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NEW TRENDS OR PERSISTENT INEQUALITIES? MODERNIZATION AND EDUCATIONAL EXPANSION IN BRAZIL

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ABSTRACT

The article aims to investigate patterns of association between social origins and educational destinations in primary, secondary and higher education, throughout the modernization of Brazilian society. The analysis is based on the research agenda on educational transition models and on the international comparative agenda derived from it. Results of the estimation of educational transition models are presented, using demographic census data from 1960 to 2010, and the main findings evidence different inequality parameters by educational level – relative decline in completion of primary education, persistent inequalities in the completion of secondary education and increasing inequalities in higher education entrance.

SOCIAL DISADVANTAGE • EDUCATION • MODERNIZATION • LEVELS OF EDUCATION

The most prominent perspectives on class analysis in the recent sociological literature on social stratification (OLIN-WRIGHT, 1979, 2005; ERIKSON; GOLDTHORPE; PORTOCARRERO, 1979; BREEN, 2005) are based on a consensus that education is the main ordering mechanism in modern societies. Thus, both the reduction of inequalities of educational opportunity and the expansion of educational provision can promote changes in social mobility chances and in the structure of the occupational system. Therefore, the analysis of educational inequalities is closely related to the patterns of class structure and of social mobility, and is thus a central issue in the agenda of studies on social inequalities.

EDUCATIONAL INEQUALITIES: THE ASSOCIATION BETWEEN SOCIAL ORIGINS AND EDUCATIONAL DESTINATIONS

A very common way of measuring educational inequality is to analyze the distribution of years of schooling completed among the population. In general, sociological analysis of educational inequality based on this indicator (BLAU; DUNCAN, 1967; SEWELL; HAUSER, 1975; HAUSER; FEATHERMAN, 1976; and SILVA; HASENBALG, 2000, for the Brazilian case) point to a substantial increase in the average level of schooling of the population throughout modernization in the 20th century, with a decrease in educational attainment inequalities (between sexes,

ethnic-racial groups, between residents in urban and rural areas, and income groups). On the other hand, when investigating the relationship between social origins and educational attainment, such analyses demonstrate that, even in this context of expansion of the educational system and increase in the population's schooling levels, social origin still has a relevant impact on educational attainment, and individuals from privileged social classes have more years of schooling than the average for other classes. However, the strongest conclusion of this research agenda is that educational expansion tends to reduce inequalities in educational attainment, both by increasing the educational supply and enrollment rates between cohorts, and by increasing the average schooling level of parents – enabling the emergence, in the family of origin, of more appropriate conditions to schooling. The general argument is that *the higher the degree of modernization, the lower the educational inequalities*. In all cases, these analyses were based on the estimation of a linear function (Ordinary Least Squares – OLS – models) regarding the years of complete schooling. In the 1980s, this view was strongly questioned, due to the introduction of conceptual innovations and methodological advances based on the assumption that the effects of class origin on educational attainment are not linear and that therefore social origin exerts a different influence on educational attainment *depending on the educational level* considered, which linear models of educational attainment would not be able to identify.

Mare (1980, 1981) introduces conceptual and methodological innovations that were a critical response to the findings of the research agenda on educational inequalities then in vogue and to its considerations on the association between modernization and inequalities of educational opportunities. Seeking a redefinition of the concept of educational stratification, Mare argues for its division into two essentially different aspects: the first is the typical dispersion of the distribution of formal schooling – modernization did imply a rise in the average educational level of the populations; the second is the extent to which, given a particular distribution, certain socioeconomic groups reach higher levels than others – how this distribution is associated with socioeconomic parameters, or representative dimensions of individual's social origins. In this sense, the lower the association between the *social origin* of students and their attainment, the more open or democratic an educational system is considered (SILVA, 2003).

In order to enable the analysis of educational stratification to be sensitive to those conceptually distinct dimensions, Mare (1980, 1981) proposes the formal schooling process to be conceived as a sequence of transitions between educational levels – a series of "yes/ no" decisions on the continuity of the individual in the educational system. Empirically, this would allow the investigation of class and socioeconomic origin

differentials in the chances of educational progression by level, independently of the growth trend in the proportion of individuals who attain certain educational levels; this trend is due to the educational expansion and the improvement of conditions of the family of origin for formal schooling throughout the twentieth century. Such a theoretical formulation of the process of formal schooling became known as the educational transitions model and gave rise to a robust agenda for research on inequalities of educational opportunities.

The development of that agenda was carried out with the documentation of a variety of national case studies which used the logistic model of sequential decisions as an empirical strategy for the examination of patterns of inequalities of educational opportunities. The international comparative volume organized by Shavit and Blossfeld (1993) is an important example of the consolidation of this agenda,[1] and there is also a considerable amount of work on national cases in leading scientific journals,[2] with relevant academic repercussions also in the Brazilian production.[3,4]

The collection of international empirical evidence recurrently documents two patterns of association between social origins and educational destinations in societies undergoing modernization: the *pattern of declining coefficients*, which assumes that the association between social origins and educational destinations tends to decrease as the student advances to higher transitions in the educational system; and the *pattern of persistent inequalities*, which assumes that class differences in transition chances tend to be constant (or persistent) between cohorts in the twentieth century, despite educational expansion – even though school participation rates increased for all classes of origin, the advantages associated with socioeconomic origins tended to remain constant. These patterns have thus become privileged hypotheses for research on the relationship between modernization and equality of educational opportunities, and inspired part of the theoretical developments in the field (RAFTERY; HOUT, 1993; HOUT; RAFTERY; BELL, 1993; BREEN; GOLDTHORPE, 1997; GOLDTHORPE; JACKSON, 2008).

Influenced by the empirical literature based on the educational transitions model, I begin with an argument about the central role of the association between social origins and educational destinations for the interpretation of social inequalities. Therefore, I use educational transitions models to investigate the distribution of educational opportunities throughout the modernization of the country, always seeking to dialogue with the literature on the subject that also examined the Brazilian case.

1 The national cases investigated are: Western capitalist societies – United States, West Germany, England and Wales, Italy, Switzerland, the Netherlands, and Sweden –, non-Western capitalist societies – Japan and Taiwan –, and countries of socialist heritage – Poland, Hungary and Czechoslovakia.

2 Raftery and Hout (1993), Gerber and Hout (1995), Gerber (2000), Karen (2002), Chang (2003), Ayalon and Shavit (2004), Vallet (2004), Kesler (2005), Torche (2005), Hout (2006), Breen *et al.* (2009), Ianelli and Patterson (2007), Wu (2010), to name a few.

3 Silva and Souza (1986), Hasenbalg and Silva (2002), Fernandes (2005), Rios-Neto and Guimarães (2010), Torche (2010), Montalvão (2011), Ribeiro (2011), Marteleto, Carvalhaes and Hubert (2012), Marteleto *et al.* (2012), Picanço (2015), Ribeiro, Ceneviva and Alves de Brito (2015).

4 In this article it is not my goal to discuss in detail the most recent theoretical developments. I will refer to the literature in the interpretation of my results, insofar as it brings analysis addressing more recent controversies in a relevant way. A more detailed discussion of the current terms of the theoretical debate in the field can be found in Alves de Brito (2014).

EDUCATIONAL TRAJECTORIES IN BRAZIL SINCE 1960

The research problem here is the association between social origin and educational destinations, and the dependent variable is the schooling of individuals. Although any type of answer that is prepared for the research problem necessarily involves incorporating indicators of individuals' social origins, it is necessary to clearly define how to measure the schooling of individuals before moving forward to explore the relations of association that interest me most directly. The terms of the relevant literature robustly support the advantages of using the sequential decision model. Considering that my objective is to investigate educational stratification patterns throughout the country's modernization, which dates back to the 1960s, I opted to use the Demographic Censuses of Instituto Brasileiro de Geografia e Estatística – IBGE [Brazilian Institute of Geography and Statistics]. Such choice implies, however, specific standardization needs, given the way individuals' schooling was captured in these surveys.

A central empirical issue is that the Brazilian educational system underwent reforms in the period covered by the data (Lei de Diretrizes e Bases da Educação Nacional – LDBs [Laws of Guidelines and Bases of National Education] – of 1961, 1971 and 1996) which impacted on the normative structuring of educational careers, and also on the ways the surveys collected schooling characteristics of the population. Legislation in the early 1960s defined the Brazilian educational system using four cycles: *primário* [primary] – four years; *ginasial do ensino médio* [junior highschool] – four years; *colegial do ensino superior* [highschool] – three years; and *ensino superior* [higher education], with variable duration. The *ginasial* and *colegial* cycles were subdivided into branches of education (secondary, commercial, industrial, agricultural, normal and others). The legislation that comes into force in 1971 promotes changes in this regulation: it unifies the primary and junior highschool cycles (which become *ensino de 1º grau* [primary education], with eight years), changes secondary education's name from *colegial do ensino superior* to *ensino de 2o. grau*, which continues to last three years, but with the incorporation of vocational education and the possibility of a four-year cycle. These reforms also included the second cycle in the scope of compulsory schooling. In 1996, the distinction between basic education and higher education is introduced. Basic education, the only segmented modality in the normative body of the LDB, distinguishes between: (1) *educação infantil* [early childhood education], a category introduced in this reform; (2) *educação fundamental* [primary education], which replaces *ensino de 1º grau*, maintaining the duration of eight years; (3) *ensino médio* [secondary education], which replaces *ensino de 2º grau*, but without vocational education. The latter, as well as youth and adult education and special education, become specific modalities (RIGOTTI, 2004).

Although there have been changes in the structuring of educational careers, it is possible to prepare an adequate model of transitions to represent them since 1960, applicable to all census surveys since then. In its more detailed version, the model has seven transitions. In this article, I am interested directly in three specific educational transitions: the completion of primary education, the completion of secondary education and higher education entrance. The table below describes the three transitions that interest us and the educational trajectories they imply:[5]

TABLE 1
STRUCTURE OF EDUCATIONAL TRANSITIONS BASED ON DEMOGRAPHIC CENSUSES FROM 1960 TO 2010

LEVEL	TRANSITION	DESCRIPTION	T1	T2	T3
Primary education	T1 - Completed primary education	Entered the education system, completed 4 years and completed primary education (up to 8th grade) (T1)	1	0	0
Secondary education	T2 - Completed secondary education	Entered the education system, completed 4 years and completed primary education (up to 8th grade), entered secondary education and completed secondary education (T2).	1	1	0
Higher education	T3 - Entered higher educatioin	Entered the education system, completed 4 years and completed Primary Education (up to 8th grade), entered secondary education and completed secondary education and entered higher education (T3).	1	1	1

Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

An individual who has, say, six years of schooling has not made the first transition that interests us, the completion of primary education (which requires at least eight years of study). In this case, we can say that T_1=0, T_2=0 e T_3=0. On the other hand, an individual who has completed higher education will have made all the transitions measured by our estimates (that is, for such individual, T_1=1, T_2=1, T_3=1).

Certain educational levels are not accessible to individuals in certain age groups; thus, one can have an approximate idea of the age of the individual from his position in the school trajectory (if he is still in the educational system). In this sense, I sought to structure the analysis of inequalities in educational opportunities using the comparison between significant population categories. This means selecting some age groups in the population, each with specific expectations about their position in the educational trajectory; these expectations can be used as references for the evaluation of empirical results. The selected age groups are:

(1) Population aged 16 to 18 years – completion of T_1, (completion of primary education);

5 The complete comparable structure for Brazilian educational careers in demographic censuses, with seven levels of schooling, can be found in Alves de Brito (2014) and Ribeiro, Ceneviva and Alves de Brito (2015).

(2) Population aged 19 to 20 years – completion of T_1 and T_2 (completion of secondary education);
(3) Population aged 21 to 25 years– completion of T_1 and T_2 and T_3 (higher education entrance).

The comparison is structured in cross-sectional samples of the population in each age group, extracted from the censuses from 1960 to 2010. We compare, for example, the population aged 16 to 18 years in 1960 with that of 1970, 1980, and so on. The year 1960 is used as a starting point for three main reasons: (1) we consider that in the 1960s the country's modernization process was still limited, with a very high concentration of the population in rural areas and low levels of institutionalization of the labor market (GUIMARÃES; BARONE; ALVES DE BRITO; 2015); (2) using 1960 as a starting point, one can cover educational trajectories along all the major reform movements that occurred in the educational system and; (3) an operational reason – the 1960 population census is the first in the series that allows access to sample microdata, which are necessary to carry out the analyses intended.

HOW HAS THE SCHOOLING OF YOUNG BRAZILIANS EVOLVED? CONDITIONAL TRANSITIONS AND ELIGIBLE POPULATIONS

One way of describing the evolution of the schooling of the population is to represent the relation between the total population that could reach a certain educational level (or make a transition T_x) and the population that actually reaches that level.

