Conditional Cash Transfer Policies and Cohort Fertility Developments in Brazil: analyses using the Bolsa Familia Program*

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Abstract

This work aims to analyze the conditional cash transfer programs, like the Bolsa Familia (BF) and its relationship with reproduction of Brazilian women in 2010. Using census data, we reconstructed cohort fertility and analyze reproductive differences between women beneficiaries versus eligible but non-beneficiaries of BF. Our results show clearly differences in cohort fertility and parity progression ratios between the two groups. BF beneficiaries usually had on average a higher number of children than women not covered by the program. In addition, they anticipated their reproduction plans, especially at the 2-3 births orders, as result to the conditionality from this social policy, which gives money to mothers who have until a third child from 0 to 15 years old at school. This happens even after controlling for educational gradients and regional differences. These findings contradict the recent literature that has not find effects of BF on TFTs, reinforcing the point that cohort analysis possibly fills some gaps left by previous studies of period fertility.

Keywords: Parity, Cohort Fertility, Bolsa Familia, Brazil

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Introduction

The Bolsa Família Program (BF) was developed to fight poverty and income inequality among the Brazilian population. This is monetary benefit and it is considered a conditional cash transfer program due to its commitments that beneficiary families must fulfill, such as the children and adolescents must to go to school, as well as mothers must to search for healthcare and social assistance for their offspring. These conditions allow basic individual rights to reach families with very low per capita income, i.e. families that present per capita income below the national poverty line. On one hand, for those in extreme poverty, it is not necessary to have children in order to get the monetary benefits. On the other hand, families with a per capita income bit above the poverty line should have offspring from 0 to 15 years old or from 16 to 17 years old, with a limit of up to 5 benefits granted per family, e.g. maximum 3 children and/or 2 adolescents, according to Law 10,836, dated January 9th, 2004.

Due to the nature of the program conditions, many discussed issues in demography can also be addressed and analyzed, such as the increased access to modern contraceptive methods, contact with health facilities, increase years of education and the inclusion of women from low socioeconomic groups into formal labor, which could be seen as way to ensure women's empowerment. In this context, a number of key questions could be asked: how such non-monetary benefits, provided indirectly by the BF, would lead woman to desire fewer children? Or which factors would lead to a change in their decision to have children due to the cash transfer program?

Signorini and Queiroz (2011), Rocha (2009, 2017) and other studies, using household surveys, have explored the relationship between the BF program and TFRs in Brazil. In principle, they have found small or no relationship between the social program and fertility. Some even argues that the program had a negative impact on fertility in the two years after its implementation (Signorini and Queiroz 2011). On contrary to these previous studies, in this work, we have explored the same relation, but using a different approach and dataset. This time, we analyze (complete and incomplete) cohort fertility developments and its relationship with the Bolsa Familia, using the children ever born (CEB) information provided by the 2010 Brazilian census. Hence, the aim of this study is to analyze the relationship between the BF and a number of cohort fertility measures, such as average parity and the parity progressions ratios of beneficiaries and eligible beneficiaries of the program. This last is an important control group, because these women do not receive the benefit, but they also belong to a very low socioeconomic stratum.

First comparative analysis has been made, considering the potential women with the conditions to receive the BF in 2000 and the beneficiaries in 2010. This comparison

allowed us to analyze what would have happened with the cohort fertility, in years preceding and after the implementation of the program, dated in 2004. The second analysis was based on the comparison of the 2010 parity progression ratios (PPRs) and cohort fertility rates (CFRs) of beneficiaries versus those who declared in the census not to receive the benefit, but being eligible to do so, e. g. potential beneficiaries. We also performed analyses controlling for confounding factors such as educational levels and regional differences.

1. An overview of Brazilian period fertility transition

The beginning of period fertility decline in Brazil dated back in the 1960s, starting in the more developed regions of the country and expanded to the poorest rural areas, following a decade with extensive fertility reductions in the 1970s (Martine 1996, Carvalho & Brito 2005, Alves 1994). The process was differentiated while we compare to developed countries. According to Carvalho, Paiva and Sawyer (1981) this rapid decline was mainly due to changes in the reproductive behavior from low-income social strata, and the reasons for this generalized fertility decline are linked to changes from institutional, economic, social and cultural orders (Merrick & Berquó 1983, Faria 1989, Paiva 1987). Additionally, Faria (1989) highlights as main causes the structural and institutional changes due to government policies in the 1960s, such as increase consumer credit, investments in telecommunications, social security and health care provision to the whole population. As consequence, in 2010, the fertility rates in the country were already below the replacement level (IBGE, 2010).

In 1991, the pace of decline was more pronounced among the less educated, poor women, living in the North and Northeast regions of the country (Berquó & Cavenaghi 2005), resulting in significant TFRs reduction between the less and the more educated women (IBGE 2010). That is, the process of fertility decline passed through all socioeconomic groups in Brazil, including those with low income and achieved education (Alves & Cavenaghi 2013). Even with this general trend of fertility decline, there are still significant differences between socioeconomic groups (Lima et al. 2018, Rios-Neto et al. 2018).

The relationship between income, schooling and fertility is also important to understand the evolution in fertility structures of a country (Lesthaeghe and Surkin 1988, Beaujouan et al. 2013, Sobotka et al. 2013, Berquó & Cavenaghi 2014). During the course of Brazilian fertility transition, the reproductive behavior of the young adolescent mothers presented considerable differences, according to the distinguished socioeconomic categories. Unlike other developed regions, the fertility transition in Brazil did not delay

the onset of motherhood (Wong & Bonifácio 2009) as expected. On the contrary, fertility became highly concentrated at young ages of reproductive span, i.e. ages 15-24. These young mothers usually bore children until a certain number is achieved, after that they began to control fertility mainly by adopting female sterilization, resulting at the end in a reduction of the average age of fertility (Rios-Neto 2005).

This rejuvenated fertility was seen until 2000s, but in 2010 Census we noticed that there was a small reversal trend in process, and among highly educated women a postponement of motherhood was observed (Lima and Myrskyla 2014, Lima et al. 2018, Rios-Neto et al. 2018). Even with this reversal, the adolescent mothers are still presenting the highest fertility rates of the country (Lima et al. 2017, Lima et al. 2018) and that brought the attention of demographers in several studies.

For example, Cavenaghi (2013) has also studied the fertility of young Brazilian women by educational and by income levels. According to her, young women aged 15 to 19 years old from low socioeconomic strata showed higher fertility levels than their peers from higher socioeconomic groups. Gupta and Leite (1999), using DHS (Demographic and Health Surveys) of 1986, 1991 and 1996, examined the trend and determinants of teenager fertility in the poorest region of Brazil, the Northeastern part. They found out that there is a strong link between years of schooling and the postponement of the first child among women aged 15-19, and this effect of schooling has intensified over time.

