UNIVERSIDADE DE BRASÍLIA
FALCULDADE DE ECONOMIA, ADMINISTRAÇÃO E CONTABILIDADE
DEPARTAMENTO DE ECONOMIA
MESTRADO PROFISSIONAL EM GESTÃO ECONÔMICA DE FINANÇAS PÚBLICAS

DESIGUALDADES DE OPORTUNIDADES NO ACESSO AO ENSINO SUPERIOR NO BRASIL

JORGE RODRIGUES LIMA

Brasília – DF

2015

UNIVERSIDADE DE BRASÍLIA
FALCULDADE DE ECONOMIA, ADMINISTRAÇÃO E CONTABILIDADE
DEPARTAMENTO DE ECONOMIA
**MESTRADO PROFISSIONAL EM GESTÃO ECONÔMICA DE FINANÇAS
PÚBLICAS**

DESIGUALDADES DE OPORTUNIDADES NO ACESSO AO ENSINO SUPERIOR NO BRASIL

JORGE RODRIGUES LIMA

Dissertação apresentada ao Departamento de Economia da Universidade de Brasília, como requisito para obtenção do título de Mestre em Economia – Gestão Econômica de Finanças Públicas

Orientador: Prof. Dr. Vander Mendes Lucas

Brasília – DF

2015

DESIGUALDADES DE OPORTUNIDADES NO ACESSO AO ENSINO SUPERIOR NO BRASIL

Dissertação Aprovada como requisito para obtenção do título de Mestre em Economia, Gestão Econômica de Finanças Públicas. Curso oferecido pelo Programa de Pós-Graduação em Economia – Departamento de Economia da Universidade de Brasília, por intermédio da Coordenadoria de Capacitação (PROCAP), do Decanato de Gestão de Pessoas (DGP). Comissão examinadora formada por:

_____

Prof. Dr. Vander Mendes Lucas

Departamento de Economia - UnB

_____

Prof. Dr. Moisés de Andrade Resende Filho

Departamento de Economia - UnB

_____

Prof. Dr. Roberto de Góes Ellery Junior

Departamento de Economia - UnB

Brasília, 17 de Dezembro de 2015.

"L'école transforme ceux qui héritent en ceux qui méritent."

Pierre Bourdieu et Jean-Claude Passeron

Dedico este trabalho aos meus pais, Raimunda e Francisco (in memoriam), pelo amor e carinho a mim dedicados e em retribuição aos seus esforços. A minha esposa e companheira, por sua compreensão e paciência ao longo dessa jornada. E ao meu filho, João, sentido e amor maior da minha vida.

AGRADECIMENTOS

SUMÁRIO

RESUMO

Esta dissertação tem como objetivo efetuar uma revisão da literatura acerca das contribuições existentes sobre as questões relacionadas às desigualdades de oportunidades em educação. Realizou-se uma investigação que compreende o período de 1986 a 2015 e procurou-se avaliar o comportamento das desigualdades educacionais, as principais variáveis que promovem ou contribuem para a existência (ou não) das disparidades aqui relatadas. Verifica-se que as variáveis relacionadas as circunstâncias existentes na vida de uma pessoa, tais como sexo, escolaridade dos pais ou renda familiar desempenham importante grau de participação nos indicadores de desigualdade educacionais.

Palavras-chave: : Educação Superior, Desigualdade de Oportunidades na Educação, Acesso ao Ensino Superior.

ABSTRACT

This dissertation aims at performing a literature review on the contributions with respect to issues related to inequality of educational opportunities. An investigation was conducted by covering a period of time that comprehends the years of 1995 to 2015 and it intended to evaluate the behave of educational inequalities, its main variables responsible for its promotion or that contributes to the existence (or not) of disparities herein reported. It is noticed that variables related to circumstances in one's life, such as gender, parent's education or family income play a major role in determining the degree of inequality of educational opportunities indicators.

Keywords: Higher Education, Inequality of Educational Opportunity, Access to Higher Education.

LISTA DE TABELAS

LISTA DE FIGURAS

LISTA DE SIGLAS

ENEM - Exame Nacional do Ensino Médio

IBGE - Instituto Brasileiro de Geografia e Estatística

INEP - Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira

OECD - Organization for Economic Co-operation and Development

PISA - Program for International Student Assessment

PROUNI - Programa Universidade Para Todos

UFPE – Universidade Federal de Pernambuco

TIMSS - Trends in International Mathematics and Science Study

LISTA DE ABREVIAÇÕES

AYS – Average Years of Schooling

HE - Higher Education

HEI – Higher Education Institution

1. Introduction

Education turned out to be a major key for the development of the nations as its benefits are associated to the capacity of stimulating innovation and new technologies, it improves productivity and pushes economic growth. In addition, it is directly related to the competencies acquired by individuals that may become higher skilled professionals, thus, being paid higher salaries and, to a certain extent, may insert themselves into different social stratus allowing them to be more participative and critics in societies' life. Lastly, it is also known that more educated people may be entitled to better health standard levels.

Bearing in mind these benefits, many countries, especially in developing ones, have attempted to implement policies to stimulate access to tertiary education so as to achieve levels of excellence and, in the long run, be able to participate in the new knowledge intensive capital global economy.

In Brazil, undoubtedly with a considerable delay in time, policies aiming at expanding higher education started to be implemented as from 1990s, mainly as a result of the expansion of the private higher education institutions that in 2012 accounted for about 87% of the total enrollment in tertiary education (INEP, 2012). As one can realize, thus, the supply of higher education in Brazil is almost entirely provided by private institutions, which allows us to further inquire whether the leading policies may be effective or not as far as some relevant aspects such as intergenerational mobility, equity and inequality of opportunities in education are concerned.

In a sense, the results achieved by the policies earlier implemented have produced positive effects in terms of absolute numbers. As pointed out by Pedrosa (2014) and Schwartzman (2004), there was a steep growth in the number of enrollments in higher education for the period mentioned before. However, in analyzing these figures, it is quite astonishing that the social class composition hasn't changed too much. Access to HE remained uprising for those from upper income families whereas there was still little success in puling cohorts from the lowest stratus.

Another important fact refers to the percentage of students at the group age of 18-24 enrolled in HE. Mont'alvao Neto (2014) reminds us that the proportion of

students that effective goes to the universities remained unchanged, i.e, around 35%, between the beginning of 1990s and the end of the last decade. Along the last 30 years, a steady figure of two thirds of the eligible students between 18-24 years does not make a transition from secondary to tertiary education (MONT'ALVÃO NETO, 2014). What can be seen is that there is a great number of students that are repressed at the transition sector and, most important, these numbers are related to those less favored who at a certain point in their lives are faced with constraints that refrain them from moving upwards. One thing is true in this episode: inequality of opportunities in accessing tertiary education is considerable high in Brazil and a reason for concern.