In order to present a description of educational transition indexes in the country, I will gather empirical evidence on two aspects – the evolution of demand (how the population eligible for T_x varies) and the dynamic of educational progression (what proportion of young people eligible for T_x actually make such transition) – to document the evolution of schooling of the young population in Brazil. Two indicators are necessary to carry out these analyses: (a) the population eligible for transitions, as an indicator of demand for educational level *x* and; (b) the conditional transition rate, as an indicator of the dynamics of educational progression, expressed by the ratio between the population eligible for transition *x* and the population that actually makes such transition.

Recent literature documents how changes in the average level of schooling and in the chances of making ever higher educational transitions denoted the existence of a clear movement of growth of access to education in Brazil between 1960 and 2010, especially among younger populations (FERNANDES, 2005; RIBEIRO, 2011; MARTELETO

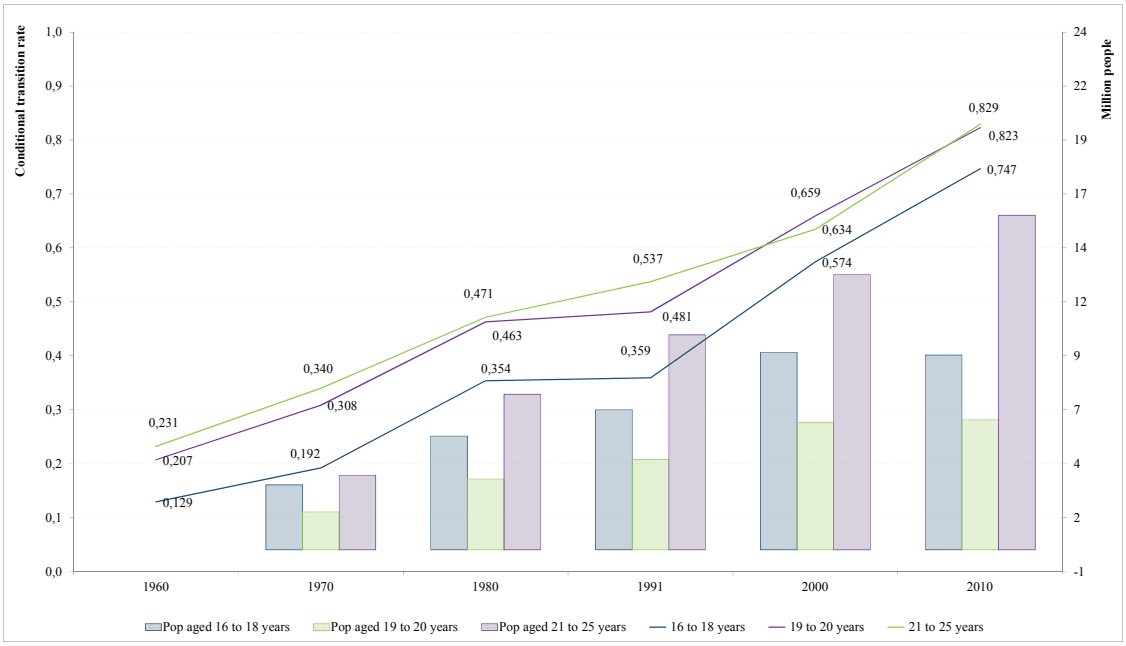
et al., 2012; ALVES DE BRITO, 2014; RIBEIRO; CENEVIVA; ALVES DE BRITO, 2015). If educational expansion occurs on a population characterized by decreasing size cohorts over time, it means that the educational system does not need to expand its incorporation capacity to guarantee full access. If, on the contrary, the expansion of schooling occurs on a population characterized by increasing size cohorts over time, it is necessary to increase vacancies and to maintain or increase the proportion of the population included, in order to avoid a decrease in access levels.

The same logic applies to inequality investigation on any educational level: for each level, there is always a time specific configuration of the relationship between the eligible population and the population that accesses it. This process promotes a "domino effect" on educational trajectories, since guaranteeing access to a given educational level necessarily implies increasing the volume of demand for the level immediately above. This means that by increasing vacancies (places) in a manner exactly proportional to the increase in the population eligible for T_n, the educational system maintains its levels of relative incorporation constant, and there is no increase in access. In order to ensure that there is some increase, the absolute supply in T_n must grow more rapidly than the population eligible for T_n does (thus increasing the relative inclusion capability of the educational system).

And what happened in the Brazilian case for the three educational levels that interest us? Has the accessibility of these levels increased, remained constant or declined? For each educational level, I offer a different narrative. Considering the three populations of interest for completion of primary education (aged 16 to 18 years, 19 to 20 years, and 21 to 25 years), Chart 1 shows the evolution of the eligible population and the transition rates conditioned to completion of primary education. In the way the analysis is structured, the charts describe: (a) In the columns, the size of the population eligible for the transition (in millions of people) and; (b) In the lines, the transition rates, expressing the proportion of the population which actually manages to make the transition (a line for each age group). Those indexes are presented for each point in the series. The populations eligible for transitions decrease as one advances in educational levels, since the population eligible for T_2 must have completed T_1. The population that makes T_{n+1} is, by definition, a subset of the population that made T_n.

CHART 1

COMPLETION OF PRIMARY EDUCATION CONDITIONED TO THE COMPLETION OF THE FIRST FOUR YEARS OF STUDY (T_1) – CONDITIONAL TRANSITION RATE AND POPULATION ELIGIBLE FOR T_1 – SELECTED AGE GROUPS – 1960, 1970, 1980, 1991, 2000 AND 2010



Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

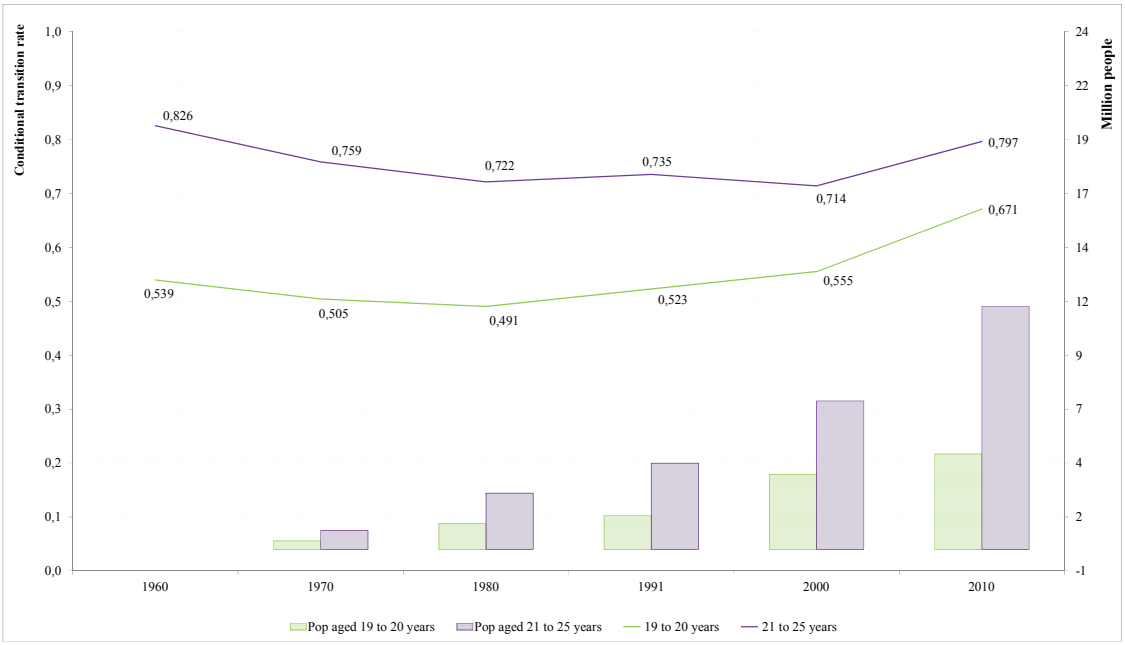
The results presented in Chart 1, referring to the completion of primary education, suggest an increase in the population eligible for that transition in all age groups. The main increases in access occur from the 2000s on, during the period of the reforms promoted by LDB in 1996, which transforms the terms of what is regulated as primary education. The results also suggest that the Brazilian educational system managed to increase accessibility to this level in a context in which the population eligible for this transition also grew, which characterizes access increases and not only expansion in vacancies.

But the trend on conditional transition rates until 1991 suggests that the completion of secondary education has historically been a pronounced barrier for the continuity of Brazilian educational trajectories, and until then less than half the young population which completed their first four years of schooling actually managed to complete their primary education. Castro (2000) argues that the increasing adoption of automatic progression policies is an important element to understand how the average decrease in the levels of age-grade distortion, from the 1990s on, contributed to the upward trend in transition rates observed from 1991 on. From 2000 onwards, the barrier to completion of primary school is less prominent, with an increase in transition rates, which reach more than 70% of the eligible population in all the age ranges analyzed. According to Menezes-Filho

and Kirschbaum (2015), the improvement in accessibility to primary levels in the 2000-2010 period is related not only to the maintenance of the downward trend observed in the 1990s in the age-grade distortion, but also to the decreasing trend in child labor observed in the period.

The second transition that interests us is the completion of secondary education. Chart 2 also shows the evolution of the eligible population and conditional transition rates:

CHART 2
COMPLETION OF SECONDARY EDUCATION CONDITIONED TO ENTRY (T_2) – CONDITIONAL TRANSITION RATE AND POPULATION ELIGIBLE FOR T_2 – SELECTED AGE GROUPS – 1960, 1970, 1980, 1991, 2000 AND 2010



Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

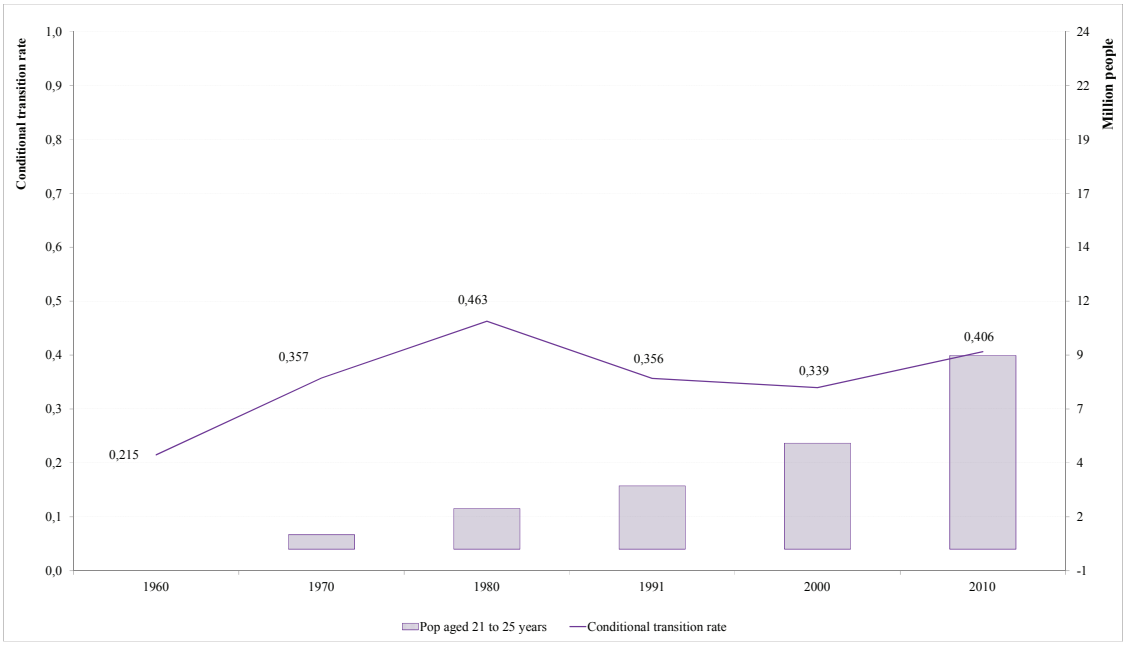
Results suggest a significant increase in the eligible population, an effect of the growth in accessibility to primary levels. Conditional transition rates, on the other hand, show some stability in the proportion of eligible individuals making T_2. In general, there were no significant increases in relative accessibility, but there was growth in absolute provision.