In common, these studies find some support in the microeconomic theory of Becker (1960) which has set out arguments to understand the variation in fertility in developed countries. According to Becker's theory, spouses within families behave rationally, and their decisions regarding parenthood are driven by maximizing child's utility. The utility function established by families depends on the interaction between the trade-off of quantity-quality of children and the utility of other consumer goods; and these are influenced by income and prices. For the author, there is a trade-off between the quality and the quantity of children and this is strongly determined by income. So, if income increases in the household, both quantities should raise; however, the elasticity of the quantity is weaker than the elasticity of the quality of children. In other words, as societies develop, families choose to invest in few children of quality instead of a higher number of offspring. The Becker's argument is also important for us to understand the rationality of the quality-quantity trade-off among Brazilian socioeconomic groups in extreme poverty, since ones should expect that the granted benefit can also reduce fertility among these groups in worse economic conditions.

2. Data and Methods

We use the Brazilian micro-censuses data from 2000 and 2010 and tabulated cohort fertility measures of women beneficiary of BF program based on information of family income and whether they declare to receive the social benefit or not in 2010. For the analyses, we use the reproductive information of number of children ever born tabulated by woman in five years age groups, educational level achieved and region of residence at the time of the census interview.

We reconstructed the birth history of women with complete reproductive cycles and estimated the parity progression ratios (PPRs), which represents the proportion of women who progress from one parity to the next, or the share of women from a birth order *i* and progressed to *i+1* birth order. PPRs can be calculated for cohorts of women defined either by age or marriage. Usually age cohorts of women are considered, i.e. the parity progression ratios are calculated from the parity distribution of a particular age group of women. These ratios are estimated as the proportion of women at certain age interval with at least one child and divide by the total of women in that same age group.

The PPRs also allow us to find the cohort fertility rate (CFRs), according to the formula:

$$CFR = PPR_0 + PPR_0.PPR_1 + PPR_0.PPR_1.PPR_2 + \ldots \quad (1)$$

For each comparison group, we estimate complete (women aged 45-49) and incomplete cohort fertility (women in age groups 20-24 and 25-29). But the fertility results, tables and figures, are shown only to women with incomplete reproductive history. A reason to breakdown the analyses into incomplete cohorts are that the Bolsa Familia program came to action in 2004. Hence, women 20-24 and 25-29 years old in 2010, for instances, six year earlier were those with respectively 14-18 and 19-23 years of age, during the program implementation; and these ages are the ones which fertility is still considerable high in more recent years (Oliveira et al. 2015, IBGE 2010). In addition, older cohorts have been less exposed to the Bolsa Familia effects on fertility, because part of their reproduction passed even before the program was implemented.

It is important to mention that — for cohorts of women that have finished their reproductive life — we assume that there is no differential of mortality by parity of older women. For cohorts younger than 45-49 years old, however, the measures change as increasing numbers of women move to higher parities. Hence, the measures derived from younger women might thus suffer from both censoring and selection effects, as women predisposed to having more children faster will be disproportionately represented in age-parity combinations before the end of childbearing. This means that comparison of the

parity progression rates of younger and older women could be misleading (Moultrie, 2013). However, we try to reduce such bias by making the two categories as comparable as possible in terms of socioeconomic characteristics. In this case, both groups of mothers were in extreme poverty (main condition to receive the benefit) and they only differ in terms of receiving or not the benefit, which we expect that this will allow us to reduce partly the selectivity effect.

4. Results

Table 1 brings a descriptive analysis for the two comparison groups (women aged 25-19) according to a number of socioeconomic, demographic and household characteristics: 1) relationship to household head; 2) color/race; 3) educational level achieved; 4) household situation and 5) marital status. This analysis allows us to identify how comparable the two selected groups selected are.

As we can see, the majority of women beneficiaries are spouse/partner of the household head, and among the group of non-beneficiaries the highest percentage are characterized by daughters (three times higher than the beneficiaries). Despite that, the percentage of women head of the household is very comparable between non-beneficiaries and BF beneficiaries, with slightly advantage to this last group (21.5% vs. 29%). This household category is the most important to our analyses, because this group is composed by the ones who possibly administrate the family financial resources.

Looking at marital status, single women prevail with the biggest percentages in both comparison groups. The percentage of married women among beneficiaries is also slightly higher than in the other group. Women living in urban dwelling are also the majority in both groups. Additionally, we also do not notice expressive ethnic/race differences between non-BF and women 25-29 years old with the benefit in 2010.

When we compare by educational level, we see that the beneficiaries present a slightly higher percentage with less than the primary education completed than non-beneficiaries. Additionally, 44% of BF-beneficiaries have primary or more years of schooling completed, in comparison with 56% non-beneficiaries in the same educational category. If we compare by Brazilian regions, the highlight goes to the Northeastern region, where concentrates the highest percentage of women with Bolsa Familia (54%). This result is consistent with the literature, which indicates this region as the one with the highest percentage of population living below the poverty line (IBGE, 2010). In addition, in the Southeast (the richest part of the country), there are lesser beneficiaries than non-beneficiaries (21% vs. 33%) living there.

Table 1: **Percentage of women, cohorts aged 25-29 years old, according to BF beneficiaries versus non-beneficiaries and socioeconomic, demographic and geographic characteristics. Brazil 2010**.

	BF women %	Non-BF women%
Relationship to household head		
Head	29.00	21.48
Spouse/partner	55.54	33.60
Child	10.52	33.29
Other relatives	4.47	10.28
Others	0.46	1.34
Total	100%	100%
Marital status		
Married	30.40	23.24
Separated	1.06	1.37
Divorced	1.24	1.47
Widowed	0.57	0.52
Single	66.74	73.40
Total	100%	100%
Race/ethnic		
White	26.62	34.14
Black	10.03	9.35
Yellow/Asian	1.37	1.22
Mixed-race	61.12	55.01
Indigenous	0.86	0.28
Total	100%	100%
Household situation		
Urban	69.25	76.80
Rural	30.75	23.20
Total	100%	100%
Educational composition		
Less than Primary	55.93	43.86
Primary Education	23.27	21.58
Secondary and Tertiary Education	20.79	34.57
Total	100%	100%
Brazilian regions		
North	12.40	14.89
Northeast	54.16	39.30
South	6.94	6.83
Southeast	21.00	33.16
Midwest	5.49	5.82
Total	100%	100%
N	1,377.39	955,381

Source: Brazilian Population Census 2010.

These results indicate that women granted with the cash transfer benefit present slight disadvantages in terms of years of schooling and they are tending to live in lesser developed parts of the country, so that might perhaps explains future fertility differentials between the two groups. That implies for further analyses it is important to study fertility differentials controlling by educational levels and regional distinctions.

