Educational Opportunities in the Brazilian Upper Secondary Education

Betina Fresneda (IBGE, Brazil)

Paper Prepared for the IARIW-IBGE Conference
on Income, Wealth and Well-Being in Latin America

Rio de Janeiro, Brazil, September 11-14, 2013

Session 5: Health, Education and Subjective Well-being

Time: Friday, September 13, 11:00-12:30

IARIW-IBGE Conference on "Income, Wealth and Well-being in Latin America"

Educational opportunities in the Brazilian upper secondary education*

Betina Fresneda[1]

Abstract:

This article examines quantitative and qualitative changes in inequalities of educational opportunities (IEO) over a period of more than 20 years of intensive expansion in the Brazilian upper secondary education. The odds of successfully completing each educational transition (entrance and conclusion of upper secondary education) were estimated by using national data (PNAD surveys). In addition, chances of enrollment in private high schools vs. public ones were also estimated, unraveling an important aspect of the Brazilian educational system. The results indicate no significant changes in IEO for upper secondary educational transitions, showing a persistency in the effects of socioeconomic background during the whole period. Findings are consistent with the "Maximally Maintained Inequality" hypothesis and corroborate the results of previous studies. Finally, private high schools are becoming increasingly selective on their students' socioeconomic background, reinforcing the performance duality that characterizes public and private high schools in Brazil.

[1] IBGE analyst.

* IBGE is not responsible for the opinions, information, data and concepts in this article, which are the sole responsibility of the authors. All information used respected the IBGE confidentiality rules.

1. Introduction

The core of the modern school model is based on the meritocratic ideal that legitimizes inequality among formally equal citizens in democratic societies. Regardless of limitations and controversies surrounding this model of social justice, those ideals were deployed throughout the nineteenth century as a way to overcome the social hierarchies constructed on birth and heredity. If formal qualification has become a *sine qua non* condition to access the most valued social positions, the considerable increase of educational attainment in advanced Western countries, especially in Europe and the United States, over the past twenty years, has led to uncertain and controversial effects on school inequalities.

An increasing amount of people had access to educational levels previously restricted to a privileged part of the population. Paradoxically, parents' socioeconomic characteristics did not have its influence on educational attainment significantly reduced over a long period of educational provision expansion (Jonsson, 1996; Raftery & Hout, 1993; Shavit & Blossfeld, 1993). Although the process of educational expansion in Brazil is still incipient when compared to developed countries, similar trends were found for Brazil and in periods of intense economic recession, as was observed in the 80's, inequalities of educational opportunities were still more pronounced (Fernandes, 2005; Guimarães & Rios-Neto, 2010; Mont'Alvão, 2011; Ribeiro & Torche, 2010; Ribeiro, 2009, 2011; Souza, Ribeiro, & Carvalhaes, 2010; Torche, 2010; Valle Silva & Souza, 1986; Valle Silva, 2003).

Upper secondary education is considered an advanced stage of the Brazilian educational system, because only during the 1990s the country ensured universal access to primary education. Consequently, satisfactory levels of attendance at high school were achieved recently and the completion of this level is still far from universalization. This situation renders the upper secondary level a crucial moment in the educational trajectory, in which students and families are faced with the options of either continuing studies or entering the labor market. Moreover, according to 2009 Program for International Student Assessment (PISA), Brazil is, among 26 countries analyzed, one of the most unequal in performance between the public and private schools. This duality is an important aspect of the Brazilian educational system causing students from more privileged social backgrounds that attended a private school to end up having more chances of enrollment in the best universities, which are in most cases public and free.

Therefore the objective of this paper is to analyze the evolution of the quantitative and qualitative inequalities of educational opportunities (IEO) in upper secondary education for young cohorts of Brazilians. Relative chances of entering and completing that educational level as well as enrollment in private school vs. public ones will be estimated. This paper is divided into six sections, including this introduction. The second section includes a brief contextualization of the main Brazilian educational reforms occurred after 1970 and a summary of the empirical results of studies conducted for Brazil. Then, in the third section, the theoretical hypotheses that tried to understand the causes of temporal changes of IEO are discussed. The fourth section contains the description of data and methods used. In the fifth

section the results are exhibited. Finally, the sixth section will cover the main points developed throughout the paper.

2. Educational policies and empirical evidence for Brazil

The Brazilian educational expansion is a result of major reforms applied to the educational system coupled with a favorable demographic context in which the school age population was diminished by nearly one million people in the 1990s (Valle Silva, 2003). Those reforms can be grouped into four sets of educational public policies articulated in terms of its political and social context (Franco, Alves, & Bonamino, 2007).

The first set of measures, established in 1971, made primary and lower secondary education mandatory, increasing the compulsory education from four to eight years. The second wave of educational public policy was a result of the technical staff renewal after the victory of the opposition to the military government in the first general elections for executive positions in 1982. This period was characterized by the growth of enrollments in the lower secondary level, mostly provided by public schools. Regarding the economic resources, the Constitution bounded 18% of the federal budget and 25% of states and municipalities budgets to education.

The third generation of educational public policies was characterized, in general terms, by the universal access to primary education. To this result contributed in particular the creation of FUNDEF (Fund for the Maintenance and Development of Primary and Lower Secondary Education and Valorization of Teachers) in 1996, which determined that the federal government should transfer resources to states and municipalities in order to achieve a minimum value spent per student. This allowed significant improvement in the redistribution of resources and the deepening of the municipalization process. The policies that aimed the correction of grade progression were also an important measure for school democratization due to the reduction of the harmful effects of large scale retention and failure rates.

During the fourth set of public policies, prior policies were continued and deepened. The pre-primary and upper secondary education levels were included in FUNDEF, which became known as FUNDEB (Fund for the Maintenance and Development of Basic Education and Enhancement of Education Professionals) in 2006. In the same year, compulsory primary education which started at the age seven was extended to the six-year-old children. Recently, a progressive expansion until 2016 of the mandatory education from the ages between 6 and 14 to those between 4 and 17 was approved.

All those sets of educational policies have increased access to education, especially at early educational levels, leading to the decrease of inequalities of educational opportunities (IEO) through time. Evidence in this direction was found by most empirical studies that investigated the relative chances of school transition. Furthermore, those studies found out that there was a substantial reduction in

male/female differences in educational attainment over time, while the advantages of white youngsters in comparison to black or brown ones remained relatively stable and significantly high over the generations.

Initially, those studies indicated stability of IEO for all transitions (Fernandes, 2005) or a decline of the effect of socioeconomic background only in the chances of completing the first year of primary education (Valle Silva, 2003). Later studies showed that there was a decrease of IEO for the conclusion of primary education (Guimarães & Rios-Neto, 2010; Ribeiro, 2009) and for the completion of lower secondary education (Marteleto, Gelber, Hubert, & Salinas, 2012; Ribeiro, 2011; Torche, 2010). The majority of those analyses found no decline tendency in IEO for transitions related to upper secondary education, considered an advanced stage of the Brazilian educational system. Such results suggest a shift of education selectivity to higher levels.

The stratification between public and private schools is an issue that has been incorporated into recent analyzes of the Brazilian IEO. Private school attendance increase four times the odds of completing high school and fifteen times the chances of entering university compared to public school attendance (Ribeiro, 2011). In addition, chances of enrollment in private high school are increasingly unequal because youngsters whose mothers were less educated were more likely to attend private schools in 1982 than in 2007 (Marteleto et al., 2012). There was an increase of the social background effect (chiefly household head's education and family per capita income) in the odds of completing upper secondary education in private schools, while there was a decrease in that effect for the completion of high school in public school (Mont'Alvão, 2011).

3. Theoretical hypothesis to changes in the IEO

Trends in educational stratification are interpreted in the light of theories that aimed to understand the determinants of temporal changes of IEO. Briefly, the modernization theory assumed that the growing economic rationality promoted by industrial development and increasing bureaucracy would reduce the influence of social origin in educational attainment, replacing ascriptive criteria selection for achievement-based ones (Duncan & Blau, 1967; Parsons, 1970; Treiman, 1970). However, a large body of research has shown that educational expansion alone does not reduce IEO and the relative advantages associated with social background, especially considering non-universal educational levels (Boudon, 1973; Bourdieu & Passeron, 1964, 1970; Bowles & Gintis, 1976; Collins, 1979). The main argument of the social reproduction theory is that children from privileged background are supposed to master the cultural codes, especially the linguistic ones, which are demanded by schools, legitimizing inherited inequalities. On the other hand, children from less privileged background don't benefit from that cultural coincidence and subjectively adapt their educational decisions to their objective success probabilities (Boudon, 1973; Bourdieu & Passeron, 1964, 1970).

Boudon (1973), who adopted the rational choice theory, argued that the inherited cultural capital, reflected in parents' education, would be part of a primary effect that influences the initial educational performance and that tends to reproduce itself. On the other hand, the chances of continuing the educational progression would depend also on the cost and benefits structure that families face, known as secondary effects. Variations in the structure of costs and benefits that affect the families' educational decision would lead to different levels of educational inequality, regardless of performance inequalities. The separation made between primary and secondary effects made it possible to understand the variation on the degrees of educational stratification found between countries and between different educational systems, putting the prospect of reducing those inequalities in the foreground (Breen, Luijkx, Müller, & Pollak, 2005). However, it became clear that the more unequal a society, the more unrealistic is the school mission to reduce educational stratification, showing the boundaries of the school role (Dubet, Duru-Bellat, & Veretout, 2010; Dubet, 2010; Jonsson & Erikson, 1996).

Based on Boudon's work (1973), a series of theoretical assumptions were developed aiming to understand the changes of the IEO as a result of changes in the structure of costs and benefits involved in the educational choices at different periods, generations, countries, etc. (Breen et al. 2,005; Raftery & Hout, 1993; Shavit & Blossfeld, 1993; Torche, 2010). In this article, two hypotheses that predicted a specific pattern of evolution of inequality of IEO were tested.

The first hypothesis, proposed by Raftery and Hout (1993), argues that a process of "maximally maintained inequality" (MMI) explains the stability of educational inequality during a long period of educational expansion, stating that it will decrease through educational expansion only when upper classes achieve universal enrollment rates at a given educational level, as long as the structure of costs and benefits between social classes remain unaltered (*ceteris paribus*) (Raftery & Hout, 1993). According to the second hypothesis, known as Effectively Maintained Inequality (EMI), the expansion of the educational provision leads to the reduction of quantitative IEO when enrollment at a certain level reaches universalization. Nevertheless, this level will experience an increase of its qualitative inequalities as a strategy to secure relative advantages (Lucas, 2001).

Based on those hypotheses, it is expected for the Brazilian case that the evolution of the IEO related to the conclusion of primary education will confirm the downward trend already highlighted by previous studies. On the other hand, since school transitions related to entrance and conclusion of upper secondary education are advanced stages in the Brazilian school system, they are not expected to show a significant IEO drop according to the MMI hypothesis. The absence of a "bottleneck effect" for this level, caused by the systematic growth of the transition rates and improved macroeconomic conditions of employment and income in the 2000s, should not result in an IEO increase during the analyzed period. According to the "EMI" hypothesis, quantitative education expansion may lead to increased qualitative inequalities that, in the Brazilian case, mean a more difficult access to private high school.