Historically the sense of justice or equalization of opportunities among all is not necessarily a new subject. The very first evidences of concern on equity or the recognition that poverty should have been treated in a different manner may be encountered in religions: Christians, Buddhists, Jewish and Muslins, for instance, every one with their peculiar views had expressed their thoughts (WORLD BANK, 2006). More recently the ideas of social justice, equity and equality of opportunities have evolved and they turned out to become a major field of study for sociologists, philosophers and lastly by economists.

Furthermore, researchers have started to investigate the so-called intergenerational mobility – the role of parental education in determining the future children's educational outcome and by far how such link would work as a mechanism for perpetuating inequalities.

In a nutshell, a definition of what equalizing opportunities could possibly mean is desired. There are several contributions to it but for the sake of this essay, we will rely on Roemer's contribution. He states that it is relevant for policy makers to level the educational playing field among individuals from disadvantaged social background so that they can compete in the future for positions with those who have had a more advantaged childhood (Roemer 1998).

Therefore, bearing in mind the pernicious outcomes that lacking some degree of equality of opportunities may cause to individuals over generations and, most of all, the cascade effect that it produces to the growth of nations and their pursue for development, this dissertation aims at investigating the current contributions on the

issue of inequality of opportunities in education and, in the long run, to pose some reflections on the following question: what are the main aspects related to inequality in educational opportunities and its links to intergenerational mobility in accessing tertiary education?

This study is of great relevance for economists, sociologists, and philosophers. Particularly in the case of Brazil, since we have experienced enormous changes in the educational system during the second half of the last century and mainly during the 90s, where there was a great expansion of it, there are still lots of gaps for improvements in many instances, such as widening access to education, enlargement of school capacity and universities, education quality and, most of all, the matter of equity between the various social groups and educational intergenerational mobility. In addition, The disturbing outcomes produced by the magnitude of all sorts of inequality cause too much damage to individuals – in a sense they are deprived from having wider access to basic resources –; and economies as a whole have too much to lose if inappropriate policies are put in place, causing, in the long run, inefficiency in their markets, production and welfare.

2. Objective of the Study

The objective of this dissertation is to review the literature on the ongoing researches related to inequality of educational opportunities and what effects they may generate in society and on economical outcomes.

3. Methodology of research

To carry on this dissertation, the work herein proposes a review on scientific articles that tackles definition of what equality of opportunities in education could

possibly mean, its links with intergenerational mobility and how it is directly affected and, lastly, how inequality of opportunities can be measured.

4. Data analysis and discussion

On the Postsecondary Brazilian Educational System

After the 1990s, Brazil experienced a sharp increase in the number of enrollments in tertiary education. Just a brief example, in 1960, there were about 100.000 enrollments in HEI; in 1989, these numbers have grown to nearly 1.6 million (PAUL; WOLFF, 1995). Ten years later, the enrollment on undergraduate courses has hit 2.377.715. Indeed much of this expansion was due to the private expansion of HEI promoted in the 90s to provide access to tertiary education. By far, 65% (around 1.544.622) of total enrollment has occurred in the private sector. Between 1994 and 1999 there was 43% increase on undergraduate courses, whereas the private supply for tertiary education in the same period almost doubled, from 396.682 places available to 685.995 (PANIZZI, 2003). The last HE census (INEP, 2014) shows an increase of 2.61 and 5.46 times for the number of applicants and places, respectively, in 2007 compared to 1991, leading to a decrease in the rate of applicants per place from 3.84 times in the first year to 1.84 times in the last year (Figure 1).
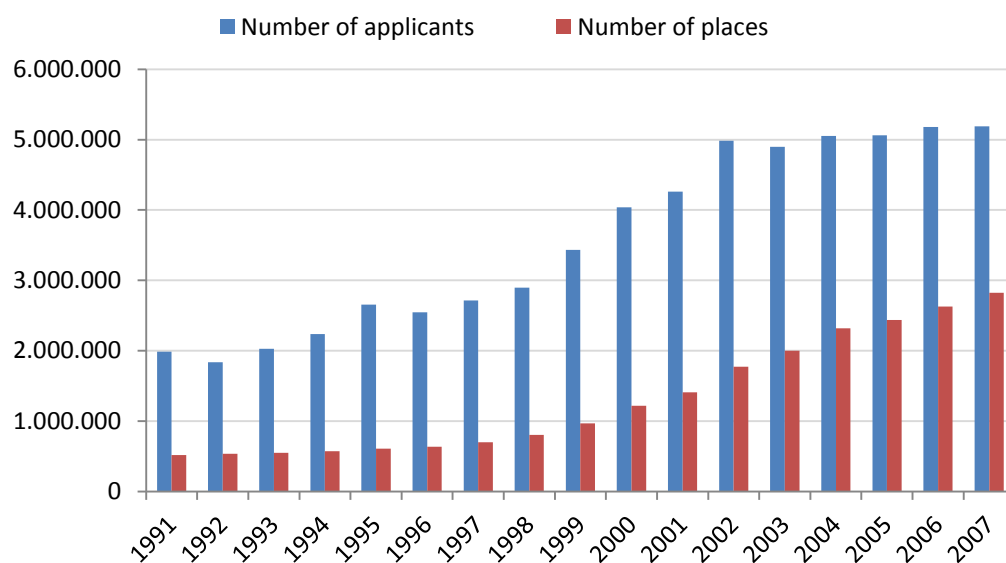
Figura 1. Number of applicants and places for Brazilian higher education from 1991 to 2007. Data source: INEP (2014).

