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An Evaluation of the Impacts of Bolsa Família on Schooling

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A Minor Field Study
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Abstract

Conditional cash transfer programs have been proven effective when aiming to decrease poverty and increase school enrollment among poor. The Brazilian conditional cash transfer program Bolsa Família is the largest program in the developing world and affect 13 million families in their everyday life. One of the long-term aims of Bolsa Família is to increase school enrollment in Brazil, which also is the focus of this thesis. With human capital theory as the foundation and with data from the Brazilian household survey PNAD2011, a regression discontinuity design is carried out in order to evaluate the impacts of Bolsa Família on school enrollment. As a complement to this analysis, semi-structured interviews with ten beneficiaries are conducted. The main result from the evaluation is that Bolsa Família does not increase school enrollment but appear to provide help for the children in poor and extremely poor families to assimilate education.

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1 Introduction

> *"(…) ensuring that all children are able to complete primary education remains a fundamental, but unfulfilled, target that has an impact on all the other Goals".* Ban Ki-Moon, Secretary-General, United Nations, 2012 (The Millennium Development Goals Report 2012, pg. 3)

In 2000, the United Nations made a resolution with the aim to eradicate poverty. A step in this direction is to provide universal education to all school aged children in the world. As a response to this, the Brazilian government instigated the conditional cash transfer program Bolsa Família in 2004. There are various reasons for this program, but one of its main purposes is to increase school enrollment among children in poor and extremely poor families. This study aims to evaluate the effects of Bolsa Família on school enrollment through a regression discontinuity estimation in combination with semi-structured, in-depth interviews.

1.1 Research Question

- Does Bolsa Família affect schooling among children in the beneficiary families?

Brazil became the world's sixth largest economy in 2012 (The Guardian, 2013-03-21). A relevant reaction to this is the question of how Brazil managed to go from being an underdeveloped country to top ten of the world's largest economies. Education is considered to be one of the main contributors to development according to the United Nation's Millennium Development Goals and one of the main goals of Bolsa Família is to increase education among the poor. Therefore it is highly relevant to evaluate the effects of Bolsa Família on school enrollment. Since Bolsa Família is the biggest conditional cash transfer program in the developing world, considering the number of beneficiary families (Lindert, 2006), it affects a lot of people in their everyday life. If the program can better the lives of those people, it will be a great step towards eradicating poverty in the world.

1.2 Method

Most CCTs are randomly implemented; therefore it is possible to evaluate the effects of the programs through a control and a treatment group. Since Bolsa Família was not randomly implemented, and because of the lack of more vast research about the program, there is a need

for another method in order to evaluate the effects of the program. The method used in this study is based upon a multi-strategy research. First, a quantitative analysis is made to evaluate the possible differences between the beneficiaries and the non-beneficiaries; second, a qualitative analysis is conducted to complement the estimation. The quantitative analysis will be carried out through a regression discontinuity model and the qualitative analysis will be conducted through semi-structured interviews. In order to conduct the regression discontinuity design the sample is divided into two groups, the treatment group consisting of individuals with a monthly household income per capita between 126 and 140 BRL, and therefore eligible to receive Bolsa Família, and the control group with a monthly household income per capita between 141 and 155 BRL and not eligible for Bolsa Família. Because of the comparison between two similar groups, the effects of Bolsa Família on school enrollment can be estimated.

1.3 Main Result

The main result of this study is that Bolsa Família has a negative impact on school enrollment, but it has a positive impact on the beneficiary children's possibility to assimilate education. There is no difference in the effect of Bolsa Família on school enrollment between different age groups. The conclusion is therefore that Bolsa Família appears to have positive short-term effects on poverty relief for the beneficiaries while there are no long-term positive effects of increased school enrollment.

1.4 Disposition

The first chapter discusses Brazil's economic background, which led up to the instigation of Bolsa Família. It briefly presents the basics of conditional cash transfer programs and more thoroughly examines the Brazilian conditional cash transfer program Bolsa Família, as well as presenting a brief literature review. Chapter three review more in depth the theoretical framework. The following chapter presents the data used in the estimations, both in the quantitative and in the qualitative study. This part is followed by a more extensive chapter about the methods used in this study, regression discontinuity design and semi-structured interviews. Chapter six presents the results of this paper. The paper is summarized in chapter seven by a conclusion about Bolsa Família and its effect on school enrollment among the beneficiary families.

2. Background

This chapter presents a brief discussion about the economic situation in Brazil. It also presents the basics of conditional cash transfer programs followed by a deeper presentation of the Brazilian conditional cash transfer program Bolsa Família. A short review of the existing research is carried out and finally, a presentation of the state capital Florianópolis, which was the subject for the interviews in this study.

2.1 Economic Development in Brazil

Brazil is considered to be one of the last countries that was struck by the economic crisis in 2008. Because of this and other contributing factors, the Brazilian economy recovered rapidly from the crisis. In 2010, the country experienced the highest annual growth in two decades, with a real GDP growth of 7.5% (OECD, 2011). Brazil is still experiencing high levels of growth, and in 2012, the Brazilian economy passed the UK's economy and is now the world's sixth largest economy (The Guardian, 2013-03-21). One of the major obstacles to sustaining economic growth is the lack of greater household savings in order to make larger investments. There are means taken by the government to remove the difficulties with savings and investments, such as simplifying the tax system, removing direct lending obligations and lowering the bank reserve requirements leading to more long-term investments (OECD, 2011). Connected to the issue of low levels of savings is the big concern for the wide range of income levels among the Brazilian population. Lately, there has been a growing middle-class, but the wide income gap is still a great problem (The Brazilian Government, 2013-04-29). Even though Brazil has managed to cut the poverty rate by half the last decades, thanks to new policies in income distribution and the labor-market, there is still a lot to be done in order to reduce poverty and decrease the high levels of inequality. These issues take us to the main focus of this paper – the reduction of poverty through federal income grants, in this case a conditional cash transfer program.

2.2 Conditional Cash Transfer Programs

Conditional cash transfer programs (CCTs) have been proven effective in diminishing poverty and increasing the living standard of the poor in many Latin American countries (Bouillon & Tejerina, 2006). The government generally operates CCTs through transferring tax money by

monthly payments to the mothers, or in some cases the fathers, of the poor families. Studies have shown that the most efficient way to allocate the cash transfers is to give the grant directly to the mother, because the mothers are more likely to spend the extra money on the children's education and health (Lundberg et al., 1996). The families that are eligible are considered poor or extremely poor[1] and meet certain requirements (de Souza et al. 2011). The first CCT was instigated in Mexico 1996 and was called Progresa, today named Oportunidades[2]. Progresa aims to target the poorest areas in Mexico to increase school enrollment among those families that need help the most. The targeting is conducted through a two-stage method and is usually credited with being effective. To ensure the effectiveness of the program, it was randomly implemented and is regularly evaluated (Coady, 2003). In the end of 2011, Progresa accounted for 5 827 318 families (The Mexican Government, 2013-05-08).

One of the most well-known and mostly discussed evaluations of Progresa is made by Schultz (2001). By using a difference in difference estimation, Schultz (2001) finds that Progresa has positive effects on school enrollment. The results are controlled with a probit model and are still positive after this control. To evaluate the long-term effects of Progresa, a demographic extrapolation of the results has been used to estimate the long-run school attainment of one cohort of children. The estimation shows that the increased school enrollment effect will proceed in the long run and that the increased school enrollment for girls will decrease the gender inequality in school enrollment among poor families. The author concludes that the internal rate of return for Progresa is 8% per year. The program was well received by the World Bank (Schultz, 2001) and thanks to the positive effects of Progresa, CCTs were implemented in most Latin American countries, as well as in other parts of the world (Bouillon & Tejerina, 2006).

An evaluation of CCTs in Latin America was made by Boullion and Tejerina (2006). The authors reviewed evaluations of social programs in Latin America and find that the results of CCTs are mostly positive. In order to avoid distortion of incentives in CCTs, the conditionalities have to be properly designed. The level of the grants received by the beneficiaries has to be high enough to have an effect on the consumption patterns of the

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[1] A person is considered extremely poor when the monthly household income per capita is less than 70 BRL and poor when the income is between 70 BRL and 140 BRL.
[2] In this paper referred to as Progresa

beneficiaries; otherwise the program will not be effective (Bouillon & Tejerina, 2006). CCTs are usually more effective than in-kind transfers or price subsidies and the conditionalities create a safety net for bad times. The design of the program redirects the decision-making from the authorities towards the families receiving the grant (Bouillon & Tejerina, 2006).

2.3 The Bolsa Família Program

In 2003, the poverty level in Brazil was 38,7%, which corresponds to approximately 70 292 000 people living in poverty in Brazil that year[3] (CEPAL, 2013-01-30). With the objective of reducing poverty, the then-President Luiz Inácio da Silva (Lula da Silva) instigated Bolsa Família (Family Grant) in 2004. Bolsa Família is not a completely new program; it is a fusion of four previous programs that focused on increasing the school attendance of primary aged kids, and assisted families in need to get the sufficient nutrition and universal access to gas and electricity through monthly grants to the families (Reimers et al, 2006). As this paper focuses on the role of human capital and the results of increased years of schooling, the emphasis of the paper is on the educational part of Bolsa Família, previously called Bolsa Escola, and its effects. Bolsa Escola was initially introduced in 1995 on regional level with the aim of increasing the incentives for the families to send their children to school through monthly grants (Sánchez-Ancochea & Mattei, 2011), and was implemented on national level in 2001 (Bourguignon et al., 2003).

In order to administrate Bolsa Família, the new ministry *Ministério de Desenvolvimento Social e Combate à Fome* (Ministry of Social Development and Fight Against Hunger) was founded. The merging of the four programs into one resulted in a decreased administrative burden for the ministry and reduced costs for both the beneficiaries and the government (MDS, 2013-03-08). In 2011, the cost of Bolsa Família was approximately 0,7% of total GDP. When considering the number of beneficiary families, Bolsa Família is today the largest existing CCT program in developing countries (Lindert, 2006). In 2011, there were approximately 13 million families benefitting from Bolsa Família (MDS, 2013-03-27).

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[3] In 2003, the population was 181.633 million people. (Calculation: 181633*0,387=70292) (The World Data Bank, 2013-04-21)

Figure 2.1 Public Spending on Bolsa Família as Percentage of Total Current GDP, 2005-2011
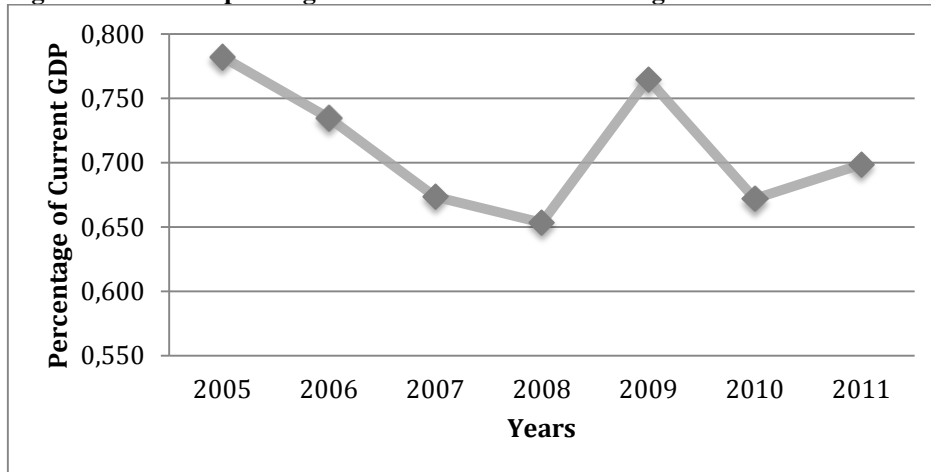
Source: Portal da Transparência, 2013-03-11

In figure 2.1 the public spending on Bolsa Família is presented. The public spending as part of GDP peaked in 2005 and 2009, and has since 2005 ranged between 0.65% and 0.78% of GDP. In 2009, the public spending on education was approximately 16% of the total governmental expenditures, and approximately 5% of total GDP. Of the educational spending on primary and secondary school, almost 68% is spent on salaries to the staff (UIS, 2011). In 2010, the pupil per teacher ratio was 22, to compare with USA where the pupil per teacher ratio was 14 the same year. The spending on education was approximately 5% of GDP in the USA (UIS, 2013-01-24).

Bolsa Família is expressed through three dimensions. The first dimension is the instant poverty relief through the income transfers. Through the conditions that the beneficiaries have to meet, the second dimension exerts the basic social rights of the population, meeting the health needs and universal schooling. The third, and last dimension is called the complementary programs and consists of various programs in order to reduce illiteracy, generating more income-rewarding work and facilitating the poor to escape the poverty trap (SENARC, 2006).

Table 2.1 The Conditionalities in Order to Receive Bolsa Família

Conditionalities	
Mothers (pregnant or breastfeeding)	**Children**
Pre-natal controls	Vaccine Schedule (aged 0-7)
Post-natal controls	Regular health controls (aged 0-7)
Participate in nutritional seminars	Aged 6-15, attend school at least 85% of the time Aged 16-17, attend school at least 75% of the time

Source: MDS, 2013-03-10

In table 2.1 the required conditionalities for Bolsa Família are presented. Since Bolsa Família is a CCT, there are conditionalities that must be fulfilled by the beneficiaries. In order to comply with these conditions, the primary school aged children have to attend school and get yearly vaccinations, and pregnant women have to attend pre-natal care.

The minimum wage in Brazil was 545 BRL in 2011 (Plano Alto, 2013-03-14). The levels of the monthly grants, all expressed in BRL, are as follows.

