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# **Education in Brazil: a big challenge?**

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## **Abstract**

Brazil is an emerging country where community school is being promoted in order to respond to the still significant gap between the poor and the rich population. This paper attempts to analyze one community school. Although other social programs whose scopes are also to enhance education have been implemented, such as the "Bolsa Familia", the impact of community schools need attention as well. Indeed, community schools must be studied due to the relevant positive attributes they can provide. Moreover, by improving the quality of education, studies show an enhancement of a higher-skilled nation and a better qualified labour force for the future. To clearly demonstrate the impacts of these communities, the treatment effect will be measured by using a matching estimator.

Keywords: Poor Children, Community schools, Fighting Poverty.

## 1. Introduction

The aim of this paper is to examine the application of policy interventions associated with community school programs in Brazil. This country is facing at a very large poverty which forces to think about the distribution of wealth and the access to goods and services. The case of Brazil is relevant with a notable economic growth but where the distribution of this wealth is inexistent.

Inequalities to access to goods and services are not only bad for reducing poverty, but also for growth. The poor remain poor partly because they cannot borrow against their future income to invest in the production, their children's education, health and property reducing their vulnerability.

In countries where the inequality and poverty levels are high, even small changes in distribution can significantly reduce poverty. The key issue difference is related to the balance between economic growth and income distribution. It places the redistribution along side growth and at the heart of policy choices for reducing extreme poverty. In addition to the work of Amartya Sen<sup>1</sup>(2000), we would also stress the importance and the contributions of sociological analysis of poverty. The most prominent question regarding this problem of wealth distribution is how bringing a proper education to Brazilian children could affect this issue? How to change the trend and give the same chance for all kids? The paper is organized as following ; first the importance of education and cultural aspects, secondly the particularly case of one community will

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<sup>1</sup> Amartya Sen regretted that " *most approaches focuses on poverty and inequality related to income deprivation and ignores the result of other factors, such as unemployment , health status , lack of education or social exclusion ( ... )* ".

be described then a comparative study between a regular school and a community school and finally some discussion and conclusions

## **2. The cultural and social ways of education.**

Looking at the implications on education, there are different levels that education could be analyzed. First of all, the situation of schools and the lack of infrastructure, secondly, the influence of the parents on education's mentality, then the importance of the sociology and culture aspects.

### **2.1.The social way**

First, the State has several missions for citizens and one of them is to supervise education. The Declaration of the World Conference on Education organized by UNESCO (in Jomtien in 1990) gives a state plan and conceives the education as a right. The National Education Plan has the objectives of increasing the overall level of the population; improving the quality of education at all levels; reduction of social and regional inequalities in terms of access to school and generates a democratization of the public education.

In Brazil, the access to school for children with special needs has been increasing since the 90s. It has required investment in teacher training and infrastructure in schools. Furthermore, several programs have been developed to transfer some income to the poorest families who have school-age children, under the condition on school attendance. Currently the federal "*Bolsa Família*" program covers the school attendance of children between 7 and 17 years old. This initiative contributed to the decrease in the number of drop outs but it was not enough. Nonetheless, this proved to be too expansive for the state, which cannot control the quality of for each school.

Brazil is a particular case because of its mentality, size, and the time frame is put public policy in action. The mentality concerning education is changing, but in many regions, families are asking themselves why education is a good policy for the future of their kids.

However, the majority of Brazilians cannot read or write. The parents are influenced on the education of their children. Indeed, in terms of theoretical framework, the work of Gary Becker (1964) illustrates the role of the family on education, that is particular relevant in the analysis on making the choice of investing in human capital by parents for the children.

On the impact of educational capital of parents, empirical studies show that parental education is a determinant key of school attendance. The work of Behrman et al. (1999) validates the positive effect of parental education on children's schooling. Indeed, the ability of a child to succeed in school depends on the living conditions of the family unit. We emphasized the importance of material comfort. Sociological studies of intergenerational mobility in the developed countries, clearly show the role of positive externalities played by the family. Thus, if the parents are educated, the child develops in contact with them a taste for knowledge.