4. Data and Methodology

This study used data from the National Household Survey (PNAD – Pesquisa Nacional por Amostra de Domicílios) for the years 1982 and 1986 to 2009, which gives a comprehensive and reliable source to follow Brazilian socioeconomic development.

An analytic sample of 18 to 25-year-old individuals was selected for the upper secondary educational transitions. Theoretically, they are at an age when they should have transitioned into the upper secondary level and completed that level (around age 17). The upper limit of 25 years old indicates an age at which the accumulation of education becomes less intense. In other words, a small proportion of people over 25 years old will acquire this educational level. In fact, those who had not yet entered or completed high school after 25 years of age due to failure or dropout are unlikely to do so (Gomes-Neto & Hanushek, 1994).

Table 1, shown in the appendix, illustrates that point by following the educational level of the cohort born in 1979. The proportion of people with complete and incomplete upper secondary education increased significantly from 18 to 25 years. There was an increase of 21% and 58% in the proportion of people between 20 and 25 years of age who entered and completed upper secondary education, respectively. From the age of 25, the increase in the average educational level is less intense. Interestingly, the increase of the standard deviation of the average years of education increase with age, suggesting that the higher the age, the greater the tendency of educational inequality. Thus, the exclusion of the population over 25 years in the analysis results in a conservative estimate of educational inequality for the rest of the population (Marteleto et al., 2012).

The selection of young people still living with their parents also tends to generate a conservative estimate of the IEO. That selection was the only way to access the parents' socioeconomic characteristics, resulting in the loss of part of the population aged 18 to 25 who had already left their family household (although these youngsters are a relatively small group compared to the total number of young people in this group age - on average, 33% of the total). This sample can lead to a conservative estimate of the IEO due to greater homogeneity of the socioeconomic background of young people who still live with their parents[2]. On the other hand, the group selected for conditional educational transition in the upper secondary level already implies in greater selectivity of its members, approximating the conditional transition rates in this level for the two groups.

In order to estimate the effects of socioeconomic origin in the odds of conditional educational transition, a model of logistic regression, commonly used in IEO studies for educational progression (Mare

2 In fact, using the PNAD 1996 (the last year in which information on parents' socioeconomic characteristics was available), the effect of parents' socioeconomic background on the odds of upper secondary educational transitions was lower for young people who still lived with their parents compared to those who had formed their own household, but the differences between the two groups were not statistically significant.

1980, 1981; Blossfeld and Shavit, 1993) was adopted. The chances of conditional transitions to high school were estimated for entering upper secondary education (T1), considering those who had successfully completed the lower secondary level, and for completing upper secondary education (T2), considering those who had entered this level. Moreover, for comparative purposes, an analysis of the evolution of the IEO for the completion of primary education (T0) was also included.

Formally:

$$\ln\left(\frac{p_{ij}}{1-p_{ij}}\right) = \beta_0 + \sum_k \beta_{jk} X_{ijk} \qquad (1)$$

Where p_{ij} is the observed probability for individual *i* to complete the *j-th* school transition (entry or completion at some *educat*ional level), X_{ijk} is the value of *k-th* independent variable for that individual in that transition, and β_{jk} are the coefficients that indicate the effects of those variables on the natural logarithm odds of that individual to complete that transition.

The variables used in the model reflect five dimensions: economic conditions of the family, demographic characteristics, cultural capital, social capital and the regional context of the school system. The first dimension was measured by the occupational status of the household head and was used as a proxy for permanent income. Therefore, it is not subject to sudden changes, especially during periods of high inflation. The occupational status was coded according to the International Socio-Economic Index - ISEI (Ganzeboom, Treiman, & Graff, 1992), which orders occupations taking into account their mean education and income. The use of ISEI enables the comparisons with international studies and some previous work (Ribeiro, 2011; Torche, 2010).

The demographic characteristics of young people were controlled by age and by dummy variables for racial-ethnic characteristics (white vs. non-white) and sex (women vs. men). The education of the household head is a well-known proxy for cultural capital. The fourth dimension seeks to capture aspects of the family structure that can be considered proxies of social capital: number of siblings and female headship. Finally, the region of residence and area of residence (urban vs. rural) were used as proxies for regional differences in the school system.

In order to estimate the evolution of the socioeconomic origin effect on the odds of enrollment in private high school in comparison to public high school, a logistic regression model with the same independent variables described above was used. The dependent variable is a binary variable that takes the value "1" for private school and "0" for public school. Using data from the National Household Survey (PNAD) for the years 1982 and 2000s (2001-2009), an analytic sample of 15 to 19-year-old individuals who still lived with their parents' and were enrolled at the upper secondary level was selected. In the appendix, tables 2-4 summarize the descriptive statistics of the variables used in the models.

5. Results

Chart 1, attached in the appendix, shows the increasing educational attainment of young people from 18 to 25 years old. The participation rate, in that graph, refers to the proportion of young people who had completed primary education, entered upper secondary education or completed this level in relation to the total amount of the selected age group. Throughout the period, there was an increase of 43 and 38 percentage points in the participation rate for entry and completion of high school, respectively. Access to primary education was practically universalized among those young people at the end of the period. Interestingly, despite the fact that the major reforms of the Brazilian education system were initiated some decades before, only in the mid-1990s there was a steady increase of young people who had entered or completed high school. Conditional transition rates depicted in Chart 2 also show an increase in the proportion of young people who had undergone the chosen transitions, conditional on having finished the earlier cycles (entering the upper secondary level, given primary educational completion, and graduating from the upper secondary school, given the entrance in this level).

Charts 3 and 4 show the distribution of 15 to 19 year-old students according to the school system (public and private) and *per capita* household income. There is an inverted scenario for the two types of school: whereas in the public school most of the students belonged to the poorest 40%, in private school most of the students belonged to the richest 10%. There was a significant increase in the proportion of students whose family *per capita* income belonged to the poorest 40% in the public school, whereas this ratio was virtually unchanged for private schools. That visible democratization of public high school, which absorbed much of the demand for this level, is an indication that the chances of attending private high schools have become increasingly selective.

The main results obtained by the model of educational transition in relation to the completion of the primary school (T0) can be seen in Table 5 at the appendix. As expected, the weakening of the association between the household head´s education and the odds of completion of the primary level is statistically significant and shows a three-fold reduction of its relative effect from 1986 through 2009, which can be observed in Chart 5. In 2009, each additional year of schooling of the household head increased by 18% the relative chances of young people successfully completing primary education. This value was 35% in 1986, meaning a slow but consistent fall of that effect. These results corroborate those found in previous studies (Guimarães & Rios-Neto, 2010; Ribeiro, 2009, 2011). Furthermore, the evolution of IEO for primary education is consistent with the "MMI" hypothesis: the saturation of the elite's demand leads to the fall of the education inequality, as expected in the case of the conclusion of the first four years of education in Brazil.

On the other hand, the evolution of IEO at the entrance and completion of the upper secondary level doesn't reveal a declining tendency (see Tables 6 and 7). Between 1986 and 2009, the average percent effect of the household head's education was around 13% and 9% on the odds of entering and completing

high school according to Chart 6. The percent effect of the variable that indicates the occupational status of the household head follows a similar pattern for the two transitions, i.e., the IEO doesn't change significantly during the period. The effect of that variable loses explanatory power for the completion of high school, as expected in more advanced transitions (Mare, 1980, 1981).

Throughout the educational transitions, both the effect of the household head's education and that of occupational status showed a downward trend, corroborating the decrease of the social background effect on the educational attainment as the students advance in the educational levels (Mare, 1980, 1981). Chart 7 illustrates this tendency, revealing the effect of cultural capital for each educational transition analyzed.

The estimated effect of young people's sex shows a rise of women's advantage, especially for the completion of the primary level. This increasing advantage had been found in previous studies (Fernandes, 2005; Marteleto et al., 2012; Ribeiro, 2009, 2011; Valle Silva, 2003). The growing number of non-white youngsters who had successfully made their educational transitions to high school was not enough to reverse the advantage of white young people in the odds of conditional educational transition during the twenty years analyzed. Therefore, the effect of the racial-ethnic variable tends to persist over the generations. Furthermore, the effect of that variable does not fall along the educational levels, confirming the specificity of this variable for the Brazilian case, as emphasized by other studies (Fernandes, 2005; Ribeiro, 2009; Valle Silva & Souza, 1986; Valle Silva, 2003). The advantage of white young men is, on average, more statiscally significant for the completion than for entry into the upper secondary education.

The results of the logistic model that estimated the chances of enrollment in private vs. public high school are consistent with the "EMI" hypothesis. Both the effect of the cultural and economic capital (measured by the years of completed education and by the occupational status of the household head, respectively) experienced a significant increase between 1982 and the 2000s (Table 8). There was an average 16- percentage-point increase between 1982 and the 2000s on the effect of cultural capital, which can be seen in Chart 8. This result confirms that found by Marteleto et al (2012), demonstrating the persistence of qualitative IEO during the 2000s, after the significant increase from 1982. Similarly, the occupational status of the household head effect showed an upward trend over the period, increasing by almost four times its relevance according to Chart 9. These results indicate an extreme case of EMI hypothesis in which there was a qualitative deepening of inequalities even before quantitative inequalities begin to lose strength.

The racial-ethnic variable indicated that the chances of attending private high school by white youngsters increased significantly in comparison to non-white ones throughout the period analyzed, which means a worsening of the qualitative educational inequality in relation to this characteristic. The effect of the sex-related variable was not significant for most of the years analyzed.

6. Conclusion

This paper presented an overview of educational inequalities evolution in the Brazilian upper secondary level during a period of more than 20 years. The results largely corroborate and extend the conclusions found in previous studies, which indicate the temporal persistence of the IEO for this educational level. Despite the inclusion of a more recent period, during which the transition rates to high school experienced its greatest growth, the IEO did not decrease, suggesting the validity of the "MMI" hypothesis for the Brazilian case.

Throughout time, women experienced increasing chances of successfully completing the analyzed educational transitions in comparison to men, especially for the completion of the primary education. Furthermore, that advantage falls along the educational levels. On the other hand, white youngsters maintained their advantage over non-white ones significant and relatively stable over the period and, unlike expected, the effect of this characteristic didn't decrease along the educational levels. These results corroborate those found by previous studies (Fernandes, 2005; Marteleto et al., 2012; Ribeiro, 2009, 2011; Shavit & Blossfeld, 1993; Valle Silva, 2003).

The chances of attending private vs. public high school became increasingly unequal, i.e., the effect of the social background became more relevant in defining the type of school attended (easier access of upper-class youngsters to private schools). Furthermore, the racial-ethnic variable showed, for the first time, a significant increase in the odds of attending private upper secondary education for white young students in comparison to non-white ones. In Brazil, there is a deepening of the qualitative inequalities even before the reduction of the quantitative ones, revealing an extreme case of the EMI hypothesis.