The results in Table 2 bring CRFs comparisons between BF beneficiaries and women who do not participate in the program, but fulfill the conditions to do so. As we can

see, the beneficiaries of the cash transfers program present systematically a higher CFR in all cohorts considered. In some cases, these differences reach almost one child in favor of women granted with the BF.

Table 2: **CFRs by age groups – Brazil 2010.**

Age group	CFR BF beneficiary	BF beneficiary Differences in CFRs between age groups x and x+5	CFR non-beneficiary*	Non-Beneficiary Differences in CFRs between age groups x and x+5
15-19	0.31	1.42	0.27	0.65
20-24	1.73	0.57	0.91	0.62
25-29	2.30	0.42	1.53	0.53
30-34	2.73	0.27	2.06	0.27
35-39	3.00	0.26	2.34	0.15
40-44	3.26	0.29	2.48	0.15
45-49	3.56		2.63	

Sources: Brazilian Population Censuses 2010.
Note: *Non-beneficiaries women that are eligible but, for some unknown reason, they do not receive the social benefit.

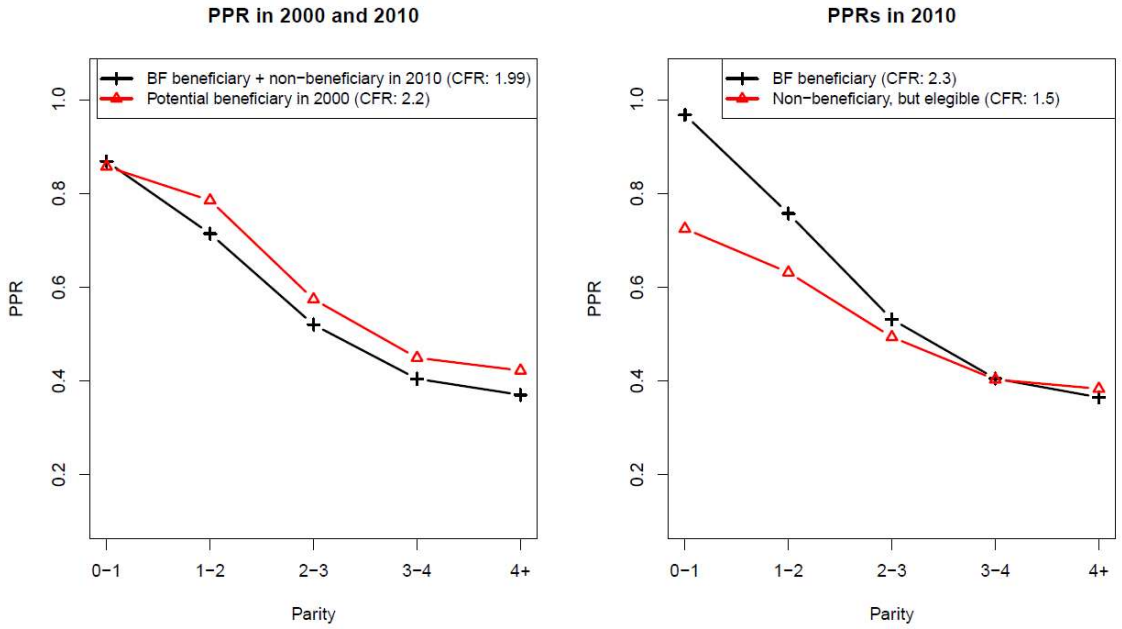
Table 2 shows the fertility rates for different cohorts for the year 2010. Notice that some cohorts have completed their fertility history (45-49 years old), while others are still in course to finished their reproduction. Here, we try to compare the gains (or losses) in the number of children as the woman receive or not the benefit across cohorts.

In Figure 1, we compare the parity progression ratios of the potential beneficiaries women in 2000 (all women below poverty line) with BF beneficiaries and eligible beneficiaries in 2010 (also all women in extreme poverty conditions), in order to better understand the process of fertility development, pre- and post- the social program was established in the country. Additionally, we investigate the PPRs differences for those women granted with the benefit versus the eligible non-beneficiaries ones in 2010. This time, we limit our analyses to the age group 25-29 years old[3].

The comparison shows that in terms of CFRs both groups do not differ significantly in these two years (CFRs 2.2 in 2000 vs. 1.99 in 2010). However, if we consider the parity progression rates in 2010, in this year the PPR0-1 starts at a slightly higher level, but then in further birth orders the ratios crossover and fall expressively in comparison with the PPRs of potential beneficiaries in 2000.

[3] Similar results, not shown here, were found with the age-group of 20-24 years old.

Figure 1: Parity Progression Ratios (PPRs), cohorts 25-29 years of age. Women granted with the BF in 2010, eligible but non-beneficiaries in 2010 and potential beneficiaries in 2000 in Brazil.