Education is a tool of socialization, considered by Emile Durkheim (1956) who concludes that education is an instance with values, norms, knowledge and the way for involving social integration.

## **2.2.The cultural way**

Moreover, the priority is the cultural action in school and the implication on the

mobilization of children and parents.

The artistic and cultural education became essential tool on cultural democratization. By putting in application several events to improve the communication between the children, share also experiences and practices by the discovery of arts and culture; this is a key of the success the community school.

It also promotes social cohesion and the involvement of all actors educational teams, cultural operators, local authorities, associations, is responsible of a positive environment in order to encourage the children to give the best of themselves. This is the main difference with a regular school. Different activities are promoting as the creation of theatre groups, music and photography groups, reading spaces, the discovery of the city and its secrets, see documentary about another country. The most important idea is to show the world and boost the children by participating on activities. If the parents become volunteers on the community group, this is the great way to prove of the relevant impact on these communities: there can be no education without culture.

Besides, the benefit has implications on the social environment; these can be eliminated violence and declined the delinquency.

### **3. The economic way of education.**

First, the theory of Adam Smith considers education as an instance of social selection

that needs to be satisfied, on the order to obtain the harmony on the labor division. Education can be considered as an investment; the key of economic development on a country and a mandatory need. This investment can be expose on the decision between costs and benefits because schooling generates direct and indirect cost. The direct cost concerns the budget allocated to the uniforms, school supplies, schooling materials. The ability of parents to assist the child in his studies is also important. More generally, the human capital of the child can be analyzed as the product of a process of production factors with complementary inputs as the parental human capital firstly, and the hours spent in school to secondly. In this sense, the returns to education will be higher for a child born in a household rich in human capital. The work of Jensen in the Dominican Republic (2004) and Nguyen in Madagascar (2007) shows that informing children about the future returns of certificates, always generates an increasing of school attendance. The perception of the possible benefit depends on the own knowledge of the parents about the school system. Education is an active influence of the future labor force, which participated on the economic growth. Brazil knows a dangerous situation due to the lack of well-educated people.

Currently, the mentality about education is changing as the following idea: with the benefit of education, the supply will be more paid and will have better living conditions. This is an imported idea of developing countries; to obtain the well-paid jobs, as an American dream.

So finally, the implications on education are relevant and each way has a powerful impact on education of the children.

#### **4. *Fundação Bunge* and the case of Ipojuca**

In this paper, we investigate the impact of community school on children and

particularly on grades. Many communities are present in Brazil, one of them is a social entity of Bunge in Brazil, *Fundação Bunge* was created in 1955. The primary focus is education, it began by encouraging Sciences, Arts and Letters in the country has since expanded its scopes, developing training activities of educators, corporate volunteering in public schools, preservation of corporate memory and sustainable territorial development. They consider education as a tool that enables the generation of innovative ideas. We investigate the case of the region of Ipojuca, a poor region of Brazil, where education knows difficulty to improve schooling.

The educational community is the corporate volunteer program Bunge which aims to encourage reading in schools and community centers, to contribute to the formation of suitable reading and aware of their role in the present citizens, but committed to the future. The mobilization is the front of expertise on this region which cultural aspects are strong.

Contributing to the spread of reading as a recreational and educational practice, enabling the expansion of knowledge, would help to improve the formation of citizens, to be able to read, understand the world and the importance of being open-minded to other cultures, are the main focus of *Fundação Bunge* in Ipojuca.

## **5. Data Sets**

The IBGE, Ipeadata, PNAD, analyze different surveys, evaluation to try to show important variables of the society. I choose to focus on Education Community Ipojuca which has started in 2005 in « *Comunidade Educativa Ipojuca* ». This is a program on region of Grande Recife, one of poorest region of Brazil, to observe the impact of this program on education attainment for poor children. The main challenge is to measure the quality of schooling system.