In general, the persistence of the IEO in the upper secondary education, regardless of the expansion of that level, is an indication that the inequality that pervades social classes tends to reproduce itself, taking into account the stability of the structural relative costs and benefits among social classes. Thus, education inequalities are a reflex of social inequalities and the school alone can hardly reverse that situation unless greater social equality is promoted. In the words of Erikson (1996),

> "Large economic disparities between the different social classes result in a large amount of inequality of educational opportunities, while the decreasing income dispersions, the increasing economic prosperity and minor economic uncertainties (e.g. unemployment) contribute to fair opportunities within the educational systems (p. 104).

References

Blau, P. M., & Duncan, O. D. (1967). The American Occupational Structure. New York: John Wiley & Sons.

Boudon, R. (1973). L'Inégalité des Chances. La Mobilité Sociale dans les Sociétés Industrielles. Paris: Armand Colin.

Bourdieu, P., & Passeron, J. C. (1964). Les Héritiers. Les Étudiant et la Culture. Paris: Minuit.

Bourdieu, P., & Passeron, J. C. (1970). La Reproduction. Paris: Minuit.

Bowles, S., & Gintis, H. (1976). Schooling in Capitalist America. New York: Basic Books.

Breen, R., Luijkx, R., Müller, W., & Pollak, R. (2005). Non-Persistent Inequality in Educational Attainment: Evidence from eight European Countries. American Journal of Sociology, 114(5), 1475–1521.

Collins, R. (1979). The Credential Society: an Historical Sociology of Education and Stratification. New York: Academic Press.

Dubet, F. (2010). Les Places et les Chances: Repenser la Justice Sociale. Paris: Éditions du Seuil et La République des Idées.

Dubet, F., Duru-Bellat, M., & Vérétout, A. (2010). Les sociétés et leur école : Emprise du diplôme et cohésion sociale. Paris: Éditions du Seuil.

Duru-Bellat, M., & Kieffer, A. (2000). La démocratisation de l'enseignement en France : polémiques autour d'une question d'actualité. Population, 55(1), 51–80.

Erikson, R. (1996). Explaining Change in Educational Inequality: Economic Structure and School Reforms. In R. Erikson & J. O. Jonsson (Eds.), Can Education Be Equalized? The Swedish Case in Comparative Perspective (pp. 95–112). Boulder, CO: Westview Press.

Erikson, R., & Jonsson, J. O. (1996). Can Education Be Equalized? The Swedish Case in Comparative Perspective. Boulder, CO: Westview Press.

Fernandes, D. C. (2005). Estratificação Educacional, Origem Socioeconômica e Raça no Brasil: As Barreiras da Cor. In Prêmio IPEA 40 anos – IPEA-CAIXA 2004: Monografias Premiadas (pp. 23–72). Brasília: Ipea.

Franco, C., Alves, F., & Bonamino, A. (2007). Qualidade de Ensino Fundamental: Políticas, suas Possiblidades, seus Limites. Educação e Sociedade, 28(100), 989–1014.

Ganzeboom, H., TREIMAN, D. J., & Graff, P. de. (1992). A Standart International Socio-economic Index of Occupational Status. Social Science Research, 21, 1–56.

Gomes-Neto, J. B., & Hanushek, E. (1994). Causes and Consequences of Grade Repetition: Evidence from Brazil. Economic Development and Cultural Change, 43(1), 117–148.

Guimarães, R. R. M., & Rios-Neto, E. L. G. (2010). Desigualdade de Oportunidades Educacionais: Seletividade e Progressão por Série no Brasil. Texto para discussão. Belo Horizonte: CEDEPLAR.

Jonsson, J. O. (1996). Stratification in Post-Industrial Society: Are Educational Qualifications of Growing Importance? In R. Erikson & J. O. Jonsson (Eds.), Can Education Be Equalized? The Swedish Case in Comparative Perspective (pp. 113–143). Boulder, CO: Westview Press.

Lucas, S. R. (2001). Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects. American Journal of Sociology, 106(6), 1642–1690.

Mare, R. D. (1980). Social Background and School Continuation Decisions. Journal of the American Statistical Association, 75, 295–305.

Mare, R. D. (1981). Change and Stability in Educational Stratification. American Sociological Review, 46(1), 72–87.

Marteleto, L., Gelber, D., Hubert, C., & Salinas, V. (2012). Educational Inequalities among Latin American Adolescents: Continuities and Changes over the 1980s, 1990s and 2000s. São Francisco: Anais do Population Association of America (PAA).

Mont'Alvão, A. (2011). Estratificação Educacional no Brasil do século XXI. DADOS – Revista de Ciências Sociais, 54(2), 389–430.

Parsons, T. (1970). Equality and Inequality in Modern Society, or Social Stratification Revised. In E. O. Laumann (Ed.), Social Stratification: Research and Theory for the 1970s (pp. 13–72). Indianopolis: Bobbs-Merril.

Raftery, E. A., & Hout, M. (1993). Maximally Maintained Inequality: Expansion, Reform and Opportunity in Irish Education, 1921-75. Sociology of Education, 66(1), 41–62.

Ribeiro, C. A. C. (2009). Desigualdade de Oportunidades Educacionais no Brasil: Classe, Gênero e Raça. In C. A. C. Ribeiro (Ed.), Desigualdade de Oportunidades no Brasil (pp. 21–71). Belo Horizonte: Argvmentvm.

Ribeiro, C. A. C. (2011). Desigualdade de Oportunidades e Resultados Educacionais no Brasil. Dados, 54(1), 41–87.

Ribeiro, C. A. C., & Torche, F. (2010). Pathways of Change in Social Mobility: Industrialization, Education and Growing Fluidity. Research in Social Stratification and Mobility. doi:10.1016/j.rssm.2010.03.005

Shavit, Y., & Blossfed, H.-P. (1993). Persistent Inequality: a Comparative Study of Educational Attainment in Thirteen Countries. Boulder/San Francisco/Oxford: Westview Press.

Souza, P. H., Ribeiro, C. A. C., & Carvalhaes, F. (2010). Desigualdade de Oportunidades no Brasil: Considerações sobre Classe, Educação e Raça. Revista Brasileira de Ciências Sociais, 25(73), 77–100.

Torche, F. (2010). Economic Crises and Inequality of Educational Opportunity in Latin America. Sociology of Education, 83(2), 85–110. doi:10.1177/0038040710367935

Treiman, D. J. (1970). Industrialization and Social Stratification. In E. O. Laumann (Ed.), Social Stratification: Research and Theory for the 1970s (pp. 207–234). Indianapolis: Bobbs-Merrill.

Valle Silva, N. (2003). Expansão Escolar e Estratificação Educacional no Brasil. In N. Valle Silva & C. Hasenbalg (Eds.), Origens e Destinos: Desigualdades Sociais ao Longo do Ciclo de Vida (pp. 105–138). Rio de Janeiro: Topbooks.

Valle Silva, N., & Souza, A. de M. (1986). Um Modelo para Análise da Estratificação Educacional no Brasil. Cadernos de Pesquisa, 58, 40–52.

Appendix

Table 1 – Educational indicators for the 1979 cohort by age

Indicator	Age			
	18	20	25	30
Proportion of the population with:				
Complete primary education or more	81,79	85,53	86,04	88,59
Complete lower secondary or more	43,46	54,96	62,84	66,67
Incomplete upper secondary or more	31,31	43,97	53,27	57,88
Complete upper secondary or more	12,07	28,58	45,09	52,21
Complete or incomplete terciary	0,79	7,10	14,63	18,29
Years of education (mean)	6,50	7,47	8,36	8,89
Standard deviation	3,21	3,51	4,07	4,13

Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1997, 1999, 2004 e 2009

Table 2 - Mean, proportion and standard deviation (SD) of the T(1) model.
For 18 to 25 years-old population, sons in the household, with completed lower secondary level -Brazil 1986-2009

Year	X_1 - Sex (woman)	X_2 - racial-ethnic (white)	X_3 - Age	X_4 - number of siblings	X_5 - female headship	X_6 - household head education	X_7 - household head occupational status	X_8 - area of residence	X_9 - Region of residence	[N]
1986	49%	71%	21,06	2,58	18%	5,14	38,69	92%	74%	10671,92
(SD)			2,15	1,95		4,16	17,31			
1987	49%	70%	21,12	2,48	19%	5,11	38,53	93%	74%	10857,23
(SD)			2,18	1,90		4,20	17,34			
1988	50%	67%	21,12	2,42	19%	5,17	38,16	91%	72%	11062,08
(SD)			2,21	1,86		4,27	17,26			
1989	51%	69%	21,15	2,38	19%	5,27	38,99	91%	72%	11140,63
(SD)			2,24	1,83		4,28	17,37			
1990	52%	67%	21,08	2,26	19%	5,26	38,75	91%	71%	11257,82
(SD)			2,22	1,78		4,21	16,95			
1992	51%	66%	21,05	2,18	21%	5,56	37,88	93%	71%	11373,02
(SD)			2,20	1,67		4,41	17,33			
1993	51%	66%	20,99	2,07	22%	5,66	37,75	92%	71%	11779,42
(SD)			2,22	1,59		4,41	17,61			
1995	50%	66%	21,03	1,98	21%	5,92	38,04	92%	71%	13274,54
(SD)			2,22	1,54		4,51	17,59			
1996	51%	67%	20,92	1,91	22%	6,02	37,47	92%	71%	14248,86
(SD)			2,21	1,48		4,48	17,49			
1997	51%	65%	20,91	1,82	23%	6,14	37,70	92%	71%	15227,47
(SD)			2,22	1,41		4,55	17,68			
1998	51%	64%	20,86	1,82	24%	6,37	37,97	92%	71%	16881,51
(SD)			2,20	1,41		4,60	17,73			
1999	51%	64%	20,81	1,78	24%	6,37	37,23	91%	70%	18498,19
(SD)			2,19	1,38		4,54	17,52			
2001	50%	62%	20,83	1,66	25%	6,53	36,98	93%	69%	22355,27
(SD)			2,18	1,32		4,56	17,32			
2002	50%	61%	20,90	1,63	26%	6,61	37,27	92%	68%	24013,49
(SD)			2,17	1,32		4,58	17,14			
2003	48%	59%	20,98	1,62	27%	6,67	36,59	92%	68%	25484,63
(SD)			2,19	1,32		4,55	17,03			
2004	49%	57%	21,02	1,58	28%	6,60	36,42	91%	66%	26645,10
(SD)			2,20	1,31		4,59	17,87			
2005	48%	56%	21,06	1,54	29%	6,72	36,23	90%	66%	27917,88
(SD)			2,23	1,27		4,55	16,70			
2006	48%	56%	21,09	1,49	30%	6,92	36,40	90%	66%	28387,55
(SD)			2,24	1,27		4,59	16,88			
2007	48%	55%	21,08	1,42	33%	7,02	36,19	90%	64%	27445,52
(SD)			2,25	1,24		4,58	17,93			
2008	47%	53%	21,07	1,39	35%	7,09	35,35	89%	63%	26704,46
(SD)			2,23	1,25		4,60	18,27			
2009	48%	53%	21,09	1,34	36%	7,28	36,05	89%	63%	26765,94
(SD)			2,23	1,20		4,60	17,68			

Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Table 3 - Mean, proportion and standard deviation (SD) of the T(2) model.
For 18 to 25 years-old population, sons in the household, who had entered in the upper secondary level - Brazil 1986-2009

1986	51%	73%	21,16	2,45	17%	5,73	40,71	93%	73%	7916,18
(SD)			2,13	1,89		4,35	17,89			
1987	52%	72%	21,24	2,37	18%	5,73	41,00	95%	72%	8091,30
(SD)			2,17	1,84		4,40	17,91			
1988	53%	69%	21,27	2,31	18%	5,75	40,43	93%	72%	8286,44
(SD)			2,19	1,80		4,46	17,90			
1989	53%	71%	21,28	2,27	19%	5,86	41,47	93%	71%	8278,60
(SD)			2,24	1,79		4,46	17,96			
1990	54%	69%	21,18	2,15	18%	5,84	40,96	93%	71%	8507,17
(SD)			2,21	1,72		4,38	17,47			
1992	53%	69%	21,14	2,07	21%	6,16	39,90	94%	70%	8493,79
(SD)			2,20	1,60		4,59	18,02			
1993	53%	69%	21,05	1,97	21%	6,23	39,81	94%	71%	8943,52
(SD)			2,22	1,51		4,56	18,23			
1995	53%	69%	21,10	1,89	20%	6,48	40,01	93%	71%	10305,69
(SD)			2,21	1,49		4,62	18,17			
1996	53%	69%	20,99	1,84	21%	6,51	39,08	93%	71%	11226,12
(SD)			2,21	1,42		4,59	17,97			
1997	53%	68%	20,97	1,75	22%	6,68	39,47	93%	72%	12178,15
(SD)			2,21	1,35		4,64	18,21			
1998	53%	67%	20,91	1,75	23%	6,89	39,60	93%	71%	13692,16
(SD)			2,20	1,35		4,66	18,17			
1999	53%	66%	20,86	1,72	23%	6,83	38,76	92%	71%	15328,60
(SD)			2,19	1,33		4,62	17,92			
2001	52%	64%	20,87	1,60	25%	6,92	38,19	94%	70%	19163,48
(SD)			2,17	1,26		4,61	17,68			
2002	51%	63%	20,94	1,58	26%	7,01	38,44	93%	70%	20715,59
(SD)			2,16	1,26		4,61	17,46			
2003	50%	61%	21,03	1,57	26%	7,06	37,75	93%	69%	22201,69
(SD)			2,18	1,27		4,57	17,33			
2004	51%	59%	21,07	1,52	27%	6,98	37,64	92%	68%	23258,55
(SD)			2,19	1,25		4,60	18,18			
2005	50%	58%	21,12	1,49	29%	7,08	37,27	91%	67%	24581,87
(SD)			2,23	1,21		4,57	16,94			
2006	50%	57%	21,15	1,44	30%	7,26	37,41	92%	67%	25290,36
(SD)			2,23	1,22		4,59	17,13			
2007	50%	56%	21,13	1,37	33%	7,35	37,23	91%	65%	24374,17
(SD)			2,24	1,18		4,58	18,20			
2008	49%	55%	21,12	1,35	34%	7,39	36,29	91%	64%	23944,51
(SD)			2,23	1,20		4,58	18,51			
2009	50%	55%	21,12	1,30	35%	7,55	36,93	90%	64%	24159,18
(SD)			2,22	1,16		4,59	17,91			

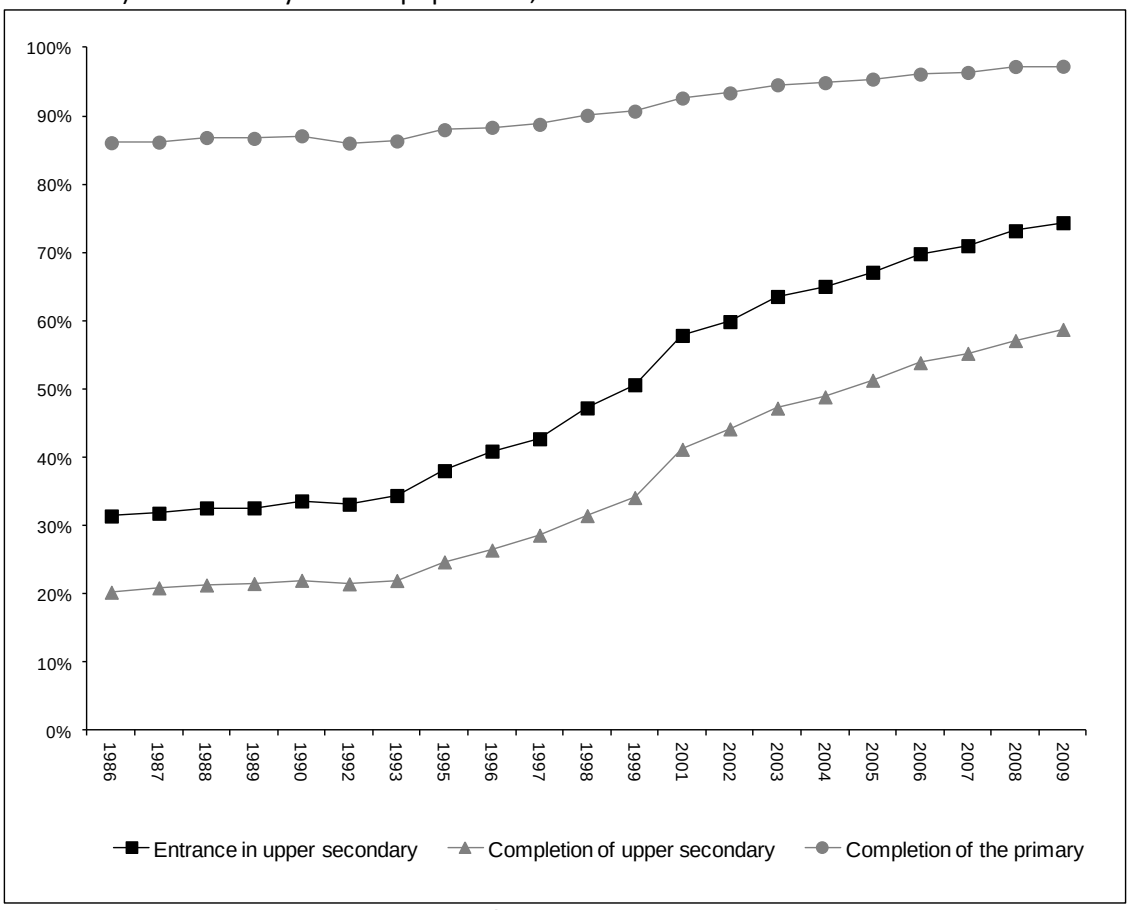
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Table 4 - Mean, proportion and standard deviation (SD) of the private vs. public model.
For 15 to 19 years-old upper secondary students, who were sons in the household -Brazil 1982-2009

Year	X_1 - Sex (woman)	X_2 - racial-ethnic	X_3 - Age	X_4 - number of siblings	X_5 - female headship	X_6 - household head education	X_7 - household head occupational status	X_8 - area of residence	X_9 - Region of residence	[N]
1982	55%	75%	17,10	2,54	13%	5,88	41,95	93%	73%	1770,5
(SD)			1,24	2,03		4,35	18,06			
2001	53%	62%	16,80	1,71	20%	6,89	36,82	91%	69%	11055,7
(SD)			1,25	1,25		4,47	16,85			
2002	53%	61%	16,74	1,66	21%	6,97	37,13	91%	68%	11594,4
(SD)			1,24	1,25		4,46	16,77			
2003	52%	58%	16,72	1,67	22%	6,85	36,00	90%	68%	12413,4
(SD)			1,23	1,27		4,39	16,43			
2006	53%	54%	16,64	1,58	25%	7,18	35,71	88%	64%	12525,2
(SD)			1,20	1,24		4,42	16,23			
2004	53%	57%	16,69	1,61	23%	6,98	36,06	89%	66%	12605,8
(SD)			1,22	1,24		4,42	17,37			
2005	53%	55%	16,66	1,62	24%	7,05	35,92	88%	65%	12728,7
(SD)			1,21	1,26		4,46	16,27			
2007	52%	53%	16,60	1,52	27%	7,29	35,76	86%	62%	11951,0
(SD)			1,20	1,23		4,42	17,51			
2008	52%	51%	16,59	1,48	30%	7,40	34,75	86%	62%	12190,0
(SD)			1,19	1,22		4,47	18,07			
2009	53%	50%	16,56	1,46	31%	7,43	34,92	85%	61%	12216,8
(SD)			1,18	1,22		4,45	17,00			

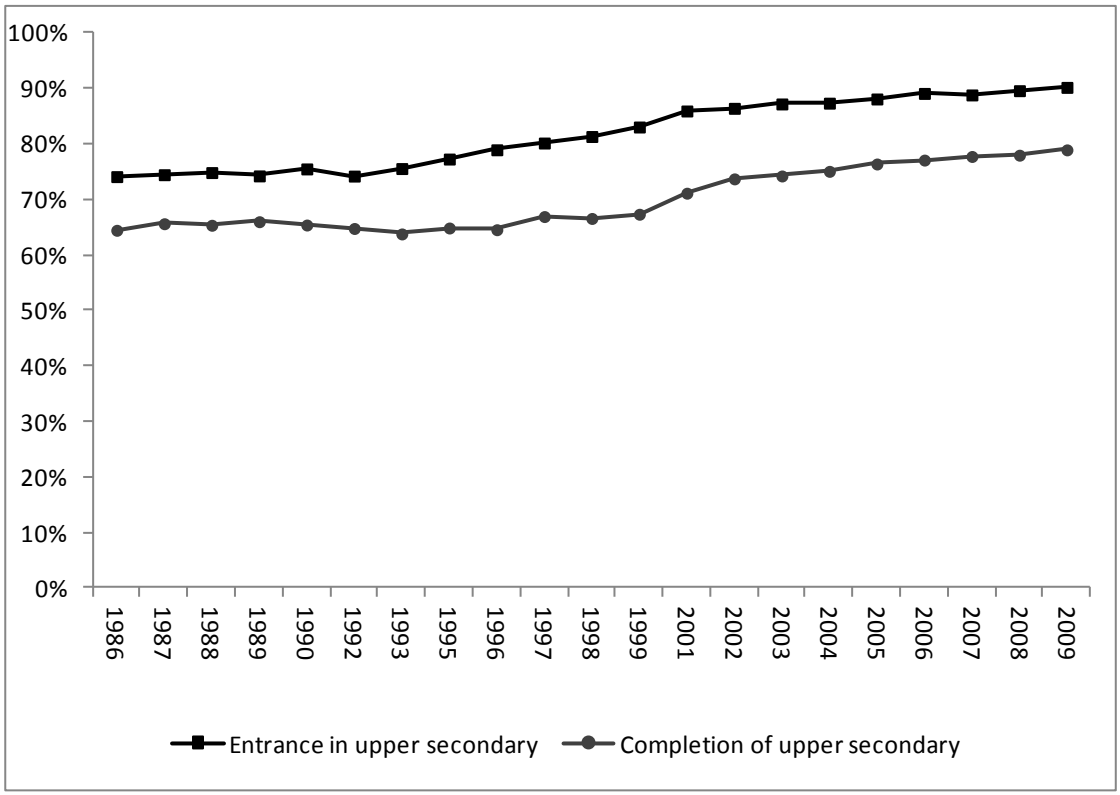
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Chart 1 - Participation Rate (Completion of primary education, entrance and completion of upper secondary education) for 18 to 25 years-old population, sons in the household - Brazil 1986-2009



