Changes in parity profile of Brazilian women thirty years and older between 1970 and 2010

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Introduction

Over five decades, the Total Fertility Rate in Brazil dropped from an average of 5.7 children per woman, in 1970, to 1.9, in 2010. Below replacement fertility has sparked different reactions. The most optimistic view this reduction in fertility as an indicator of important social transformations that the country has undergone and a sign of convergence with the socio-demographic norms of more developed countries. Among other advantages, they claim that fewer children will allow greater per capita investment in each child, both by their families and by the government. Other reactions call for more caution around the medium and long term challenges this presents in terms of the accelerated aging of the population. They point out the need for adjustments to the workings of the national pension system, currently based on a contributory agreement founded on intergenerational solidarity. Financial transfers from younger (active) to older (inactive) people, without major concerns over savings, would require changes in the middle term.

Although the Brazilian Total Fertility Rate is at levels comparable to those of more developed countries, it obviously has a very particular history. The reproductive history of Brazilian women appears to be, on average, very different from that of their contemporaries in countries with long-standing low fertility. Both in terms of age when and life phase in which women become mothers for the first time. Even though the quantum of fertility may be similar in both cases, timing may reflect different realities, in Brazil and in the so called most advanced societies.

Postponement of the birth of the first child is one of the most prominent characteristics of recent studies of European fertility trends (Sobotka, 2003). It is argued that this contributed to "deflate" period measures, especially the Total Fertility Rate. It means that when the onset of reproductive life is generally late in a population, period measures may underestimate the net level of fertility. In the case of Brazil, there are

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strong indications that during much of this downward trend in fertility, the opposite occurred. For decades, mothers continued to be young and the number of first and second order births grew rapidly at the expense of higher order births. The particular combination of time effect – in this case, the anticipation of fertility – and parity in Brazil may have "inflated" the measures during the period between 1980 and 2000 (Miranda-Ribeiro, Rios-Neto and Carvalho, 2013). However, in the last decade, the contribution of the postponement of fertility in highly educated women and of the reduction of fertility in women with improved socioeconomic conditions has begun to become evident.

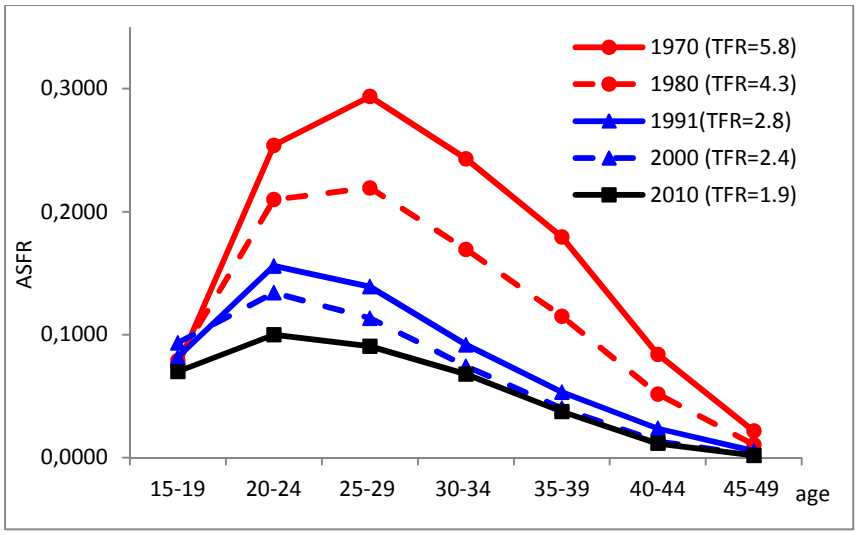
The purpose of this paper is to explore the conditions under which this behavior of postponement of fertility has taken place by conducting a descriptive analysis, exploring variations in parity over recent decades and differences by education level and income. The objective of this paper is, therefore, to describe changes observed in Brazilian parity over the last forty years, paying special attention to the group of primiparous women, thirty years of age or older, and those who remain childless until they reach the late years of the reproductive period.

The trajectory of the decline of fertility in Brazil

Although the 1970 census confirmed a reduction in fertility as compared to the 1960 census, the decline in Total Fertility Rate was more intense during the 80s (Graph 1), despite significant regional and social differences in reproductive behavior (Wong, 2000).