The relative accessibility of the system even declines between 1991 and 2000, when a first large increase in the volume of eligible population is observed. On the one hand, it was a period of macroeconomic crisis in which restriction of occupational opportunities increased the demand for schooling – which contributed to an increase in the proportion of students who progressed towards secondary education (CASTRO, 2000). On the other hand, the unfavorable economic scenario ended up making the cost of permanence and progression in the educational system higher, which made young people from families of lower

socioeconomic level join the labor market earlier (TORCHE, 2010; MARTELETO; CARVALHAES; HUBERT, 2012). From 2000 to 2010, there is a change in this trend, with an increase in the relative access index, characterizing the only point in which there is a general increase in relative accessibility. The progress in access to secondary education by the population aged 17 to 25 years from 2000 onwards is also documented by Menezes-Filho and Kirschbaum (2015), who reaffirm, regarding the years 2000, the consolidation of the trends of improvement in access from the mid-1990s on. But, in general, the role of this transition as a barrier to the schooling of the population in the period analyzed does not reach the prominence that the completion of primary education assumed, particularly between 1960 and 1991.

Finally, Chart 3 presents the results of the evolution of the eligible population and the conditional transition rates for higher education entrance:

CHART 3
HIGHER EDUCATION ENTRANCE CONDITIONED TO SECONDARY COMPLETION – CONDITIONAL TRANSITION RATES AND POPULATION ELIGIBLE FOR T_3 – POPULATION AGED 21 TO 25 YEARS – 1960, 1970, 1980, 1991, 2000 AND 2010



Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

The stability in access levels characterizes higher education entrance throughout Brazil's modernization. The results suggest that this is a critical point in educational trajectories, in which individuals tend more often to leave the educational system. Even so, the demographic pressure imposes itself, and the eligible cohorts increase, as in the other transitions analyzed. Forms of the still incipient social

expression of these pressures are documented by Carvalho (2007), who demonstrates that the 1968 University Reform was a governmental response to the fact that, in the 1960s, the total number of candidates enrolled in university entrance exams evidenced the increase in the demand for higher education in Brazil, which was not accompanied by an increase in vacancies. This first movement to expand higher education access was reflected in growing transition rates, observed between 1960 and 1980. The 1991-2000 period is marked by stability in access levels and, in the analysis of this specific period, Castro (2000), Torche (2010) and Marteleto, Carvalhaes and Hubert (2012) argument in favor of an increase in the opportunity cost of progression towards university in an economic context of crisis, given that direct and indirect costs of schooling are especially high in higher education, to explain the observed decrease in access.

Not until the mid-1990s, based on changes in the rules of operation of higher education institutions that diversified the sector in Brazil, has there been a resumption of expansion in vacancies – which, from the mid-1990s to the early 2000s, was marked mainly by the expansion of the private sector. The 2000-2010 period marks a very significant increase in the size of the population eligible for university entrance, which practically doubled. For this period, our analysis suggests that the system presented an increase in its relative capacity to provide access, since the absolute volume of places in higher education institutions kept pace with the growth in the eligible population, as evidenced by the increase in transition rates. The continued expansion in vacancies in the 2000s was already being observed from the mid-1990s on (leveraged by changes in rules governing the operation of institutions), but was also influenced by the improvements in direct state investment capacity – in public institutions – but also in indirect one – through the increase in the number of grants awarded in private institutions. For Lima (2011), these transformations in the capacity of state investment can be well represented by programs such as Programa de Reestruturação e Expansão das Universidades Federais – ReUni [Program for the Restructuring and Expansion of Federal Universities] – and Programa Universidade para Todos – ProUni [University for All Program]. Our findings, however, show that the entry into higher education continues to be the greatest barrier to the educational progression of Brazilian students, with the lowest transition rates amongst the levels analyzed.

Our findings do not differ much from analyses that pointed out great structural movements of schooling advance in the Brazilian population (MENEZES-FILHO; KIRSCHBAUM, 2015; RIBEIRO, 2011; CASTRO, 2000): the expansion of primary education, keeping pace with demographical pressures; the absence of substantial increases in the chances of completing secondary education and in higher educational

entrance, although there have been significant increases in the size of the populations eligible for those levels. It is a scenario in which, among younger cohorts, reaching the second cycle of educational progression (secondary education) is more frequent than among older cohorts. Under this argument, it is understood that, due to the expansion in the primary levels of education, inequalities of opportunity decrease, which move to more advanced levels of the educational trajectory. In more recent periods (post-2000), our findings suggest that these patterns are more evident at the completion of secondary education and the entrance into higher education.

SOCIAL CLASS AND EDUCATIONAL PROGRESSION

The description of the process of educational expansion is an important contextual task, but it does not directly address the research problem – the association between social origin and educational destinations. It is now necessary to investigate how the observed accessibility patterns were distributed among different social classes. Increase in the association between class and chances of progression to a given educational level over time characterizes increasing inequality levels, and decrease in the association is assumed as an evidence of decreasing inequality levels. Using the transitions model, it is possible to identify specific points of the educational trajectory in which inequality of opportunities are higher and, for this, it is necessary to have access to information on the social origins of individuals. In this regard, there is a limitation in the analysis that I propose.

Generally, in the literature on social stratification and mobility, the most commonly used indicators of social origin are schooling and occupation of the individual's parents. Unlike other surveys, the demographic census does not have retrospective questions that allow reconstructing the socioeconomic condition of an adult individual when s/he was young. Information on social origins is available only for individuals who are classified as children in the households. Therefore, what can be discussed based on empirical results of censuses is the evolution of educational stratification among *young Brazilians.*

This is a common issue in the analyses of educational stratification in the country. Few studies on the Brazilian case have retrospective information on social origin for all individuals (SILVA; SOUZA, 1986; FERNANDES, 2005; TORCHE, 2010; RIBEIRO, 2011). In most of them, the analysis is limited to those classified as children in the household, and information from the household and parents is assumed as indicators of social origins. Silva (2003) investigates only children in the population aged 6 to 19 years and their chances of progression to the completion of the first grade, the completion of the first four years of study, and the

completion of the first eight years of study; Hasenbalg and Silva (2002) analyze the population of children aged 6 to 19 years and the chances of making eight transitions between the first and eighth grades of primary education; Rios-Neto and Guimarães (2010) examine the entire spectrum of educational transitions for the population aged 7 to 25 years that were classified as children in the household; Montalvão (2011) also focuses only on individuals classified as children in the household, aged 17 to 25 years, and their chances of progression to completing secondary education and to higher education entrance; Marteleto et al. (2012) analyze the population aged 15 to 19 years and their chances of primary completion and secondary entrance – also limited to those classified as children in the household. In addition, most of the studies are restricted to young people of school age adequate to primary and secondary levels, and thus attempt to circumvent the question of the absence of information on social origin for older subjects, at the expense of failing to carry out possible analyses of higher educational transitions.

This study uses the for higher educational transitions, not only because of the possibility of covering an expressive time same strategy, and I will only analyze the chances of progression of individuals classified as children in the household. I will, of course, address an enlarged age range compared to those generally used in this type of study, which requires caution in the analyses for older individuals (especially 21 years-old or more), given their increasing chances of not being children in the household and, therefore, the estimation and analysis limitations given that bias. I argue that it is still relevant to maintain the analyses spam, but also because of the robustness of the estimates extracted from a very comprehensive nationally representative sample, and due to the possibility of making considerations about educational transitions at all educational levels (primary, secondary and higher).

DATA AND METHODS

POPULATION AND DEPENDENT VARIABLES

All individuals aged 16 to 25 years and classified as children in the household were selected. The educational transitions analyzed were the completion of primary education (T_1), the completion of secondary education (T_2) and higher education entrance (T_3) – always conditioned to the immediately preceding transition –, and the objective was to investigate the effect of class of origin on the chances of making these transitions. For each transition, I estimated the educational transitions model in its traditional form, for each age group, using as dependent variable a conditional binary index for progression – whether or not

the student made the transition in question. Therefore, I had three dependent variables.

VARIABLES OF INTEREST – SOCIAL ORIGIN

The individual's *class of origin* is the test-variable of the estimations and the main focus of the results reported in this article. Some studies use the Erikson-Goldthorpe-Portocarrero – EGP (ERIKSON; GOLDTHORPE; PORTOCARRERO, 1979) classification of occupations, which distinguishes nine classes of major occupational categories (RAFTERY; HOUT, 1993; BREEN; JONSSON, 2000; KESLER, 2005; BREEN et al., 2009). Other papers use indicators of occupational status (BLAU; DUNCAN, 1967) adapted for international comparisons (GANZEBOOM; DE GRAAF; TREIMAN, 1992) and to the Brazilian Classification of Occupations (PASTORE; SILVA, 2000). This is the case of part of the studies in the area that examined data for Brazil (FERNANDES, 2005; TORCHE, 2010; RIBEIRO, 2011, RIBEIRO; CENEVIVA; ALVES DE BRITO, 2015) and of part of the international studies (MARE, 1981; HOUT; RAFTERY; BELL, 1993; LUCAS, 2001). In this paper, I decided to use a modified version of the EGP scheme, and I did it for two reasons: (1) it is an opportunity to apply a standardized review of classification of occupational categories used in IBGE household surveys and its transformation into class schemes; and (2) none of the studies that analyze the Brazilian case has used this class measure to evaluate the effects of origin on the chances of progression.

The occupational classification adopted is a variation of the original EGP scheme, which defines 11 classes (ERIKSON; GOLDTHORPE, 1992). To group occupations, such typology operates on the basis of two principles of differentiation of work: specificity of the knowledge required for performing the task and difficulty of monitoring. To these is added the ownership of the means of production. The result is a class scheme that separates owners from non-owners and qualifies non-owners according to the type of employment relationship they have with the employer, taking into account the principles of specificity and monitoring (BREEN, 2005):

> I. Higher grade professionals – Highly skilled non-manual workers, professionals, managers, large proprietors. High specificity, high monitoring difficulty;
>
> II. Lower grade professionals – Low-skilled non-manual workers, administrators, managers in small establishments. Specificity lower than in I, high monitoring difficulty;
> IIIa. Routine non-manuals, higher degree – Low specificity, high monitoring difficulty;

IIIb. Routine non-manuals, lower degree – Low specificity, low monitoring difficulty;
IVa2. Proprietors and employers;
IVc1. Rural employers;
IVc2. Self-employed farmers and subsistence agriculture workers;
V. Technicians and supervisors of manual workers;
VI. Skilled workers;
VIIa. Semi-, and unskilled workers;
VIIb. Agricultural workers;

In the analysis, I used a coding scheme that aggregates the 11 original classes into four derived classes: (a) professionals and employers (classes I + II + IVa2 + IVc1); (b) routine non-manuals (IIIa + IIIb); (c) supervisors of manual workers and skilled workers (V + VI) and; (d) unskilled workers (IVc2 + VIIa + VIIb). I used a combination of mother's and father's class to generate a class definition for the family.

OTHER VARIABLES USED IN THE ESTIMATIONS

Assumed as an indicator of the social origin, the effect of *parental education* on recent studies indicates that the higher the schooling, the greater the chances of making transitions at primary levels; the effect on the chances of transition at more advanced levels is subject to discussion (MARE, 1981; HOUT; RAFTERY; BELL, 1993; LUCAS, 2001; HOUT, 2006; AYALON; SHAVIT, 2004; KESLER, 2005; MILESI, 2010; ROKSA; VELEZ, 2010; KARLSON, 2011; for the Brazilian case, FERNANDES, 2005; TORCHE, 2010; RIBEIRO, 2011). I used mother's education in order to foster the inclusion of cases in the analysis. I used a sequence of binary variables, assuming that there might be specific effects of the different levels of mothers' schooling over chances of progression of their children (MARE; CHANG, 2006).

Differences in educational provision justify the inclusion of variables referring to each of the *regions of the country* (CASTRO, 2000; HASENBALG; SILVA, 2002; MONTALVÃO, 2011) and differences in educational provision also justify the inclusion of controls by *type of region of residence* (FERNANDES, 2005; RIBEIRO, 2011; RIBEIRO; CENEVIVA; ALVES DE BRITO, 2015). *Racial* inequalities in access are also extensively documented in the literature, and I have chosen to distinguish three racial categories, based on recent research findings in the field (HASENBALG; SILVA, 2002; FERNANDES, 2005; RIBEIRO, 2011; MONTALVÃO, 2011), which demonstrate heterogeneities between browns and blacks. Race/ethnicity is also a commonly used variable in the analysis of international cases, especially in the North American case (AYALON; SHAVIT, 2004; LUCAS, 2001; MILESI, 2010).

Sex is an important predictor of educational progression, and recent research has shown higher progression rates for women. As

an indicator of household income level, I used *per capita household income*, obtained by dividing the total household income of all sources by the total number of residents in the household. National and international studies have shown positive effects of income on the chances of making transitions both in Brazil and in other countries (LUCAS, 2001; HASENBALG; SILVA, 2002; MILESI, 2010; ROKSA VELEZ, 2010; MONTALVÃO, 2011), even though such effects vary according to transitions and transition types.