Table 2.2 Monthly Grant from Bolsa Família in 2011

	Monthly Household Income per capita	Basic Grant	Grant per Children Aged 0-15 (Max. 3 Children)	Grant per Children Aged 16-17 (Max. 2 Children)
Extremely Poor	0-70	70	32	38
Poor	71-140	0	32	38

Source: Relatório de Gestão do Exercício de 2011 (2012)

The families considered extremely poor receive, with or without meeting the conditionalities, 70 BRL a month per capita in the household. Hence, the poor families do not receive the basic grant of 70 BRL, but only the conditioned grant when the conditions are fulfilled. The families receive monthly grants per child as well. In 2013, the amount received per children, aged 0-15, was 32 BRL, but only for the first three children, there is no grants for the fourth

child and on. Since 2009, there is also a grant of 38 BRL[4], for children aged 16-17 if they attend high school, but for a maximum of two children.

The federal bank Caixa Econômica Federal is responsible for and administers the payments of Bolsa Família. The grants are always paid to the mothers of the families; it is only when a mother is not present, that the grants are given to the father (Sánchez-Ancochea & Mattei, 2011).

Since Bolsa Família, unlike Progresa, was not randomly implemented, there is less research conducted on Bolsa Família than on Progresa. A few studies have been made to estimate the impact of Bolsa Escola on school enrollment. Bourguignon et al. (2003) use a simulation to estimate the effects of Bolsa Escola on schooling and child labor. The authors find that the children change their behavior due to the program and that the program increases school enrollment by approximately 40%. Janvry et al. (2006) support the result from the study by Bourguignon et al. (2003). Janvry et al. (2006) evaluate the effect of Bolsa Escola on dropout rates and grade retention. The authors found that the dropout rates were reduced but the level of grade retention increased. The result is explained by the fact that students, who otherwise would have dropped out stay in school because of the program. The data was collected from surveys of almost 300,000 children during five years.

There is a limited amount of research on the impacts of Bolsa Família on schooling. Sanchéz-Ancochea and Mattei (2011) review the existing research on the program and find that Bolsa Família has reduced poverty and inequality in Brazil and has increased the usage of health and education services. It is also noted that in order for the program to give long-term effects, the quality of the health and education facilities in areas with many beneficiaries have to be improved.

Oliveira (2008) uses propensity score matching to estimate the impact of Bolsa Família on the beneficiaries' lives. The author concludes that the results are generally positive for the beneficiaries of Bolsa Família but finds few statistically significant differences between the treatment and the comparison groups. Oliveira (2008) finds that the allocation of time spent on schooling instead of working has increased among the beneficiaries. When evaluating

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[4] Since the instigation of Bolsa Família, the level of the grants as well as the level of poor and extremely poor, has been readjusted to meet the inflation

school attendance the author finds that other programs complementing Bolsa Família, like Programa de Erradicação do Trabalho Infantil, PETI[5] (Eradication of Child Labor), and other school grants, have a larger effect on school attendance. Hence, comparing children in families not included in any program with children benefitting from Bolsa Família, the latter have higher school attendance. Beneficiaries of Bolsa Família have lower dropout rates than both beneficiaries of other programs and non-beneficiaries. The school results have improved in some parts of the country because of Bolsa Família but in other parts the result is negative, which indicate that the students' grades are lower due to Bolsa Família. This is explained by the lower dropout rates.

Bolsa Família has been under a lot of criticism, mostly from critics of the former president Lula da Silva. The critics claim that Bolsa Família is only a way for the president to "buy" votes from the poor for the elections by promising them food grants and better health security. Critics also use the saying "give a man a fish and you feed him for the day, teach a man to fish and you will feed him for a lifetime." and indicate that the program only "gives fish to the poor, but does not teach them how to fish". Another criticism against Bolsa Família is that "the success of Bolsa Família (…) will depend on many other factors, including the creation of more employment opportunities for the poor and progressive reforms in the pension system" (Sánchez-Ancochea & Mattei, 2011, pg. 300). Some administrative issues have also been criticized in Bolsa Família (Handa & Davies, 2006). The monitoring and the control of the fulfillment of the conditionalities are arbitrary and the effectiveness of the targeting varies between the municipalities. There is no rule for the fixed time of exit from the program, which might imply that individuals will become dependent on the grant. The design of the program facilitate manipulation since the monthly household income is self-reported and unverified and the questions in Cadastro Único[6] concerning income are badly formulated. Also, the targeting process is criticized for not excluding non-poor individuals even if the targeting of extremely poor works well.

2.4 The Educational Status in Brazil

The following diagram displays the level of no schooling in percentage among the population aged 15 year or older.

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[5] PETI was instigated in order to diminish the number of children in the labor force (MDS, 2013-03-21)
[6] Further explained in 2.6

Figure 2.2 Percentage of No Schooling of Total Population
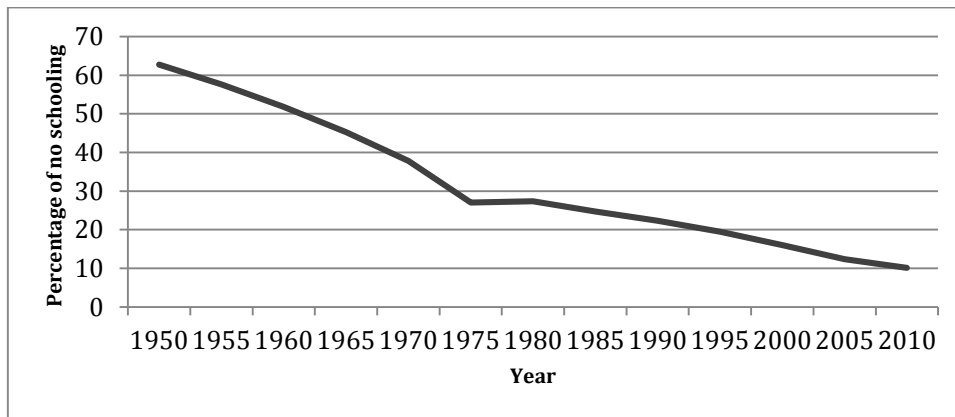
Source: Barro and Lee (2010).

The percentage of individuals without schooling has decreased from more than 60% in 1950 to about 10% in 2010. Related to this, the evaluation of the years of schooling is presented in the following diagram.

Figure 2.3 Average Years of Schooling of Total Population
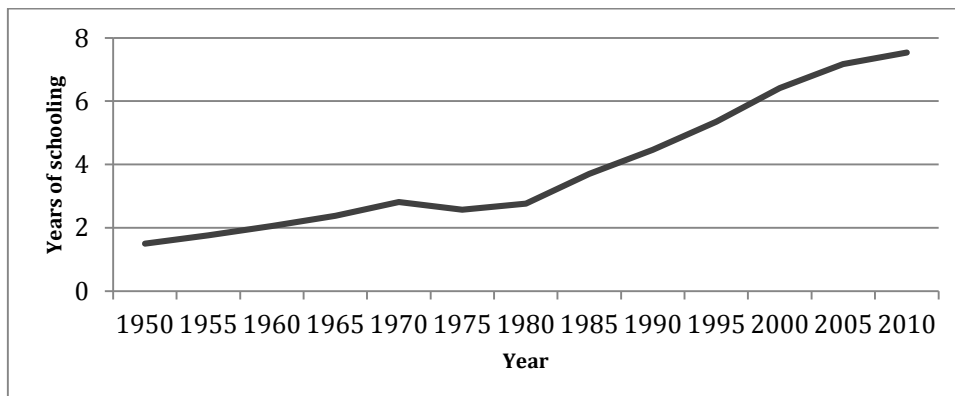
Source: Barro and Lee (2010)

In 1950, the average years of schooling was below two years compared to the 2010 level of almost eight years of average schooling. *Ensino fundamental*, primary school, is nine years in Brazil (The Swedish Embassy in Brazil, 2009). Since 1950, the average years of schooling has increased for individuals aged 15 year or more. The literacy rate in Brazil was 91.4% for the population over 15 years old. For people in the age 15 to 24 year olds the literacy rate was 97.2% the same year (UIS, 2013-01-23).

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2.5 Florianópolis

Florianópolis is the capital of the state of Santa Catarina, which is located in the southern part of Brazil. Santa Catarina is generally considered to be one of the richest states in Brazil, contributing 4.0% of total GDP in Brazil 2010 which is approximately the same amount as the nine states[7] that contributes the least[8] (IBGE, 2013-02-07). 0.22%[9] of the Brazilian population live in the municipality of Florianópolis, and the 11 890[10] (Caixa Econômica Federal, 2013-02-21) beneficiaries of Bolsa Família in Florianópolis represent 0.03%[11] of total beneficiaries in Brazil (MDS, 2013-03-27. The city of Florianopolis is chosen as base for the interviews since the social administration is assumed to work better in a more developed area and it will therefore be possible to see the effects of the program.

2.6 The CRAS

The interviews were conducted with help from two local CRAS, *Centro de Referência de Assistência Social* (Reference Center for Social Assistant). CRAS exist all over Brazil, with the mission to locate, interview and register people who receive less than a minimum wage and are therefore eligible for different social programs administered by Cadastro Único (Single Social Program Register). Cadastro Único is administrated by the federal bank, Caixa Económica Federal, and contains information on all the beneficiaries of Bolsa Família divided into municipality. Cadastro Único administrate several beneficiary programs, and Bolsa Família as one among these programs (Caixa Económica Federal, 2013-03-21). The municipality receives a certain amount each month for each family registered in Cadastro Único, and that is why the municipalities' aim is to register everyone that earns less than a minimum wage. The amount the municipality receives depends on the level of GDP of the state. The local CRAS that helped with the interviews in Florianopolis were CRAS Leste I and CRAS Norte I. There are approximately 40 000 people living in the area of CRAS Leste I, and the office attends to around 1 000 families per year. The neighborhoods covered by CRAS Leste I are Itacorubí, Lagoa da Conceicão, Barra da Lagoa, Costa da Lagoa, Côrrego Grande and Santa Mónica. CRAS Norte I attend families in the areas of Canasvieiras, Ingleses, Rio Vermelho and Santinho. CRAS Norte I is roughly as big as CRAS Leste I in the number of people living in the area and number of families attended.

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[7] There are 27 states in Brazil
[8] For further information, see Appendix 1
[9] Population in Brazil, 2010: 190 755 799. Population in Florianópolis, 2010: 421 240
[10] Number of beneficiaries in February 2013
[11] Number of beneficiaries in Brazil: 13 902 155. In Florianópolis: 4 858

3. Theoretical Framework

The following part presents the theoretical framework this study is based upon. It contains a general discussion about the human capital theory including a short description of the application of the theories on both micro- and macro-level. Some critique against the theory will be addressed and empirical evidence for the relationships in the human capital theory will be examined.

3.1 Human Capital Theory

Adam Smith was the first economist to identify individuals' capabilities and abilities as capital during the 18th century (OECD, 2007). Previously, individuals were only considered as part of the labor force and their actual abilities were not important as long as they could perform physical work. This way of thinking has changed a lot since then, and today the OECD define human capital as:

> "(…) the knowledge, skills, competencies and attributes embodied
> in individuals that facilitate the creation of personal, social and
> economic well-being" (OECD, 2007, p. 29).

During the 20th century, the ideas of Smith were developed into what today is known as the human capital theory. The theory is based on the assumptions that investments in education, health and other capacities a person might attain through his or her life time, will result in increased productivity (Todaro & Smith, 2006). The fundamental idea of the human capital theory is that individuals choose to invest in education because they expect higher income in the future. Therefore, they are willing to accept a lower income today. The investment consists of educational expenditures and forgone income during the time of education. If the costs are lower than the expected future earnings, then education is a good investment. This way, it is theoretically possible to calculate the rate of return to education (Boissiere, 2004). The human capital theory can be divided into theories on micro- and macro-level. The link between the two parts of the theory is the idea that increased years of schooling increase productivity (Szirmai, 2005).

Since the empirical relationship between earnings and schooling is stronger on micro level the focus of the discussion will be on human capital theory on micro level.

3.1.1 Micro Level

On micro level, the human capital theory has been developed by Mincer (1974), Schultz (1961) and Becker (1965), amongst others.

The main equation in human capital theory is generally defined as follows:

$$\ln (y) = a + b * S \tag{3.1}$$

Where:

y = earnings

s = years in school

b = economic return to schooling

a = income without schooling

Other definitions of the equation exist, but this general equation, used in the Mincer model, is a good framework for a brief discussion about the human capital theory.

An empirical relationship between years in school and lifetime earnings exist, but it is sometimes considered weak, since years of schooling might not be equal to years of learning, due to differences in school quality and ability to learn etc. (Mincer, 1974). However, there is strong evidence for a relationship between earnings and the knowledge gained from attending primary school. Particularly, there seem to be higher rate of returns to primary school education and higher rates of returns to education for women in developing countries (Patrinos & Psacharopoulos, 2004). When defining cognitive skills instead of years of schooling for the estimation of education, there is a strong relationship between education and earnings (Glewwe, 2002).

The Mincer model is usually considered as the framework for human capital theory and Jacob Mincer is one of the main contributors to the human capital theory on micro level. The Mincer model is an attempt to explain the differences in labor income with years of schooling. Therefore, the simplest example is a regression of logarithmic earnings on years of schooling. This simple relationship is rather weak, partly because the age of the worker is not included in the regression. Including the age of the worker in the regression, investment in schooling is

assumed to continue even after the individual started working, but at a diminishing rate. The diminishing rate is because of the diminishing rate of return to education the more time the individual works. The rate of return is diminishing because the period of possibility of benefiting from the investment is shorter the older the person gets, in addition to that the opportunity cost of education being likely to increase with experience. Therefore, the relationship between earnings and work experience is a concave function. The linear function of years of schooling and earnings is complemented by a concave function of work experience and earnings (Mincer, 1974).