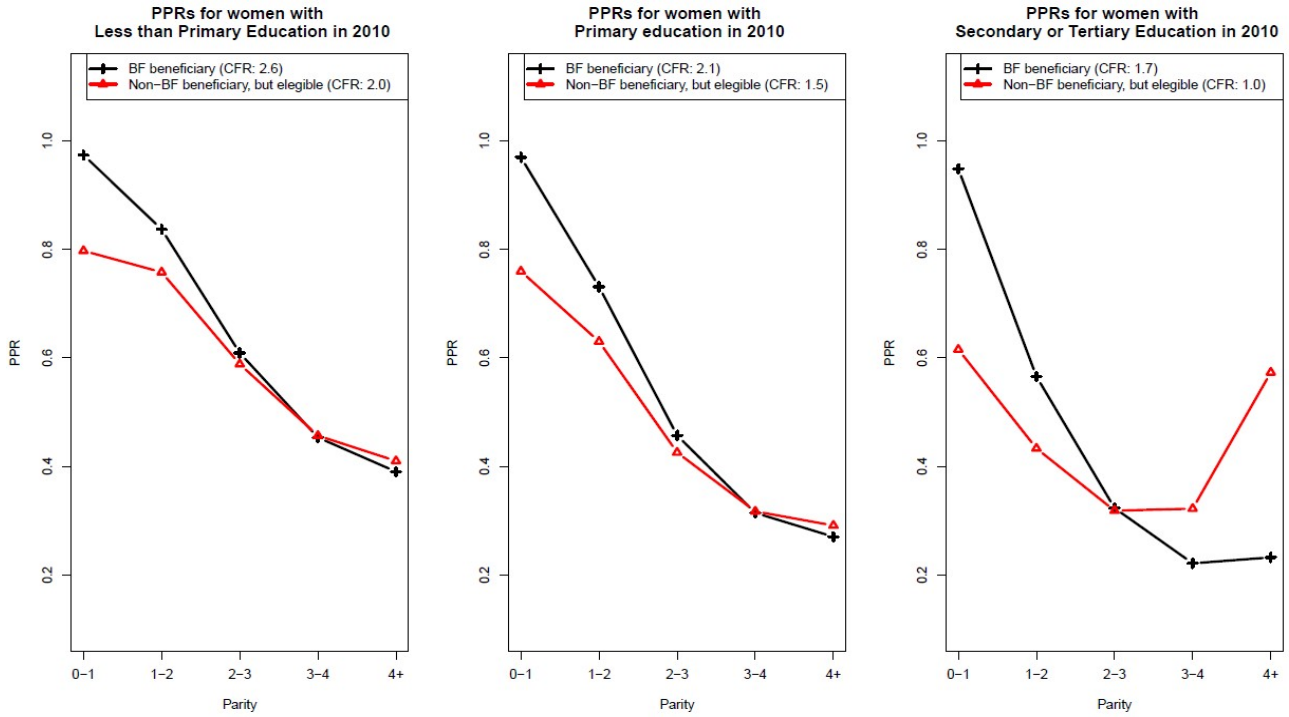


Source: Brazilian Population Censuses 2000 and 2010.

When we look only at year 2010, but this time making a distinction between beneficiaries and non-beneficiaries, there is an interesting development through the CFRs and PPRs. The BF-beneficiaries present higher cohort fertility than its comparison group. Thus, between these two, the fertility differs from above replacement level (CFR of 2.3 for beneficiaries) to very low fertility level (CFR of 1.5 for non-beneficiaries). Additionally, we also verify a consistent higher proportion of PPRs until the third child, thereafter this group converges in parity progression rates with the mothers that are not contemplated by the social program. These findings still can be a misleading as the women without the benefit might have, for example, more years of schooling, so they are investing in human capital instead of motherhood and that might explains the lower levels of CFR among them, as we saw it in previous Table 1.

In Figure 2, we repeated the procedure and went further exploring the progression rates through birth orders by disaggregating our analysis according to educational categories. The educational levels was divided into less than primary education, complete primary education and secondary and tertiary education together, because these last two categories separated presented very few women.

Figure 2: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by educational level - Brazil 2010.



Source: Brazilian Population Census 2010.

This time, even controlling by years schooling, the beneficiary women are still presenting higher reproductive levels, according to all levels of education considered. Notwithstanding, considering women in the two lowest education groups (the largest ones in our sample), to a greater extent, the PPRs for Bolsa Familia beneficiary woman were higher till the third child, and then we notice again a convergence in PPRs3+, similar to Figure 1. This means that the reproductive behavior of women varies until a certain number of children is achieved, usually three offspring, then after it is kept the same, regardless of whether or not they were beneficiaries of the Bolsa Familia. This is very striking result since ones would expect fertility differences according to educational levels. These preliminary findings also imply that independent of the years of schooling, the cash transfer program has a positive effect on cohort fertility until certain birth order.

Odd results we see only among the non-beneficiary women in the highest level of education (secondary and tertiary), which shows an increase in the PPRs of high orders (3 to more children), if compared with BF-beneficiaries, but again the threshold for the change between these two groups is kept around three children. These results must be interpreted with caution and requires further analyses. We also must to keep in mind that for this educational level, in both comparison groups, we have only 21 to 35% of women.

One plausible explanation to this difference until the third offspring could be related to the benefit limits that are conjugated with the program, thus the fact that women receive money for each offspring till a maximum of three children from 0 to 15 years old.

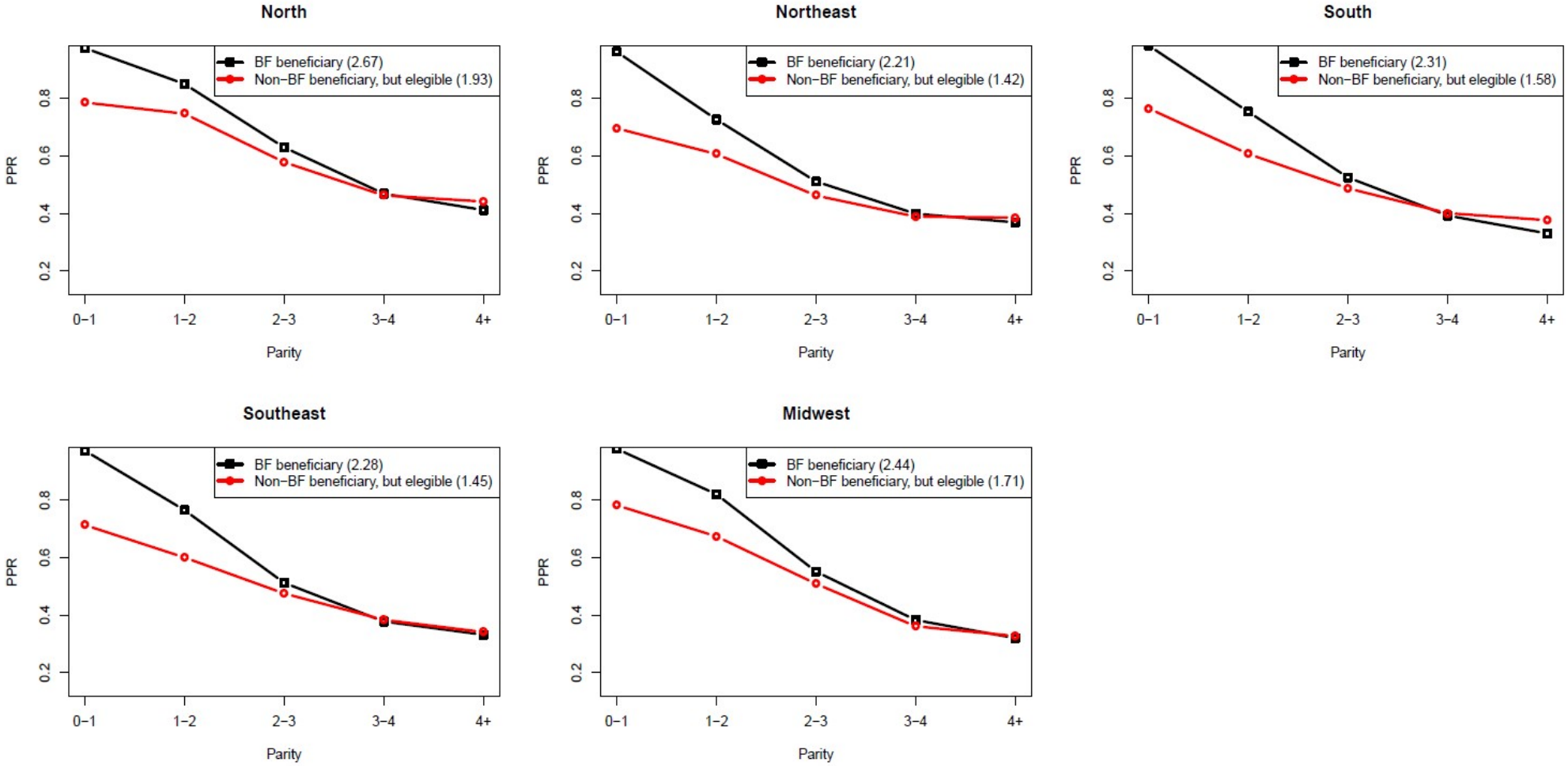
Hence, for these women, the "rational" strategy is to anticipate their reproduction as a pre-condition to receive the monetary benefit from the Bolsa Familia, and after reduce their fertility intentions at high birth orders, because this financial assistance is conditioned with the number of previous births (Alves and Cavenaghi 2013). Moreover, the rationality among socioeconomic strata in extreme poverty and beneficiaries of the program would not be directly dictated by the quality-quantity trade-off as Becker (1960) predicted. Actually, for these groups it is a rational decision to have more children because the household income increases with the benefit.

