

EQUITY AND EFFICIENCY IN EDUCATION¹

Short Version

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ABSTRACT

The recently released "Educational PAC" attempts to place basic education at the center of the social debate. We have subsidized this debate, offering a diagnosis of how different education levels can impact individuals' lives through broad and easily interpreted indicators. Initially, we analyze how much each educational level reaches the poorest population. For example, how are those in the bottom strata of income distribution benefited by childcare centers, private secondary education, public university or adult education. The next step is to quantify the return of educational actions, such as their effects on employability and an individual's wages, and even health as perceived by the individual, be that individual poor, middle class or elite.

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Equality and Efficiency in Education:

1) Overview

The “Educational PAC” released by the Brazilian federal government in the begin of 2007, and a series of civil society initiatives, in particular the Commitment All for Education (Compromisso Todos pela Educação), have placed basic education at the core of the Brazilian social debate. A primary objective of the present research is to feed the debate in course, showing how different levels of education—and the associated policies—can be evaluated through the means of broad, easy-to-interpret indicators. The objective here is not to discuss the merit of each of the points in question, vis-à-vis the enormous challenges and educational needs in the country. This is a broad and complex theme; we emphasize only the change in focus from higher education towards basic education, and two specific points of the “Educational PAC”: widening from 15 to 17 years of age the range of those benefited by the educational conditionalities of the Bolsa-Familia program, and the incorporation of measurements of responsibility between federal government and states and municipalities, based on the evolution of the Index of Educational Development (IDEB) recently created.

Initially, we analyze the extent to which each educational level reaches the poorest population. For example, how those in the bottom strata of income distribution benefit from childcare centers, private secondary education, public university or adult education. The next step is to quantify the return of educational actions, from the point of view of the average citizen, be that individual poor, middle class or elite. Based on recent national data, we evaluate how different educational levels affect the employability and earnings accrued in the labor market. The third step in this research is to show that, aside from the clear effects of education on income, there are other positive effects to be considered by students—and managers—such as school impacts on the perceived health. The research annex presents summaries of other studies that detail the impacts of education on other people’s lives, be those within the same family, including descendants, other members of the community, or the economy as a whole. The objective is to provide simple conceptual and empirical frameworks to understand the dilemmas behind educational policies.

It is not enough to comprehend from an outsider’s perspective the good properties of educational policies, such as the potential for equality and the private or social returns; it is also necessary to understand how this information reached individuals and how they incorporate these into their decisions. In the second part of the study, we present objective evidence of some subjective aspects associated to education. We discuss direct questions such as: why don’t young adults of a certain age attend school? Is it because they must work to help increase the family income? Is it because they do not have access to an educational facility, or simply because they do not want the type of school being offered? Aside from the school-related reasons, we propose a synthetic school permanence index, which combines the enrolment rates, and the length of the school day. This index reveals the adherence to measures of academic performance.

The electronic version of this text allows us to delve deeper into topics of greater interest in the text through links with components in the research website [S](#), with texts [T](#), notes [N](#), seminar and debate videos [V](#) and a database with interactive panoramas and simulators [BD](#) based on econometric models. These databases offer the opportunity to work on the objective and subjective dimensions of education, correlating individual

student characteristics, as well as that of their parents, such as age, gender, income, etc. Regional rankings situate the relative position of Brazilian States in the race for better educational indicators. These numbers aim to place education at the top of societal and local government priorities. In conclusion, we discuss the advantages, misfortunes and arrangements needed to establish financial transfers from governments based on academic performance. The creation of a system of educational targets holds the promise of motivating all agents involved, ranging from young students and their mothers, to mayors or governors. Limitations in the electoral market in regard to education invite an active participation from the Brazilian civil society, international entities such as UNESCO and the federal government. Perhaps the fact that major actors converge towards the Commitment All for Education suggests a unique moment coordination of efforts to obtain concrete educational results. A question to be dealt with here is how to extend the model with conditional links⁴, to take into consideration factors that motivate good educational performance in the distribution of public resources, similar to the spirit of Bolsa Familia conditionalities in relation to poor families.