The human capital theory function of earnings can be specified in either logarithmic values of time units or value of money. Investment in schooling is easier to express in time units than in amount of money, since most people know how many years they attended school but not the exact value of money they have spent on schooling, and therefore the specification in logarithmic values of time units is favored. When using the human capital earning function it is possible to differ between investment in schooling and other types of investments in human capital. Otherwise, the result would be the weighted average rate of return to schooling from a comparison of two groups with different educational background. The human capital earnings function provides more information. Another conclusion from studies of the human capital earning function is that an individual who invests more money in schooling tend to invest in more on-the-job training as well, but it does not seem to have the same result when testing for investment of time instead of money. In order to get a strong relationship between schooling and earnings, on-the-job training has to be taken into account (Mincer, 1974).

3.1.2 Macro Level

The basic idea of human capital theory on macro level is the same as on micro level, that education increase productivity. Education will lead to a more productive labor force and consequently economic growth. Solow developed the basic growth theories during the 1960s, where education and technological development are treated as exogenous (Boissiere, 2004). These ideas were further developed during the 1980s by Romer and Lucas, who treated education as endogenous (Boissiere, 2004).

The basic growth model can be specified in a general form as defined below by Boissiere (2004):

$$Y = F (K , L , H ; T)$$ (3.2)

Where:

Y = Growth

K = Capital

L = Labor

H = Human Capital

T = Total Factor Productivity (TFP) or the residual of the other independent variables in the equation, often denoted technology

The empirical estimations of the impact of education on economic growth do not show as strong and stable relationship as the relationship between years of schooling and earnings on micro level (Patrinos & Psacharopoulos, 2004). If, however, some of the assumptions in the Solow model are relaxed, it is possible to find a relationship similar to the one on micro level (Boissiere, 2004).

3.1.3 Critique Against the Human Capital Theory

The human capital theory has been criticized for the ideas of the educational effects on productivity. It is argued that education leads to screening and credentialism (Boissiere, 2004). The basic arguments are that the years spent in school do not affect the individual's productivity in working life. One of the explanations is that the qualifications obtained in school are not necessary for the job performed at work. Another explanation is that education is a signal of trainability, as a way to help employers to choose which workers to hire whilst the actual training starts when the individual starts working. The screening theory argues that the expansion of schooling in developing countries only leads to inflation of diplomas (Szirmai, 2005).

The human capital theory has been criticized for excluding social relations and for not including a class component in the framework (Bowles and Gintis, 1975). This Marxian critique is based on the argument that education maintains structures in society and that the rate of return differ between classes in the society. It is argued that the reason for differences in earnings is not only due to education but also due to the fact that the individuals are born in different social classes (Bowles and Gintis, 1975).

The idea behind the theories about social choice is that investment in human capital is different from other investments since it is heterogeneous in its nature. The investment in education is not only an investment made by the individual but it also demands investments by institutions and the government. These two investments have to complement each other in order for the investment to yield any return. Hence, the students also have to make decisions about the amount of inputs at different school levels to increase the rate of return to their schooling. Examples of a student's inputs are school literature and study effort. One aspect of arguments in social choice theories is the macro-micro argument that the investments have to match each other on both micro and macro levels. Parameters that appear to be fixed in the calculation of the individual can turn into variables when all individuals' choices are added together at the aggregate level. Another argument worth mentioning in the social choice theories is the collective choice argument. This aspect of the theory discusses the dilemmas when investments affect different groups in the society differently and the following problems of summing up of individual investments for the aggregate level (Chattopadhyay, 2012).

The capability approach offers a broader concept compared to the human capital theory. The idea is that a vector of essential inputs, like health, education, nutrition etc. leads to freedom to choose the kind of life the person wants to live, and not only affects income. Therefore, freedom is considered development. Education is a central capability for an individual to be able to choose the kind of life the individual wants to live. Education also leads to the possibility for an individual to improve and develop other capabilities, like health or nutrition. Therefore, in the long run, more and better education is one of the most important contributions to development and freedom for an individual (Chattopadhyay, 2012).

3.2 Policies to Increase School Enrollment

3.2.1 The Reasons for Public Interventions

When discussing returns to education it is common to distinguish between private and social returns. The social returns include the positive externalities of more education. If the social returns are higher than the private returns, public interventions are valid. Other reasons for public interventions are usually imperfect credit markets and information asymmetries about the benefits of education (Boissiere, 2004).

3.2.2 Increasing School Enrollment

Several attempts to increase school enrollment through different programs have been made in different countries. Kremer (2003) evaluates some of the research of some of those programs for either increasing the demand for schooling or the supply of schooling. To increase demand for schooling, some researchers argue that the easiest way to increase school enrollment is to decrease the costs of attending school, while other researchers argue that school has to be at an expense, otherwise education will not be considered important. If the school serves a free meal during the day or if the school equipment is free of charge, school enrollment increases. Health programs, like deworming, appear to have a positive effect on school enrollment. To increase the supply of education, attempts to increase the amount of textbooks in the schools have been made. These results were mostly disappointing, generally because the textbooks were not written in the children's native language. Building more schools in rural areas, in order to reduce the distance to the school, had positive results on school enrollment. One of the main problems for the school systems in developing countries is the high incidence of teacher-absenteeism. The weak link between teacher-presence and the teachers-payment is one of the most common causes of the problem of teacher-absenteeism. A stronger link between presence and payment tends to have a positive effect on both teacher-presence and student enrollment. Bolsa Família is a way to decrease the cost of schooling for the families and it therefore aims to increase the demand for education among the poor families.

4 Data

The following chapter addresses the data and the variables that are used in order to complete the estimations and interviews made in this study. First, a short description about the survey PNAD is presented, followed by information about the variables chosen for this study.

4.1 PNAD2011

The data used in this paper is first and foremost information from the Brazilian household survey *Pesquisa Nacional por Amostra de Domicílios*, PNAD, (National Household Sample Survey), from the Brazilian Geography and Statistical Institute, IBGE.

IBGE implements yearly household surveys with the objective of addressing the lack of information on the Brazilian population. The topics that are collected and conducted in the survey are those identified as the most important to measure, and that monitor the socio-economic status and development of the population, such as, housing, labor, education and demographic characteristics. Since 2004, PNAD includes a complete coverage of the Brazilian territory (MEC, 2013-02-07).

The estimation made in this study will include data from the latest completed survey, which contains information collected in 2011, the so-called PNAD2011. The individuals in PNAD2011 were randomly selected and were obtained through three different stages: (1) municipalities, (2) census areas, and (3) residential units. The sample is based on questionnaires of 146 207 households, containing 358 919 individual observations, with September 2011 as the month of reference and includes more than 300 variables. The interviews took place and were completed in the home of the responders. If, by any chance, there was no response from the household the first round of the survey, the household was revisited in order to find out the reason for the incomplete responses or the lack of response. Measures were taken in order to get the complete response. Considering the quality of the data the response rate is 93,2% with a refusal rate of 1,8% (IBGE, 2013-03-08).

One concern with using data from PNAD is that IBGE codes the micro-data through the American Standard Code for Information Interchange (ASCII), which is coding through numerically coding the answers of the questionnaires. This might lead to errors in the sample

used in the estimation, but since the decoding was appropriately done it is unlikely that this has yielded any significant errors that would affect the results of the estimation.

4.1.1 Variables from PNAD2011

The variables from PNAD2011 that will be used are the following:

Y = The dependent variable is school enrollment. The variable is estimated by the answers to the question: "*Are you enrolled in school?*". The reason school enrollment is used in the estimation is because it is considered to be a good measure of the level of enhancement of human capital.

X = The independent variable is whether the family receives Bolsa Família or not. This is a binary variable and is based on the answers to the question: "*What is your monthly household income?*". MDS estimates that there are 13.738.415 poor or extremely poor families in Brazil. Since there are 13.353.843 families benefitting from Bolsa Família, the coverage of the program is 97.19% (MDS, 2013-03-27) [12]. Thanks to the high rate of coverage, the assumption can be made that everyone who reported a monthly household income between 0 and 140 BRL in PNAD2011 receives Bolsa Família. This is the same way *Instituto de Pesquisa Econômica Aplicada*, IPEA, (Institute for Applied Economic Research) does its estimations when examining the effect of Bolsa Família on poverty, school enrollment and school retake. In PNAD2004 and PNAD2006 there was a variable included that asked directly whether the respondent receives Bolsa Família or not. Unfortunately this variable is not presented in PNAD2011, but IPEA made comparisons in PNAD2004 and PNAD2006 and came to the conclusion that the earlier presented way of estimating whether the respondent receives Bolsa Família or not is a convenient and significant method[13]. Since the grant is disbursed to the mothers in the families, the question of whether the individual receives social benefits or not is not suitable for this estimation. The answers would be misleading since the children in the family are not the ones receiving the benefit and have answered accordingly.

The variables used for the estimation are from PNAD2011, and the following are the variables used in the estimation. The year of reference in PNAD2011 is 2011, with September as the month of reference, and September 18th to 24th as the week of reference. The information about the variables is from the document *Dicionário de Variáveis da PNAD2011*

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[12] See Appendix 2
[13] Sergei Soares, Chief of Staff at IPEA, 2013, email 2013-04-18

– *arquivo das pessoas* (IBGE, 2013-04-26)[14].

- 5 – State of residence; 27 states
- 18 – Gender
- 23 – Year of birth
- 70 – Enrollment in school or kindergarten
- 721 – Total monthly household income; the total monthly household income from all work in the week of reference in the month of reference. Included in the household income is the income of all household members except the ones who were retired, a maid, relative of the maid or household members younger than 10 years.
- 745 – Family Type; used to estimate the variables *Number of Parents* and *Number of children*.
- 750 – Urban/Rural
- 764 – Number of household members; includes all the members in the household except members who were retired, a maid or relative of the maid.
- 766 – Monthly household income per capita; Variable 721 divided by variable 764.

The following variables are recoded into dummy variables:
1. Gender: 1=female, 0=male
2. School enrollment: 1=yes, 0=no
3. Urban/Rural: 1=urban, 0=rural
4. State: one dummy variable per state

4.2 Interviews

The second part of the data in this paper contains information of the interviews with beneficiaries and non-beneficiaries of Bolsa Família[15]. The interviews were carried out in several favelas in the municipality of Florianópolis. The aim of this data set is to develop the more general results from the econometric estimation in the first part of this paper, i.e. qualifying quantitative data as a tool for analysis. The interviews include ten families, six that receive Bolsa Família and four that do not. Through the interviews in Florianópolis, the intention is to expand and deepen the understanding of Bolsa Família, the direct and indirect effects of the program on the beneficiaries as well as the beneficiaries' and non-beneficiaries' opinion about the program. The selection of the families is not based on their monthly

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[14] See Appendix 3
[15] For interview questions, see Appendix 4

household income per capita as the selection of the data in the quantitative estimation. Therefore the interviewed families might not be representative for the families in the quantitative estimation.

Five beneficiaries were selected from each CRAS. The interviews were completed in the homes of the beneficiaries, together and with help from the social assistants at the local office. Thanks to the knowledge of the social assistants, and the knowledge about the beneficiaries, the refusal rate for the interviews was zero. The social assistants also helped to explain and deepen the interview questions and answers when there were misunderstandings because of the language. Considerations were given to the situation of the respondent, with the result that not all questions were answered in the interviews.

One possible bias that needs to be considered in the interviews is that the respondents might not have been completely honest in their answers regarding income and what they spend the grant on when the social assistants took part in the interviews, because they were afraid of losing the grant. However, the decision was taken that it was better that the social assistants participated in the interviews because of possible lack of communication due to linguistic faults.

5 Method

This chapter develops the method used in the study. In order to answer the research question multi-strategy research, including an econometric estimation as well as interviews, has been conducted. The method used to analyze the quantitative data is a regression discontinuity model.

5.1 Research Strategy

The estimation in this thesis will be conducted through multi-strategy research. First, a quantitative analysis will be made to evaluate the possible differences between the beneficiaries and the non-beneficiaries; second, a qualitative analysis will be conducted to complement the estimation. The quantitative analysis will be conducted through a regression discontinuity design and the qualitative analysis will be conducted through semi-structured interviews.

Table 5.1 Research Strategy

Research Methods	Data Elicitation	Data Analysis
Quantitative	PNAD2011	Regression discontinuity estimation
Qualitative	Semi-structured, face-to-face interviews	Coding, Content analysis

5.2 Regression Discontinuity

When evaluating the effects of Bolsa Família on school enrollment among children in the families receiving the grant, a natural experiment is carried out because the subject of evaluation is an already existing program and not an experiment. However, Bolsa Família was not randomly implemented and therefore a clear natural experiment is not possible, since it would be considered unethical to have a real control group in this case when eligible individuals would have been out of treatment because of the evaluation. Therefore, a control group has to be created and hence a quasi-natural experiment is carried out. By measuring the average treatment effect, the problem that the same individual cannot both receive and not receive the treatment at the same time is avoided. The most common method to deal with this

is a difference in difference method. In this case, data of before and after the treatment for both the treated and non-treated individuals are not available and therefore a difference-in-difference estimation is not possible (Verbeek, 2008). To answer the research question of this paper, a regression discontinuity estimation is carried out since the condition in order to be eligible for Bolsa Família is to receive less than 140 BRL a month per capita in the household. A regression discontinuity design is an effective way of measuring the average treatment effect, since the design takes advantage of the threshold of 140 BRL and uses a certain bandwidth from the threshold to identify a treatment group, just below 140 BRL, and a control group, just above 140 BRL. In this way the design allows for a distinction of a treatment group and a control group without keeping individuals, that otherwise would receive the treatment, out of treatment (Web Center for Social Research Methods, 2013-03-04). Hence, comparing the treatment group and the control group will give the treatment effect. The design has not been commonly used in social science, mostly because it was developed as late as the mid-1970s. The advantage with the regression discontinuity design is that it usually provides strong internal validity and therefore gives valid results (Web Center for Social Research Methods, 2013-03-04).