It also shows that the enrollment on undergraduate courses in the last year has already hit 4.880.381, though achievement has hit 756.799. Although this number is more than six times lower than the entrance, proportionally they have grown at the same rate, approximately three times more (Figure 2).
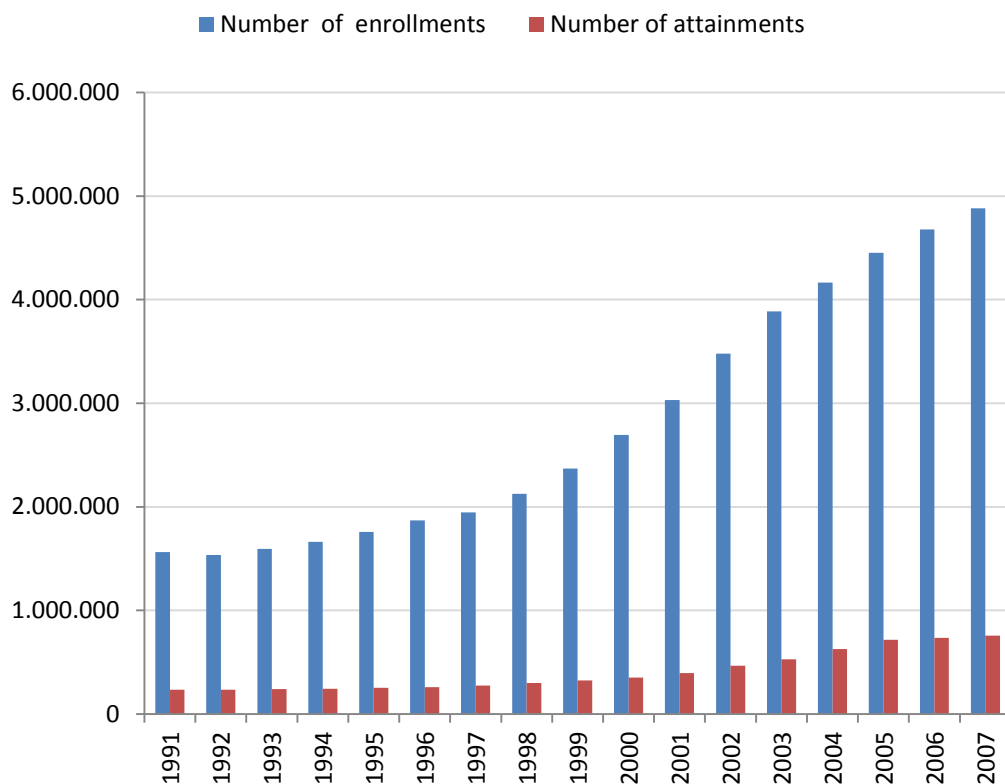
Figura 2. Number of enrollments and attainments of Brazilian higher education from 1991 to 2007. Data source: INEP (2014).

The postsecondary system in Brazil is provided by private and public institutions. The word college is not commonly used but for the sake of simplicity, the academic organization is classified by: universities, university centers, integrated colleges, colleges, institutes of higher education, and centers of technological education (REZENDE, 2010). According to the 2012 Higher Education Census there were 2.391 HE institutions, of which 301 and 2090, respectively, public and private organizations (Figure 3). Moreover, in the same year, 7 millions students were

enrolled in a postgraduate program, of which 2.7 millions students in their freshman year (INEP, 2014).
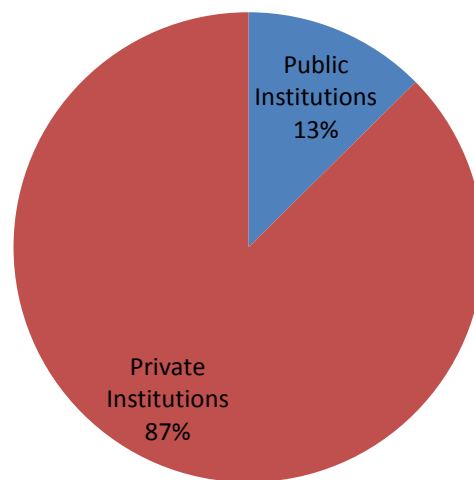
Figura 3. Number of public and private institutions of Brazilian higher education in 2013. Data source: INEP (2013).

The non-tuition fee mechanism prevails among public institutions, whereas private ones, due to their own characteristics do charge tuition fees. Nevertheless, the most renowned institutions are the public ones, with few private exceptions. The admission process is usually determined by an entrance examination administered by each university. However, as of 2009, the Ministry of Education implemented some changes in the ENEM exam[1] and since then, applicants for public institutions can use their scores as a mean of selection for the places available at the public universities. The PROUNI program[2] also uses ENEM scores to provide full or partial scholarships

---

[1] ENEM was created in 1998 so as to evaluate students' performance at the end of the secondary education, as well as a source of compiled information about secondary level of education.

[2] Created in 2004 by the Law no. 11.096/2005, it provides full or partial scholarships to students who apply for private institutions. Grants are subject to their performances and scores acquired in ENEM.

to applicants for private institutions. In return, HEI adherent to the program are exempted from certain taxes.

In 2013, among students enrolled in public and private HE institutions, the relative numbers of 18- to 24-years-old were 60.1% and 47.4%, respectively. Concerning the color/race, 28.1% declared themselves white, 20.3% non-white, and 51.6% didn´t declare their color/race in public HE institutions. In private ones, 25.4% declared themselves white, 14% non-white, and 60.6% didn´t declare their color/race (Table 1).

Tabela 1. Public and private HE institutions 18- to 24-years-old enrolled students, and racial composition in 2013.

			Color/race					
	18-24 years-old	%	White	%	Non-white	%	Not-declared	%
Public Institutions	1,162,152	60.1	542,629	28.1	392,279	20.3	997,619	51.6
Private Institutions	2,545,981	47.4	1,364,400	25.4	752,429	14	3,256,621	60.6

Data source: INEP (2013).

Some Background on Inequality

Equity, Equality of Opportunities, Inequality and Intergenerational Mobility: introductory concepts

Although to some of us definitions of these terms seem to be synonyms, there are, indeed, differences between them, and most of the time a consensus whether a clear definition may be entitled is hard to be achieved.

Equality may be defined as the state of being equal in terms of quantity, rank, status, value or degree (MHAMED, 2010). Equity considers the social justice ramifications of education in relation to the fairness, justness and impartiality of its distribution at all levels or educational subsectors (MHAMED, 2010).

Equity does not necessarily imply equality. The former is more related to fairness and concepts of justice and sometimes it might be associated to equality of

opportunities (SIMON FIELD, MALGORZATA KUCZERA, 2007). In a sense, equity may imply equal life chances regardless of personal or social characteristics (circumstances, such as gender, race, socio-economic status or ethnic) in order to provide to the lesser-favored social strata the minimum conditions in terms of goods, services and income.

The World Bank's definition states that equity may mean different things to different audiences. Economists, in one hand, see it as a matter of distribution; lawyers are more interested in relate it to principles that have to do with strict application of the law which lead to concepts of unfairness and justice as part of the judgment process; and philosophers have made the widest contributions on this field and their major concern are those related to the attributes that would characterize a just and fair society (WORLD BANK, 2006).