Finally, the *family composition* was controlled using three indicators: (1) single-parent family (in which the absence of one spouse is observed), usually associated with a decrease in the chances of progression (MARE, 1981; SILVA; HASEMBALG, 2000; LUCAS, 2001; MILESI, 2010; LUCAS; FUCELLA; BERENDS, 2011; MONTALVÃO, 2011; RIBEIRO, 2011); (2) a variable that indicates whether the individual is the eldest child; and (3) the number of siblings in the household.

MODEL SPECIFICATION

I estimated the traditional education transition model based on a sequential logit in which the chances of T_n for the population that performed T_{n-1} are evaluated. The specified model can be described as follows:

I investigate the chances that an individual *i*, of the age group *j*, in year *t* will be able to make transition T_n, since he made T_{n-1}. The other defined terms are:

α_{ijt} = constant for individuals of the age range *j* in year *t*;

Social origin variables (in the case of the family class indicator, the reference category is the group formed by classes IVc2 + VIIa + VIIb, that is, unskilled workers; in the case of mother's schooling, incomplete primary education);

X_1 = Family's class;
X_2 = mother's education

Other controls (the reference category for race is black; in the case of the regions, the Southeast):

X_3 = age (in years);
X_4 = per capita household income (in 2012 R$);
X_5 = single-parent family (absence of one spouse =1);
X_6 = number of siblings;
X_7 = first born child (eldest child=1);
X_8 = rural residence;
X_9 = sex (female=1);
X_{10} = race;
X_{11} = region.

The predicted probabilities of making T_n given T_{n-1} are estimated *for each selected age group in each point of the series.* Following the initial formatting of the expectation for each transition by age group, we have: 16 to 18 years, predicted coefficients and probabilities of making T_1; 19-20 years, of T_1, and T_2; and 21-25, of T_1, T_2 and T_3.

RESULTS

Table A1 (Annex 1) reports means for the variables used in the estimations, which provide important contextual information on the general evolution of these indicators, contributing to a better understanding of the dynamics of the factors associated with educational stratification in the period.

I analyzed the association between social origin and education in a context of increase in the average levels of schooling of the parents' generation and of changes in the class structure, with a decrease in the proportional size of the classes of unskilled and rural workers and relative growth in the other strata, more pronounced among skilled manual workers (V + VI) and routine non-manual workers (IIIa + IIIb). Young people in Brazil become an urban population (more than 80% are in the cities), and the income levels of the households in which they live increase. The structure of young families also changes: they tend to decrease in size, and an increasingly higher proportion consists of single-parent arrangements. It is a context of deep transformations in the Brazilian society that characterizes the process of modernization and urbanization of the country.

Returning to our research problem, the question that arises at this point is the following: What patterns of educational stratification have the processes of modernization of Brazilian society and of educational expansion given rise to?

SINCE WHEN HAS PRIMARY EDUCATION BEEN UNIVERSAL?

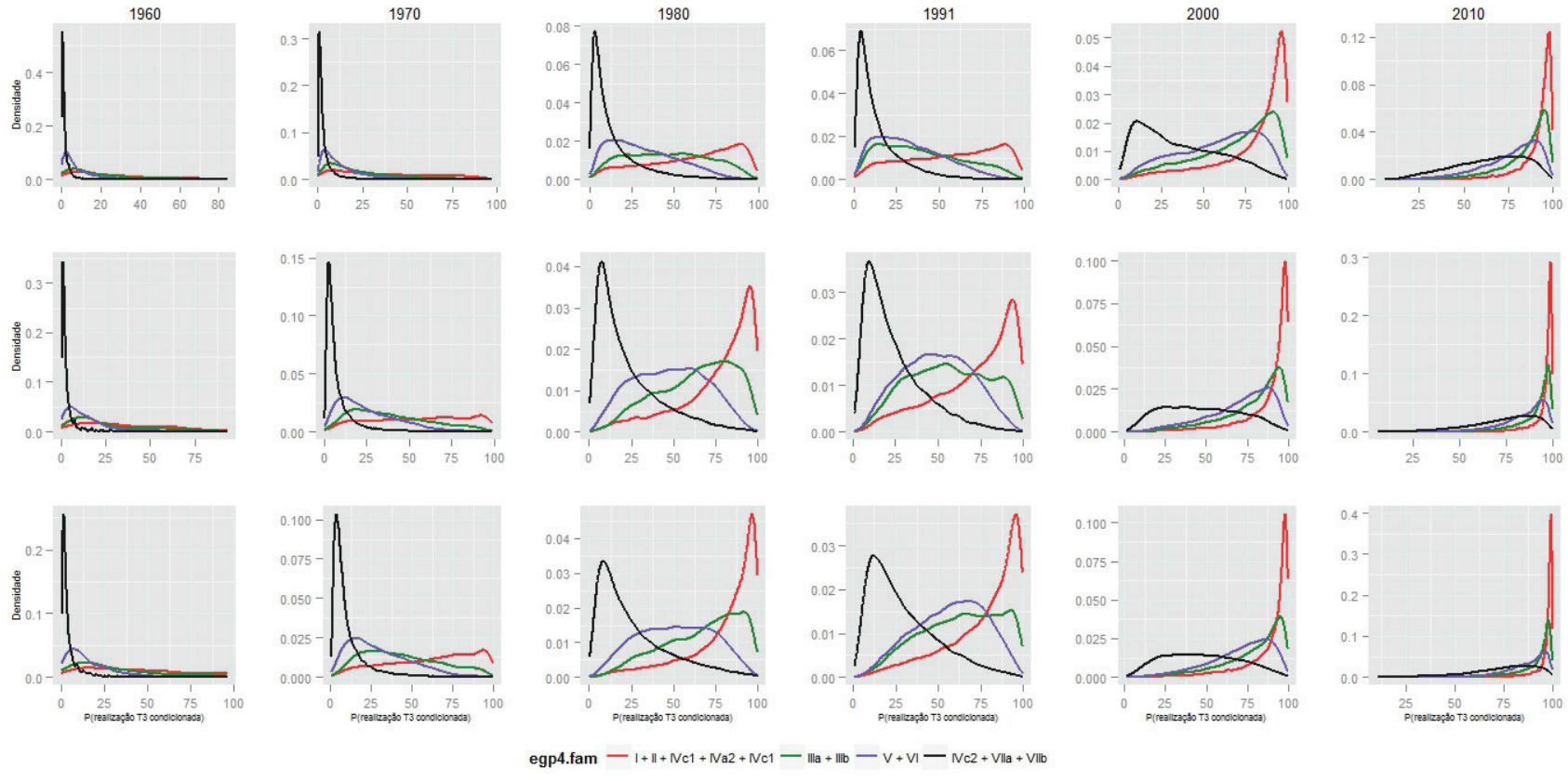
Some Brazilian studies on the issue suggest that there are distinct trends in accessibility by class to different segments of primary education, and that the closer barriers are to completion of a given educational level, the more pronounced they are (HASENBALG; SILVA, 2002; SILVA, 2003; FERNANDES, 2005), even though such barriers have diminished when one analyzes successive cohorts (RIOS-NETO; GUIMARÃES, 2010; MARTELETO et al., 2012). This process suggests a reduction of class inequalities in access to the completion of this educational level, although with persistent regional (SILVA, 2003) and racial barriers (FERNANDES, 2005; RIBEIRO, 2011).

The documentation of stratification parameters in the first levels of primary education shows convergence in literature, but there

is no such clear consensus on the completion. I sought to identify how census data depict such inequality parameters, and the panel of charts below presents the results for the predicted chances of completion of primary education by class of origin. In the charts, each of the curves represents one of the four classes defined employing EGP. In the *x*-axis, the chart shows the probability of making the transition in focus and, in the *y*-axis, there is a measure of the concentration in probability ranges. The area under each of the curves is equal to one, and the variation in the position of the concentration peaks at certain points of the *x*-axis (which defines greater or lesser probability) between the different classes marks differences in the concentration of cases in predicted probability ranges, evidencing class inequalities (also being controlled by the other variables incorporated to the estimations).

PANEL 1

EMPIRICAL DISTRIBUTION OF PREDICTED PROBABILITIES OF T_1 BY CLASS OF ORIGIN AND BY AGE GROUPS – 1960-2010



Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

Our findings suggests that, in the 1960s and 1970s, the completion of primary education was a very relevant barrier to the schooling of youth in Brazil and that even for higher social strata the chances of progression were low. From 1980 on, higher classes are characterized by higher levels of access to T_1, and significant relative advantages are found among youngsters from privileged origins. From 1991 to 2000, access levels rise for all strata, but the structure of class inequalities remains, suggesting that the increase in access was higher for the higher strata. Finally, in 2010, the chances of progression remain significantly unequal between classes, even with an increase in the general level of access to T_1, which favors young people from all strata. Estimations suggest a decrease in inequalities – which was not linear –, with periods of persistence, mainly between 1991 and 2010.

The findings are in line with a usual interpretation in the literature that suggests the adequacy of the maximally maintained inequality hypothesis for the interpretation of educational stratification at elementary levels in Brazil (SILVA, 2003; RIOS-NETO; GUIMARÃES, 2010; TORCHE, 2010; RIBEIRO, 2011; MARTELETO et al., 2012). According to this argument, once class barriers to making elementary transitions have been overcome, stratification mechanisms tend to shift to higher levels of education. Evidence suggests that accessibility first increases among the higher classes and then expands to the lower classes and that, even with gains in general accessibility, class inequalities remain – hence the challenge of universalization remains.

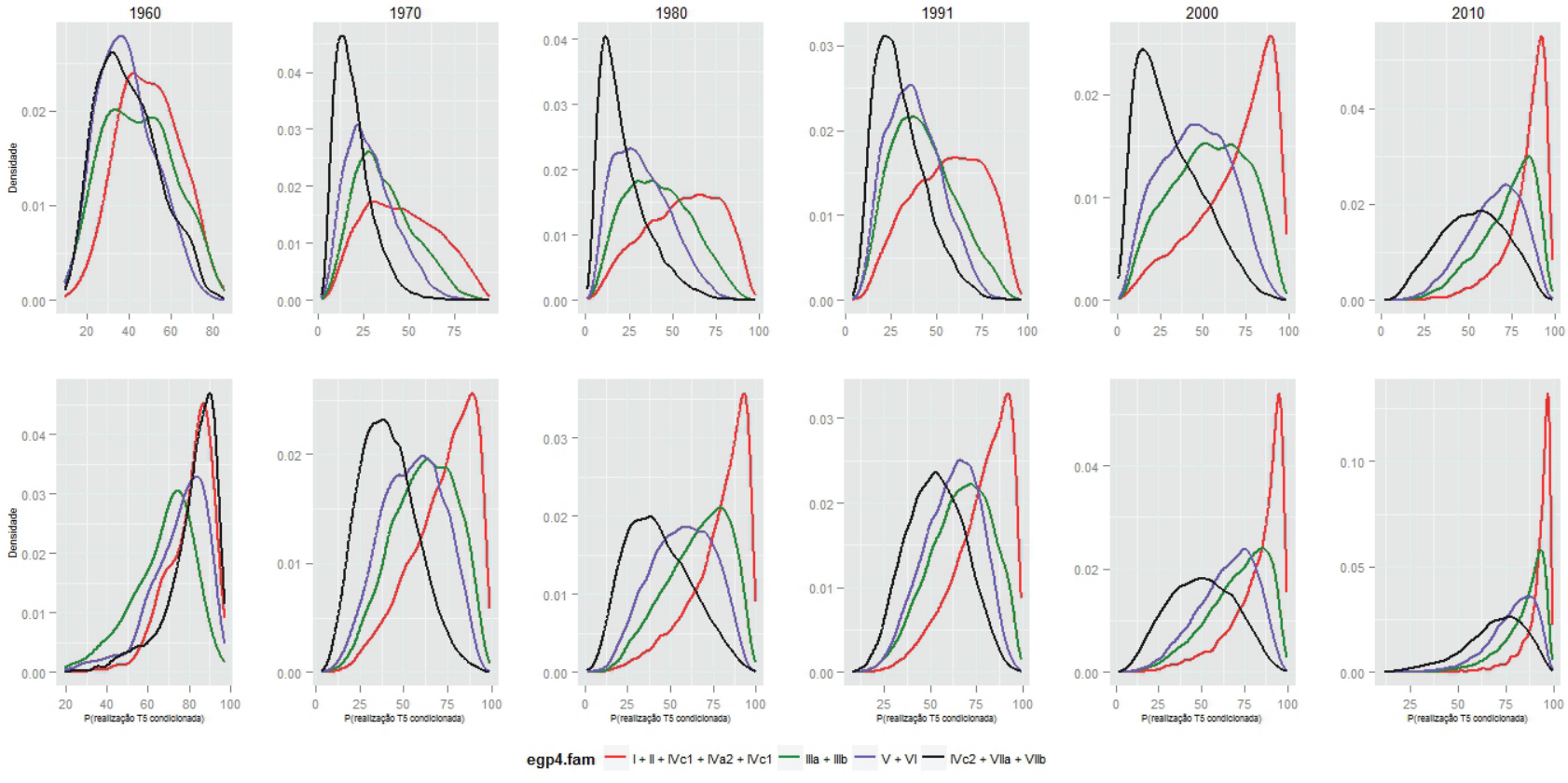
SECONDARY EDUCATION: INEQUALITY AND PERSISTENCY

Documented stratification parameters for secondary completion are less univocal than for primary education levels. Part of the specialized literature takes the Brazilian case as evidence of the limits of the process of educational expansion, due to the recrudescence of inequalities observed in the years 1980-1990 (RIBEIRO, 2011), typical of countries on the periphery of international capitalism, which suffered more intensely the impacts of the economic crisis (TORCHE, 2010). FERNANDES (2005) adds to this evidence the racial dimension, demonstrating how such a recrudescence was mainly associated with black and brown populations. Taken together, evidence from those studies suggests that the completion of secondary school is a point of educational progression in which inequalities of opportunity may hypothetically be, if not persistent, growing, both over time and in relation to previous transitions in the educational career of individuals.