The econometric specification follows the one specified by Imbens and Lemiux (2007). Y_0 denotes the outcome without exposure to treatment and Y_1 denotes the outcome if exposed to treatment, $Y_1 - Y_0$ is the primary interest of the study. W_i equals 1 if individual i is exposed to treatment and W_i equals 0 if individual i is not exposed to treatment. This can be set up as follows:

$$Y_i = (1 - W_i) * Y_i(0) + W_i * Y_i(1) = \begin{cases} Y_i(0) \ if \ W_i = 0 \\ Y_i(1) \ if \ W_i = 1 \end{cases}$$

(5.1)

Where Y_i denotes school enrollment and W_i indicates if the family receives Bolsa Família.

Bolsa Família has a strict threshold, the individuals who earn between 0 and 140 BRL, are eligible for the grant, while individuals who earn 141 BRL or more are not eligible for the grant. Hence, a sharp regression discontinuity design is used for the estimation.

$$W_i = 1\{X_1 \leq c\}$$

(5.2)

Where X denotes monthly household income per capita and c denotes the threshold of 140 BRL.

In a regression discontinuity design the conditional expectation of the outcome given the covariate is examined, implying that what is examined is the expected value of a variable given a conditional probability distribution when the covariate equals a specific value. The conditional probability distribution is the probability that Y happens when X takes a specific value. In this case the purpose is to examine the discontinuity in the expected value of the children's school enrollment given that the family receives Bolsa Família.

$$\lim_{x \uparrow c} \mathbb{E}[Y_i | X_i = x] - \lim_{x \downarrow c} \mathbb{E}[Y_i | X_i = x]$$

(5.3)

Therefore the average treatment effect can be specified as follows:

$$\tau_{SRD} = \mathbb{E}[Y_i(1) - Y_i(0) | X_i = c]$$

(5.4)

Equation 5.3 specifies the discontinuity in the conditional expected value of the output (Y) when the monthly household income per capita (X) equals the value x in both the treatment and the control group. Therefore, equation 5.4 shows the average causal treatment effect of the program, since it indicates the conditional expectation of the difference in school enrollment between the individuals receiving Bolsa Família and the individuals that do not receive it when the monthly household income per capita equals 140 BRL.

Since the design of the model indicates that there are no individuals in the control group that have a monthly household income per capita of 140 BRL, one of the basic assumptions of matching-type estimators is violated since the units do not overlap. Therefore, an estimation of the unknown values by extrapolation might be necessary. An extrapolation will increase the uncertainty of the results and since the sample is large this uncertainty will be avoided by considering the average treatment effect when the monthly household income is close to 140 BRL, instead of using extrapolation.

$$\tau_{SRD} = \mathbb{E}[Y(1) - Y(0) | X = c] = \mathbb{E}[Y(1) | X = c] - \mathbb{E}[Y(0) | X = c]$$

(5.5)

Accordingly, what is observed is the treatment effect when the monthly household income is close to 140 BRL. There are no observations for the control group when the monthly income is exactly 140 BRL because the design of the method does not allow for it. Hence, some

assumptions about smoothness have to be considered to assure the continuity of both the conditional regression functions and conditional distribution functions.

The study is based upon the assumptions that the individuals in the treatment and control group are as similar as possible, therefore local linear regression is used. This suggests that linear regression functions are run only on data close to the threshold.

For the treatment group the function is specified as follows:

$$\min_{\alpha_1 \beta_1} \sum_{i:c-h<X_i<c} (Y_i - \alpha_1 - \beta_1 * (X_i - c))^2$$

(5.6)

While the following function is specified for the control group:

$$\min_{\alpha_r \beta_r} \sum_{i:c\leq X_i<c+h} (Y_i - \alpha_r - \beta_r * (X_i - c))^2$$

(5.7)

In order to complete the local linear regression, the standard least squares method is used. The average is then measured as:

$$\mu_1(c) = \alpha_1 + \beta_1 * (c - c) = \alpha_1$$

(5.8)

and

$$\mu_r(c) = \alpha_r + \beta_r * (c - c) = \alpha_r$$

(5.9)

The average treatment effect is then estimated as:

$$\tau_{SRD} = \alpha_1 - \alpha_r$$

(5.10)

The bandwidth, h, is chosen according to Imbens and Lemieux (2007). Since a standard least square method is used for inference, the optimal bandwidth is calculated as $h \propto N^{-1/5}$. As the sample contains 74 590 individuals the optimal bandwidth is 14.8 BRL. To check for robustness in the result, different bandwidths are tested.

The exact regression used to estimate the impact of Bolsa Família on school enrollment is specified as follows:

$$Y = \alpha + \beta_1 BolsaFamilia + \beta_2 Gender + \beta_3 Parents + \beta_4 Urban + \beta_5 Children + \beta_6 State + \beta_7 Income + \varepsilon$$

(5.11)

Where:

Y = A dummy variable that represents whether the individual is enrolled in school or not

Bolsa Família = A dummy variable that denotes whether the individual receive Bolsa Família or not

Gender = A dummy variable that controls for gender specific differences

Parents = A dummy variable that controls for differences depending on if the individual lives with one or two parents.

Urban = A dummy variable that controls for differences between urban and rural areas

Children = A dummy variable that controls for differences in how many children live in the household

State = A dummy variable that controls for state specific differences

Income = Controls for the monthly household income

5.3 Interviews

The case study interviews are conducted through semi-structured, in-depth interviews. The interviews are non-standardized, also known as qualitative research interviews, in order to qualify the results obtained through the quantitative estimation, as well as to explore in-depth the subject discussed in the thesis.

In the semi-structures interviews, a list of questions and themes are used in order to make sure all relevant topics are covered. Hence, the questions may vary from interview to interview, since the respondents have different characteristics and it therefore is necessary to have more extensive questions (Saunders et al., 2009). The interviews are conducted through face-to-face interviews, held in the home of the respondent and the language used is Portuguese. After discussing the construction of the questions with the social assistants at the CRAS, the decision was taken that structured interviews or self-completion forms will not be used, because of the high level of illiteracy among the beneficiaries. It is also important to consider the sensitivity of the answers that are related to poverty and participation in the grant program, and because of this, face-to-face interviews are believed to give more truthful

answers and increase the response rate. The data is collected and recorded, in order to reduce the risk for misunderstanding, and then transcribed, rewritten and translated from Portuguese to English.

Hence, the interviews are semi-structured and the order of the questions might be altered, depending on the responses by the interviewee and the course of the conversation. The respondent are also given the opportunity to answer the questions more freely in order to describe certain events, behavior, opinions and thoughts, known as non-directive interaction. Even though the respondents are able to answer the questions reasonably unreservedly, some questions in the interview have the form of an interviewer-administered questionnaire. An example of such a question might be "monthly grant from Bolsa Família".

6 Results

The following chapter presents the results from the quantitative estimation and the qualitative evaluation. First, the econometric analysis will be presented and analyzed followed by a presentation of the results from the interviews and a conclusion of the same.

6.1 Quantitative Estimation

The following session presents the results from the empirical estimation made in this study.

6.1.1 Descriptive Statistics

Presented below are descriptive statistics of (a) the entire sample from PNAD2011 with the individuals born 1993-2004, (b) the individuals in the sample who receive Bolsa Família, and (c) the sample used in the estimation, i.e. born 1993-2004 with a monthly household income of 126-155 BRL.

Figure 6.1 Distribution of Monthly Household Income per capita of all Individuals Born Between 1993-2004
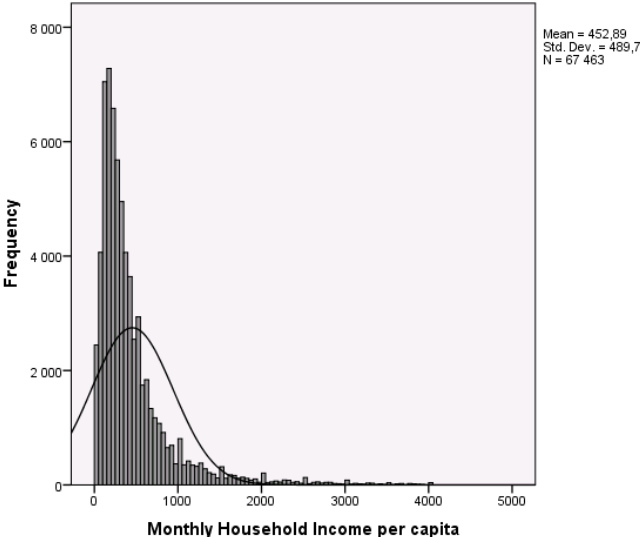
Figure 6.1 illustrates the income dispersion of the individuals included in the household survey who are born between 1993 and 2004 with a monthly household income per capita from 0 to 4000 BRL. The sample consists of 67 463 individuals. Most individuals have a monthly household income per capita of somewhere between 0-1000 BRL. The average household income per capita is just above 450 BRL. This implies that the average level of income is below the minimum wage. In the graph the extreme values above 4000 BRL are

excluded in order to make the result more visible. The following graph illustrates the monthly household income distribution among the individuals receiving Bolsa Família included in the household survey and born 1993-2003.

Figure 6.2 Distribution of Monthly Household Income per capita of Beneficiaries of Bolsa Família
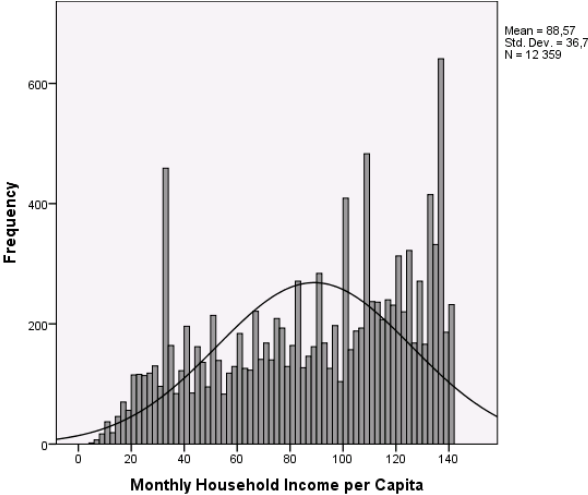
The above graph shows a fairly even income distribution among the individuals receiving Bolsa Família. Most individuals earn more than 70 BRL, which implies that they are not considered extremely poor. At some income levels, there are certain peaks, which could imply that these peaks characterize the minimum wage divided into different numbers of household members, since many beneficiaries receive the minimum wage. An interesting result of this graph is the peak just below 140 BRL, which also can be seen in the next graph where the income distribution of the total sample in the estimation, i.e. individuals born 1993-2004 with a monthly household income per capita between 126 and 155 BRL, is illustrated.

Figure 6.3 Distribution of Monthly Household Income per capita of the Individuals in the Estimation
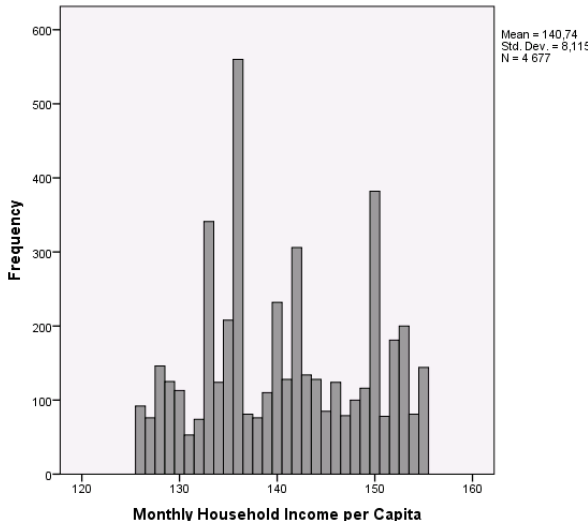
The graph above shows that most of the individuals have a monthly household income per capita between 130 and 150 BRL. The clear peak at 136 BRL is highly likely to occur since 136 BRL is approximately one fourth of the minimum wage (545 BRL). The average monthly household income per capita is around 140 BRL, which is further presented in the following table.

Table 6.1 Descriptive Statistics of Total Sample

	N	Minimum	Maximum	Mean	Std. Deviation
School Enrollment	4677	0	1	0,93	0,248
Bolsa Família	4677	0	1	0,52	0,500
Gender	4677	0	1	0,49	0,500
Year of Birth	4677	1993	2004	1998	3,291
Monthly Household Income p.c.	4677	126	155	140,74	8,115
Number of Household Members	4677	2	14	5,30	1,642
Number of Parents	4677	1	2	1,79	0,406
Number of Children	4677	0	13	3,51	1,635
Urban	4677	0	1	0,74	0,441
Valid N	4677				

Table 6.1 presents the descriptive statistics of all the individuals in the sample. The sample is based upon 4 677 individual observations and only includes individuals born 1993-2004. 93% of the individuals in the sample are enrolled in school, while 52% of the individuals receive Bolsa Família. 49% of the individuals are women. The average monthly household income of the sample is 140.74 BRL. 74% of the sample lives in urban areas.

Table 6.2 Descriptive Statistics of Treatment Group

	N	Minimum	Maximum	Mean	Std. Deviation
School Enrollment	2411	0	1	0,93	0,260
Bolsa Família	2411	1	1	1,00	0,000
Gender	2411	0	1	0,49	0,500
Year of Birth	2411	1993	2004	1998,74	3,304
Monthly Household Income p. c.	2411	126	140	133,98	3,887
Number of Household Members	2411	2	12	5,26	1,630
Number of Parents	2411	1	2	1,79	0,406
Number of Children	2411	0	10	3,47	1,624
Urban	2411	0	1	0,75	0,436
Valid N	2411				

Table 6.2 presents the descriptive statistics of the individuals in the sample that do receive Bolsa Família. The treatment group consists of 2411 individuals with an average monthly household income of 133.98 BRL. The average number of children in the families is 3.47. 75% of the individuals in the treatment group live in an urban area.