On the other hand, according to Roemer's contribution, equality of opportunity is an attempt to reduce the impact of outcomes that some circumstances out of control of the individual, such as gender, race, family background, place of birth and income, may exert influence in the success of a person, be it in an economical, social or political sphere. In other words, the outcome of a person's life must reflect mostly his or her efforts and talents, not his or her background (World Bank 2006).

Inequality is an issue that economists for quite a long have been discussing and presenting a bundle of papers with a large set of findings, remarkable ones and of special interests in trying to disentangle and contribute to further analysis on the topic. One thing for sure can be said: inequality plays a fundamental role in economic growth, social mobility and dispersion of wages among labors.

Intergenerational mobility may be understood as the impact of family backgrounds on their offspring in terms of passing the educational level of attainment of their parents to them. In other words, economists and sociologists, mostly, are keen on understanding the outcomes that parents background exert on their sons and daughters, and, most important, whether this scenario is relevant for economic results such as economic growth, inequality of outcome and welfare state.

For quite a long the debate on equality of opportunities is under the spotlight of economists, philosophers and sociologists and is a major goal of most of the societies (ROEMER, 2005).

Rawls some fifty years ago published his first ideas on equality for which his major goal was to fight the utilitarianism concept of distributive justice, until then prevailing. His assumption states that justice requires, after having a system that provides civil liberties to individuals, a joint work of institutions and ideas that enable those less privileged the minimum conditions to access the basic or primary goods, which in other words, it may be stated as receiving the least amount of them (ROEMER; TRANNOY, 2013)

Rawls advocate that welfare would be best measured as how much a person would achieve his plan of life; so decisions on how to pursue the goals of a life-plan would be on persons only and nobody (social institutions, for this purpose) would be held responsible for his accomplishments. However, he claims that enabling access to primary goods would be inputs for success in life, thus equalizing primary goods bundles across individuals was a way of holding them responsible for their future life-plans and choices made along.

Literature Review on Inequality of Opportunities and Intergenerational Mobility

This chapter introduces a literature review on the main contributions that academia has conceived as far as means to the best of our knowledge capture the idea of measuring inequality of opportunities and in some instances its links to intergenerational mobility.

Why it is important to measure inequality of opportunities

Many people all over the world have to face a fierce dilemma related to their futures regarding their expectations in being successful in life. Let's imagine a poor 14-year-old boy born in the countryside of a small village in Pernambuco, Brazil. What are his chances of becoming a renowned lawyer? Perhaps, zero. On the hand, the chances of a boy of the same age, living with their parents, both with a tertiary education and a good income, probably, are much higher than theirs. According to de

Barros *et tal* (2009), if we consider Chile, which in a sense, is a relative rich country, the probability of a 13 year-old child from a richer background completing sixth grade is almost double that of a child from a poorer background. In cases like Brazil and Guatemala, such probability is 15% larger.

In light of the situation above, can we ask ourselves whether it is reasonable to care about inequalities? Is it worth spending efforts to diminish it? The rationale behind this question goes beyond a simple answer. First, it is necessary to recognize that in some instances inequalities may be considered neither all bad, nor all good. De Barros *et tal* (2009) states that the discussion on public policy and inequality reduction must take into account that inequality is driven by different components, some of them entitled to be more unfair, undesirable and unnecessary than others. He adds that to some of us income differences may be acceptable if they are related to different choices individuals have taken in life; nonetheless, those related to ethnicity, location of birth, gender and family background, for instance factors beyond the individual's responsibility might be deemed unfair (DE BARROS et al, 2009).

In a sense, thus, some may argue that a certain degree of inequality may be a fact that we would have to have in our system so as to guarantee to those an instance of incentive to their efforts to conquer education and translate it into earnings. In other words, it is arguable (perhaps consensus exists) that some inequality may be tolerated, such as those that come from differences in effort and personal skill. Equality of opportunities is then a target to pursue, whereas equality of outcomes (earnings, income, wealth) is necessarily not.

De Barros *et al* (2009) further adds that, according to development economists, equity in opportunities may be viewed as an important factor not only from a moral standpoint, but also as part of the development process itself. He cites the World Development Report 2006 where it envisages two sets of reasons as to why equity should matter for policy makers either for developed and developing countries:

> *"(i) Unequal Opportunity is widely seen as intrinsically unfair, and unfairness bothers people and can lead to social conflict; and (ii) inequality in some particular circumstances (notably but not exclusively inherited wealth) can be economically inefficient. However, people do not view, and policy makers may not want to treat, all unequal outcomes the same." (De Barros, 2009)*

With that respect, many argues that unequal opportunities that are particularly related to circumstances – those which are out of control of individuals -, such as gender, family background, ethnicity or place of origin are a strong indicator of the outcomes this person will achieve in his adult life. Therefore, for many, inequality that is derived from unequal opportunities in life is considered as unfair, so actions and policies to minimize its effects must be tackled by whom the political arena is an area of responsibility.

Measuring Inequality of Educational Opportunity

This chapter presents the current author's contributions on how we can set an appropriate, or in other words, standards in achieving a plausible way of looking estimations on the various mechanisms to confer a certain degree of inequality. Given that basic opportunities, such as access to basic education, are seen as human rights in many countries in the world, and thus everyone must be entitled to them, a good way of evaluating the degree of inequality is by measuring how accessible they are being attained by the population. There are several ways of estimating inequality in education, some more frequently used, others less, for several reasons, such as limitations on the data to be used and flaws intrinsically adherent to the methodology applied. The first review to be presented refers to the Education Gini Index.

The Education Gini Index

Thomas *et tal* (2000), based on the main concepts of four other studies, employed an Education Gini Index to measure inequality in educational attainment. The main idea of this kind of study is to identify (measure) how unequal (or equal) a given society is in terms of the distribution of education to its citizens. Like it is done for the Gini coefficients for income, wealth or land, the index ranges from 0, which represents perfect equality, to 1, which represents perfect inequality. The departure point relies on the assumption that the Education Gini Index, by using the standard deviation of schooling, is only able to measure the dispersion of schooling distribution in absolute terms. The relativeness behind inequality of the schooling distribution,

which shall be necessary for an indicator to more accurately infer must be developed for the education Gini. As previously mentioned, four other authors have attempted to infer inequality by using the education Gini Index by using enrollment or education financing data. The approach used by Thomas *et al* (2000) differs from the others once the analysis turns the focus of the investigation to education attainment in order to capture the relative degree of inequality.