These results evoke caution and further analyses need to be done, because there are a few reasons for that. First, because it is very difficult to establish the exact period while those women starts to receive the benefit, so when the BF started to associate with woman's fertility intentions. Second, due the first problem, causality is always difficult to be properly approached, also because this cash transfer program was not designed to be a quasi-experimental, i.e. having control and treatment groups. Last, we have only studied fertility associations with education, but many other socioeconomic variables that play a role on fertility also need to be tested. For this reason, more PPRs estimates are given in Figure 3 according to regional differences.

Once more the same pattern is identified in all regions, leading to similar conclusions as earlier, which predicts that independent of women place of residence, the Bolsa Familia is increasing women fertility until a third child is born.

In the same way as for Brazil as whole, we also tabulate PPRs and CRFs by educational levels and region, as shown in Figures 4 to 8 in Appendix. In general lines, the trends between beneficiaries and eligible non-beneficiaries also remained quite the same, even controlling for education and region of residence together. That reinforces our initial hypothesis, indicating that the social benefit affects positively fertility until the progression to a third parity. Afterwards, the progression to a next child is not determined by the Bolsa Familia anymore.

Figure 3: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by regions - Brazil 2010.



Source: Brazilian Population Census 2010.

5. Discussion

It is already known the positive effects of the Bolsa Família program (PBF) on issues such as education and health. Regarding education, there is an increase in the proportion of children and adolescents from low socioeconomic strata going to school, so increase school attendance, reducing dropouts (Araújo et al. 2010, Batista de Oliveira and Soares 2013, Simões and Sabates 2014). With respect to health, there were improvements in child's nutrition, improvements in children's weight, reduction in malnutrition mortality, vaccination growth and more access to health facilities (Camelo et al. 2009, Rasella et al. 2013).

With the creation of the Bolsa Família program in 2004, some criticisms have arisen; one is related to fertility and the pronatalist design of the program. Ones argue that women would have more children due to access to more resources (Campello 2013). Some studies have returned to this focus in an attempt to find some relationship between the program and woman's fertility.

Carloto and Mariano (2010), for example, state that the majority of beneficiaries report an increase in family responsibilities associated with the program conditions. Corgozinho (2015) calls the "feminization of care" for the attributions of Bolsa Familia to women. On the other hand, Rego and Pinzani (2013) report several testimonials from beneficiaries that affirm that the BF provided them with a sense of citizenship and more autonomy within families, as well as better future prospects.

In terms of fertility, Rocha (2009, 2017) evaluated the effects of Bolsa Familia by comparing fertility before and after the creation of the program, using National Household Surveys from 1995 to 2007 (Ribeiro et al. 2017). He didn't find positive association between the program and fertility levels. As explanation, he attributed the conditions of the BF that are modifying the investment in children's quality and reducing the quantity; moreover, the contact with health units would facilitate women's access to modern contraceptive methods (Rocha, 2017). Other studies present similar conclusions and not verified relationship between the BF and fertility (Simões and Soares 2012, Signorini and Queiroz 2011). Cechin et al (2015) differs from these previous analyses by considering a longer period of exposure using the 2010 Demographic Census. The authors indicate that the programs provide a small incentive to progress until to a second child (Cechin et al. 2015).

Alves and Cavenaghi (2013), without clear empirical tests, also believe in a certain relationship between female reproduction and receiving the benefit. They explain this through an "inverse causality" hypothesis. Increase one more child reduces family per capita income; consequently, the family becomes suitable for the BF. Thus, because the

family has more children they receive the monetary benefit, and not the other way around (Alves and Cavenaghi 2013).

According to microeconomic theories of fertility, described earlier, an increase in income should result in the couples' decision to have fewer children with higher quality, according to the quality-quantity trade-off theory (Becker 1960). But our empirical analyses show, in fact, that the rationality among socioeconomic strata in extreme poverty and beneficiaries of the program would not be directly dictated by the quality-quantity trade-off as Becker (1960) predicted. For these groups, it is a rational decision to have a certain number of children because the household income increases with the benefit. Other reason may be associated with the fact that we are working with very low-income women who may have still seeing motherhood as part of the female role and identity (Patias & Buaes 2012). For them, the transition to adulthood happens sooner than for women of higher income (Vieira 2009). This is consistent with the study of Rego and Pizani (2013). Motherhood for these women is something sacred and a rite, considered as a "gift from God" (Rego & Pizani 2013). But the uncertainty of tomorrow may delay the decision to have another child. In this case, the BF can bring a better perspective of tomorrow, due to the certainty of the benefit received monthly.

Our empirical findings also support this hypothesis and showing that women are opting to a "rational" strategy. They are anticipating their reproduction as a precondition to receive the monetary benefit from the Bolsa Familia, and after they are reducing their fertility intentions at high birth orders, because this financial assistance is conditioned with the number of previous births.

It is also worth to mention some limitations of this study. The first is related to the difficulty in establishing the exact moment that the woman begins to receive the benefit, that is, when the Bolsa Familia starts to affect fertility. With the demographic census, we only know that the woman received the benefit or not at the time of census interview. The second limitation is a direct consequence of the first limitation, the question of causality. We cannot speak about *cause and effect*, but rather in probable positive association between BF and fertility. The third is related to the fact that we control only for educational level and geographic region. Many other variables impact the decision to have another child and must be tested. The fourth limitation refers to the Bolsa Familia rules that allow families in situations of extreme poverty to have access to some benefits even without children. In this case, we do not know if the family entered the program before or after having children. Finally, the analyses were done for the age group of 25-29 years, that is, incomplete reproductive histories. The ideal would be to use the groups of women

already in the final stages of reproduction. However, we have reasons related to the program time of exposure to limit our study this age group.