Table 6.3 Descriptive Statistics Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
School Enrollment	2266	0	1	0,94	0,235
Bolsa Família	2266	0	0	0,00	0,000
Gender	2266	0	1	0,48	0,500
Year of Birth	2266	1993	2004	1998,88	3,277
Monthly Household Income p.c.	2266	141	155	147,93	4,419
Number of Household Members	2266	2	14	5,34	1,653
Number of Parents	2266	1	2	1,79	0,406
Number of Children	2266	0	13	3,55	1,645
Urban	2266	0	1	0,73	0,446
Valid N	2266				

The above table contains the descriptive statistics for the control group, which consists of 2266 individuals. The average household income per capita is 147.93 BRL. The average number of children is 3.55, which is slightly above the average number of children in the families in the treatment group. 73% of the individuals live in an urban area.

For the regression discontinuity design to be valid, it is important that the treatment and the control groups are as similar as possible. This can be tested through examining the descriptive statistics. The treatment and control group appear to have similar characteristics when it comes to the variables included in the estimation.

Table 6.4 Descriptive Statistics of School Enrollment

	N	Min	Max	Mean	Std. Deviation
School Enrollment (Entire Sample)	4677	0	1	0,93	0,248
School Enrollment (Entire, Primary)	3742	0	1	0,98	0,153
School Enrollment (Entire, Secondary)	935	0	1	0,77	0,424
School Enrollment (Treatment Group)	2411	0	1	0,93	0,26
School Enrollment (Treatment, Primary)	1913	0	1	0,97	0,161
School Enrollment (Treatment, Secondary)	498	0	1	0,75	0,434
School Enrollment (Control Group)	2266	0	1	0,94	0,235
School Enrollment (Control, Primary)	1829	0	1	0,98	0,144
School Enrollment (Control, Secondary)	437	0	1	0,78	0,411

In the above table the descriptive statistics of school enrollment for different groups of the sample is presented. The most interesting result is the difference in school enrollment between the students in primary and secondary school for both the treatment and the control group. It seems to be lower school enrollment among the older individuals i.e. the teenagers. This result is interesting since secondary school is not mandatory but primary school is.

6.1.2 Correlation Analysis

Below follows a simple analysis of the relationships between the variables used in the estimations. The main focus is on the relationship between the dependent variable school enrollment and the independent variable receiving Bolsa Família.

Table 6.5 Correlations

	School Enrollment	Bolsa Família	Gender	Year of Birth	Monthly Household Income p.c.	Number of Household Members	Number of Parents	Number of Children	Urban
School Enrollment		0,029*	0,027	-0,291**	-0,011	0,008	-0,048**	0,020	0,003
Bolsa Família	0,029*		0,014	-0,022	-0,859**	-0,026	0,001	-0,027	-0,015
Gender	0,027	0,014		-0,039**	-0,010	0,003	0,000	0,003	-0,028
Year of Birth	-0,291**	-0,022	-0,039**		-0,005	0,009	0,052**	-0,004	0,004
Monthly Household Income p.c.	-0,011	-0,859**	-0,010	-0,005		-0,033	-0,010	-0,031*	0,010
Number of Household Members	0,008	-0,026	0,003	0,009	-0,033		0,142**	0,969**	0,091**
Number of Parents	-0,048**	0,001	0,000	0,052**	-0,010	0,142**		-0,106**	0,168**
Number of Children	0,020	-0,027	0,003	-0,004	-0,031*	0,969**	-0,106**		0,050**
Urban	0,003	-0,015	-0,028	0,004	0,010	0,091**	0,168**	0,000	

a.   Listwise N=4677
b.   Pearson Correlation
 * Correlation is significant at the 0.05 level (2-tailed)
 **Correlation is significant at the 0.01 level (2-tailed).

The majority of the variables are weakly correlated to each other. The correlation values are close to zero, which indicate that there is almost no correlation between the variables. Receiving Bolsa Família is slightly positively correlated with school enrollment but the low value of correlation implies that no certain conclusion can be drawn. However, this relationship will be further examined in the following part of this chapter.

6.1.3 Scatter Plot

In order to get a general overview of the relationship between receiving Bolsa Família and monthly household income per capita, a scatter plot is presented. If there is a discontinuity in the regression around the threshold, this should be visible in a scatter plot.

Figure 6.4 Relationship between Bolsa Família and Monthly Household Income per capita
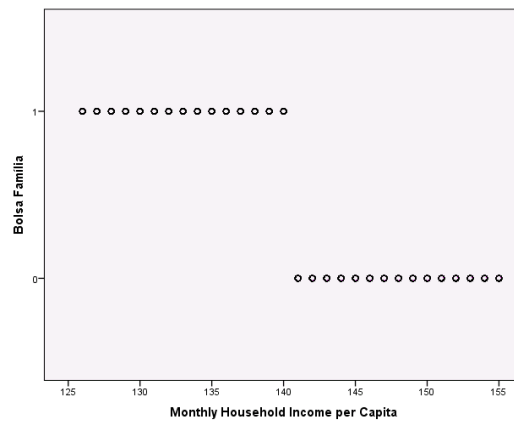
As the graph above shows, the individuals receiving Bolsa Família have a monthly household income per capita of less than 140 BRL. If the household income per capita increases to more than 140 BRL, the family is not eligible for Bolsa Família. In the graph, a clear "jump" between the beneficiaries and the non-beneficiaries is visible.

6.1.4 Regression Analysis

In order to estimate if Bolsa Família has any effects on school enrollment, a multiple linear regression estimation is made and presented in the following section. The analysis is made twice, first for all individuals aged 7-18 and then for all individuals in the age 16-18, i.e. teenagers. The analysis of the teenagers is carried out in order to test if there is a difference in school enrollment between primary and secondary school. Secondary school is not mandatory in Brazil, in contrast to primary school. This indicates that Bolsa Família might have a bigger effect on school enrollment for individuals in secondary school since it is no longer mandatory for the student to attend school.

6.1.4.1 Multiple Linear Regression

A multiple linear regression is used to establish whether receiving Bolsa Família has any effect on schooling or not.

Table 6.6 Regression Analysis of Entire Sample

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,032	0,046		22,592	0,000
Bolsa Família	-0,025	0,008	-0,050	-3,215	0,001
Monthly Household Income	0,000	0,000	-0,120	-4,456	0,000
dum_gender	-0,014	0,007	-0,028	-1,916	0,055
dum_parents1	0,049	0,010	0,080	4,940	0,000
dum_urban	0,007	0,009	0,012	0,792	0,429
dum_children1	-0,113	0,025	-0,089	-4,460	0,000
dum_children2	-0,069	0,016	-0,116	-4,416	0,000
dum_children3	-0,027	0,012	-0,051	-2,217	0,027
dum_rodônia	0,036	0,041	0,023	0,862	0,389
dum_acre	-0,003	0,044	-0,002	-0,074	0,941
dum_amazonas	0,000	0,038	0,000	-0,010	0,992
dum_roraima	0,038	0,048	0,017	0,796	0,426
dum_pará	0,009	0,036	0,010	0,238	0,812
dum_amapá	-0,008	0,044	-0,004	-0,176	0,861
dum_tocantins	0,022	0,042	0,013	0,529	0,597
dum_maranhao	-0,012	0,039	-0,010	-0,315	0,752
dum_piauí	0,002	0,042	0,001	0,046	0,964
dum_ceará	0,017	0,037	0,018	0,468	0,640
dum_riograndedonorte	-0,045	0,042	-0,027	-1,071	0,284
dum_paraíba	0,034	0,040	0,024	0,837	0,403
dum_pernambuco	-0,015	0,037	-0,017	-0,397	0,691
dum_alagoas	-0,059	0,040	-0,042	-1,464	0,143
dum_sergipe	0,038	0,042	0,024	0,915	0,360
dum_bahia	0,005	0,036	0,007	0,145	0,884
dum_minasgerais	0,008	0,037	0,008	0,210	0,834
dum_espíritosantos	0,052	0,049	0,022	1,068	0,286
dum_riodejaneiro	-0,015	0,039	-0,012	-0,385	0,700
dum_saopaulo	-0,006	0,039	-0,005	-0,154	0,877
dum_paraná	-0,015	0,043	-0,008	-0,335	0,738
dum_santacatarina	-0,048	0,051	-0,018	-0,940	0,347
dum_riograndedosul	0,008	0,039	0,006	0,203	0,839
dum_matogrossodosul	0,027	0,057	0,009	0,476	0,634
dum_matogrosso	0,050	0,045	0,025	1,101	0,271
dum_goiás	0,009	0,041	0,006	0,207	0,836

Table 6.6 presents the results from a multiple linear regression on the effects of Bolsa Família on school enrollment. The estimation shows that receiving Bolsa Família has a negative impact on school enrollment. The p-value is 0.001, and therefore the result is statistically significant. Considering the other significant results, it is positive to have one parent and it is also positive to live in an urban area. Since dummy variables are included in the equation, the dummy variables will cancel out if both options are included in the regression at the same time. Therefore, the variables are excluded in the first regression. The result of the effect of

Bolsa Família on school enrollment remains the same in the second regression[16]. To further test the result an analysis of the school enrollment among the teenagers is carried out.

Table 6.7 Regression Analysis of Individuals Born 1993-1995

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,047	0,171		6,113	0,000
Bolsa Família	-0,059	0,029	-0,070	-2,026	0,043
Monthly Household Income	0,000	0,000	-0,196	-3,071	0,002
dum_gender	-0,078	0,028	-0,092	-2,789	0,005
dum_parents1	0,111	0,036	0,113	3,038	0,002
dum_urban	0,025	0,034	0,025	0,725	0,469
dum_children1	-0,282	0,091	-0,150	-3,103	0,002
dum_children2	-0,169	0,060	-0,174	-2,810	0,005
dum_children3	-0,082	0,047	-0,090	-1,738	0,083
dum_rodônia	0,123	0,150	0,049	0,816	0,415
dum_acre	-0,154	0,165	-0,047	-0,931	0,352
dum_amazonas	0,101	0,141	0,052	0,716	0,474
dum_roraima	0,068	0,191	0,016	0,355	0,723
dum_pará	0,068	0,135	0,047	0,506	0,613
dum_amapá	-0,090	0,170	-0,026	-0,529	0,597
dum_tocantins	0,047	0,160	0,016	0,293	0,770
dum_maranhao	-0,020	0,142	-0,010	-0,143	0,886
dum_piauí	-0,046	0,155	-0,017	-0,297	0,767
dum_ceará	0,072	0,136	0,047	0,529	0,597
dum_riograndedonorte	-0,064	0,155	-0,024	-0,415	0,678
dum_paraíba	0,183	0,148	0,079	1,241	0,215
dum_pernambuco	-0,052	0,135	-0,036	-0,383	0,702
dum_alagoas	-0,091	0,148	-0,039	-0,617	0,537
dum_sergipe	0,089	0,161	0,030	0,556	0,579
dum_bahia	0,017	0,133	0,013	0,129	0,898
dum_minasgerais	-0,007	0,139	-0,004	-0,051	0,959
dum_espíritosantos	0,106	0,204	0,022	0,521	0,603
dum_riodejaneiro	-0,019	0,142	-0,009	-0,135	0,893
dum_saopaulo	-0,045	0,149	-0,018	-0,299	0,765
dum_paraná	0,074	0,163	0,023	0,453	0,650
dum_santacatarina	-0,224	0,190	-0,052	-1,176	0,240
dum_riograndedosul	-0,014	0,145	-0,007	-0,099	0,921
dum_matogrossodosul	0,076	0,228	0,013	0,332	0,740
dum_matogrosso	0,211	0,177	0,056	1,196	0,232
dum_goiás	0,002	0,154	0,001	0,012	0,990

Table 6.7 presents the result from a multiple linear regression on the effects of Bolsa Família on school enrollment for individuals born between 1993 and 1995, i.e. individuals assumed to attend secondary, non-statutory school. Hence, this indicates that the result is negative, which implies that receiving Bolsa Família has a negative impact on school enrollment even for the individuals born between 1993 and 1995. The result is statistically significant. The same result is achieved when including the excluded dummy variables[17].

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[16] For further information see appendix 5
[17] For further information see appendix 6

6.1.5 Alternative Test

To test the results above, an estimation with a smaller bandwidth is carried out. The new sample consists of all individuals with a monthly household income per capita between 131 and 150 BRL. This excludes the individuals further away from the threshold and this is assumed to diminish the eventual difference between the treatment and the control group.