2. Equality and Efficiency

“One Real applied to basic education has 22 more times the capacity of reaching the poorest than when applied to public higher education.”

Education, as any public policy of a structural nature, affects the lives of individuals through the improvement in their access conditions and/or returns from these actions, which brings us to the traditional dilemma between equality and efficiency through public actions. We begin with the analysis of educational policies through the prism of equality: A pro-poor policy is that which benefits the poorest as opposed to the non-poor. This means that, given a fixed cost for the government and a student’s return, a pro-poor policy should result in a greater reduction in poverty. Policy A will be more pro-poor than policy B if, for the identical cost of implementing them, policy A leads to a greater reduction in poverty than policy B. In order to determine whether a policy is pro-poor, we use indicators that have been formulated by Nanak Kakwani and Hyun Son, which are then applied to Brazilian education in a joint study, shown here first hand.

Aside from the technicalities involved, the advantage of the proposed indicator is its intuitive interpretation, which leads to a simple analysis by the policy managers, and even by the average citizen³. Otherwise we observe: the greater the respective pro-poor indicator of a given policy, the greater the ability of each allocated Real reaching the poor. The smallest level of the indicator is zero when for each Real distributed per citizen, that same Real does not reach any poor; when the indicator reaches one, each Real has the ability of reaching the poor – in a universal policy that reaches all individuals uniformly, be they poor, middle class or wealthy.

³ The functional form of the indicator is $\lambda = \frac{1}{\bar{b} \eta \theta} \int \frac{\partial P}{\partial x} b(x) f(x) dx$ where \bar{b} is the educational

benefit distributed, η is the absolute elasticity of poverty in relation to the benefit, θ is the aggregate level of poverty, and x is income.

E.g.: (i) = 1.20 : refers to a specific program that reduces poverty 20% more than a policy with universal targeting. (ii) = 0.70 : refers to a program reducing poverty 30% more than one with universal targeting.

a. Equality

“The equality index of private secondary education is close to that of public university, suggesting that the same individuals attend these levels, in distinct time periods.”

An advantage of the equality indicator as proposed is its adaptability to different poverty measures found in literature. We opt here for displaying in Table 1 two poverty indicators: in the second column, we present P^1 , which attributes the same weight to those below the poverty line and in the third column, we use P^2 , which attributes more weight to the poorest. The indicators are based on the CPS poverty line⁴, equivalent to R\$125 per month at the Greater São Paulo prices of October 2006, adjusted for regional living expense differences from the IBGE’s latest National Consumer Expenditure Survey POF collected in 2002 and 2003. In the greater part of the analysis, we opt for P^2 specifically because of its greater forwardness.

The equality ranking of those who are undergoing different educational levels shows that, in general, the lower levels of education are more pro-poor than higher levels of education. Another aspect in the equality hierarchy, stronger for P^2 , is that it’s more sensitive to the poor. The equality indicator tends to increase in the lower levels of education when the poorest of the poor are prioritized—as observed when we move from P^1 to P^2 , while the opposite occurs in the higher levels of education.

Table 1 – Education Pro-Poor Index

By Grade	Same Weight to the Poor – P^1	Pro-Poor – P^2
Childcare	1.08	1.14
Pre-School	1.46	1.56
Alphabetization – adults	1.73	1.90
Elementary Education – regular	1.53	1.57
Elementary Education – regular public	1.68	1.73
Elementary Education – regular private	0.27	0.23
Adult Education – elementary education	1.09	1.04
Secondary Education – regular	0.73	0.63
Secondary Education – regular public	0.83	0.72
Secondary Education – regular private	0.10	0.09
Adult Education – secondary education	0.52	0.44
College Entrance Exam (Pré-Vestibular)	0.19	0.15
Tertiary Education	0.07	0.07
Tertiary Education – public	0.12	0.10
Tertiary Education – private	0.05	0.06
Graduate	0.00	0.00

Source: PNAD 2003/IBGE Microdata

The pro-poor indexes at the extremes of the educational spectrum confirm the expectation that the lower levels of education are more equitable or pro-poor than the

⁴ It is the same indigence line proposed in Ferreira, F. et all. (2003) “A Robust Poverty Profile for Brazil using Multiple Data Sources”, Revista Brasileira de Economia 57 (1), 59-92: Brazil.

higher levels: graduate education displays a zero index (until the hundredth decimal) and the lowest level of adult alphabetization has the highest indicator of 1.9. Moving on to more common levels, regular basic education has an index of 1.57, against 0.63 of secondary education and 0.07 of higher education. This means that an additional Real spent in basic education has 2.5 more times the ability of reaching the poor than one spent in secondary education and 22.5 times that spent in higher education.