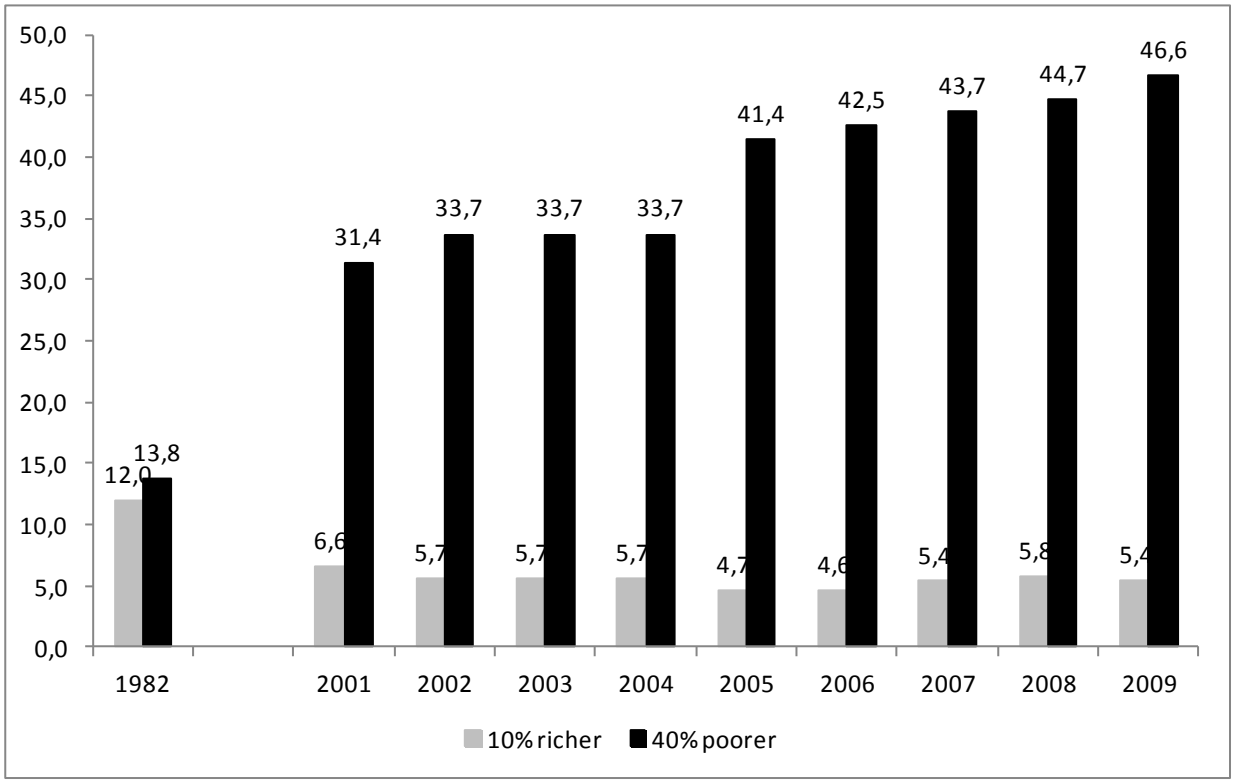
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Chart 2 - Conditional transition rates (T1 and T2) for 18 to 25 years-old population, sons in the household - Brazil 1986-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

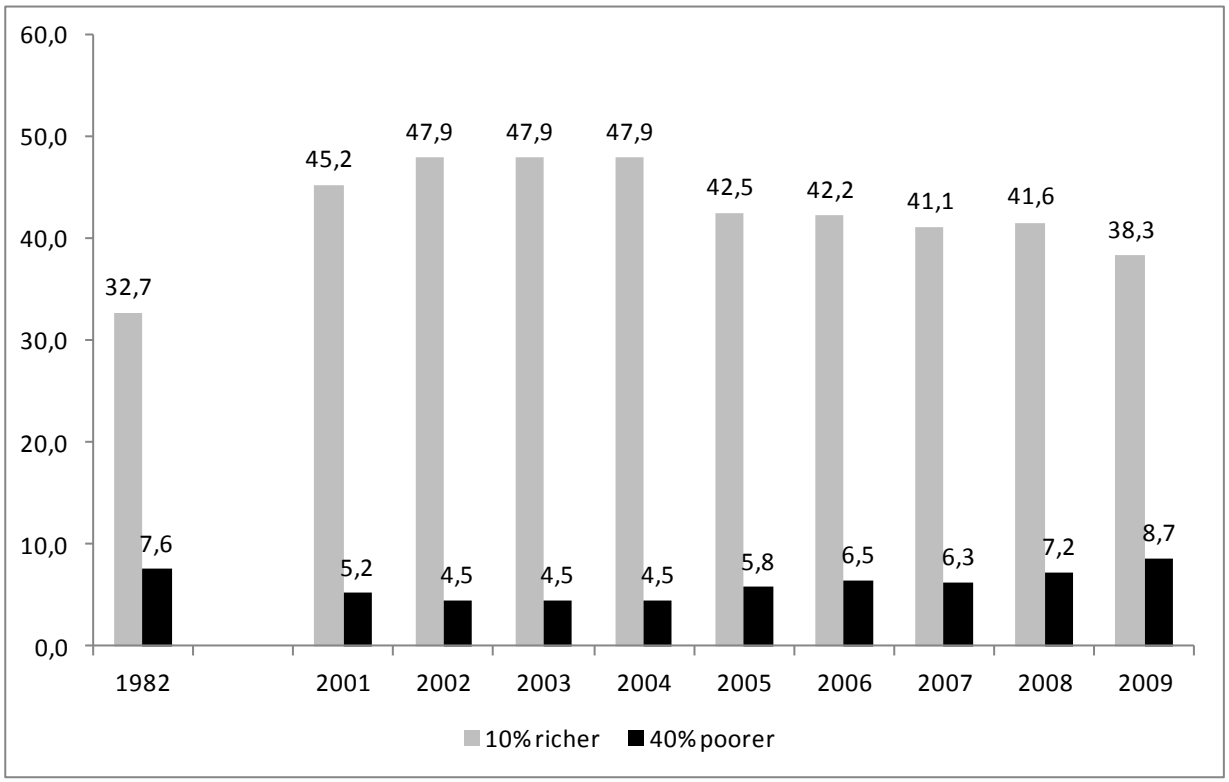
Chart 3 - Distribution of 15 to 19 years-old population attending regular public upper secondary school by household per capita income – Brazil 1982-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 2007.

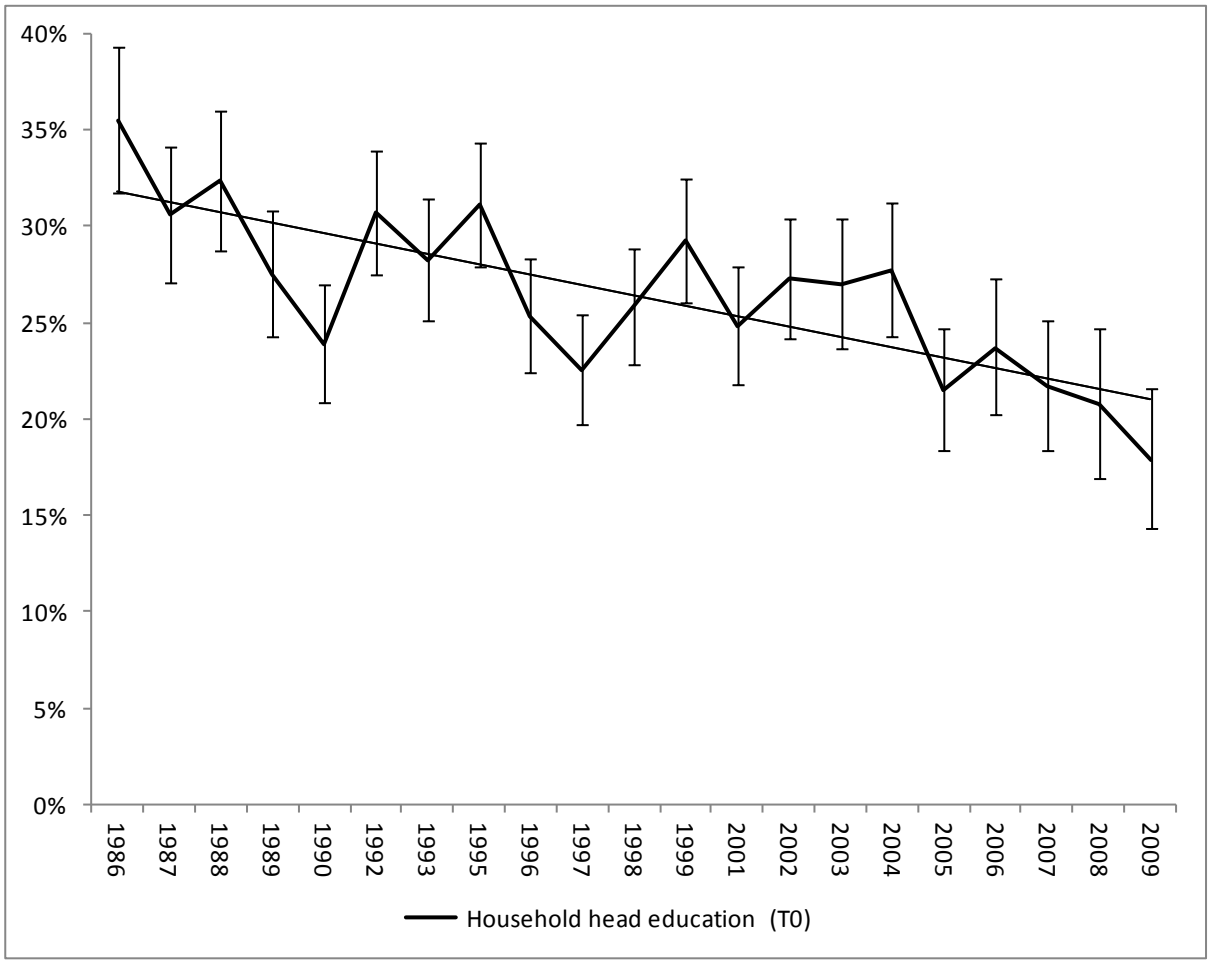
.

Chart 4 - Distribution of 15 to 19 years-old population attending regular private upper secondary school by household per capita income - Brazil 1982-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 2007.