In order to develop the strategy, a dataset containing education attainment records from 85 countries had been prepared comprising the period 1960 – 1990 for a population aged over fifteen. Thomas *et tal* (2000) highlights that there are two alternatives to come up with the income Gini; the direct (Deaton, 1997, apud Thomas, 2000) and indirect methods. The former may be defined as "the ratio to the mean of half of the average over all pairs of the absolute deviations between [all possible pairs of] people" (Deaton, 1997 apud Thomas, 2000). The latter is based on the Lorenz Curve, having on the vertical axis the cumulative percentage of the income, whereas on the horizontal axis the cumulative percentage of the population.

The major finding of their work allows the following observations: a) for the decade observed 1960 – 1990 and for the most of the countries observed, there is a sensible decline in inequality in education attainment. Not so many exceptions among the sample differ from the main results; b) negative relationship between the education Gini and the average years of schooling. In other words, better off countries in terms of education attainment level are most likely to achieve better education equality than those worse off (with lower attainment levels); c) gender gaps are strictly related to the education inequality. This situation gets worse over time; and d) education inequality is negatively associated with per capita GDP increments in terms of PPP; education attainment in years of schooling is positively associated with the per capita GDP (PPP) increments, after controlling for initial income levels.

The findings measured by the education Gini point to a decrease in education inequality as a whole, although to a small number of countries this fact is not true. It is most striking to countries like Korea, China and Tunisia, where the decline occurred much faster whereas to India, Pakistan and Mali, such has occurred in a slower pace.

Thomas *et al* (2000), by analyzing India and Korea's results and in light of the Education Lorenz Curve approach, states that, for the case of India, although much effort had been put on to expand primary and secondary enrollments, India still reveals one of the highest levels of education inequality. Korea, on the other hand, in 30 years' time has evolved a lot and the rate of illiteracy has come close to zero due to massive investments in primary and secondary educations. The education Lorenz curve have moved much closer towards the egalitarian line, unlikely for India which very little shift has occurred. Moreover, the authors emphasize that there is a negative correlation between education inequality when captured by the education Gini and the average years of schooling. This affirmative sentence states that those countries where the education attainment level is high, the chances of having less education inequality is greater than countries where the level of education attainment level is low.

In summary, the authors infer that the education Gini may be considered a new indicator for the distribution of human capital and welfare, thus being more practical for country comparisons over time. Compared with standard deviation of schooling, the education Gini seems to be more effective in capturing the efforts and improvements made on education. It seems that it is abler to complement the quality variables in education by not replacing them, but, on the contrary, they altogether reveals a clearer scenario on the educational development of countries. Although the outcomes of the research provide a reasonable set of results, it should be highlighted that quality variables, such as pupil-teacher ratio, expenditures on teacher's wages and test score of cognitive performance (such as PISA, among others) were not introduced in the calculation of the Gini index.

Likewise, Lorel (2008) applied in his article similar approach, i.e., assessing Brazilian educational inequalities by using education Gini. The aim of the paper was to have a picture of inequality by adopting different approaches: (i) the education Gini coefficient; (ii) the Education Standard Deviation; and (iii) the Average Number of Years of Schooling. The empirical analysis has used IBGE data on educational achievement for people over five, measured by completed schooling years. The scope of the analysis was Brazil country, its regions and states for the time period 1950 – 2000.

The major findings for the Brazilian case indicate that for the country, as a whole, there was a sharp decline between the 50s and the 60s. During the 60s a slight increase and from the 70s on the education Gini index has decreased, reaching 0,4031

in 2000. As for the States and Regions, it is also observed a downward move on the index. The education Lorenz curve indicates a relevant progress. In 2000, more than 10% of Brazilian citizens received no education at all while 33,4% received only 7,2% of total cumulated years of schooling. In comparison with 1950, these figures were, respectively, 67% with no education and 72% owning only 3,7% of the education capital. The analysis on the average number of years of schooling indicates that although its growth had tremendously increased between 1950 and 2000 (1,34 to 6,28), when compared to other relevant countries such increase may be considered weak. In addition to that, when setting the links between the education Gini index and AYS, it is noticeable a negative relationship between them and clearly visible as from the panel estimations performed, which becomes robust in every cross section between the period in analysis. This brings some important policy implications: moving anyone out of illiteracy improves both education Gini and the level of education attainment. If AYS is increased by one year, the education Gini index is reduced by almost 0,0933 (Lorel, 2008).

As in Thomas et al. (2000), the approach used by Lorel (2008) has not considered quality aspects of education, which had been recommended for further investigations on upcoming analysis.

IoP Measured According to Variables of Circumstances and Efforts

Several studies very recently have been dedicating efforts to evaluate the impact that individual's circumstances and efforts play on one's life in achieving certain outcomes. Inspired by the pioneering work of John Roemer (ROEMER; TRANNOY, 2013), many economists felt inspired in measuring the degree of inequality in many fields, such as income, health and education. Ferreira and Gignoux (2008), for instance, investigated what part of inequality in labor earnings, household income per capita and household consumption is due to unequal opportunities rather than to differences in individual efforts or luck. The basis for discussion of their work associates inequality of opportunity with outcome differences that can be responsible for pre-determined circumstances, such as race, gender, place of birth and family background.

De Barros *et tal* (2009), in analyzing the degree of inequality of educational opportunities, make use of Roemer's contribution. The main objective is to determine the degree of inequality in education by using the instrumental developed, and differently from the Gini approach, this time it considers aspects related to individuals, like circumstances and efforts that can either refrain or support the achievement of outcomes. In order to estimate the degree of inequality of educational opportunity, the research relies on international dataset on standardized test scores (PISA) for reading and mathematics. The test was applied on 15-year-old children in five Latin American countries and nine European and North American nations. The rationale adopted consider decomposing inequality into two parts: one that comes from circumstances beyond individual's control, and the next refers to efforts performed by individuals in order to acquire education, as well as luck, errors measured and those components of innate talent that are uncorrelated with the observed circumstances. The circumstances variables available in the dataset are: gender, parent's education, father's occupation and the area where school is located.

According to the authors, some difficulties come up when dealing with the dataset used. First, OECD standardized the test score variables that are intended for inference. The mean and the standard deviations have arbitrary values set at 500 and 100, respectively. As a result, it implies both a translation of the mean and a rescaling of the dispersion so as to develop a measure of inequality of opportunity in achievement, derived from a share of total inequality. They argue that the estimations are unaffected by the standardization of test scores.

