RESEARCH

Fertility and Educational Pairings in Brazil: an analysis through cohort fertility

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Abstract

Brazil has experienced a significant drop in its period fertility rates over the 1960s and 2000s. The decline of fertility levels occurred concomitant with a diversity of cultural and structural socio-demographic changes in the country, such as the expansion of education systems, the increase of female participation in the labor market and changes in gender norms and relations. As a result of these structural changes, the country observed new patterns of assortative mating, reflect of a higher heterogeneity of unions among partners from different social groups and with diverse levels of schooling. The present work aims to study the transition of Brazilian cohort fertility, including the partner characteristics to evaluate the couple's final reproductive result. The cohort analysis was adopted due to the scarcity of this type of analysis for Brazil and as a way of avoiding the need for *quantum* and *tempo* corrections of period fertility rates. Thus, the objective of this study is to evaluate the influence of male schooling across female cohorts and educational levels, as well as to verify the differences in reproductive outcomes between heterogamous and homogamous arrangements. Indeed, male schooling has notable effects in cohort fertility rates, especially for older cohorts and for groups with lower levels of schooling. It was evaluated the process of fertility convergence that stood out mainly among groups of the lower educated strata. Finally, it was found that couples with male educational advantage (hypergamic) had higher reproductive levels than hypogamic pairings. The study also highlighted the marked differences between Brazilian Regions, especially those among North-Northeast and Center-South Regions. These results corroborate to the idea that Brazil is in the middle of the first phase of the Gender Revolution, marked by an increase of female participation in the labor market.

Keywords: cohort fertility; educational pairings; Brazil

Background

Text and results for this section, as per the individual journal's instructions for authors.

Structural changes and demographic dynamics

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Educational advances

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Assortative mating

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Sub-sub-sub heading for section Text for this sub-sub-sub-heading ... In this section we examine the growth rate of the mean of Z_0, Z_1 and Z_2. In addition, we examine a common modeling assumption and note the importance of considering the tails of the extinction time T_x in studies of escape dynamics. We will first consider the expected resistant population at vT_x for some $v > 0$, (and temporarily assume $\alpha = 0$)

$$E\big[Z_1(vT_x)\big] = E\bigg[\mu T_x \int_0^{v\wedge 1} Z_0(uT_x)\exp\big(\lambda_1 T_x(v-u)\big)\,du\bigg].$$

If we assume that sensitive cells follow a deterministic decay $Z_0(t) = xe^{\lambda_0 t}$ and approximate their extinction time as $T_x \approx -\frac{1}{\lambda_0}\log x$, then we can heuristically estimate the expected value as

$$\begin{aligned} E\big[Z_1(vT_x)\big] &= \frac{\mu}{r}\log x \int_0^{v\wedge 1} x^{1-u}x^{(\lambda_1/r)(v-u)}\,du \\ &= \frac{\mu}{r}x^{1-\lambda_1/\lambda_0 v}\log x \int_0^{v\wedge 1} x^{-u(1+\lambda_1/r)}\,du \\ &= \frac{\mu}{\lambda_1-\lambda_0}x^{1+\lambda_1/rv}\left(1-\exp\left[-(v\wedge 1)\left(1+\frac{\lambda_1}{r}\right)\log x\right]\right). \quad (1) \end{aligned}$$

Thus we observe that this expected value is finite for all $v > 0$ (also see [1, 2, 3, 4, 5]).

Competing interests
The authors declare that they have no competing interests.

Author's contributions
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Figures

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Tables

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