Chart 5 - Evolution of the coefficients percent effect for the variable "household head education " related to the conclusion of primary education (T0) for 18 to 25 years-old population, sons in the household - Brazil 1986-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Table 5) Results of the logistic regressions for the completion of primary level (T0) by year - significance (Sig. = p-values), standard error (S.E.) and exponential of the estimated coefficients (Coef. = exp (β)) - 18 to 25 years-old population, sons in the household - Brazil 1986-2009

Year		X_1 - Sex (woman)	X_2 - racial-ethnic	X_3 - Age	X_4 - number of siblings	X_5 - female headship	X_6 - household head education	X_7 - household head occupational status	X_8 - area of residence (urban)	X_9 - Region of residence	L^2	N
1986	S.E.	0,051	0,054	0,012	0,010	0,078	0,014	0,003	0,054	0,053		
	Sig.	0,000	0,000	0,166	0,000	0,251	0,000	0,000	0,000	0,000		
	Coef.	1,583	1,731	1,016	0,916	0,915	1,355	1,030	2,070	1,442	10750,95	16443
1987	S.E.	0,049	0,052	0,011	0,010	0,074	0,014	0,003	0,054	0,052		
	Sig.	0,000	0,000	0,786	0,000	0,013	0,000	0,000	0,000	0,000		
	Coef.	1,357	1,641	0,997	0,939	0,833	1,306	1,026	2,568	1,568	11178,73	16739
1988	S.E.	0,050	0,053	0,011	0,011	0,073	0,014	0,003	0,054	0,052		
	Sig.	0,000	0,000	0,275	0,000	0,019	0,000	0,000	0,000	0,000		
	Coef.	1,397	1,312	1,012	0,917	0,843	1,323	1,029	2,162	1,596	11115,75	16922
1989	S.E.	0,050	0,053	0,011	0,010	0,072	0,013	0,003	0,053	0,052		
	Sig.	0,000	0,000	0,028	0,000	0,211	0,000	0,000	0,000	0,000		
	Coef.	1,421	1,502	1,025	0,925	0,914	1,275	1,020	2,259	1,516	11324,21	17098
1990	S.E.	0,051	0,054	0,011	0,011	0,077	0,013	0,003	0,053	0,053		
	Sig.	0,000	0,000	0,426	0,000	0,486	0,000	0,000	0,000	0,000		
	Coef.	1,758	1,447	1,009	0,934	0,948	1,239	1,022	2,277	1,484	11032,65	17061
1992	S.E.	0,049	0,050	0,011	0,011	0,065	0,013	0,003	0,052	0,100		
	Sig.	0,000	0,000	0,474	0,000	0,031	0,000	0,000	0,000	0,000		
	Coef.	1,603	1,903	1,008	0,880	0,869	1,307	1,023	2,132	0,678	11650,03	17532
1993	S.E.	0,050	0,054	0,011	0,011	0,066	0,013	0,003	0,053	0,052		
	Sig.	0,000	0,000	0,001	0,000	0,004	0,000	0,000	0,000	0,000		
	Coef.	1,709	1,600	1,038	0,897	0,828	1,283	1,026	2,214	1,853	11303,13	17692
1995	S.E.	0,051	0,052	0,011	0,012	0,065	0,013	0,003	0,054	0,099		
	Sig.	0,000	0,000	0,086	0,000	0,032	0,000	0,000	0,000	0,032		
	Coef.	1,739	1,745	1,019	0,876	0,870	1,311	1,028	2,159	0,809	11245,62	18816
1996	S.E.	0,053	0,054	0,011	0,012	0,069	0,012	0,003	0,056	0,054		
	Sig.	0,000	0,000	0,739	0,000	0,108	0,000	0,000	0,000	0,000		
	Coef.	2,040	1,363	0,996	0,896	0,895	1,253	1,029	2,189	1,859	10814,56	18886
1997	S.E.	0,052	0,055	0,011	0,012	0,066	0,012	0,003	0,055	0,054		
	Sig.	0,000	0,000	0,799	0,000	0,002	0,000	0,000	0,000	0,000		
	Coef.	1,839	1,377	0,997	0,888	0,817	1,226	1,033	1,956	1,977	11009,19	19667
1998	S.E.	0,055	0,058	0,012	0,013	0,067	0,012	0,003	0,057	0,057		
	Sig.	0,000	0,000	0,178	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,994	1,384	1,016	0,872	0,761	1,258	1,027	2,136	1,830	10286,18	19918
1999	S.E.	0,055	0,059	0,012	0,013	0,068	0,013	0,003	0,057	0,057		
	Sig.	0,000	0,000	0,088	0,000	0,003	0,000	0,000	0,000	0,000		
	Coef.	1,963	1,538	0,980	0,879	0,815	1,292	1,025	1,974	1,847	10262,30	20933
2001	S.E.	0,058	0,063	0,013	0,014	0,069	0,012	0,004	0,062	0,062		
	Sig.	0,000	0,000	0,353	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,779	1,491	0,988	0,866	0,780	1,248	1,029	1,780	1,937	9571,47	23146
2002	S.E.	0,061	0,063	0,013	0,014	0,069	0,013	0,003	0,064	0,064		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	2,135	1,426	0,942	0,865	0,637	1,273	1,023	1,901	1,978	9275,33	24409
2003	S.E.	0,068	0,071	0,014	0,015	0,074	0,014	0,004	0,069	0,071		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	2,313	1,359	0,951	0,880	0,760	1,270	1,026	1,769	1,953	8185,29	24631
2004	S.E.	0,067	0,070	0,014	0,015	0,077	0,014	0,004	0,069	0,075		
	Sig.	0,000	0,001	0,000	0,000	0,002	0,000	0,000	0,000	0,000		
	Coef.	1,973	1,254	0,933	0,881	0,788	1,277	1,020	1,765	2,334	7998,49	25457
2005	S.E.	0,071	0,073	0,014	0,016	0,080	0,013	0,004	0,072	0,077		
	Sig.	0,000	0,001	0,000	0,000	0,363	0,000	0,000	0,000	0,000		
	Coef.	2,383	1,266	0,932	0,861	0,930	1,215	1,029	1,538	2,180	7743,87	26263
2006	S.E.	0,079	0,082	0,015	0,017	0,083	0,014	0,004	0,078	0,087		
	Sig.	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,000	0,000		
	Coef.	2,523	1,431	0,916	0,889	0,751	1,237	1,017	1,948	2,640	6576,44	26147
2007	S.E.	0,083	0,084	0,016	0,020	0,086	0,014	0,004	0,084	0,088		
	Sig.	0,000	0,039	0,013	0,000	0,005	0,000	0,000	0,000	0,000		
	Coef.	2,271	1,190	0,960	0,925	0,787	1,217	1,019	1,626	2,050	6046,97	24506
2008	S.E.	0,097	0,100	0,019	0,022	0,098	0,016	0,005	0,095	0,106		
	Sig.	0,000	0,002	0,000	0,000	0,042	0,000	0,000	0,000	0,000		
	Coef.	2,330	1,366	0,919	0,858	0,820	1,208	1,031	1,782	2,382	4659,57	23894
2009	S.E.	0,103	0,102	0,019	0,023	0,098	0,016	0,006	0,100	0,104		
	Sig.	0,000	0,001	0,115	0,000	0,002	0,000	0,000	0,000	0,000		
	Coef.	2,831	1,421	0,970	0,873	0,733	1,179	1,031	1,432	2,262	4608,19	23412

Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Table 6) Results of the logistic regressions for the entrance to upper secondary (T1) by year - significance (sig. = p-values), standard error (se) and exponential of the estimated coefficients (coef. = exp (β)) - 18 to 25 years-old population, sons in the household - Brazil 1986-2009

Year		X_1 - Sex (woman)	X_2 - racial-ethnic	X_3 - Age	X_4 - number of siblings	X_5 - female headship	X_6 - household head education	X_7 - household head occupational status	X_8 - area of residence (urban)	X_9 - Region of residence	L^2	N
1986	S.E.	0,056	0,065	0,013	0,014	0,085	0,010	0,002	0,086	0,070		
	Sig.	0,000	0,000	0,000	0,000	0,002	0,000	0,000	0,000	0,000		
	Coef.	1,471	1,402	1,098	0,907	0,768	1,134	1,012	1,376	0,619	7944,02	7848
1987	S.E.	0,057	0,066	0,014	0,015	0,082	0,010	0,002	0,088	0,070		
	Sig.	0,000	0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,650	1,221	1,133	0,933	0,599	1,144	1,019	1,763	0,588	7690,66	7864
1988	S.E.	0,055	0,062	0,013	0,015	0,081	0,009	0,002	0,084	0,068		
	Sig.	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,002	0,000		
	Coef.	1,633	1,272	1,161	0,904	0,766	1,126	1,020	1,289	0,613	8038,97	8078
1989	S.E.	0,054	0,061	0,012	0,015	0,080	0,009	0,002	0,081	0,067		
	Sig.	0,000	0,000	0,000	0,000	0,007	0,000	0,000	0,000	0,000		
	Coef.	1,440	1,341	1,145	0,901	0,807	1,119	1,020	1,431	0,524	8408,35	8239
1990	S.E.	0,056	0,063	0,013	0,015	0,083	0,010	0,002	0,083	0,067		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,618	1,437	1,135	0,921	0,748	1,137	1,019	1,648	0,686	8004,00	8384
1992	S.E.	0,054	0,057	0,013	0,016	0,075	0,009	0,002	0,086	0,107		
	Sig.	0,000	0,025	0,000	0,000	0,148	0,000	0,000	0,092	0,301		
	Coef.	1,639	1,137	1,114	0,911	0,898	1,123	1,014	1,156	0,895	8509,08	8369
1993	S.E.	0,054	0,059	0,012	0,017	0,072	0,009	0,002	0,084	0,064		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,671	1,456	1,068	0,913	0,695	1,120	1,015	1,400	0,749	8606,60	8652
1995	S.E.	0,052	0,054	0,012	0,016	0,066	0,008	0,002	0,082	0,105		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,725	0,825		
	Coef.	1,739	1,340	1,110	0,928	0,689	1,115	1,018	1,029	0,977	9496,96	9845
1996	S.E.	0,051	0,057	0,012	0,017	0,066	0,008	0,002	0,077	0,059		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,001	0,197		
	Coef.	1,855	1,329	1,107	0,926	0,755	1,103	1,013	1,290	0,926	9860,45	10400
1997	S.E.	0,050	0,055	0,012	0,017	0,067	0,008	0,002	0,076	0,058		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,028	0,121		
	Coef.	1,705	1,307	1,111	0,910	0,786	1,125	1,016	1,182	0,914	10021,47	11014
1998	S.E.	0,050	0,054	0,012	0,016	0,063	0,008	0,002	0,075	0,056		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,007	0,026		
	Coef.	1,768	1,455	1,089	0,930	0,759	1,136	1,012	1,225	0,882	10533,20	11931
1999	S.E.	0,049	0,053	0,012	0,017	0,060	0,008	0,002	0,070	0,055		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,969		
	Coef.	1,844	1,400	1,107	0,911	0,630	1,125	1,015	1,304	0,998	10941,79	13188
2001	S.E.	0,048	0,051	0,011	0,016	0,057	0,007	0,002	0,070	0,052		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,364		
	Coef.	1,934	1,315	1,087	0,891	0,740	1,131	1,012	1,348	1,049	12136,36	15977
2002	S.E.	0,047	0,050	0,011	0,016	0,056	0,007	0,002	0,070	0,051		
	Sig.	0,000	0,004	0,000	0,000	0,000	0,000	0,000	0,010	0,000		
	Coef.	1,718	1,154	1,094	0,896	0,675	1,142	1,015	1,199	1,240	12454,17	17418
2003	S.E.	0,048	0,051	0,011	0,016	0,055	0,007	0,002	0,065	0,052		
	Sig.	0,000	0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,034		
	Coef.	1,886	1,173	1,120	0,892	0,662	1,149	1,014	1,667	1,116	12594,78	18371
2004	S.E.	0,046	0,049	0,011	0,015	0,054	0,007	0,002	0,060	0,049		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002		
	Coef.	1,998	1,246	1,080	0,901	0,733	1,137	1,015	1,437	1,163	13396,88	19370
2005	S.E.	0,047	0,049	0,011	0,016	0,053	0,007	0,002	0,060	0,049		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,024		
	Coef.	2,056	1,264	1,123	0,891	0,770	1,146	1,015	1,403	1,117	13395,79	20434
2006	S.E.	0,049	0,050	0,011	0,016	0,054	0,007	0,002	0,062	0,050		
	Sig.	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	2,143	1,178	1,115	0,911	0,772	1,143	1,018	1,357	1,211	12693,26	20885
2007	S.E.	0,049	0,051	0,011	0,016	0,053	0,007	0,002	0,062	0,051		
	Sig.	0,000	0,004	0,000	0,000	0,000	0,000	0,000	0,000	0,429		
	Coef.	1,975	1,157	1,105	0,868	0,745	1,128	1,017	1,293	1,041	12613,31	20070
2008	S.E.	0,051	0,053	0,012	0,017	0,055	0,007	0,002	0,065	0,052		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,001		
	Coef.	2,128	1,275	1,131	0,911	0,758	1,118	1,018	1,286	1,196	11838,57	19956
2009	S.E.	0,052	0,054	0,012	0,018	0,055	0,007	0,002	0,067	0,054		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,148		
	Coef.	1,992	1,272	1,074	0,896	0,736	1,113	1,017	1,377	0,924	11534,19	19783