Our analysis suggests an evolution of the trends of secondary education completion that is somewhat different from that present in the literature. Panel 2 presents the set of results for this transition, with the empirical distribution curves of the probabilities of making T_2 by class of origin:

PANEL 2

EMPIRICAL DISTRIBUTION OF THE PREDICTED PROBABILITIES OF T_2 BY CLASS OF ORIGIN AND BY AGE GROUPS – 1960-2010



Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

Secondary completion was such a rare transition in 1960 that the distribution of progression chances was similar for all classes, which suggests that the mere eligibility for T_2 was an important factor in the chances of progression, regardless of social origin. Between 1970 and 1980, in a period marked by stagnation in general accessibility levels, inequality grows due to the increase in the chances of those from the highest class, a process aggravated between 1980-1991, which lasted until 2000. From 2000 onwards, there is a more significant incorporation of the other strata (especially intermediary ones and among older populations), as shown by the increasing concentration of students at higher progression chances among all strata. What the results document is a broad process of differentiation guided by class parameters structuring the chances of completing secondary education along Brazil's modernization, which has just begun to reach the less privileged socioeconomic segments of the population.

The results of this study advance mainly with regard to the evaluation of over time trends on educational stratification at this level. The main finding relates to the remarkable persistence of the class effect, which is present regardless of the growth in the size of the population eligible for the transition. This is the main feature in the evolution of stratification at this level in Brazil. This finding adds to the trends observed by Torche (2010), who documented the persistence, in the years 2000-2010, of inequality levels that increased during the economic recession of the 1980s, and which remained even during a more favorable macroeconomic scenario to educational investment, such as that experienced by Brazil in the 2000-2010 period. The results for the period as a whole showed how the historical persistence of the effects of origin on the completion of secondary education promoted an unequal pattern of accessibility amongst classes.

The analyses of educational progression in secondary education show how the evolution of accessibility to this level of schooling was marked by the persistence or deepening of inequalities based on social origin characteristics. In this sense, it differs significantly from the temporal decrease in the effects of origin over progression chances in primary education. But the inclusion pattern, shaped by class, shows perverse and striking similarities between the two levels of schooling, suggesting that general increases in accessibility levels have always occurred through a hierarchy of strata: the higher strata gain first, being followed by the lower strata. This unequal process of inclusion into the secondary level of education occurs more prominently at the completion of secondary education, and the results demonstrate persistence of these inequalities over time.

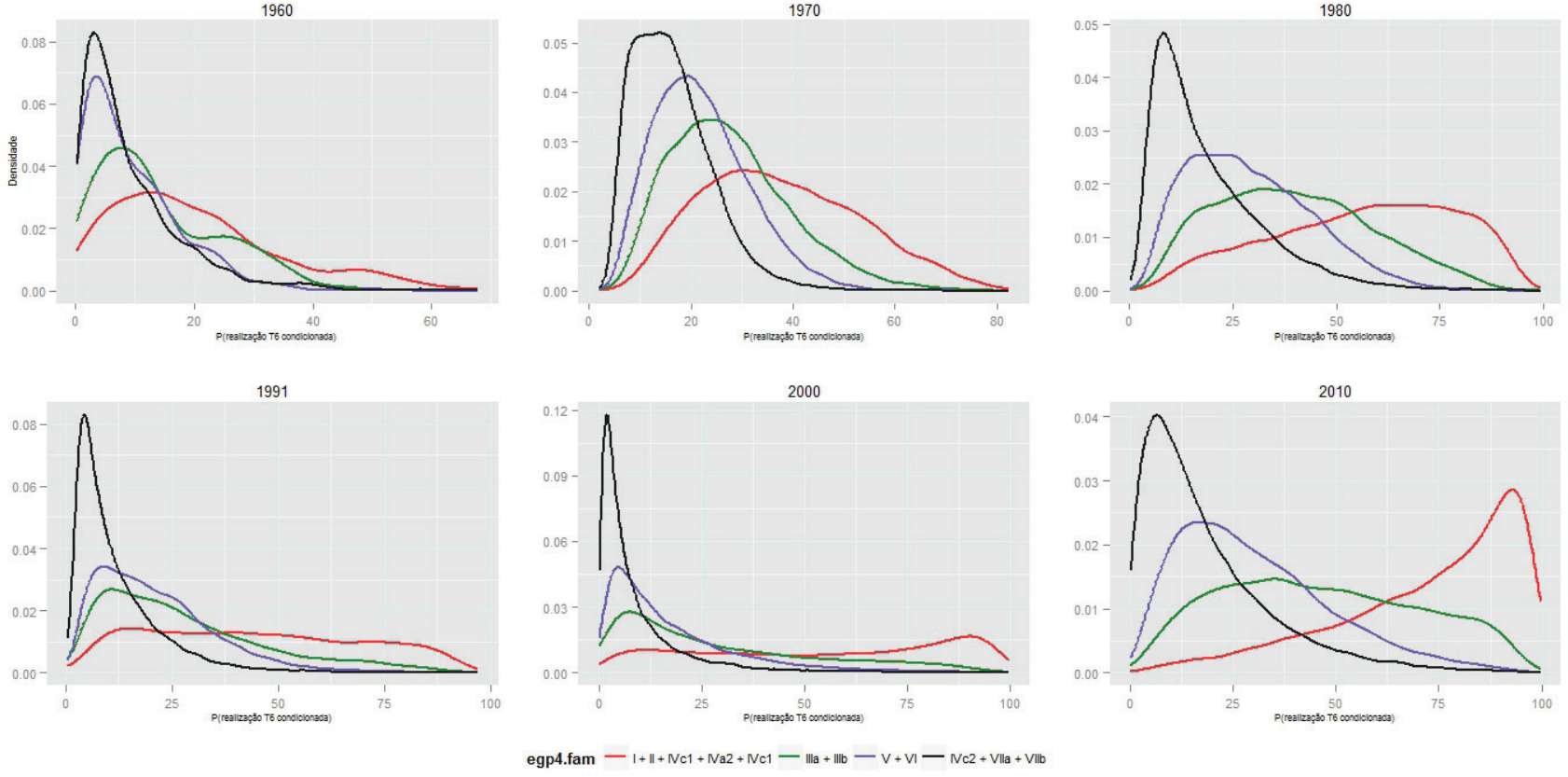
HIGHER EDUCATION: INCREASING INEQUALITIES IN ACCESS

In the literature on educational stratification in Brazil, the discussion on higher education entrance was mainly linked to conclusions that demonstrated how the effects of social origins were small for this transition (the pattern of declining coefficients), given the level of selectivity of the system, which imposed barriers to educational trajectories at more elementary levels of education (SILVA; SOUZA, 1986; RIBEIRO, 2011). But the recent distribution of educational opportunities (between younger cohorts) has changed, as we have seen, which may have promoted changes in the stratification patterns of access to higher education in recent periods.

Other works (TORCHE, 2010; RIOS-NETO; GUIMARÃES, 2010) document an increase in the effect of origin on the access to university for cohorts attending the educational system in the 1980s, in a more significant recrudescence of inequalities than that observed for the completion of secondary education. Class inequalities in access to higher education, which were increasing – and not persistent – are said to be a distinctive feature of educational systems in developing countries, which differentiates them from the central countries, for which there was no record of this type of trend. What can census data tell us about this dynamic? Our results indicate that the distribution of the chances of making T_3 by class of origin has similarities with the dynamics observed for the other educational levels analyzed, as the data in Panel 3 demonstrate:

PANEL 3

EMPIRICAL DISTRIBUTION OF THE PREDICTED PROBABILITIES OF T_3 BY CLASS OF ORIGIN – INDIVIDUALS AGED 21 TO 25 YEARS – 1960-2010



Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

In 1960 the chances of university entrance were low for all classes, but there was a much greater dispersion for the two higher strata in the axis representing the chances of progression. In 1970, the hierarchy between the strata is shown more clearly, with more pronounced gains in access for the highest class, although there is no concentration in high levels of chances of progression for any class. In 1980, the curves referring to the two intermediate strata become more dispersed along the chances axis, suggesting an increase in the chances of higher education access for these strata in comparison to 1970. But the main gains are among those from the highest stratum, who, for the first point in the series, are concentrated in the ranges above 50% chances of progression. The period from 1980 to 1991 marks an increase in inequalities. In a scenario in which levels of general access to T_3 decrease, the concentration of young people from the lowest stratum in low ranges of chances of progression is even higher than it was in 1980; the same can be said about the two intermediary strata, for which there is a trend for the curves to shift to the left, indicating higher concentrations at lower levels of progression. The transition from 1991 to 2000, marked by stability in the general patterns of access, favored gains for the intermediate strata and greater barriers for the lowest stratum.

After more than 20 years of stability in the general levels of access to higher education, the 2000-2010 period is marked by an increase in these levels. The graph for 2010 suggests that the gains are significant for the lowest stratum, which, although it remains concentrated at low levels of chances of progression, shows a more dispersed distribution than at any other point in the series. Among the intermediate strata, the distribution of chances also appears more dispersed. But it is remarkable how the access to T_3 increases among young people from the highest stratum, which, in 2010, begin to become concentrated in high levels of chances of entering higher education.

This finding suggests that gains in accessibility levels between 2000 and 2010 have not been translated yet into a reduction in class stratification: young people of privileged socioeconomic origin maintained their benefits in chances of access, even in the context of a general increase in higher education opportunities.

The main finding follows the clue suggested by Rios-Neto and Guimarães (2010) and Torche (2010) and reveals that recent periods consolidate, for the Brazilian case, the tendency of recrudescence of origin-based inequalities in higher education access. The findings add to this argument in that they locate this increase in a historical context of persistence of the effect of origin that has been in place since 1960. But, unlike Torche's (2010) argument, the increase in inequalities between cohorts is not limited to those eligible for higher education entrance

during the lost decade of the 1980s: in the Brazilian case, this trend is sustained (and deepened) among cohorts that were eligible for this transition in the 1990s and 2000s – a period in which there was economic recovery in the country in comparison to the 1980s. The findings also challenge conclusions about the adequacy of the Brazilian case to the pattern of declining coefficients, since they indicate that, among young people, class inequalities have not only been historically higher for T_2 than for T_3, but have also shown, in recent periods, a tendency to increase the advantages associated with origin in the higher strata.

Our results suggest that it is at higher education entrance that the association between characteristics of origin and educational progression is more persistent. In recent periods, this association has grown, alongside an increase in vacancies, calling into question the effects of the recent expansion on the parameters of inequalities of opportunity.

CONCLUSIONS AND DISCUSSION

The evolution of educational stratification among young people in Brazil in the last 50 years evidences various trends among different levels of education. Among these tendencies, there are the decrease, persistence and recrudescence of inequalities at different levels, depending on the points of educational progression analyzed. With this evidence, I sought to document, based on the theoretical framework of the educational stratification research agenda, accessibility patterns to various educational levels by class. This agenda is interested in investigating the problem of accessibility and therefore it does not investigate inequalities in quality – which accumulate with those of access – and which are another very relevant dimension of educational inequalities, as documented in extensive literature (ALBERNAZ; FERREIRA; FRANCO, 2002; FRANCO; MANDARINO; ORTIGÃO, 2002; SOARES, 2006; SOARES; COLLARES, 2006; ALVES; SOARES, 2007; BROOKE; SOARES, 2008; ALVES, F., 2010; ALVES, M. T. G., 2010; KOSLINSKI; ALVES; LANGE, 2013; SOARES; ALVES, 2013; BROOKE et al., 2014; SOARES et al., 2014; BARTHOLO; COSTA, 2016; SOARES; ALVES; XAVIER, 2016).