Table 6.8 Regression Analysis with Smaller Bandwidth of Entire Sample

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,987	0,054		18,425	0,000
Bolsa Família	-0,026	0,009	-0,053	-2,990	0,003
Monthly Household Income	0,000	0,000	-0,113	-3,586	0,000
dum_gender	-0,013	0,008	-0,027	-1,577	0,115
dum_parents1	0,045	0,012	0,073	3,869	0,000
dum_urban	0,018	0,010	0,032	1,811	0,070
dum_children1	-0,141	0,029	-0,112	-4,794	0,000
dum_children2	-0,069	0,018	-0,118	-3,732	0,000
dum_children3	-0,023	0,014	-0,045	-1,651	0,099
dum_rodônia	0,087	0,048	0,058	1,830	0,067
dum_acre	0,042	0,053	0,021	0,804	0,421
dum_amazonas	0,050	0,044	0,046	1,133	0,257
dum_roraima	0,089	0,054	0,043	1,654	0,098
dum_pará	0,059	0,043	0,073	1,392	0,164
dum_amapá	0,015	0,052	0,008	0,290	0,771
dum_tocantins	0,051	0,050	0,030	1,022	0,307
dum_maranhao	0,017	0,045	0,014	0,377	0,706
dum_piauí	0,027	0,050	0,015	0,541	0,588
dum_ceará	0,044	0,044	0,046	1,012	0,311
dum_riograndedonorte	0,005	0,048	0,003	0,102	0,918
dum_paraíba	0,086	0,047	0,061	1,834	0,067
dum_pernambuco	0,012	0,043	0,014	0,286	0,775
dum_alagoas	-0,040	0,047	-0,028	-0,840	0,401
dum_sergipe	0,081	0,049	0,049	1,636	0,102
dum_bahia	0,034	0,042	0,043	0,796	0,426
dum_minasgerais	0,061	0,044	0,062	1,383	0,167
dum_espíritosantos	0,076	0,056	0,034	1,373	0,170
dum_riodejaneiro	0,016	0,046	0,013	0,359	0,720
dum_saopaulo	0,028	0,046	0,022	0,614	0,539
dum_paraná	0,001	0,052	0,001	0,026	0,979
dum_santacatarina	-0,037	0,058	-0,015	-0,637	0,524
dum_riograndedosul	0,041	0,046	0,033	0,901	0,368
dum_matogrossodosul	0,056	0,066	0,018	0,852	0,394
dum_matogrosso	0,100	0,054	0,047	1,835	0,067
dum_goiás	0,030	0,047	0,020	0,633	0,526

The p-value of 0.003 indicates that the result is statistically significant, which implies that receiving Bolsa Família has a small, but negative impact on school enrollment. The result of this estimation matches the result in the estimation in table 6.8 and shows a slightly bigger effect than the estimation with the wider bandwidth. The positive effect on school enrollment

of having one parent is also consistent. The robustness of the results is further analyzed by an estimation of the individuals born 1993 to 1995 and with a monthly household income between 131 and 150. There is no difference in the result from the test with the excluded variables[18].

Table 6.9 Regression Analysis with Smaller Bandwidth of Individuals Born 1993-1995

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,959	0,190		5,055	0,000
Bolsa Família	-0,070	0,035	-0,081	-1,995	0,046
Monthly Household Income	0,000	0,000	-0,173	-2,331	0,020
dum_gender	-0,084	0,033	-0,098	-2,525	0,012
dum_parents1	0,114	0,043	0,113	2,638	0,009
dum_urban	0,061	0,041	0,061	1,490	0,137
dum_children1	-0,357	0,107	-0,188	-3,340	0,001
dum_children2	-0,158	0,071	-0,166	-2,241	0,025
dum_children3	-0,060	0,057	-0,065	-1,059	0,290
dum_rodônia	0,231	0,163	0,094	1,420	0,156
dum_acre	-0,098	0,196	-0,026	-0,498	0,619
dum_amazonas	0,130	0,149	0,072	0,873	0,383
dum_roraima	0,192	0,211	0,046	0,912	0,362
dum_pará	0,161	0,145	0,108	1,115	0,265
dum_amapá	-0,087	0,178	-0,028	-0,489	0,625
dum_tocantins	0,042	0,184	0,013	0,231	0,817
dum_maranhao	0,007	0,153	0,004	0,048	0,962
dum_piauí	-0,140	0,186	-0,041	-0,754	0,451
dum_ceará	0,079	0,145	0,051	0,544	0,587
dum_riograndedonorte	-0,007	0,163	-0,003	-0,041	0,967
dum_paraíba	0,285	0,162	0,118	1,765	0,078
dum_pernambuco	-0,054	0,144	-0,036	-0,374	0,709
dum_alagoas	-0,175	0,162	-0,073	-1,083	0,279
dum_sergipe	0,131	0,183	0,041	0,719	0,473
dum_bahia	0,021	0,142	0,016	0,147	0,883
dum_minasgerais	0,090	0,151	0,049	0,598	0,550
dum_espíritosantos	0,102	0,217	0,022	0,469	0,640
dum_riodejaneiro	0,032	0,154	0,015	0,208	0,835
dum_saopaulo	0,014	0,158	0,006	0,088	0,930
dum_paraná	0,082	0,174	0,027	0,473	0,637
dum_santacatarina	-0,332	0,210	-0,079	-1,584	0,114
dum_riograndedosul	0,017	0,156	0,008	0,109	0,913
dum_matogrossodosul	0,135	0,252	0,024	0,536	0,592
dum_matogrosso	0,223	0,201	0,056	1,108	0,268
dum_goiás	-0,020	0,164	-0,008	-0,125	0,901

The result in the table above is still significant and the result follows the other estimations and shows a negative result for the effects of Bolsa Família on school enrollment. Testing for the excluded dummy variables yields the same result[19].

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[18] For further information see appendix 7
[19] For further information see appendix 8

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6.1.5.1 Testing the Results

To obtain an unbiased result when using the ordinary least square regression model, it is important that the standard errors are homoscedastic, i.e. the variance is constant in the sample. If there is heterogeneity in the result, the standard errors estimates will be inconsistent. In order to reduce the risk for heteroscedasticity in the result, White's heteroscedasticity-consistent standard errors are used, and the estimation gives the results as in table 6.10. The model does not presume homoscedasticity, but this method reduces the effects of heteroscedasticity on OLS-estimates. The results of the coefficients from table 6.6 appear to still be significant after running the regression with White's heteroscedasticity-consistent standard errors.

Table 6.10 White Heteroscedasticity-Consistent Standard Errors and Covariance

	Coefficient	Std. Error	t	Sig.
C(1)	0.989984	0.051408	19.25725	0.0000
C(2) Bolsa Família	-0.024583	0.008016	-3.066600	0.0022
C(3) Gender	-0.013892	0.007288	-1.906152	0.0567
C(4) Urban	-0.006766	0.008634	-0.783643	0.4333
C(5) Number of Parents	0.048904	0.011397	4.290856	0.0000
C(6) Children 1	-0.113163	0.030806	-3.673459	0.0002
C(7) Children 2	-0.069344	0.016903	-4.102547	0.0000
C(8) Children 3	-0.026713	0.011955	-2.234405	0.0255
C(9) Acre	0.035588	0.041522	0.857083	0.3914
C(10) Amazonas	-0.003263	0.048007	-0.067980	0.9458
C(11) Roraima	-0.000392	0.041609	-0.009430	0.9925
C(12) Pará	0.037940	0.045397	0.835733	0.4033
C(13) Amapá	0.008684	0.039480	0.219953	0.8259
C(14) Tocantins	-0.007713	0.048666	-0.158496	0.8741
C(15) Maranhão	0.022262	0.043346	0.513580	0.6076
C(16) Piauí	-0.012157	0.042273	-0.287582	0.7737
C(17) Ceará	0.001910	0.044693	0.042726	0.9659
C(18) Rio Grande do Norte	0.017340	0.039836	0.435289	0.6634
C(19) Paraíba	-0.045049	0.048734	-0.924379	0.3553
C(20) Pernambuco	0.033682	0.041517	0.811275	0.4172
C(21) Alagoas	-0.014586	0.040362	-0.361380	0.7178
C(22) Sergipe	-0.058541	0.046386	-1.262036	0.2070
C(23) Bahia	0.038249	0.041058	0.931563	0.3516
C(24) Minas Gerais	0.005266	0.039520	0.133254	0.8940
C(25) Espírito Santos	0.007787	0.040228	0.193574	0.8465
C(26) Rio de Janeiro	0.051830	0.042255	1.226614	0.2200
C(27) São Paulo	-0.014979	0.042790	-0.350062	0.7263
C(28) Paraná	-0.006077	0.042846	-0.141837	0.8872
C(29) Santa Catarina	-0.014553	0.047747	-0.304793	0.7605
C(30) Rio Grande do Sul	-0.048373	0.062916	-0.768854	0.4420
C(31) Mato Grosso do Sul	0.007938	0.042098	0.188560	0.8504
C(32) Mato Grosso	0.027101	0.050420	0.537512	0.5909
C(33) Goiás	0.049643	0.040548	1.224296	0.2209
C(34) Distrito Federal	0.008513	0.043974	0.193586	0.8465
C(35) Monthly Household Income	-0.000128	3.57E-05	-3.581809	0.0003

Dependent variable: DUM_SE   Sample: 1-4677   Included observations: 4665

There is a risk of increased overall sampling error, since as a first step, the total sample was divided into the individuals born 1993-2004 and all others. Then the subgroup 1993-2004 was divided into another cluster consisting of the individuals earning 126-155 BRL and all others. When comparing data on different levels there is a risk that the standard errors are correlated within one level. In this case, there is a risk that the standard errors are correlated on the household level if two individuals from the same household are included in the sample. Since one of the basic assumptions for OLS is that the units are independent from each other this might give misleading results. If the units are dependent on each other, the standard errors are underestimated and the significance of the result is overestimated. In this case, many different households are included in the sample, the clusters are small and numerous, which entails that the risk of correlated standard errors should have a marginal impact on the results. A Ramsey RESET test was conducted in order to evaluate the empirical specification for non-linear omitted variables. The result of the test indicates that there might be omitted variables in the regression and it cannot be ruled out that these possibly omitted variables might affect the results.

6.1.6 Summary of Results from Quantitative Estimation

Bolsa Família has a small, but negative, effect on school enrollment. The result is significant for the entire sample, i.e. individuals born 1993-2004 as well as for the individuals born 1993-1995. If the bandwidth is reduced, the negative result is larger and the result is more significant. The difference between the results from the smaller and the bigger bandwidth is small which implies that the results are robust. There is no essential difference in the result after conducting White's Heteroscedasticity-Consistent Standard Errors estimation, which also verifies that the results are robust.

6.2 Interviews

The following results are presented in the table in Appendix 9.

6.2.1 Results from Interviews

Ten mothers were selected for the interviews, six of them receive Bolsa Família and four of them do not receive Bolsa Família, due to not fulfilling the conditions. All the mothers asked to participate in the interviews accepted to be interviewed. How long the beneficiaries have received the grant, ranges from a couple of months to the whole duration of the program beginning in 2004 to February 2013. The majority of the mothers never had their grant

interrupted, i.e. five out of nine who responded to that question, while two mothers had the grant interrupted once before and one mother had the grant interrupted twice, all due to not meeting the conditions because the children did not attend school for various reasons.

The average monthly grant is 138.5 BRL varying from 32 BRL (one child and no basic grant of 70 BRL) to 236 BRL (three children at 32 BRL, one child at 38 BRL, the basic grant of 70 BRL, and an additional grant of 32 BRL). Six of the respondents state that the grant is not enough, while three of the respondents affirm that the grant helps a lot. The average number of children per family is 2.9 children, varying between one to six children. The average number of people living in the household is 4.5 people, ranging from two to seven people.

Considering the characteristics of the respondents, three respondents had a permanent job, five a temporary job, one was retired and one did not work at all. Seven of the respondents had attended school up until elementary school, i.e. eight years, two had finished high school, either eleven or twelve years depending on which year they attended school, and one had finished fourth grade.

The school enrollment among the children was high. There was only one child in school age that did not attend school, due to lack of interest from the child. Even though the families were blocked, the children in the blocked family continued attending school, and most children would have attended school even without receiving Bolsa Família, according to the mothers. When considering the school and kindergarten in Florianópolis, all schools offer classes five days a week. All of them offer snacks, and depending on whether the child attend school full day or just half day[20], the school might serve lunch. When the child attends school the entire day, the school tends to offer lunch as well. It is obligatory to buy a school uniform, consisting of a t-shirt with the school emblem (12-20 BRL), and pants (approximately 80 BRL). The majority of the interviewees find it hard to pay for the school uniform with five of them answering that they have not bought the school uniform since they find it too expensive. One woman says she has bought the t-shirt, but that she cannot afford the pants. Four women answer that they have bough the t-shirt but say that they believe that it is a very high cost for them. Eight children out of eleven have walking distance to school, while three have to take the bus. The municipality pays for the bus tickets for two of these children, while one mother

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[20] Half-day period is the most common in Brazilian schools. The student either attend the morning session between 07:30 and 12:00, or the afternoon session, from 13:00 to 17:30

has to pay for the bus ticket. The average number of students per classroom is 33 students, ranging from 20 to 52 students per classroom. Two children had to retake a class, one of them three times, the other children never had to retake a class.

According to five of nine mothers, the grant is in most cases used for the children and things for them, such as food, clothes, shoes, and bus tickets. Two declare that the grant is used for everything, and one of these says that the grant from Bolsa Família is the only income the family has. One gives the total grant to the student, who spends it on an Internet connection in the house. Three out of four declares that their living standard has increased since they started receiving Bolsa Família, while the fourth believes that the amount is not enough in order to increase the living standard. Six out of eight respondents believe it is socially accepted to receive the grant from Bolsa Família, while eight out of nine do not believe it is embarrassing to receive it. The ninth believes it is embarrassing to be a beneficiary of Bolsa Família.

6.2.2 Summary of Results from Interviews
The conclusion that can be drawn from these qualitative interviews is that the grant from Bolsa Família is of great help for the families. Most of the grant is spent on things for the children in order to make it easier for the children to attend school and to have a better life, which is one purpose of Bolsa Família, but the respondents also add that the children would have been enrolled in school even if they did not receive the grant from Bolsa Família. The problem most of the mothers mention is that the grant is not enough to change either their living standard or their living situation. The grant helps them with their daily lives and helps them to get out of misery, but it will not change the situation for the families.