The main results state that children from upper-social classes are more likely to achieve better results in the test-score, as well as students in larger cities (if compared to those from rural areas). The tests performed by the authors on reading exams show that data suggest that between 14 percent and 28 percent of total inequality in five Latin American countries can be accounted for by the five set of circumstances: gender, education level of mother and of father's occupation, and geographic location of school. The outcomes from circumstances that have more impact on opportunity shares were family background – mother's education and father's occupation. School location in some countries plays an important role, however, as a whole its participation is somewhat relative. In comparison with OECD countries, Latin American countries are more unequal with regard to educational

achievement – 20% of total inequality accounted for circumstances, while in industrial countries the same grouping responds for 15%. Argentina and Peru have the highest gross amounts of inequality. Children from rural areas with parents with low level of education are the most disadvantaged. Such is true for Chile and Mexico, whereas in Argentina and Brazil a significant proportion is found in urban areas.

Diaz (2012), upon analyzing (in)equality of opportunities in secondary education provided by public and private schools, has also followed the patterns and the conceptual basis once described in Ferreira and Bourguignon (2007), Ferreira and Gignoux (2008), Ferreira and Gignoux (2006) and Barros et al (2009). Likewise, the idea is to identify variables labeled as "circumstances" and "efforts" so as to use them as explanatory factors for the students' performance, thus, the results achieved in the test score. The dataset used in this work is the SAEB[3] records for 1995, 1997, 1999, 2001, 2003 and 2005. In addition to the explanatory variables used in Ferreira and Gignoux (2008) and Barros et al (2009) the aim of the study is to infer as well how much of the degree of inequality in educational opportunity is due to the type of school, be it public or private.

The inequality of opportunities indicators for the sample and periods investigated show that they tend to be lower in reading Portuguese than in mathematics. The results show that for Portuguese the mean of all indicators is around 0,20. For Mathematics, the indicator was around 0,238. As for the analysis considering the type of school, it is worth mentioning that the results are by far more interesting by the time there is a growth in the net rate of school achievement and a growth of public school participation in the total number of students completing their degree. They also indicate that a relative stability in the number of students completing secondary education is also followed by a certain stable level of equality of opportunity, even when there is a change in the student profile indicated by the increase in the net rate of school achievement. On the other hand, the reduction in student's age and the demand for private schools is followed by a reduction in the level of equality of opportunities (DIAZ, 2012).

---

[3] SAEB stands for Evaluation System for the Basic Education. Test score system administered by the Ministry of Education and it is applied to brazilian students of the last year of secondary education every two years.

Woessman (2004) assures that there is no clear evidence as to different countries achieve equal educational opportunities for children from different background. Such statement raises an important fact that if we are able to identify some intrinsic aspects related to educational opportunities, this will indeed reveal a remarkable feature of countries' equality of opportunity, as well as some comparison hints on equality of educational opportunity across countries that, in the long run, will allow us to have a better picture of how it may be attained and why a set nations end up having success in reaching it.

The strategy adopted by Woessmann (2004) begins with the 1995 dataset provided by the Trends in International Mathematics and Science Study (TIMSS). The purpose is to estimate the impact of parental education and other measures of family background on children's test scores. The database contains both achievement data for representative samples of middle-school students in 17 Western European school systems (in 15 countries[4]) and the United States, and plenty of other information regarding student's background compiled in questionnaires. The age of the population is around 13 years old. The proposed questionnaire contains information on students' background such as level of parents' education, the number of books in their home, whether parents live together, place of birth, sex and age. Moreover, school background is also provided by means of identification of the location of the school (WOESSMANN, 2004)

The results found for each country may be inferred as the the size of the family-background effects and can be viewed as a measure of the equality of educational opportunities for children from different backgrounds. In general terms, for the European countries, the relationship between parent's education and their children's math performance is somewhat low in French Belgium, regardless whether their parents had or hadn't university degree. However, for the science test in the French Belgium, the correlation is significant. The effect size observed is much larger in Western Europe than in the United States. Previous study points to an adverse result, where it emphasizes important family background effects (WOESSMANN, 2004).

---

[4] Austria, Flemish and French Belgium, Denmark, England and Scotland, France, Germany, Greece, Iceland, Ireland, the Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland.

Some of the outcomes of the research provide us evidences that are very particular to the grouping of countries investigated. When using the mean of math achievement in each country against a measure of the family background effect, in this case, students with more than two bookcases at home and students with less than one shelf of books at home, it is clear the non direct relationship between average performance and the measure of equality of opportunity. The correlation coefficient between these two measures was 0,002. Additional tests have been used and the results were basically equal to the previous mentioned ones. Therefore, considering the mean performance of students and family background effects induces us to believe that there is no obvious tradeoff between achieving efficiency in educational production and equality of educational opportunity. The authors suggest more in-depth analysis before coming to a final conclusion.

The major considerations with respect to the outcomes of the research indicates little difference between Western Europe results and those from the USA, except for some cross analysis performed on family background effects, when considering immigrants students of both countries where those in Europe perform worser than their fellows in the USA. In general, comparing Western Europe and the USA, there is little difference in family background effects on the degree of inequality of educational opportunities.

Cavalcanti et al (2010) studied the issue of inequality of opportunity in Brazil for those willing to access tertiary education. Using a different approach, the authors, aims at investigating whether the difference in the 2005 entrance test scores (Vestibular) is due to family background and school characteristics or if it is due to unobservable variables, such as ability and effort. The dataset used was the student's vestibular at Universidade Federal de Pernambuco (UFPE). Detailed information is available, such as race, gender, age, family background and others.

In order to estimate student's performance in the Vestibular, Cavalcanti et al (2010) first defined an equation to capture the differences in scores due to the type of school (public or private) combining vectors of family background and another one for school characteristics of student. Moreover, they also used ENEM scores to capture cognitive ability and further use it as a vector for the efforts of students.

The main results obtained indicate that test scores of public school students are on average 17% lower than those taken by private school students. Controlling variables by family background such as mother's years of schooling, family income and others, the effect decreases to 7%. It is also emphasized that mother's years of schooling is an important determinant of the entrance test score. In summary, the tests carried out indicate that public school students do worse than private ones. Furthermore, it is also noticed that public school students are able to enter a public university roughly at the same proportion as those from private schools. A peculiar feature that is perceptible to statistics is that mostly students who had a schooling private background fill the most competitive undergraduate courses, like law, medicine and engineering.