As could be expected in all levels of teaching, the supply of public education is more pro-poor than the private. In basic education, the pro-poor index is of 1.73 in public supply versus 0.23 in the case of private supply. At the high school level, these indicators reach 0.72 for public and 0.09 for private; in the case of higher education, these indexes reach 0.1 for public and 0.06 for private. In other words, the possibility of a poor reaching public university is much less than practically all other levels. The proposed targeting index for private secondary education of 0.09 is close to that of public university, which is consistent with the idea that private school students are those who reach public universities. The targeting degree of college entrance exams students (pré-vestibular) of 0.15 shows that few poor attempt to move from secondary to tertiary education

Finally, early childhood education and pre-school show pro-poor indexes of 1.14 and 1.56, which demonstrates a degree of focus superior to that of the public universities. Recent research [P](#) shows that the access rate to pre-school in the Northeast, the poorest region of the country, is greater than in the other regions. Overall, the emphasis given to basic education in the Plan for the Development of Education is much more pro-poor than the emphasis previously attributed by the federal government to higher education.

b. Public and Private Expenses in Public and Private Education

“The cost of total private education is of R\$14.00 monthly per Brazilian or R\$89.90 per Brazilian student..”

“The cost per student of a student enrolled in high school was of R\$1,152 in 2002, against R\$10,054 per student enrolled in higher public education.”

“Each Real spent on public higher education is 7 times less likely to reach the poor, as opposed to the same amount tenfold spent in secondary education.”

The decision of staying in school to reach higher educational levels generates, aside from the potential available associated benefits, direct opportunity costs. The basic criterion at the individual level is whether the increase in labor income until retirement exceeds the direct payments and opportunity costs for substituting education. In the case of public managers, we should consider the public costs and the external benefits emanating from higher education among the population. We deal here only with the relative costs of the expenses paid by the government and families in the case of private education, but in the Annex we have increased the breadth of relative evidences to diverse costs of- and benefits from education.

We now lightly examine how much Brazil spent with education in 2002—the last period for which we have data. That year, the public expenditure with education was 4.4% of the GDP (prior to the recent GDP revision). In absolute terms, the annual public expenditure per student enrolled in basic education from 1st to 4th grade was R\$870 in 2002; per student enrolled in basic education from 5th to 8th grade, R\$1,105;

and per student enrolled in secondary education, R\$1,152. The annual expenses per student enrolled in higher education, however, was almost tenfold, R\$10,054. In other words, the government spends much more per student in tertiary education. We present below an estimate of private direct expenses at different levels of education.

Table 2: Private Expenses with Education - Monthly

	R\$ SPENT PER STUDENT	R\$ SPENT PER BRAZILIAN	% BRAZILIANS WITH EXPENSE
Pre-School	75.78	0.82	1.08
Regular Basic Education	166.76	2.55	1.53
Regular Secondary Education	194.10	1.43	0.74
Regular Tertiary Education	324.95	5.41	1.67
Combined Grades	48.27	0.07	0.14
College Entrance Exams (Pré-Vestibular)	59.90	0.31	0.53
Technical Education	53.25	0.09	0.17
Master's	222.03	0.42	0.19
Doctorate	138.85	0.00	0.00
<i>Educational Textbooks-Primary & Secondary</i>	9.14	0.36	3.91
<i>Other educational books and technical magazines</i>	13.56	0.25	1.82
<i>Other expenses</i>	26.61	3.23	12.13

Source: CPS/FGV based on POF 2003/IBGE microdata.