In the early 2000s, low fertility levels became the general trend, with many population subgroups presenting Total Fertility Rates lower than replacement level and a considerable reduction in the proportion of women with five or more children (Berquó and Cavenaghi, 2005). Data from the 2010 census show different fertility reduction levels between the more and less developed regions of the country. At that time, only the Northeast region of Brazil had a fertility rate higher than replacement level, at 2.6 children per woman (IBGE, 2012).

Graph 1
Age-specific Fertility Rates and Total Fertility Rate. Brazil, 1970-2010.



Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

The high concentration of reproduction at younger ages stands out as the key characteristic of this fertility transition process in Brazil. The specificity has been attributed to the combination of high adolescent fertility, common in many Latin American countries, with the relatively widespread and early adoption of female sterilization as an alternative for birth control.[1]

Until 1980, the cusp of the Age-Specific Fertility Rate curve was in the group of women aged 25-29 years, but over the subsequent decades there is a significant shift to the group of 20-24 year olds, with a substantial reduction in the fertility level of women 30 years of age and older (Graph 1). In 2000, adolescent fertility peaked, reaching 93.4 births for every 1,000 women aged 15-19. In 2010, the Age-Specific Fertility Rate dropped to 70 births for every 1,000 women aged 15-19. After reaching its highest level in 2000, the 2010 rate of adolescent fertility shows a very significant drop, falling to a point below the 1evel observed in 1970, when 75 births occurred for every 1,000 women aged 15-19.

The continuing drop in fertility over this last decade may be attributed to the younger age groups, since women aged 30 years and up maintained practically the same level observed the decade before (Graph 1).

[1] According to Brazilian law, men and women above the age of 25, or who have at least two living children, may undergo voluntary sterilization through the public health system (Berquó and Cavenaghi, 2003).

In fact, the Age-Specific Fertility Rates of younger age groups has an important influence on period fertility. In the period from 1991 to 2010 the contribution of women up to 24 years of age is a little higher than 40%. The relative weight of fertility (Table 1) of women from 15-19 years old to total fertility (TFR) in 1970 was 6.5%, increasing to 18.5% in 2010. For women in the 20-24 age group, the contributions were 22% and 26.3%, respectively. In 2000, these two groups reached their highest weights relative to TFR, representing almost half of all the mothers who gave birth that year (Berquó and Cavenaghi, 2004 and 2005).

Table 1 – Relative weights of age groups in the TFR

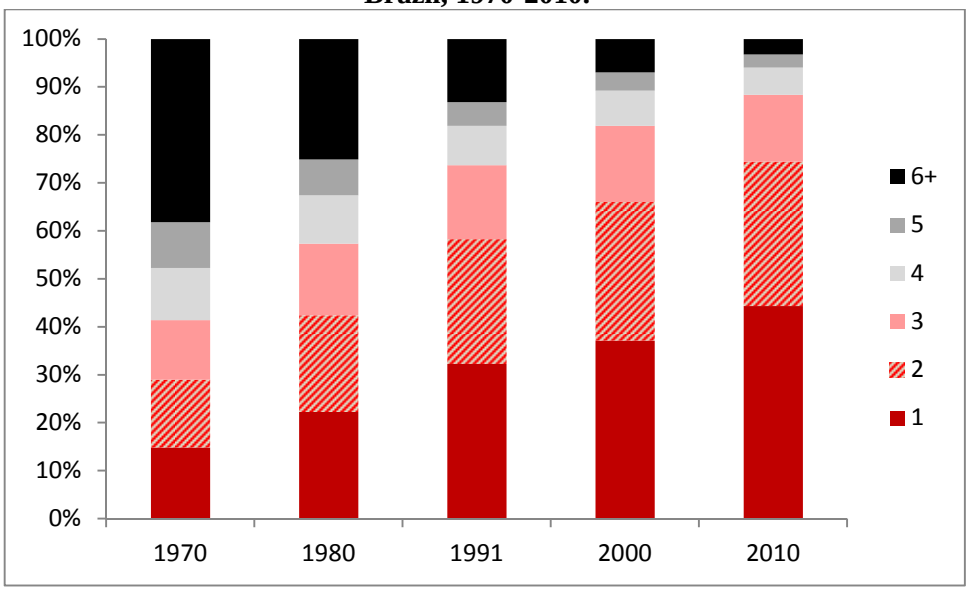
Age Groups	1970	1980	1991	2000	2010
15-19 years	6.5	9.3	14.8	19.8	18.5
20-24 years	22.1	24.5	28.3	28.5	26.3
25-29 years	25.5	25.6	25.2	24.1	23.9
30-34 years	21.1	19.8	16.7	15.8	17.9
35-39 years	15.6	13.4	9.7	8.5	9.9
40-44 years	7.3	6.1	4.3	2.8	3.1
45-49 years	1.9	1.2	1.0	0.5	0.5
Total	100.0	100.0	100.0	100.0	100.0

Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

In general, in 2010, there is a slight redistribution of the contribution of each of the age groups to the total fertility rate (TFR). The main change is in the increased importance of the 30+ age group following a period of lower fertility levels. The relative contribution of the 30-34 age group increased from 16.7% in 1991 to 17.9 % in 2010.

The widespread and rapid convergence towards an average of about two children per woman can also be observed when we examine period fertility according to birth order. During the years analyzed here, there was a large drop in the relative weight of the higher birth orders (higher than 3), making first and second order births the greatest contributors to the composition of the TFR (Graph 2).

Graph 2
Evolution of relative (%) contribution of each birth order to Total Fertility Rate (TFR). Brazil, 1970-2010.



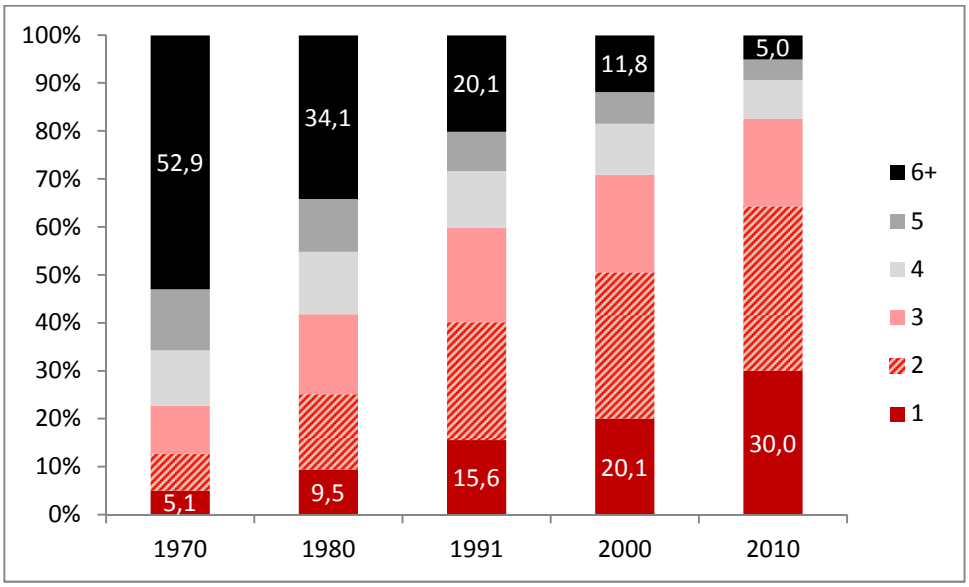
Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

The average age of mothers at the birth of their first child was 23.5 years old in 1970, 23.6 years old in 1980, 23.1 years old in 1991, 22.9 years old in 2000, and 24 years old in 2010. Although the norm continues to be young, the growing number of primiparous women over 30 stands out.

Changes in parity of women 30+ years old

One of the most striking changes in fertility confirmed by the 2010 census is that, for the first time, we can see a postponement of the birth of the first child, at least among Brazilian women, until after 30 years of age. The fact that, in 2010, 30% of fertility in women aged 30-34 corresponds to the birth of the first child is of note. This is very different from what was happening in 1980 when more than half of the fertility of this group corresponded to the birth of the fourth order or higher (Graph 3). This emerging pattern suggests that the current low fertility level may be the result of two trends: one related to women who begin and end their reproductive lives while still young and, the other, due to women who start after thirty and finish their reproductive life with fewer children.

Graph 3
Evolution of relative (%) contribution of each birth order to fertility rates of 30-34 year old women. Brazil, 1970-2010.



Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

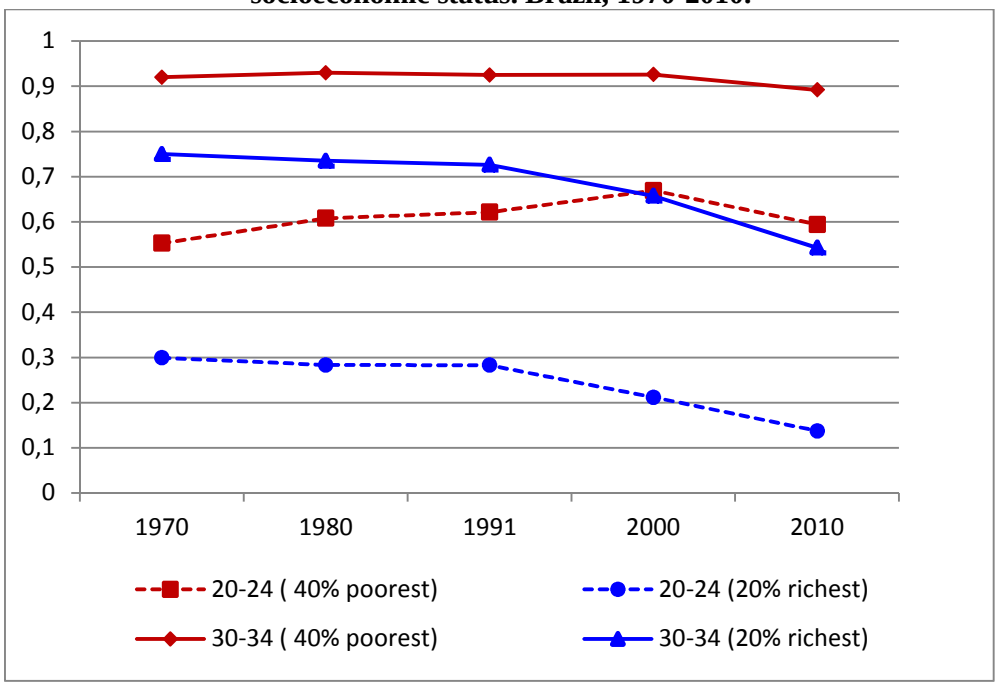
This new pattern may not be general. To the contrary, the tendency to postpone the birth of the first child shows signs of being much more marked among specific social groups, namely, those with higher education levels and better socioeconomic conditions.

As for education, we have considered four groups in this paper: Lowest (illiterate or less than primary completed); Low (primary completed or less than secondary completed); High (secondary completed or less than university completed); highest (university completed).

As for socioeconomic conditions, we have compared two groups: the 40% of women with the lowest per capita household income (first and second quintiles of PCHI) and the 20% of women with highest per capita household income (fifth quintile of PCHI).

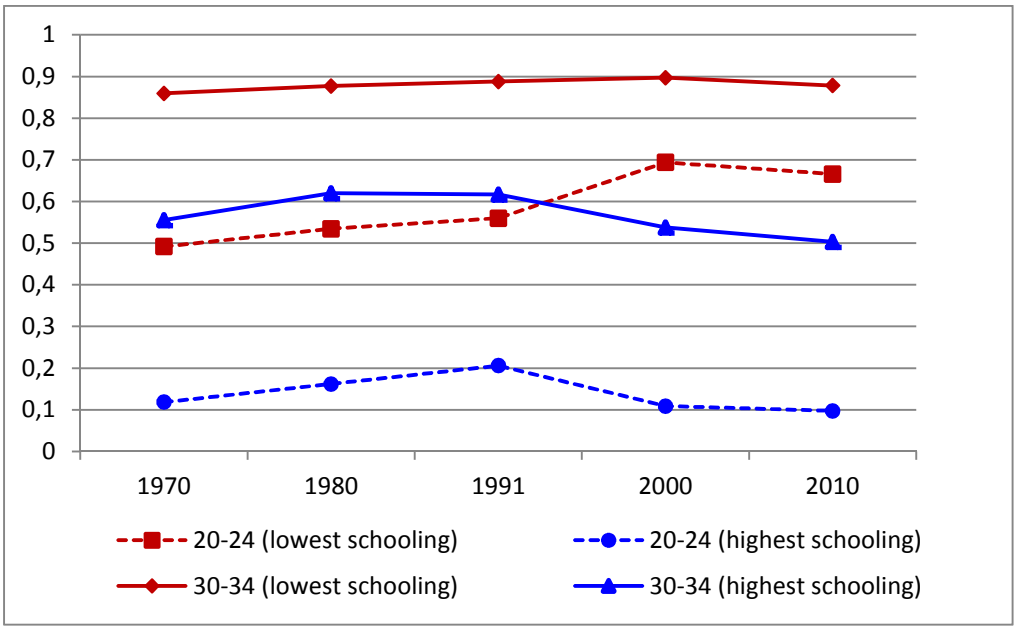
From the calculation of the Parity Progression Ratio (PPR), we observe that the probability of going from 0 to 1 child is much lower among richer women - both in the 20-24 and 30-34 age groups -, than among their contemporaries of the same ages belonging to poorer strata of the population. Over the period studied, the difference between the groups of women widens, starting in 2000. That is, a larger proportion of the poorer women tend to have their first child at a younger age, before they are 30 (Graph 4), as compared to those with better socioeconomic conditions.