The study includes 213 students of the school *Escola Municipal Elisa Emilia*, school where *Fundação Bunge* helps to create new infrastructure and promotes events in order to involve more children in different cultural activities, the actual scope is increasing children's education. The different variables are presented on the Table 1 in Appendix. Information available is about the child's gender and race whether he/she lives in urban or rural area; their parents' education level and whether they are contributing to the household income or not; and the grades (1to 20) they had in school. Data was collected in 2 years: 2011 and 2013.

We also had access to the data regarding 213 students attending a non-community school considered as a regular school located in the same region.

## **6. Methodology**

Different methodology will be presented in order to evaluate the impact of the community school program on the education attainment of the students. In order to achieve this objective, grade of children who attended in regular school and community school will be compared. We first illustrate the difference-in-difference methodology; then the OLS regression is implemented; finally results of matching estimator will be shown.

How to run a difference-in-difference regression to explain the effect of a treatment intervention on progression to primary school on this particularly region of Afro-Brazilian, Ipojuca?

The aim of the creation of this model is to observe and evaluate the impact of community school, an educational program organized by community citizens of the region of Ipojuca, very poor region of Northeast of Brazil, to fight poverty and give

the same chance concerning education for all children.

To focus on this point, we explain the effect of a treatment intervention on progression to primary school. There are 2 groups: students who attended a community school and students who attended a regular school. To compare them, we see the differences on progression to primary school, on grades terms comparing outcomes between treated and control observations.

The first step is to analyze it by Difference-in-difference estimation (DiD):

$$[ y_{it} 2013,1 - y_{it} 2010,1 \mid C_i = 1 ] - [ y_{it} 2013,0 - y_{it} 2010,0 \mid C_i = 0 ]$$

Estimation of DiD:

$$\text{DiD} = \mathbb{E} [ y_{it} 2013,1 - y_{it} 2010,1 \mid C_i = 1 ] - \mathbb{E} [ y_{it} 2013,0 - y_{it} 2010,0 \mid C_i = 0 ]$$

We have also a vector of student characteristics, X which include all control variables as race, gender, family background, work of children, origin of locality. On the first-step, we just make a simple regression to check the different variables and their impact.

We consider as a dummy variable the treat and untreated. The regular school is directed by public education, students attending it are considered as untreated therefore form the *control group*. Community school is considered as a treatment, therefore children attending it are the *treated group*. Treatment variable will appear on the left side of our equation; it is a discrete variable which takes value 1 if the child belongs to the *treated group* and 0 otherwise.

First, the population for the treatment of interest can be denoted by N. Let N<sub>t</sub> denote the number of randomly selected individuals who are treated and let N<sub>c</sub> = N - N<sub>t</sub>

denote the number of non-treated individuals who serve as a control group.

We consider the model as following:

$$Y_{it} = \varphi T_i + \alpha Post_t + \delta T_i * Post_t + \beta X_{it} + U_{it} \quad (1)$$

$C_i$  : students attendance of the community school ( $C_i=1$  if students  $i$  attends a community school;  $C_i= 0$  if students  $i$  attends a regular school)

$T_i$  : school year indicator ( =0 for school year 2010, =1 for school year 2013 )

$X_i$  : student and school background characteristics that may influence  $y_{it}$  besides the community school and school year indicators.  $X_i$  as a vector of background characteristics: (gender, race, family background, participation of parents on community, locality origin...)

