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The End of the Rejuvenation of the Fertility Schedule in Brazil: Evidence from Changes in Contraception Use and Reproductive Preferences among Adolescents and Young Women

Author: Ana Paula Verona

Affiliation: Department of Demography/Cedeplar, Universidade Federal de Minas Gerais, Brazil

Corresponding author/address: Department of Demography/Cedeplar, Universidade Federal de Minas Gerais, Brazil; email: anapaulaverona@gmail.com

Abstract

For the first time since the beginning of Brazil's fertility decline, its schedule has stopped rejuvenating. A key factor for this phenomenon is the sharp decrease of fertility among teenagers in the first decade of the 21st century. This paper examines recent changes in two determinants of reproductive behavior of adolescents and young women in Brazil: the use of contraceptives and the ideal number of children. Using data from the 1996 Demographic and Health Survey (DHS) and the 2006 *Pesquisa Nacional de Demografia e Saúde* (PNDS), changes in the use of contraceptives and reproductive preferences according to age groups and cohorts are examined. The results show a great increase in the use of contraception among adolescents and young women and indicate an increase in preference for low parity and a decrease in the average ideal number of children across cohorts. The early fertility schedule in Brazil in addition with lower expectations regarding future fertility strongly suggest that there is a lot of room for further decline of fertility in the country. The study emphasizes recent and not yet investigated changes in adolescents and young women' reproductive behavior in Brazil and sheds light on the likely continuation of changes in the Brazilian fertility schedule and level.

Keywords

Adolescent fertility, fertility schedule, contraception, reproductive preferences, fertility expectations

Introduction

The total fertility rate (TFR) in Brazil has decreased substantially in recent decades, from approximately 6.0 in 1960 to 1.9 in 2010. One of the most striking features in this decline was the concentration of births in younger age groups, which led to a rejuvenation of the fertility schedule. This phenomenon is explained by the greater decline among older ages as well as by increases in adolescent fertility (between 1970 and 2000, adolescent fertility rates went from 75 to 91 births per thousand women). As a result, throughout Brazil's fertility transition, there was an increased concentration of births in younger age groups, a decrease in the mean age of fertility and a negative tempo effect in their TFRs (Miranda-Ribeiro Rios-Neto and Carvalho 2013).

For the first time, the rejuvenation of the fertility schedule shows signs of reversal in Brazil (Berquó and Cavenaghi 2014). Before 2000, adolescents (15–19 years) and young women (20–24 years) presented a growing relative contribution to TFR. Overall, women aged between 15 and 24 years contributed 28.5% of births in Brazil in 1970, 33.6% in 1980, 43.7% in 1991, and 47.8% in 2000. In 2010, this growth trend was interrupted, when adolescents and young women contributed 44.8% of all births. A key factor explaining this reversal is the sharp decrease in fertility among teenagers in the first decade of this century.

Table 1 shows the difference between the age-specific fertility rates (ASFRs) in the inter-census intervals in Brazil between 1960 and 2010. It may indicate three different trajectories of fertility according to the women's ages. Table 1 displays three shades of gray that represent, respectively, from the lighter shade to the darker one: (1) adolescents who had not contributed to the fertility decline in Brazil until 2000, and then considerably contributed to it between 2000 and 2010, (2) women aged between 20 and 29 years that since the beginning of the fertility transition have strongly contributed to the decline, and (3) women aged between 30 and 49 years, with a decreasing contribution to the decline of fertility, reaching ASFRs in 2010 that are similar to those observed in 2000.

Table 1. Difference between the ASFRs (births per thousand women) in Brazil between 1960 and 2010

Age Group	1960-1970	1970-1980	1980-1991	1991-2000	2000-2010
15–19	-1.9	4.9	7.7	3.6	-23.8
20–24	-12.2	-41.7	-51.2	-28.3	-30.9
25–29	-4.9	-69.0	-83.1	-29.1	-22.7
30–34	2.2	-71.9	-78.9	-19.0	-6.6
35–39	5.7	-64.3	-62.5	-13.7	-3.1
40–44	-2.9	-32.4	-28.3	-11.0	-2.0
45–49	-2.0	-11.5	-5.2	-3.6	-0.3

Source: Brazilian Institute of Geography and Statistics (IBGE). The rates for the years from 1980 to 2010 are available on the IBGE website, whereas the 1960 and 1970 rates were requested from the institute. All rates are corrected using the Brass P/F Ratio Method (1964).

Despite the decrease in adolescent fertility (it dropped from 91 to 68 births/1,000 adolescents between 2000 and 2010) and the continuation of the decline among women aged 20 to 24 years, Brazil still displays an early fertility pattern. Reproductive behavior of the youngest age groups in Brazil will play, undoubtedly, a crucial role in fertility in the coming years and decades. In this work, recent

changes in two determinants of the reproductive behavior are examined that may help explain the recent reversal of the rejuvenation of the fertility schedule and the continuing fertility decline in Brazil. The determinants include: (1) the use of contraceptives, and (2) the ideal number of children.