Graph 4
Parity progression ratio for first birth (0-1) to women aged 20-24 and 30-34 years old, by socioeconomic status. Brazil, 1970-2010.



Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

Graph 5
Parity progression ratio for first birth (0-1) to women aged 20-24 and 30-34 years old, by educational attainment. Brazil, 1970-2010.



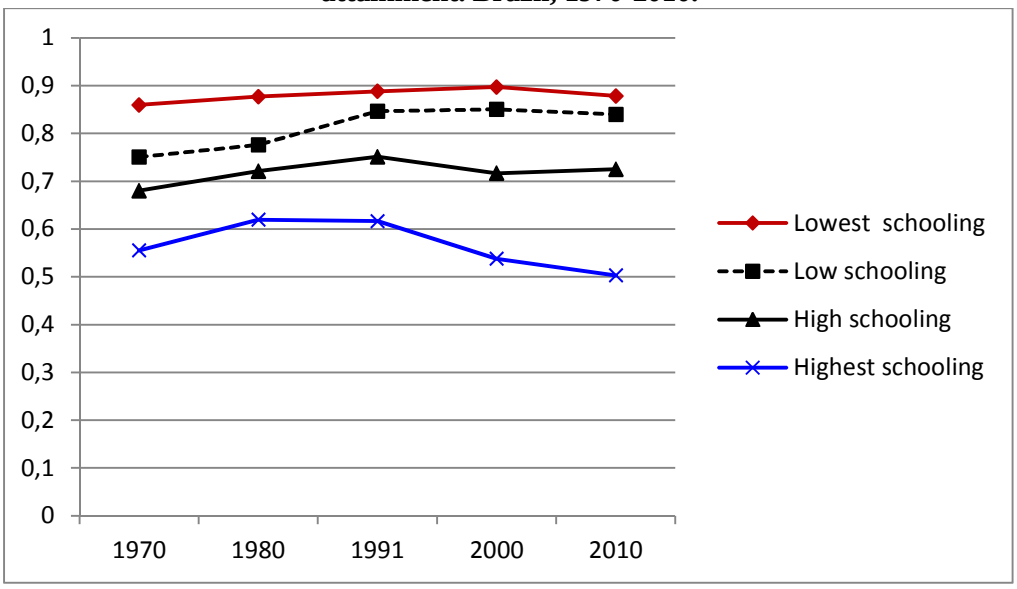
Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

Likewise, the probability of going from 0 to 1 child is much lower among more highly educated women in both the 20-24 and 30-34 age groups when compared to their

contemporaries of the same ages with less education (Graph 5). While motherhood is almost a universal experience among less educated women in the 30-34 age group, only half of the highly educated women in that age group went from 0 to 1 child in 2010.

Graph 6 shows that, in fact, women with higher levels of education appear to be postponing the birth of their first child until after 34 years of age, especially over the past two decades.

Graph 6
Parity progression ratio for first birth (0-1) to women aged 30-34 years old, by educational attainment. Brazil, 1970-2010.