Despite all, we conclude that cohort measures are useful to better understand the timing of changes in women reproductive behavior and the choice to have the next child in face to public and social policies such as the Bolsa Familia.

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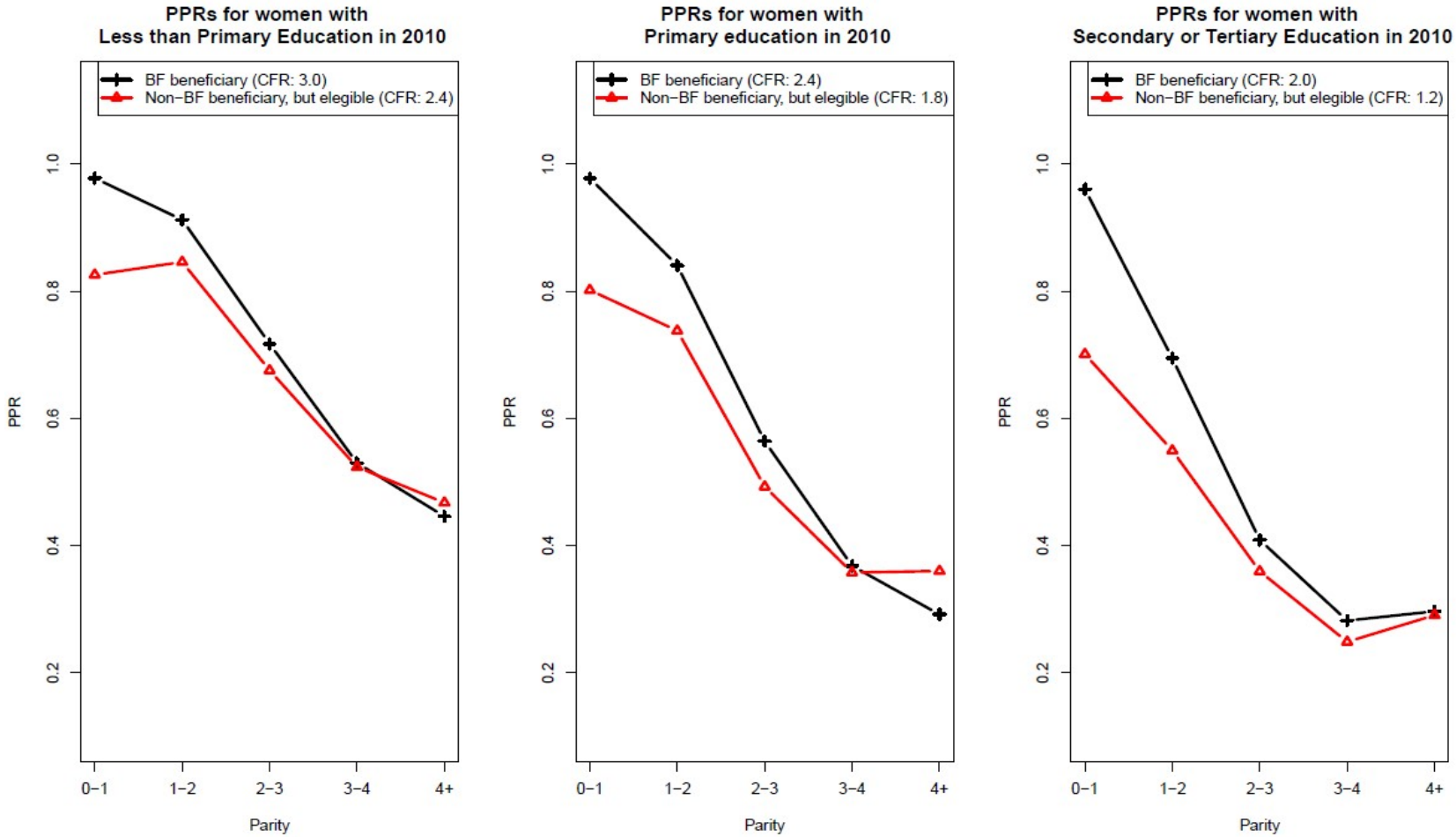
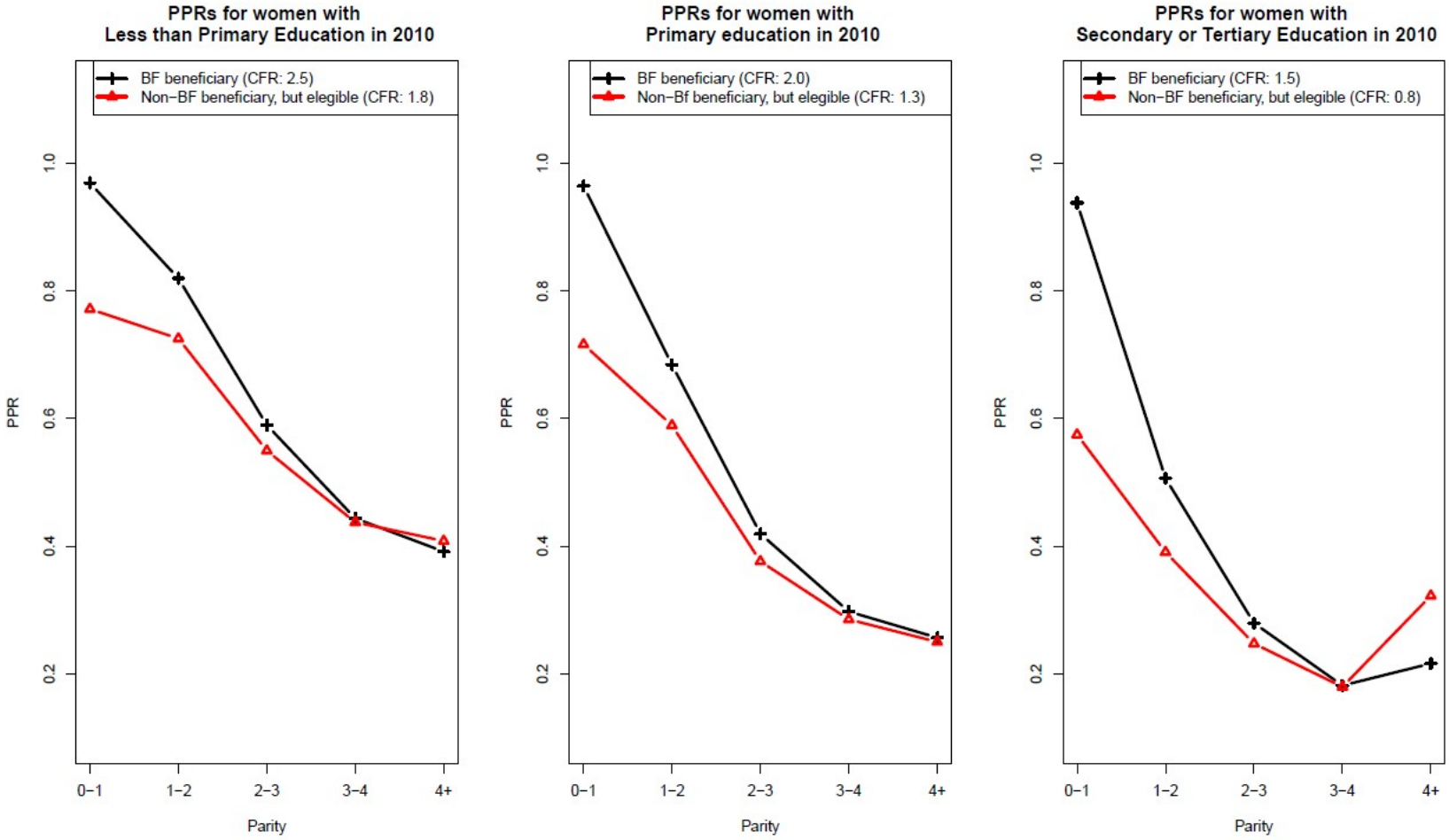
Appendix