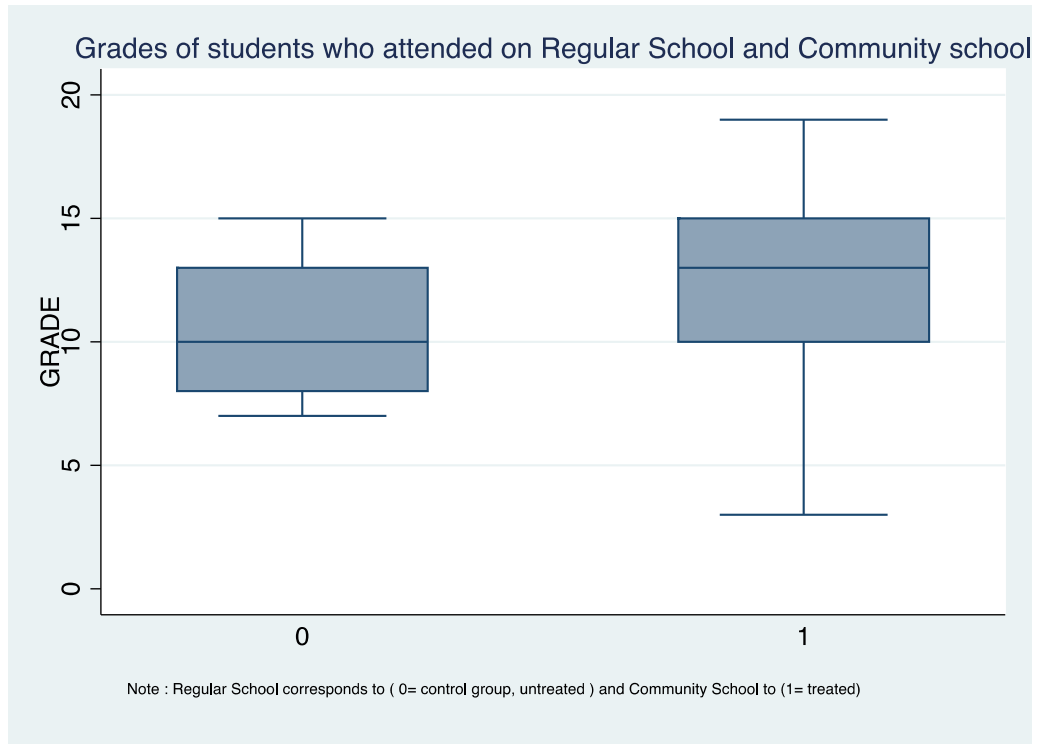
$U_i$  : a normally distributed zero-mean constant variance error term.

About the variable, as we can see as following, there are the mean, the standard error and the confidence interval for each variable and the repartition of grades on the table 2.

## 7.1 First Results

One of important information available is also the dispersion of the grades between students who attended on regular school and community school. Graphically, we can illustrate with help of boxes, in Figure 1, a gap between them and see a better grade dispersion for community school than regular. That includes a gap in grade term but this corresponds to the quality of community school and the different aspects related with more cultural and social aspects.

Figure 1: Grades repartition



The implementation of cultural events or the simple fact of boosting the communication can be responsible of this gap. Community school is first a good infrastructure school and also organized several events. These implications have contributed to attract more children in school and clarify the importance of school. These activities are in majority communication games, activities with parents relating of the community, cultural events by discovering cultural aspects and motivation to know other culture.

On education, each aspect is important. The grade can increase if the student is more concerned by the involvement on activities and feel attracted to be present on school.

Dropout is the main threat in Brazil.

## 7.2 Empirical results

Starting empirically the analysis with first, a simple linear regression of (1) estimated by Ordinary Least Squares (O.L.S). We obtain the results:

Variable	REG1
treat	-1.1127329*
post	.16310311
treatXpost	3.4895338***
gender1	.18949896
familyback~1	-.04585675
originlocal1	-.05894434
race1	-.08930832
workKids	-.83983908*
_cons	13.225857***
N	852

legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

The variable of interest is *treatXpost*, and regression controls for the variables that may influence the output (grades). Results show that the interaction between treat and post (which is the impact the program had on treated group after participation in year 2013) has a relevant effect on children's grade, with a positive and significantly coefficient 3.489. From this first result, we can conclude at a positive impact of this program on grades. Besides, we observe that being female has on average-ceteris paribus- higher grades than males. Nevertheless this result is not significant.