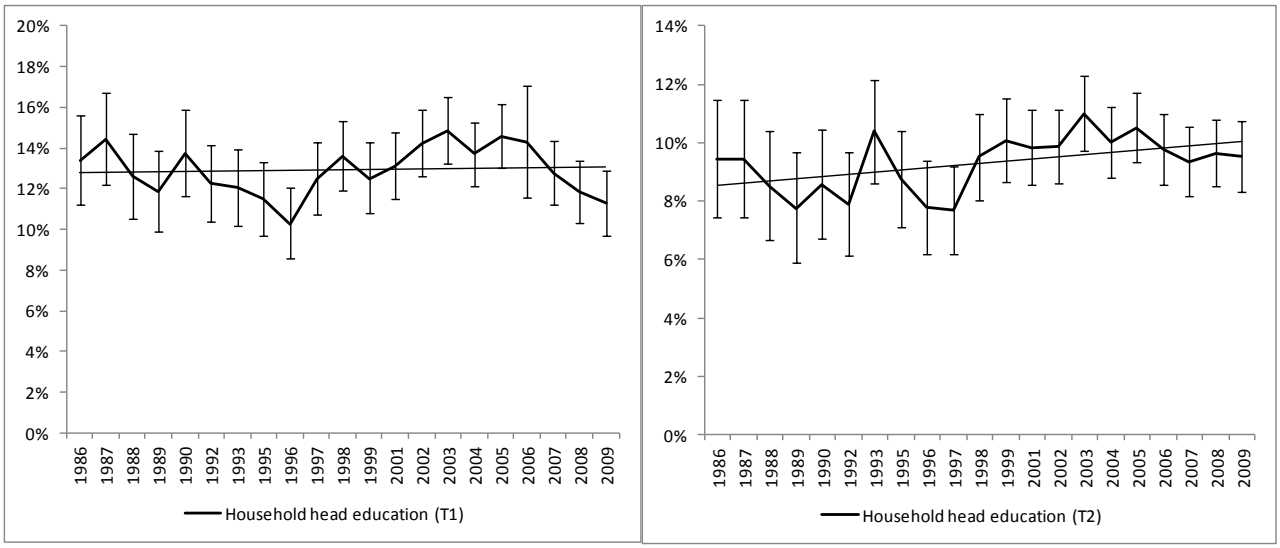
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Table 7) Results of the logistic regressions for the conclusion of upper secondary (T2) by year - significance (sig. = p-values), standard error (se) and exponential of the estimated coefficients (coef. = exp (β)) - 18 to 25 years-old population, sons in the household - Brazil 1986-2009

Year		X_1 - Sex (woman)	X_2 - racial-ethnic	X_3 - Age	X_4 - number of siblings	X_5 - female headship	X_6 - household head education	X_7 - household head occupational status	X_8 - area of residence (urban)	X_9 - Region of residence	L^2	N
1986	S.E.	0,061	0,075	0,016	0,017	0,098	0,009	0,002	0,111	0,075		
	Sig.	0,000	0,000	0,000	0,000	0,148	0,000	0,000	0,131	0,255		
	Coef.	1,369	1,395	1,430	0,924	0,868	1,094	1,013	0,846	1,089	6462,81	5934
1987	S.E.	0,063	0,075	0,016	0,017	0,099	0,009	0,002	0,120	0,073		
	Sig.	0,000	0,000	0,000	0,000	0,044	0,000	0,000	0,652	0,144		
	Coef.	1,587	1,527	1,482	0,881	0,819	1,094	1,012	1,056	1,113	6238,85	5970
1988	S.E.	0,060	0,069	0,015	0,018	0,090	0,009	0,002	0,105	0,071		
	Sig.	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,676	0,198		
	Coef.	1,585	1,337	1,451	0,881	0,739	1,085	1,010	1,045	1,096	6666,50	6147
1989	S.E.	0,060	0,071	0,015	0,018	0,093	0,009	0,002	0,107	0,071		
	Sig.	0,000	0,000	0,000	0,000	0,023	0,000	0,000	0,614	0,003		
	Coef.	1,711	1,381	1,443	0,900	0,810	1,078	1,012	0,947	1,232	6595,29	6184
1990	S.E.	0,059	0,070	0,015	0,018	0,090	0,009	0,002	0,108	0,070		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,057	0,111		
	Coef.	1,575	1,358	1,437	0,889	0,685	1,086	1,013	1,228	1,119	6875,64	6383
1992	S.E.	0,058	0,065	0,015	0,019	0,082	0,008	0,002	0,109	0,114		
	Sig.	0,000	0,000	0,000	0,000	0,221	0,000	0,000	0,204	0,784		
	Coef.	1,403	1,447	1,440	0,885	0,905	1,079	1,012	1,148	0,969	7050,52	6299
1993	S.E.	0,057	0,067	0,015	0,020	0,082	0,008	0,002	0,105	0,068		
	Sig.	0,000	0,000	0,000	0,000	0,013	0,000	0,000	0,221	0,023		
	Coef.	1,353	1,459	1,489	0,883	0,816	1,104	1,010	1,136	1,167	7253,91	6584
1995	S.E.	0,053	0,058	0,014	0,018	0,073	0,008	0,002	0,096	0,108		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,042	0,984		
	Coef.	1,437	1,401	1,440	0,882	0,736	1,087	1,014	1,214	0,998	8577,31	7669
1996	S.E.	0,051	0,058	0,013	0,018	0,068	0,008	0,002	0,090	0,059		
	Sig.	0,000	0,000	0,000	0,000	0,001	0,000	0,000	0,488	0,070		
	Coef.	1,551	1,626	1,444	0,872	0,793	1,078	1,010	1,064	1,113	9423,90	8229
1997	S.E.	0,049	0,056	0,013	0,019	0,065	0,007	0,002	0,086	0,057		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,160	0,007		
	Coef.	1,455	1,586	1,430	0,901	0,704	1,077	1,010	1,128	1,167	9971,82	8840
1998	S.E.	0,048	0,054	0,013	0,018	0,062	0,007	0,002	0,084	0,055		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,061	0,000		
	Coef.	1,602	1,399	1,476	0,862	0,737	1,095	1,010	1,170	1,293	10645,87	9617
1999	S.E.	0,045	0,051	0,012	0,018	0,059	0,007	0,002	0,076	0,052		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,773	0,000		
	Coef.	1,586	1,540	1,480	0,858	0,712	1,101	1,015	1,022	1,264	11856,74	10897
2001	S.E.	0,041	0,046	0,011	0,016	0,051	0,006	0,002	0,074	0,047		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,022	0,000		
	Coef.	1,649	1,367	1,477	0,859	0,742	1,098	1,012	1,186	1,563	14433,35	13608
2002	S.E.	0,041	0,044	0,011	0,016	0,050	0,006	0,002	0,072	0,045		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,040	0,000		
	Coef.	1,650	1,474	1,488	0,887	0,720	1,099	1,012	1,158	1,409	14903,05	14996
2003	S.E.	0,040	0,043	0,011	0,015	0,048	0,006	0,002	0,069	0,044		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,665	1,475	1,541	0,875	0,671	1,110	1,011	1,300	1,503	15592,69	15963
2004	S.E.	0,039	0,042	0,010	0,015	0,046	0,006	0,001	0,061	0,042		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,612	1,495	1,453	0,880	0,763	1,100	1,012	1,288	1,558	16473,69	16812
2005	S.E.	0,039	0,041	0,010	0,015	0,045	0,006	0,002	0,059	0,041		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,624	1,562	1,497	0,914	0,728	1,105	1,009	1,413	1,612	16823,78	17940
2006	S.E.	0,039	0,040	0,010	0,015	0,044	0,006	0,002	0,060	0,041		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,774	1,425	1,461	0,856	0,674	1,098	1,015	1,270	1,496	16996,37	18524
2007	S.E.	0,040	0,042	0,010	0,016	0,044	0,006	0,001	0,059	0,042		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,000		
	Coef.	1,885	1,427	1,454	0,872	0,711	1,094	1,012	1,204	1,572	16360,27	17812
2008	S.E.	0,039	0,042	0,010	0,016	0,044	0,005	0,001	0,059	0,042		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	Coef.	1,672	1,349	1,464	0,922	0,748	1,096	1,011	1,337	1,503	16476,55	17887
2009	S.E.	0,040	0,043	0,011	0,016	0,045	0,006	0,002	0,061	0,043		
	Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,202	0,000		
	Coef.	1,701	1,333	1,474	0,886	0,756	1,095	1,015	1,081	1,447	15719,04	17842

