

**Conditional Cash Transfer Policies and Infant and Child Mortality in Brazil: analyses using the Bolsa Família Program**

Everton E C de Lima<sup>1</sup>

Felipe Azevedo<sup>2</sup>

**Abstract**

We analyze the conditional cash transfer programs Bolsa Familia (BF) and its relationship with infant and child mortality in Brazil in 2006 and 2010. Using census and DHS, we investigate how this program affects infant and child mortality and contributes to general mortality reductions and increase life expectancy in small areas of the country in 2010. Due to its conditions 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, we believe that this social program promotes considerable reductions in infant and child mortality in the country.

**Keywords:** Infant and Child Mortality, Conditional Cash Transfers, Brazil

---

<sup>1</sup> Everton E. C. Lima (corresponding author), assistant professor at College of Philosophy and Human Sciences (IFCH) and Population Studies Center (NEPO) at University of Campinas (UNICAMP). Email: [everton@nepo.unicamp.br](mailto:everton@nepo.unicamp.br)

<sup>2</sup> PhD-Student at College of Philosophy and Human Sciences (IFCH) at University of Campinas (UNICAMP); [felipe.azevedo@nepo.unicamp.br](mailto:felipe.azevedo@nepo.unicamp.br)

## **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 12 years old or from 13 to 15 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 contraceptive methods, health, nutrition, education and the inclusion of women from low socioeconomic groups in formal labor, which could be seen as way to women's empowerment. Other pertinent questions are how such monetary benefits, provided indirectly by the BF could improve child and infant mortality in the country?

Previous studies, Silva and Paes (2018) and Rasella (2013) show the great effectiveness of the Bolsa Familia Program in reducing child mortality. This effect was stronger in reducing the causes of mortality linked to poverty, such as malnutrition and diarrhea. Silva and Paes (2018) also argue that to maintain this reduction, government interventions are needed to minimize the income disparities experienced by a large part of the Brazilian people, and provide to beneficiaries the means to adequately fulfill the conditions imposed by program.

The Bolsa Familia can affect child survival through different mechanisms, for example by improving income and health conditions, i.e. greater income can increase access to food, while health conditions can be improved by facilitating access to health services (Gaarder and Glassmanb 2010). Notwithstanding, there is a strong relationship between child malnutrition and child survival, as increasing the levels of child malnutrition increases the risk of death, especially by causes of diarrhea and measles (Black et al 2008). It has already been shown that poor households, enrolled in the Bolsa Familia Program, have increased their food expenditures and improved food security (De Bem Lignani 2011). In general, in Brazil there has been a marked decrease in child malnutrition in the last decade, especially among poor families (Victora et al 2011). The

contribution of the BF to this process has been demonstrated in some recent studies: children from families benefiting from the BF were more likely to be well nourished than those from non-beneficiary families (Paes-Sousa et al 2011, Paes-Sousa and Quiroga 2011).

The program can also operate on some intermediate mechanisms, such as vaccination, prenatal care and hospitalizations, and these last could impact on infant mortality. Thus, we expect that cash transfers could reduce the burden of poverty on families, improve living conditions, and remove or reduce barriers to access to health care (Wagstaff et al 2004). The effect of social program on child survival is associated with the health conditions to fulfill in order to receive the benefit, which includes prenatal visits, postnatal care and educational health and nutrition activities for mothers, as well as regular immunization and check-up routines as way to promote the growth and the development of children younger than 7 years of age.

The strong impact of BF observed in hospitalizations in children under five can be explained by two different mechanisms: a) decrease in the incidence of diseases, affecting the social determinants of health; b) increasing the first contact with the health system and facilities, thus reducing the number of serious cases that require hospitalization (Gaarder and Glassmanb 2010).

In this context, most of the researches had explored the impact of this program on mortality in aggregate level and there are few attempts to address the issue in more disaggregated level. One of the few studies by Rasella (2013), use random fixed-effect models as way to explore how the program affects under-five mortality in the municipalities of the country between 2004-2009. His results show that the mortality under-five reduced as the coverage of the program has extended, however, deaths related to external causes presumably were not affected by the program. One limitation of the study is that the fixed effects models can control only the selection bias associated with the characteristics of the municipalities that are constant in time (Rasella 2013). Other issue is that this study had limited its analysis only to 2853 locations, which accounts only to half of countries municipalities.

The aim of this study is to expand these analyzes on the relationship between the BF and infant and child mortality, but this time using all country municipalities and applying different model specifications. We also want to analyze infant (IMR) and child (under-five) mortality separately, because we believe that the effects of the program might operate differently to each age-group.

### **Data and Methods**

We make extensive use of Brazil microcensus data from 2010 and Demographic Health Survey (DHS) 2006. Both researches present household questions related to receiving the social benefit and other socioeconomic control variables.

We will apply hierarchical models, Spatial Autoregressive Modeling (SAR) and Conditional Autoregressive Modeling (CAR). The multilevel models will be applied to understand how individuals, household and municipality characteristics explain IMR and under-five mortality. The spatial regression models will be estimated to evaluate the relationship of mortality rates according to some explanatory variables, considering the spatial distribution of these rates and the spatial effects that might affect them.

### **References**

- Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, Mathers C, Rivera J. (2008). Maternal and Child Undernutrition Study Group. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet*. 371(9608):243-60.
- De Bem Lignani J, Sichieri R, Burlandy L, Salles-Costa R. (2011). Changes in food consumption among the Programa Bolsa Família participant families in Brazil. *Public Health Nutr*,14(5):785-92.
- Gaarder MM, Glassman A, Todd JE. (2010). Conditional cash transfers and health: unpacking the causal chain. *Journal of Development Effectiveness*, 2(1):6-50.
- Paes-Sousa R, Quiroga J. (2011). Programas de transferência de renda e redução da pobreza e das desigualdades sociais no Brasil [Cash transfer programs and reduction of poverty and social inequalities in Brazil]. Saúde Brasil 2010, Brazil: Ministerio da Saude: 2011.
- Paes-Sousa R, Santos LM, Miazaki ÉS. (2011). Effects of a conditional cash transfer programme on child nutrition in Brazil. *Bull World Health Organ*. 89(7):496-503.
- Rasella, D. (2013). Impacto do Programa Bolsa Família e seu efeito conjunto com a Estratégia Saúde da Família sobre a mortalidade no Brasil. *Tese de doutorado*. UFBA.
- Silva, E.S.A. e Paes, N.A. (2018). Programa Bolsa Família E Mortalidade Infantil No Brasil: Revisão Integrativa, *HOLOS*, no 34, Vol. 01.
- Victora CG, Aquino EM, do Carmo Leal M, Monteiro CA, Barros FC, Szwarcwald CL. (2011). Maternal and child health in Brazil: progress and challenges. *Lancet*. 377(9780):1863-76.
- Wagstaff A, Bustreo F, Bryce J, Claeson M; (2004). WHO-World Bank Child Health and Poverty Working Group. Child health: reaching the poor. *Am J Public Health*,94(5):726-36.