Another possibility to estimate this model is by using Poisson method. Grade is considered as a count variable, so we can estimate the model with Poisson model. We can see the results on table 3. We get the same conclusion the treatment effect has a positive impact on grades.

### 7.3. Matching estimator

We can adopt an iterative matching approach which matches each community school student to the best look-alike regular school student based on a vector of observable background characteristics,  $X$ . This background is a vector: gender, family background, race, work of children. Children will be matched for the variables present in the vector  $X$ .

We are interested by estimating the average effect of a binary treatment on the outcome, in this case children's grades. Because both  $Y_i(0)$  and  $Y_i(1)$  were observable, the effect of the treatment on unit  $i$  would be directly observable as  $Y_i(1) - Y_i(0)$ . We could then use this information for the full sample  $N$  to either estimate the sample average treatment effect (SATE):

$$\tau^{sample} = \frac{1}{N} \sum_{i=1}^N Y_i(1) - Y_i(0)$$

In the output below, we estimate the SATE, we implement the matching estimator by the stata command *nnmatch*<sup>2</sup>, implemented by Abadie and Imbens (2002), estimates the average treatment effect, ATE. As we can see, below, the average effect of participating on the community school is an increase in an individual's grade of 3.151. So the community school has a positive impact on education of kids in term of grades.

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<sup>2</sup> Matching estimator method implemented by « *Implementing matching estimators for average treatment effects in Stata* » – *The Stata Journal* -2004



doesn't understand the role of education on their life. That is why, several "*Fundação*" starts to create community schools to boost the Brazilian education and give access to this right: to be educated. This new aspect of education is primordial, and the implications of them are also significant to analyze. The community groups have a crucial role by giving the same chance to all to have access to education, to bring social link between parents, children, community and focus on education, a priority. However, we can ask if education should not be control by the State than community? This topic is still the subject of many researches and discussions.

## **9. Conclusion**

With this paper, what has been investigated is the investigation of the community school, comparing the results with a regular school. As seen before the impact of this program is positive and improves schooling in this region of Brazil. Boosting labor markets without boosting education, is impossible, hence these two policies are correlated. Brazil knows several difficulties to increase the access of education because of the size. Moreover, the lack of educational infrastructure affects the quality of the education. Be educated is a right, to get an education is a right but also a need, that all kids should be have around the world. Education should be a priority. Public policies are not enough to increase efficient education and a majority of Brazilians go to private schools. Private schools are expensive, hence the creation of community schools trying to resolve this issue. The community school, by proximity with the population, is a relevant impact on the education of kids. By attracting kids due to cultural activities, community implication, they increase the access to schooling and also to give performance education. The aim is to have more educated people citizens and then later to have access to the Brazilian labor market; nonetheless this remains a big challenge.

## Appendix

Tables 1:

gender1	Freq.	Percent	Cum.
male	<b>378</b>	<b>44.37</b>	<b>44.37</b>
female	<b>474</b>	<b>55.63</b>	<b>100.00</b>
Total	<b>852</b>	<b>100.00</b>	

originlocal1	Freq.	Percent	Cum.
urban	<b>592</b>	<b>69.48</b>	<b>69.48</b>
rural	<b>260</b>	<b>30.52</b>	<b>100.00</b>
Total	<b>852</b>	<b>100.00</b>	

familybackgr ound1	Freq.	Percent	Cum.
no education	<b>618</b>	<b>72.54</b>	<b>72.54</b>
education	<b>234</b>	<b>27.46</b>	<b>100.00</b>
Total	<b>852</b>	<b>100.00</b>	

workKids	Freq.	Percent	Cum.
0	<b>423</b>	<b>49.65</b>	<b>49.65</b>
1	<b>429</b>	<b>50.35</b>	<b>100.00</b>
Total	<b>852</b>	<b>100.00</b>	



Table 3: Poisson model

Iteration 0: log likelihood = **-1060.5386**  
 Iteration 1: log likelihood = **-1060.5386**