Another conclusion that can be drawn from the interviews is that the beneficiaries of Bolsa Família do not find it embarrassing to receive it and that other people do not have prejudices against the beneficiaries. Most of the interviewees believe it is socially accepted to receive the grant from Bolsa Família. The increased consciousness about the program, with more families applying for the grant, might lead to t more families becoming beneficiaries of the program, and therefore more children benefitting from the grant and increasing their assimilation of education.

Finally, after discussions with the social assistants and the beneficiaries of the program, it is clear that the unblocking is time consuming and far-reaching, since it requires that the social

assistant pays a visit to the blocked person in order to sort out the reason for the blocking and how to solve the problem with the unfulfillment of the conditions. Given this, not fulfilling the conditions has a considerable effect for the families. In this sense, Bolsa Família could be a powerful tool to increase the incentives to stay in school for the children already enrolled in school. What also can be concluded is that Bolsa Família in these cases does not increase school enrollment since the children would have been enrolled even without the grant and the children from families that have been blocked still attend school.

7 Conclusion

Lastly, a summary of the paper linking the conclusion with the introduction together with a conclusion of the results, as well as proposals for future studies.

Since the 1980's, the level of school enrollment among school-aged children has shown a strong and upward trend in Brazil. Even though most countries have experienced this positive trend, there is still a huge lack of education in many countries, Brazil included. Several theories and practices concerning this problem have arisen over the years. CCTs have throughout the years been recognized and established as an effective way to fight poverty and lack of schooling among children in poor families.

The results from the quantitative estimation show that there is no significant evidence that receiving Bolsa Família increases school enrollment. Instead, receiving Bolsa Família has a significant but small negative impact on school enrollment for the entire sample of children born 1993-2004. Since school enrollment is rather high in Brazil, and primary school is mandatory, the conditionality on school enrollment might be redundant. The result for school enrollment among teenagers born 1993-1995 is also negative and significant.

An explanation for this negative result could be lacking controls of the fulfillment of the conditionalities among the beneficiaries. If the controls are poorly administrated, there might be a group of students that systematically skip school. The income benefits might be bigger than the risk of getting caught cheating if the controls are sporadic. If this is the case, receiving Bolsa Família has a negative impact on school enrollment. Since the money is not earmarked, the extra household income might be spent on other things than education and therefore not increase the incentives to send the children to school. For the families whose children do not attend school, the preferences for education is probably low and the conditionalities do not increase their incentives.

Even though the quantitative estimation shows a negative effect on school enrollment, the qualitative research in this study shows an unmistakable trend – the grant from Bolsa Família is a direct poverty relief for the families, and it appears to have positive effects on other aspects of the beneficiaries' lives. Even though the children in the families that were blocked

from Bolsa Família still attend school, the grant facilitates the lives of the families and schooling among the children, since the grant is used to pay for bus tickets, school uniform, food, clothes, and other vital items. Even though Bolsa Família might not be the solution to Brazil's poverty problems, it could be one of many short-term solutions that will lead to a long-term reduction of poverty.

The long-term effects of Bolsa Família, i.e. the third dimension of the purpose of helping the poor and extremely poor out of the poverty trap, is not completed since Bolsa Família does not increase school enrollment, i.e. the second dimension. According to the human capital theory, increased schooling leads to increased earnings in the future. Since Bolsa Família does not lead to a direct increase in school enrollment, this implies that Bolsa Família does not give long-term poverty reduction for the families, since they will not attain higher earnings in the future. The interviews show, however, that the short-term effect, i.e. the first dimension that aims at poverty relief, is achieved. This indicates that the children in the families might be stuck in dependency on the grant and that they are not provided with the tools to change their situation. In this case, the critique against Bolsa Família stating that the program "gives fish to the poor, but does not teach them how to fish", is valid.

The choice of using a regression discontinuity design might contribute to the negative results, because the design of the method means comparing similar groups but still with different income, and low income usually indicates lower school enrollment. The use of an estimation for the variable *Receiving Bolsa Família* could bias the results, in the same way as described above. However, because of the strong internal validity the method yields valid results. We also believe that by interviewing a larger number of families and using more in-depth interviews, the qualitative result would be more well-founded and include stronger evidence. Despite the lack of time in the field, we believe that the results of this thesis can still be used as a guideline for future studies.

For future studies we would like to see more research regarding whether Bolsa Família has any impact on future earnings among the children of the beneficiary families, i.e. if increased school enrollment leads to higher future earnings. This is interesting since it would be a further evaluation of the program as well as an evaluation of the human capital theory. If the earnings have increased despite the negative effects on school enrollment, this would be a highly interesting link to examine. As an effect of this, it would be interesting to study the

quality of the public schools that the children of the beneficiaries attend, in order to find evidence of whether school is solely an institution for screening, and if the children would be better off and increase their human capital stock more from working than from studying. Also, the negative result would be interesting to follow up and further study the effectiveness of the control mechanisms in the program.

Acknowledgements

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Appendix

Appendix 1 – Table over GNP in Brazil 2002 and 2010

Tabela 2: Produto Interno Bruto, participação no PIB e variação nominal do PIB – 2002 e 2010

ORDEM	Unidades da Federação	Produto Interno Bruto em milhões de Reais 2002	Participação no PIB em % 2002	Unidades da Federação	Produto Interno Bruto em milhões de Reais 2010	Participação no PIB em % 2010	Variação nominal 2010/2002
	Brasil	1.477.822	100,0%	Brasil	3.770.085	100,0%	2,6
1	São Paulo	511.736	34,6%	São Paulo	1.247.596	33,1%	2,4
2	Rio de Janeiro	171.372	11,6%	Rio de Janeiro	407.123	10,8%	2,4
3	Minas Gerais	127.782	8,6%	Minas Gerais	351.381	9,3%	2,7
4	Rio Grande do Sul	105.487	7,1%	Rio Grande do Sul	252.483	6,7%	2,4
5	Paraná	88.407	6,0%	Paraná	217.290	5,8%	2,5
6	Bahia	60.672	4,1%	Bahia	154.340	4,1%	2,5
7	Distrito Federal	56.138	3,8%	Santa Catarina	152.482	4,0%	2,7
8	Santa Catarina	55.732	3,8%	Distrito Federal	149.906	4,0%	2,7
9	Goiás	37.416	2,5%	Goiás	97.576	2,6%	2,6
10	Pernambuco	35.251	2,4%	Pernambuco	95.187	2,5%	2,7
11	Ceará	28.896	2,0%	Espírito Santo	82.122	2,2%	3,1
12	Espírito Santo	26.756	1,8%	Ceará	77.865	2,1%	2,7
13	Pará	25.659	1,7%	Pará	77.848	2,1%	3,0
14	Amazonas	21.791	1,5%	Amazonas	59.779	1,6%	2,7
15	Mato Grosso	20.941	1,4%	Mato Grosso	59.600	1,6%	2,8
16	Maranhão	15.449	1,0%	Maranhão	45.256	1,2%	2,9
17	Mato Grosso do Sul	15.154	1,0%	Mato Grosso do Sul	43.514	1,2%	2,9
18	Paraíba	12.434	0,8%	Rio Grande do Norte	32.339	0,9%	2,7
19	Rio Grande do Norte	12.198	0,8%	Paraíba	31.947	0,8%	2,6
20	Alagoas	9.812	0,7%	Alagoas	24.575	0,7%	2,5
21	Sergipe	9.454	0,6%	Sergipe	23.932	0,6%	2,5
22	Rondônia	7.780	0,5%	Rondônia	23.561	0,6%	3,0
23	Piauí	7.425	0,5%	Piauí	22.060	0,6%	3,0
24	Tocantins	5.607	0,4%	Tocantins	17.240	0,5%	3,1
25	Amapá	3.292	0,2%	Acre	8.477	0,2%	3,0
26	Acre	2.868	0,2%	Amapá	8.266	0,2%	2,5
27	Roraima	2.313	0,2%	Roraima	6.341	0,2%	2,7

Fonte: IBGE, em parceria com os Órgãos Estaduais de Estatística, Secretarias Estaduais de Governo e Superintendência da Zona Franca de Manaus - SUFRAMA.

Appendix 2 – Income Transfer in Brazil 2011 of the Program Bolsa Família and Cartão Alimentacão

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Transferência de Renda			
Programa	Famílias	Repasse do mês dez/11	Repasse acum. até dez/11
Bolsa Família	13.352.306	1.602.079.650,00	17.360.387.445,00
Cartão Alimentação	1.537	76.850,00	1.492.600,00
Total	**13.353.843**	**1.602.156.500,00**	**17.361.880.045,00**
Estimativa de famílias de baixa renda – Perfil Cadastro Único (Censo 2010): **20.094.955** / Cobertura: **102,14%** [1]			
Estimativa de famílias pobres - Perfil Bolsa Família (CENSO 2010): **13.738.415** / Cobertura: **97,19%** [2]			

MDS, Ministério do Desenvolvimento Social e Combate à Fome [Electronic Source]: http://aplicacoes.mds.gov.br/sagi/RIv3/geral/index.php, Retrieved: 2013-03-27

Appendix 3 – Variables from PNAD2011 That are Used in the Estimation

Dicionário de variáveis da PNAD 2011 - arquivo de pessoas Microdados da Pesquisa Básica						
Posição Inicial	Tamanho	Código de variável	Quesito		Categorias	
			N°	Descrição	Tipo	Descrição
5	2	UF	2	Unidade da Federação	11	Rondônia
					12	Acre
					13	Amazonas
					14	Roraima
					15	Pará
					16	Amapá
					17	Tocantins
					21	Maranhão
					22	Piauí
					23	Ceará
					24	Rio Grande do Norte
					25	Paraíba
					26	Pernambuco
					27	Alagoas
					28	Sergipe
					29	Bahia
					31	Minas Gerais
					32	Espírito Santo
					33	Rio de Janeiro
					35	São Paulo
					41	Paraná
					42	Santa Catarina
					43	Rio Grande do Sul
					50	Mato Grosso do Sul
					51	Mato Grosso
					52	Goiás
					53	Distrito Federal
18	1	V0302	2	Sexo	2	Male
					4	Female
23	4	V3033	3	Ano de nascimento	0000 a 0098	Idade presumida ou estimada em anos
					1890 a 2010	Ano
70	1	V0602	2	Frequenta escola ou creche	2	Sim
					4	Não
721	12	V4721		Rendimento mensal domiciliar para todas as unidades domiciliares	Valor	R$
					999 999 999 999	Sem declaração
						Não aplicável
745	2	V4723		Tipo de família para todas as unidades domiciliares (em todos os tipos de família podem existir pessoas cuja condição na família era outro parente, agregado, pensionista, empregado doméstico ou parente do empregado doméstico)	01	Casal sem filhos
					02	Casal com todos os filhos menores de 14 anos
					03	Casal com todos os filhos de 14 anos ou mais
					04	Casal com filhos menores de 14 anos e de 14 anos ou mais
					06	Mãe com todos os filhos menores de 14 anos
					07	Mãe com todos os filhos de 14 anos ou mais
					08	Mãe com filhos menores de 14 anos e de 14 anos ou mais
					10	Outros tipos de família
750	1	V4728		Código de situação censitária	1	Urbana - Cidade ou vila, área urbanizada
					2	Urbana - Cidade ou vila, área não-urbanizada
					3	Urbana - Área urbana isolada
					4	Rural - Aglomerado rural de extensão urbana
					5	Rural - Aglomerado rural, isolado, povoado
					6	Rural - Aglomerado rural, isolado, núcleo
					7	Rural - Aglomerado rural, isolado, outros aglomerados
					8	Rural – Zona rural exclusive aglomerado rural
764	2	V4741		Número de componentes do domicílio	01 a 30	Pessoas
						Não aplicável
766	12	V4742		Rendimento mensal domiciliar *per capita*	Valor	R$
					999 999 999 999	Sem declaração
						Não aplicável

Appendix 4 - Questionnaire

1. Do you receive Bolsa Família?
2. Which year did you start receiving Bolsa Família? / When were you blocked from Bolsa Família?
3. Do you receive Bolsa Família since then, or have you been blocked sometime?
4. Which is the monthly grant you receive/received from Bolsa Família?
5. Do you believe that the grant you receive from Bolsa Família is/was sufficient?
6. How many children are there in the family? How old are they?
7. How many people are living in the household?
8. Do you have a temporal or permanent job?
9. For how many years did you attend school?
10. Are your children enrolled in school?
11. If yes, how many days per week do they attend school?
12. Are free school meals served in the school your children attend?
13. Do you have to pay for school uniform? School material?
14. Is the school in walking distance from your home?
15. How many students are there per teacher in the school that your children attend?
16. Did the children have to retake any class?
17. If you receive Bolsa Família, on what do you believe you spend the extra income?
18. Has Bolsa Família changed your choices you make? / Did your choices change after losing Bolsa Família?
19. Do you believe that the family's living standard has increased/decreased after you started to receive/after losing Bolsa Família?
20. Do you believe that Bolsa Família has increased the possibility for your children to attend school?
21. If you do not receive Bolsa Família, do you think receiving Bolsa Família would increase the possibility to send your children to school?
22. Do you think your children will receive a higher salary in the future because they attend school?
23. Do you believe that receiving Bolsa Família is socially accepted in the society?
24. Is it socially considered as something embarrassing to receive Bolsa Família?