Figure 4: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by educational level - North 2010.



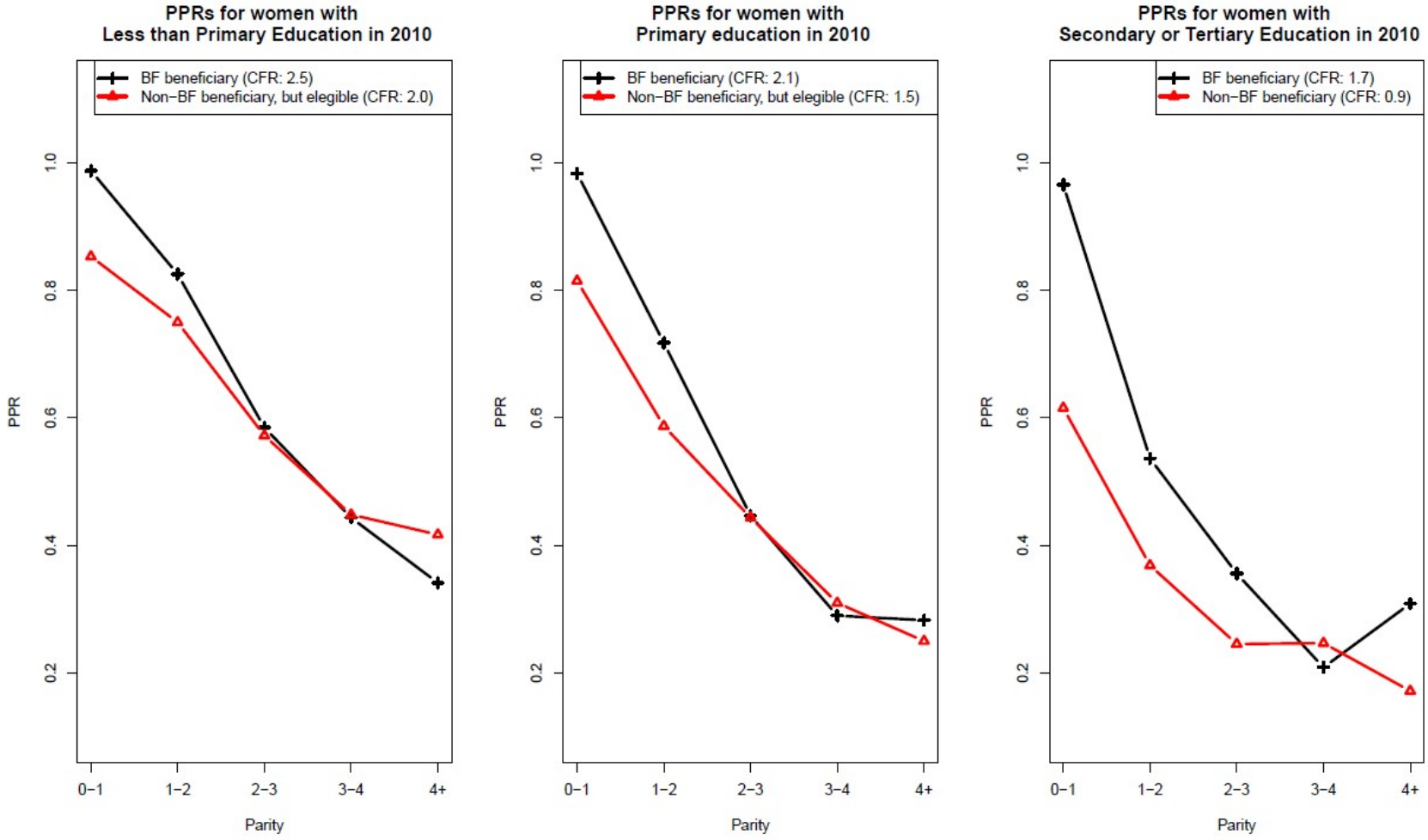
Source: Brazilian Population Census 2010.

Figure 5: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by educational level - Northeast 2010.