Poisson regression	Number of obs	=	<b>425</b>
	LR chi2(6)	=	<b>81.63</b>
	Prob > chi2	=	<b>0.0000</b>
Log likelihood = <b>-1060.5386</b>	Pseudo R2	=	<b>0.0371</b>

grade	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
race1	.0008796	.0274761	0.03	0.974	-.0529726	.0547317
gender1	.00883	.0275091	0.32	0.748	-.0450869	.0627469
familybackground1	.015309	.0305425	0.50	0.616	-.0445532	.0751711
originlocal1	-.0206019	.0299575	-0.69	0.492	-.0793176	.0381138
year2	-3.00e-06	6.37e-06	-0.47	0.637	-.0000155	9.49e-06
treat	.2684807	.0479044	5.60	0.000	.1745898	.3623715
_cons	14.54147	25.79145	0.56	0.573	-36.00884	65.09178

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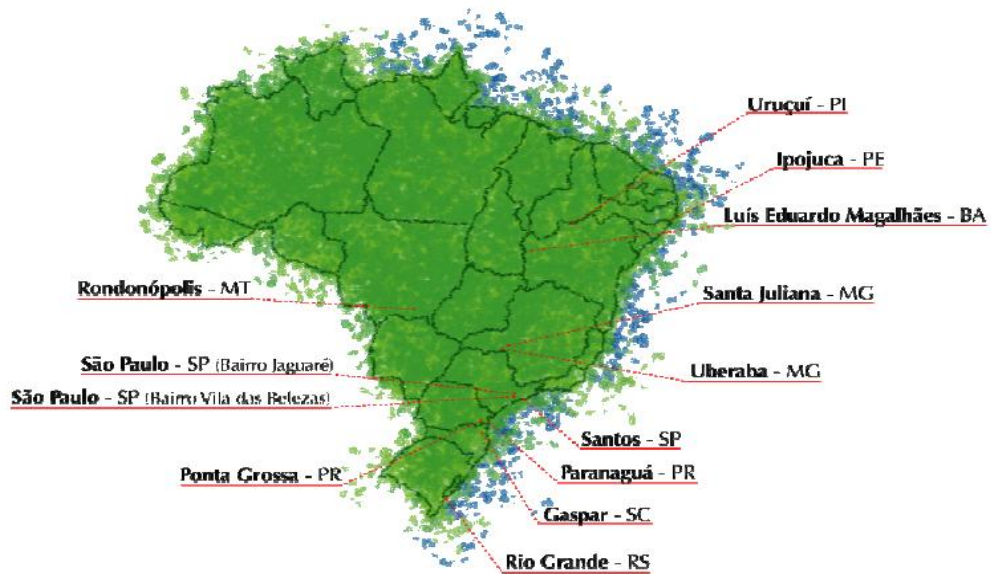
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Panorama Comunidade Educativa - Números de 2013



Região	Voluntários	nº escolas	Alunos por região	Professores por região	Total de Espaços de Leitura	Espaços de Leitura Semear Leitores
CENESP - SP	22	1	650	25	2	0
Gaspar - SC	20	2	737	47	20	1
Jaguaré - SP	39	1	400	30	0	0
LEM - BA	22	1	1.200	53	1	1
Paranaguá - PR	24	2	562	28	8	2
Ponta Grossa - PR	37	2	1.241	56	1	0
Rio Grande - RS	15	7	1.588	143	3	2
Rondonópolis-MT	19	1	235	15	1	0
Santos - SP	30	1	300	11	2	1
Santa Juliana - MG	32	1	40	5	7	1
Uberaba - MG	14	1	330	15	2	0
Suape - PE	20	1	213	10	3	0
Uruçuí - PI	27	17	2.758	146	16	
<b>Total</b>	<b>321</b>	<b>38</b>	<b>10254</b>	<b>584</b>	<b>66</b>	<b>8</b>