Aggregating the data, we find that the private expense with education within family budgets at the value of R\$14.00 monthly per Brazilian in general or R\$89.90 monthly per Brazilian student, leading to the annual base of R\$1,078 per student.

c. Educational Premiums

“The wage of those with college-level education is 540% greater than that of illiterates, and their probability of employment is 308% greater.”

It is obvious that educational policies should not be solely concerned with equality. It is necessary to evaluate the efficiency of the policy in transforming the lives of those who receive the educational benefit. Otherwise, a school for the poor of doubtful reputation and high cost could be chosen as the ideal, which is not the case. An impact of educational policy that we will analyze refers to the changes in labor market insertion and the general conditions of the job market. We now look at the individual returns when leaving school, given the impact of learning on the individual's employability and wage-earning potential.

Table 3 reveals how educational hierarchy is reflected in labor hierarchy (occupation level and labor earnings). For example, salary increases from R\$322 (R\$1.97 hourly wage) for illiterates to R\$1,682 (R\$18.2 hourly wage) for those with a graduate degree. Similarly, the occupation rate between extremes in the educational spectrum increases from 60.7% for those who have one year of schooling to 81.5% for those who have attended graduate school. Using a standart mincerian-type regression and binomial logistic model for occupation – see annexes - to compare individuals with the same socio-demographic characteristics—such as gender, age, range and

geography—except for education, the following occurs: the salaries of those with a college degree are 540% higher than that of illiterates, and their employability is 308% larger. Therefore, higher levels of education lead to better job placement. In other words, the hierarchy of educational levels mirrors labor rankings.

Table 3 – Labor Impacts on Education

	in Relation to Illiterates*				
Highest Level Studied	% Employed	Average Salary R\$	Hourly Wage	Probability of Employment*	%Wage Premium*
<i>Illiterates</i>	60.65	321.73	1.97	1	0
<i>Basic</i>	63.73	517.11	2.99	1.36	40.05
<i>Secondary</i>	68.11	767.08	4.31	2.29	125.23
<i>Undergraduate</i>	78.16	1681.52	10.31	3.80	318.76
<i>Graduate</i>	81.48	3041.1	18.22	4.08	540.42

* controlled by gender, color or race, age, migration, city size, type of sector and federal unit

Source: CPS/IBRE/FGV based on PNAD 2005/IBGE microdata.

BDS

d. Education and Health

“A greater level of education in the population impacts on diverse elements in individuals’ lives, such as fertility, criminality, health, etc.”

“When comparing an illiterate individual with a college graduate, 95% of perceived improvements in health are given by the pure and direct effect of education, and not by income.”

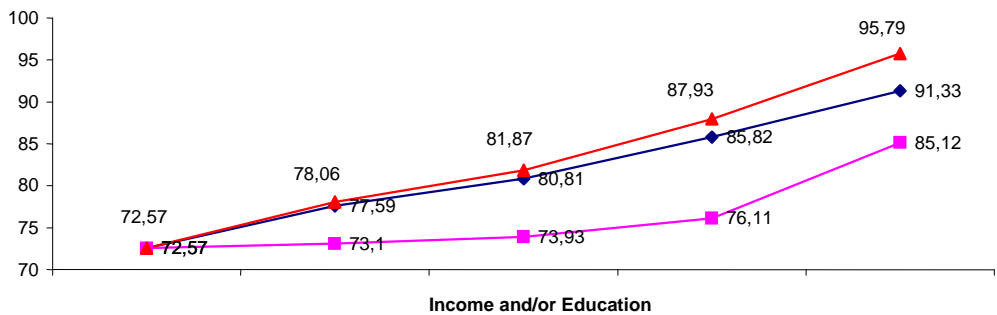
Going beyond the pragmatism of income generation, the greater education of the population impacts other elements in the life of individuals, such as fertility, criminality, and health, among others. In these cases, education potentially affects interest variables through the direct and indirect effect on the function of higher income. Table below shows the existent relationship between the educational attainment of the head of household and the respective per capita household average income. We take, for example, the comparison between data on self-perceived individual health conditions. Health improves according to an individual’s income and education. But what is more important, school or income? The lesson visible in graph 1 based on a standart logistic regressions found in Neri and Soares (2007) is that the health trajectory, although it corresponds to changes in income, 95% of the effect of perceived improvements in health with associated changes in education and income are given by the direct effect of education (i.e. maintaining income constant). Similar effects are observed for individuals who have had bed-rest in the past two weeks, where education corresponds to 89.4% of the obtained improvements. In other words, education seems to be a more fundamental cause for health improvements than income.