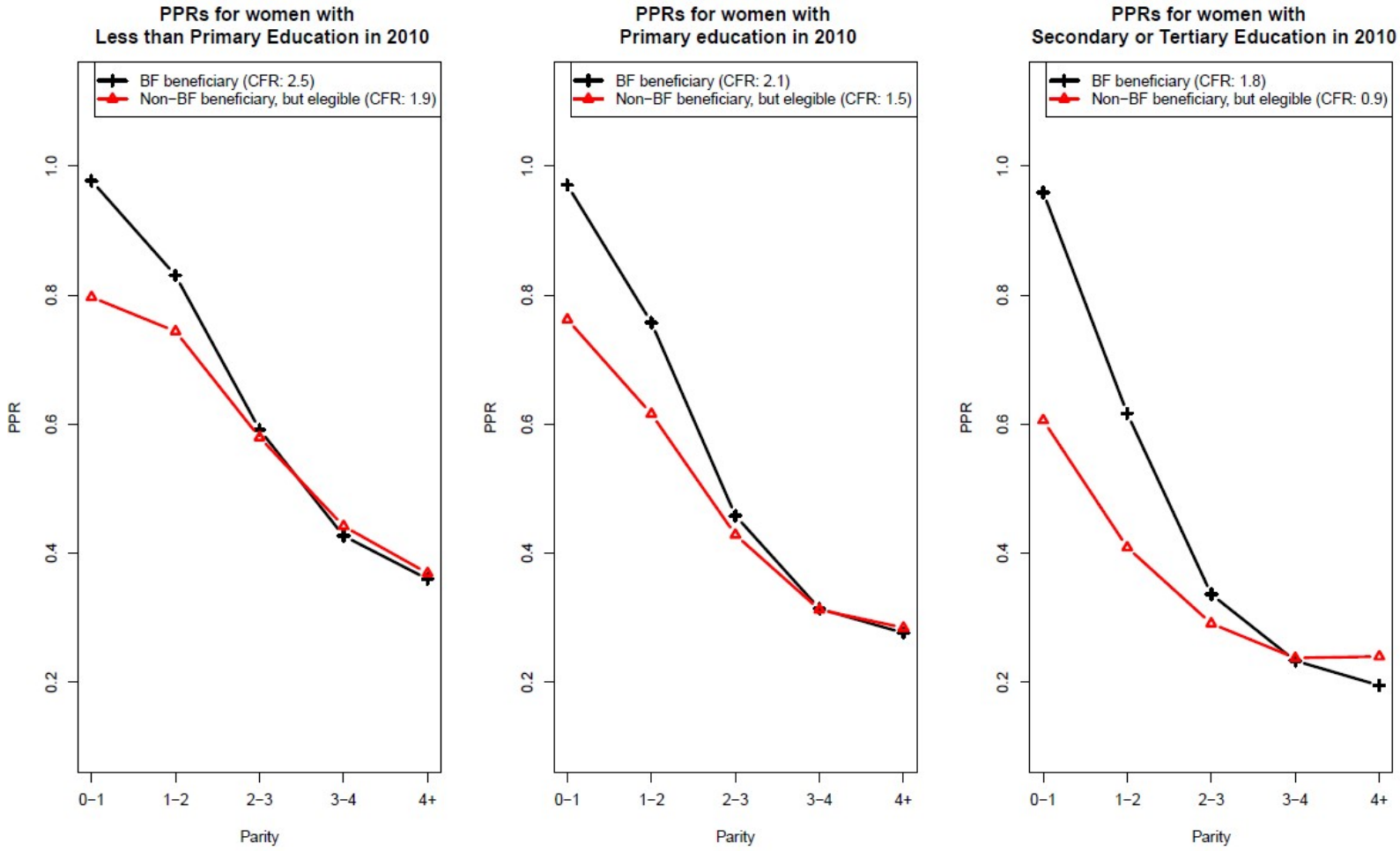
Source: Brazilian Population Census 2010.

Figure 6: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by educational level - South 2010.



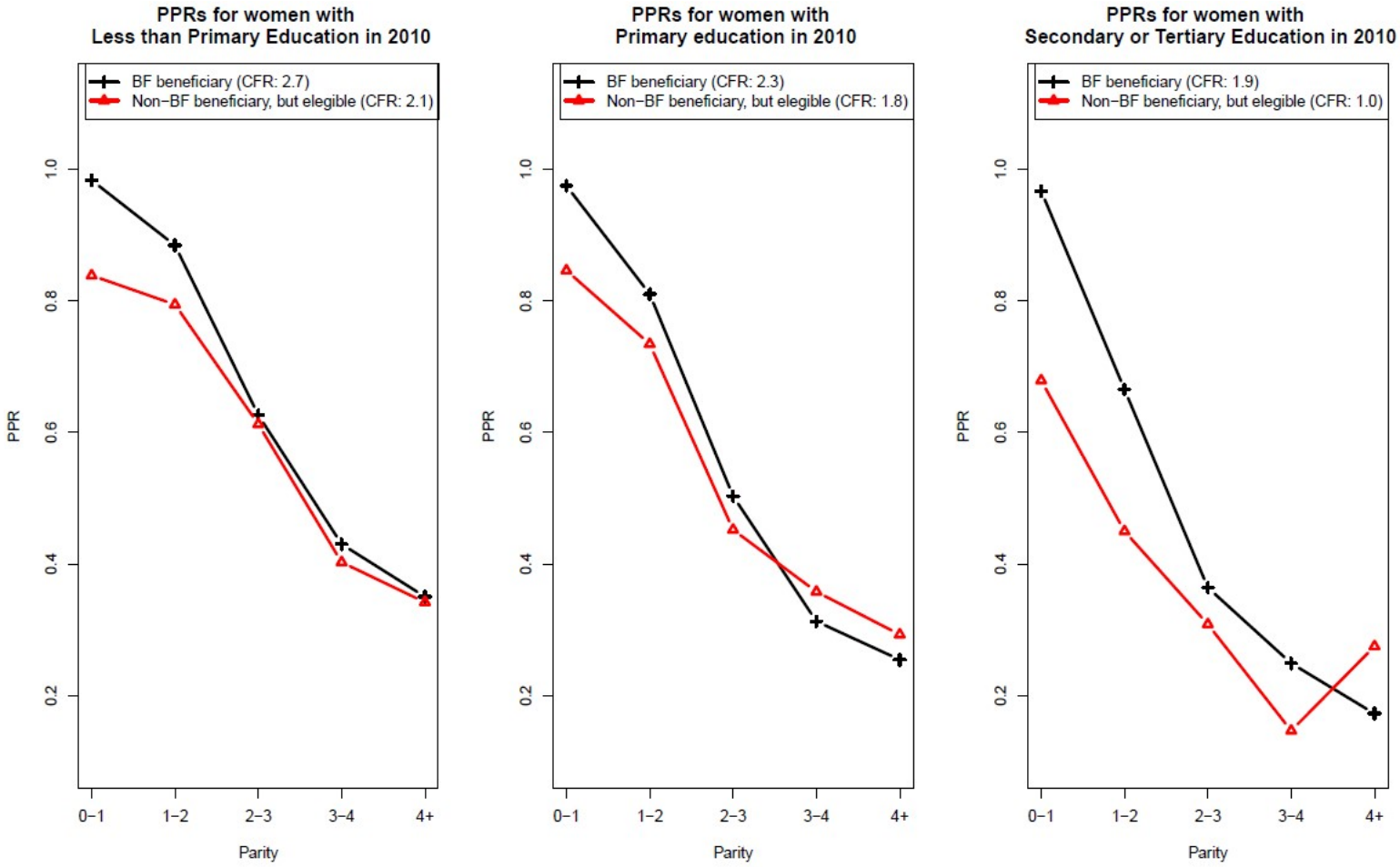
Source: Brazilian Population Census 2010.

Figure 7: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by educational level - Southeast 2010.



Source: Brazilian Population Census 2010.

Figure 8: Parity Progression Ratios (PPRs), cohorts aged 25-29 years by educational level - Midwest 2010.



Source: Brazilian Population Census 2010.