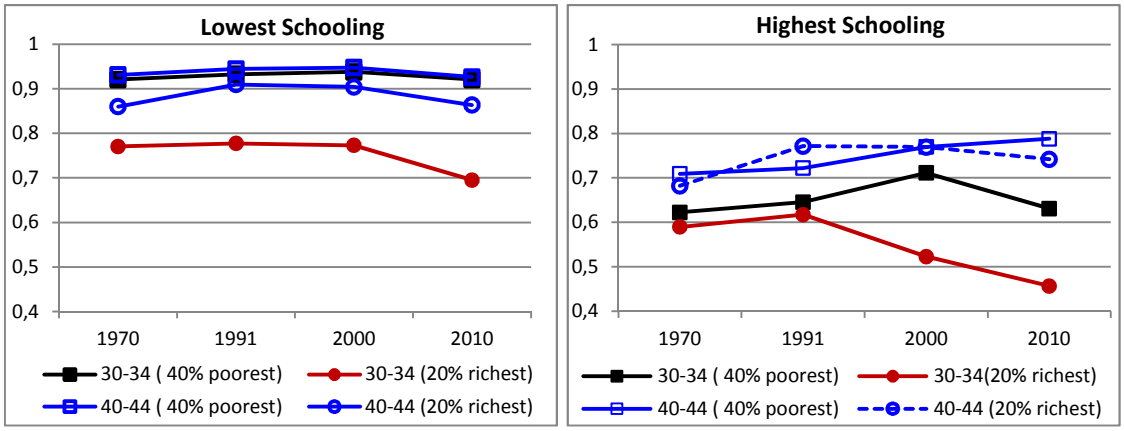


Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

The hypothesis of the postponement of fertility seems quite plausible when we look at the Parity Progression Ratios (PPR) corresponding to the same age group in different years. Note that, in 2010, women in the 30-34 age group are less likely to have experienced their first child than women of the same age in previous census years. This trend is accentuated as the education level of the women increases and is even stronger in the more privileged socioeconomic groups (Graph 7).

When we observe the group of women from 40-44 years of age, the experience of having the first child is similar in both the poorest and the richest groups. However, there is less chance among the highly educated women than among their contemporaries with a lower level of education. Another aspect that begs attention in the group of more educated women is that, during the period analyzed, the propensity for women from 40-44 years old to become mothers is greater in 2010 than in 1970.

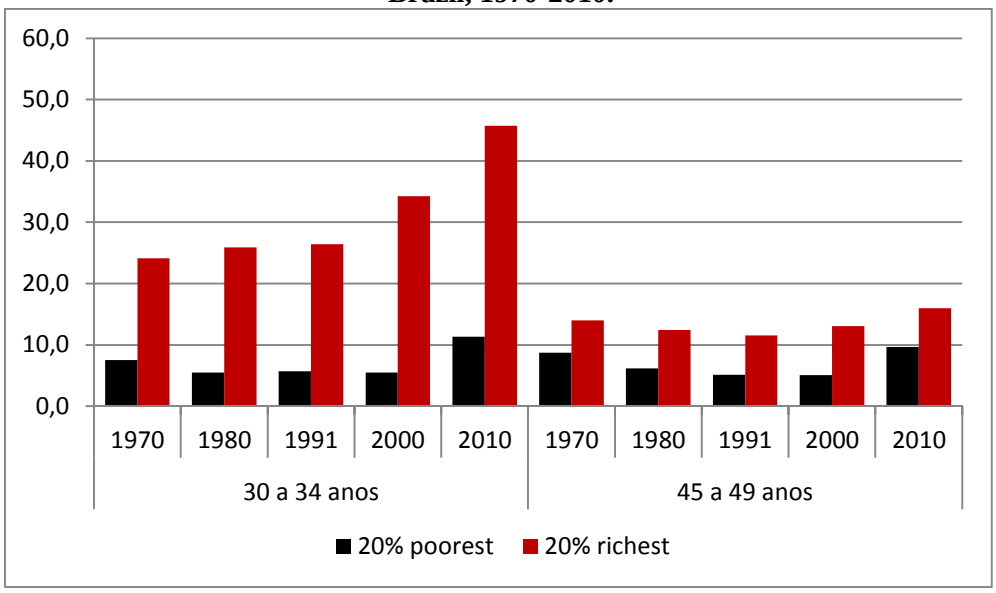
Graph 7
Parity progression ratio for first birth (0-1) to women aged 30-34 and 40-44 years old, by educational attainment and socioeconomic status. Brazil, 1970-2010.



Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

Over time it has become increasingly more common for women to reach 30-34 years of age without children. In 2010, while almost 11% of the poorest women reached 30-34 years of age without children, this was the reality for approximately 45% of the richest women in the same age group. Among the 45-49 year olds, the differences between richest and poorest dropped substantially, though they did not disappear altogether. There is apparently a higher proportion of rich than poor women who do not become mothers.

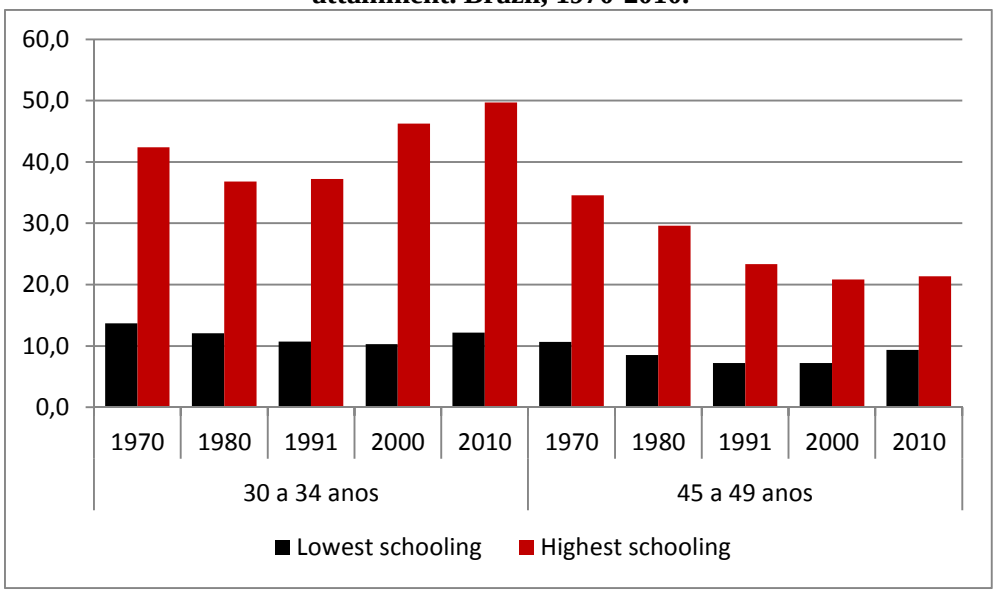
Graph 8
Proportion of women aged 30-34 and 45-49 years old without children by economic status. Brazil, 1970-2010.



Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

The differences are even greater when highly educated women are compared to those with less schooling. In 2010, half of the highly educated women in the 30-34 age group have no children, while one in every five highly educated women appears to approach the end of their reproductive period without having had a single child.

Graph 9
Proportion of women aged 30-34 and 45-49 years old without children by educational attainment. Brazil, 1970-2010.



Source: IBGE. Demographic census 1970-2010. Preparation by the authors.

Albeit very preliminary, the data summarized in graphs 8 and 9 suggest that a distinct pattern of family formation behavior is emerging, a pattern specific to women who are better off. The proportion of childless highly educated women between 45 and 49 years of age is much lower than that in the group between 30 and 34 years of age. The same is true for women of better economic means, which reinforces the idea that, in these segments, it is a matter of (perhaps extreme) postponement, rather than of fertility denial.

Concluding Remarks

Although we have emphasized low and relatively young fertility in Brazil, we note the existence of a certain heterogeneity in the ongoing process of decline in fertility. There are important differences between groups with distinct socioeconomic and educational levels in terms of the marked behavior of postponing fertility until after 30 years of age. Today, women with university degrees and better socioeconomic conditions demonstrate delayed reproductive behavior. But, in the past (1970), almost

one third of highly educated women did not reproduce, whereas today, only one fifth reach the end of their reproductive period without children. It can be speculated that there once were greater obstacles between women's reproductive and professional life in Brazil and that these obstacles have been reduced in recent years. However, it can be argued that the impact of what happens among highly educated women has more weight today than in the past, since the female population with a college education is much larger and continues to grow.

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