Recent changes in the reproductive behavior of adolescents and young women in Brazil

Examined below are aspects of reproductive behavior from women aged 15 to 24 years through descriptive and comparative analyses of information from the 1996 Demographic and Health Survey (DHS) and the 2006 *Pesquisa Nacional de Demografia e Saúde* (PNDS). Results allow comparisons by age groups within the same survey as well as comparisons across cohorts.

Unfortunately, the 2006 PNDS – which included questions regarding the use of contraception and fertility intentions and preferences – is the latest national survey in Brazil with information on reproductive behavior. Although it would be better to have newer data, the adolescent fertility had already begun to decline in Brazil in 2006. That is, the adolescent fertility had, by this time, moved from an increasing to a decreasing trend. In addition, the Brazilian total fertility had already reached the below replacement level in 2006. Therefore, data from the 2006 PNDS is new enough to confirm two important phenomena discussed in the article: the recent decline of adolescent fertility in Brazil as well as its low current total fertility.

The 1996 DHS and 2006 PNDS are nationally representative surveys of women aged 15-49 years; they contain detailed information on socio-demographic variables and reproductive and child health. Both are probabilistic stratified samples in two stages: primary units composed of census tracts, and secondary units, formed by the domiciliary units, being necessary to specify their respective weights and sample units. For 1996, the information required for this specification is available in stratum (seven regions) and conglomerate (842 sectors). And for 2006 the sample units have the same denominations (the stratum is composed by 10 units and the conglomerates by 1,088 sectors). In the case of sample weights, for 1996, the weighting factor of the group analyzed was used (weight of the eligible woman in the household), and for 2006, the expansion factor was used of the corresponding group.

It is important to point out that if weights and sampling units are specified, these two surveys become comparable (Cavenaghi 2009). In the STATA software, version 13, this specification can be made through the "svyset" command, which produces estimates corrected by the complexity of the sample.

Changes in the use of contraception

In this section, data from women who reported already having the first sexual intercourse are examined. The DHS/PNDS usually asks questions on contraception only if the woman has started her sexual life. The reason behind this restriction is the idea that only women who have already had sexual relationships would want/ need to use contraception.

Table 2 shows the proportion of women that already had the first sexual intercourse and were currently using a contraceptive method. Between 1996 and 2006, there was an increase in contraception use in all age groups, with a total growth of 9.1% during the period. The younger age groups, however, displayed a much greater increase. Among the adolescents, the percentage increase was 44.0%, and for young women aged 20 to 24 years, the increase was 25.7%.

Table 2 - Women that already had sexual intercourse and were using a contraceptive method, according to age groups, in Brazil in 1996 and 2006

Age Group	1996	Women that already had sexual intercourse	2006	Women that already had sexual intercourse	Change between 1996 and 2006 (%)
15–19	44.9	843	64.7	1,259	44.0
20–24	59.7	1,457	75.0	2,214	25.7
25–29	71.8	1,756	76.8	2,318	7.0
30–34	78.2	1,793	80.7	2,252	3.2
35–39	78.5	1,640	81.2	2,064	3.3
40–44	73.5	1,363	80.7	1,952	9.8
45–49	64.1	1,102	67.4	1,750	5.2
Total	69.6	9,954	75.9	13,809	9.1

Source: 1996 DHS and 2006 PNDS.

In terms of type of contraception commonly used among adolescents and young women (who already had had sexual relationships) between 1996 and 2006, two changes can be noted (results not shown). The first one is the decreasing proportion of adolescents using pills, and the second change is the increasing share of both groups using condoms. In Brazil, the two main contraceptive methods used by them in 1996 and 2006 were pills followed by condoms. According to the 1996 DHS, 54.4% of adolescents and young women reported using pills while 22.6% and 12.0% of adolescents and women between 20 and 24 years, respectively, used condoms. Results from the 2006 PNDS showed that 48.4% of adolescents reported using pills, and 50.8% reported using condoms. Among those between 20 and 24 years, 55.4% were using pills and 34.2% were using condoms.

Changes in reproductive preferences

In a declining fertility setting (such as the Brazilian one) younger cohorts may have lower expectations regarding fertility (Lutz et al. 2006). For instance, unlike what was observed in the recent past in Brazil, it is now common to say that "having just one child is good enough" (Cavenaghi and Alves 2011). In general, current fertility affects standards and values related to the optimum family size that may, in turn, influence future fertility. In this sense, the roles that interaction processes and social learning play, which may change preferences in expectations about family size ideals, are noteworthy (Kohler Billari and Ortega 2006).