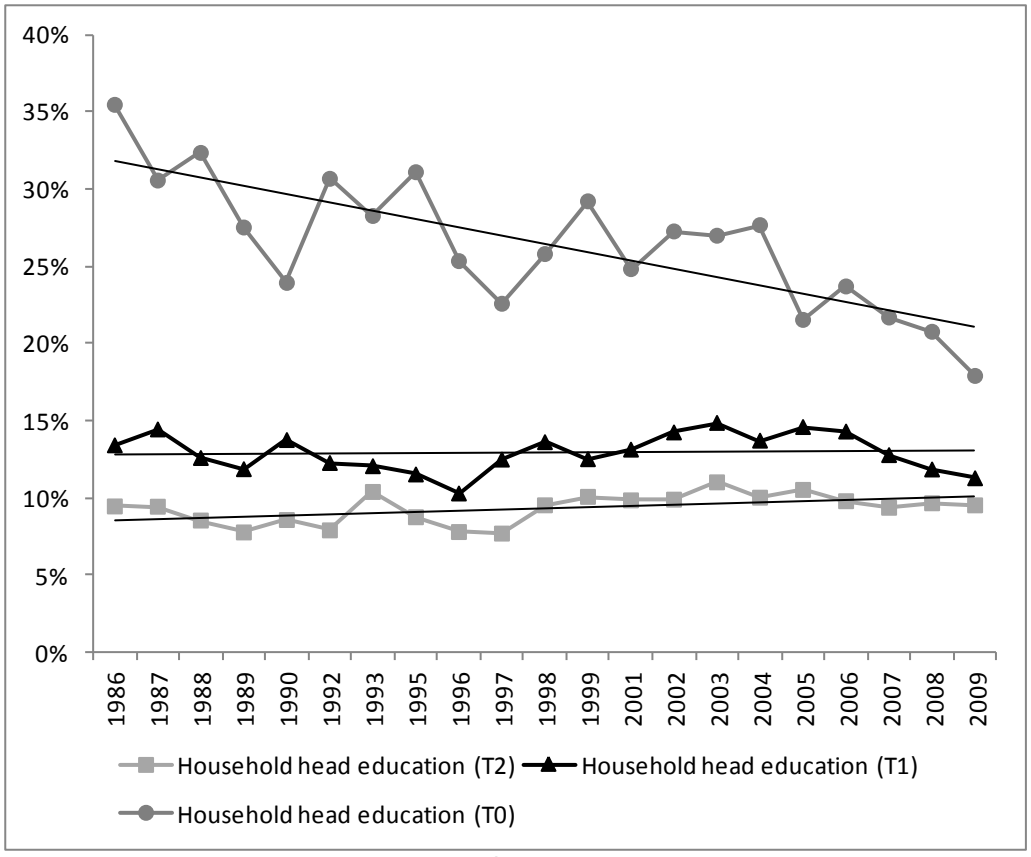
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Chart 6 - Evolution of the coefficients percent effect for the variable "household head education " related to entrance (T1) and conclusion (T2) of upper secondary for 18 to 25 years-old population, sons in the household – Brazil 1986-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Chart 7 - Evolution of the coefficients percent effect for the variable "household head education " related to T0, T1 and T2 – Brazil 1986-2009



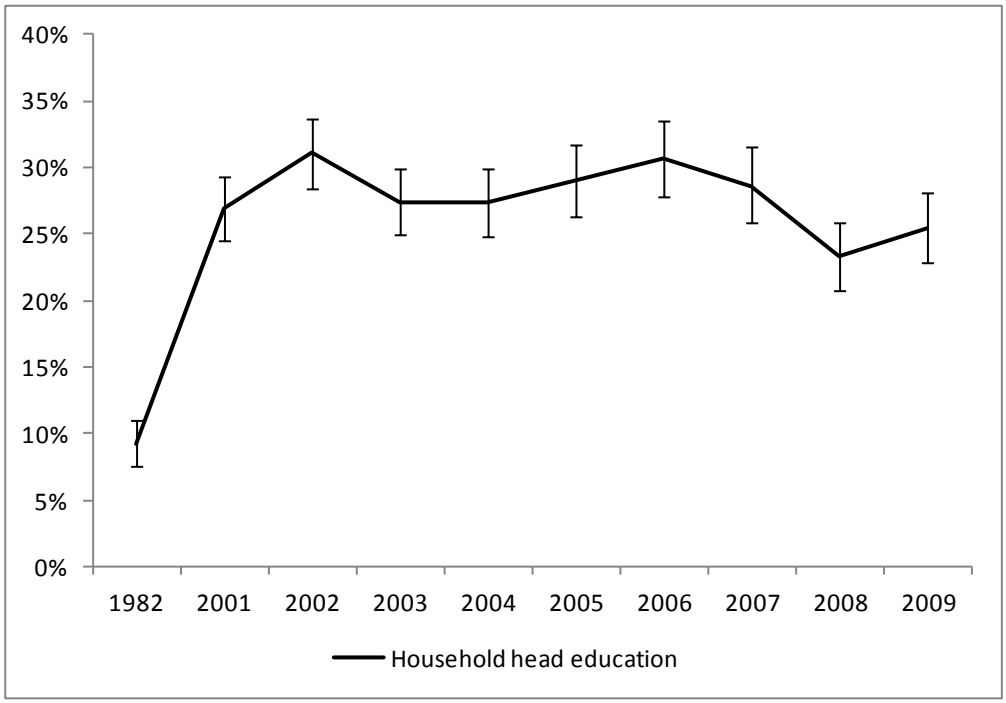
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Table 8 - Results of the logistic regressions for the private public model by year - significance (Sig. = p-values), standard error (S.E.) and exponential of the estimated coefficients (Coef. = exp (β)) - 15 to 19 years-old population, sons in the household - Brazil 1982-2009

Year		X_1 - Sex (woman)	X_2 - racial-ethnic	X_3 - Age	X_4 - number of siblings	X_5 - female	X_6 - household head education	X_7 - household head occupational	X_8 - area of residence (urban)	X_9 - Region of residence	L^2	N
1982	s.e.	0,055	0,071	0,023	0,015	0,102	0,008	0,002	0,106	0,069		
	sig.	0,428	0,037	0,000	0,000	0,061	0,000	0,000	0,587	0,553		
	coef.	1,044	1,160	1,138	0,946	0,826	1,093	1,012	0,944	0,960	7721,517	6519
2001	s.e.	0,063	0,078	0,027	0,034	0,084	0,010	0,002	0,223	0,074		
	sig.	0,304	0,000	0,019	0,000	0,001	0,000	0,000	0,000	0,000		
	coef.	1,067	1,733	0,939	0,743	0,753	1,269	1,029	2,988	0,460	6427,443	8741
2002	s.e.	0,063	0,076	0,028	0,036	0,084	0,010	0,002	0,199	0,074		
	sig.	0,814	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	0,985	1,807	0,906	0,685	0,678	1,311	1,025	2,246	0,471	6481,731	9147
2003	s.e.	0,063	0,076	0,027	0,036	0,082	0,010	0,002	0,229	0,073		
	sig.	0,139	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	1,097	1,888	0,873	0,685	0,623	1,274	1,025	3,545	0,440	6681,461	9822
2004	s.e.	0,062	0,073	0,028	0,037	0,081	0,010	0,002	0,220	0,072		
	sig.	0,047	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	1,132	1,636	0,892	0,683	0,615	1,273	1,034	3,647	0,530	6740,183	9960
2005	s.e.	0,062	0,071	0,028	0,035	0,075	0,011	0,002	0,169	0,070		
	sig.	0,558	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	0,965	1,749	0,866	0,721	0,758	1,290	1,028	2,117	0,553	6873,08	10223
2006	s.e.	0,063	0,073	0,029	0,037	0,079	0,011	0,002	0,176	0,071		
	sig.	0,049	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	1,132	1,835	0,848	0,689	0,567	1,307	1,030	2,190	0,491	6611,616	10148
2007	s.e.	0,065	0,076	0,030	0,039	0,080	0,011	0,002	0,165	0,075		
	sig.	0,034	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	1,148	1,906	0,896	0,649	0,606	1,286	1,032	1,857	0,567	6151,845	9692
2008	s.e.	0,064	0,074	0,029	0,038	0,077	0,010	0,002	0,175	0,073		
	sig.	0,789	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,000		
	coef.	1,017	2,031	0,910	0,671	0,666	1,233	1,037	2,732	0,529	6311,162	9938
2009	s.e.	0,065	0,074	0,030	0,038	0,074	0,011	0,002	0,174	0,074		
	sig.	0,343	0,000	0,000	0,000	0,001	0,000	0,000	0,000	0,000		
	coef.	1,064	1,990	0,868	0,711	0,789	1,255	1,035	2,539	0,580	6145,291	9884

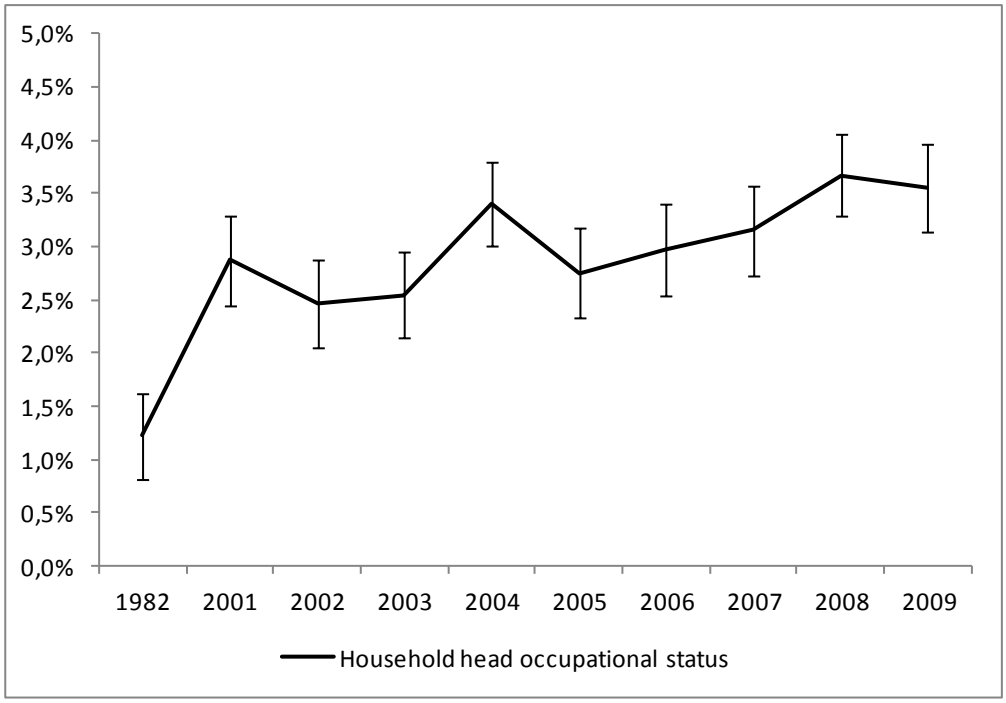
Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 1986 a 2009.

Chart 8 - Evolution of the coefficients percent effect for the variable "Household head education " related to private upper secondary school enrollment for 15 to 19 years-old population, sons in the household – Brazil 1982-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 2007.

Chart 9 - Evolution of the coefficients percent effect for the variable " Household head occupational status" related to private upper secondary school enrollment for 15 to 19 years-old population, sons in the household – Brazil 1982-2009



Source: IBGE, Pesquisa Nacional por Amostra de Domicílios 2007.