Schooling & Income per capita

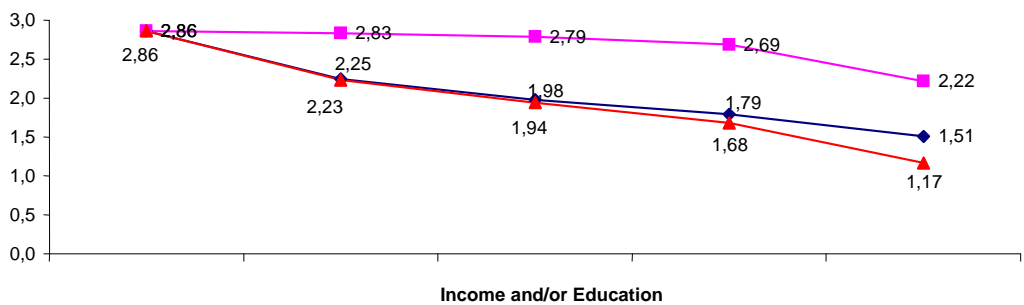
Schooling	Income
Less than 1	162
1 to 4	207
5 to 8	278
9 to 12	472
more than 12	1448

Fonte: Centro de Políticas Sociais/FGV from microdata from PNAD 2005/IBGE

Considers own Health State to be Good or Very Good %



Was in bed rest during the last two weeks %



—◆— CONSTANT INCOME = 162 —■— CONSTANT EDUC = LESS THAN 1 YEAR —▲— INC AND EDUC VARIATING

Source: CPS/FGV based on PNAD/IBGE Health Supplement Microdata.

The positive impacts of greater education on individuals' private returns should not justify—initially—public action in school, for if individuals perceive greater incomes as a function of greater education, then educational financing would be restricted solely by restrictions on the credit market, which would limit individuals' investment in their own human capital. In the case of public action, it is still important to act in areas where social returns are greater than private returns, as a function of an externality. For example, when you increase an individual's educational level, you not only improve their economic situation, their employability and wage, but also that of others. The impacts of parents' education on their children should be captured by public policy as well as private decisions. In the appendix, we synthesize some evidence from this line of study, through measurements of education mobility among generations. In the appendix, we also present international evidence that deal with more aggregate impacts in education about growth, exports, mortality and longevity.

CONCLUSIONS

If we were to synthesize the main elements pursued nowadays in the design of innovation in social interventions—that is, what is IN in public policies—we would say: incentives, information and infancy.⁵ Nations and parents who care for their children, since their most tender age, guarantee their future. In other words, it ends being more productive from the social point of view (as well as the fiscal one) to prevent rather than remediate, by investing in education. Education constitutes the true cost of social opportunity—whatever the alternative to investment with a highest social return may be.

This research on education and its database provide three types of contribution: i) impacts of education at the individual level. The objective here is not only to inform policy managers and opinion makers, but to provide a basis for the average citizen in his/her decision-making. ii) Motivational evidences about whom educational policies should be the most concerned with. iii) Discussion on the implications of policies, exploring certain desirable upgrades, in the incentive and in the demand for education—such as Bolsa-Familia—aside from supply programs—such as management systems based on incentives linked to performance, as recently released in the educational PAC.

⁵ Similarly, what is *out* in public policy also starts with *in*: inefficiency and inequity.