Table 3 shows the percentage distribution of women, according to age group, who reported that the ideal number of children is zero or one in 1996 and 2006. Adolescents display the highest increase in this percentage (46.1%). Table 3 also shows the average ideal number of children. Both adolescents and young women reached an average of 1.87 in 2006, which is lower than 2.0, an average traditionally thought to be a social norm regarding the ideal number of children.

Table 3. Percentage distribution of women who answered that the ideal number of children is 0 or 1 and the average ideal number of children according to age group in Brazil in 1996 and 2006

Age Group	1996			2006		
	0 or 1 child	Average ideal number of children	Women	0 or 1 child ¹	Average ideal number of children	Women
15–19	18.0	2,01	2,537	26.2	1,87	2,488
20–24	21.3	2,04	1,991	29.5	1,87	2,508
25–29	21.8	2,12	1,955	26.9	1,92	2,435
30–34	21.9	2,21	1,869	24.4	2,08	2,301
35–39	19.7	2,56	1,713	21.3	2,20	2,099
40–44	17.7	2,84	1,400	18.5	2,42	1,975
45–49	16.8	2,92	1,147	21.2	2,52	1,769
Total	19.8	2,33	12,612	24.3	2,10	15,575

Source: 1996 DHS and 2006 PNDS.

1 - Casterline and Mendoza (2009) present similar results from this measure for several Latin American countries.

The effect of the number of children ever had on women's statements regarding the ideal number of children is considered in Table 3. In general, as older women have greater parturition, they may report, on average, a greater ideal number of children. That is because they tend to rationalize answers about reproductive preferences, taking into account the number of children who they have already given birth to (Casterline and Mendoza 2009). However, considering the temporal comparison (a relatively short period, i.e., 10 years), a considerable decrease in the average ideal number of children mentioned between 1996 and 2006 is observed in each age group. Adolescents and young women reported lower expectations with regard to fertility in 2006 than those from 1996.

Results from Table 3 should be carefully interpreted, since expectations relating to family size may change during the life cycle. However, it is of note that remarkable differences have been observed in Brazil among women who have already completed the reproductive period. For example, in 1996, 8.8% of women aged 45 to 49 years were not mothers, while in 2006, this percentage was 13.4%. Regarding women between 45 and 49 years of age who had one child only, the percentage increased from 7.7% to 14.3% in the same period (Cavenaghi and Alves 2011). Such changes may be influencing the behavior of younger cohorts in Brazil and reducing their expectations regarding future fertility.

Summary and discussion

Until the beginning of the 21st century, female adolescents in Brazil did not follow the trajectory of fertility decline observed among other age groups. Several studies examined the reproductive behavior of female Brazilian adolescents in an attempt to explain its determinants and present reasons for the absence of a decline in fertility level. Some factors include the low levels of education and income as well as the limited autonomy of this age group. These factors are often linked to barriers to intergenerational and gender negotiations, which are often associated with a reduced use of contraceptive methods or a high unmet need for contraception (Gupta and Leite 1999; Leite Rodriguez and Fonseca 2004; Berquó and Cavenaghi 2005; Wong 2009; Cavenaghi and Alves 2011).

Surprisingly, fertility among adolescents increased in Brazil during the 1990s – an increase that was explained by factors such as greater freedom and sexual precocity, a decrease in the value of virginity, a greater failure in the use of contraceptive methods, and the lack or shortage of sex education programs (Berquó and Cavenaghi 2005). Furthermore, it is important to consider the taboo or the difficulty faced by parents and educators in addressing issues related with the sexual and reproductive behavior of adolescents in Brazil.

Data from the 2010 census revealed a sharp decline in adolescent fertility, which was a critical factor underpinning the end of the rejuvenation of the fertility schedule in Brazil. Considering results for adolescent and young females, this work highlighted two changes that may help explain this decrement: (1) an increase in the use of contraception and (2) a decrease in expectations about future fertility. Such changes have not been deeply investigated yet.

The reproductive behavior of adolescent and young females will be decisive in explaining the pattern and the level of fertility in the coming years in Brazil. Despite the end of the process of fertility rejuvenation, there is still a high concentration of births among younger groups of women. Even with the increase in the use of contraceptives, the unmet need for contraception among these age groups may be relatively high, suggesting space for a continuation of the fertility decline. Furthermore, changes in the reproductive preferences of younger cohorts may reflect lower expectations with regard to fertility, which may also affect fertility in the future. This study emphasizes recent and not yet investigated changes in adolescents and young women' reproductive behavior in Brazil and sheds light on the likely continuation of changes in the Brazilian fertility schedule and level.

To close, it is important to remember that beyond the factors mentioned in this study, other aspects suggest a continuation of the fertility decline in Brazil. Some examples are the quality improvement in the use of contraceptive methods (Pérpetuo and Wong 2008), the maintenance of a large volume of induced abortions in Brazil (Diniz and Medeiros 2010), and the rising levels of education among children and adolescents in the country.

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