As for the regression results, the authors have come to some conclusions after analyzing the outputs produced. The variable public when scrutinized presents a negative sign of the coefficient, suggesting that public school students have a negative effect on entrance test scores. When introducing family background elements, it is remarkable how much influence it exerts on results. Mother's years' of schooling and family income are also strong predictor of the entrance test scores and plays a major role in the intergenerational mobility, which, in the case of Brazil, is still high. Students with the highest scores in the exam would be better off whether they have chosen private institutions rather than public ones. Lastly, Cavalcanti et al (2010), corroborating Fernandez and Rogerson (1995) findings, state that the way the public educational system is arranged in Brazil favors higher income families, thus promoting the persistence of unequal opportunities and decreasing the chances of promoting an upward social mobility. Lastly, policy makers would have to stress implementation of more advancing policies in order to improve the quality of school and affirmative actions to support those from the lowest backgrounds to access tertiary education and remain on it. Measures like these indeed would benefit the principle of equality of opportunities in the future for students to obtain a university degree.

Tabela 2. Studies examining main aspects related to inequality.

Authors	Title	Year	Setting/Country	Purpose	Approach	Key outcomes
Ludger Woessmann	How Equal are Educational Opportunities? Family Background and Student Achievemen in Europe and the United States	2004	17 countries in Western Europe and the USA	estimates the effects of family-background characteristics on student performance in the US and 17 Western European school systems	1995 Dataset from TIMSS	France and Flemish Belgium achieve the most equitable performance for students from different family backgrounds, and Britain and Germany the least.
Vinod Thomas, Yan Wang, and Xibo Fan	Measuring Education Inequality: Gini Coefficients of Education	2000	85 countries	To employ education Gini index to measure inequality in educational attainment	Presentation of both the direct and indirect methods of calculating the education gini index, and generation of a quinquennial dataset on education Gini for population age over fifteen, for 85 countries from 1960 to 1990	Education inequality for most of the countries has been declining during the three decades, with a few exceptions; gender-gaps are clearly related to the education inequality; among other conclusions

Tabela 2. Studies examining main aspects related to inequality.

Authors	Title	Year	Setting/Country	Purpose	Approach	Key outcomes
Pedro Carneiro	Equality of Opportunity and Educational Achievement in Portugal	2006	Portugal	To study the relationship between education and wage inequality; To examine the sources of education inequality	Review of the literature	Most of the variance of school achievement is explained by family characteristics. Education policy needs to explicitly recognize the fundamental role of families on child development; and to acknowledge the failure of traditional input based policies
Benoit Lorel	Assessing Brazilian Educational Inequalities	2008	Brazil	To evaluate schooling inequality	Statistical description of Brazilian human capital dispersion in time over the last half century, across regions and states, using different indicators: the Education Gini coefficient, the Education Standard Deviation and the Average number of Years of Schooling	Suggest strong reduction of educational inequalities, and high increase of the Average number of Years of Schooling, among other conclusions

Tabela 2. Studies examining main aspects related to inequality.

Authors	Title	Year	Setting/Country	Purpose	Approach	Key outcomes
Ricardo P. Barros; Francisco H. G. Ferreira; José R. Molinas Vega; Jaime S. Chanduvi	Inequality of Opportunity in Educational Achievement in Five Latin American Countries	2009	Brazil Mexico Argentina Chile Peru	To present estimates of inequality of opportunity for educational achievement in several Latin American countries	Use of the data on standardized test scores for reading and mathematics from the Program for International Student Assessment (PISA)	For all countries, the most-disadvantaged groups tended to include a disproportionate share of children of agricultural workers and parents with little or no schooling. In Chile and Mexico, most disadvantaged individuals are studying in rural areas; in Argentina and Brazil, a significant proportion are found in urban areas
Tiago Cavalcanti, Juliana Guimaraes, Breno Sampaio	Barriers to skill acquisition in Brazil: Public and private school students performance in a public university entrance exam	2010	Brazil	To quantify the difference in performance of public and private school students in an entrance test exam of the major public university in Brazilian Northeast (UFPE)	Use of the data set on students entrance test scores at UFPE	Provide quantitative evidence to the common view that the Brazilian elitist high education system is an important channel for inequality persistence.

Tabela 2. Studies examining main aspects related to inequality.

Authors	Title	Year	Setting/Country	Purpose	Approach	Key outcomes
Erik Figueirêdo, Lauro Nogueira, Fernanda Leite Santana	Igualdade de Oportunidades: Analisando o Papel das Circunstâncias no Desempenho do ENEM	2014	Brazil	examines how social circumstances infuence the educational performance of students taking the National Secondary Education Examination (ENEM)	Qualitative analysis o four basic modelo f HE market and and quantitative analysis of vagas em universidades públicas como dada e analisamos as consequências de se cobrar pela educação pública daqueles indivíduos com condições financeiras para pagar	Mostram que uma pequena taxa cobrada gera ganhos de bem-estar com uma cota inferior de cerca de R$100.000 por aluno carente extra atendido pelo sistema público

Tabela 2. Studies examining main aspects related to inequality.

Authors	Title	Year	Setting/Country	Purpose	Approach	Key outcomes
Jun Yang, Xiao Huang, Xin Liu	An analysis of education inequality in China	2014	China	To study the presentation of China's education inequality and its decomposition results; to analyze the reasons and determine what measures should be taken from a public governance view	Use of Gini coefficient to study income inequality; Decomposition method based on Gini coefficient to study within-group and between-group contributions to education inequality, according to educational gaps among regions, by gender, between urban and rural areas, and also among different social group; Draw of a detailed analysis from the point of the educational system and other social factors; Shapley decomposition based on regression analysis to study which kind of educational gap contributes to total education inequality most, so that adequate measures can be taken to reduce education inequality	Both national and provincial education inequality is lower than before, and that educational expansion has reduced education inequality significantly. The urban–rural division and social stratification division are the greatest contributors to education inequality; The household register system dividing city and country, and increasing income inequality are deepening institutional barriers and stratum differentiation; The population from poorer areas (especially for females) still merits social concern; The overall education inequality drops sharply as age decreases, which is mainly a product of higher educational attainment among the young

Tabela 2. Studies examining main aspects related to inequality.