Annex:

As we have seen, educational policies should not be guided solely on grounds of equality, the policy's efficiency in transforming the lives of those who receive its benefits should also be considered, as well as the labor change (and at what cost). In the case of public action, it is important still to act in areas where the social returns are greater than the private or individual's, in function of externalities and the general transmission of education. We begin with international evidences that deal with aggregate impacts on education about growth, exports, mortality and longevity, among others.

a. School Externalities

The private decision regarding education does not include the impact that greater education of each individual may have on the learning ability not only of descendants, but that of other families, which would justify public action in addition to private. For example, Ricardo Paes de Barros has demonstrated that the average education of mothers in a given community has a strong explanatory power over the academic performance of children, even when controlled by the child's respective mother's educational level. In broader terms, Jere Berhman from the IDB shows that for each additional year of study, life expectancy increases two years, population growth decreases 0.26 percentage points (p.p.), exports increase 0.7 p.p. and per capita income growth increases 0.35 p.p. It is difficult to imagine investment, social or private, more rewarding than a child moving to the next grade.

b. Educational Mobility

The impact of parents' education on their children should be captured both the public as well as the private decision-making. We summarize some evidence from works in this area that measure the education mobility among generations. Educational inequality is transmitted through generations, in particular through the transfer of education, or lack thereof, from father to son. Ferreira and Velloso (2005) show that the degree of education inequality transmission from parents to children is very high in Brazil (68%) when compared to that of the United States (30%). The degree of intergenerational mobility in education in Brazil is less than that observed in developed countries or in developing countries, with the exception of Colombia (70%). Another conclusion of the research shows that the education of parents has an important role in determining their children's educational level. When the father has not completed one year of study, the child has 33.85% chance of remaining without education. For the children of parents with higher education, this percentage decreases to less than 1%, having the higher probability of repeating the performance of the previous generation (60.02%) as per Table 4.

Table 4
Probability of Child's Schooling Versus Parents (%)

Child Father	No Schooling	Primary Education	Basic Education	Secondary Education	Higher Education
No Schooling	33.85	18.49	5.65	4.20	1.08
Primary Education	2.78	15.67	15.15	22.00	11.59
Basic Education	1.38	4.07	13.71	28.78	24.44
Secondary Education	0.37	1.76	6.48	32.56	35.8
Higher Education	0.75	0.90	3.77	16.19	60.02

Source: Velloso and Ferreira (2003) based on PNAD 1996/IBGE

c. Education and Marriage

How many marriage relations occur between people of the same educational level? How did this evolve throughout time? These questions can be relevant in order to determine the degree of inter-generational transmission of education inequality, which, as we saw, is an observable relevant factor in determining income inequality. Raquel Fernandez' research, applied to a set of countries demonstrates that the higher the return rate of education in each country, the more likely it is that people of the same educational level intermarry, leading to greater inequality in the generation of offspring in these marriages.

We present below the educational diversity of marriages by studying the combination of determined characteristics such as religion, race, and age.

Education (Categories of Completed Years of Study):

2000		<i>Head</i>					Total of Spouses
		No education	1 to 3	4 to 7	8 to 11	12 or more	
<i>Spouse</i>	No education	6,42	2,98	2,14	0,48	0,04	12,05
	1 to 3	3,67	6,98	5,47	1,56	0,11	17,79
	4 to 7	2,72	6,45	16,46	7,04	0,57	33,25
	8 to 11	0,61	2,00	7,69	15,32	3,59	29,22
	12 or more	0,03	0,13	0,61	2,48	4,45	7,70
	Total of Heads	13,45	18,54	32,38	26,87	8,75	100,00

1970		<i>Head</i>					Total Spouses
		No education	1 to 3	4 to 7	8 to 11	12 or more	
<i>Spouse</i>	No education	28,25	11,20	4,19	0,54	0,42	44,58
	1 to 3	6,63	13,70	5,34	0,62	0,36	26,65
	4 to 7	2,54	4,63	10,76	1,94	1,24	21,12
	8 to 11	0,29	0,39	1,00	1,05	1,14	3,87
	12 or more	0,23	0,28	0,76	0,62	1,90	3,78
	Total Heads	37,93	30,20	22,05	4,76	5,06	100,00

Obs: Without missing

Source: CPS/IBRE/FGV based on Census 1970 and 2000/IBGE microdata.