Appendix 5 – Second Regression, Entire Sample, Original Bandwidth

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,010	,032		31,168	,000
	Bolsa Família	-,025	,008	-,050	-3,215	,001
	Monthly Household Income	,000	,000	-,120	-4,456	,000
	dum_gender	-,014	,007	-,028	-1,916	,055
	dum_parents2	-,049	,010	-,080	-4,940	,000
	dum_rural	-,007	,009	-,012	-,792	,429
	dum_children2	,044	,020	,074	2,142	,032
	dum_children3	,086	,021	,166	4,121	,000
	dum_children4	,113	,025	,222	4,460	,000
	dum_acre	-,039	,035	-,021	-1,099	,272
	dum_amazonas	-,036	,028	-,031	-1,291	,197
	dum_roraima	,002	,040	,001	,059	,953
	dum_pará	-,027	,025	-,032	-1,066	,287
	dum_amapá	-,043	,035	-,023	-1,222	,222
	dum_tocantins	-,013	,033	-,008	-,406	,684
	dum_maranhao	-,048	,028	-,041	-1,700	,089
	dum_piauí	-,034	,032	-,021	-1,042	,297
	dum_ceará	-,018	,026	-,019	-,699	,485
	dum_riograndedonorte	-,081	,033	-,049	-2,466	,014
	dum_paraíba	-,002	,030	-,001	-,063	,950
	dum_pernambuco	-,050	,026	-,058	-1,965	,049
	dum_alagoas	-,094	,030	-,068	-3,139	,002
	dum_sergipe	,003	,032	,002	,082	,934
	dum_bahia	-,030	,025	-,039	-1,220	,222
	dum_minasgerais	-,028	,026	-,029	-1,065	,287
	dum_espíritosantos	,016	,041	,007	,399	,690
	dum_riodejaneiro	-,051	,029	-,041	-1,759	,079
	dum_saopaulo	-,042	,029	-,032	-1,423	,155
	dum_paraná	-,050	,035	-,028	-1,449	,147
	dum_santacatarina	-,084	,044	-,032	-1,897	,058
	dum_riograndedosul	-,028	,029	-,022	-,961	,337
	dum_matogrossodosul	-,008	,050	-,003	-,169	,866
	dum_matogrosso	,014	,036	,007	,386	,700
	dum_goiás	-,027	,032	-,017	-,855	,392
	dum_distritofederal	-,036	,041	-,015	-,862	,389

a. Dependent Variable: dum_schoolenrollment

Appendix 6 – Second Regression, Teenagers, Original Bandwidth

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,023	,117		8,744	,000
	Bolsa Família	-,059	,029	-,070	-2,026	,043
	Monthly Household Income	,000	,000	-,196	-3,071	,002
	dum_gender	-,078	,028	-,092	-2,789	,005
	dum_acre	-,277	,132	-,085	-2,094	,037
	dum_amazonas	-,021	,101	-,011	-,212	,832
	dum_roraima	-,055	,163	-,013	-,338	,736
	dum_pará	-,054	,092	-,037	-,591	,555
	dum_amapá	-,212	,139	-,061	-1,524	,128
	dum_tocantins	-,076	,126	-,025	-,603	,547
	dum_maranhao	-,143	,101	-,074	-1,420	,156
	dum_piauí	-,169	,119	-,062	-1,414	,158
	dum_ceará	-,051	,094	-,033	-,541	,588
	dum_riograndedonorte	-,187	,119	-,068	-1,575	,116
	dum_paraíba	,060	,109	,026	,554	,580
	dum_pernambuco	-,174	,092	-,121	-1,901	,058
	dum_alagoas	-,214	,109	-,092	-1,958	,051
	dum_sergipe	-,033	,126	-,011	-,264	,792
	dum_bahia	-,105	,089	-,082	-1,190	,234
	dum_minasgerais	-,130	,097	-,075	-1,343	,180
	dum_espíritosantos	-,017	,179	-,003	-,093	,926
	dum_riodejaneiro	-,142	,103	-,069	-1,371	,171
	dum_saopaulo	-,167	,112	-,068	-1,487	,137
	dum_paraná	-,049	,130	-,015	-,377	,707
	dum_santacatarina	-,347	,163	-,080	-2,132	,033
	dum_riograndedosul	-,137	,106	-,062	-1,286	,199
	dum_matogrossodosul	-,047	,205	-,008	-,229	,819
	dum_matogrosso	,089	,146	,024	,607	,544
	dum_goiás	-,121	,117	-,045	-1,031	,303
	dum_children2	,113	,069	,116	1,644	,101
	dum_children3	,199	,072	,217	2,753	,006
	dum_parents2	-,111	,036	-,113	-3,038	,002
	dum_rural	-,025	,034	-,025	-,725	,469
	dum_children4	,282	,091	,323	3,103	,002
	dum_distritofederal	-,123	,150	-,031	-,816	,415

a. Dependent Variable: dum_schoolenrollment

Appendix 7 – Second Regression, Entire Sample, Smaller Bandwidth

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	,997	,037		27,066	,000
Bolsa Família	-,026	,009	-,053	-2,990	,003
Monthly Household Income	,000	,000	-,113	-3,586	,000
dum_gender	-,013	,008	-,027	-1,577	,115
dum_children2	,072	,023	,124	3,095	,002
dum_children3	,118	,024	,228	4,894	,000
dum_acre	-,045	,042	-,023	-1,076	,282
dum_amazonas	-,037	,031	-,034	-1,199	,231
dum_roraima	,001	,043	,001	,033	,974
dum_pará	-,028	,028	-,034	-,990	,322
dum_amapá	-,072	,041	-,039	-1,776	,076
dum_tocantins	-,037	,038	-,021	-,962	,336
dum_maranhao	-,070	,032	-,060	-2,215	,027
dum_piauí	-,060	,039	-,034	-1,550	,121
dum_ceará	-,043	,030	-,045	-1,468	,142
dum_riograndedonorte	-,083	,036	-,055	-2,320	,020
dum_paraíba	-,001	,035	-,001	-,032	,974
1 dum_pernambuco	-,075	,029	-,084	-2,588	,010
dum_alagoas	-,127	,034	-,090	-3,685	,000
dum_sergipe	-,006	,038	-,004	-,173	,863
dum_bahia	-,054	,028	-,069	-1,921	,055
dum_minasgerais	-,027	,030	-,028	-,910	,363
dum_espíritosantos	-,011	,046	-,005	-,242	,809
dum_riodejaneiro	-,071	,033	-,057	-2,181	,029
dum_saopaulo	-,059	,033	-,047	-1,814	,070
dum_paraná	-,086	,041	-,045	-2,116	,034
dum_santacatarina	-,124	,048	-,051	-2,582	,010
dum_riograndedosul	-,046	,033	-,037	-1,425	,154
dum_matogrossodosul	-,032	,057	-,010	-,553	,580
dum_matogrosso	,012	,044	,006	,281	,779
dum_goiás	-,057	,035	-,039	-1,639	,101
dum_parents2	-,045	,012	-,073	-3,869	,000
dum_rural	-,018	,010	-,032	-1,811	,070
dum_children4	,141	,029	,273	4,794	,000
dum_distritofederal	-,087	,048	-,036	-1,830	,067

a. Dependent Variable: dum_schoolenrollment

Appendix 8 – Second Regression, Teenagers, Smaller Bandwidth

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,008	,138		7,328	,000
	Bolsa Família	-,070	,035	-,081	-1,995	,046
	Monthly Household Income	,000	,000	-,173	-2,331	,020
	dum_gender	-,084	,033	-,098	-2,525	,012
	dum_children2	,199	,080	,209	2,479	,013
	dum_children3	,297	,085	,321	3,483	,001
	dum_acre	-,329	,169	-,088	-1,941	,053
	dum_amazonas	-,101	,115	-,055	-,876	,381
	dum_roraima	-,038	,187	-,009	-,206	,837
	dum_pará	-,070	,107	-,047	-,652	,514
	dum_amapá	-,318	,151	-,102	-2,104	,036
	dum_tocantins	-,188	,157	-,056	-1,198	,231
	dum_maranhao	-,224	,117	-,114	-1,908	,057
	dum_piauí	-,371	,158	-,110	-2,342	,019
	dum_ceará	-,152	,109	-,098	-1,399	,162
	dum_riograndedonorte	-,238	,131	-,096	-1,818	,069
	dum_paraíba	,054	,129	,023	,422	,673
	dum_pernambuco	-,285	,108	-,192	-2,645	,008
	dum_alagoas	-,406	,130	-,169	-3,132	,002
	dum_sergipe	-,100	,154	-,031	-,648	,517
	dum_bahia	-,210	,104	-,160	-2,029	,043
	dum_minasgerais	-,141	,115	-,077	-1,226	,221
	dum_espíritosantos	-,129	,196	-,028	-,659	,510
	dum_riodejaneiro	-,199	,121	-,096	-1,643	,101
	dum_saopaulo	-,217	,126	-,096	-1,723	,085
	dum_paraná	-,148	,146	-,049	-1,019	,309
	dum_santacatarina	-,563	,186	-,133	-3,023	,003
	dum_riograndedosul	-,214	,123	-,098	-1,737	,083
	dum_matogrossodosul	-,096	,232	-,017	-,413	,680
	dum_matogrosso	-,008	,177	-,002	-,047	,962
	dum_goiás	-,251	,132	-,100	-1,908	,057
	dum_parents2	-,114	,043	-,113	-2,638	,009
	dum_rural	-,061	,041	-,061	-1,490	,137
	dum_children4	,357	,107	,399	3,340	,001
	dum_distritofederal	-,231	,163	-,065	-1,420	,156

a. Dependent Variable: dum_schoolenrollment

Appendix 9 – Results from Interviews

Respondent Question	Receives Bolsa Família	For how long	Been interrupted	Monthly grant from Bolsa Família in BRL	Is the grant enough	How many children (age)
1	No	Blocked since feb-13. Received Bolsa Família since beginning of 2004	2 times	236	Helps a lot	5 (2, 4, 12, 14, 16)
2	Yes	09-aug	Never	166	No	4 (3, 7, 17, 22)
3	Yes	12-dez	Never	102	No	2 (2 months, 4 years)
4	Yes	07-feb	Never	165	No	3 (2, 4, 8)
5	Yes	13-feb	Never	110	No	1 (6)
6	Yes	12-feb	Never	204	No	6 (2, 13, 14, 17, 21 , 22)
7	No	Blocked since feb-13. Received Bolsa Família since beginning of 2008	-	166	No, but helps a lot	2 (2, 9)
8	Yes	05-may	Never	102	-	1 (14)
9	No	08-aug	Since 13-mar	32	She gave the granddaughter the grant, so the respondent believes it was good for the granddaughter	1 grandchild (15)
10	No	Approx. Ten years	Since 13-feb	102	Helps a lot but does not make a great difference	4 (13, 14, 17, ?)
Number of answers	10	10	9	10	9	10
	6 Yes 4 No		5 Never 2 once 1 twice	138,5	6 Not enough 3 Helps a lot	Average: 2,9

Continued Appendix 9 – Results from Interviews

Respondent Question	People living in the household	Works	For how many years respondent attended school	School Enrollment among children	How many days attend school	Free school meals	Pay for school uniform
1	7	Temporal as cleaner	Elementary school - eight years	All but the oldest child	5	Snack	Yes, one t-shirt per child à 12 BRL. Believes its very costly
2	4	Permanent, but currently ill	Elementary school - eight years	All children	5	Snack	No, cannot afford uniform
3	3	No	High school - 12 years	Kindergarten	5	All meals	No
4	5	Temporal as cleaner	Elementary school - eight years	School and kindergarten	5	All meals	No (25 BRL)
5	3	Temporal as cleaner	High school - 11 years	School	5	Snack	Yes
6	6	Permanent at a bakery	Elementary school - eight years	All aged 0-17	5	Snack	No, believes it is too expensive
7	5	Temporal as cleaner	Elementary school - eight years	Oldest in school, youngest not in kindergarten	5	Snack	Yes, but only t-shirt so far (15 BRL)
8	2	Temporal as cleaner	4th grade	School	5	Snack	No, was given three old ones
9	4	Retired	Elementary school - eight years	School	5	Snack	Bought t-shirt 17 BRL. Not bought pants for 80 BRL
10	6	Permanent as a cleaner	Elementary school - eight years	The two youngest attend school, the two oldest work	5	One receives snack, the other do not	Yes, bough for son and one t-shirt for daughter
Number of answers	10	10	10	10	10	10	10
	Average: 4,5	3 Permanent 5 Temporal 1 Retired 1 No job	7 Elementary school 2 High school 1 Until 4th grade		5	7 Snack 2 All meals 1 Snack 1 all	4 Yes 1 Only t-shirt, no pants 5 No

Continued Appendix 9 – Results from Interviews

Respondent Question	Distance to school	How many students per teacher	Had to retake any class	What spend grant on	Living standard	Socially accepted receiving Bolsa Família	Embarrassing receiving
1	Walking/Biking distance	School: 20. Kindergarten: 15	One child had to retake	Food and things for the children	Increased	-	No
2	Walking distance	-	No	-	-	-	-
3	Walking distance	15	-	Milk for baby	Not enough to increase the living standard	Yes	No
4	Walking distance	32-36	No	Diaper, milk, food and things for the children	-	Yes	Sometimes
5	Bus, does not have to pay for it	25-30	-	Everything, the only income the family has	-	Yes	No
6	Walking, one kilometer	Approx. 30	-	Diapers, shoes, clothes and school material	Increased	Yes	No
7	Bus, pays for it (half the price for students)	30	-	Clothes, shoes, school material and food	Increased	Yes	No
8	Walking distance	Does not know	-	Everything: gas, milk, food and clothes	-	No	No
9	Walking distance, sometimes walks and sometimes bus	30	3 times	Internet in the house - gave the grant to the granddaughter	-	Yes	No
10	One walking distance the other one bus	30/52	No	Bus ticket for daughter who studies downtown	-	No	No
Number of answers	10	9	4	9	4	8	9
	7 Walking 2 Bus 1 Walking 1 Bus	Average for school: 32,6	3 No 2 Yes		3 Increased 1 Not enough	6 Yes 2 No	8 No 1 Sometimes