Authors	Title	Year	Setting/Country	Purpose	Approach	Key outcomes
Changjun Yue	Expansion and equality in Chinese higher education	2015	China	To address what is the relationship between the fast expansion of higher education and the equality of college enrollment opportunity in China	Descriptive and regression analyses, using the data from four large-scale surveys on college graduates, by conducting empirical analysis on the family occupational, educational, regional, and economic status	Students with better family occupational, educational, regional, and economic status and male students have more chances to enter elite universities, and those groups have become more and more advantaged with the passing of time
Sofia N. Andreou, Christos Koutsampelas	Intergenerational mobility and equality of opportunity in higher education in Cyprus	2015	Cyprus	To examine the evolution of intergenerational mobility in higher education in Cyprus during the period 1996–2009	Questionnaire, Qualitative analysis, Quantitative analysis, Interviews. Students and nonstudents (graduates of secondary education or less) aged 17–29	Parental effect has reduced over time, leading to increased educational mobility

5. Conclusions

The analysis presented in this study aims at drawing our attention to the fact that inequality of opportunities dos have a point in many aspects related to education, social life, economic growth, etc. It is also true that education is a key element for bringing down inequalities of all sorts. The aspects related to circumstances, or rather, those characteristics that are linked to individuals, however, out of his control, plays an important role in determining the level of inequality in educational opportunities, thus being supposedly an issue to be compensated in order to reduce inequality.

It is consensus that all efforts carried on by researches are still far away from achieving the perfect model that can be able to capture all the minor details that inequalities in educational opportunities bring along with its own features. Nonetheless, it is worth mentioning that their contributions, although some lack of data or resources are sill missing, it is uncontestable that the results, analysis, conclusions and recommendations are a pathway to policy makers to develop more and more straightforward measures to diminish the gap between those less favored and the ones who benefit from affordable and social higher patterns.

Developed economies in the search of high levels of growth and welfare have put lots of efforts so as to promote the inclusion of as much groups of people that in a sense may suffer from the exclusion effects that inequality promotes in one's life notwithstanding, the difficulties behind their implementation, it is also known that the perfect situation is still a goal to be achieved.

In light of the context presented in this dissertation, it is a fact that the issue is still an ongoing debatable issue. Brazil still lacks good basis for its three levels of education. If we are to expect a sustainable economic growth, it is more than appropriate and it is the right time to start rethinking what strategies for education may be pursued in order to foresee the benefits that today's actions will promote in the future as far as intergenerational mobility, economic growth and disparities in educational opportunities are concerned.

6. References

BARROS, R. P. DE et al. **Measuring Inequality of Opportunities in Latin America and the Caribbean**. Washington, D.C.: World Bank, 2009.

CAVALCANTI, T.; GUIMARAES, J.; SAMPAIO, B. Barriers to skill acquisition in Brazil: Public and private school students performance in a public university entrance exam. **Quarterly Review of Economics and Finance**, v. 50, n. 4, p. 395–407, 2010.

DIAZ, M. D. M. (Des) Igualdades de Oportunidades no Ensino Médio Brasileiro : Escolas Públicas e Privadas. **Revista EconomiA**, v. 13, n. 3a, p. 553–568, 2012.

FERNANDEZ, R.; ROGERSON, R. On the Political Economy of Education Subsidies. **The Review of Economic Studies**, v. 62, n. 2, p. 249–262, 1995.

FERREIRA, F. H. G.; BOURGUIGNON, F. Inequality of Opportunity in Brazil. **Review of Income and Wealth**, v. 53, n. 4, p. 585–618, 2007.

FERREIRA, F. H. G.; GIGNOUX, J. **Towards an Understanding of Socially-Inherited Inequalities in Educational Achievement: Evidence from Latin America and the OECD**. [s.l: s.n.]. Disponível em: <http://siteresources.worldbank.org/INTLACREGTOPPOVANA/Resources/UndSocIneqEdu FerreiraGignoux.pdf>.

FERREIRA; GIGNOUX, J. The Measurement of Inequality of Opportunity: Theory and an Application to Latin America by Francisco H. G. Ferreira, Jérémie Gignoux :: SSRN. n. July, 2008.

INEP. **Resumo Técnico Censo da Educação Superior de 2012**. Brasília: [s.n.]. Disponível em: <http://www.inep.gov.br>.

LOREL, B. Assessing Brazilian educational inequalities. **Revista Brasileira de Economia**, v. 62, n. 1, p. 31–56, 2008.

MHAMED, A. A. S. Source : International Review of Education. v. 50, n. 5, p. 486–482, 2010.

MONT'ALVÃO NETO, A. L. Tendências das desigualdades de acesso ao ensino superior no brasil: 1982 2010. **Educ. Soc.**, v. 35, n. 127, p. 417–441, 2014.

PANIZZI, W. M. A Benchmark for Higher Education in Brazil. **Higher Education Management and Policy**, v. 15, n. 1, 2003.

PAUL, J.; WOLFF, L. An economic approach of hlgher education in Brazil *. **Revista Brasileira de Economia**, v. 49, n. 4, p. 631–61, 1995.

PEDROSA, R. H. L. Access to higher education in Brazil Introduction : Expansion of HE in Brazil. v. 16, n. 1, p. 5–33, 2014.

REZENDE, M. The effects of accountability on higher education. **Economics of Education Review**, v. 29, n. 5, p. 842–856, 2010.

ROEMER, J. E. **Equality of Opportunity: a Progress Report**. New Haven: [s.n.].

ROEMER, J.; TRANNOY, A. **Equality of opportunity**. New Haven: Cowles Foundation for Research in Economics, 2013. Disponível em: <http://journals.cambridge.org/production/action/cjoGetFulltext?fulltextid=6368488\nhttp://b ooks.google.com/books?hl=en&lr=&id=2LfA_KjvOAsC&oi=fnd&pg=PP6&dq=Equality+of

+opportunity&ots=eHU5uc4_93&sig=dCssxMkYKFpRi5pU0-_NcZzg6ok>.

SCHWARTZMAN, S. Equity, quality and relevance in higher education in Brazil. **Anais da Academia Brasileira de Ciencias**, v. 76, n. 1, p. 173–188, 2004.

SIMON FIELD, MALGORZATA KUCZERA, B. P. **No More Failures: Ten Steps to equity in Education**. [s.l.] OECD, 2007.

THOMAS, V. et al. Measuring Education Inequality: Gini Coefficients of Education. **World Bank**, p. 1–37, 2000.

WOESSMANN, L. How Equal Are Educational Opportunities ? Family Background and Student Achievement in Europe and the United States Ludger Woessmann. n. 1284, 2004.

WORLD BANK. **Equity and DevelopmentOxford University Press**. Washington, D.C.: [s.n.]. Disponível em: <http://www-wds.worldbank.org>.