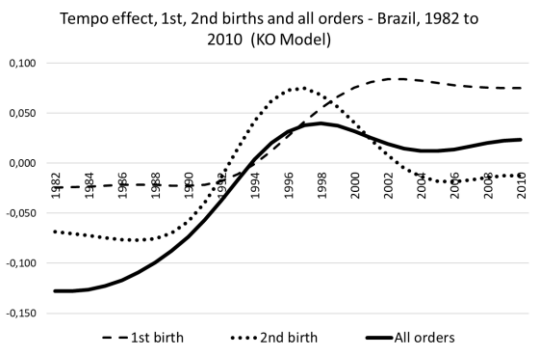
Figure 2a shows women who had their first birth at the age of 15. For those who had the first birth in 1970, 11.6% did not have the second birth in the 10 years subsequent interval and 70% had the second birth within a 3-years interval. For those who had first birth in 2000, 22% did not have a second birth within the 10-years interval and 40% had within a 3-years interval.

For women who had their first child at age 35 (Figure 2e) in 1970, 45% had their second child within 3 years and 40% did not have their second child between 1971 and 1980. Of those who had their first birth in 2000, 60% did not have the second between 2001 and 2010 and 20% had the second child in a 3-years subsequent interval.

4 Comments

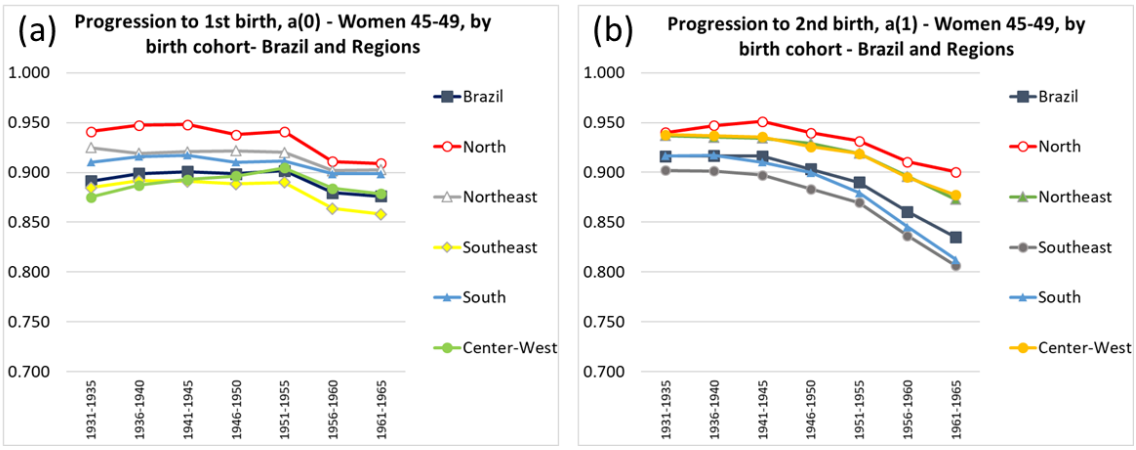
Preliminary evidences show that in the last 50 years Brazil has undergone important changes regarding fertility trends. Regarding PPRs, results indicate that the proportion of women that ends the reproductive life with only one child increased and also increased the childless proportion among Brazilian women. Regarding birth intervals, one can observe that the interval to second birth increased and that a growing proportion of women do not have the second birth in the 10-years subsequent interval. It's also evident that proportion of births within the 10-years subsequent interval is higher for the younger women. It is possible that many births occur at intervals greater than 10 years, although the percentage of births with intervals higher than 5-years is very low for all cohorts and in all periods. By combining information on tempo effect, *ppr* and birth intervals, one can speculate whether Brazil will reach the 'lowest low' levels.

Figure 1



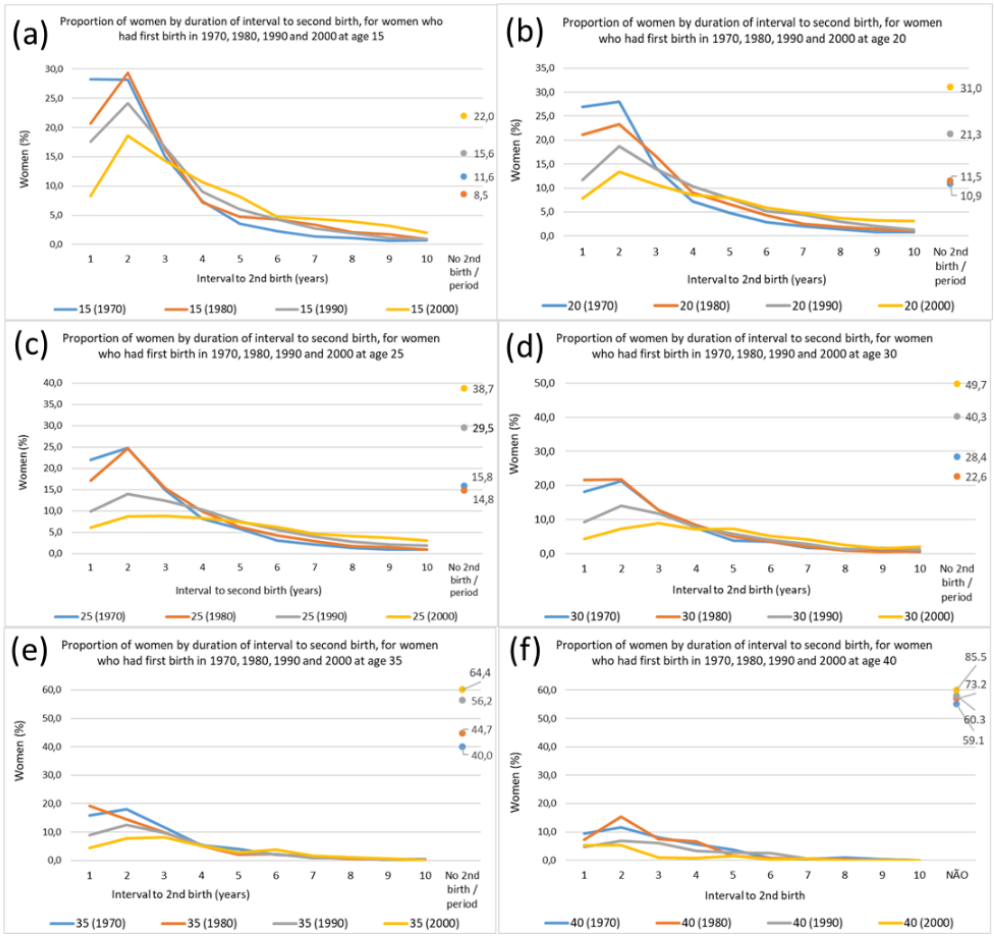
Source: Miranda-Ribeiro, Rios-Neto and Garcia, 2016.

Figure 2: Parity progression ratios (PPR) to first and second births, 45-49 years old women, by birth cohort – Brazil and Great Regions.



Source: Brazilian Demographic Censuses (1980 to 2010) – Reconstructed Birth Histories

Figure 3: Birth intervals to second births,



Source: Brazilian Demographic Censuses (1980 to 2010) – Reconstructed Birth Histories

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