In 2000, 49.6% of marriages occurred among the same educational groups, against 56.7% in 1970. Aside from the better educational diversity that may be beneficial to educational equality (and that of income) of the next generations of society given as a whole. It is worthwhile to mention that there has also been an improvement in educational levels, for example, the mode (most frequent value) among all education combinations between head of households and spouses changed from people with no education in 1970 to couples that coincide in the range of 4-7 years of completed education in 2000.

d. Education and Proficiency

Aside from labor and health impacts, a central aspect of educational impact analysis arises from the study of proficiency among students that measures the level of learning at each grade. This is fundamental, but presents some measurement problems to be dealt with. A problem in this approach in Brazil is the evaluation systems for those who are in school in certain specific grades. If, for example, children are in school because of programs like bolsa-escola or bolsa-familia; or whether they reach to day, with more frequency the fourth grade as a result of automatic progression, independent of virtues and flaws in these policies, an inter-temporal comparison of proficiency is harmed. Some studies demonstrate that the strong decrease in quality of teaching in Brazil observed since 1995 may be negatively biased in favor of those who were previously excluded from the educational evaluation system, not allowing us to perform specific analyses of the theme. We are now capturing the proficiency of individuals who previously were not being evaluated.

Another limitation in this method of evaluating the quality of teaching only through student proficiency is the disregard about the usefulness of certain knowledge in practical terms. This involves subjective elements, such as citizenship values and

practices. Another impact of educational policy already being analyzed refers to the changes in the labor market insertion and the job market's general conditions. We also consider the individual's return when leaving the education system, and the learning impact on the individual's ability to be employed and his/her associated salary. [T](#) [S](#)

e. Return Rate of Education

The Brazilian return rate to education is extremely high, which should be an enormous incentive for the accumulation of human capital.⁶ A study by Fernando de Holanda Barbosa Filho and Samuel Pessoa (2006), based on the PNAD 2004, calculated the internal rate of return to education⁷ from investments in the country's education, and signaled that i) investment in education in Brazil is extremely attractive, offering high rates of return; ii) the return rate of pre-school is superior to 17%; iii) that of secondary education is of 14% and iv) that of higher education was over 18%. However, according to Neri, the rate of return (which is relevant to the student) is not the rate observed a posteriori, but the rate a priori, which includes the probability of grade repetition. This means that, in truth, if the repetition rate is 22%, for example, as it was in 2004, the relevant rate of return ends up being 12% and not 16%. Aside from this, the probability of finding a job increases with education. There is, therefore, a poverty trap where, in order to obtain higher returns, an individual must first invest, facing lower returns and higher risks. [P](#)

f. Plan for Development of Education

The "Educational PAC" announced by the Federal Government in March 2007 places education at the core of the debate and public action through eleven central points, prioritizing: teachers through the creation of national wage base (1) and access to the so-called Universidade Aberta do Brasil for professional improvement (2); schools through digital infra-structure (3) and access to electric energy and transportation [P](#) (4); school materials through its gratuitous distribution to all grades (5) and students, be they adults through the redefinition of the program Brasil Alfabetizado (6), be they children through the performance analysis of Provinha Brasil to correct deficiencies soon after alphabetization (7) and the Pro-Infancy program [S](#) (8). Two other points in the new proposal are: widening the age range from 15 to 17 for those who benefit from the conditionalities of Bolsa-Familia (9). Lastly, and perhaps most challenging, conditioning the transfer of resources from the federal government to states and municipalities to performance targets (10) through the creation of the Educational Development Index based on the School Census and Prova Brasil at the school level [S](#) (11). The objective is not to discuss the merit of each of these points vis-à-vis the challenges and educational needs of the country. This is a broad and complex theme, which has been the focus of an FGV seminar with education specialists. [V](#)

⁶ The average income of someone with no education is of R\$138 while that of someone with an undergraduate degree is R\$2,200.

⁷ Return rate that equals the present value of expenses of an additional year of education with the present value of benefits from this additional year. This study gives continuity to the analyses made in seminal studies by Carlos Langoni and Cláudio Moura Castro.

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