My analyses of stratification patterns in accessibility document how the completion of primary education, which has historically been one of the most relevant barriers to the educational progression of young people, shows signs of persistent class inequalities, suggesting that the expansion of accessibility to elementary levels has been only partially translated into a reduction in the inequalities of opportunities at the completion of primary education, a process that only recently intensified (post-2000). I argued, therefore, that elementary education is marked by *an increase in accessibility with a limited reduction of inequalities*, and that this decrease occurred more deeply between the most elementary

levels than in completion, and can thus be understood in terms of a "shift" in inequalities.

The persistence of inequalities is the main characteristic that historically defines the accessibility to the completion of secondary education in Brazil, favoring young individuals from the highest stratum, without clearly differentiating the chances of those from other strata. Such a dynamic occurs in a context of expansion in the provision of secondary-level education, but historically it has not been able to do more than accommodate demographic pressure. The exception is the period between 2000-2010, during which an increase in general accessibility was observed, but was differentially appropriated by different classes, which resulted in a recrudescence of inequalities. I thus argue that the evolution of the educational stratification at the secondary level in Brazil is marked by *a pattern of remarkable persistence*, which indicates that the mechanisms that operate the distribution of educational opportunities have not changed significantly over the past 50 years despite the expansion of educational provision at this level.

The increase in inequalities of educational opportunities is the main characteristic of accessibility to higher education observed in the period analyzed. Even if one starts from a point where the levels of access to higher education were very low, the increase in accessibility brings about a rise in inequality between classes. Class inequalities are predominantly persistent in the period, but there is a clear increase in recent points in the series, especially between 2000 and 2010, a moment in which there is an increase in the general access levels. Given the prominence of social origin in the definition of the chances of progression at this level, I argue that educational stratification in higher education in the last 50 years in Brazil has been marked by *a pattern of increase in inequalities*, which suggests that, for this educational level, the association between social origin and chances of progression has been strengthened in more recent periods, increasing inequalities. Therefore, this process is concomitant to the expansion of the system in Brazil.

For all the educational levels analyzed, there is a hierarchy in the improvement in the chances of progression according to the stratum of origin. Such chances always tend to grow earlier among higher classes. What differentiates educational levels is the concentration of classes at higher chances of progression – the higher the concentration, the closer the stratum is to universal access – and the timing in which the universalization of access is observed for the highest class, which is followed by the increase in access levels for the other strata. Our findings suggest that until 2010 this process is limited to the completion of primary education, for which one expects the reduction in class inequality levels in the future, given the almost universal access to these levels for individuals from the higher strata. Therefore, class

inequality in access to education remains a relevant research problem as a consequence of secondary and higher education expansion.

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ANNEX 1

TABLE A.1
DESCRIPTIVE STATISTICS - VARIABLES USED IN THE ESTIMATIONS, BY YEAR AND AGE GROUP

VARIABLES	16 TO 18 YEARS OLD						19 TO 20 YEARS OLD						21 TO 25 YEARS OLD					
DEPENDENT VARIABLE - EDUCATIONAL PROGRESSION	**1960**	**1970**	**1980**	**1991**	**2000**	**2010**	**1960**	**1970**	**1980**	**1991**	**2000**	**2010**	**1960**	**1970**	**1980**	**1991**	**2000**	**2010**
completed primary education	0,135	0,200	0,373	0,382	0,606	0,770	0,232	0,337	0,514	0,531	0,718	0,856	0,277	0,403	0,557	0,605	0,725	0,871
completed secondary education	0,160	0,145	0,130	0,149	0,163	0,211	0,529	0,493	0,493	0,525	0,573	0,691	0,814	0,743	0,726	0,745	0,742	0,827
entered higher education	0,000	0,124	0,398	0,319	0,276	0,386	0,141	0,258	0,451	0,395	0,341	0,433	0,237	0,375	0,514	0,410	0,397	0,481
Social origin	1960	1970	1980	1991	2000	2010	1960	1970	1980	1991	2000	2010	1960	1970	1980	1991	2000	2010
family class - I + II + IVa2 + IVc1	0,107	0,131	0,160	0,185	0,202	0,165	0,111	0,141	0,175	0,198	0,219	0,183	0,128	0,156	0,190	0,204	0,226	0,200
family class - IIIa + IIIb	0,048	0,081	0,096	0,142	0,145	0,204	0,050	0,082	0,099	0,143	0,143	0,205	0,052	0,084	0,101	0,140	0,138	0,203
family class - V + VI	0,160	0,201	0,276	0,293	0,310	0,318	0,161	0,193	0,270	0,292	0,306	0,313	0,165	0,184	0,260	0,280	0,294	0,304
family class - IVc2 + VIIa + VIIb	0,684	0,588	0,468	0,380	0,343	0,313	0,679	0,584	0,456	0,367	0,332	0,298	0,655	0,576	0,450	0,375	0,341	0,293
unschooled mother	0,598	0,513	0,378	0,300	0,155	0,087	0,603	0,516	0,370	0,299	0,161	0,094	0,595	0,517	0,376	0,317	0,189	0,106
mother completed primary education	0,022	0,040	0,082	0,150	0,294	0,462	0,022	0,042	0,087	0,145	0,293	0,471	0,026	0,047	0,087	0,135	0,267	0,461
mother completed secondary education	0,005	0,020	0,044	0,091	0,176	0,296	0,004	0,021	0,047	0,087	0,179	0,311	0,006	0,023	0,046	0,080	0,167	0,309
mother attended (and completed or did not) higher education	0,000	0,003	0,015	0,034	0,070	0,116	0,000	0,003	0,015	0,031	0,073	0,125	0,001	0,003	0,014	0,028	0,068	0,129
OTHER CONTROLS	**1960**	**1970**	**1980**	**1991**	**2000**	**2010**	**1960**	**1970**	**1980**	**1991**	**2000**	**2010**	**1960**	**1970**	**1980**	**1991**	**2000**	**2010**
age	17,0	17,0	16,9	16,9	17,0	17,0	19,5	19,5	19,5	19,5	19,5	19,5	22,7	22,6	22,6	22,7	22,7	22,8
per capita household income (im R$ of 2012)	153,94	209,68	481,96	414,61	563,37	640,89	177,19	250,53	581,09	484,87	665,08	773,75	221,32	315,15	699,46	555,51	764,84	923,92
single-parent family (Monoparental=1)	0,154	0,149	0,152	0,179	0,212	0,231	0,185	0,175	0,181	0,210	0,240	0,252	0,232	0,220	0,225	0,257	0,282	0,291
number of siblings	2,4	2,4	2,4	1,9	1,5	1,1	2,6	2,5	2,5	2,0	1,6	1,2	2,5	2,4	2,3	1,8	1,5	1,0
eldest child (eldest child=1)	0,381	0,386	0,373	0,441	0,480	0,573	0,516	0,523	0,505	0,535	0,584	0,656	0,745	0,748	0,742	0,763	0,794	0,832
urban residence	0,412	0,543	0,671	0,733	0,800	0,822	0,428	0,559	0,701	0,760	0,821	0,842	0,480	0,595	0,734	0,779	0,834	0,861
sex (Female=1)	0,528	0,532	0,540	0,546	0,542	0,533	0,559	0,568	0,570	0,572	0,565	0,552	0,601	0,597	0,586	0,583	0,578	0,561
race - White	0,616	-	0,549	0,484	0,519	0,452	0,620	-	0,571	0,509	0,533	0,479	0,642	-	0,588	0,520	0,543	0,493
race - Black	0,082	-	0,056	0,048	0,060	0,069	0,083	-	0,057	0,050	0,061	0,069	0,083	-	0,060	0,053	0,063	0,071
race - Brown	0,302	-	0,391	0,465	0,415	0,479	0,297	-	0,368	0,439	0,399	0,453	0,274	-	0,348	0,424	0,388	0,436
region - North	0,036	0,037	0,044	0,064	0,071	0,083	0,035	0,036	0,043	0,058	0,067	0,076	0,036	0,034	0,041	0,053	0,064	0,071
region - Southeast	0,416	0,432	0,430	0,407	0,414	0,402	0,419	0,441	0,459	0,436	0,434	0,425	0,452	0,470	0,495	0,455	0,449	0,439
region - South	0,175	0,183	0,170	0,143	0,140	0,140	0,159	0,174	0,166	0,146	0,133	0,138	0,157	0,162	0,157	0,141	0,128	0,127
region - Midwest	0,042	0,052	0,062	0,070	0,073	0,079	0,039	0,048	0,057	0,067	0,071	0,076	0,037	0,046	0,055	0,064	0,069	0,072
region - Northeast	0,332	0,297	0,294	0,316	0,302	0,296	0,348	0,301	0,275	0,294	0,295	0,286	0,319	0,288	0,252	0,288	0,290	0,291

Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

ANNEX 2

TABLE A.2
ESTIMATED COEFFICIENTS FOR PRIMARY COMPLETION, CONDITIONED TO THE COMPLETION OF THE FIRST 4 YEARS OF STUDY (T_1) BY YEAR AND AGE GROUPS – 1960-2010

	1960			1970			1980			1991			2000			2010		
	COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.	
16 TO 18 YEARS OLD																		
Intercept	-48,966	0,009	**	-52,764	0,000	***	-42,277	0,000	***	-36,170	0,000	***	-31,026	0,000	***	-46,962	0,000	***
class of origin I + II + IVa + IVc1 (reference category: IVc2+VIIa+VIIb)	0,960	0,000	***	0,717	0,000	***	0,540	0,000	***	0,457	0,000	***	0,339	0,000	***	0,368	0,000	***
class of origin IIIa + IIIb (reference category: IVc2+VIIa+VIIb)	0,671	0,000	***	0,389	0,000	***	0,371	0,000	***	0,214	0,000	***	0,218	0,000	***	0,198	0,000	***
class of origin V+VI (reference category: IVc2+VIIa+VIIb)	0,128	0,213		0,099	0,000	***	0,164	0,000	***	0,179	0,000	***	0,113	0,000	***	0,052	0,000	***
mother's education - illiterate (reference category: up to incomplete 4th grade)	-0,703	0,000	***	-0,627	0,000	***	-0,667	0,000	***	-0,504	0,000	***	-0,416	0,000	***	-0,380	0,000	***
mother's education - complete 4th grade (reference category: up to incomplete 4th grade)	0,544	0,000	***	0,600	0,000	***	0,480	0,000	***	0,435	0,000	***	0,412	0,000	***	0,244	0,000	***
mother's education - complete 8th grade (reference category: up to incomplete 4th grade)	1,139	0,000	***	0,728	0,000	***	0,424	0,000	***	0,435	0,000	***	0,390	0,000	***	0,524	0,000	***
mother's education - incomplete secondary education (reference category: up to incomplete 4th grade)	-0,397	0,397		0,078	0,102		0,206	0,000	***	0,181	0,000	***	0,171	0,000	***	0,003	0,862	
mother's education - complete secondary education (reference category: up to incomplete 4th grade)	0,408	0,406		0,189	0,000	***	0,199	0,000	***	0,319	0,000	***	0,381	0,000	***	0,426	0,000	***
mother's education - incomplete higher education (reference category: up to incomplete 4th grade)	2,077	0,062	.	-0,045	0,549		0,156	0,000	***	0,277	0,000	***	0,239	0,000	***	0,228	0,000	***
mother's education - complete higher education (reference category: up to incomplete 4th grade)	-1,876	0,268		0,149	0,101		0,050	0,263		0,250	0,000	***	0,412	0,000	***	0,342	0,000	***
age	4,518	0,039	*	5,050	0,000	***	3,926	0,000	***	3,333	0,000	***	2,871	0,000	***	4,944	0,000	***
rural residence	-0,722	0,000	***	-0,760	0,000	***	-0,742	0,000	***	-0,537	0,000	***	-0,320	0,000	***	0,068	0,000	***
per capita household income (LN)	0,546	0,000	***	0,633	0,000	***	0,656	0,000	***	0,466	0,000	***	0,521	0,000	***	0,338	0,000	***
single-parent family	0,099	0,492		-0,298	0,000	***	-0,319	0,000	***	-0,312	0,000	***	-0,291	0,000	***	-0,280	0,000	***
number of siblings	-0,037	0,159		-0,069	0,000	***	-0,074	0,000	***	-0,113	0,000	***	-0,093	0,000	***	-0,128	0,000	***
eldest (indicator)	0,183	0,013	*	0,186	0,000	***	0,131	0,000	***	0,063	0,000	***	0,041	0,000	***	-0,017	0,046	*
race - black (reference category: white)	1,271	0,000	***				0,583	0,000	***	0,561	0,000	***	0,508	0,000	***	0,494	0,000	***
race - brown (reference category: white)	1,040	0,001	**				0,206	0,000	***	0,205	0,000	***	0,211	0,000	***	0,222	0,000	***
region - Northeast (reference category: Southeast)	0,073	0,448		-0,064	0,000	***	0,074	0,000	***	-0,023	0,024	*	-0,706	0,000	***	-0,442	0,000	***
region - North (reference category: Southeast)	-0,722	0,001	**	-0,461	0,000	***	-0,321	0,000	***	-0,318	0,000	***	-0,839	0,000	***	-0,605	0,000	***
region - South (reference category: Southeast)	0,064	0,428		0,051	0,000	***	0,013	0,068	.	0,123	0,000	***	0,103	0,000	***	-0,198	0,000	***
region - Midwest (reference category: Southeast)	-0,379	0,101		-0,255	0,000	***	-0,242	0,000	***	-0,201	0,000	***	-0,565	0,000	***	-0,252	0,000	***
sex (woman = 1)	-0,287	0,000	***	0,430	0,000	***	0,463	0,000	***	0,597	0,000	***	0,724	0,000	***	0,879	0,000	***
19 AND 20 YEARS OLD																		
(Intercept)	-9,910	0,000	***	-7,819	0,000	***	-7,212	0,000	***	-6,962	0,000	***	-4,062	0,000	***	-2,283	0,000	***
class of origin I + II + IVa + IVc1 (reference category: IVc2+VIIa+VIIb)	1,044	0,000	***	0,770	0,000	***	0,629	0,000	***	0,531	0,000	***	0,412	0,000	***	0,414	0,000	***
class of origin IIIa + IIIb (reference category: IVc2+VIIa+VIIb)	0,501	0,000	***	0,331	0,000	***	0,384	0,000	***	0,239	0,000	***	0,264	0,000	***	0,215	0,000	***
class of origin V+VI (reference category: IVc2+VIIa+VIIb)	0,122	0,304		0,059	0,000	***	0,159	0,000	***	0,222	0,000	***	0,161	0,000	***	0,065	0,000	***
mother's education - illiterate (reference category: up to incomplete 4th grade)	-0,525	0,000	***	-0,653	0,000	***	-0,649	0,000	***	-0,479	0,000	***	-0,408	0,000	***	-0,374	0,000	***
mother's education - complete 4th grade (reference category: up to incomplete 4th grade)	0,743	0,000	***	0,564	0,000	***	0,496	0,000	***	0,428	0,000	***	0,394	0,000	***	0,263	0,000	***
mother's education - complete 8th grade (reference category: up to incomplete 4th grade)	1,245	0,000	***	0,971	0,000	***	0,675	0,000	***	0,612	0,000	***	0,485	0,000	***	0,783	0,000	***
mother's education - incomplete secondary education (reference category: up to incomplete 4th grade)	0,155	0,838		-0,162	0,047	*	0,153	0,008	**	0,172	0,002	**	0,122	0,000	***	-0,126	0,001	***
mother's education - complete secondary education (reference category: up to incomplete 4th grade)	0,179	0,827		0,452	0,000	***	0,210	0,001	***	0,272	0,000	***	0,411	0,000	***	0,588	0,000	***
mother's education - incomplete higher education (reference category: up to incomplete 4th grade)	12,367	0,985		0,008	0,961		0,181	0,024	*	0,336	0,000	***	0,224	0,000	***	0,019	0,775	
mother's education - complete higher education (reference category: up to incomplete 4th grade)	-0,008	1,000		0,226	0,283		0,150	0,143		0,279	0,005	**	0,613	0,000	***	0,455	0,000	***
race - brown (reference category: white)	0,153	0,599					0,156	0,000	***	0,149	0,000	***	0,164	0,000	***	0,117	0,000	***
region - Northeast (reference category: Southeast)	0,518	0,000	***	0,379	0,000	***	0,459	0,000	***	0,313	0,000	***	-0,277	0,000	***	-0,160	0,000	***
region - North (reference category: Southeast)	-0,316	0,223		-0,010	0,763		0,173	0,000	***	0,040	0,094	.	-0,400	0,000	***	-0,242	0,000	***
region - South (reference category: Southeast)	-0,203	0,055	.	0,030	0,036	*	-0,087	0,000	***	0,034	0,010	*	-0,010	0,465		-0,152	0,000	***
region - Midwest (reference category: Southeast)	-0,087	0,756		0,057	0,041	*	0,003	0,866		-0,071	0,000	***	-0,404	0,000	***	-0,175	0,000	***
sex (woman = 1)	-0,512	0,000	***	0,489	0,000	***	0,511	0,000	***	0,631	0,000	***	0,810	0,000	***	0,952	0,000	***

*** p<0,001; **p<0,01; *p<0,05; .p<0,1.

Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

(to be continue)

TABLE A.2

ESTIMATED COEFFICIENTS FOR PRIMARY COMPLETION, CONDITIONED TO THE COMPLETION OF THE FIRST 4 YEARS OF STUDY (T_1) BY YEAR AND AGE GROUPS – 1960-2010

(continued)

	1960			1970			1980			1991			2000			2010		
	COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.	
21 TO 25 YEARS OLD																		
(Intercept)	-12,634	0,212		-13,190	0,000	***	-11,122	0,000	***	-7,490	0,000	***	-5,081	0,000	***	-2,160	0,126	
class of origin I + II + IVa + IVc1 (reference category: IVc2+VIIa+VIIb)	1,027	0,000	***	0,737	0,000	***	0,672	0,000	***	0,513	0,000	***	0,368	0,000	***	0,438	0,000	***
class of origin IIIa + IIIb (reference category: IVc2+VIIa+VIIb)	0,447	0,000	***	0,285	0,000	***	0,374	0,000	***	0,203	0,000	***	0,262	0,000	***	0,201	0,000	***
class of origin V+VI (reference category: IVc2+VIIa+VIIb)	-0,004	0,963		0,007	0,633		0,138	0,000	***	0,197	0,000	***	0,148	0,000	***	0,105	0,000	***
mother's education - illiterate (reference category: up to 4ª incomplete grade)	-0,565	0,000	***	-0,619	0,000	***	-0,629	0,000	***	-0,491	0,000	***	-0,398	0,000	***	-0,333	0,000	***
mother's education - complete 4th grade (reference category: up to incomplete 4th grade)	0,667	0,000	***	0,480	0,000	***	0,491	0,000	***	0,415	0,000	***	0,357	0,000	***	0,258	0,000	***
mother's education - complete 4th grade (reference category: up to incomplete 4th grade)	1,583	0,000	***	1,064	0,000	***	0,816	0,000	***	0,721	0,000	***	0,547	0,000	***	0,895	0,000	***
mother's education - incomplete secondary education (reference category: up to incomplete 4th grade)	-0,020	0,968		-0,330	0,000	***	0,062	0,299		-0,045	0,428		0,009	0,759		-0,235	0,000	***
mother's education - complete secondary education (reference category: up to incomplete 4th grade)	-0,033	0,955		0,602	0,000	***	0,295	0,000	***	0,469	0,000	***	0,484	0,000	***	0,646	0,000	***
mother's education - incomplete higher education (reference category: up to incomplete 4th grade)	11,790	0,974		-0,081	0,622		0,131	0,139		0,354	0,000	***	0,104	0,085	.	-0,043	0,447	
mother's education - complete higher education (reference category: up to incomplete 4th grade)	-12,800	0,971		0,332	0,119		0,186	0,101		0,165	0,136		0,501	0,000	***	0,373	0,000	***
age	0,522	0,557		0,666	0,000	***	0,454	0,000	***	0,251	0,027	*	0,141	0,176		0,008	0,951	
age^2	-0,011	0,558		-0,015	0,000	***	-0,011	0,000	***	-0,004	0,074	.	-0,004	0,066	.	0,000	0,871	
rural residence	-0,763	0,000	***	-0,803	0,000	***	-0,854	0,000	***	-0,769	0,000	***	-0,551	0,000	***	-0,123	0,000	***
per capita household income (LN)	0,793	0,000	***	0,835	0,000	***	0,899	0,000	***	0,649	0,000	***	0,695	0,000	***	0,533	0,000	***
single-parent family	-0,424	0,004	**	-0,359	0,000	***	-0,249	0,000	***	-0,217	0,000	***	-0,241	0,000	***	-0,257	0,000	***
number of siblings	-0,017	0,421		-0,004	0,205		-0,021	0,000	***	-0,079	0,000	***	-0,014	0,000	***	-0,054	0,000	***
eldest (indicadora)	0,147	0,077	.	0,130	0,000	***	0,075	0,000	***	0,022	0,036	*	0,060	0,000	***	0,021	0,104	
race - black (reference category: white)	0,630	0,003	**				0,411	0,000	***	0,299	0,000	***	0,306	0,000	***	0,341	0,000	***
race - brown (reference category: white)	0,250	0,288					0,149	0,000	***	0,086	0,000	***	0,104	0,000	***	0,085	0,000	***
region - Northeast (reference category: Southeast)	0,466	0,000	***	0,748	0,000	***	0,865	0,000	***	0,523	0,000	***	0,112	0,000	***	-0,031	0,009	**
region - North (reference category: Southeast)	0,142	0,467		0,331	0,000	***	0,518	0,000	***	0,170	0,000	***	0,018	0,282		-0,139	0,000	***
region - South (reference category: Southeast)	-0,149	0,094	.	0,047	0,000	***	-0,056	0,000	***	-0,044	0,000	***	-0,050	0,000	***	-0,136	0,000	***
region - Midwest (reference category: Southeast)	-0,400	0,120		0,363	0,000	***	0,245	0,000	***	-0,062	0,000	***	-0,180	0,000	***	-0,246	0,000	***
sex (woman = 1)	-0,239	0,000	***	0,523	0,000	***	0,587	0,000	***	0,663	0,000	***	0,851	0,000	***	0,908	0,000	***

*** p<0,001; **p<0,01; *p<0,05; .p<0,1.

Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

TABLE A.3

ESTIMATED COEFFICIENTS FOR SECONDARY CONCLUSION, CONDITIONED TO THE SECONDARY ENTRANCE (T_2) BY YEAR AND AGE GROUP - 1960-2010

	1960			1970			1980			1991			2000			2010		
	COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.	
19 AND 20 YEARS OLD																		
(Intercept)	-3,948	0,211		-15,888	0,000	***	-14,052	0,000	***	-13,587	0,000	***	-13,154	0,000	***	-10,791	0,000	***
class of origin I + II + IVa + IVc1 (reference category: IVc2+VIIa+VIIb)	0,176	0,515		0,155	0,000	***	0,247	0,000	***	0,111	0,000	***	0,100	0,000	***	0,167	0,000	***
class of origin IIIa + IIIb (reference category: IVc2+VIIa+VIIb)	0,170	0,594		0,008	0,820		0,098	0,000	***	-0,066	0,008	**	-0,004	0,785		0,034	0,027	*
class of origin V+VI (reference category: IVc2+VIIa+VIIb)	-0,044	0,882		-0,098	0,004	**	-0,014	0,408		-0,094	0,000	***	-0,052	0,000	***	-0,022	0,094	.
mother's education - illiterate (reference category: up to incomplete 4th grade)	0,005	0,989		-0,104	0,006	**	-0,327	0,000	***	-0,123	0,000	***	-0,258	0,000	***	-0,298	0,000	***
mother's education - complete 4th grade (reference category: up to incomplete 4th grade)	0,409	0,081	.	0,269	0,000	***	0,278	0,000	***	0,204	0,000	***	0,241	0,000	***	0,161	0,000	***
mother's education - complete 8th grade (reference category: up to incomplete 4th grade)	0,154	0,472		0,398	0,000	***	0,278	0,000	***	0,200	0,000	***	0,226	0,000	***	0,360	0,000	***
mother's education - incomplete secondary education (reference category: up to incomplete 4th grade)	0,802	0,528		-0,235	0,004	**	0,005	0,916		-0,116	0,024	*	-0,134	0,000	***	-0,465	0,000	***
mother's education - complete secondary education (reference category: up to incomplete 4th grade)	-0,340	0,793		0,431	0,000	***	0,300	0,000	***	0,485	0,000	***	0,495	0,000	***	0,820	0,000	***
mother's education - incomplete higher education (reference category: up to incomplete 4th grade)	12,881	0,985		0,168	0,171		0,009	0,837		0,156	0,005	**	0,127	0,000	***	-0,052	0,118	
mother's education - complete higher education (reference category: up to incomplete 4th grade)	-13,480	0,985		0,006	0,966		0,219	0,000	***	0,163	0,007	**	0,308	0,000	***	0,339	0,000	***
age	0,106	0,499		0,620	0,000	***	0,487	0,000	***	0,543	0,000	***	0,463	0,000	***	0,421	0,000	***
rural residence	0,669	0,066	.	-0,028	0,501		-0,031	0,164		0,057	0,023	*	-0,064	0,000	***	0,054	0,000	***
per capita household income (LN)	0,395	0,002	**	0,522	0,000	***	0,535	0,000	***	0,384	0,000	***	0,577	0,000	***	0,441	0,000	***
single-parent family	0,126	0,753		-0,072	0,074	.	-0,297	0,000	***	-0,269	0,000	***	-0,277	0,000	***	-0,286	0,000	***
number of siblings	0,064	0,325		-0,028	0,000	***	-0,046	0,000	***	-0,071	0,000	***	-0,038	0,000	***	-0,100	0,000	***
eldest (indicator)	0,514	0,004	**	0,197	0,000	***	0,151	0,000	***	0,060	0,000	***	0,083	0,000	***	-0,066	0,000	***
race - black (reference category: white)	-0,961	0,268					0,545	0,000	***	0,403	0,000	***	0,501	0,000	***	0,478	0,000	***
race - brown (reference category: white)	-0,788	0,393					0,149	0,000	***	0,130	0,002	**	0,196	0,000	***	0,194	0,000	***
region - Northeast (reference category: Southeast)	-0,109	0,627		-0,176	0,000	***	-0,101	0,000	***	-0,034	0,086	.	-0,407	0,000	***	-0,210	0,000	***
region - North (reference category: Southeast)	-0,387	0,424		-0,601	0,000	***	-0,323	0,000	***	-0,381	0,000	***	-0,613	0,000	***	-0,518	0,000	***
region - South (reference category: Southeast)	0,382	0,104		-0,061	0,014	*	0,107	0,000	***	0,249	0,000	***	0,002	0,897		-0,111	0,000	***
region - Midwest (reference category: Southeast)	-0,220	0,745		-0,521	0,000	***	-0,200	0,000	***	-0,100	0,000	***	-0,332	0,000	***	-0,170	0,000	***
sex (woman = 1)	-0,769	0,000	***	0,419	0,000	***	0,507	0,000	***	0,423	0,000	***	0,586	0,000	***	0,647	0,000	***
21 TO 25 YEARS OLD																		
(Intercept)	-15,450	0,535		-27,625	0,000	***	-26,343	0,000	***	-22,344	0,000	***	-17,233	0,000	***	-16,284	0,000	***
class of origin I + II + IVa + IVc1 (reference category: IVc2+VIIa+VIIb)	-0,168	0,552		0,172	0,000	***	0,254	0,000	***	0,155	0,000	***	0,117	0,000	***	0,223	0,000	***
class of origin IIIa + IIIb (reference category: IVc2+VIIa+VIIb)	-0,736	0,019	*	-0,052	0,087	.	0,025	0,154		-0,078	0,000	***	0,002	0,915		0,046	0,001	**
class of origin V+VI (reference category: IVc2+VIIa+VIIb)	-0,343	0,263		-0,101	0,000	***	-0,049	0,001	**	-0,118	0,000	***	-0,051	0,000	***	-0,048	0,000	***
mother's education - illiterate (reference category: up to incomplete 4th grade)	-0,154	0,615		-0,077	0,007	**	-0,278	0,000	***	-0,146	0,000	***	-0,231	0,000	***	-0,239	0,000	***
mother's education - complete 4th grade (reference category: up to incomplete 4th grade)	-0,042	0,849		0,348	0,000	***	0,269	0,000	***	0,173	0,000	***	0,185	0,000	***	0,159	0,000	***
mother's education - complete 8th grade (reference category: up to incomplete 4th grade)	0,230	0,307		0,389	0,000	***	0,329	0,000	***	0,234	0,000	***	0,207	0,000	***	0,506	0,000	***
mother's education - incomplete secondary education (reference category: up to incomplete 4th grade)	-1,131	0,086	.	-0,417	0,000	***	-0,103	0,043	*	-0,084	0,123		-0,166	0,000	***	-0,785	0,000	***
mother's education - complete secondary education (reference category: up to incomplete 4th grade)	1,610	0,030	*	0,607	0,000	***	0,420	0,000	***	0,545	0,000	***	0,509	0,000	***	1,080	0,000	***
mother's education - incomplete higher education (reference category: up to incomplete 4th grade)	-0,852	0,518		0,097	0,561		-0,046	0,449		0,206	0,005	**	0,094	0,025	*	-0,126	0,000	***
mother's education - complete higher education (reference category: up to incomplete 4th grade)	13,320	0,985		0,083	0,682		0,337	0,000	***	0,096	0,237		0,359	0,000	***	0,445	0,000	***
age	1,018	0,643		1,893	0,000	***	1,720	0,000	***	1,553	0,000	***	1,072	0,000	***	1,101	0,000	***
rural residence	0,657	0,100	.	0,069	0,050	.	-0,040	0,041	*	0,039	0,067	.	-0,097	0,000	***	0,035	0,005	**
per capita household income (LN)	0,178	0,148		0,650	0,000	***	0,685	0,000	***	0,449	0,000	***	0,622	0,000	***	0,524	0,000	***
single-parent family	0,073	0,858		-0,170	0,000	***	-0,310	0,000	***	-0,273	0,000	***	-0,273	0,000	***	-0,275	0,000	***
number of siblings	-0,072	0,144		-0,011	0,049	*	-0,025	0,000	***	-0,061	0,000	***	-0,008	0,058	.	-0,041	0,000	***
eldest (indicator)	0,095	0,616		0,216	0,000	***	0,162	0,000	***	0,068	0,000	***	0,107	0,000	***	0,008	0,530	
race - black (reference category: white)	1,423	0,043	*				0,534	0,000	***	0,366	0,000	***	0,354	0,000	***	0,365	0,000	***
race - brown (reference category: white)	1,424	0,059	.				0,177	0,000	***	0,132	0,000	***	0,121	0,000	***	0,105	0,000	***
region - Northeast (reference category: Southeast)	0,095	0,661		-0,057	0,014	*	0,092	0,000	***	0,084	0,000	***	-0,146	0,000	***	-0,041	0,001	***
region - North (reference category: Southeast)	-0,651	0,145		-0,508	0,000	***	-0,290	0,000	***	-0,309	0,000	***	-0,325	0,000	***	-0,315	0,000	***
region - South(reference category: Southeast)	-0,048	0,831		-0,149	0,000	***	-0,162	0,000	***	0,110	0,000	***	-0,024	0,084	.	-0,149	0,000	***
region - Midwest (reference category: Southeast)	-0,852	0,125		-0,487	0,000	***	-0,284	0,000	***	-0,144	0,000	***	-0,234	0,000	***	-0,212	0,000	***
sex (woman = 1)	-0,662	0,000	***	0,549	0,000	***	0,441	0,000	***	0,398	0,000	***	0,528	0,000	***	0,631	0,000	***

*** p<0,001; **p<0,01; *p<0,05; .p<0,1.

Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

TABLE A.4

ESTIMATED COEFFICIENTS FOR HIGHER EDUCATION ENTRANCE, CONDITIONED TO SECONDARY COMPLETION (T3) BY YEAR AND AGE GROUP – 1960-2010

	1960			1970			1980			1991			2000			2010		
	COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.		COEF.	SIG.	
21 TO 25 YEARS																		
(Intercept)	-30,814	0,198		-14,560	0,000	***	-13,165	0,000	***	-10,747	0,000	***	-16,882	0,000	***	-15,074	0,000	***
class of origin I + II + IVa + IVc1 (reference category: IVc2+VIIa+VIIb)	-0,063	0,824		0,253	0,000	***	0,342	0,000	***	0,309	0,000	***	0,333	0,000	***	0,622	0,000	***
class of origin IIIa + IIIb (reference category: IVc2+VIIa+VIIb)	-0,506	0,135		0,000	0,996		0,055	0,005	**	0,019	0,453		0,027	0,174		0,238	0,000	***
class of origin V+VI (reference category: IVc2+VIIa+VIIb)	-0,694	0,041	*	-0,125	0,000	***	-0,104	0,000	***	-0,104	0,000	***	-0,135	0,000	***	-0,007	0,576	
mother's education - illiterate (reference category: up to 4ª incomplete grade)	-0,388	0,348		-0,163	0,000	***	-0,280	0,000	***	-0,140	0,000	***	-0,172	0,000	***	-0,244	0,000	***
mother's education - 4ª complete grade (reference category: up to 4ª incomplete grade)	0,512	0,056	.	0,216	0,000	***	0,246	0,000	***	0,258	0,000	***	0,310	0,000	***	0,142	0,000	***
mother's education - 8ª complete grade (reference category: up to 4ª incomplete grade)	0,223	0,272		0,236	0,000	***	0,378	0,000	***	0,348	0,000	***	0,265	0,000	***	0,301	0,000	***
mother's education - incomplete secondary education (reference category: up to 4ª incomplete grade)	0,642	0,367		0,293	0,000	***	0,038	0,400		0,255	0,000	***	0,350	0,000	***	0,277	0,000	***
mother's education - complete secondary education (reference category: up to 4ª incomplete grade)	-0,468	0,529		-0,119	0,095	.	0,180	0,000	***	0,108	0,032	*	0,192	0,000	***	-0,044	0,022	*
mother's education - incomplete higher education (reference category: up to 4ª incomplete grade)	0,580	0,596		0,468	0,000	***	0,335	0,000	***	0,392	0,000	***	0,549	0,000	***	0,862	0,000	***
mother's education - complete higher education (reference category: up to 4ª incomplete grade)	0,338	0,814		-0,217	0,067	.	0,090	0,106		0,237	0,000	***	0,228	0,000	***	0,076	0,006	**
age	2,251	0,282		0,919	0,000	***	0,641	0,000	***	0,474	0,010	**	0,657	0,000	***	0,622	0,000	***
rural residence	-0,279	0,498		-0,158	0,001	***	-0,275	0,000	***	-0,246	0,000	***	-0,100	0,000	***	-0,147	0,000	***
per capita household income (LN)	0,391	0,003	**	0,389	0,000	***	0,594	0,000	***	0,570	0,000	***	0,974	0,000	***	0,918	0,000	***
single-parent family	0,114	0,775		-0,171	0,000	***	-0,283	0,000	***	-0,261	0,000	***	-0,319	0,000	***	-0,206	0,000	***
number of siblings	0,040	0,441		0,009	0,145		-0,019	0,000	***	-0,026	0,000	***	0,011	0,056	.	-0,024	0,000	***
eldest (indicator)	0,357	0,103		0,061	0,007	**	0,146	0,000	***	0,104	0,000	***	0,174	0,000	***	0,132	0,000	***
race - black (reference category: white)	-0,432	0,668					0,590	0,000	***	0,426	0,000	***	0,595	0,000	***	0,523	0,000	***
race - brown (reference category: white)	-1,879	0,097	.				0,129	0,002	**	-0,023	0,624		0,089	0,005	**	0,134	0,000	***
region - Northeast (reference category: Southeast)	0,826	0,000	***	0,048	0,054	.	-0,135	0,000	***	-0,383	0,000	***	-0,008	0,623		0,076	0,000	***
region - North (reference category: Southeast)	0,288	0,644		0,242	0,000	***	-0,494	0,000	***	-0,614	0,000	***	-0,295	0,000	***	-0,013	0,514	
region - South(reference category: Southeast)	-0,108	0,660		0,257	0,000	***	-0,002	0,893		0,014	0,441		0,285	0,000	***	0,097	0,000	***
region - Midwest (reference category: Southeast)	0,996	0,187		0,231	0,000	***	-0,382	0,000	***	-0,373	0,000	***	0,203	0,000	***	0,309	0,000	***
sex (woman = 1)	1,056	0,000	***	-0,644	0,000	***	0,189	0,000	***	0,393	0,000	***	0,537	0,000	***	0,782	0,000	***

*** p<0,001; **p<0,01; *p<0,05; .p<0,1.

Source: Author's elaboration on IBGE demographic censuses (1960, 1970, 1980, 1991, 2000, 2010).

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